Radiation Assured Devices
5017 N. 30th Street
Colorado Springs, CO 80919
(719) 531-0800

Enhanced Low Dose Rate Sensitivity (ELDRS) Radiation Testing of the RH1499MW Quad Precision Op Amp for Linear Technology

Customer: Linear Technology (PO# 49797L)

RAD Job Number: 08-133

Part Type Tested: Linear Technology RH1499MW Quad Precision Op Amp

Commercial Part Number: RH1499MW

Traceability Information: Lot Date Code: 0731A, FAB W10737593.1, Wafer 19, LOT 447411.1 (Obtained from Linear Technology PO 49797L). See photograph of unit under test in Appendix A.

Quantity of Units: 11 units total, 5 units for biased irradiation, 5 units for unbiased irradiation and 1 control unit. Serial numbers 866-870 were biased during irradiation, serial numbers 871-874 and 876 were unbiased during irradiation and serial number 877 was used as the control. See Appendix B for the radiation bias connection table.

External Traveler: None Required

Pre-Irradiation Burn-In: Burn-In performed by Linear Technology prior to receipt by RAD.

TID Dose Rate and Test Increments: 10mrad(Si)/s with readings at pre-irradiation, 10, 20, 30 and 50krad(Si).

TID Overtest and Post-Irradiation Anneal: No overtest. 24-hour room temperature anneal followed by a 168-hour 100°C anneal. Both anneals shall be performed in the same electrical bias condition as the irradiations. Electrical measurements shall be made following each anneal increment.

TID Test Standard: MIL-STD-883G, Method 1019.7, Condition D

TID Electrical Test Conditions: Pre-irradiation, and within one hour following each radiation exposure.

Test Hardware: LTS2020 Tester, 2101 Family Board, 0600 Fixture and RH1499 BGSS-061114 DUT Board

Facility and Radiation Source: Radiation Assured Devices Longmire Laboratories, Colorado Springs, CO using the GB-150 low dose rate Co60 source. Dosimetry performed by CaF TLDs traceable to NIST. RAD's dosimetry has been audited by DSCC and RAD has been awarded Laboratory Suitability for MIL-STD-750 TM 1019.5

Irradiation and Test Temperature: All irradiations and electrical tests performed at room temperature controlled to 24°C ± 6°C per MIL STD 883.

ELDRS Test Result: PASSED to 30krad(Si) but FAILED at 50krad(Si) due to degradation of the output voltage swing and short circuit current for the single-sided 3V supply condition and the power supply rejection ratio at the single-sided 2.2V to 12V supply range

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1.0. Overview and Background

It is well known that total dose ionizing radiation can cause parametric degradation and ultimately functional failure in electronic devices. The damage occurs via electron-hole pair production, transport and trapping in the dielectric regions. In advanced CMOS technology nodes (0.6μm and smaller) the bulk of the damage is manifested in the thicker isolation regions, such as shallow trench or local oxidation of silicon (LOCOS) oxides (also known as "birds-beak" oxides). However, many linear and mixed signal devices that utilize bipolar minority carrier elements exhibit an enhanced low dose rate sensitivity (ELDRS). At this time there is no known or accepted *a priori* method for predicting susceptibility to ELDRS or simulating the low dose rate sensitivity with a "conventional" room temperature 50-300rad(Si)/s irradiation (Condition A in MIL-STD-883G TM 1019.7). Over the past 10 years a number of accelerating techniques have been examined, including an elevated temperature anneal, such as that used for MOS devices (see ASTM-F-1892 for more technical details) and irradiating at various temperatures. However, none of these techniques have proven useful across the wide variety of linear and/or mixed signal devices used in spaceborne applications.

The latest requirement incorporated in MIL-STD-883G TM 1019.7 requires that devices that could potentially exhibit ELDRS "shall be tested either at the intended application dose rate, at a prescribed low dose rate to an overtest radiation level, or with an accelerated test such as an elevated temperature irradiation test that includes a parameter delta design margin". While the recently released MIL-STD-883 TM 1019.7 allows for accelerated testing, the requirements for this are to essentially perform a low dose rate ELDRS test to verify the suitability of the acceleration method on the component of interest before the acceleration technique can be instituted. Based on the limitations of accelerated testing and to meet the requirements of MIL-STD-883G TM 1019.7 Condition D, we have performed an ELDRS test at 10mrad(Si)/s.

2.0. Radiation Test Apparatus

The ELDRS testing described in this final report was performed using the facilities at Radiation Assured Devices' Longmire Laboratories in Colorado Springs, CO. The ELDRS source is a GB-150 irradiator modified to provide a panoramic exposure. The Co-60 rods are held in the base of the irradiator heavily shielded by lead. During the irradiation exposures the rod is raised by an electronic timer/controller and the exposure is performed in air. The dose rate for this irradiator in this configuration ranges from approximately 1mrad(Si)/s to a maximum of approximately 50rad(Si)/s as determined by the distance from the source. For the low dose rate ELDRS testing described in this report, the devices are placed approximately 2-meters from the Co-60 rods. The irradiator calibration is maintained by Radiation Assured Devices' Longmire Laboratories using thermoluminescent dosimeters (TLDs) traceable to the National Institute of Standards and Technology (NIST). Figure 2.1 shows a photograph of the Co-60 irradiator at RAD's Longmire Laboratory facility.

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Figure 2.1. Radiation Assured Devices' Co-60 irradiator. The dose rate is obtained by positioning the device-under-test at a fixed distance from the gamma cell. The dose rate for this irradiator varies from approximately 50rad(Si)/s close to the rods down to <1mrad(Si)/s at a distance of approximately 4-meters.

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3.0. Radiation Test Conditions

The RH1499MW Quad operational amplifier described in this final report was irradiated using two bias conditions, statically biased with a split 15V supply and all pins tied to ground, see Appendix A for details on biasing conditions during the radiation exposure. These devices were irradiated to a maximum total ionizing dose level of 50krad(Si) with incremental readings at 10, 20, 30 and 50krad(Si). Electrical testing occurred within one hour following the end of each irradiation segment. For intermediate irradiations, the units were tested and returned to total dose exposure within two hours from the end of the previous radiation increment. The ELDRS bias board was positioned in the Co-60 cell to provide the required 10mrad(Si)/s and was located inside a lead-aluminum box. The lead-aluminum box is required under MIL-STD-883G TM1019.7 Section 3.4 that reads as follows: "Lead/Aluminum (Pb/Al) container. Test specimens shall be enclosed in a Pb/Al container to minimize dose enhancement effects caused by low-energy, scattered radiation. A minimum of 1.5 mm Pb, surrounding an inner shield of at least 0.7 mm Al, is required. This Pb/Al container produces an approximate charged particle equilibrium for Si and for TLDs such as CaF2. The radiation field intensity shall be measured inside the Pb/Al container (1) initially, (2) when the source is changed, or (3) when the orientation or configuration of the source, container, or test-fixture is changed. This measurement shall be performed by placing a dosimeter (e.g., a TLD) in the device-irradiation container at the approximate test-device position. If it can be demonstrated that low energy scattered radiation is small enough that it will not cause dosimetry errors due to dose enhancement, the Pb/Al container may be omitted".

The final dose rate within the lead-aluminum box was determined based on TLD dosimetry measurements just prior to the beginning of the total dose irradiations. The final dose rate for this work was 10.0mrad(Si)/s with a precision of ±5%.

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4.0. Tested Parameters

During the radiation lot acceptance testing the following pre- and post-irradiation electrical parameters were measured (note that the full set of test conditions for the parameters listed below are shown in Appendix B):

Measured parameters and test conditions for V_S=±15V:

1. Positive Supply Current
2. Negative Supply Current
3. Input Offset Voltage (Op Amp 1-4)
4. Input Offset Current (Op Amp 1-4)
5. + Input Bias Current (Op Amp 1-4)
6. - Input Bias Current (Op Amp 1-4)
7. Input Offset Voltage (Op Amp 1-4)
8. Input Offset Current (Op Amp 1-4)
9. + Input Bias Current (Op Amp 1-4)
10. - Input Bias Current (Op Amp 1-4)
11. Input Offset Voltage (Op Amp 1-4)
12. Input Offset Current (Op Amp 1-4)
13. + Input Bias Current (Op Amp 1-4)
14. - Input Bias Current (Op Amp 1-4)
15. Large Signal Voltage Gain (Op Amp 1-4)
16. Large Signal Voltage Gain (Op Amp 1-4)
17. CMRR (Op Amp 1-4)
18. CMRR Matching 1-4
19. CMRR Matching 2-3
20. PSRR (Op Amp 1-4)
21. PSRR Matching 1-4
22. PSRR Matching 2-3
23. Output Voltage Swing High (Op Amp 1-4)
24. Output Voltage Swing High (Op Amp 1-4)
25. Output Voltage Swing High (Op Amp 1-4)
26. Output Voltage Swing Low (Op Amp 1-4)
27. Output Voltage Swing Low (Op Amp 1-4)
28. Output Voltage Swing Low (Op Amp 1-4)
29. +VS Short-Circuit Current (Op Amp 1-4)
30. -VS Short-Circuit Current (Op Amp 1-4)

Measured parameters and test conditions for VS=3V:

31. Positive Supply Current

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32. Negative Supply Current
33. Input Offset Voltage (Op Amp 1-4)
34. Input Offset Current (Op Amp 1-4)
35. + Input Bias Current (Op Amp 1-4)
36. - Input Bias Current (Op Amp 1-4)
37. Input Offset Voltage (Op Amp 1-4)
38. Input Offset Current (Op Amp 1-4)
39. + Input Bias Current (Op Amp 1-4)
40. - Input Bias Current (Op Amp 1-4)
41. Large Signal Voltage Gain (Op Amp 1-4)
42. CMRR (Op Amp 1-4)
43. CMRR Matching 1-4
44. CMRR Matching 2-3
45. Output Voltage Swing High (Op Amp 1-4)
46. Output Voltage Swing High (Op Amp 1-4)
47. Output Voltage Swing High (Op Amp 1-4)
48. Output Voltage Swing Low (Op Amp 1-4)
49. Output Voltage Swing Low (Op Amp 1-4)
50. Output Voltage Swing Low (Op Amp 1-4)
51. +VS Short-Circuit Current (Op Amp 1-4)
52. -VS Short-Circuit Current (Op Amp 1-4)

Measured parameters and test conditions for VS=5V:

53. Positive Supply Current
54. Negative Supply Current
55. Input Offset Voltage (Op Amp 1-4)
56. Input Offset Voltage (Op Amp 1-4)
57. Input Offset Current (Op Amp 1-4)
58. Input Offset Current (Op Amp 1-4)
59. + Input Bias Current (Op Amp 1-4)
60. + Input Bias Current (Op Amp 1-4)
61. - Input Bias Current (Op Amp 1-4)
62. - Input Bias Current (Op Amp 1-4)
63. Large Signal Voltage Gain (Op Amp 1-4)
64. CMRR (Op Amp 1-4)
65. CMRR Matching 1-4
66. CMRR Matching 2-3
67. PSRR (Op Amp 1-4)
68. PSRR Matching 1-4
69. PSRR Matching 2-3

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70. Output Voltage Swing High (Op Amp 1-4)
71. Output Voltage Swing High (Op Amp 1-4)
72. Output Voltage Swing High (Op Amp 1-4)
73. Output Voltage Swing Low (Op Amp 1-4)
74. Output Voltage Swing Low (Op Amp 1-4)
75. Output Voltage Swing Low (Op Amp 1-4)
76. +VS Short Circuit Current (Op Amp 1-4)
77. -VS Short Circuit Current (Op Amp 1-4)

Appendix C details the measured parameters, test conditions, pre-irradiation specification and measurement resolution for each of the measurements.

The parametric data was obtained as "read and record" and all the raw data plus an attributes summary are contained in this report as well as in a separate Excel file. The attributes data contains the average, standard deviation and the average with the KTL values applied. The KTL values used is 2.742 per MIL HDBK 814 using one sided tolerance limits of 90/90 and a 5-piece sample size. This survival probability/level of confidence is consistent with a 22-piece sample size and zero failures analyzed using a lot tolerance percent defective (LTPD) approach. Note that the following criteria must be met for a device to pass the ELDRS testing: following the radiation exposure the unit shall pass the specification value and the average value for the each device must pass the specification value when the KTL limits are applied. If either of these conditions is not satisfied following the radiation exposure, then the lot could be logged as an RLAT failure.

Further, MIL-STD-883G, TM 1019.7 Section 3.13.1.1 Characterization test to determine if a part exhibits ELDRS" states the following: Select a minimum random sample of 21 devices from a population representative of recent production runs. Smaller sample sizes may be used if agreed upon between the parties to the test. All of the selected devices shall have undergone appropriate elevated temperature reliability screens, e.g. burn-in and high temperature storage life. Divide the samples into four groups of 5 each and use the remaining part for a control. Perform pre-irradiation electrical characterization on all parts assuring that they meet the Group A electrical tests. Irradiate 5 samples under a 0 volt bias and another 5 under the irradiation bias given in the acquisition specification at 50-300 rad(Si)/s and room temperature. Irradiate 5 samples under a 0 volt bias and another 5 under irradiation bias given in the acquisition specification at < 10mrad(Si)/s and room temperature. Irradiate all samples to the same dose levels, including 0.5 and 1.0 times the anticipated specification dose, and repeat the electrical characterization on each part at each dose level. Post irradiation electrical measurements shall be performed per paragraph 3.10 where the low dose rate test is considered Condition D. Calculate the radiation induced change in each electrical parameter (Δpara) for each sample at each radiation level. Calculate the ratio of the median Δpara at low dose rate to the median Δpara at high dose rate for each irradiation bias group at each total dose level. If this ratio exceeds 1.5 for any of the most sensitive parameters then the part is considered to be ELDRS susceptible. This test

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does not apply to parameters which exhibit changes that are within experimental error or whose values are below the pre-irradiation electrical specification limits at low dose rate at the specification dose.

Therefore, the data in this report can be analyzed along with the high dose rate report titled "Radiation Lot Acceptance Test (RLAT) of the RH1499MW Quad Operational Amplifier for Linear Technology" to demonstrate that these parts do not exhibit ELDRS as defined in the current test method.

5.0. ELDRS Test Results

Using the conditions stated above, the RH1499MW devices passed the ELDRS test to 30krad(Si) but failed at 50krad(Si) due to degradation of the output voltage swing and short circuit current for the single-sided 3V supply condition and power supply rejection ratio at the single-sided 2.2V to 12V supply range. Most measured parameters showed no significant degradation with radiation and all parameters passed to 50krad(Si) when tested using the 15V split supply condition.

Figures 5.1 through 5.268 show plots of all the measured parameters versus total ionizing dose. In the data plots the solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated in the biased condition while the shaded lines (solid or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

Tables 5.1 through 5.268 show the raw data, averages, standard deviation, +KTL statistics, -KTL statistics, specification limit and Pass/Fail condition for each parameter. Appendix D provides a list of all the figures in this results section to facilitate the location of a particular parameter.

As seen clearly in these tables and figures, the pre- and post-irradiation data are well within the specification even after application of the KTL statistics (with certain exceptions, as noted below). The control units, as expected, show no significant changes to any of the parameters. Therefore we can conclude that the electrical testing remained under control during the course of the testing.

Note that the testing and statistics used in this document are based on an "analysis of variables" technique, which relies on small sample sizes to qualify much larger lot sizes (see MIL-HDBK-814, p. 91 for a discussion of statistical treatments). Unfortunately, not all measured parameters are well suited to this approach due to inherent large variations. The parameters measured in this report where the pre-irradiation KTL values are out of specification include Common Mode Rejection Ratio, Power Supply Rejection Ratio and Open Loop Gain, where the device exhibits extreme sensitivity to input conditions, resulting in a very large standard deviation and a statistical error often greater than the measured value. If necessary, larger samples sizes could be used to qualify these parameters using an "attributes" approach.

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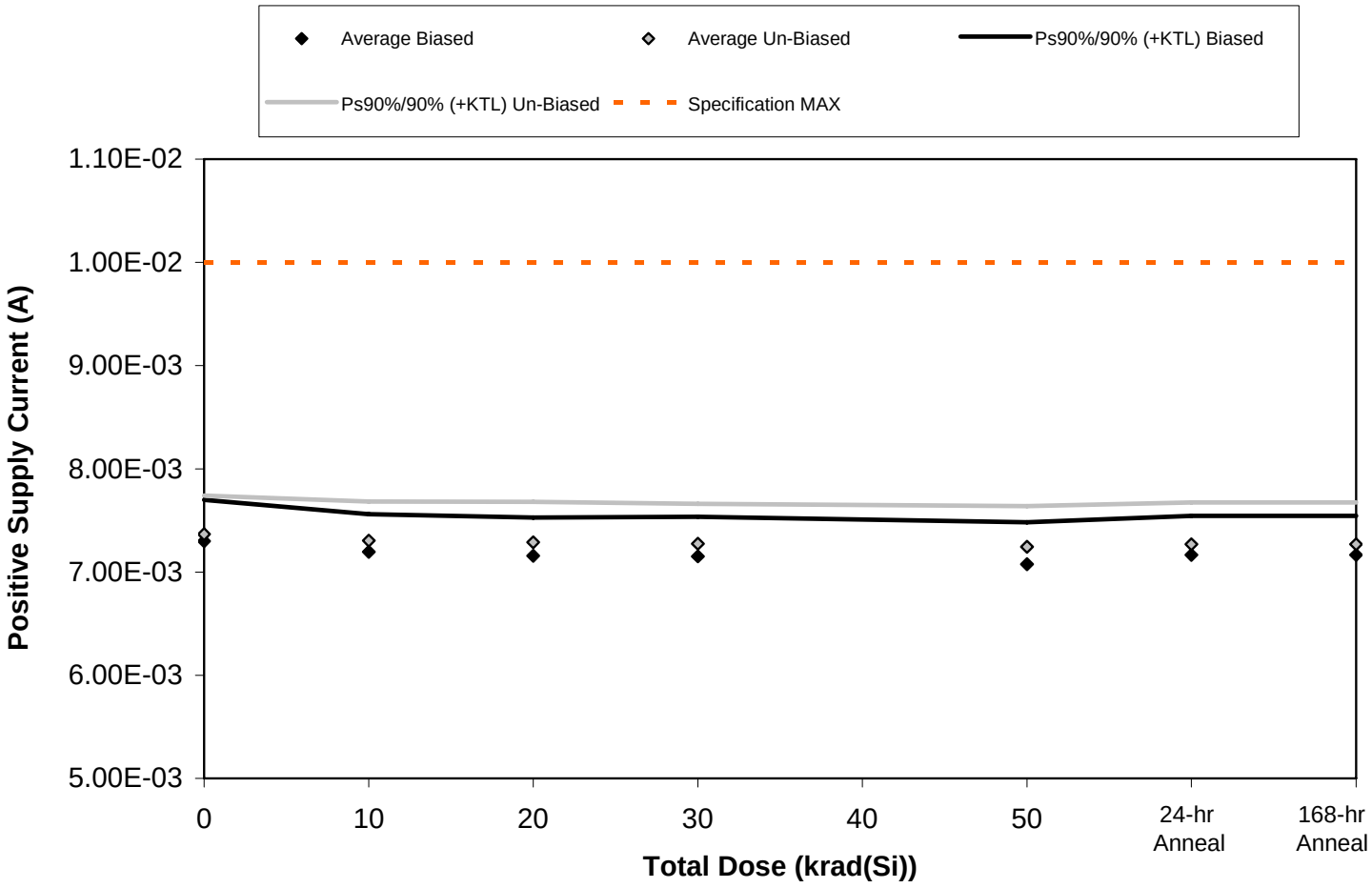

Figure 5.1. Plot of Positive Supply Current (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.1. Raw data for Positive Supply Current (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Supply Current (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.46E-03	7.20E-03	7.15E-03	7.15E-03	7.05E-03	7.16E-03	7.16E-03
867	7.29E-03	7.26E-03	7.22E-03	7.22E-03	7.15E-03	7.24E-03	7.24E-03
868	7.41E-03	7.35E-03	7.32E-03	7.32E-03	7.26E-03	7.33E-03	7.33E-03
869	7.09E-03	6.99E-03	6.95E-03	6.94E-03	6.86E-03	6.96E-03	6.96E-03
870	7.24E-03	7.18E-03	7.14E-03	7.13E-03	7.06E-03	7.14E-03	7.14E-03
871	7.29E-03	7.23E-03	7.22E-03	7.20E-03	7.17E-03	7.19E-03	7.19E-03
872	7.38E-03	7.32E-03	7.30E-03	7.29E-03	7.25E-03	7.28E-03	7.28E-03
873	7.58E-03	7.52E-03	7.51E-03	7.49E-03	7.47E-03	7.50E-03	7.50E-03
874	7.22E-03	7.15E-03	7.12E-03	7.11E-03	7.08E-03	7.10E-03	7.10E-03
876	7.37E-03	7.30E-03	7.29E-03	7.28E-03	7.25E-03	7.27E-03	7.27E-03
877	7.29E-03	7.25E-03	7.24E-03	7.25E-03	7.26E-03	7.23E-03	7.23E-03
Biased Statistics							
Average Biased	7.30E-03	7.20E-03	7.16E-03	7.15E-03	7.08E-03	7.17E-03	7.17E-03
Std Dev Biased	1.46E-04	1.33E-04	1.36E-04	1.40E-04	1.47E-04	1.37E-04	1.37E-04
Ps90%/90% (+KTL) Biased	7.70E-03	7.56E-03	7.53E-03	7.54E-03	7.48E-03	7.54E-03	7.54E-03
Ps90%/90% (-KTL) Biased	6.90E-03	6.83E-03	6.78E-03	6.77E-03	6.67E-03	6.79E-03	6.79E-03
Un-Biased Statistics							
Average Un-Biased	7.37E-03	7.30E-03	7.29E-03	7.27E-03	7.24E-03	7.27E-03	7.27E-03
Std Dev Un-Biased	1.35E-04	1.38E-04	1.43E-04	1.41E-04	1.44E-04	1.49E-04	1.49E-04
Ps90%/90% (+KTL) Un-Biased	7.74E-03	7.68E-03	7.68E-03	7.66E-03	7.64E-03	7.68E-03	7.68E-03
Ps90%/90% (-KTL) Un-Biased	7.00E-03	6.93E-03	6.89E-03	6.89E-03	6.85E-03	6.86E-03	6.86E-03
Specification MAX	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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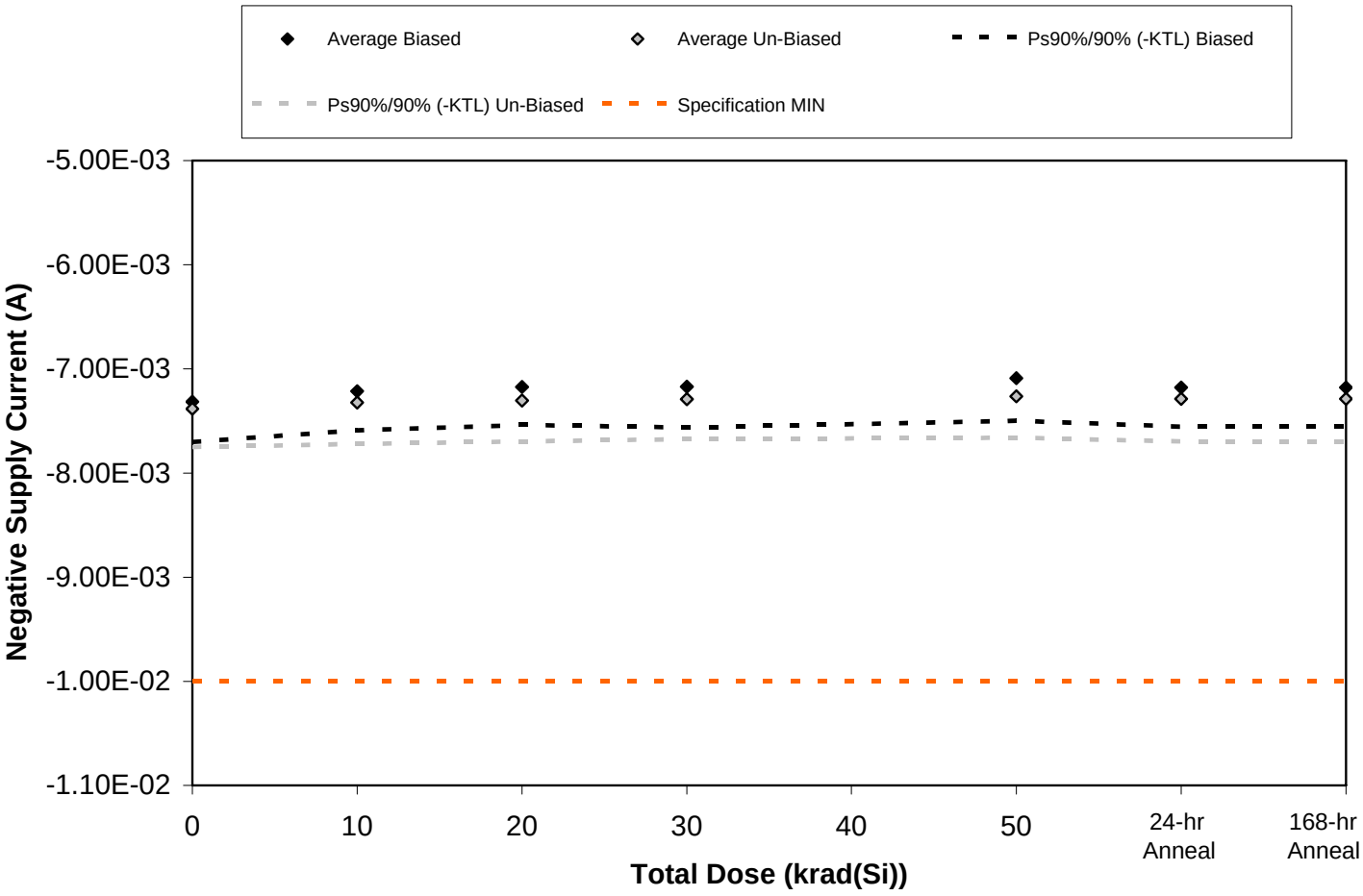

Figure 5.2. Plot of Negative Supply Current (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.2. Raw data for Negative Supply Current (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Supply Current (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-7.47E-03	-7.22E-03	-7.17E-03	-7.17E-03	-7.07E-03	-7.17E-03	-7.17E-03
867	-7.31E-03	-7.28E-03	-7.24E-03	-7.24E-03	-7.17E-03	-7.25E-03	-7.25E-03
868	-7.42E-03	-7.37E-03	-7.33E-03	-7.34E-03	-7.27E-03	-7.34E-03	-7.34E-03
869	-7.11E-03	-7.00E-03	-6.97E-03	-6.95E-03	-6.87E-03	-6.97E-03	-6.97E-03
870	-7.26E-03	-7.20E-03	-7.16E-03	-7.15E-03	-7.07E-03	-7.16E-03	-7.16E-03
871	-7.31E-03	-7.25E-03	-7.24E-03	-7.22E-03	-7.19E-03	-7.21E-03	-7.21E-03
872	-7.40E-03	-7.34E-03	-7.31E-03	-7.30E-03	-7.28E-03	-7.30E-03	-7.30E-03
873	-7.59E-03	-7.55E-03	-7.53E-03	-7.51E-03	-7.49E-03	-7.52E-03	-7.52E-03
874	-7.23E-03	-7.16E-03	-7.14E-03	-7.13E-03	-7.10E-03	-7.12E-03	-7.12E-03
876	-7.38E-03	-7.32E-03	-7.30E-03	-7.29E-03	-7.26E-03	-7.29E-03	-7.29E-03
877	-7.31E-03	-7.26E-03	-7.26E-03	-7.28E-03	-7.28E-03	-7.25E-03	-7.25E-03
Biased Statistics							
Average Biased	-7.31E-03	-7.21E-03	-7.17E-03	-7.17E-03	-7.09E-03	-7.18E-03	-7.18E-03
Std Dev Biased	1.42E-04	1.37E-04	1.33E-04	1.44E-04	1.48E-04	1.37E-04	1.37E-04
Ps90%/90% (+KTL) Biased	-6.93E-03	-6.84E-03	-6.81E-03	-6.78E-03	-6.68E-03	-6.80E-03	-6.80E-03
Ps90%/90% (-KTL) Biased	-7.70E-03	-7.59E-03	-7.54E-03	-7.56E-03	-7.50E-03	-7.55E-03	-7.55E-03
Un-Biased Statistics							
Average Un-Biased	-7.38E-03	-7.32E-03	-7.30E-03	-7.29E-03	-7.26E-03	-7.29E-03	-7.29E-03
Std Dev Un-Biased	1.34E-04	1.45E-04	1.43E-04	1.41E-04	1.45E-04	1.49E-04	1.49E-04
Ps90%/90% (+KTL) Un-Biased	-7.01E-03	-6.93E-03	-6.91E-03	-6.90E-03	-6.87E-03	-6.88E-03	-6.88E-03
Ps90%/90% (-KTL) Un-Biased	-7.75E-03	-7.72E-03	-7.70E-03	-7.68E-03	-7.66E-03	-7.70E-03	-7.70E-03
Specification MIN	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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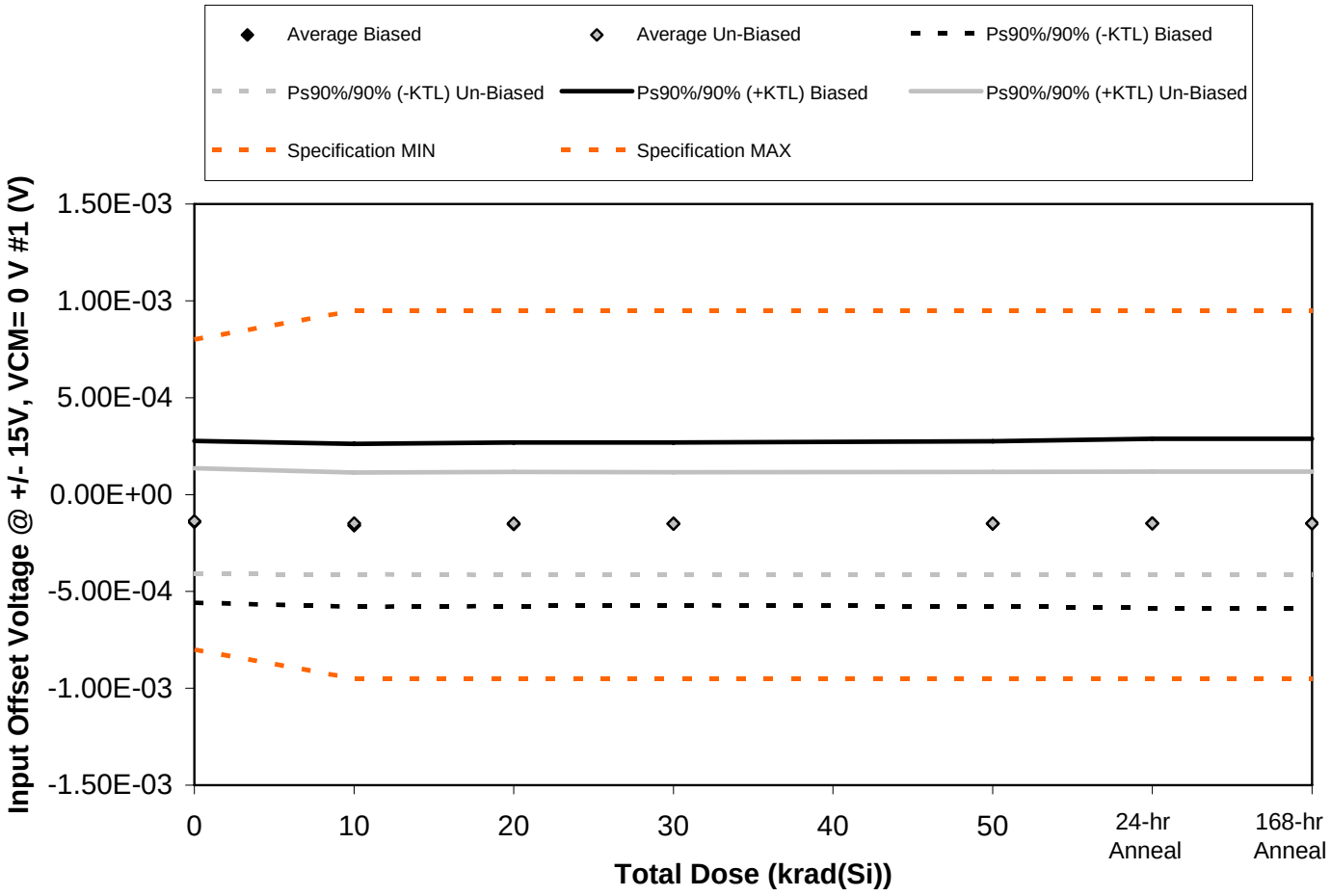

Figure 5.3. Plot of Input Offset Voltage @ +/- 15V, VCM= 0 V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.3. Raw data for Input Offset Voltage @ +/- 15V, VCM= 0 V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= 0 V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-1.92E-04	-2.02E-04	-1.87E-04	-1.79E-04	-1.78E-04	-1.76E-04	-1.76E-04
867	-5.71E-05	-7.85E-05	-8.44E-05	-8.89E-05	-9.41E-05	-9.22E-05	-9.22E-05
868	-3.37E-04	-3.57E-04	-3.54E-04	-3.54E-04	-3.60E-04	-3.61E-04	-3.61E-04
869	6.50E-05	5.09E-05	6.25E-05	6.41E-05	6.73E-05	7.73E-05	7.73E-05
870	-1.86E-04	-2.08E-04	-2.03E-04	-1.95E-04	-1.91E-04	-1.90E-04	-1.90E-04
871	-1.77E-04	-1.88E-04	-1.86E-04	-1.91E-04	-1.89E-04	-1.87E-04	-1.87E-04
872	-2.69E-04	-2.77E-04	-2.81E-04	-2.81E-04	-2.79E-04	-2.78E-04	-2.78E-04
873	-9.02E-06	-2.78E-05	-2.74E-05	-3.19E-05	-2.90E-05	-2.70E-05	-2.70E-05
874	-1.55E-04	-1.65E-04	-1.65E-04	-1.65E-04	-1.68E-04	-1.68E-04	-1.68E-04
876	-7.59E-05	-8.77E-05	-8.61E-05	-8.32E-05	-8.25E-05	-8.16E-05	-8.16E-05
877	-3.73E-04	-3.74E-04	-3.75E-04	-3.75E-04	-3.75E-04	-3.76E-04	-3.76E-04
Biased Statistics							
Average Biased	-1.41E-04	-1.59E-04	-1.53E-04	-1.51E-04	-1.51E-04	-1.48E-04	-1.48E-04
Std Dev Biased	1.52E-04	1.53E-04	1.54E-04	1.53E-04	1.55E-04	1.59E-04	1.59E-04
Ps90%/90% (+KTL) Biased	2.76E-04	2.61E-04	2.70E-04	2.70E-04	2.75E-04	2.89E-04	2.89E-04
Ps90%/90% (-KTL) Biased	-5.59E-04	-5.79E-04	-5.76E-04	-5.71E-04	-5.77E-04	-5.86E-04	-5.86E-04
Un-Biased Statistics							
Average Un-Biased	-1.37E-04	-1.49E-04	-1.49E-04	-1.50E-04	-1.49E-04	-1.48E-04	-1.48E-04
Std Dev Un-Biased	9.94E-05	9.56E-05	9.70E-05	9.68E-05	9.71E-05	9.74E-05	9.74E-05
Ps90%/90% (+KTL) Un-Biased	1.35E-04	1.13E-04	1.17E-04	1.15E-04	1.17E-04	1.19E-04	1.19E-04
Ps90%/90% (-KTL) Un-Biased	-4.10E-04	-4.11E-04	-4.15E-04	-4.16E-04	-4.16E-04	-4.15E-04	-4.15E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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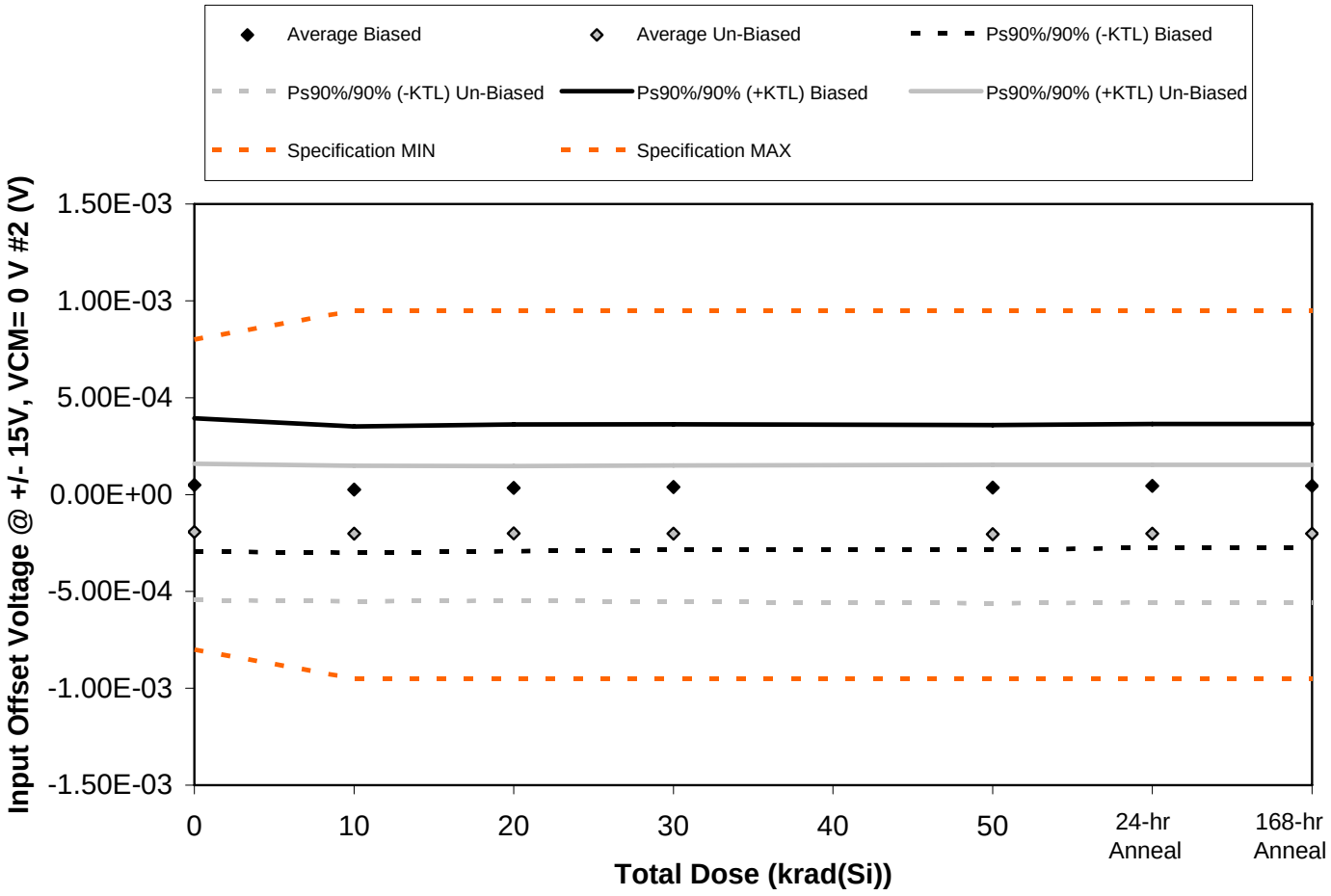

Figure 5.4. Plot of Input Offset Voltage @ +/- 15V, VCM= 0 V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.4. Raw data for Input Offset Voltage @ +/- 15V, VCM= 0 V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= 0 V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.11E-04	1.70E-04	1.85E-04	1.87E-04	1.83E-04	1.94E-04	1.94E-04
867	-2.28E-05	-4.27E-05	-3.46E-05	-3.02E-05	-3.05E-05	-2.75E-05	-2.75E-05
868	1.25E-04	1.13E-04	1.18E-04	1.22E-04	1.23E-04	1.28E-04	1.28E-04
869	-1.11E-04	-1.27E-04	-1.14E-04	-1.10E-04	-1.09E-04	-9.61E-05	-9.61E-05
870	4.59E-05	1.74E-05	1.73E-05	2.43E-05	1.56E-05	2.76E-05	2.76E-05
871	-2.39E-04	-2.53E-04	-2.53E-04	-2.54E-04	-2.58E-04	-2.54E-04	-2.54E-04
872	1.06E-05	4.87E-06	5.11E-06	6.07E-06	6.44E-06	7.40E-06	7.40E-06
873	-2.06E-04	-2.16E-04	-2.13E-04	-2.13E-04	-2.16E-04	-2.15E-04	-2.15E-04
874	-3.42E-04	-3.41E-04	-3.40E-04	-3.41E-04	-3.48E-04	-3.45E-04	-3.45E-04
876	-1.88E-04	-2.01E-04	-2.02E-04	-2.03E-04	-2.04E-04	-2.03E-04	-2.03E-04
877	-3.55E-04	-3.59E-04	-3.59E-04	-3.59E-04	-3.62E-04	-3.63E-04	-3.63E-04
Biased Statistics							
Average Biased	4.98E-05	2.61E-05	3.44E-05	3.87E-05	3.65E-05	4.51E-05	4.51E-05
Std Dev Biased	1.25E-04	1.19E-04	1.19E-04	1.18E-04	1.17E-04	1.17E-04	1.17E-04
Ps90%/90% (+KTL) Biased	3.93E-04	3.52E-04	3.62E-04	3.63E-04	3.58E-04	3.65E-04	3.65E-04
Ps90%/90% (-KTL) Biased	-2.94E-04	-3.00E-04	-2.93E-04	-2.85E-04	-2.85E-04	-2.75E-04	-2.75E-04
Un-Biased Statistics							
Average Un-Biased	-1.93E-04	-2.01E-04	-2.00E-04	-2.01E-04	-2.04E-04	-2.02E-04	-2.02E-04
Std Dev Un-Biased	1.28E-04	1.28E-04	1.27E-04	1.28E-04	1.30E-04	1.29E-04	1.29E-04
Ps90%/90% (+KTL) Un-Biased	1.59E-04	1.48E-04	1.48E-04	1.50E-04	1.54E-04	1.53E-04	1.53E-04
Ps90%/90% (-KTL) Un-Biased	-5.45E-04	-5.51E-04	-5.49E-04	-5.52E-04	-5.62E-04	-5.57E-04	-5.57E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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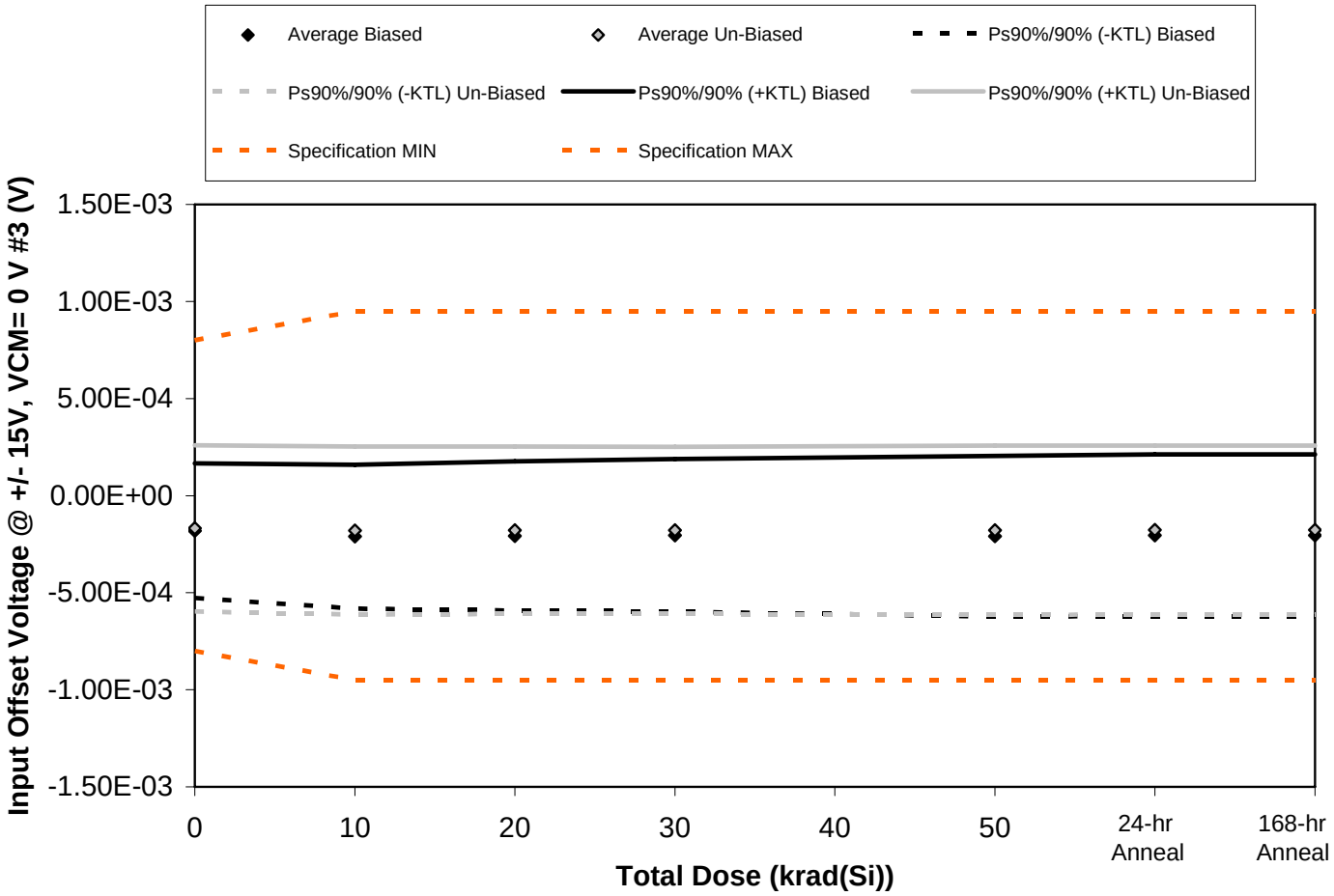

Figure 5.5. Plot of Input Offset Voltage @ +/- 15V, VCM= 0 V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.5. Raw data for Input Offset Voltage @ +/- 15V, VCM= 0 V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= 0 V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.52E-04	-2.90E-04	-2.90E-04	-2.92E-04	-3.02E-04	-2.98E-04	-2.98E-04
867	-3.29E-04	-3.60E-04	-3.61E-04	-3.61E-04	-3.72E-04	-3.67E-04	-3.67E-04
868	9.10E-06	-5.70E-07	1.14E-05	1.88E-05	2.71E-05	3.49E-05	3.49E-05
869	-1.51E-04	-2.00E-04	-1.94E-04	-1.95E-04	-2.01E-04	-1.99E-04	-1.99E-04
870	-1.81E-04	-2.05E-04	-2.01E-04	-1.93E-04	-2.00E-04	-1.95E-04	-1.95E-04
871	-2.33E-04	-2.48E-04	-2.49E-04	-2.49E-04	-2.53E-04	-2.52E-04	-2.52E-04
872	3.65E-05	2.90E-05	2.73E-05	2.72E-05	2.96E-05	3.03E-05	3.03E-05
873	-2.90E-04	-3.04E-04	-3.01E-04	-3.01E-04	-3.00E-04	-3.00E-04	-3.00E-04
874	-3.12E-04	-3.23E-04	-3.21E-04	-3.20E-04	-3.19E-04	-3.18E-04	-3.18E-04
876	-4.38E-05	-5.34E-05	-5.02E-05	-5.14E-05	-4.70E-05	-4.72E-05	-4.72E-05
877	-1.39E-04	-1.41E-04	-1.41E-04	-1.41E-04	-1.40E-04	-1.41E-04	-1.41E-04
Biased Statistics							
Average Biased	-1.81E-04	-2.11E-04	-2.07E-04	-2.05E-04	-2.09E-04	-2.05E-04	-2.05E-04
Std Dev Biased	1.26E-04	1.35E-04	1.40E-04	1.44E-04	1.51E-04	1.52E-04	1.52E-04
Ps90%/90% (+KTL) Biased	1.66E-04	1.59E-04	1.77E-04	1.89E-04	2.04E-04	2.12E-04	2.12E-04
Ps90%/90% (-KTL) Biased	-5.27E-04	-5.82E-04	-5.91E-04	-5.98E-04	-6.23E-04	-6.22E-04	-6.22E-04
Un-Biased Statistics							
Average Un-Biased	-1.69E-04	-1.80E-04	-1.79E-04	-1.79E-04	-1.78E-04	-1.77E-04	-1.77E-04
Std Dev Un-Biased	1.56E-04	1.58E-04	1.57E-04	1.57E-04	1.59E-04	1.59E-04	1.59E-04
Ps90%/90% (+KTL) Un-Biased	2.59E-04	2.54E-04	2.53E-04	2.51E-04	2.57E-04	2.57E-04	2.57E-04
Ps90%/90% (-KTL) Un-Biased	-5.96E-04	-6.13E-04	-6.10E-04	-6.09E-04	-6.13E-04	-6.12E-04	-6.12E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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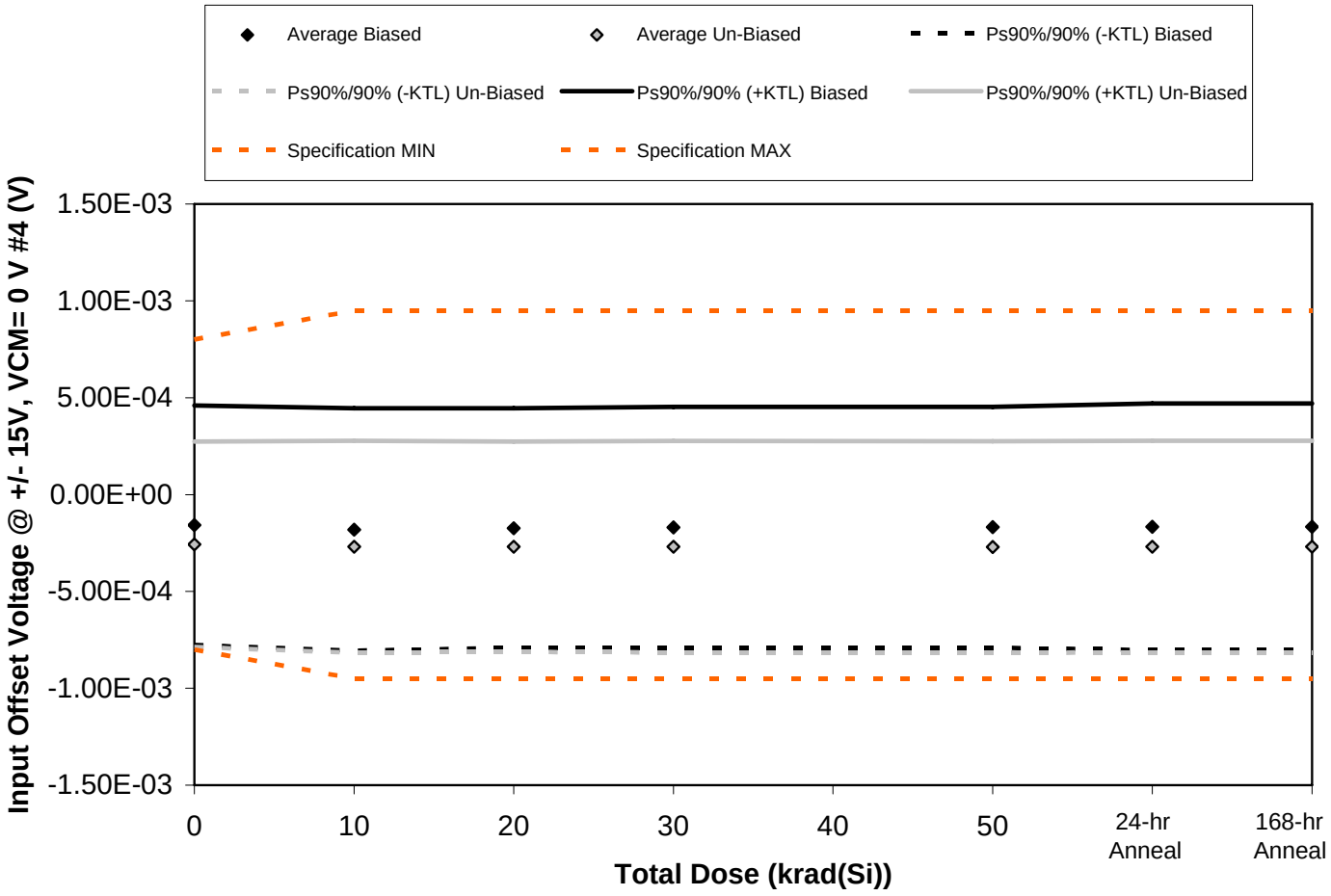

Figure 5.6. Plot of Input Offset Voltage @ +/- 15V, VCM= 0 V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.6. Raw data for Input Offset Voltage @ +/- 15V, VCM= 0 V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= 0 V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-8.60E-05	-1.20E-04	-1.10E-04	-1.03E-04	-9.70E-05	-9.00E-05	-9.00E-05
867	9.49E-05	8.25E-05	8.35E-05	8.57E-05	8.18E-05	9.18E-05	9.18E-05
868	-5.22E-04	-5.45E-04	-5.35E-04	-5.35E-04	-5.36E-04	-5.42E-04	-5.42E-04
869	-1.13E-04	-1.32E-04	-1.25E-04	-1.22E-04	-1.20E-04	-1.22E-04	-1.22E-04
870	-1.66E-04	-1.88E-04	-1.79E-04	-1.73E-04	-1.72E-04	-1.69E-04	-1.69E-04
871	-1.60E-04	-1.69E-04	-1.68E-04	-1.68E-04	-1.71E-04	-1.69E-04	-1.69E-04
872	-3.43E-04	-3.48E-04	-3.44E-04	-3.45E-04	-3.45E-04	-3.47E-04	-3.47E-04
873	-5.14E-04	-5.44E-04	-5.43E-04	-5.44E-04	-5.47E-04	-5.42E-04	-5.42E-04
874	1.13E-06	-1.01E-05	-1.19E-05	-1.01E-05	-1.20E-05	-7.70E-06	-7.70E-06
876	-2.70E-04	-2.75E-04	-2.77E-04	-2.79E-04	-2.79E-04	-2.78E-04	-2.78E-04
877	-1.91E-04	-1.98E-04	-1.96E-04	-1.96E-04	-1.97E-04	-1.99E-04	-1.99E-04
Biased Statistics							
Average Biased	-1.58E-04	-1.80E-04	-1.73E-04	-1.69E-04	-1.69E-04	-1.66E-04	-1.66E-04
Std Dev Biased	2.25E-04	2.28E-04	2.25E-04	2.27E-04	2.27E-04	2.32E-04	2.32E-04
Ps90%/90% (+KTL) Biased	4.60E-04	4.45E-04	4.45E-04	4.52E-04	4.53E-04	4.70E-04	4.70E-04
Ps90%/90% (-KTL) Biased	-7.77E-04	-8.06E-04	-7.91E-04	-7.91E-04	-7.90E-04	-8.03E-04	-8.03E-04
Un-Biased Statistics							
Average Un-Biased	-2.57E-04	-2.69E-04	-2.69E-04	-2.69E-04	-2.71E-04	-2.69E-04	-2.69E-04
Std Dev Un-Biased	1.93E-04	1.99E-04	1.98E-04	1.99E-04	1.99E-04	1.99E-04	1.99E-04
Ps90%/90% (+KTL) Un-Biased	2.73E-04	2.77E-04	2.74E-04	2.77E-04	2.75E-04	2.78E-04	2.78E-04
Ps90%/90% (-KTL) Un-Biased	-7.87E-04	-8.16E-04	-8.11E-04	-8.15E-04	-8.17E-04	-8.15E-04	-8.15E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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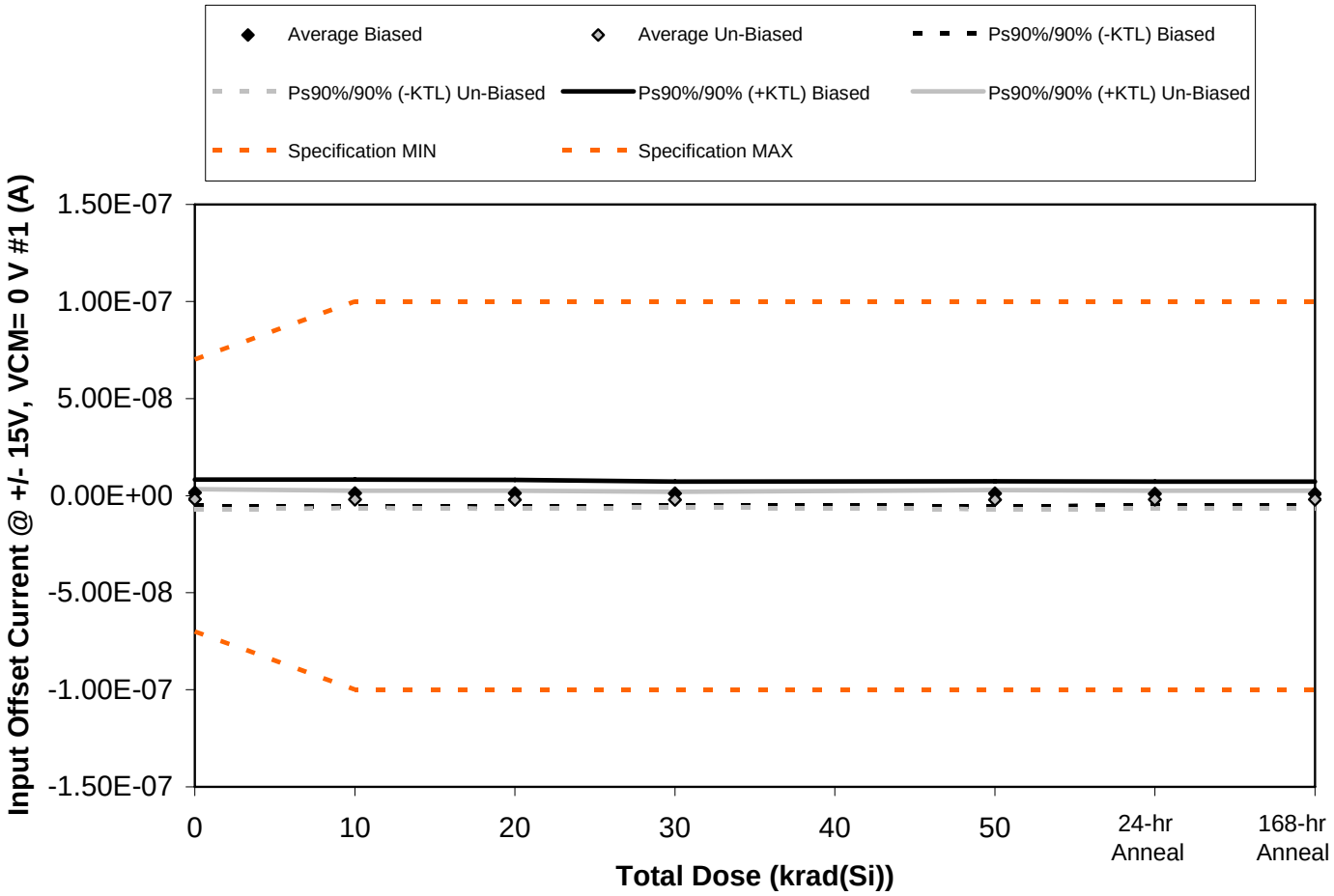

Figure 5.7. Plot of Input Offset Current @ +/- 15V, VCM= 0 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.7. Raw data for Input Offset Current @ +/- 15V, VCM= 0 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= 0 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.32E-09	1.28E-09	1.18E-09	1.20E-09	1.69E-09	1.63E-09	1.63E-09
867	4.45E-09	4.09E-09	4.09E-09	3.45E-09	3.25E-09	3.06E-09	3.06E-09
868	-1.23E-09	-1.77E-09	-1.83E-09	-1.59E-09	-2.04E-09	-2.02E-09	-2.02E-09
869	3.69E-09	3.51E-09	3.28E-09	3.13E-09	3.00E-09	3.03E-09	3.03E-09
870	-3.30E-10	-6.55E-10	-6.03E-10	-6.60E-10	-6.31E-10	-6.38E-10	-6.38E-10
871	-3.32E-09	-3.37E-09	-3.48E-09	-3.34E-09	-3.81E-09	-3.69E-09	-3.69E-09
872	1.01E-09	6.78E-10	6.60E-10	1.38E-10	6.09E-10	4.96E-10	4.96E-10
873	-1.24E-09	-1.70E-09	-1.96E-09	-1.29E-09	-1.26E-09	-1.24E-09	-1.24E-09
874	-3.74E-09	-3.19E-09	-3.44E-09	-3.31E-09	-3.26E-09	-3.24E-09	-3.24E-09
876	-2.03E-09	-2.29E-09	-2.29E-09	-2.52E-09	-2.75E-09	-2.56E-09	-2.56E-09
877	-1.24E-09	-1.17E-09	-1.21E-09	-1.23E-09	-1.20E-09	-1.24E-09	-1.24E-09
Biased Statistics							
Average Biased	1.58E-09	1.29E-09	1.22E-09	1.11E-09	1.05E-09	1.01E-09	1.01E-09
Std Dev Biased	2.47E-09	2.55E-09	2.51E-09	2.23E-09	2.31E-09	2.27E-09	2.27E-09
Ps90%/90% (+KTL) Biased	8.34E-09	8.28E-09	8.09E-09	7.23E-09	7.40E-09	7.23E-09	7.23E-09
Ps90%/90% (-KTL) Biased	-5.18E-09	-5.69E-09	-5.65E-09	-5.02E-09	-5.29E-09	-5.21E-09	-5.21E-09
Un-Biased Statistics							
Average Un-Biased	-1.87E-09	-1.98E-09	-2.10E-09	-2.06E-09	-2.09E-09	-2.05E-09	-2.05E-09
Std Dev Un-Biased	1.89E-09	1.63E-09	1.69E-09	1.49E-09	1.79E-09	1.70E-09	1.70E-09
Ps90%/90% (+KTL) Un-Biased	3.31E-09	2.49E-09	2.52E-09	2.02E-09	2.80E-09	2.60E-09	2.60E-09
Ps90%/90% (-KTL) Un-Biased	-7.04E-09	-6.44E-09	-6.73E-09	-6.14E-09	-6.99E-09	-6.70E-09	-6.70E-09
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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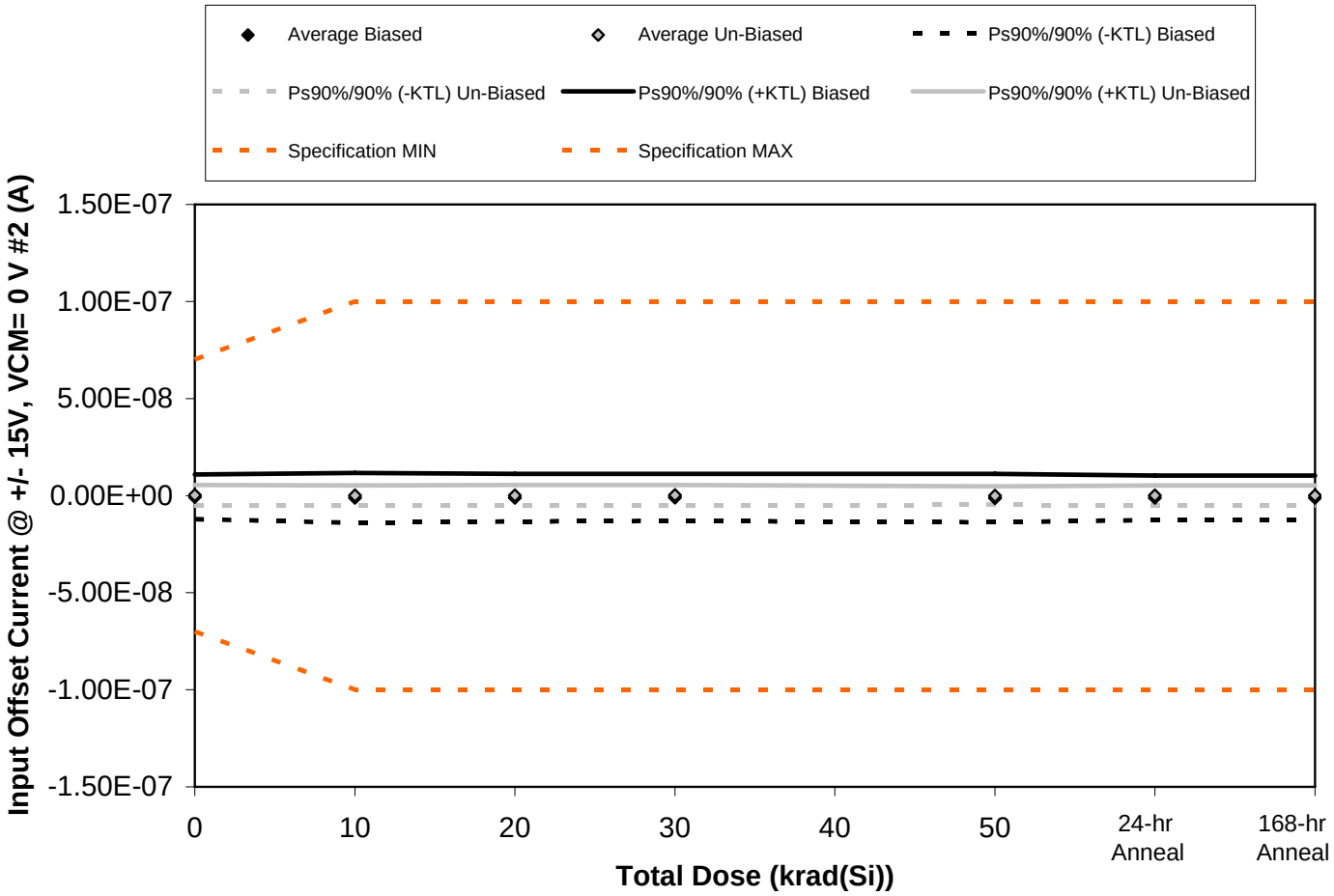

Figure 5.8. Plot of Input Offset Current @ +/- 15V, VCM= 0 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.8. Raw data for Input Offset Current @ +/- 15V, VCM= 0 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= 0 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-7.71E-09	-9.05E-09	-8.71E-09	-8.45E-09	-9.10E-09	-8.23E-09	-8.23E-09
867	-2.96E-10	-3.97E-10	-2.98E-10	-2.68E-10	-5.55E-10	-4.51E-10	-4.51E-10
868	1.03E-09	5.60E-10	5.06E-10	4.64E-10	9.90E-11	-4.50E-11	-4.50E-11
869	3.41E-09	3.37E-09	3.07E-09	3.17E-09	2.75E-09	2.76E-09	2.76E-09
870	4.34E-10	-1.52E-10	6.00E-12	5.07E-10	3.36E-10	4.83E-10	4.83E-10
871	-7.14E-10	-7.79E-10	-8.60E-11	-4.03E-10	-7.80E-10	-6.59E-10	-6.59E-10
872	1.54E-09	1.36E-09	1.40E-09	1.30E-09	5.26E-10	9.58E-10	9.58E-10
873	2.47E-09	2.41E-09	2.32E-09	2.69E-09	2.34E-09	2.59E-09	2.59E-09
874	-2.56E-09	-2.46E-09	-2.83E-09	-2.42E-09	-2.40E-09	-2.46E-09	-2.46E-09
876	-3.00E-12	3.60E-11	-1.02E-10	-6.10E-11	4.80E-11	1.79E-10	1.79E-10
877	-5.16E-09	-5.23E-09	-5.17E-09	-5.24E-09	-5.17E-09	-5.26E-09	-5.26E-09
Biased Statistics							
Average Biased	-6.27E-10	-1.13E-09	-1.08E-09	-9.16E-10	-1.29E-09	-1.10E-09	-1.10E-09
Std Dev Biased	4.19E-09	4.67E-09	4.47E-09	4.41E-09	4.54E-09	4.17E-09	4.17E-09
Ps90%/90% (+KTL) Biased	1.09E-08	1.17E-08	1.12E-08	1.12E-08	1.11E-08	1.04E-08	1.04E-08
Ps90%/90% (-KTL) Biased	-1.21E-08	-1.40E-08	-1.33E-08	-1.30E-08	-1.37E-08	-1.25E-08	-1.25E-08
Un-Biased Statistics							
Average Un-Biased	1.47E-10	1.12E-10	1.41E-10	2.19E-10	-5.36E-11	1.21E-10	1.21E-10
Std Dev Un-Biased	1.96E-09	1.88E-09	1.96E-09	1.92E-09	1.74E-09	1.87E-09	1.87E-09
Ps90%/90% (+KTL) Un-Biased	5.53E-09	5.28E-09	5.50E-09	5.47E-09	4.72E-09	5.26E-09	5.26E-09
Ps90%/90% (-KTL) Un-Biased	-5.24E-09	-5.05E-09	-5.22E-09	-5.04E-09	-4.82E-09	-5.02E-09	-5.02E-09
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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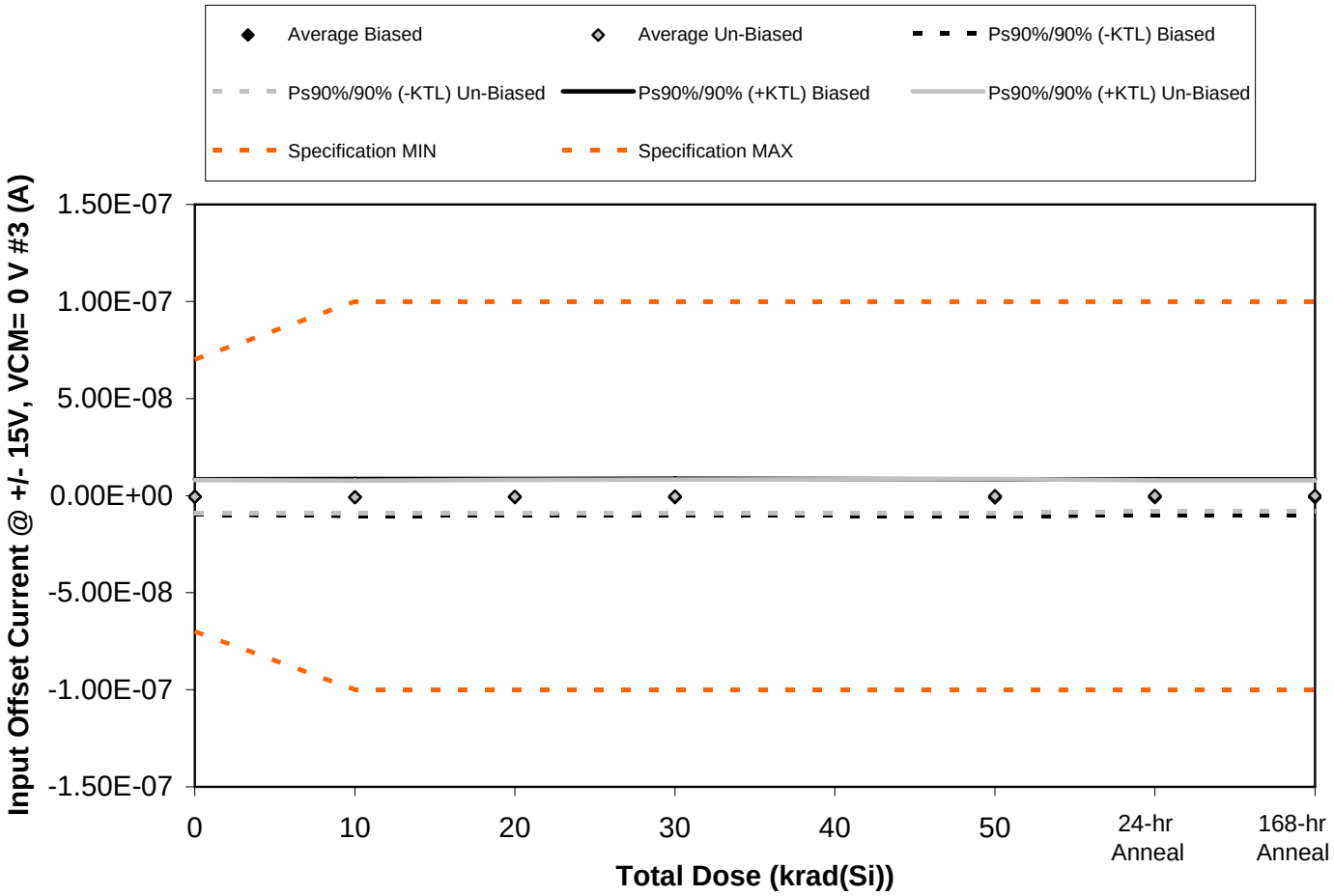

Figure 5.9. Plot of Input Offset Current @ +/- 15V, VCM= 0 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.9. Raw data for Input Offset Current @ +/- 15V, VCM= 0 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= 0 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-1.78E-09	-2.17E-09	-2.48E-09	-2.37E-09	-2.33E-09	-2.24E-09	-2.24E-09
867	-1.54E-09	-1.70E-09	-1.66E-09	-1.34E-09	-1.84E-09	-1.74E-09	-1.74E-09
868	5.21E-09	5.24E-09	5.25E-09	5.31E-09	5.12E-09	5.14E-09	5.14E-09
869	-1.63E-09	-2.53E-09	-2.54E-09	-2.69E-09	-2.91E-09	-2.75E-09	-2.75E-09
870	-3.24E-09	-3.10E-09	-2.80E-09	-2.76E-09	-2.81E-09	-2.76E-09	-2.76E-09
871	-4.79E-09	-5.28E-09	-5.10E-09	-4.82E-09	-4.71E-09	-4.35E-09	-4.35E-09
872	-2.35E-09	-2.32E-09	-2.25E-09	-2.05E-09	-2.37E-09	-1.95E-09	-1.95E-09
873	1.98E-09	1.91E-09	1.99E-09	2.39E-09	2.55E-09	2.35E-09	2.35E-09
874	2.97E-10	-7.10E-11	3.61E-10	4.73E-10	1.22E-09	9.39E-10	9.39E-10
876	2.57E-09	2.01E-09	2.45E-09	2.47E-09	2.42E-09	2.28E-09	2.28E-09
877	2.86E-09	2.85E-09	2.88E-09	2.85E-09	2.86E-09	2.90E-09	2.90E-09
Biased Statistics							
Average Biased	-5.98E-10	-8.49E-10	-8.46E-10	-7.68E-10	-9.53E-10	-8.70E-10	-8.70E-10
Std Dev Biased	3.32E-09	3.44E-09	3.44E-09	3.45E-09	3.42E-09	3.38E-09	3.38E-09
Ps90%/90% (+KTL) Biased	8.50E-09	8.60E-09	8.58E-09	8.68E-09	8.42E-09	8.41E-09	8.41E-09
Ps90%/90% (-KTL) Biased	-9.69E-09	-1.03E-08	-1.03E-08	-1.02E-08	-1.03E-08	-1.01E-08	-1.01E-08
Un-Biased Statistics							
Average Un-Biased	-4.60E-10	-7.51E-10	-5.09E-10	-3.09E-10	-1.78E-10	-1.46E-10	-1.46E-10
Std Dev Un-Biased	3.09E-09	3.09E-09	3.15E-09	3.12E-09	3.22E-09	2.92E-09	2.92E-09
Ps90%/90% (+KTL) Un-Biased	8.00E-09	7.71E-09	8.14E-09	8.24E-09	8.65E-09	7.87E-09	7.87E-09
Ps90%/90% (-KTL) Un-Biased	-8.92E-09	-9.22E-09	-9.16E-09	-8.86E-09	-9.01E-09	-8.16E-09	-8.16E-09
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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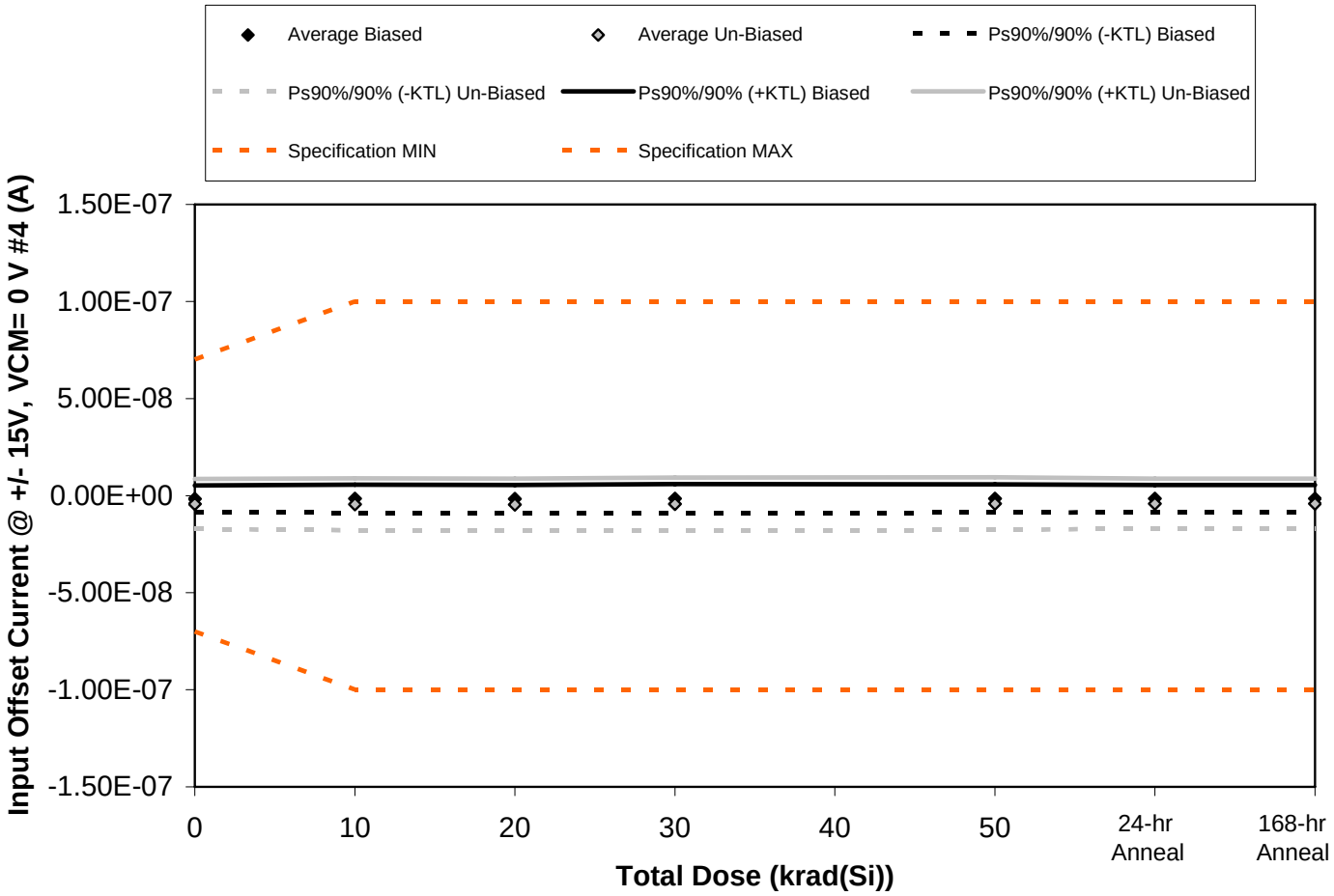

Figure 5.10. Plot of Input Offset Current @ +/- 15V, VCM= 0 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.10. Raw data for Input Offset Current @ +/- 15V, VCM= 0 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= 0 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-1.85E-09	-2.27E-09	-2.31E-09	-2.17E-09	-2.25E-09	-2.34E-09	-2.34E-09
867	2.14E-09	2.61E-09	2.47E-09	2.71E-09	2.78E-09	2.49E-09	2.49E-09
868	-4.74E-09	-4.68E-09	-4.88E-09	-4.85E-09	-4.50E-09	-4.57E-09	-4.57E-09
869	-2.52E-09	-2.24E-09	-2.24E-09	-2.21E-09	-1.66E-09	-1.49E-09	-1.49E-09
870	-1.30E-09	-1.27E-09	-1.65E-09	-1.41E-09	-1.90E-09	-1.82E-09	-1.82E-09
871	-2.14E-09	-2.79E-09	-2.56E-09	-2.19E-09	-2.23E-09	-2.37E-09	-2.37E-09
872	9.00E-10	8.85E-10	5.06E-10	9.51E-10	1.52E-09	1.12E-09	1.12E-09
873	-1.18E-08	-1.24E-08	-1.25E-08	-1.24E-08	-1.20E-08	-1.16E-08	-1.16E-08
874	-3.67E-09	-3.71E-09	-3.62E-09	-3.08E-09	-3.23E-09	-3.29E-09	-3.29E-09
876	-4.89E-09	-4.61E-09	-4.68E-09	-5.01E-09	-4.86E-09	-4.60E-09	-4.60E-09
877	-1.45E-09	-1.36E-09	-1.46E-09	-1.35E-09	-1.47E-09	-1.48E-09	-1.48E-09
Biased Statistics							
Average Biased	-1.65E-09	-1.57E-09	-1.72E-09	-1.58E-09	-1.51E-09	-1.54E-09	-1.54E-09
Std Dev Biased	2.49E-09	2.65E-09	2.65E-09	2.73E-09	2.65E-09	2.56E-09	2.56E-09
Ps90%/90% (+KTL) Biased	5.18E-09	5.71E-09	5.55E-09	5.90E-09	5.76E-09	5.46E-09	5.46E-09
Ps90%/90% (-KTL) Biased	-8.49E-09	-8.85E-09	-8.99E-09	-9.07E-09	-8.77E-09	-8.55E-09	-8.55E-09
Un-Biased Statistics							
Average Un-Biased	-4.33E-09	-4.52E-09	-4.57E-09	-4.35E-09	-4.15E-09	-4.15E-09	-4.15E-09
Std Dev Un-Biased	4.73E-09	4.86E-09	4.83E-09	4.99E-09	4.96E-09	4.68E-09	4.68E-09
Ps90%/90% (+KTL) Un-Biased	8.63E-09	8.81E-09	8.69E-09	9.35E-09	9.44E-09	8.68E-09	8.68E-09
Ps90%/90% (-KTL) Un-Biased	-1.73E-08	-1.78E-08	-1.78E-08	-1.80E-08	-1.77E-08	-1.70E-08	-1.70E-08
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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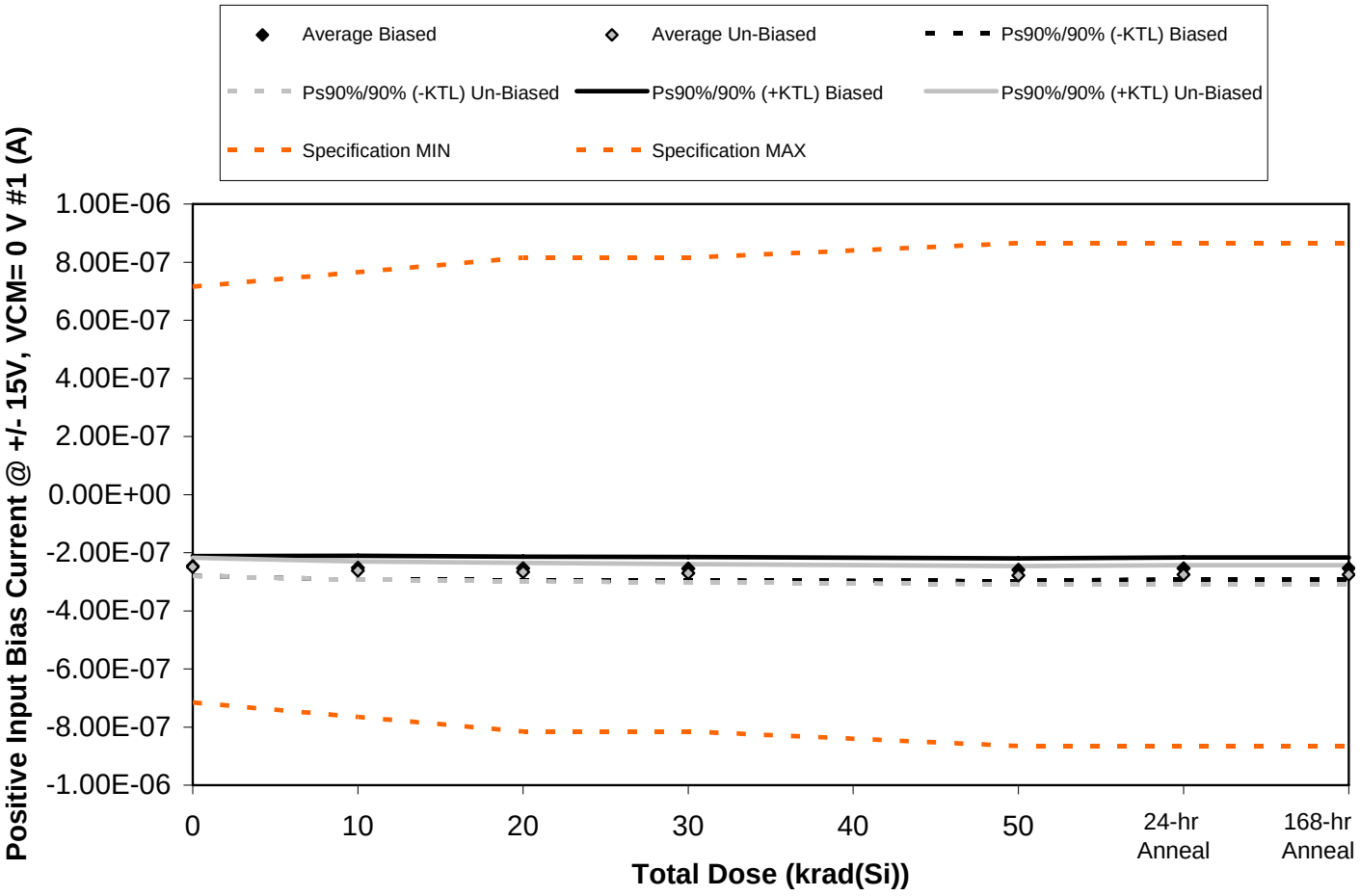

Figure 5.11. Plot of Positive Input Bias Current @ +/- 15V, VCM= 0 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.11. Raw data for Positive Input Bias Current @ +/- 15V, VCM= 0 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= 0 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.55E-07	-2.70E-07	-2.72E-07	-2.72E-07	-2.75E-07	-2.70E-07	-2.70E-07
867	-2.35E-07	-2.38E-07	-2.41E-07	-2.42E-07	-2.47E-07	-2.42E-07	-2.42E-07
868	-2.32E-07	-2.35E-07	-2.38E-07	-2.39E-07	-2.42E-07	-2.39E-07	-2.39E-07
869	-2.46E-07	-2.52E-07	-2.54E-07	-2.54E-07	-2.57E-07	-2.53E-07	-2.53E-07
870	-2.60E-07	-2.64E-07	-2.66E-07	-2.67E-07	-2.70E-07	-2.65E-07	-2.65E-07
871	-2.63E-07	-2.75E-07	-2.80E-07	-2.84E-07	-2.91E-07	-2.89E-07	-2.89E-07
872	-2.57E-07	-2.71E-07	-2.77E-07	-2.82E-07	-2.89E-07	-2.87E-07	-2.87E-07
873	-2.47E-07	-2.59E-07	-2.65E-07	-2.69E-07	-2.76E-07	-2.73E-07	-2.73E-07
874	-2.37E-07	-2.50E-07	-2.55E-07	-2.59E-07	-2.65E-07	-2.63E-07	-2.63E-07
876	-2.39E-07	-2.52E-07	-2.56E-07	-2.61E-07	-2.68E-07	-2.65E-07	-2.65E-07
877	-2.49E-07	-2.51E-07	-2.51E-07	-2.50E-07	-2.50E-07	-2.51E-07	-2.51E-07
Biased Statistics							
Average Biased	-2.46E-07	-2.52E-07	-2.54E-07	-2.55E-07	-2.58E-07	-2.54E-07	-2.54E-07
Std Dev Biased	1.22E-08	1.51E-08	1.48E-08	1.45E-08	1.42E-08	1.37E-08	1.37E-08
Ps90%/90% (+KTL) Biased	-2.12E-07	-2.10E-07	-2.14E-07	-2.15E-07	-2.19E-07	-2.16E-07	-2.16E-07
Ps90%/90% (-KTL) Biased	-2.79E-07	-2.93E-07	-2.95E-07	-2.95E-07	-2.97E-07	-2.91E-07	-2.91E-07
Un-Biased Statistics							
Average Un-Biased	-2.49E-07	-2.61E-07	-2.67E-07	-2.71E-07	-2.78E-07	-2.76E-07	-2.76E-07
Std Dev Un-Biased	1.13E-08	1.15E-08	1.16E-08	1.14E-08	1.17E-08	1.18E-08	1.18E-08
Ps90%/90% (+KTL) Un-Biased	-2.18E-07	-2.30E-07	-2.35E-07	-2.39E-07	-2.46E-07	-2.43E-07	-2.43E-07
Ps90%/90% (-KTL) Un-Biased	-2.80E-07	-2.93E-07	-2.98E-07	-3.02E-07	-3.10E-07	-3.08E-07	-3.08E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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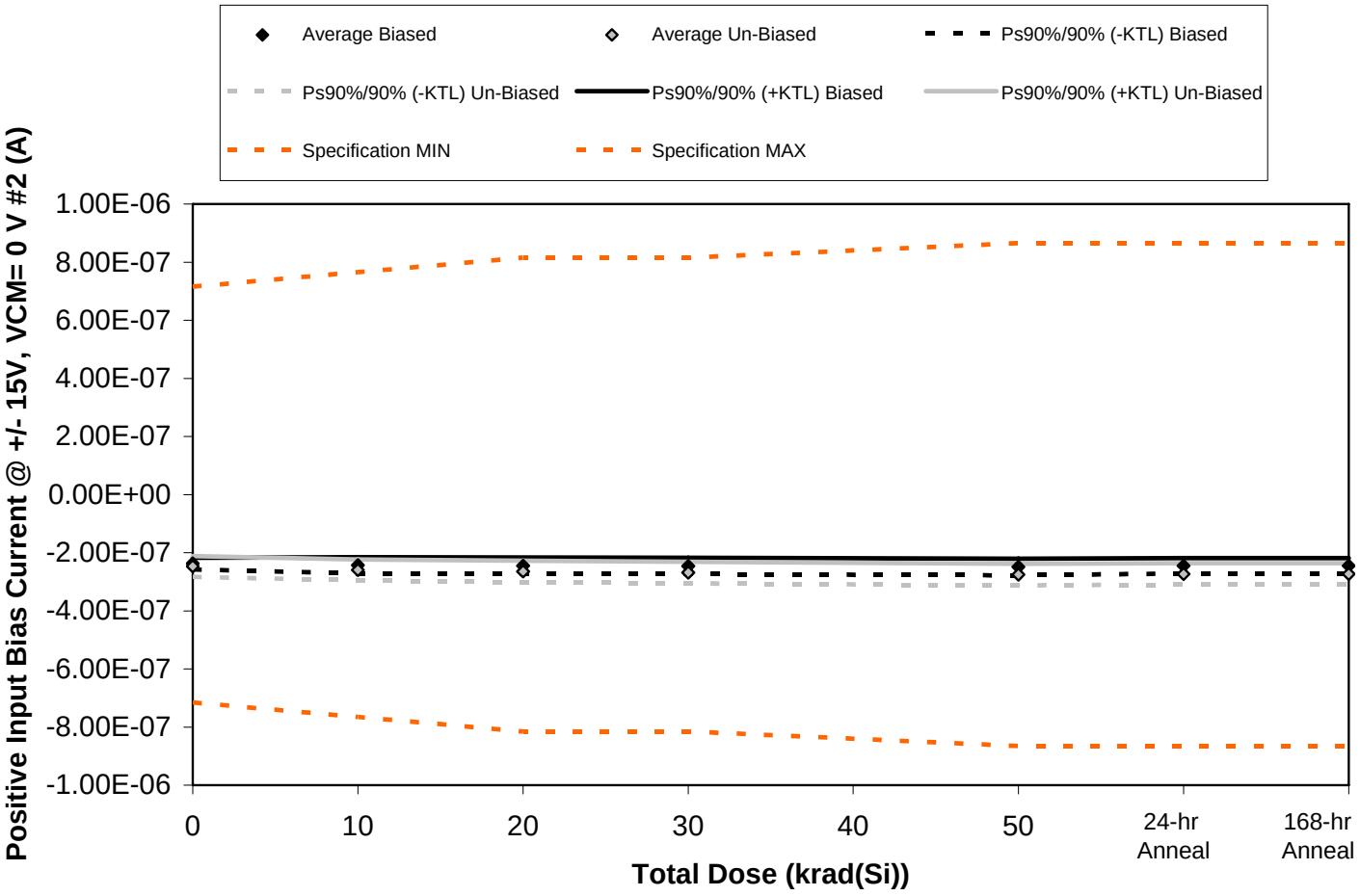

Figure 5.12. Plot of Positive Input Bias Current @ +/- 15V, VCM= 0 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.12. Raw data for Positive Input Bias Current @ +/- 15V, VCM= 0 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= 0 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.42E-07	-2.57E-07	-2.59E-07	-2.59E-07	-2.63E-07	-2.57E-07	-2.57E-07
867	-2.43E-07	-2.45E-07	-2.47E-07	-2.48E-07	-2.52E-07	-2.48E-07	-2.48E-07
868	-2.39E-07	-2.42E-07	-2.45E-07	-2.45E-07	-2.49E-07	-2.45E-07	-2.45E-07
869	-2.25E-07	-2.29E-07	-2.30E-07	-2.31E-07	-2.33E-07	-2.30E-07	-2.30E-07
870	-2.40E-07	-2.43E-07	-2.45E-07	-2.45E-07	-2.48E-07	-2.45E-07	-2.45E-07
871	-2.32E-07	-2.43E-07	-2.48E-07	-2.52E-07	-2.59E-07	-2.57E-07	-2.57E-07
872	-2.58E-07	-2.70E-07	-2.74E-07	-2.77E-07	-2.83E-07	-2.81E-07	-2.81E-07
873	-2.63E-07	-2.77E-07	-2.82E-07	-2.86E-07	-2.94E-07	-2.91E-07	-2.91E-07
874	-2.40E-07	-2.53E-07	-2.58E-07	-2.62E-07	-2.68E-07	-2.66E-07	-2.66E-07
876	-2.43E-07	-2.56E-07	-2.61E-07	-2.65E-07	-2.72E-07	-2.70E-07	-2.70E-07
877	-2.35E-07	-2.38E-07	-2.38E-07	-2.37E-07	-2.37E-07	-2.38E-07	-2.38E-07
Biased Statistics							
Average Biased	-2.38E-07	-2.43E-07	-2.45E-07	-2.46E-07	-2.49E-07	-2.45E-07	-2.45E-07
Std Dev Biased	7.41E-09	1.02E-08	1.04E-08	1.00E-08	1.05E-08	9.68E-09	9.68E-09
Ps90%/90% (+KTL) Biased	-2.17E-07	-2.16E-07	-2.17E-07	-2.18E-07	-2.20E-07	-2.18E-07	-2.18E-07
Ps90%/90% (-KTL) Biased	-2.58E-07	-2.71E-07	-2.74E-07	-2.73E-07	-2.78E-07	-2.71E-07	-2.71E-07
Un-Biased Statistics							
Average Un-Biased	-2.47E-07	-2.60E-07	-2.65E-07	-2.68E-07	-2.75E-07	-2.73E-07	-2.73E-07
Std Dev Un-Biased	1.31E-08	1.33E-08	1.36E-08	1.36E-08	1.35E-08	1.34E-08	1.34E-08
Ps90%/90% (+KTL) Un-Biased	-2.11E-07	-2.23E-07	-2.27E-07	-2.31E-07	-2.38E-07	-2.36E-07	-2.36E-07
Ps90%/90% (-KTL) Un-Biased	-2.83E-07	-2.96E-07	-3.02E-07	-3.06E-07	-3.12E-07	-3.10E-07	-3.10E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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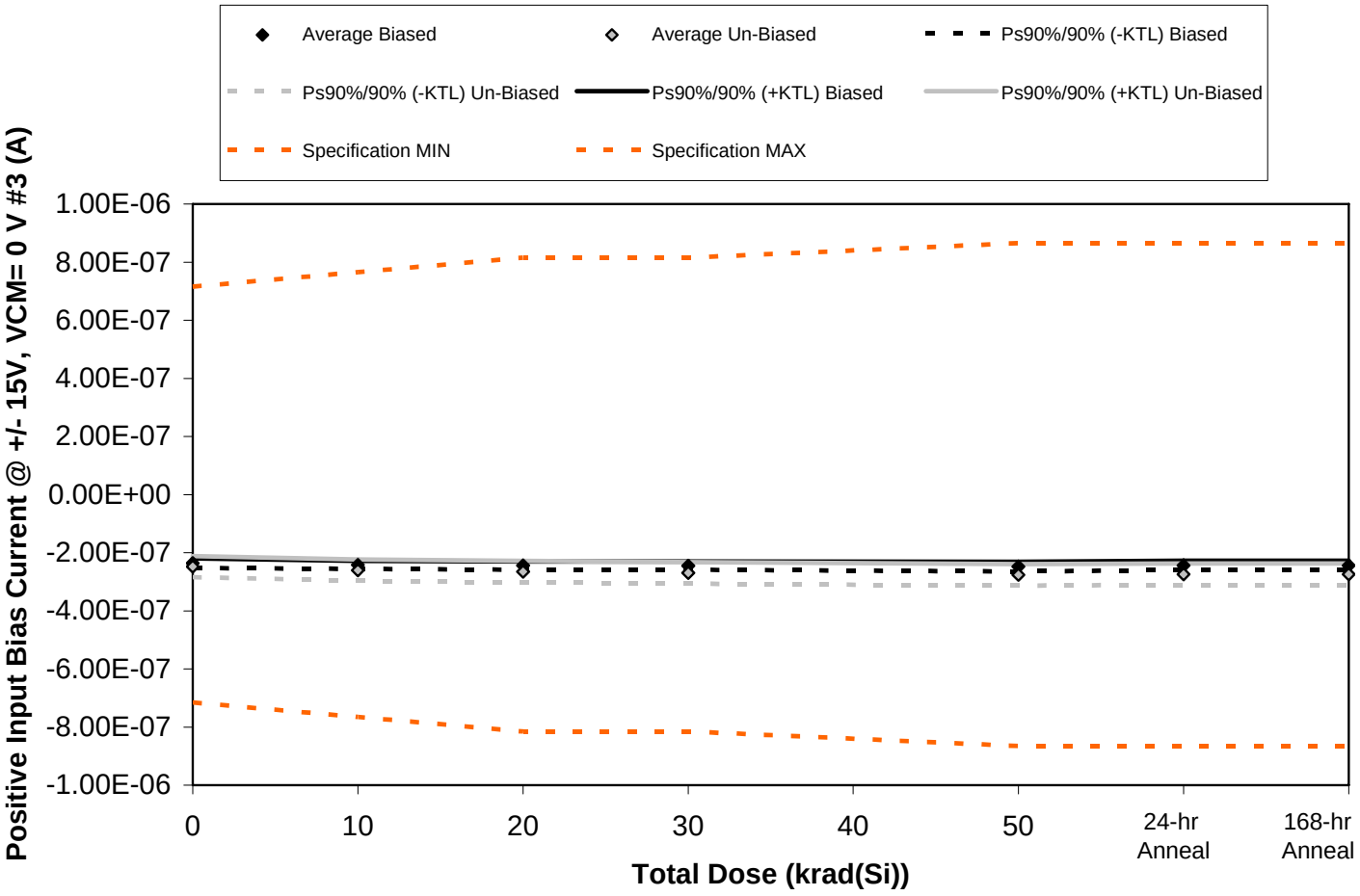

Figure 5.13. Plot of Positive Input Bias Current @ +/- 15V, VCM= 0 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.13. Raw data for Positive Input Bias Current @ +/- 15V, VCM= 0 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= 0 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.31E-07	-2.45E-07	-2.47E-07	-2.47E-07	-2.51E-07	-2.45E-07	-2.45E-07
867	-2.43E-07	-2.46E-07	-2.48E-07	-2.49E-07	-2.53E-07	-2.49E-07	-2.49E-07
868	-2.40E-07	-2.44E-07	-2.46E-07	-2.47E-07	-2.50E-07	-2.47E-07	-2.47E-07
869	-2.29E-07	-2.33E-07	-2.35E-07	-2.36E-07	-2.38E-07	-2.34E-07	-2.34E-07
870	-2.39E-07	-2.42E-07	-2.44E-07	-2.45E-07	-2.47E-07	-2.43E-07	-2.43E-07
871	-2.35E-07	-2.46E-07	-2.51E-07	-2.55E-07	-2.62E-07	-2.59E-07	-2.59E-07
872	-2.59E-07	-2.71E-07	-2.76E-07	-2.79E-07	-2.85E-07	-2.83E-07	-2.83E-07
873	-2.65E-07	-2.78E-07	-2.83E-07	-2.88E-07	-2.95E-07	-2.92E-07	-2.92E-07
874	-2.38E-07	-2.51E-07	-2.57E-07	-2.61E-07	-2.67E-07	-2.65E-07	-2.65E-07
876	-2.43E-07	-2.56E-07	-2.61E-07	-2.65E-07	-2.73E-07	-2.71E-07	-2.71E-07
877	-2.33E-07	-2.35E-07	-2.35E-07	-2.34E-07	-2.34E-07	-2.35E-07	-2.35E-07
Biased Statistics							
Average Biased	-2.36E-07	-2.42E-07	-2.44E-07	-2.45E-07	-2.48E-07	-2.44E-07	-2.44E-07
Std Dev Biased	6.03E-09	4.99E-09	5.26E-09	5.21E-09	6.11E-09	5.86E-09	5.86E-09
Ps90%/90% (+KTL) Biased	-2.20E-07	-2.28E-07	-2.30E-07	-2.30E-07	-2.31E-07	-2.28E-07	-2.28E-07
Ps90%/90% (-KTL) Biased	-2.53E-07	-2.56E-07	-2.59E-07	-2.59E-07	-2.65E-07	-2.60E-07	-2.60E-07
Un-Biased Statistics							
Average Un-Biased	-2.48E-07	-2.60E-07	-2.66E-07	-2.69E-07	-2.76E-07	-2.74E-07	-2.74E-07
Std Dev Un-Biased	1.33E-08	1.34E-08	1.35E-08	1.36E-08	1.36E-08	1.34E-08	1.34E-08
Ps90%/90% (+KTL) Un-Biased	-2.11E-07	-2.24E-07	-2.28E-07	-2.32E-07	-2.39E-07	-2.37E-07	-2.37E-07
Ps90%/90% (-KTL) Un-Biased	-2.85E-07	-2.97E-07	-3.03E-07	-3.07E-07	-3.14E-07	-3.11E-07	-3.11E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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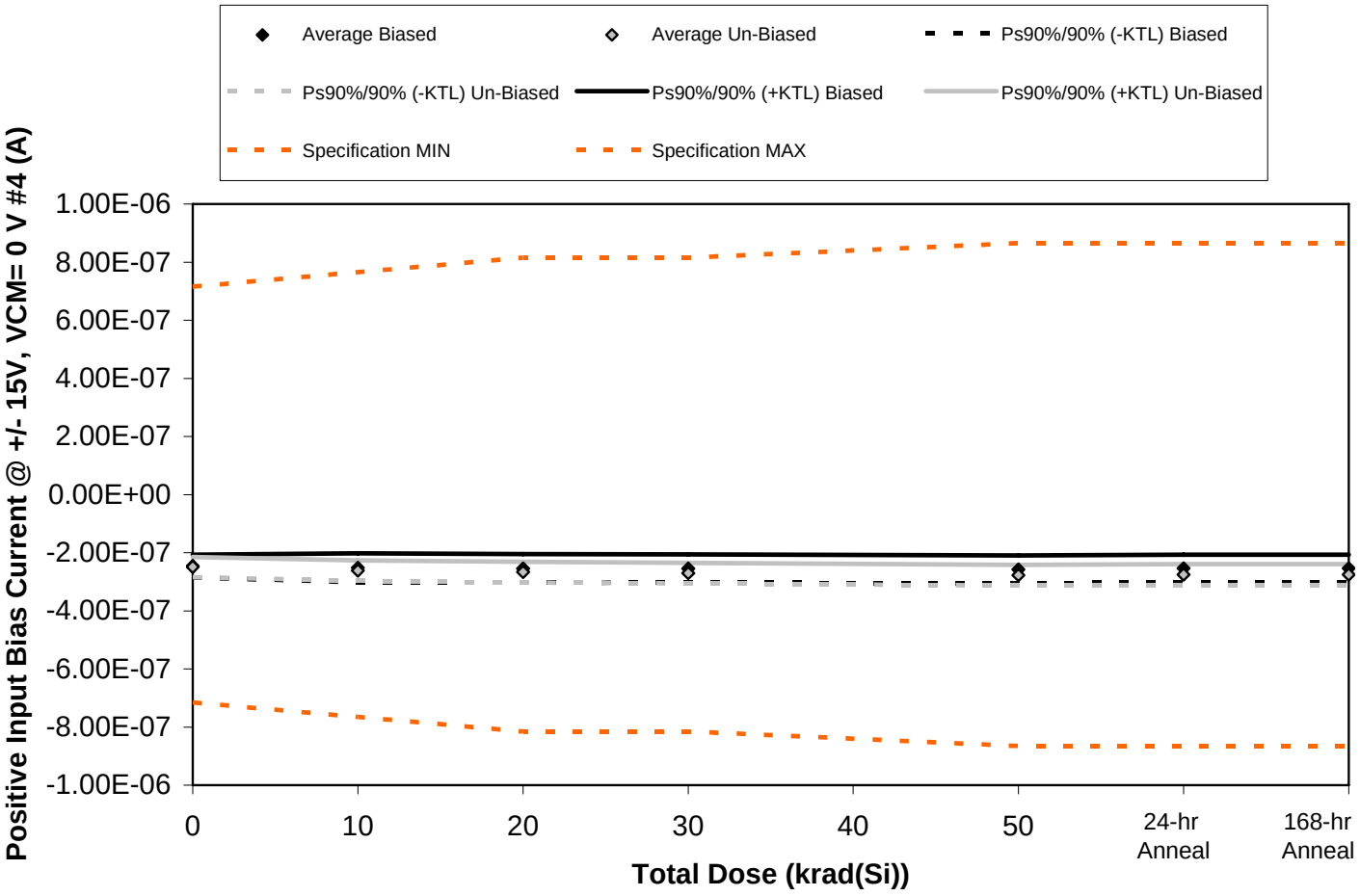

Figure 5.14. Plot of Positive Input Bias Current @ +/- 15V, VCM= 0 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.14. Raw data for Positive Input Bias Current @ +/- 15V, VCM= 0 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= 0 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.63E-07	-2.78E-07	-2.80E-07	-2.80E-07	-2.84E-07	-2.78E-07	-2.78E-07
867	-2.31E-07	-2.34E-07	-2.37E-07	-2.38E-07	-2.42E-07	-2.38E-07	-2.38E-07
868	-2.33E-07	-2.37E-07	-2.39E-07	-2.40E-07	-2.43E-07	-2.40E-07	-2.40E-07
869	-2.45E-07	-2.49E-07	-2.51E-07	-2.52E-07	-2.55E-07	-2.50E-07	-2.50E-07
870	-2.59E-07	-2.62E-07	-2.64E-07	-2.64E-07	-2.68E-07	-2.63E-07	-2.63E-07
871	-2.59E-07	-2.71E-07	-2.75E-07	-2.79E-07	-2.86E-07	-2.84E-07	-2.84E-07
872	-2.62E-07	-2.75E-07	-2.81E-07	-2.84E-07	-2.92E-07	-2.90E-07	-2.90E-07
873	-2.54E-07	-2.66E-07	-2.71E-07	-2.76E-07	-2.83E-07	-2.80E-07	-2.80E-07
874	-2.33E-07	-2.45E-07	-2.50E-07	-2.54E-07	-2.61E-07	-2.59E-07	-2.59E-07
876	-2.39E-07	-2.51E-07	-2.56E-07	-2.60E-07	-2.67E-07	-2.65E-07	-2.65E-07
877	-2.47E-07	-2.49E-07	-2.49E-07	-2.48E-07	-2.48E-07	-2.49E-07	-2.49E-07
Biased Statistics							
Average Biased	-2.46E-07	-2.52E-07	-2.54E-07	-2.55E-07	-2.58E-07	-2.54E-07	-2.54E-07
Std Dev Biased	1.43E-08	1.81E-08	1.80E-08	1.77E-08	1.76E-08	1.70E-08	1.70E-08
Ps90%/90% (+KTL) Biased	-2.07E-07	-2.02E-07	-2.05E-07	-2.06E-07	-2.10E-07	-2.07E-07	-2.07E-07
Ps90%/90% (-KTL) Biased	-2.85E-07	-3.01E-07	-3.04E-07	-3.03E-07	-3.07E-07	-3.00E-07	-3.00E-07
Un-Biased Statistics							
Average Un-Biased	-2.49E-07	-2.62E-07	-2.67E-07	-2.71E-07	-2.78E-07	-2.75E-07	-2.75E-07
Std Dev Un-Biased	1.27E-08	1.29E-08	1.30E-08	1.28E-08	1.31E-08	1.31E-08	1.31E-08
Ps90%/90% (+KTL) Un-Biased	-2.14E-07	-2.26E-07	-2.31E-07	-2.35E-07	-2.42E-07	-2.39E-07	-2.39E-07
Ps90%/90% (-KTL) Un-Biased	-2.84E-07	-2.97E-07	-3.02E-07	-3.06E-07	-3.14E-07	-3.11E-07	-3.11E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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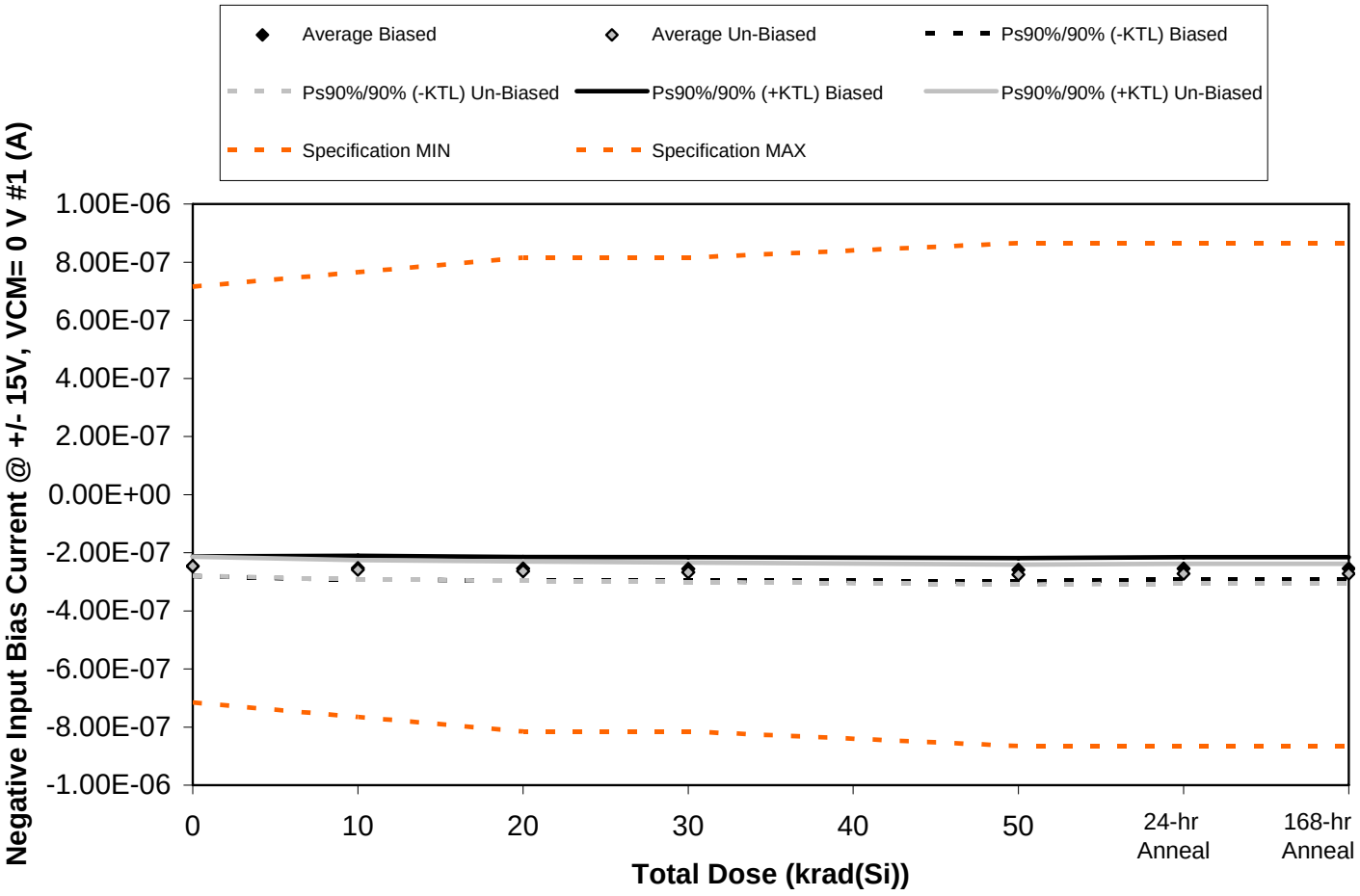

Figure 5.15. Plot of Negative Input Bias Current @ +/- 15V, VCM= 0 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.15. Raw data for Negative Input Bias Current @ +/- 15V, VCM= 0 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= 0 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.56E-07	-2.70E-07	-2.73E-07	-2.72E-07	-2.77E-07	-2.71E-07	-2.71E-07
867	-2.39E-07	-2.42E-07	-2.45E-07	-2.45E-07	-2.50E-07	-2.45E-07	-2.45E-07
868	-2.30E-07	-2.33E-07	-2.36E-07	-2.37E-07	-2.40E-07	-2.37E-07	-2.37E-07
869	-2.50E-07	-2.55E-07	-2.56E-07	-2.57E-07	-2.60E-07	-2.55E-07	-2.55E-07
870	-2.59E-07	-2.62E-07	-2.65E-07	-2.65E-07	-2.68E-07	-2.64E-07	-2.64E-07
871	-2.59E-07	-2.71E-07	-2.76E-07	-2.79E-07	-2.86E-07	-2.84E-07	-2.84E-07
872	-2.57E-07	-2.71E-07	-2.77E-07	-2.81E-07	-2.89E-07	-2.87E-07	-2.87E-07
873	-2.45E-07	-2.57E-07	-2.62E-07	-2.66E-07	-2.74E-07	-2.71E-07	-2.71E-07
874	-2.33E-07	-2.46E-07	-2.51E-07	-2.55E-07	-2.62E-07	-2.59E-07	-2.59E-07
876	-2.37E-07	-2.49E-07	-2.53E-07	-2.58E-07	-2.64E-07	-2.62E-07	-2.62E-07
877	-2.47E-07	-2.49E-07	-2.49E-07	-2.48E-07	-2.48E-07	-2.49E-07	-2.49E-07
Biased Statistics							
Average Biased	-2.47E-07	-2.52E-07	-2.55E-07	-2.55E-07	-2.59E-07	-2.54E-07	-2.54E-07
Std Dev Biased	1.22E-08	1.51E-08	1.47E-08	1.46E-08	1.46E-08	1.40E-08	1.40E-08
Ps90%/90% (+KTL) Biased	-2.13E-07	-2.11E-07	-2.14E-07	-2.15E-07	-2.19E-07	-2.16E-07	-2.16E-07
Ps90%/90% (-KTL) Biased	-2.80E-07	-2.94E-07	-2.95E-07	-2.95E-07	-2.99E-07	-2.93E-07	-2.93E-07
Un-Biased Statistics							
Average Un-Biased	-2.46E-07	-2.59E-07	-2.64E-07	-2.68E-07	-2.75E-07	-2.73E-07	-2.73E-07
Std Dev Un-Biased	1.19E-08	1.21E-08	1.22E-08	1.22E-08	1.25E-08	1.24E-08	1.24E-08
Ps90%/90% (+KTL) Un-Biased	-2.13E-07	-2.26E-07	-2.30E-07	-2.35E-07	-2.41E-07	-2.38E-07	-2.38E-07
Ps90%/90% (-KTL) Un-Biased	-2.79E-07	-2.92E-07	-2.97E-07	-3.01E-07	-3.09E-07	-3.07E-07	-3.07E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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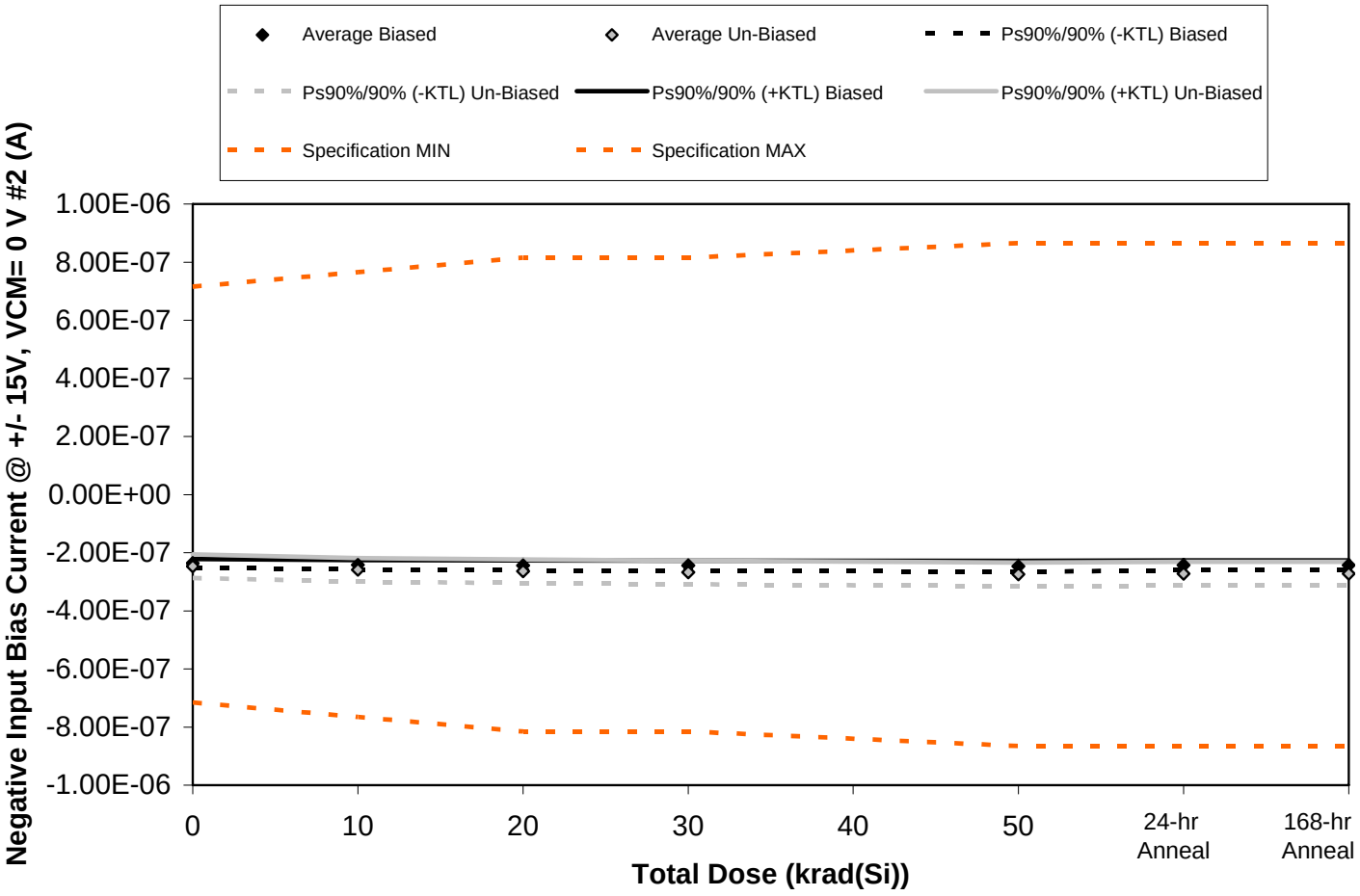

Figure 5.16. Plot of Negative Input Bias Current @ +/- 15V, VCM= 0 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.16. Raw data for Negative Input Bias Current @ +/- 15V, VCM= 0 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= 0 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.34E-07	-2.48E-07	-2.50E-07	-2.50E-07	-2.53E-07	-2.48E-07	-2.48E-07
867	-2.41E-07	-2.44E-07	-2.47E-07	-2.47E-07	-2.51E-07	-2.47E-07	-2.47E-07
868	-2.39E-07	-2.42E-07	-2.45E-07	-2.45E-07	-2.48E-07	-2.45E-07	-2.45E-07
869	-2.28E-07	-2.32E-07	-2.33E-07	-2.34E-07	-2.36E-07	-2.32E-07	-2.32E-07
870	-2.39E-07	-2.43E-07	-2.45E-07	-2.46E-07	-2.48E-07	-2.44E-07	-2.44E-07
871	-2.30E-07	-2.42E-07	-2.47E-07	-2.51E-07	-2.58E-07	-2.55E-07	-2.55E-07
872	-2.59E-07	-2.70E-07	-2.75E-07	-2.78E-07	-2.83E-07	-2.81E-07	-2.81E-07
873	-2.65E-07	-2.78E-07	-2.83E-07	-2.88E-07	-2.95E-07	-2.93E-07	-2.93E-07
874	-2.37E-07	-2.49E-07	-2.54E-07	-2.58E-07	-2.65E-07	-2.63E-07	-2.63E-07
876	-2.42E-07	-2.55E-07	-2.61E-07	-2.65E-07	-2.72E-07	-2.69E-07	-2.69E-07
877	-2.30E-07	-2.32E-07	-2.32E-07	-2.31E-07	-2.31E-07	-2.32E-07	-2.32E-07
Biased Statistics							
Average Biased	-2.36E-07	-2.42E-07	-2.44E-07	-2.44E-07	-2.47E-07	-2.43E-07	-2.43E-07
Std Dev Biased	5.48E-09	5.94E-09	6.46E-09	6.22E-09	6.76E-09	6.30E-09	6.30E-09
Ps90%/90% (+KTL) Biased	-2.21E-07	-2.26E-07	-2.26E-07	-2.27E-07	-2.29E-07	-2.26E-07	-2.26E-07
Ps90%/90% (-KTL) Biased	-2.51E-07	-2.58E-07	-2.62E-07	-2.61E-07	-2.66E-07	-2.60E-07	-2.60E-07
Un-Biased Statistics							
Average Un-Biased	-2.47E-07	-2.59E-07	-2.64E-07	-2.68E-07	-2.75E-07	-2.72E-07	-2.72E-07
Std Dev Un-Biased	1.48E-08	1.48E-08	1.49E-08	1.49E-08	1.48E-08	1.49E-08	1.49E-08
Ps90%/90% (+KTL) Un-Biased	-2.06E-07	-2.18E-07	-2.23E-07	-2.27E-07	-2.34E-07	-2.32E-07	-2.32E-07
Ps90%/90% (-KTL) Un-Biased	-2.87E-07	-3.00E-07	-3.05E-07	-3.09E-07	-3.15E-07	-3.13E-07	-3.13E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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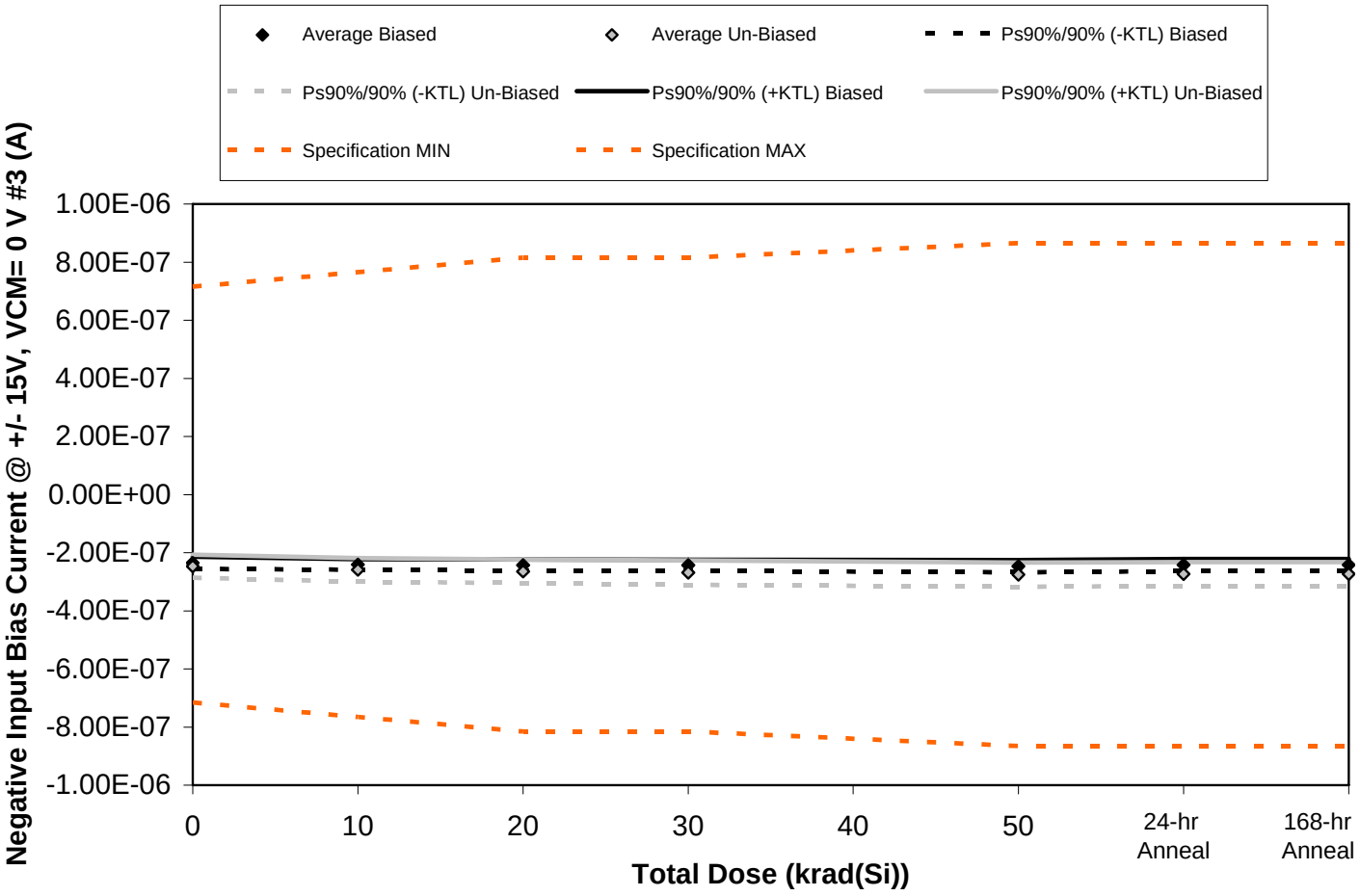

Figure 5.17. Plot of Negative Input Bias Current @ +/- 15V, VCM= 0 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.17. Raw data for Negative Input Bias Current @ +/- 15V, VCM= 0 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= 0 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.29E-07	-2.42E-07	-2.44E-07	-2.44E-07	-2.48E-07	-2.43E-07	-2.43E-07
867	-2.41E-07	-2.44E-07	-2.47E-07	-2.47E-07	-2.51E-07	-2.47E-07	-2.47E-07
868	-2.45E-07	-2.48E-07	-2.51E-07	-2.51E-07	-2.55E-07	-2.51E-07	-2.51E-07
869	-2.27E-07	-2.31E-07	-2.32E-07	-2.33E-07	-2.35E-07	-2.31E-07	-2.31E-07
870	-2.35E-07	-2.39E-07	-2.41E-07	-2.42E-07	-2.44E-07	-2.40E-07	-2.40E-07
871	-2.29E-07	-2.41E-07	-2.45E-07	-2.49E-07	-2.56E-07	-2.54E-07	-2.54E-07
872	-2.56E-07	-2.68E-07	-2.72E-07	-2.76E-07	-2.82E-07	-2.80E-07	-2.80E-07
873	-2.66E-07	-2.79E-07	-2.84E-07	-2.89E-07	-2.97E-07	-2.94E-07	-2.94E-07
874	-2.38E-07	-2.51E-07	-2.56E-07	-2.60E-07	-2.68E-07	-2.65E-07	-2.65E-07
876	-2.45E-07	-2.57E-07	-2.63E-07	-2.67E-07	-2.75E-07	-2.72E-07	-2.72E-07
877	-2.35E-07	-2.37E-07	-2.37E-07	-2.37E-07	-2.36E-07	-2.37E-07	-2.37E-07
Biased Statistics							
Average Biased	-2.35E-07	-2.41E-07	-2.43E-07	-2.43E-07	-2.47E-07	-2.42E-07	-2.42E-07
Std Dev Biased	7.69E-09	6.53E-09	7.07E-09	6.98E-09	7.82E-09	7.72E-09	7.72E-09
Ps90%/90% (+KTL) Biased	-2.14E-07	-2.23E-07	-2.24E-07	-2.24E-07	-2.25E-07	-2.21E-07	-2.21E-07
Ps90%/90% (-KTL) Biased	-2.56E-07	-2.59E-07	-2.62E-07	-2.63E-07	-2.68E-07	-2.64E-07	-2.64E-07
Un-Biased Statistics							
Average Un-Biased	-2.47E-07	-2.59E-07	-2.64E-07	-2.68E-07	-2.75E-07	-2.73E-07	-2.73E-07
Std Dev Un-Biased	1.45E-08	1.49E-08	1.49E-08	1.52E-08	1.51E-08	1.49E-08	1.49E-08
Ps90%/90% (+KTL) Un-Biased	-2.07E-07	-2.18E-07	-2.23E-07	-2.27E-07	-2.34E-07	-2.32E-07	-2.32E-07
Ps90%/90% (-KTL) Un-Biased	-2.86E-07	-3.00E-07	-3.05E-07	-3.10E-07	-3.17E-07	-3.14E-07	-3.14E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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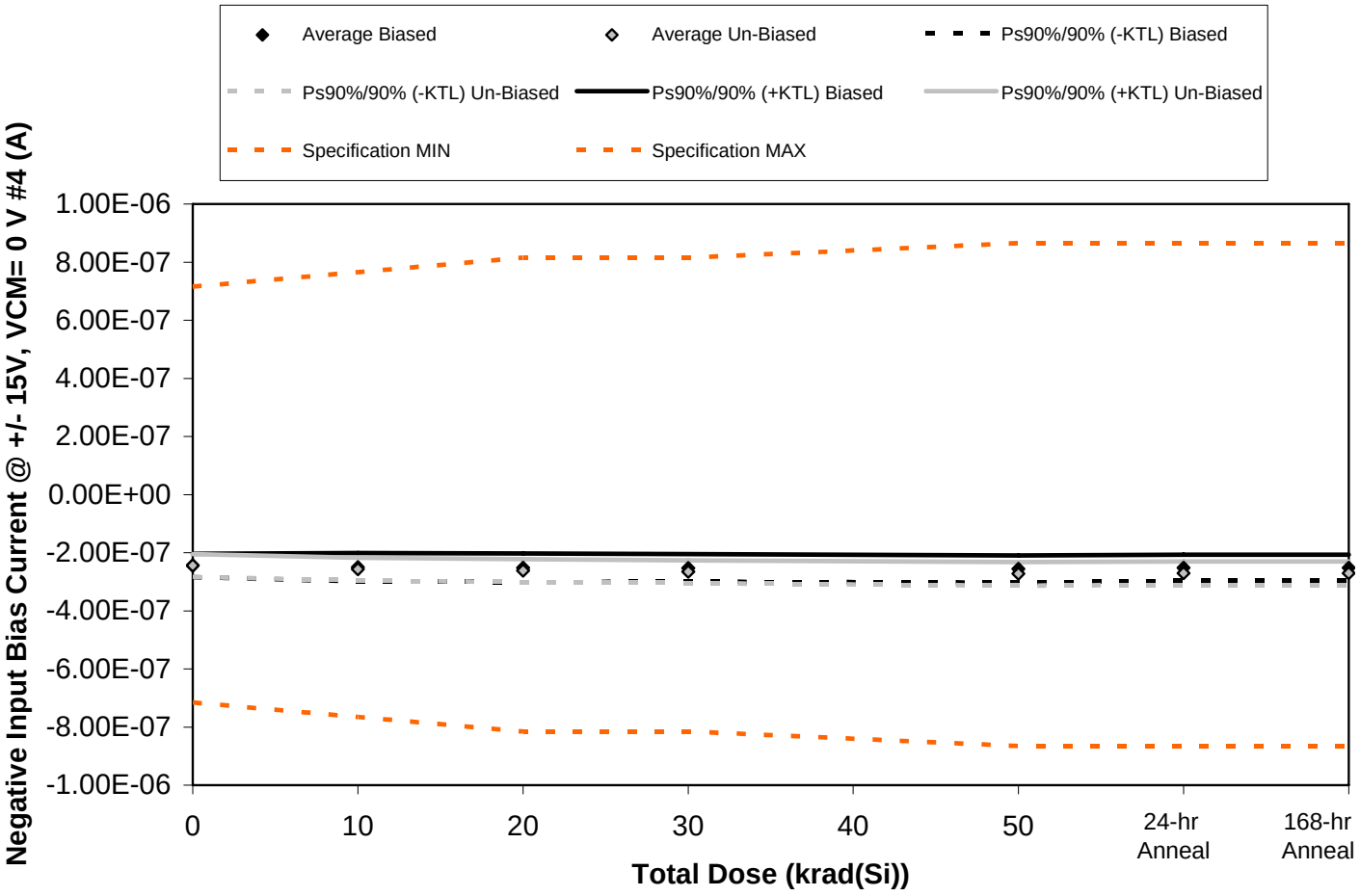

Figure 5.18. Plot of Negative Input Bias Current @ +/- 15V, VCM= 0 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.18. Raw data for Negative Input Bias Current @ +/- 15V, VCM= 0 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= 0 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.61E-07	-2.75E-07	-2.77E-07	-2.77E-07	-2.81E-07	-2.75E-07	-2.75E-07
867	-2.33E-07	-2.36E-07	-2.39E-07	-2.40E-07	-2.44E-07	-2.40E-07	-2.40E-07
868	-2.28E-07	-2.32E-07	-2.34E-07	-2.34E-07	-2.39E-07	-2.35E-07	-2.35E-07
869	-2.42E-07	-2.47E-07	-2.48E-07	-2.49E-07	-2.52E-07	-2.48E-07	-2.48E-07
870	-2.57E-07	-2.60E-07	-2.62E-07	-2.62E-07	-2.65E-07	-2.61E-07	-2.61E-07
871	-2.56E-07	-2.68E-07	-2.72E-07	-2.76E-07	-2.83E-07	-2.81E-07	-2.81E-07
872	-2.62E-07	-2.75E-07	-2.80E-07	-2.84E-07	-2.92E-07	-2.90E-07	-2.90E-07
873	-2.42E-07	-2.53E-07	-2.59E-07	-2.63E-07	-2.70E-07	-2.68E-07	-2.68E-07
874	-2.29E-07	-2.41E-07	-2.46E-07	-2.51E-07	-2.57E-07	-2.55E-07	-2.55E-07
876	-2.34E-07	-2.46E-07	-2.51E-07	-2.54E-07	-2.61E-07	-2.59E-07	-2.59E-07
877	-2.45E-07	-2.47E-07	-2.47E-07	-2.46E-07	-2.46E-07	-2.47E-07	-2.47E-07
Biased Statistics							
Average Biased	-2.44E-07	-2.50E-07	-2.52E-07	-2.52E-07	-2.56E-07	-2.52E-07	-2.52E-07
Std Dev Biased	1.45E-08	1.77E-08	1.78E-08	1.74E-08	1.71E-08	1.65E-08	1.65E-08
Ps90%/90% (+KTL) Biased	-2.04E-07	-2.01E-07	-2.03E-07	-2.05E-07	-2.09E-07	-2.06E-07	-2.06E-07
Ps90%/90% (-KTL) Biased	-2.84E-07	-2.98E-07	-3.01E-07	-3.00E-07	-3.03E-07	-2.97E-07	-2.97E-07
Un-Biased Statistics							
Average Un-Biased	-2.44E-07	-2.57E-07	-2.62E-07	-2.66E-07	-2.73E-07	-2.70E-07	-2.70E-07
Std Dev Un-Biased	1.42E-08	1.44E-08	1.43E-08	1.43E-08	1.47E-08	1.45E-08	1.45E-08
Ps90%/90% (+KTL) Un-Biased	-2.05E-07	-2.17E-07	-2.22E-07	-2.26E-07	-2.32E-07	-2.31E-07	-2.31E-07
Ps90%/90% (-KTL) Un-Biased	-2.83E-07	-2.96E-07	-3.01E-07	-3.05E-07	-3.13E-07	-3.10E-07	-3.10E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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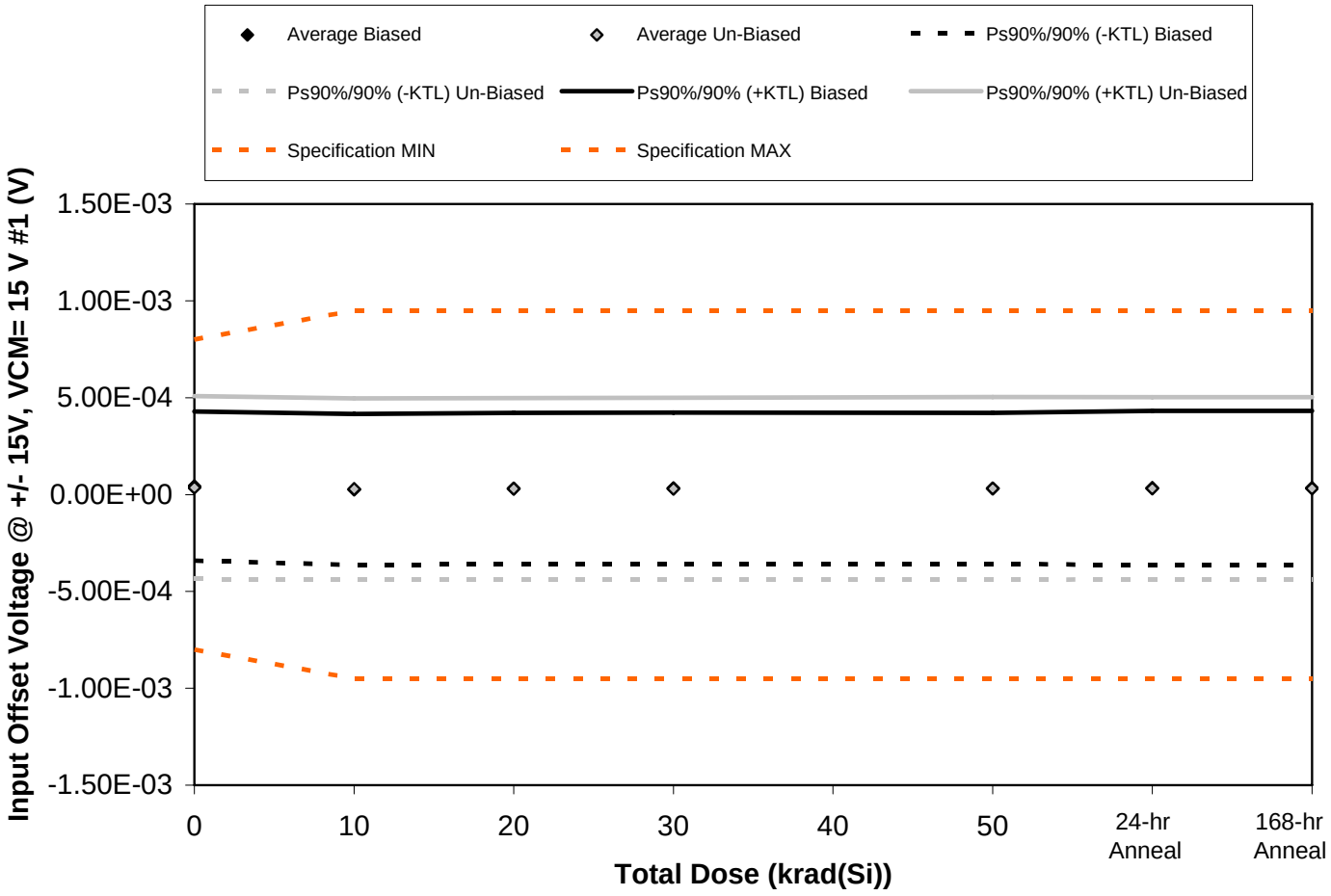

Figure 5.19. Plot of Input Offset Voltage @ +/- 15V, VCM= 15 V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.19. Raw data for Input Offset Voltage @ +/- 15V, VCM= 15 V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= 15 V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	5.84E-05	4.00E-05	5.33E-05	5.90E-05	5.80E-05	6.01E-05	6.01E-05
867	5.88E-05	3.93E-05	3.25E-05	2.72E-05	2.29E-05	2.25E-05	2.25E-05
868	2.70E-05	4.99E-06	8.01E-06	9.33E-06	5.47E-06	4.26E-06	4.26E-06
869	2.35E-04	2.23E-04	2.33E-04	2.34E-04	2.36E-04	2.44E-04	2.44E-04
870	-1.60E-04	-1.76E-04	-1.67E-04	-1.65E-04	-1.61E-04	-1.62E-04	-1.62E-04
871	1.09E-04	1.01E-04	1.02E-04	1.01E-04	1.05E-04	1.06E-04	1.06E-04
872	-9.71E-05	-1.06E-04	-1.07E-04	-1.09E-04	-1.08E-04	-1.06E-04	-1.06E-04
873	-6.24E-06	-1.63E-05	-1.57E-05	-1.49E-05	-1.36E-05	-1.33E-05	-1.33E-05
874	2.98E-04	2.88E-04	2.91E-04	2.93E-04	2.94E-04	2.93E-04	2.93E-04
876	-1.21E-04	-1.25E-04	-1.21E-04	-1.19E-04	-1.18E-04	-1.18E-04	-1.18E-04
877	-2.56E-04	-2.56E-04	-2.57E-04	-2.57E-04	-2.57E-04	-2.58E-04	-2.58E-04
Biased Statistics							
Average Biased	4.38E-05	2.63E-05	3.19E-05	3.27E-05	3.22E-05	3.37E-05	3.37E-05
Std Dev Biased	1.41E-04	1.42E-04	1.42E-04	1.42E-04	1.42E-04	1.45E-04	1.45E-04
Ps90%/90% (+KTL) Biased	4.29E-04	4.15E-04	4.22E-04	4.23E-04	4.21E-04	4.32E-04	4.32E-04
Ps90%/90% (-KTL) Biased	-3.42E-04	-3.63E-04	-3.58E-04	-3.57E-04	-3.57E-04	-3.64E-04	-3.64E-04
Un-Biased Statistics							
Average Un-Biased	3.64E-05	2.84E-05	2.97E-05	3.01E-05	3.18E-05	3.21E-05	3.21E-05
Std Dev Un-Biased	1.72E-04	1.71E-04	1.71E-04	1.71E-04	1.72E-04	1.71E-04	1.71E-04
Ps90%/90% (+KTL) Un-Biased	5.08E-04	4.96E-04	4.99E-04	5.00E-04	5.04E-04	5.02E-04	5.02E-04
Ps90%/90% (-KTL) Un-Biased	-4.35E-04	-4.39E-04	-4.39E-04	-4.40E-04	-4.40E-04	-4.38E-04	-4.38E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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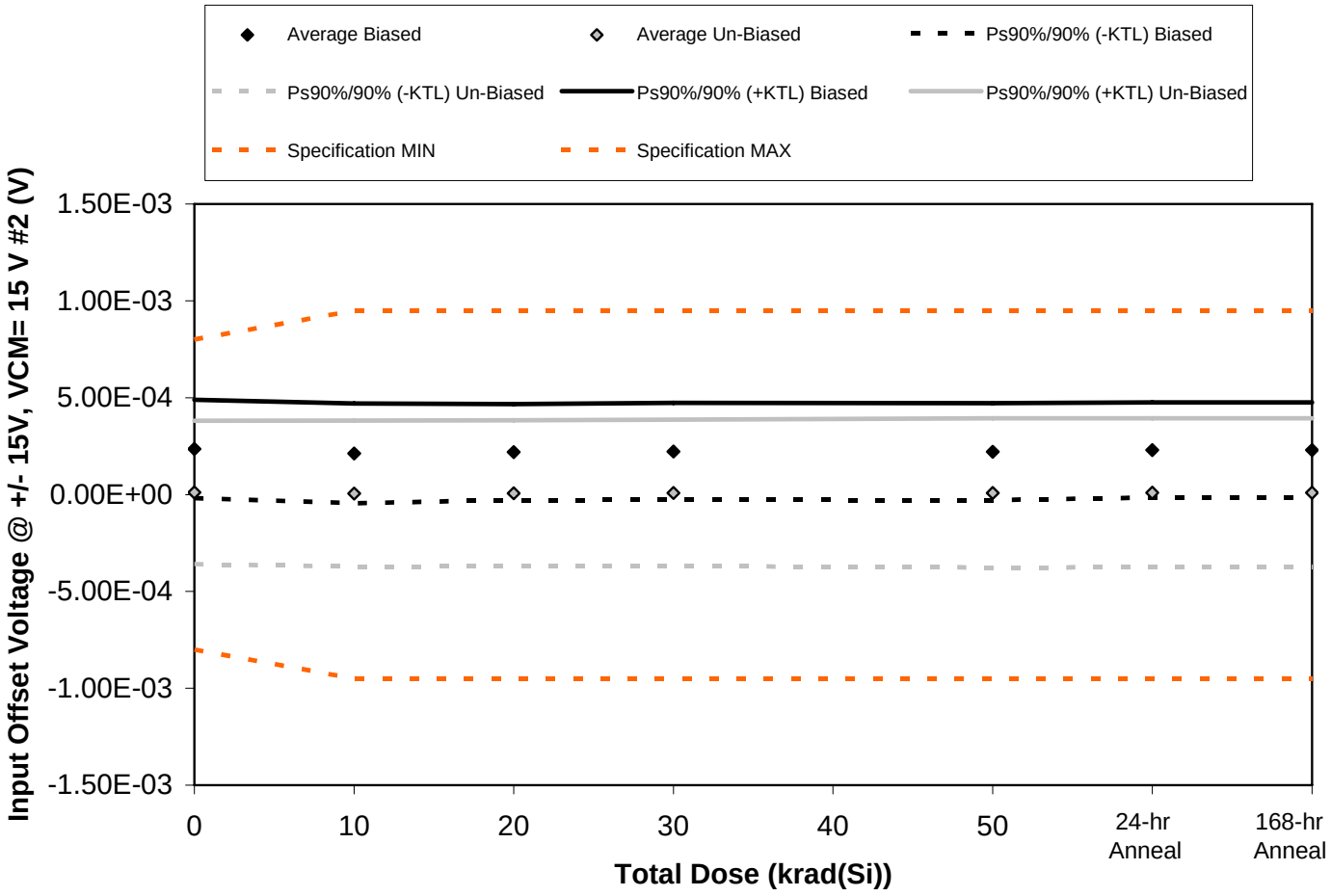

Figure 5.20. Plot of Input Offset Voltage @ +/- 15V, VCM= 15 V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.20. Raw data for Input Offset Voltage @ +/- 15V, VCM= 15 V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= 15 V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.24E-04	1.94E-04	2.09E-04	2.12E-04	2.12E-04	2.21E-04	2.21E-04
867	2.02E-04	1.86E-04	1.94E-04	1.98E-04	2.04E-04	2.08E-04	2.08E-04
868	3.06E-04	2.91E-04	2.95E-04	2.98E-04	3.00E-04	3.04E-04	3.04E-04
869	1.04E-04	7.88E-05	8.58E-05	8.80E-05	8.27E-05	9.64E-05	9.64E-05
870	3.39E-04	3.13E-04	3.11E-04	3.16E-04	3.09E-04	3.21E-04	3.21E-04
871	-7.20E-06	-1.63E-05	-1.31E-05	-1.54E-05	-1.94E-05	-1.50E-05	-1.50E-05
872	2.33E-04	2.34E-04	2.36E-04	2.38E-04	2.43E-04	2.43E-04	2.43E-04
873	-1.30E-04	-1.36E-04	-1.34E-04	-1.33E-04	-1.33E-04	-1.34E-04	-1.34E-04
874	-4.55E-05	-4.77E-05	-4.76E-05	-4.25E-05	-4.59E-05	-4.44E-05	-4.44E-05
876	4.27E-06	-7.09E-06	-6.12E-06	-5.52E-06	-3.46E-06	-3.59E-06	-3.59E-06
877	-1.50E-04	-1.51E-04	-1.50E-04	-1.51E-04	-1.51E-04	-1.52E-04	-1.52E-04
Biased Statistics							
Average Biased	2.35E-04	2.12E-04	2.19E-04	2.22E-04	2.21E-04	2.30E-04	2.30E-04
Std Dev Biased	9.26E-05	9.38E-05	9.05E-05	9.12E-05	9.14E-05	8.95E-05	8.95E-05
Ps90%/90% (+KTL) Biased	4.89E-04	4.70E-04	4.67E-04	4.73E-04	4.72E-04	4.76E-04	4.76E-04
Ps90%/90% (-KTL) Biased	-1.88E-05	-4.47E-05	-2.93E-05	-2.76E-05	-2.93E-05	-1.54E-05	-1.54E-05
Un-Biased Statistics							
Average Un-Biased	1.10E-05	5.23E-06	6.90E-06	8.44E-06	8.28E-06	9.25E-06	9.25E-06
Std Dev Un-Biased	1.35E-04	1.38E-04	1.38E-04	1.38E-04	1.40E-04	1.40E-04	1.40E-04
Ps90%/90% (+KTL) Un-Biased	3.81E-04	3.82E-04	3.84E-04	3.87E-04	3.93E-04	3.94E-04	3.94E-04
Ps90%/90% (-KTL) Un-Biased	-3.59E-04	-3.72E-04	-3.70E-04	-3.70E-04	-3.77E-04	-3.75E-04	-3.75E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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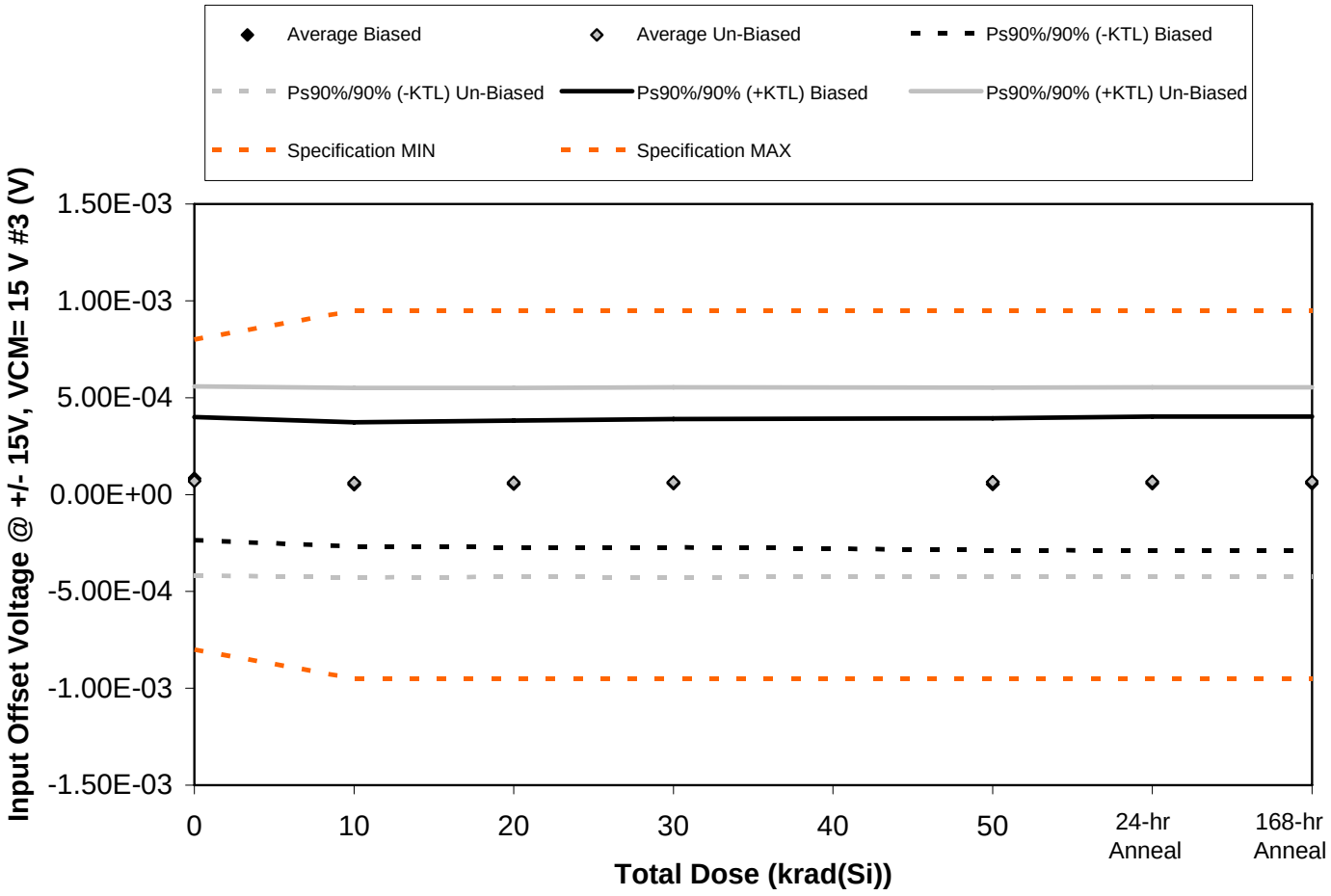

Figure 5.21. Plot of Input Offset Voltage @ +/- 15V, VCM= 15 V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.21. Raw data for Input Offset Voltage @ +/- 15V, VCM= 15 V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= 15 V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.29E-06	-2.11E-05	-1.80E-05	-1.86E-05	-2.32E-05	-2.03E-05	-2.03E-05
867	-7.57E-06	-4.59E-05	-5.01E-05	-5.13E-05	-6.59E-05	-6.02E-05	-6.02E-05
868	2.10E-04	1.97E-04	2.03E-04	2.09E-04	2.08E-04	2.17E-04	2.17E-04
869	2.09E-04	1.62E-04	1.66E-04	1.69E-04	1.64E-04	1.70E-04	1.70E-04
870	-5.75E-06	-2.98E-05	-2.52E-05	-1.56E-05	-1.81E-05	-1.74E-05	-1.74E-05
871	9.56E-05	8.33E-05	8.51E-05	8.64E-05	8.73E-05	8.72E-05	8.72E-05
872	2.12E-04	2.06E-04	2.05E-04	2.09E-04	2.10E-04	2.10E-04	2.10E-04
873	-8.17E-06	-1.87E-05	-1.71E-05	-1.60E-05	-1.62E-05	-1.29E-05	-1.29E-05
874	-1.93E-04	-2.01E-04	-1.99E-04	-2.00E-04	-1.95E-04	-1.95E-04	-1.95E-04
876	2.44E-04	2.36E-04	2.39E-04	2.38E-04	2.39E-04	2.41E-04	2.41E-04
877	1.09E-04	1.07E-04	1.07E-04	1.07E-04	1.07E-04	1.04E-04	1.04E-04
Biased Statistics							
Average Biased	8.25E-05	5.24E-05	5.51E-05	5.86E-05	5.31E-05	5.77E-05	5.77E-05
Std Dev Biased	1.16E-04	1.17E-04	1.19E-04	1.21E-04	1.24E-04	1.26E-04	1.26E-04
Ps90%/90% (+KTL) Biased	4.00E-04	3.73E-04	3.82E-04	3.90E-04	3.93E-04	4.03E-04	4.03E-04
Ps90%/90% (-KTL) Biased	-2.35E-04	-2.68E-04	-2.72E-04	-2.73E-04	-2.87E-04	-2.88E-04	-2.88E-04
Un-Biased Statistics							
Average Un-Biased	7.00E-05	6.13E-05	6.28E-05	6.36E-05	6.49E-05	6.60E-05	6.60E-05
Std Dev Un-Biased	1.78E-04	1.78E-04	1.78E-04	1.79E-04	1.78E-04	1.78E-04	1.78E-04
Ps90%/90% (+KTL) Un-Biased	5.58E-04	5.50E-04	5.51E-04	5.54E-04	5.52E-04	5.53E-04	5.53E-04
Ps90%/90% (-KTL) Un-Biased	-4.18E-04	-4.28E-04	-4.25E-04	-4.26E-04	-4.22E-04	-4.21E-04	-4.21E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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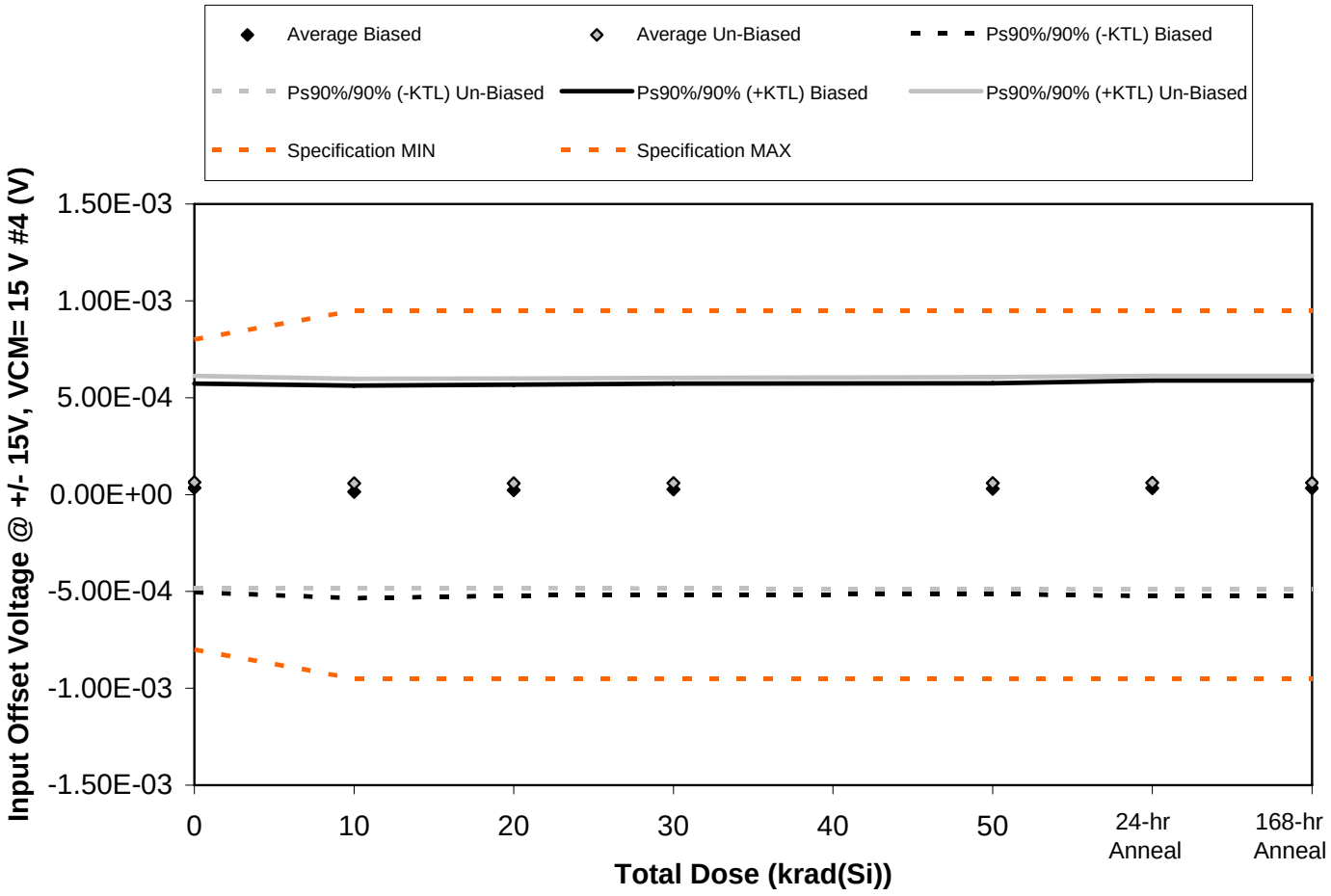

Figure 5.22. Plot of Input Offset Voltage @ +/- 15V, VCM= 15 V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.22. Raw data for Input Offset Voltage @ +/- 15V, VCM= 15 V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= 15 V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.63E-05	2.47E-05	3.68E-05	4.53E-05	5.56E-05	5.85E-05	5.85E-05
867	2.49E-04	2.36E-04	2.39E-04	2.41E-04	2.37E-04	2.47E-04	2.47E-04
868	-1.96E-04	-2.21E-04	-2.13E-04	-2.11E-04	-2.13E-04	-2.17E-04	-2.17E-04
869	2.01E-04	1.84E-04	1.92E-04	1.98E-04	2.02E-04	2.04E-04	2.04E-04
870	-1.30E-04	-1.51E-04	-1.41E-04	-1.35E-04	-1.29E-04	-1.31E-04	-1.31E-04
871	6.07E-05	5.28E-05	5.52E-05	5.35E-05	5.33E-05	5.60E-05	5.60E-05
872	-1.74E-04	-1.80E-04	-1.79E-04	-1.79E-04	-1.82E-04	-1.80E-04	-1.80E-04
873	1.09E-04	1.04E-04	1.06E-04	1.09E-04	1.12E-04	1.14E-04	1.14E-04
874	3.65E-04	3.52E-04	3.52E-04	3.55E-04	3.56E-04	3.61E-04	3.61E-04
876	-4.04E-05	-4.19E-05	-4.20E-05	-4.29E-05	-4.28E-05	-4.24E-05	-4.24E-05
877	4.39E-05	3.99E-05	4.06E-05	3.99E-05	3.86E-05	3.83E-05	3.83E-05
Biased Statistics							
Average Biased	3.42E-05	1.45E-05	2.27E-05	2.76E-05	3.05E-05	3.24E-05	3.24E-05
Std Dev Biased	1.96E-04	2.00E-04	1.99E-04	1.99E-04	1.98E-04	2.03E-04	2.03E-04
Ps90%/90% (+KTL) Biased	5.73E-04	5.63E-04	5.67E-04	5.73E-04	5.74E-04	5.89E-04	5.89E-04
Ps90%/90% (-KTL) Biased	-5.04E-04	-5.34E-04	-5.22E-04	-5.18E-04	-5.13E-04	-5.24E-04	-5.24E-04
Un-Biased Statistics							
Average Un-Biased	6.41E-05	5.74E-05	5.85E-05	5.93E-05	5.91E-05	6.16E-05	6.16E-05
Std Dev Un-Biased	2.00E-04	1.97E-04	1.97E-04	1.98E-04	2.00E-04	2.01E-04	2.01E-04
Ps90%/90% (+KTL) Un-Biased	6.13E-04	5.98E-04	5.99E-04	6.03E-04	6.06E-04	6.13E-04	6.13E-04
Ps90%/90% (-KTL) Un-Biased	-4.84E-04	-4.83E-04	-4.82E-04	-4.84E-04	-4.88E-04	-4.90E-04	-4.90E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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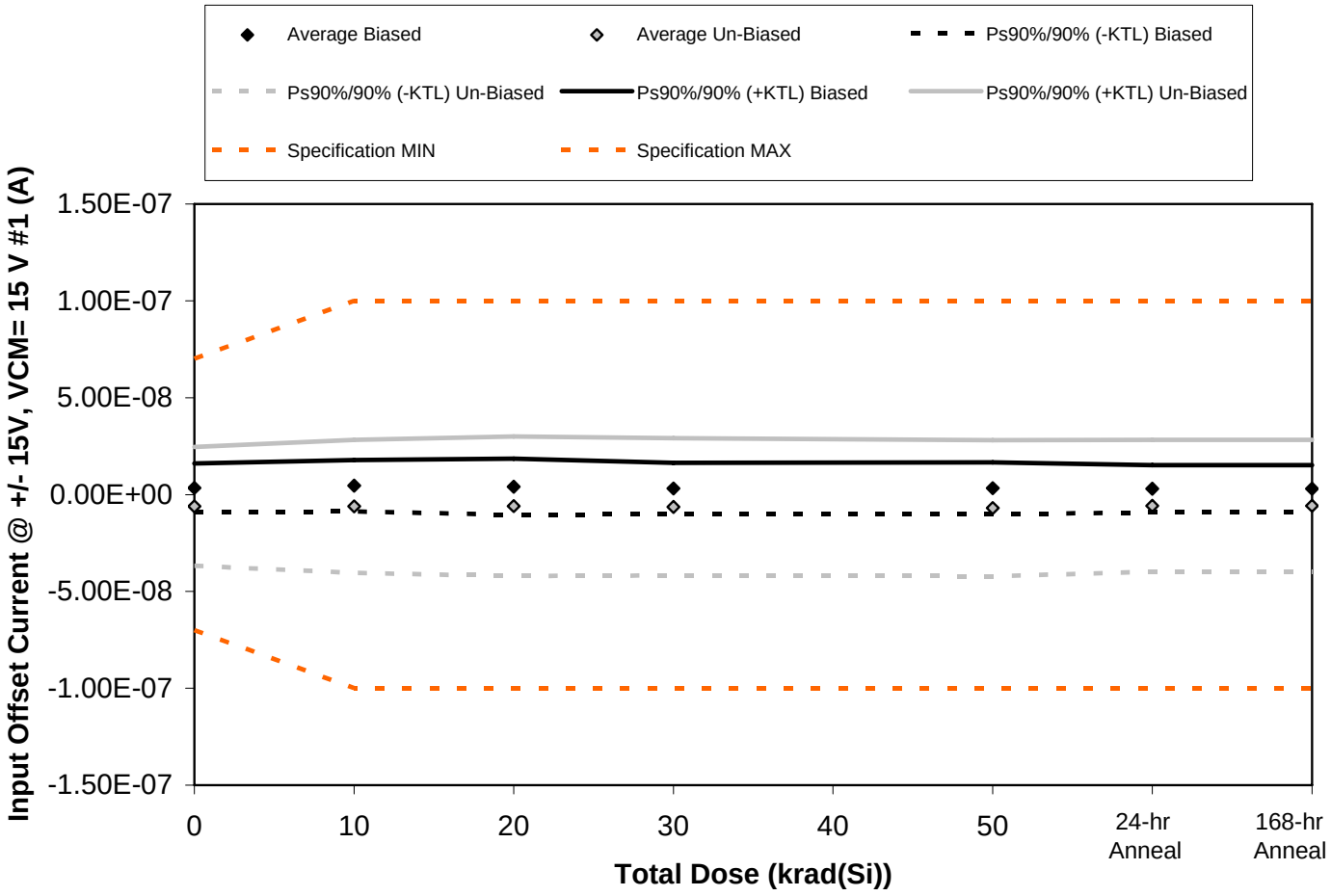

Figure 5.23. Plot of Input Offset Current @ +/- 15V, VCM= 15 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.23. Raw data for Input Offset Current @ +/- 15V, VCM= 15 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= 15 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.07E-09	4.34E-09	4.13E-09	4.16E-09	4.89E-09	4.39E-09	4.39E-09
867	7.47E-09	7.43E-09	5.89E-09	4.95E-09	4.86E-09	4.21E-09	4.21E-09
868	5.81E-09	5.78E-09	4.57E-09	4.36E-09	4.65E-09	4.26E-09	4.26E-09
869	-4.42E-09	-3.54E-09	-4.40E-09	-5.10E-09	-5.33E-09	-4.68E-09	-4.68E-09
870	4.31E-09	8.77E-09	1.02E-08	7.42E-09	7.07E-09	6.85E-09	6.85E-09
871	-9.17E-09	-9.14E-09	-9.38E-09	-9.29E-09	-9.45E-09	-7.38E-09	-7.38E-09
872	-2.34E-08	-2.52E-08	-2.59E-08	-2.58E-08	-2.70E-08	-2.53E-08	-2.53E-08
873	-2.09E-09	-1.14E-09	-1.32E-09	-1.78E-09	-3.00E-09	-2.11E-09	-2.11E-09
874	-2.76E-09	-3.88E-09	-3.16E-09	-4.46E-09	-3.65E-09	-3.06E-09	-3.06E-09
876	6.75E-09	8.87E-09	9.82E-09	9.58E-09	8.02E-09	8.90E-09	8.90E-09
877	-6.11E-09	-6.13E-09	-6.17E-09	-6.16E-09	-6.00E-09	-6.10E-09	-6.10E-09
Biased Statistics							
Average Biased	3.45E-09	4.55E-09	4.07E-09	3.16E-09	3.23E-09	3.00E-09	3.00E-09
Std Dev Biased	4.60E-09	4.82E-09	5.30E-09	4.80E-09	4.88E-09	4.44E-09	4.44E-09
Ps90%/90% (+KTL) Biased	1.61E-08	1.78E-08	1.86E-08	1.63E-08	1.66E-08	1.52E-08	1.52E-08
Ps90%/90% (-KTL) Biased	-9.17E-09	-8.67E-09	-1.05E-08	-1.00E-08	-1.02E-08	-9.17E-09	-9.17E-09
Un-Biased Statistics							
Average Un-Biased	-6.12E-09	-6.09E-09	-5.99E-09	-6.36E-09	-7.01E-09	-5.78E-09	-5.78E-09
Std Dev Un-Biased	1.12E-08	1.25E-08	1.31E-08	1.29E-08	1.28E-08	1.24E-08	1.24E-08
Ps90%/90% (+KTL) Un-Biased	2.45E-08	2.82E-08	3.00E-08	2.91E-08	2.81E-08	2.83E-08	2.83E-08
Ps90%/90% (-KTL) Un-Biased	-3.68E-08	-4.04E-08	-4.20E-08	-4.18E-08	-4.22E-08	-3.99E-08	-3.99E-08
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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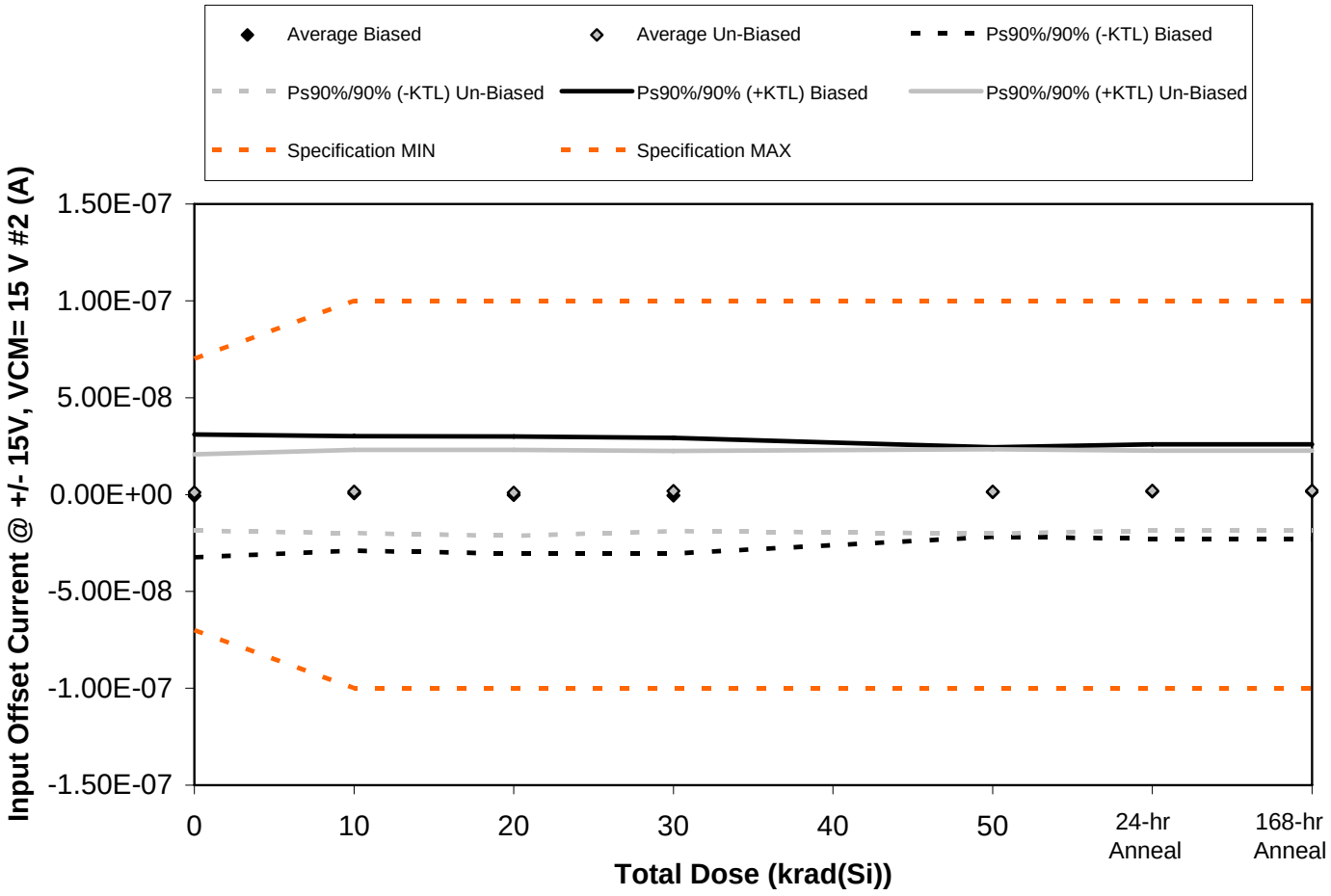

Figure 5.24. Plot of Input Offset Current @ +/- 15V, VCM= 15 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.24. Raw data for Input Offset Current @ +/- 15V, VCM= 15 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= 15 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.08E-08	1.21E-08	1.15E-08	1.09E-08	1.19E-08	1.38E-08	1.38E-08
867	-1.98E-08	-1.69E-08	-1.82E-08	-1.85E-08	-1.14E-08	-1.11E-08	-1.11E-08
868	-1.56E-09	-3.73E-10	-9.33E-10	-1.70E-11	1.95E-10	2.12E-10	2.12E-10
869	2.80E-09	3.02E-09	2.42E-09	1.59E-09	1.36E-09	1.09E-09	1.09E-09
870	4.47E-09	5.30E-09	4.19E-09	3.22E-09	4.26E-09	3.60E-09	3.60E-09
871	1.85E-09	5.70E-09	4.75E-09	4.50E-09	4.33E-09	4.23E-09	4.23E-09
872	1.25E-08	1.32E-08	1.33E-08	1.36E-08	1.44E-08	1.40E-08	1.40E-08
873	-4.43E-09	-3.27E-09	-3.74E-09	-3.52E-09	-4.04E-09	-4.48E-09	-4.48E-09
874	8.91E-10	-1.62E-09	-3.23E-09	-5.07E-10	-3.04E-09	-4.83E-10	-4.83E-10
876	-5.65E-09	-6.08E-09	-6.53E-09	-5.08E-09	-3.75E-09	-3.30E-09	-3.30E-09
877	-3.79E-10	-5.01E-10	-5.45E-10	-4.29E-10	-4.27E-10	-5.47E-10	-5.47E-10
Biased Statistics							
Average Biased	-6.56E-10	6.29E-10	-2.06E-10	-5.62E-10	1.28E-09	1.50E-09	1.50E-09
Std Dev Biased	1.16E-08	1.08E-08	1.10E-08	1.09E-08	8.42E-09	8.89E-09	8.89E-09
Ps90%/90% (+KTL) Biased	3.10E-08	3.02E-08	3.00E-08	2.93E-08	2.44E-08	2.59E-08	2.59E-08
Ps90%/90% (-KTL) Biased	-3.24E-08	-2.89E-08	-3.04E-08	-3.04E-08	-2.18E-08	-2.29E-08	-2.29E-08
Un-Biased Statistics							
Average Un-Biased	1.03E-09	1.59E-09	9.12E-10	1.81E-09	1.57E-09	2.00E-09	2.00E-09
Std Dev Un-Biased	7.18E-09	7.83E-09	8.10E-09	7.55E-09	7.94E-09	7.52E-09	7.52E-09
Ps90%/90% (+KTL) Un-Biased	2.07E-08	2.30E-08	2.31E-08	2.25E-08	2.34E-08	2.26E-08	2.26E-08
Ps90%/90% (-KTL) Un-Biased	-1.87E-08	-1.99E-08	-2.13E-08	-1.89E-08	-2.02E-08	-1.86E-08	-1.86E-08
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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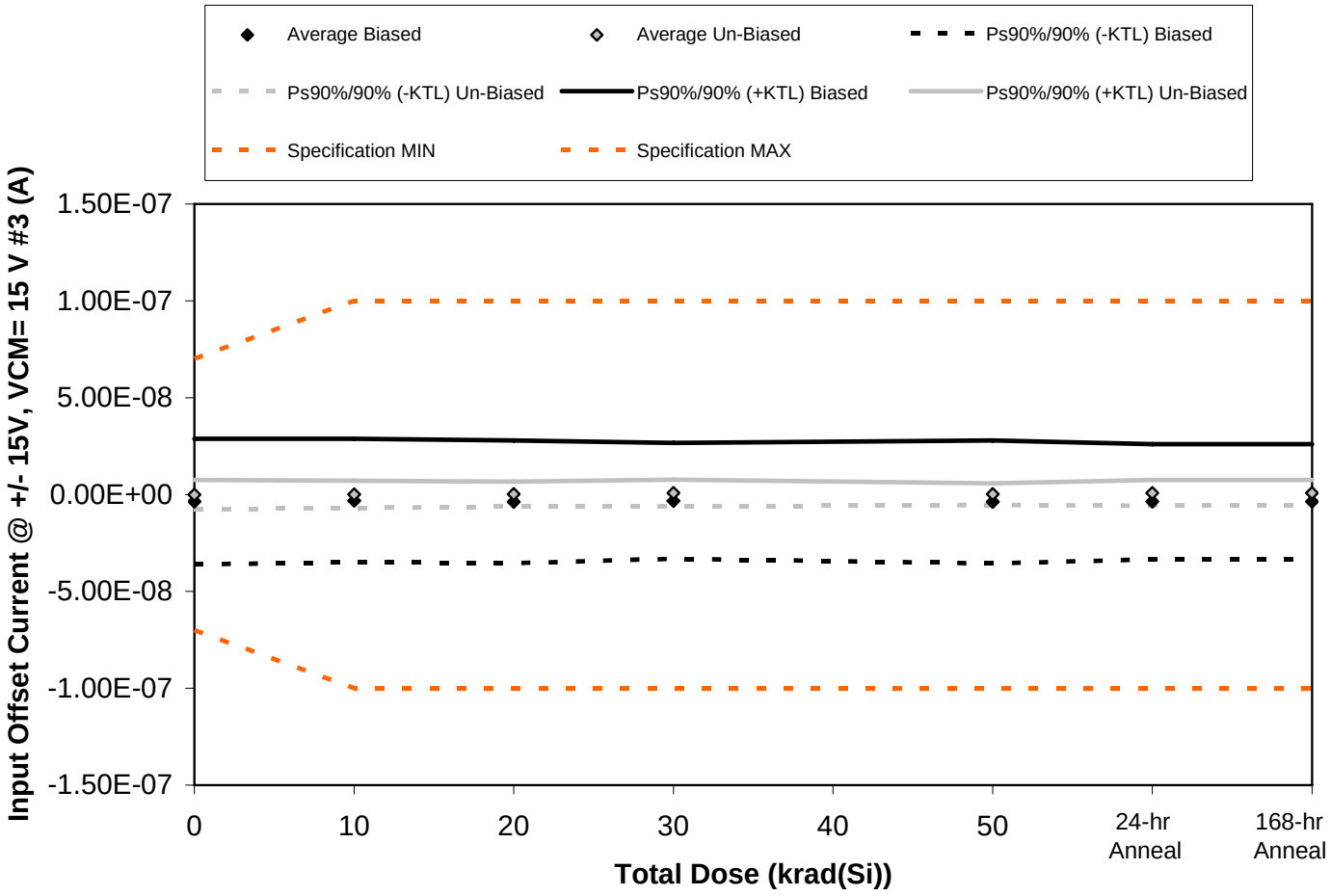

Figure 5.25. Plot of Input Offset Current @ +/- 15V, VCM= 15 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.25. Raw data for Input Offset Current @ +/- 15V, VCM= 15 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= 15 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.63E-09	8.96E-09	8.78E-09	8.04E-09	8.22E-09	7.40E-09	7.40E-09
867	-1.69E-08	-1.63E-08	-1.69E-08	-1.55E-08	-1.67E-08	-1.59E-08	-1.59E-08
868	-1.37E-08	-1.25E-08	-1.28E-08	-1.23E-08	-1.37E-08	-1.26E-08	-1.26E-08
869	9.58E-09	8.40E-09	7.25E-09	7.52E-09	7.45E-09	7.25E-09	7.25E-09
870	-3.52E-09	-4.26E-09	-4.99E-09	-4.08E-09	-4.28E-09	-4.45E-09	-4.45E-09
871	-7.63E-10	-9.12E-10	-5.12E-10	-3.73E-10	4.58E-10	1.43E-10	1.43E-10
872	4.08E-09	4.09E-09	3.37E-09	5.29E-09	3.28E-09	4.56E-09	4.56E-09
873	-3.45E-09	-2.52E-09	-3.08E-09	-9.68E-10	-2.26E-09	-1.73E-09	-1.73E-09
874	-1.15E-09	-1.09E-09	-6.70E-11	-3.20E-11	5.37E-10	1.71E-09	1.71E-09
876	7.11E-10	8.37E-10	1.21E-09	8.50E-11	-8.50E-10	-6.09E-10	-6.09E-10
877	-2.37E-09	-2.48E-09	-2.39E-09	-2.52E-09	-2.34E-09	-2.50E-09	-2.50E-09
Biased Statistics							
Average Biased	-3.60E-09	-3.14E-09	-3.72E-09	-3.26E-09	-3.80E-09	-3.66E-09	-3.66E-09
Std Dev Biased	1.18E-08	1.16E-08	1.16E-08	1.09E-08	1.16E-08	1.09E-08	1.09E-08
Ps90%/90% (+KTL) Biased	2.88E-08	2.88E-08	2.79E-08	2.66E-08	2.79E-08	2.61E-08	2.61E-08
Ps90%/90% (-KTL) Biased	-3.60E-08	-3.51E-08	-3.54E-08	-3.31E-08	-3.55E-08	-3.34E-08	-3.34E-08
Un-Biased Statistics							
Average Un-Biased	-1.15E-10	8.10E-11	1.84E-10	8.00E-10	2.34E-10	8.14E-10	8.14E-10
Std Dev Un-Biased	2.78E-09	2.54E-09	2.37E-09	2.54E-09	2.05E-09	2.44E-09	2.44E-09
Ps90%/90% (+KTL) Un-Biased	7.50E-09	7.04E-09	6.67E-09	7.77E-09	5.85E-09	7.50E-09	7.50E-09
Ps90%/90% (-KTL) Un-Biased	-7.73E-09	-6.88E-09	-6.30E-09	-6.17E-09	-5.39E-09	-5.87E-09	-5.87E-09
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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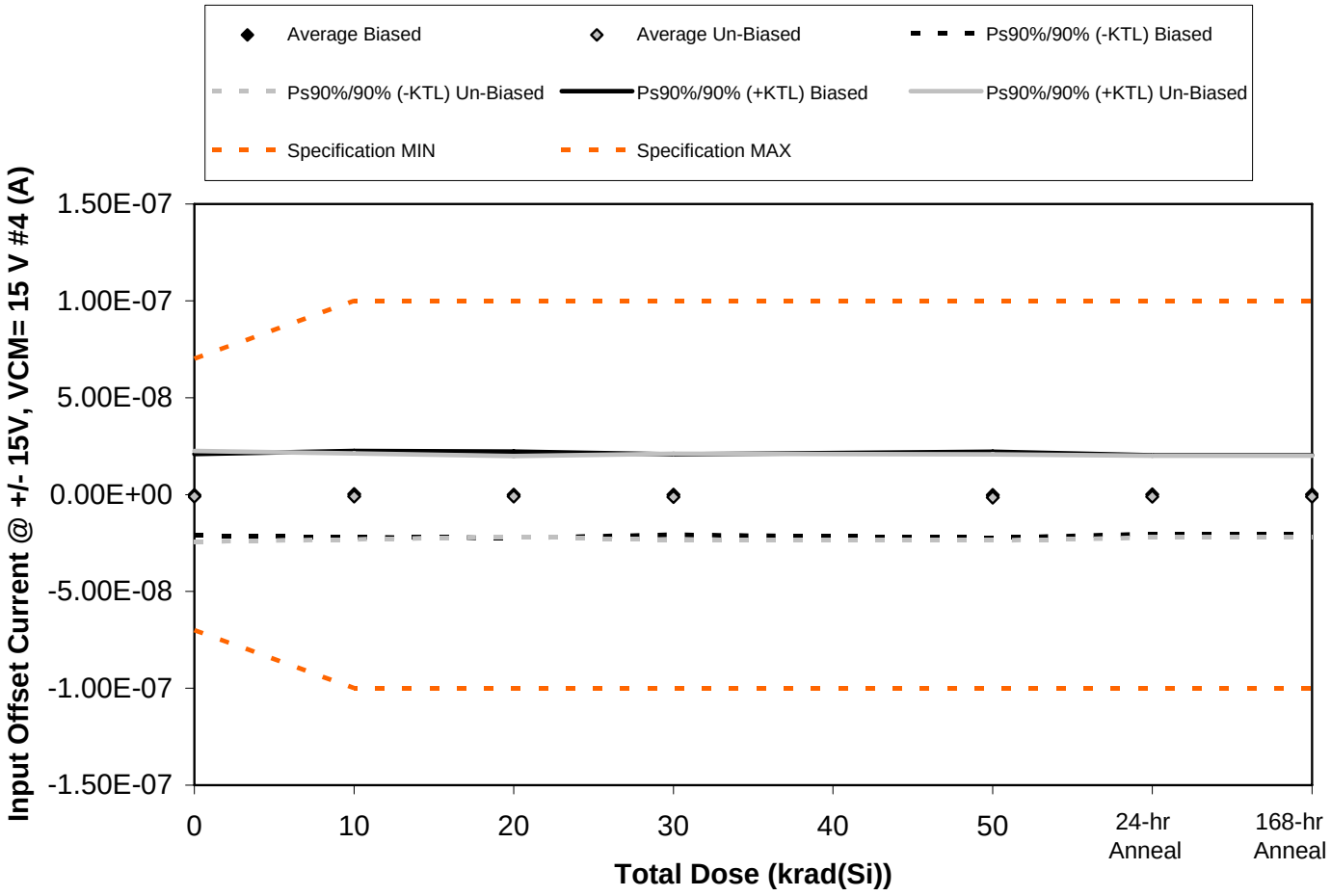

Figure 5.26. Plot of Input Offset Current @ +/- 15V, VCM= 15 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.26. Raw data for Input Offset Current @ +/- 15V, VCM= 15 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= 15 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	9.18E-09	1.05E-08	1.02E-08	9.78E-09	1.02E-08	9.44E-09	9.44E-09
867	-1.80E-09	-8.73E-10	-8.04E-10	-1.30E-09	-1.83E-09	-1.35E-09	-1.35E-09
868	-6.02E-09	-5.42E-09	-6.02E-09	-5.30E-09	-5.60E-09	-5.03E-09	-5.03E-09
869	-8.54E-09	-9.35E-09	-9.53E-09	-8.74E-09	-9.51E-09	-8.49E-09	-8.49E-09
870	6.26E-09	6.06E-09	5.68E-09	5.28E-09	5.79E-09	5.51E-09	5.51E-09
871	-8.51E-09	-8.39E-09	-7.65E-09	-8.54E-09	-9.11E-09	-7.74E-09	-7.74E-09
872	-1.70E-10	-7.85E-10	-1.06E-09	-7.15E-10	-1.86E-09	-1.70E-09	-1.70E-09
873	1.19E-08	1.18E-08	1.11E-08	1.15E-08	1.03E-08	1.04E-08	1.04E-08
874	1.19E-09	1.07E-10	-1.30E-11	-1.70E-11	2.07E-09	1.77E-09	1.77E-09
876	-8.85E-09	-7.37E-09	-7.15E-09	-8.18E-09	-8.76E-09	-8.41E-09	-8.41E-09
877	-5.22E-09	-5.32E-09	-5.25E-09	-5.17E-09	-5.20E-09	-5.20E-09	-5.20E-09
Biased Statistics							
Average Biased	-1.84E-10	1.81E-10	-9.58E-11	-5.60E-11	-1.91E-10	1.38E-11	1.38E-11
Std Dev Biased	7.68E-09	8.12E-09	8.12E-09	7.57E-09	8.10E-09	7.40E-09	7.40E-09
Ps90%/90% (+KTL) Biased	2.09E-08	2.25E-08	2.22E-08	2.07E-08	2.20E-08	2.03E-08	2.03E-08
Ps90%/90% (-KTL) Biased	-2.12E-08	-2.21E-08	-2.24E-08	-2.08E-08	-2.24E-08	-2.03E-08	-2.03E-08
Un-Biased Statistics							
Average Un-Biased	-8.87E-10	-9.28E-10	-9.46E-10	-1.20E-09	-1.47E-09	-1.14E-09	-1.14E-09
Std Dev Un-Biased	8.51E-09	8.07E-09	7.59E-09	8.14E-09	8.10E-09	7.71E-09	7.71E-09
Ps90%/90% (+KTL) Un-Biased	2.25E-08	2.12E-08	1.99E-08	2.11E-08	2.07E-08	2.00E-08	2.00E-08
Ps90%/90% (-KTL) Un-Biased	-2.42E-08	-2.30E-08	-2.18E-08	-2.35E-08	-2.37E-08	-2.23E-08	-2.23E-08
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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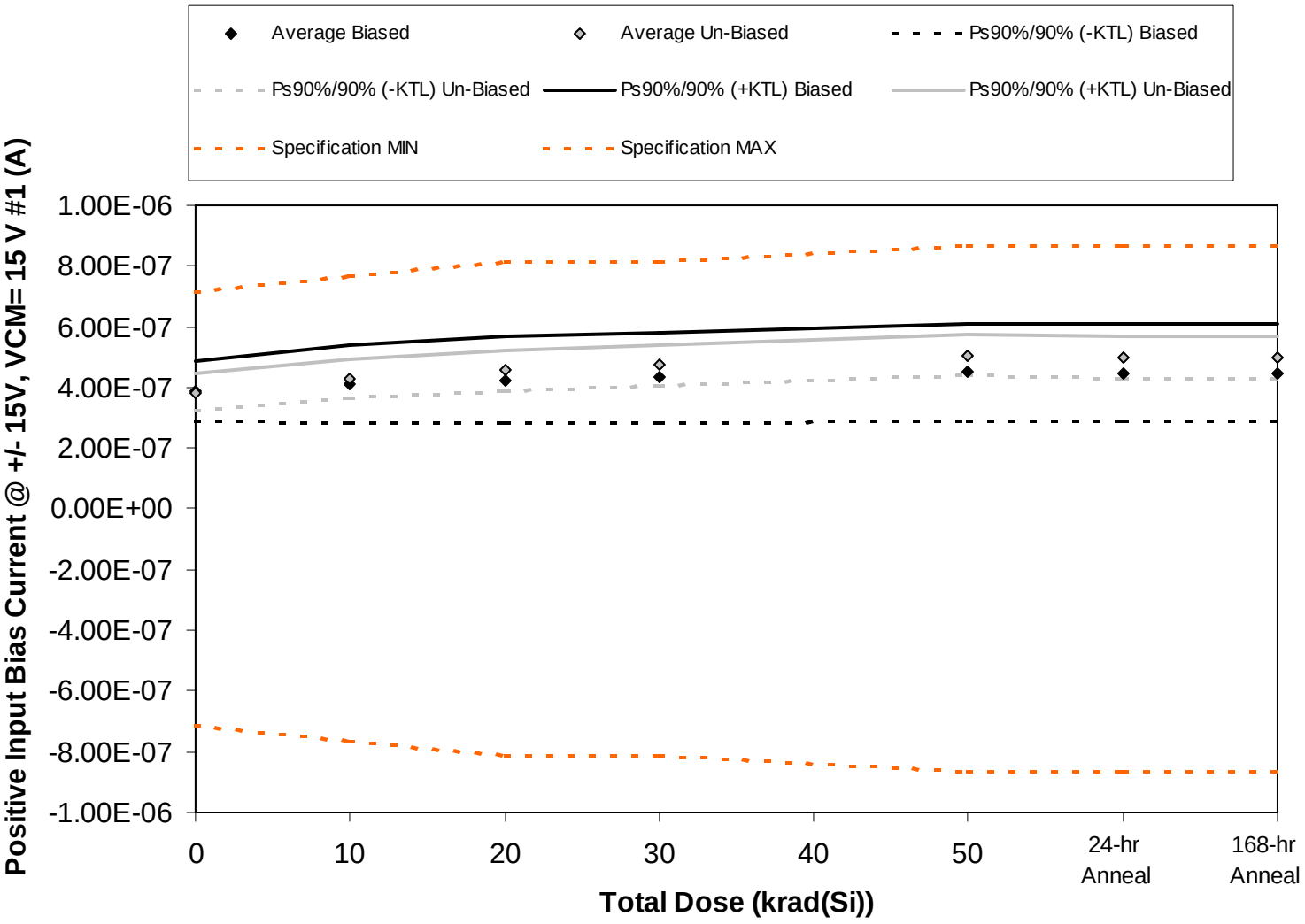

Figure 5.27. Plot of Positive Input Bias Current @ +/- 15V, VCM= 15 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.27. Raw data for Positive Input Bias Current @ +/- 15V, VCM= 15 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= 15 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.43E-07	4.88E-07	5.10E-07	5.23E-07	5.51E-07	5.47E-07	5.47E-07
867	3.58E-07	3.77E-07	3.88E-07	3.96E-07	4.14E-07	4.11E-07	4.11E-07
868	3.55E-07	3.71E-07	3.82E-07	3.89E-07	4.07E-07	4.05E-07	4.05E-07
869	3.80E-07	3.96E-07	4.07E-07	4.14E-07	4.28E-07	4.25E-07	4.25E-07
870	3.96E-07	4.20E-07	4.32E-07	4.37E-07	4.52E-07	4.48E-07	4.48E-07
871	4.21E-07	4.63E-07	4.88E-07	5.05E-07	5.37E-07	5.35E-07	5.35E-07
872	3.86E-07	4.34E-07	4.60E-07	4.80E-07	5.14E-07	5.10E-07	5.10E-07
873	3.65E-07	4.09E-07	4.33E-07	4.50E-07	4.81E-07	4.77E-07	4.77E-07
874	3.86E-07	4.36E-07	4.63E-07	4.82E-07	5.16E-07	5.10E-07	5.10E-07
876	3.65E-07	4.07E-07	4.31E-07	4.49E-07	4.80E-07	4.74E-07	4.74E-07
877	4.01E-07	4.05E-07	4.06E-07	4.06E-07	4.07E-07	4.07E-07	4.07E-07
Biased Statistics							
Average Biased	3.87E-07	4.10E-07	4.24E-07	4.32E-07	4.50E-07	4.47E-07	4.47E-07
Std Dev Biased	3.60E-08	4.73E-08	5.20E-08	5.44E-08	5.89E-08	5.83E-08	5.83E-08
Ps90%/90% (+KTL) Biased	4.85E-07	5.40E-07	5.66E-07	5.81E-07	6.12E-07	6.07E-07	6.07E-07
Ps90%/90% (-KTL) Biased	2.88E-07	2.81E-07	2.81E-07	2.82E-07	2.89E-07	2.87E-07	2.87E-07
Un-Biased Statistics							
Average Un-Biased	3.84E-07	4.30E-07	4.55E-07	4.73E-07	5.06E-07	5.01E-07	5.01E-07
Std Dev Un-Biased	2.27E-08	2.30E-08	2.37E-08	2.40E-08	2.47E-08	2.56E-08	2.56E-08
Ps90%/90% (+KTL) Un-Biased	4.47E-07	4.93E-07	5.20E-07	5.39E-07	5.74E-07	5.71E-07	5.71E-07
Ps90%/90% (-KTL) Un-Biased	3.22E-07	3.67E-07	3.90E-07	4.07E-07	4.38E-07	4.31E-07	4.31E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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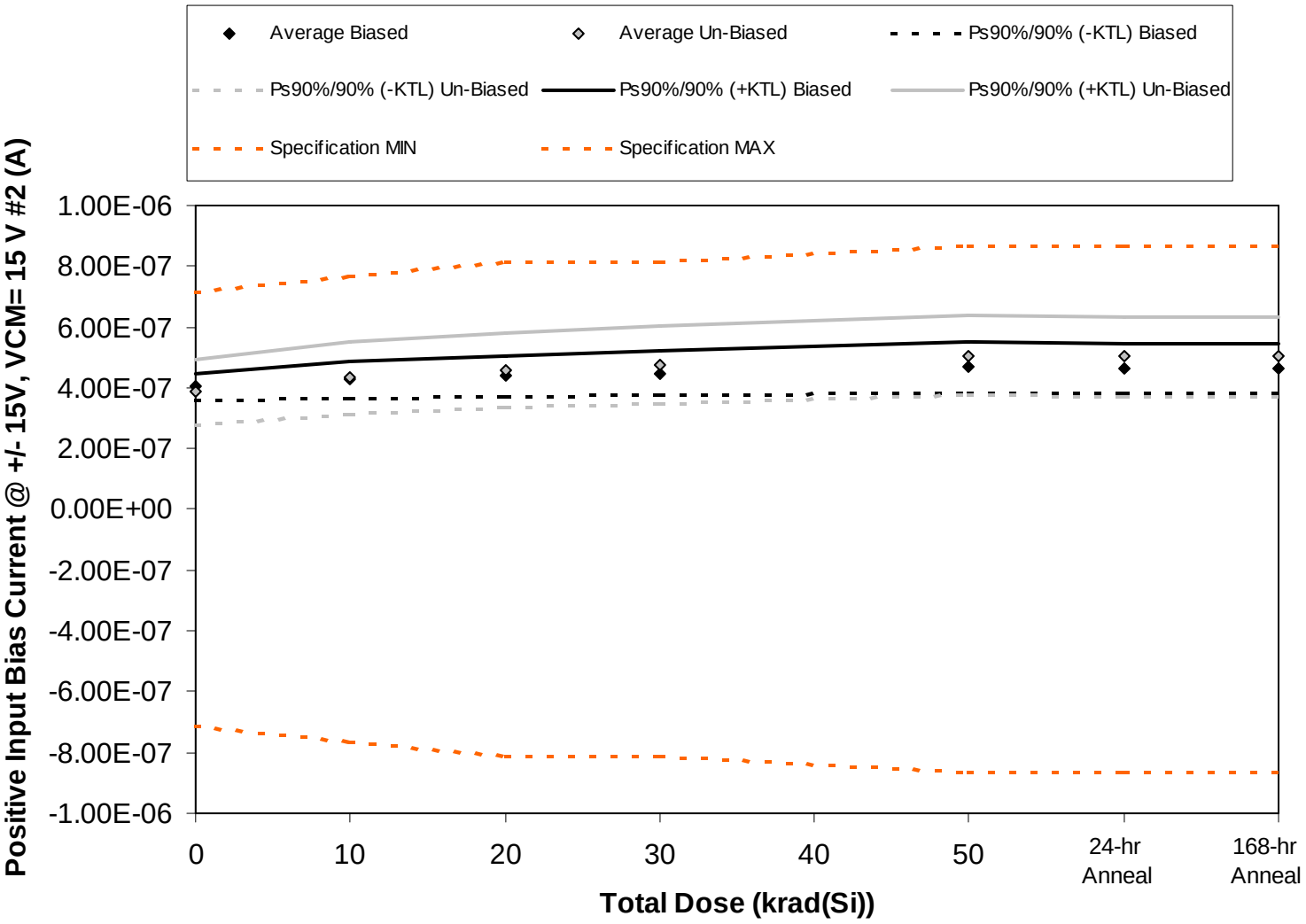

Figure 5.28. Plot of Positive Input Bias Current @ +/- 15V, VCM= 15 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.28. Raw data for Positive Input Bias Current @ +/- 15V, VCM= 15 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= 15 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.12E-07	4.54E-07	4.72E-07	4.86E-07	5.13E-07	5.10E-07	5.10E-07
867	4.02E-07	4.23E-07	4.37E-07	4.46E-07	4.65E-07	4.62E-07	4.62E-07
868	3.90E-07	4.10E-07	4.20E-07	4.28E-07	4.47E-07	4.45E-07	4.45E-07
869	3.84E-07	4.03E-07	4.12E-07	4.21E-07	4.36E-07	4.33E-07	4.33E-07
870	4.24E-07	4.44E-07	4.54E-07	4.62E-07	4.80E-07	4.78E-07	4.78E-07
871	3.29E-07	3.69E-07	3.90E-07	4.08E-07	4.35E-07	4.31E-07	4.31E-07
872	4.07E-07	4.46E-07	4.69E-07	4.89E-07	5.18E-07	5.14E-07	5.14E-07
873	4.34E-07	4.88E-07	5.11E-07	5.31E-07	5.66E-07	5.60E-07	5.60E-07
874	3.93E-07	4.45E-07	4.73E-07	4.91E-07	5.24E-07	5.20E-07	5.20E-07
876	3.68E-07	4.12E-07	4.39E-07	4.58E-07	4.92E-07	4.86E-07	4.86E-07
877	3.62E-07	3.65E-07	3.63E-07	3.61E-07	3.62E-07	3.63E-07	3.63E-07
Biased Statistics							
Average Biased	4.02E-07	4.27E-07	4.39E-07	4.49E-07	4.68E-07	4.66E-07	4.66E-07
Std Dev Biased	1.62E-08	2.20E-08	2.46E-08	2.63E-08	3.05E-08	2.99E-08	2.99E-08
Ps90%/90% (+KTL) Biased	4.47E-07	4.87E-07	5.07E-07	5.21E-07	5.52E-07	5.48E-07	5.48E-07
Ps90%/90% (-KTL) Biased	3.58E-07	3.66E-07	3.72E-07	3.77E-07	3.85E-07	3.83E-07	3.83E-07
Un-Biased Statistics							
Average Un-Biased	3.86E-07	4.32E-07	4.56E-07	4.75E-07	5.07E-07	5.02E-07	5.02E-07
Std Dev Un-Biased	3.98E-08	4.44E-08	4.51E-08	4.58E-08	4.82E-08	4.80E-08	4.80E-08
Ps90%/90% (+KTL) Un-Biased	4.96E-07	5.54E-07	5.80E-07	6.01E-07	6.39E-07	6.34E-07	6.34E-07
Ps90%/90% (-KTL) Un-Biased	2.77E-07	3.10E-07	3.32E-07	3.50E-07	3.75E-07	3.71E-07	3.71E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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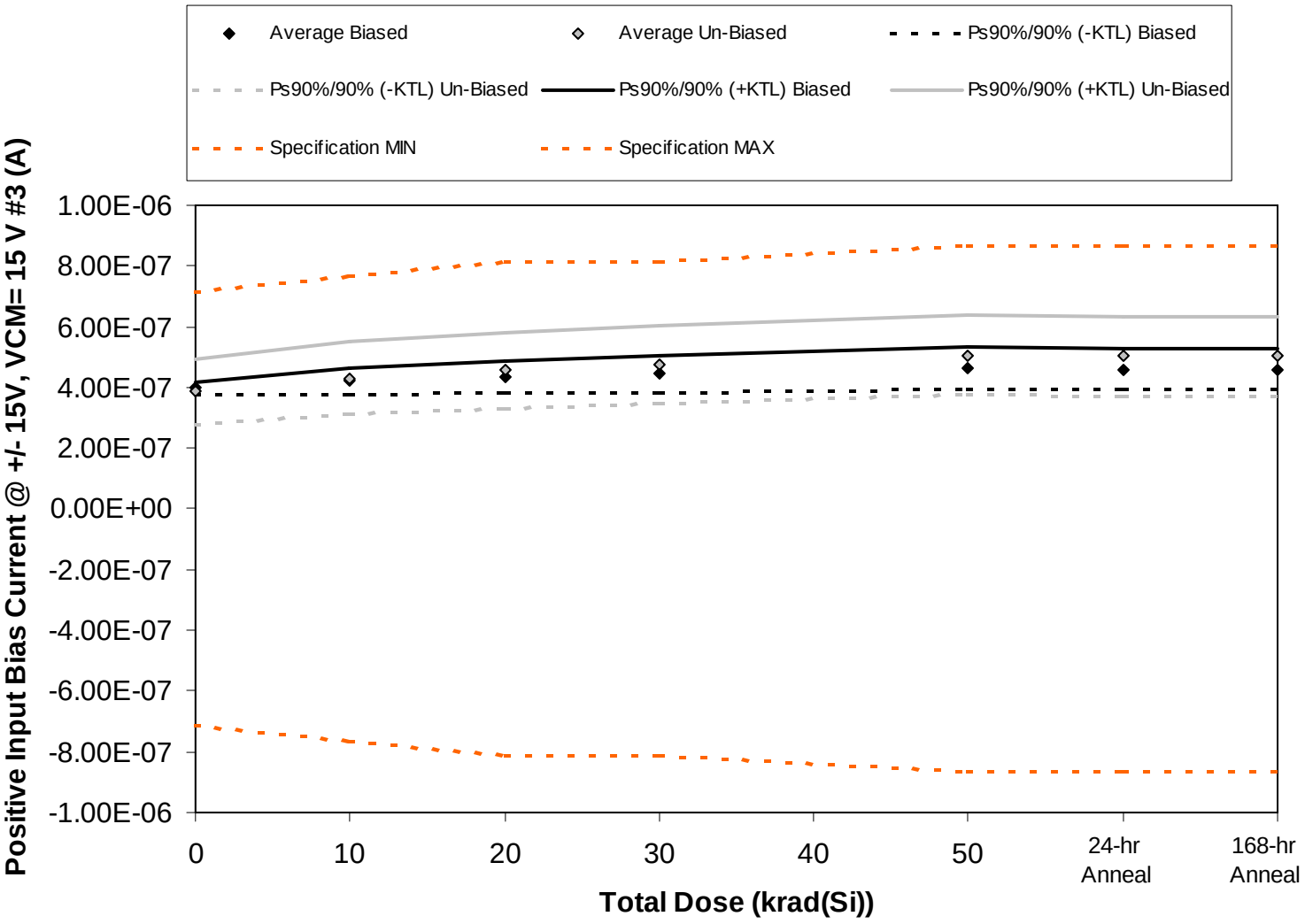

Figure 5.29. Plot of Positive Input Bias Current @ +/- 15V, VCM= 15 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.29. Raw data for Positive Input Bias Current @ +/- 15V, VCM= 15 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= 15 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.00E-07	4.45E-07	4.63E-07	4.77E-07	5.03E-07	4.98E-07	4.98E-07
867	4.03E-07	4.26E-07	4.39E-07	4.47E-07	4.65E-07	4.63E-07	4.63E-07
868	3.90E-07	4.05E-07	4.15E-07	4.23E-07	4.40E-07	4.37E-07	4.37E-07
869	3.89E-07	4.08E-07	4.18E-07	4.26E-07	4.42E-07	4.40E-07	4.40E-07
870	4.05E-07	4.26E-07	4.40E-07	4.49E-07	4.65E-07	4.63E-07	4.63E-07
871	3.37E-07	3.72E-07	3.94E-07	4.11E-07	4.41E-07	4.37E-07	4.37E-07
872	3.92E-07	4.32E-07	4.56E-07	4.75E-07	5.07E-07	5.01E-07	5.01E-07
873	4.43E-07	4.92E-07	5.17E-07	5.39E-07	5.74E-07	5.69E-07	5.69E-07
874	3.92E-07	4.41E-07	4.69E-07	4.90E-07	5.24E-07	5.20E-07	5.20E-07
876	3.67E-07	4.13E-07	4.39E-07	4.58E-07	4.91E-07	4.86E-07	4.86E-07
877	3.55E-07	3.57E-07	3.56E-07	3.57E-07	3.59E-07	3.58E-07	3.58E-07
Biased Statistics							
Average Biased	3.98E-07	4.22E-07	4.35E-07	4.44E-07	4.63E-07	4.60E-07	4.60E-07
Std Dev Biased	7.48E-09	1.62E-08	1.94E-08	2.19E-08	2.54E-08	2.45E-08	2.45E-08
Ps90%/90% (+KTL) Biased	4.18E-07	4.66E-07	4.88E-07	5.04E-07	5.33E-07	5.27E-07	5.27E-07
Ps90%/90% (-KTL) Biased	3.77E-07	3.77E-07	3.82E-07	3.84E-07	3.94E-07	3.93E-07	3.93E-07
Un-Biased Statistics							
Average Un-Biased	3.86E-07	4.30E-07	4.55E-07	4.75E-07	5.07E-07	5.03E-07	5.03E-07
Std Dev Un-Biased	3.90E-08	4.37E-08	4.49E-08	4.67E-08	4.84E-08	4.81E-08	4.81E-08
Ps90%/90% (+KTL) Un-Biased	4.93E-07	5.50E-07	5.78E-07	6.03E-07	6.40E-07	6.34E-07	6.34E-07
Ps90%/90% (-KTL) Un-Biased	2.79E-07	3.10E-07	3.32E-07	3.47E-07	3.75E-07	3.71E-07	3.71E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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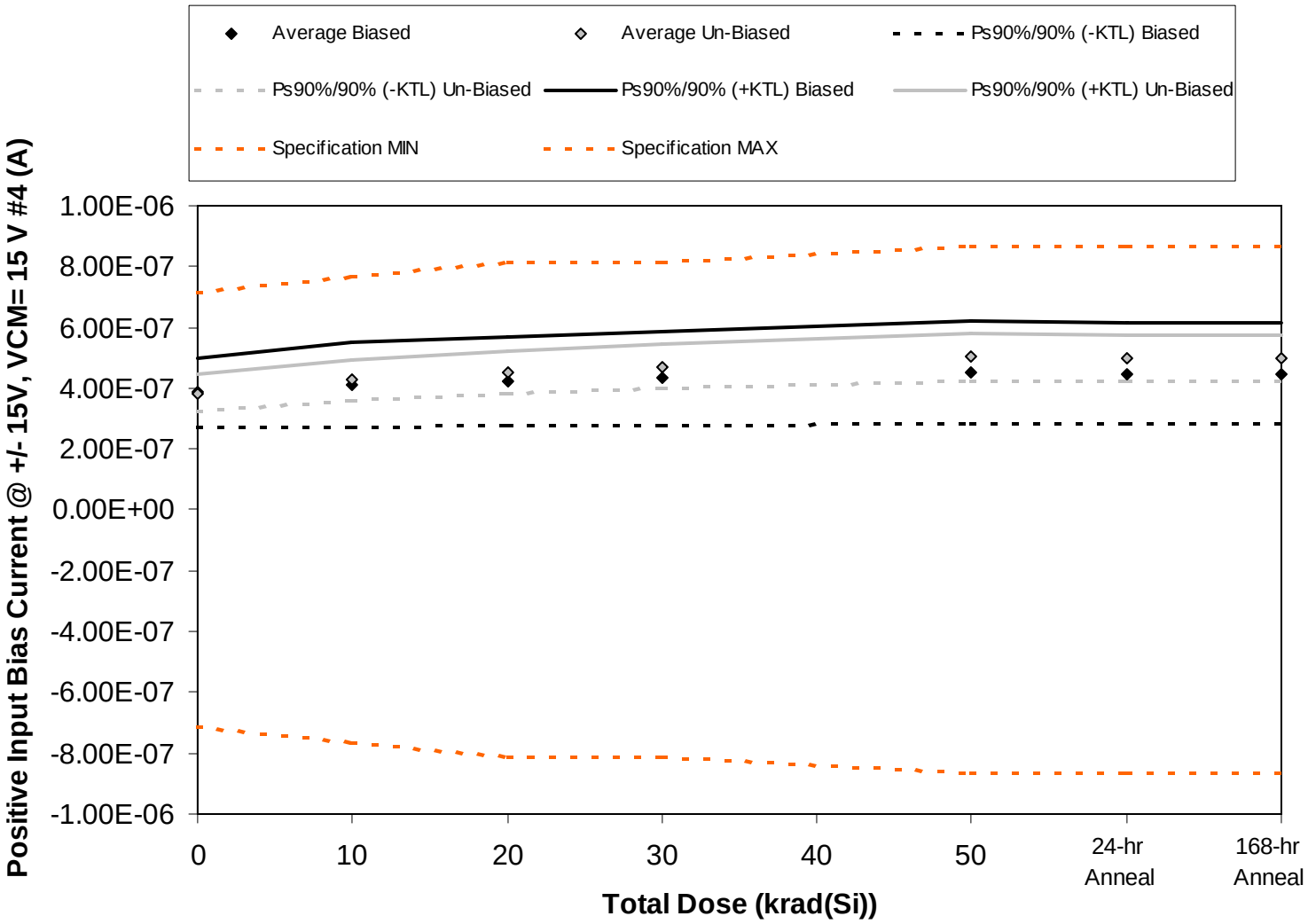

Figure 5.30. Plot of Positive Input Bias Current @ +/- 15V, VCM= 15 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.30. Raw data for Positive Input Bias Current @ +/- 15V, VCM= 15 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= 15 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.46E-07	4.91E-07	5.10E-07	5.25E-07	5.53E-07	5.49E-07	5.49E-07
867	3.51E-07	3.72E-07	3.85E-07	3.94E-07	4.11E-07	4.10E-07	4.10E-07
868	3.46E-07	3.65E-07	3.75E-07	3.82E-07	3.98E-07	3.97E-07	3.97E-07
869	3.81E-07	3.99E-07	4.10E-07	4.17E-07	4.33E-07	4.29E-07	4.29E-07
870	4.05E-07	4.21E-07	4.31E-07	4.40E-07	4.55E-07	4.52E-07	4.52E-07
871	4.11E-07	4.55E-07	4.79E-07	5.00E-07	5.31E-07	5.28E-07	5.28E-07
872	3.94E-07	4.39E-07	4.66E-07	4.87E-07	5.21E-07	5.14E-07	5.14E-07
873	3.73E-07	4.17E-07	4.40E-07	4.57E-07	4.90E-07	4.84E-07	4.84E-07
874	3.86E-07	4.31E-07	4.57E-07	4.78E-07	5.10E-07	5.05E-07	5.05E-07
876	3.52E-07	3.90E-07	4.12E-07	4.31E-07	4.59E-07	4.56E-07	4.56E-07
877	4.03E-07	4.04E-07	4.04E-07	4.04E-07	4.06E-07	4.06E-07	4.06E-07
Biased Statistics							
Average Biased	3.86E-07	4.10E-07	4.22E-07	4.32E-07	4.50E-07	4.47E-07	4.47E-07
Std Dev Biased	4.14E-08	5.09E-08	5.40E-08	5.69E-08	6.15E-08	6.06E-08	6.06E-08
Ps90%/90% (+KTL) Biased	4.99E-07	5.49E-07	5.70E-07	5.88E-07	6.19E-07	6.13E-07	6.13E-07
Ps90%/90% (-KTL) Biased	2.73E-07	2.70E-07	2.74E-07	2.76E-07	2.81E-07	2.81E-07	2.81E-07
Un-Biased Statistics							
Average Un-Biased	3.83E-07	4.26E-07	4.51E-07	4.71E-07	5.02E-07	4.97E-07	4.97E-07
Std Dev Un-Biased	2.23E-08	2.44E-08	2.60E-08	2.70E-08	2.85E-08	2.82E-08	2.82E-08
Ps90%/90% (+KTL) Un-Biased	4.44E-07	4.93E-07	5.22E-07	5.44E-07	5.81E-07	5.75E-07	5.75E-07
Ps90%/90% (-KTL) Un-Biased	3.22E-07	3.60E-07	3.80E-07	3.97E-07	4.24E-07	4.20E-07	4.20E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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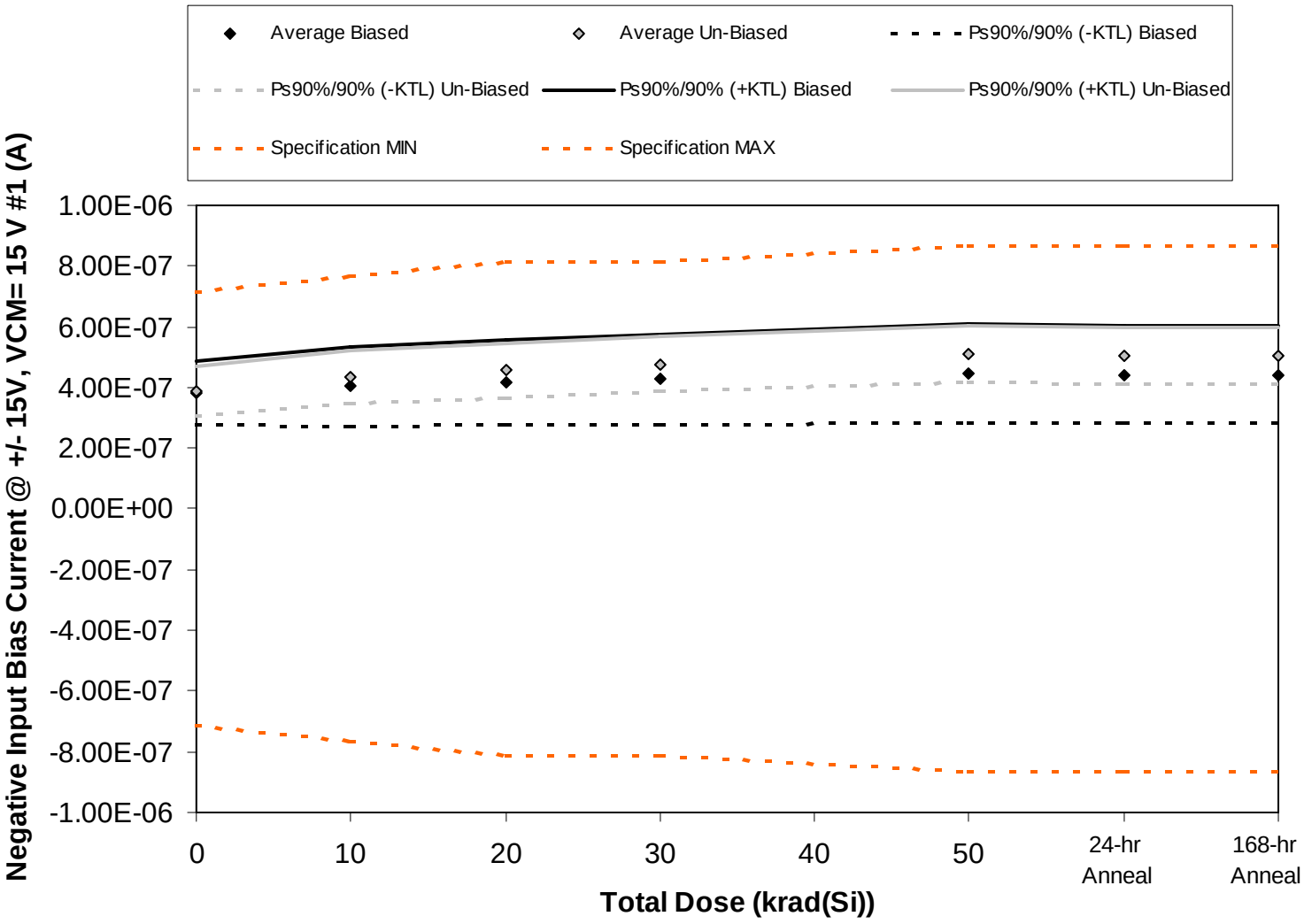

Figure 5.31. Plot of Negative Input Bias Current @ +/- 15V, VCM= 15 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.31. Raw data for Negative Input Bias Current @ +/- 15V, VCM= 15 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= 15 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.38E-07	4.81E-07	5.01E-07	5.17E-07	5.45E-07	5.41E-07	5.41E-07
867	3.47E-07	3.68E-07	3.80E-07	3.88E-07	4.06E-07	4.04E-07	4.04E-07
868	3.44E-07	3.62E-07	3.74E-07	3.82E-07	3.99E-07	3.97E-07	3.97E-07
869	3.81E-07	3.97E-07	4.07E-07	4.15E-07	4.31E-07	4.26E-07	4.26E-07
870	3.89E-07	4.07E-07	4.19E-07	4.28E-07	4.42E-07	4.40E-07	4.40E-07
871	4.26E-07	4.70E-07	4.95E-07	5.14E-07	5.45E-07	5.40E-07	5.40E-07
872	4.07E-07	4.55E-07	4.83E-07	5.03E-07	5.37E-07	5.32E-07	5.32E-07
873	3.64E-07	4.05E-07	4.30E-07	4.49E-07	4.80E-07	4.76E-07	4.76E-07
874	3.87E-07	4.35E-07	4.63E-07	4.82E-07	5.17E-07	5.11E-07	5.11E-07
876	3.56E-07	3.96E-07	4.18E-07	4.38E-07	4.70E-07	4.65E-07	4.65E-07
877	4.07E-07	4.09E-07	4.09E-07	4.08E-07	4.10E-07	4.09E-07	4.09E-07
Biased Statistics							
Average Biased	3.80E-07	4.03E-07	4.16E-07	4.26E-07	4.44E-07	4.42E-07	4.42E-07
Std Dev Biased	3.84E-08	4.77E-08	5.11E-08	5.43E-08	5.91E-08	5.82E-08	5.82E-08
Ps90%/90% (+KTL) Biased	4.85E-07	5.34E-07	5.56E-07	5.75E-07	6.06E-07	6.01E-07	6.01E-07
Ps90%/90% (-KTL) Biased	2.75E-07	2.72E-07	2.76E-07	2.77E-07	2.82E-07	2.82E-07	2.82E-07
Un-Biased Statistics							
Average Un-Biased	3.88E-07	4.32E-07	4.58E-07	4.77E-07	5.10E-07	5.05E-07	5.05E-07
Std Dev Un-Biased	2.92E-08	3.17E-08	3.30E-08	3.28E-08	3.36E-08	3.31E-08	3.31E-08
Ps90%/90% (+KTL) Un-Biased	4.68E-07	5.19E-07	5.48E-07	5.67E-07	6.02E-07	5.96E-07	5.96E-07
Ps90%/90% (-KTL) Un-Biased	3.08E-07	3.45E-07	3.67E-07	3.87E-07	4.18E-07	4.14E-07	4.14E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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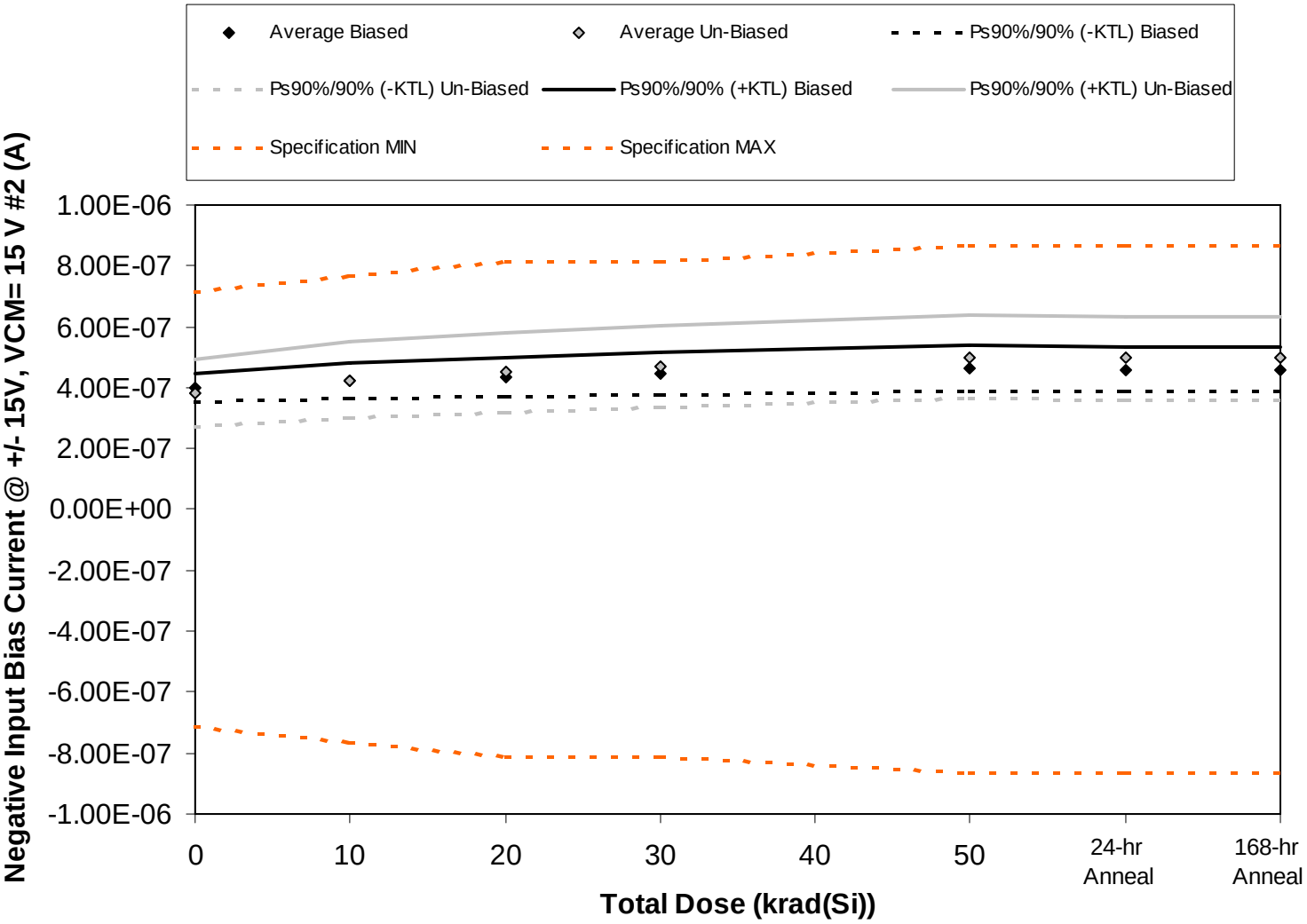

Figure 5.32. Plot of Negative Input Bias Current @ +/- 15V, VCM= 15 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.32. Raw data for Negative Input Bias Current @ +/- 15V, VCM= 15 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= 15 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.98E-07	4.37E-07	4.58E-07	4.73E-07	4.99E-07	4.93E-07	4.93E-07
867	4.16E-07	4.36E-07	4.50E-07	4.61E-07	4.71E-07	4.70E-07	4.70E-07
868	3.87E-07	4.06E-07	4.17E-07	4.25E-07	4.41E-07	4.40E-07	4.40E-07
869	3.76E-07	3.94E-07	4.05E-07	4.14E-07	4.30E-07	4.29E-07	4.29E-07
870	4.15E-07	4.37E-07	4.48E-07	4.55E-07	4.73E-07	4.72E-07	4.72E-07
871	3.26E-07	3.59E-07	3.80E-07	3.97E-07	4.26E-07	4.23E-07	4.23E-07
872	3.90E-07	4.29E-07	4.53E-07	4.70E-07	5.03E-07	4.97E-07	4.97E-07
873	4.36E-07	4.83E-07	5.09E-07	5.30E-07	5.66E-07	5.61E-07	5.61E-07
874	3.87E-07	4.43E-07	4.69E-07	4.90E-07	5.22E-07	5.17E-07	5.17E-07
876	3.70E-07	4.13E-07	4.39E-07	4.58E-07	4.89E-07	4.87E-07	4.87E-07
877	3.57E-07	3.58E-07	3.59E-07	3.54E-07	3.62E-07	3.61E-07	3.61E-07
Biased Statistics							
Average Biased	3.98E-07	4.22E-07	4.36E-07	4.45E-07	4.63E-07	4.61E-07	4.61E-07
Std Dev Biased	1.71E-08	2.08E-08	2.30E-08	2.51E-08	2.76E-08	2.59E-08	2.59E-08
Ps90%/90% (+KTL) Biased	4.45E-07	4.79E-07	4.99E-07	5.14E-07	5.38E-07	5.32E-07	5.32E-07
Ps90%/90% (-KTL) Biased	3.51E-07	3.65E-07	3.73E-07	3.77E-07	3.87E-07	3.90E-07	3.90E-07
Un-Biased Statistics							
Average Un-Biased	3.82E-07	4.25E-07	4.50E-07	4.69E-07	5.01E-07	4.97E-07	4.97E-07
Std Dev Un-Biased	3.96E-08	4.54E-08	4.71E-08	4.85E-08	5.09E-08	5.03E-08	5.03E-08
Ps90%/90% (+KTL) Un-Biased	4.90E-07	5.50E-07	5.79E-07	6.02E-07	6.41E-07	6.35E-07	6.35E-07
Ps90%/90% (-KTL) Un-Biased	2.73E-07	3.01E-07	3.21E-07	3.36E-07	3.62E-07	3.59E-07	3.59E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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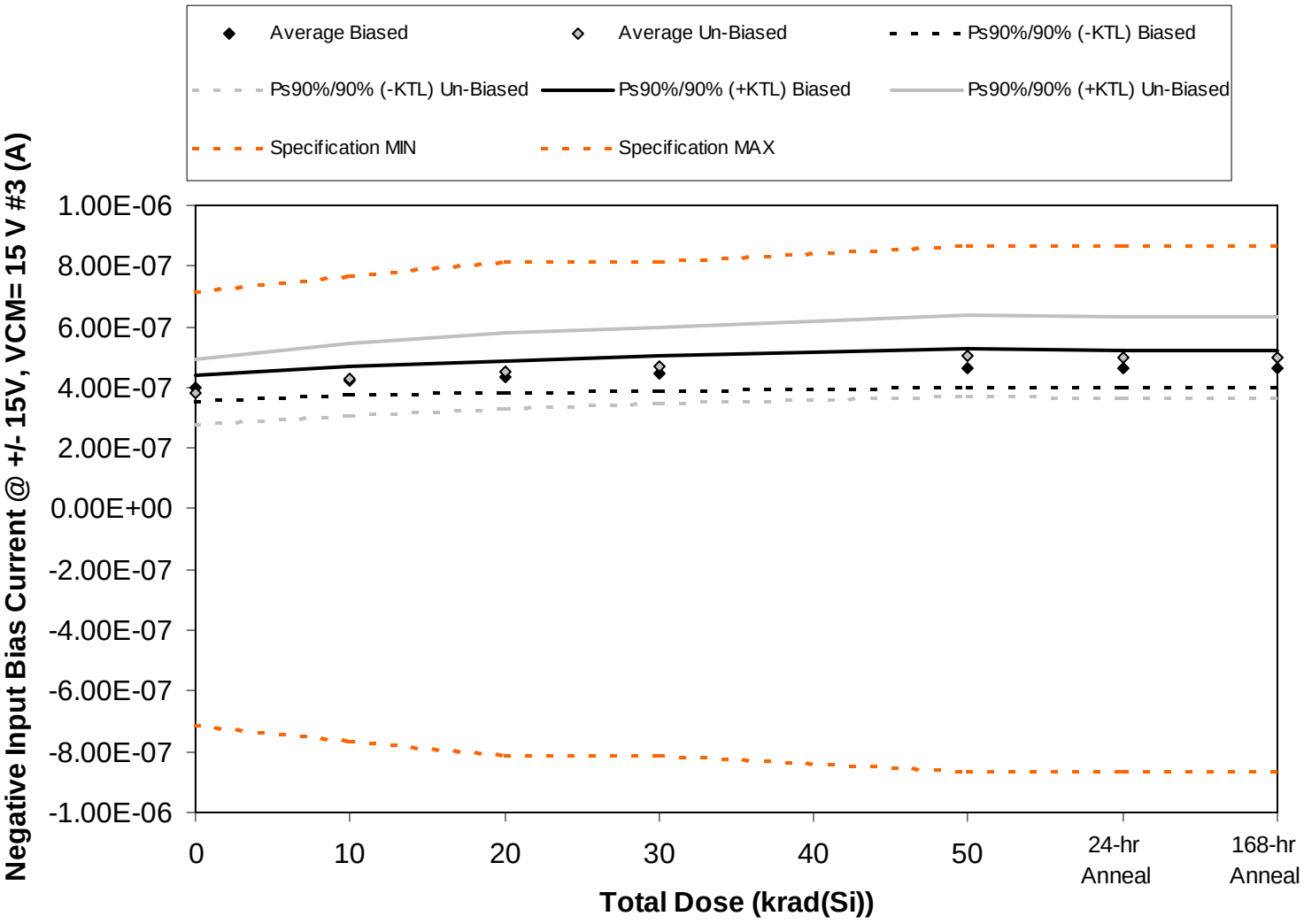

Figure 5.33. Plot of Negative Input Bias Current @ +/- 15V, VCM= 15 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.33. Raw data for Negative Input Bias Current @ +/- 15V, VCM= 15 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= 15 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.94E-07	4.33E-07	4.52E-07	4.68E-07	4.93E-07	4.88E-07	4.88E-07
867	4.18E-07	4.38E-07	4.52E-07	4.60E-07	4.77E-07	4.77E-07	4.77E-07
868	3.96E-07	4.11E-07	4.24E-07	4.32E-07	4.50E-07	4.47E-07	4.47E-07
869	3.75E-07	3.97E-07	4.07E-07	4.17E-07	4.32E-07	4.32E-07	4.32E-07
870	4.07E-07	4.28E-07	4.41E-07	4.50E-07	4.67E-07	4.65E-07	4.65E-07
871	3.37E-07	3.70E-07	3.92E-07	4.10E-07	4.37E-07	4.33E-07	4.33E-07
872	3.86E-07	4.27E-07	4.50E-07	4.68E-07	5.00E-07	4.96E-07	4.96E-07
873	4.41E-07	4.89E-07	5.17E-07	5.35E-07	5.72E-07	5.69E-07	5.69E-07
874	3.92E-07	4.41E-07	4.68E-07	4.86E-07	5.21E-07	5.16E-07	5.16E-07
876	3.66E-07	4.10E-07	4.35E-07	4.55E-07	4.91E-07	4.84E-07	4.84E-07
877	3.55E-07	3.58E-07	3.57E-07	3.57E-07	3.59E-07	3.59E-07	3.59E-07
Biased Statistics							
Average Biased	3.98E-07	4.22E-07	4.35E-07	4.45E-07	4.64E-07	4.62E-07	4.62E-07
Std Dev Biased	1.59E-08	1.69E-08	1.96E-08	2.08E-08	2.35E-08	2.27E-08	2.27E-08
Ps90%/90% (+KTL) Biased	4.42E-07	4.68E-07	4.89E-07	5.02E-07	5.29E-07	5.24E-07	5.24E-07
Ps90%/90% (-KTL) Biased	3.54E-07	3.75E-07	3.82E-07	3.88E-07	3.99E-07	4.00E-07	4.00E-07
Un-Biased Statistics							
Average Un-Biased	3.84E-07	4.27E-07	4.52E-07	4.71E-07	5.05E-07	4.99E-07	4.99E-07
Std Dev Un-Biased	3.85E-08	4.36E-08	4.58E-08	4.56E-08	4.90E-08	4.93E-08	4.93E-08
Ps90%/90% (+KTL) Un-Biased	4.90E-07	5.47E-07	5.78E-07	5.96E-07	6.39E-07	6.35E-07	6.35E-07
Ps90%/90% (-KTL) Un-Biased	2.79E-07	3.08E-07	3.27E-07	3.46E-07	3.70E-07	3.64E-07	3.64E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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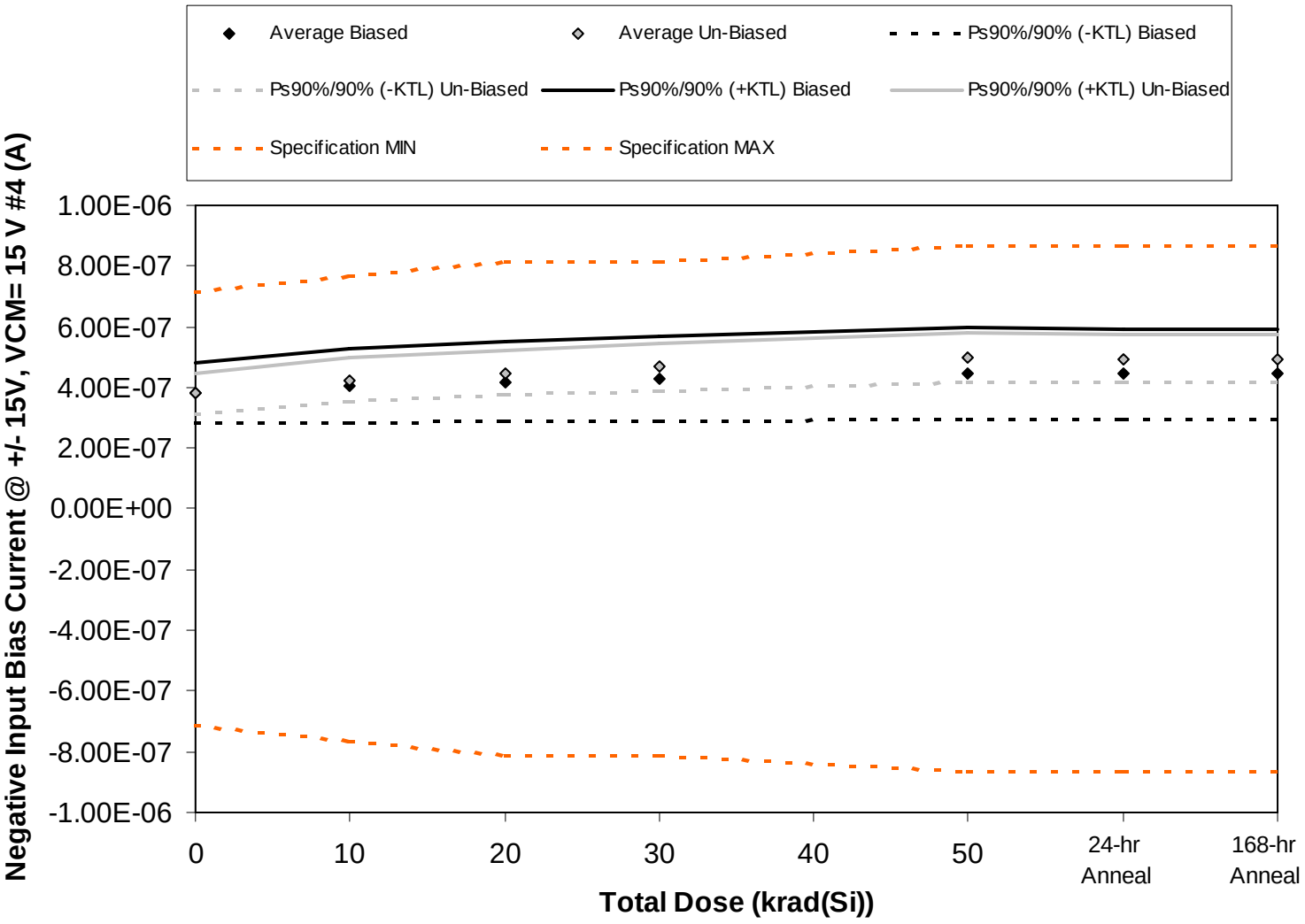

Figure 5.34. Plot of Negative Input Bias Current @ +/- 15V, VCM= 15 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.34. Raw data for Negative Input Bias Current @ +/- 15V, VCM= 15 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= 15 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.35E-07	4.75E-07	4.96E-07	5.12E-07	5.40E-07	5.35E-07	5.35E-07
867	3.49E-07	3.70E-07	3.82E-07	3.92E-07	4.10E-07	4.08E-07	4.08E-07
868	3.48E-07	3.66E-07	3.77E-07	3.85E-07	4.00E-07	3.99E-07	3.99E-07
869	3.87E-07	4.03E-07	4.15E-07	4.22E-07	4.38E-07	4.34E-07	4.34E-07
870	3.94E-07	4.11E-07	4.22E-07	4.30E-07	4.43E-07	4.42E-07	4.42E-07
871	4.14E-07	4.60E-07	4.83E-07	5.05E-07	5.38E-07	5.32E-07	5.32E-07
872	3.87E-07	4.35E-07	4.62E-07	4.83E-07	5.18E-07	5.13E-07	5.13E-07
873	3.59E-07	4.01E-07	4.27E-07	4.44E-07	4.76E-07	4.71E-07	4.71E-07
874	3.79E-07	4.28E-07	4.53E-07	4.74E-07	5.05E-07	5.01E-07	5.01E-07
876	3.56E-07	3.94E-07	4.16E-07	4.33E-07	4.66E-07	4.61E-07	4.61E-07
877	4.04E-07	4.06E-07	4.05E-07	4.05E-07	4.07E-07	4.08E-07	4.08E-07
Biased Statistics							
Average Biased	3.82E-07	4.05E-07	4.18E-07	4.28E-07	4.46E-07	4.44E-07	4.44E-07
Std Dev Biased	3.61E-08	4.40E-08	4.79E-08	5.07E-08	5.53E-08	5.41E-08	5.41E-08
Ps90%/90% (+KTL) Biased	4.81E-07	5.26E-07	5.50E-07	5.67E-07	5.98E-07	5.92E-07	5.92E-07
Ps90%/90% (-KTL) Biased	2.83E-07	2.84E-07	2.87E-07	2.89E-07	2.95E-07	2.95E-07	2.95E-07
Un-Biased Statistics							
Average Un-Biased	3.79E-07	4.24E-07	4.48E-07	4.68E-07	5.00E-07	4.96E-07	4.96E-07
Std Dev Un-Biased	2.36E-08	2.67E-08	2.70E-08	2.92E-08	2.96E-08	2.91E-08	2.91E-08
Ps90%/90% (+KTL) Un-Biased	4.44E-07	4.97E-07	5.22E-07	5.48E-07	5.82E-07	5.75E-07	5.75E-07
Ps90%/90% (-KTL) Un-Biased	3.14E-07	3.51E-07	3.74E-07	3.88E-07	4.19E-07	4.16E-07	4.16E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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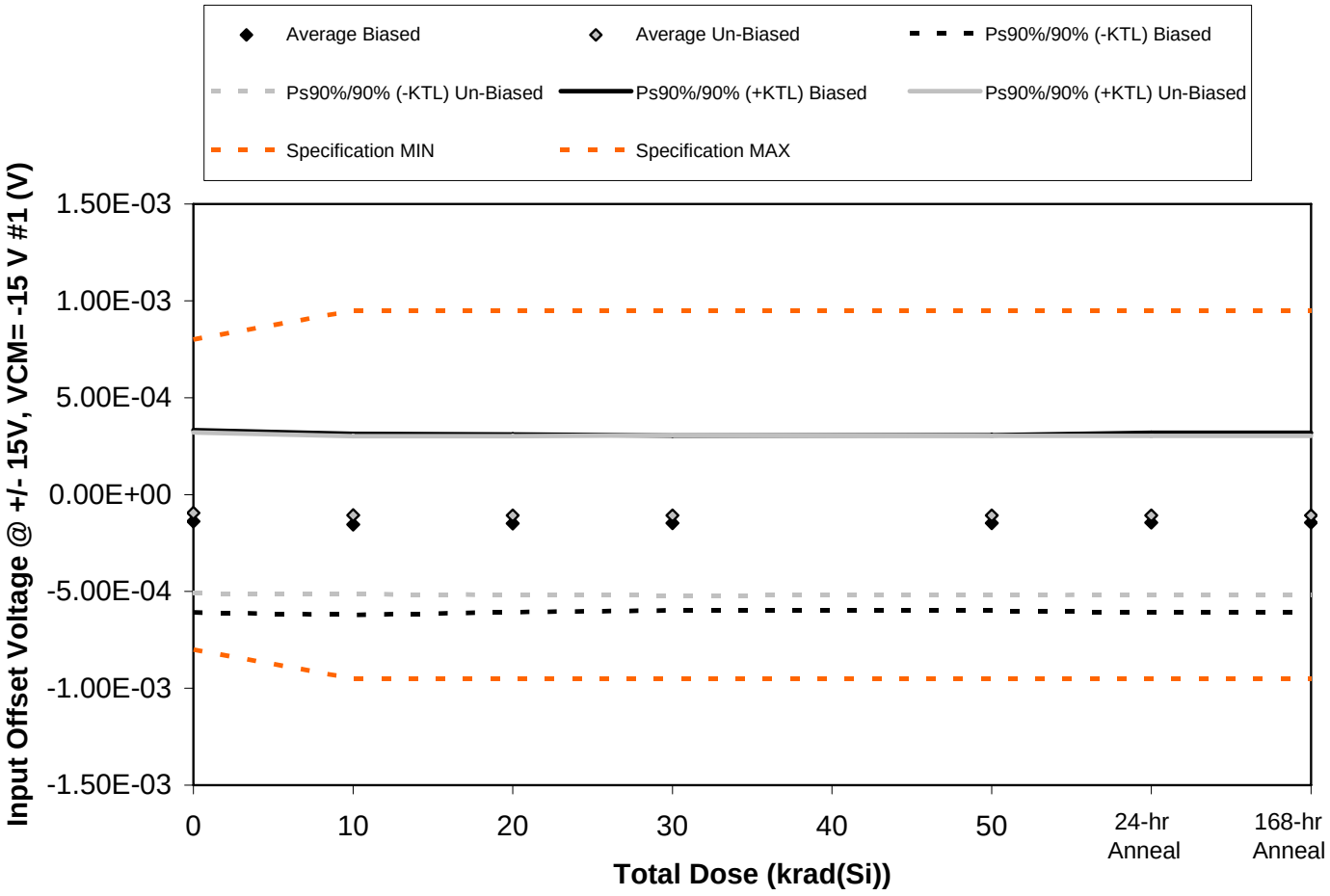

Figure 5.35. Plot of Input Offset Voltage @ +/- 15V, VCM= -15 V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.35. Raw data for Input Offset Voltage @ +/- 15V, VCM= -15 V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= -15 V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.11E-04	-3.16E-04	-3.01E-04	-2.95E-04	-2.92E-04	-2.93E-04	-2.93E-04
867	1.56E-05	-3.95E-06	-1.01E-05	-1.53E-05	-2.09E-05	-1.86E-05	-1.86E-05
868	-2.68E-04	-2.88E-04	-2.85E-04	-2.86E-04	-2.91E-04	-2.93E-04	-2.93E-04
869	7.05E-05	5.77E-05	6.78E-05	6.86E-05	7.20E-05	8.13E-05	8.13E-05
870	-1.97E-04	-2.20E-04	-2.14E-04	-2.07E-04	-2.03E-04	-2.02E-04	-2.02E-04
871	-1.22E-04	-1.34E-04	-1.34E-04	-1.36E-04	-1.36E-04	-1.34E-04	-1.34E-04
872	-3.35E-04	-3.43E-04	-3.46E-04	-3.49E-04	-3.47E-04	-3.46E-04	-3.46E-04
873	7.14E-05	5.51E-05	5.38E-05	5.33E-05	5.37E-05	5.56E-05	5.56E-05
874	-3.50E-05	-4.70E-05	-4.63E-05	-4.62E-05	-4.71E-05	-5.18E-05	-5.18E-05
876	-5.33E-05	-6.33E-05	-6.40E-05	-6.08E-05	-6.14E-05	-6.10E-05	-6.10E-05
877	-3.25E-04	-3.29E-04	-3.30E-04	-3.28E-04	-3.29E-04	-3.32E-04	-3.32E-04
Biased Statistics							
Average Biased	-1.38E-04	-1.54E-04	-1.48E-04	-1.47E-04	-1.47E-04	-1.45E-04	-1.45E-04
Std Dev Biased	1.71E-04	1.70E-04	1.67E-04	1.65E-04	1.65E-04	1.69E-04	1.69E-04
Ps90%/90% (+KTL) Biased	3.32E-04	3.13E-04	3.10E-04	3.05E-04	3.05E-04	3.18E-04	3.18E-04
Ps90%/90% (-KTL) Biased	-6.08E-04	-6.21E-04	-6.07E-04	-5.98E-04	-5.99E-04	-6.09E-04	-6.09E-04
Un-Biased Statistics							
Average Un-Biased	-9.49E-05	-1.06E-04	-1.07E-04	-1.08E-04	-1.08E-04	-1.07E-04	-1.07E-04
Std Dev Un-Biased	1.51E-04	1.49E-04	1.49E-04	1.51E-04	1.50E-04	1.50E-04	1.50E-04
Ps90%/90% (+KTL) Un-Biased	3.20E-04	3.01E-04	3.02E-04	3.06E-04	3.04E-04	3.03E-04	3.03E-04
Ps90%/90% (-KTL) Un-Biased	-5.10E-04	-5.14E-04	-5.17E-04	-5.22E-04	-5.19E-04	-5.17E-04	-5.17E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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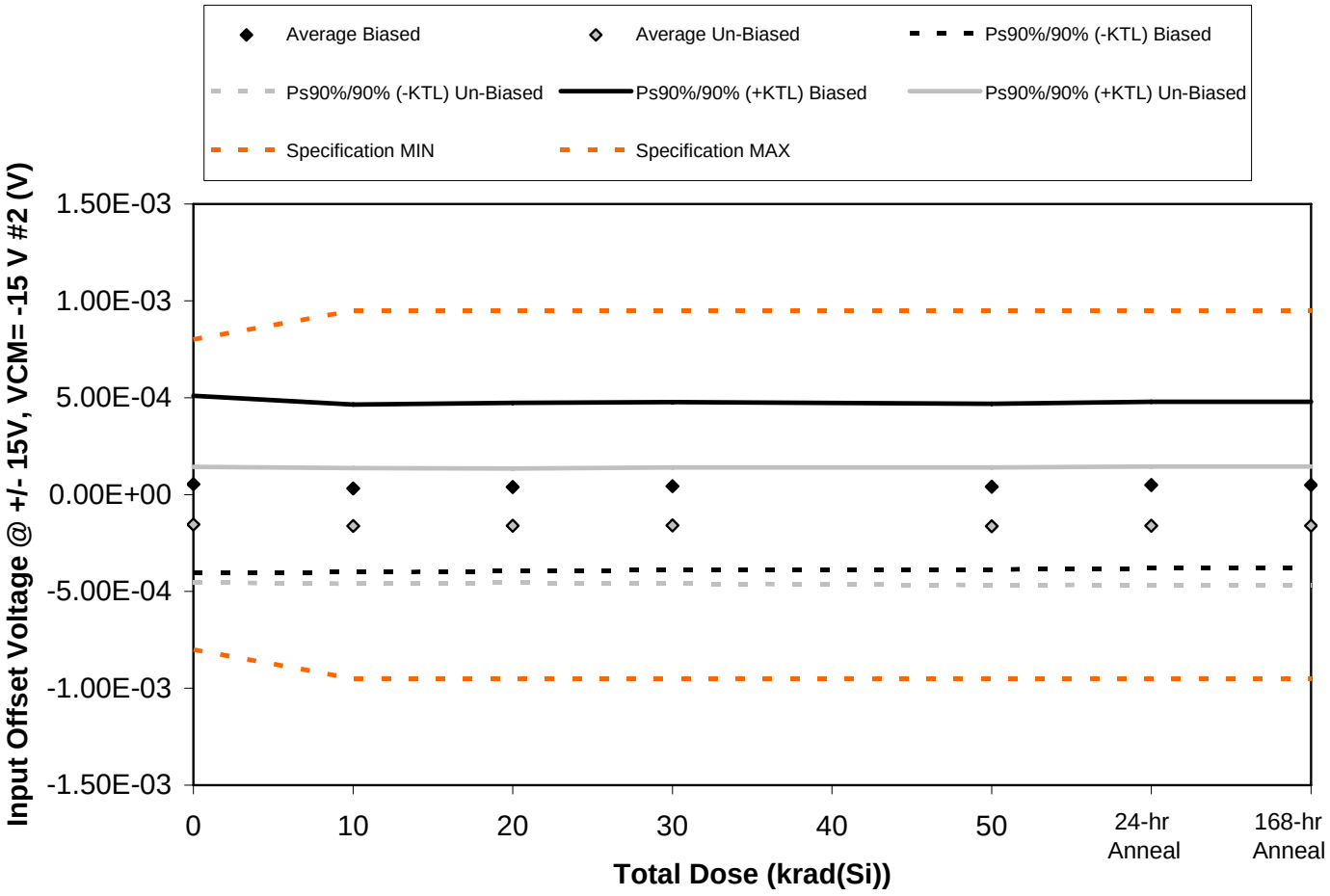

Figure 5.36. Plot of Input Offset Voltage @ +/- 15V, VCM= -15 V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.36. Raw data for Input Offset Voltage @ +/- 15V, VCM= -15 V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= -15 V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.64E-04	2.25E-04	2.41E-04	2.45E-04	2.39E-04	2.51E-04	2.51E-04
867	-1.28E-06	-2.09E-05	-1.18E-05	-7.58E-06	-9.26E-06	-5.29E-06	-5.29E-06
868	1.16E-04	1.03E-04	1.09E-04	1.12E-04	1.13E-04	1.16E-04	1.16E-04
869	-1.90E-04	-2.00E-04	-1.89E-04	-1.84E-04	-1.84E-04	-1.75E-04	-1.75E-04
870	7.49E-05	4.87E-05	4.70E-05	5.52E-05	4.53E-05	5.88E-05	5.88E-05
871	-2.32E-04	-2.43E-04	-2.38E-04	-2.39E-04	-2.46E-04	-2.40E-04	-2.40E-04
872	2.43E-05	2.03E-05	1.95E-05	2.41E-05	2.06E-05	2.55E-05	2.55E-05
873	-1.50E-04	-1.59E-04	-1.58E-04	-1.57E-04	-1.61E-04	-1.58E-04	-1.58E-04
874	-2.51E-04	-2.49E-04	-2.47E-04	-2.46E-04	-2.53E-04	-2.51E-04	-2.51E-04
876	-1.67E-04	-1.78E-04	-1.78E-04	-1.79E-04	-1.80E-04	-1.79E-04	-1.79E-04
877	-2.56E-04	-2.56E-04	-2.56E-04	-2.56E-04	-2.57E-04	-2.57E-04	-2.57E-04
Biased Statistics							
Average Biased	5.29E-05	3.13E-05	3.92E-05	4.40E-05	4.09E-05	4.91E-05	4.91E-05
Std Dev Biased	1.67E-04	1.58E-04	1.58E-04	1.58E-04	1.56E-04	1.57E-04	1.57E-04
Ps90%/90% (+KTL) Biased	5.10E-04	4.64E-04	4.73E-04	4.77E-04	4.69E-04	4.79E-04	4.79E-04
Ps90%/90% (-KTL) Biased	-4.04E-04	-4.01E-04	-3.95E-04	-3.89E-04	-3.87E-04	-3.81E-04	-3.81E-04
Un-Biased Statistics							
Average Un-Biased	-1.55E-04	-1.62E-04	-1.60E-04	-1.59E-04	-1.64E-04	-1.61E-04	-1.61E-04
Std Dev Un-Biased	1.09E-04	1.09E-04	1.07E-04	1.09E-04	1.11E-04	1.11E-04	1.11E-04
Ps90%/90% (+KTL) Un-Biased	1.43E-04	1.37E-04	1.34E-04	1.41E-04	1.40E-04	1.44E-04	1.44E-04
Ps90%/90% (-KTL) Un-Biased	-4.54E-04	-4.61E-04	-4.55E-04	-4.59E-04	-4.67E-04	-4.65E-04	-4.65E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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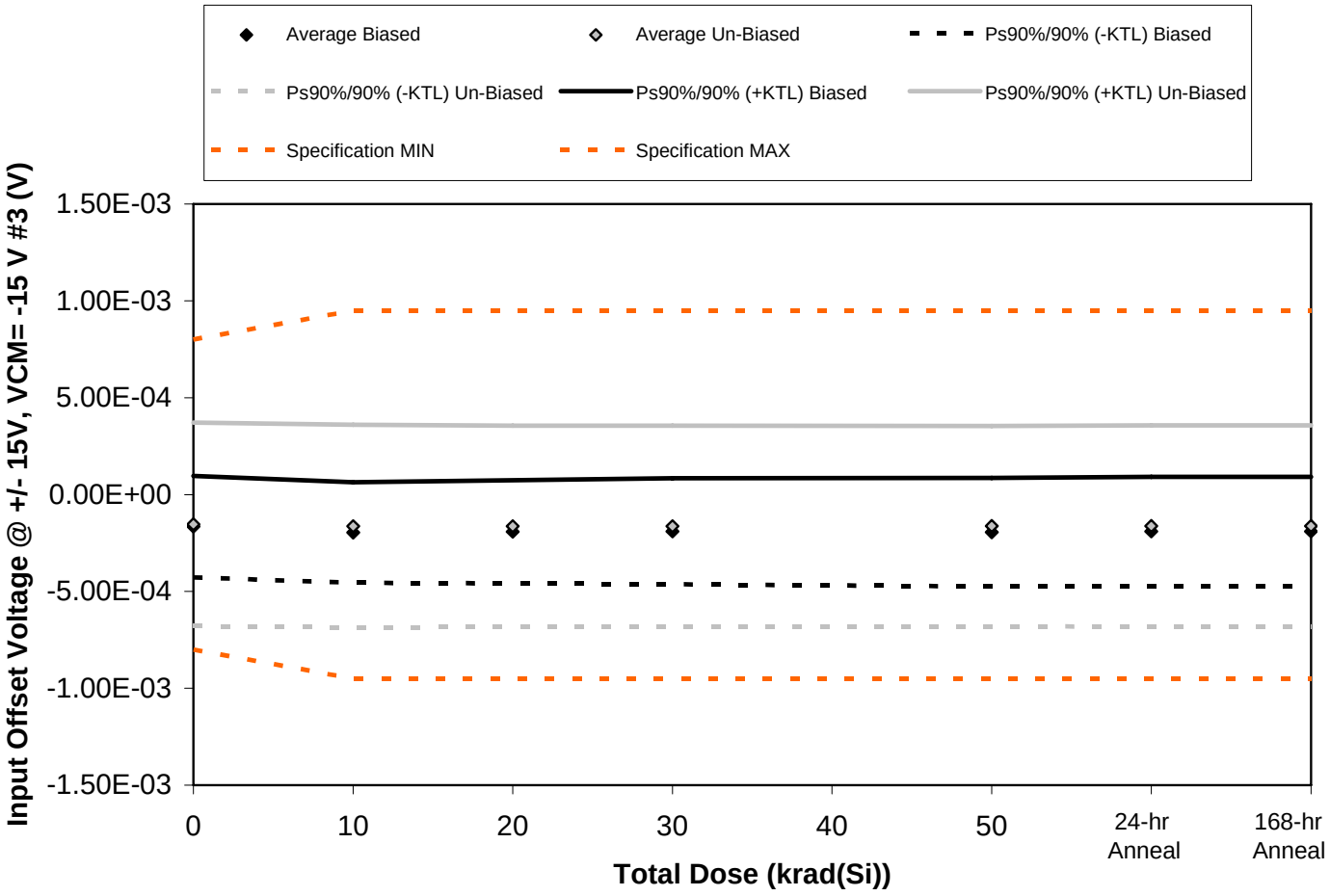

Figure 5.37. Plot of Input Offset Voltage @ +/- 15V, VCM= -15 V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.37. Raw data for Input Offset Voltage @ +/- 15V, VCM= -15 V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= -15 V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-1.34E-04	-1.74E-04	-1.74E-04	-1.77E-04	-1.86E-04	-1.81E-04	-1.81E-04
867	-3.28E-04	-3.59E-04	-3.60E-04	-3.61E-04	-3.71E-04	-3.67E-04	-3.67E-04
868	-1.66E-04	-1.78E-04	-1.67E-04	-1.61E-04	-1.54E-04	-1.47E-04	-1.47E-04
869	-1.07E-04	-1.50E-04	-1.46E-04	-1.45E-04	-1.52E-04	-1.49E-04	-1.49E-04
870	-9.12E-05	-1.16E-04	-1.12E-04	-1.04E-04	-1.10E-04	-1.05E-04	-1.05E-04
871	-6.84E-05	-8.21E-05	-8.55E-05	-8.55E-05	-8.74E-05	-8.56E-05	-8.56E-05
872	6.27E-05	5.35E-05	5.02E-05	5.13E-05	5.15E-05	5.28E-05	5.28E-05
873	-3.56E-04	-3.65E-04	-3.64E-04	-3.64E-04	-3.61E-04	-3.62E-04	-3.62E-04
874	-3.55E-04	-3.65E-04	-3.64E-04	-3.64E-04	-3.62E-04	-3.61E-04	-3.61E-04
876	-4.91E-05	-5.79E-05	-5.53E-05	-5.73E-05	-5.43E-05	-5.44E-05	-5.44E-05
877	-2.70E-04	-2.70E-04	-2.70E-04	-2.70E-04	-2.70E-04	-2.72E-04	-2.72E-04
Biased Statistics							
Average Biased	-1.65E-04	-1.95E-04	-1.92E-04	-1.89E-04	-1.95E-04	-1.90E-04	-1.90E-04
Std Dev Biased	9.55E-05	9.47E-05	9.71E-05	9.96E-05	1.02E-04	1.03E-04	1.03E-04
Ps90%/90% (+KTL) Biased	9.67E-05	6.43E-05	7.45E-05	8.37E-05	8.51E-05	9.15E-05	9.15E-05
Ps90%/90% (-KTL) Biased	-4.27E-04	-4.55E-04	-4.58E-04	-4.62E-04	-4.74E-04	-4.71E-04	-4.71E-04
Un-Biased Statistics							
Average Un-Biased	-1.53E-04	-1.63E-04	-1.64E-04	-1.64E-04	-1.63E-04	-1.62E-04	-1.62E-04
Std Dev Un-Biased	1.91E-04	1.91E-04	1.90E-04	1.90E-04	1.89E-04	1.89E-04	1.89E-04
Ps90%/90% (+KTL) Un-Biased	3.71E-04	3.61E-04	3.56E-04	3.56E-04	3.55E-04	3.57E-04	3.57E-04
Ps90%/90% (-KTL) Un-Biased	-6.78E-04	-6.87E-04	-6.84E-04	-6.84E-04	-6.80E-04	-6.81E-04	-6.81E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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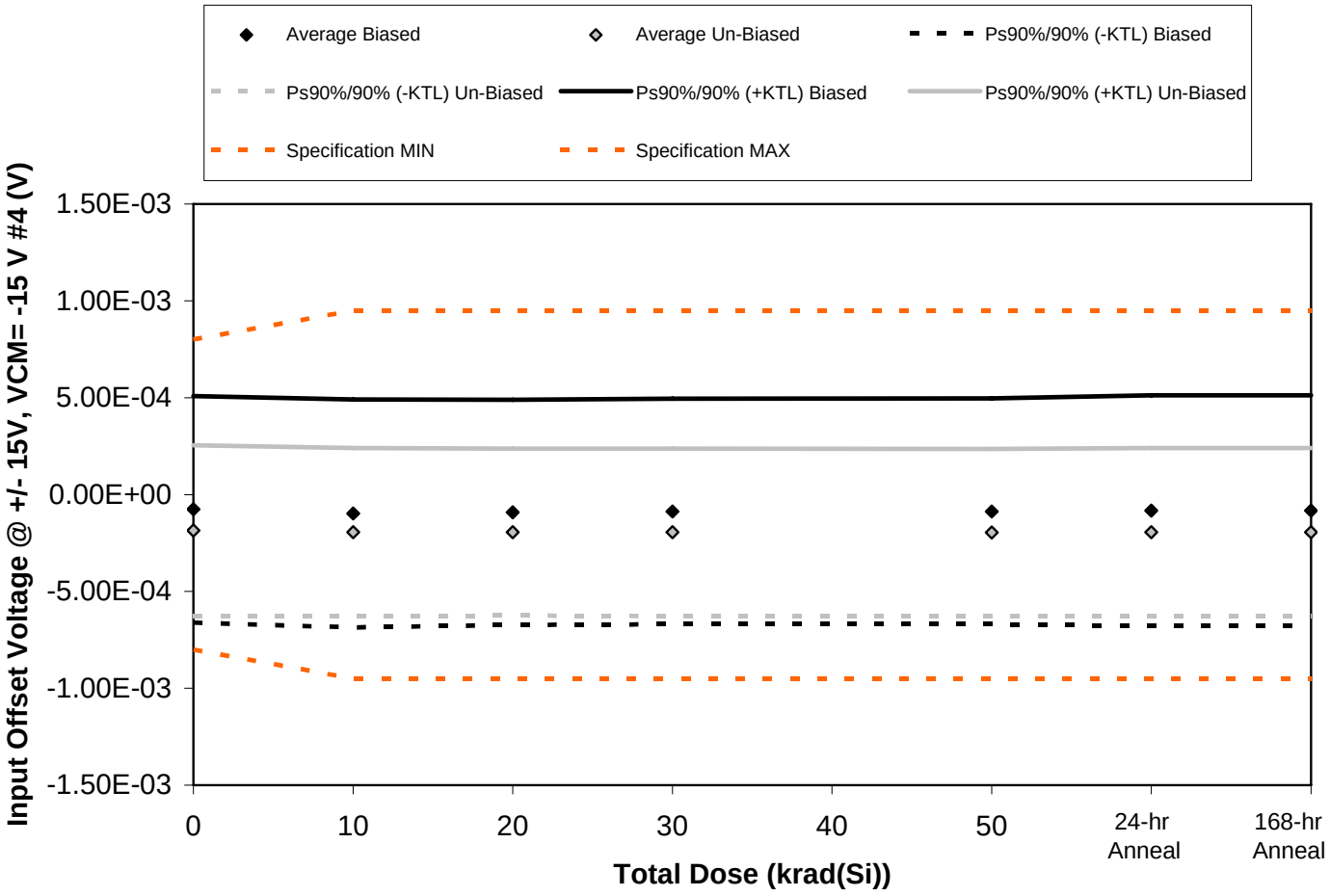

Figure 5.38. Plot of Input Offset Voltage @ +/- 15V, VCM= -15 V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.38. Raw data for Input Offset Voltage @ +/- 15V, VCM= -15 V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ +/- 15V, VCM= -15 V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.50E-07	-3.28E-05	-2.35E-05	-1.59E-05	-1.19E-05	-4.68E-06	-4.68E-06
867	1.35E-04	1.22E-04	1.23E-04	1.25E-04	1.21E-04	1.31E-04	1.31E-04
868	-4.13E-04	-4.35E-04	-4.26E-04	-4.24E-04	-4.26E-04	-4.30E-04	-4.30E-04
869	4.01E-05	1.78E-05	2.40E-05	2.79E-05	2.88E-05	3.10E-05	3.10E-05
870	-1.41E-04	-1.63E-04	-1.55E-04	-1.49E-04	-1.47E-04	-1.45E-04	-1.45E-04
871	-1.41E-04	-1.49E-04	-1.48E-04	-1.51E-04	-1.53E-04	-1.50E-04	-1.50E-04
872	-3.81E-04	-3.84E-04	-3.80E-04	-3.82E-04	-3.84E-04	-3.83E-04	-3.83E-04
873	-2.73E-04	-2.85E-04	-2.86E-04	-2.85E-04	-2.87E-04	-2.83E-04	-2.83E-04
874	4.93E-05	3.77E-05	3.71E-05	3.74E-05	3.63E-05	3.98E-05	3.98E-05
876	-1.84E-04	-1.90E-04	-1.92E-04	-1.94E-04	-1.93E-04	-1.93E-04	-1.93E-04
877	-7.15E-05	-7.69E-05	-7.71E-05	-7.66E-05	-7.74E-05	-7.91E-05	-7.91E-05
Biased Statistics							
Average Biased	-7.57E-05	-9.83E-05	-9.14E-05	-8.72E-05	-8.71E-05	-8.35E-05	-8.35E-05
Std Dev Biased	2.13E-04	2.15E-04	2.12E-04	2.13E-04	2.13E-04	2.17E-04	2.17E-04
Ps90%/90% (+KTL) Biased	5.09E-04	4.90E-04	4.90E-04	4.96E-04	4.96E-04	5.12E-04	5.12E-04
Ps90%/90% (-KTL) Biased	-6.60E-04	-6.87E-04	-6.72E-04	-6.70E-04	-6.70E-04	-6.79E-04	-6.79E-04
Un-Biased Statistics							
Average Un-Biased	-1.86E-04	-1.94E-04	-1.94E-04	-1.95E-04	-1.96E-04	-1.94E-04	-1.94E-04
Std Dev Un-Biased	1.60E-04	1.58E-04	1.57E-04	1.57E-04	1.58E-04	1.58E-04	1.58E-04
Ps90%/90% (+KTL) Un-Biased	2.54E-04	2.40E-04	2.37E-04	2.37E-04	2.36E-04	2.40E-04	2.40E-04
Ps90%/90% (-KTL) Un-Biased	-6.26E-04	-6.28E-04	-6.24E-04	-6.27E-04	-6.28E-04	-6.28E-04	-6.28E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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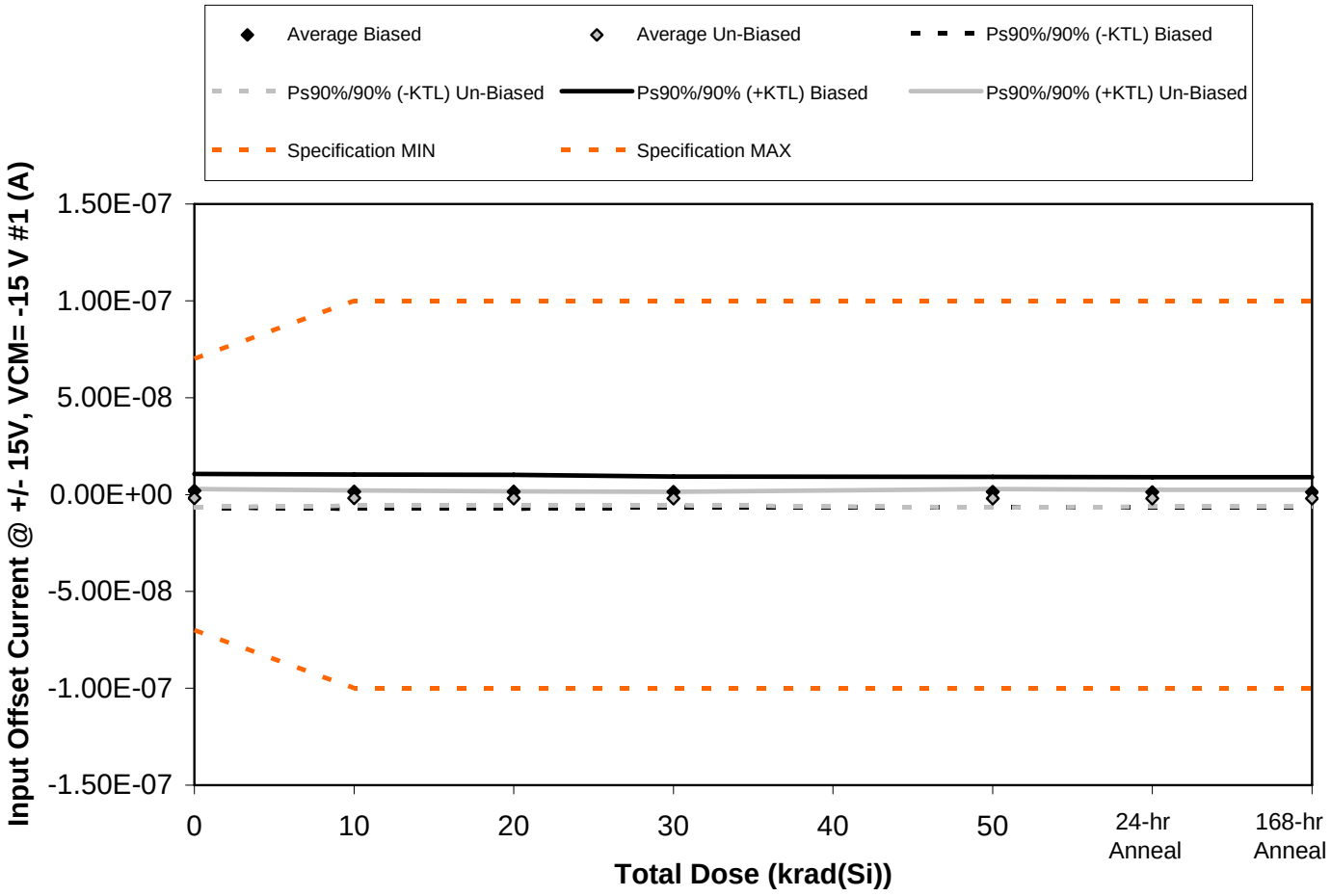

Figure 5.39. Plot of Input Offset Current @ +/- 15V, VCM= -15 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.39. Raw data for Input Offset Current @ +/- 15V, VCM= -15 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= -15 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.88E-10	1.36E-10	8.60E-11	1.52E-10	7.29E-10	6.34E-10	6.34E-10
867	6.09E-09	5.67E-09	5.69E-09	5.01E-09	4.78E-09	4.65E-09	4.65E-09
868	-8.06E-10	-1.44E-09	-1.53E-09	-1.21E-09	-1.75E-09	-1.70E-09	-1.70E-09
869	4.51E-09	4.34E-09	4.04E-09	3.91E-09	3.76E-09	3.76E-09	3.76E-09
870	-5.61E-10	-9.03E-10	-8.52E-10	-9.78E-10	-8.76E-10	-1.05E-09	-1.05E-09
871	-3.30E-09	-3.31E-09	-3.29E-09	-3.24E-09	-3.53E-09	-3.48E-09	-3.48E-09
872	5.21E-10	2.60E-10	6.00E-12	-4.22E-10	2.95E-10	-3.00E-11	-3.00E-11
873	-5.57E-10	-1.02E-09	-1.30E-09	-1.01E-09	-4.36E-10	-4.23E-10	-4.23E-10
874	-3.33E-09	-2.82E-09	-2.80E-09	-2.95E-09	-2.92E-09	-2.72E-09	-2.72E-09
876	-2.20E-09	-2.39E-09	-2.46E-09	-2.58E-09	-3.01E-09	-2.92E-09	-2.92E-09
877	-9.38E-10	-8.65E-10	-9.19E-10	-9.36E-10	-8.73E-10	-9.53E-10	-9.53E-10
Biased Statistics							
Average Biased	1.92E-09	1.56E-09	1.49E-09	1.38E-09	1.33E-09	1.26E-09	1.26E-09
Std Dev Biased	3.16E-09	3.23E-09	3.19E-09	2.89E-09	2.85E-09	2.84E-09	2.84E-09
Ps90%/90% (+KTL) Biased	1.06E-08	1.04E-08	1.02E-08	9.29E-09	9.15E-09	9.04E-09	9.04E-09
Ps90%/90% (-KTL) Biased	-6.75E-09	-7.30E-09	-7.26E-09	-6.54E-09	-6.49E-09	-6.53E-09	-6.53E-09
Un-Biased Statistics							
Average Un-Biased	-1.77E-09	-1.85E-09	-1.97E-09	-2.04E-09	-1.92E-09	-1.91E-09	-1.91E-09
Std Dev Un-Biased	1.71E-09	1.46E-09	1.32E-09	1.25E-09	1.72E-09	1.57E-09	1.57E-09
Ps90%/90% (+KTL) Un-Biased	2.91E-09	2.14E-09	1.66E-09	1.38E-09	2.81E-09	2.40E-09	2.40E-09
Ps90%/90% (-KTL) Un-Biased	-6.45E-09	-5.85E-09	-5.60E-09	-5.46E-09	-6.65E-09	-6.22E-09	-6.22E-09
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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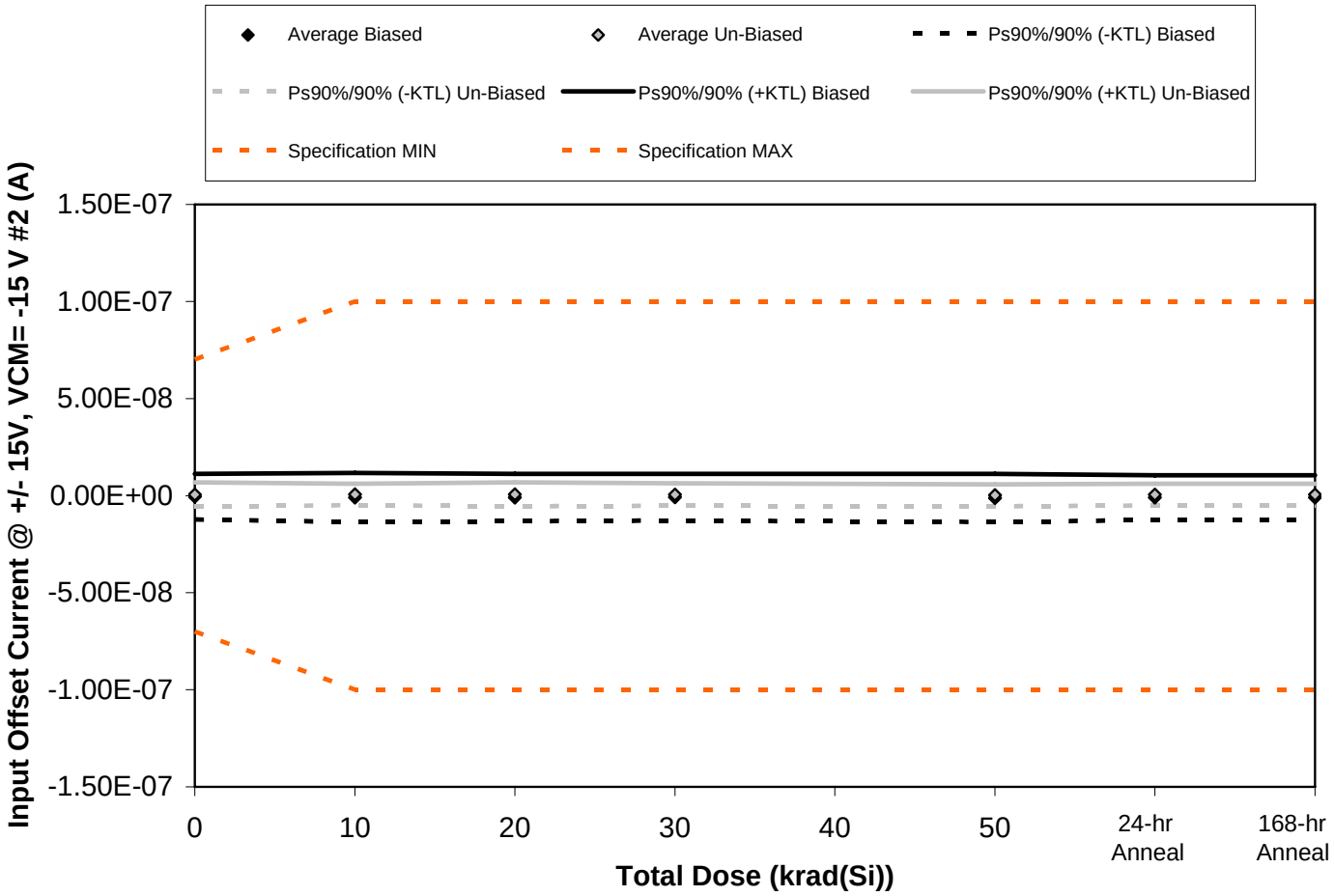

Figure 5.40. Plot of Input Offset Current @ +/- 15V, VCM= -15 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.40. Raw data for Input Offset Current @ +/- 15V, VCM= -15 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= -15 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-7.86E-09	-8.88E-09	-8.58E-09	-8.33E-09	-8.99E-09	-8.28E-09	-8.28E-09
867	-4.40E-11	-1.79E-10	-2.60E-11	-7.60E-11	-3.73E-10	-1.48E-10	-1.48E-10
868	1.11E-09	6.56E-10	5.83E-10	5.39E-10	4.20E-11	-6.30E-11	-6.30E-11
869	3.27E-09	3.28E-09	2.90E-09	3.00E-09	2.62E-09	2.50E-09	2.50E-09
870	9.10E-10	2.52E-10	4.39E-10	9.95E-10	7.79E-10	9.51E-10	9.51E-10
871	-8.18E-10	-7.29E-10	-2.66E-10	-3.53E-10	-1.26E-09	-8.79E-10	-8.79E-10
872	1.93E-09	1.64E-09	1.66E-09	1.49E-09	4.37E-10	1.07E-09	1.07E-09
873	3.62E-09	3.34E-09	3.67E-09	3.65E-09	3.29E-09	3.56E-09	3.56E-09
874	-2.12E-09	-1.72E-09	-2.35E-09	-2.01E-09	-2.02E-09	-1.73E-09	-1.73E-09
876	2.76E-10	4.06E-10	4.10E-10	1.34E-10	3.49E-10	5.55E-10	5.55E-10
877	-5.27E-09	-5.27E-09	-5.22E-09	-5.30E-09	-5.25E-09	-5.26E-09	-5.26E-09
Biased Statistics							
Average Biased	-5.23E-10	-9.74E-10	-9.36E-10	-7.75E-10	-1.19E-09	-1.01E-09	-1.01E-09
Std Dev Biased	4.28E-09	4.62E-09	4.42E-09	4.38E-09	4.51E-09	4.20E-09	4.20E-09
Ps90%/90% (+KTL) Biased	1.12E-08	1.17E-08	1.12E-08	1.12E-08	1.12E-08	1.05E-08	1.05E-08
Ps90%/90% (-KTL) Biased	-1.22E-08	-1.36E-08	-1.31E-08	-1.28E-08	-1.36E-08	-1.25E-08	-1.25E-08
Un-Biased Statistics							
Average Un-Biased	5.77E-10	5.87E-10	6.23E-10	5.81E-10	1.58E-10	5.15E-10	5.15E-10
Std Dev Un-Biased	2.26E-09	1.99E-09	2.24E-09	2.12E-09	2.04E-09	2.03E-09	2.03E-09
Ps90%/90% (+KTL) Un-Biased	6.77E-09	6.03E-09	6.76E-09	6.40E-09	5.75E-09	6.09E-09	6.09E-09
Ps90%/90% (-KTL) Un-Biased	-5.61E-09	-4.86E-09	-5.51E-09	-5.23E-09	-5.43E-09	-5.06E-09	-5.06E-09
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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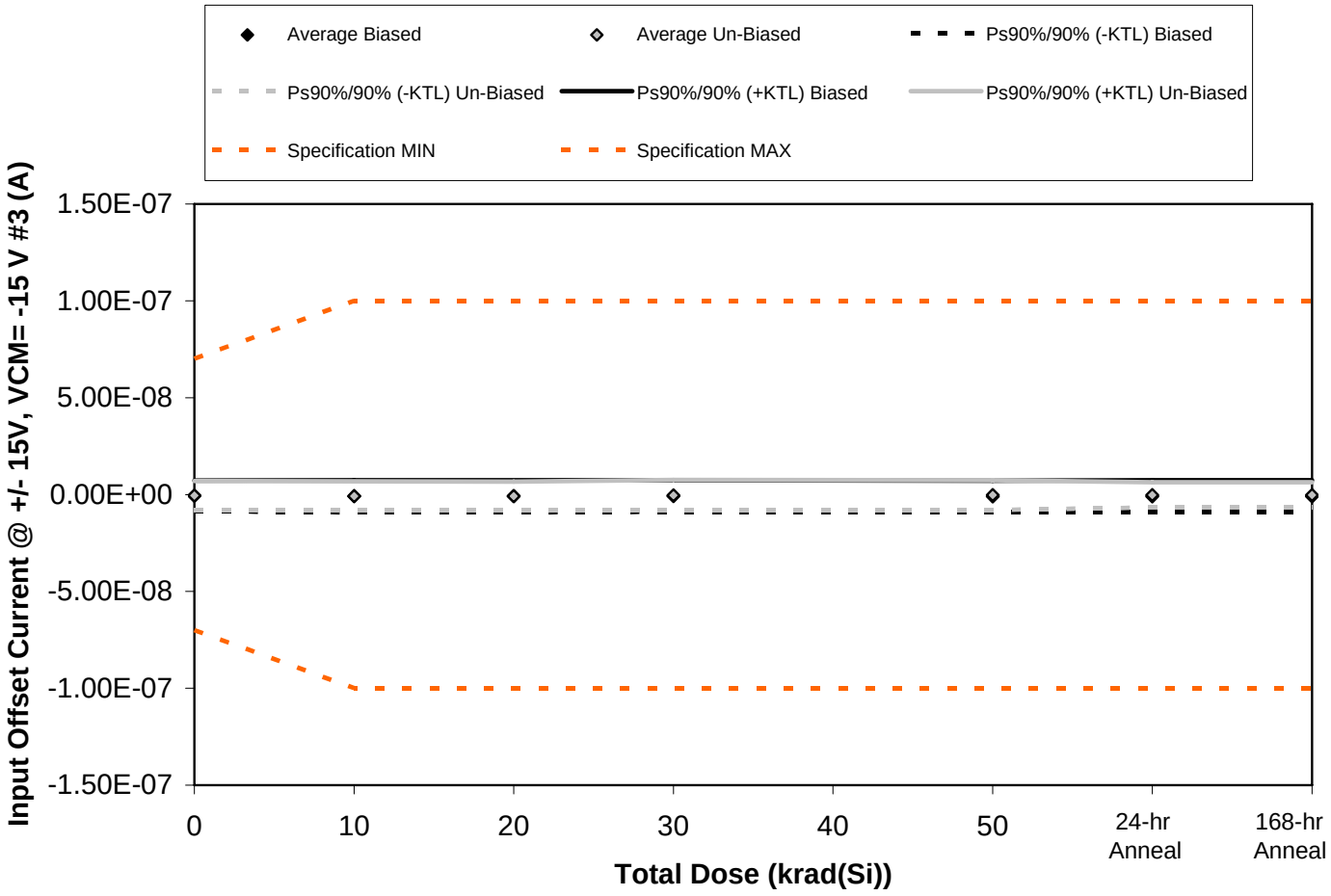

Figure 5.41. Plot of Input Offset Current @ +/- 15V, VCM= -15 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.41. Raw data for Input Offset Current @ +/- 15V, VCM= -15 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= -15 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-1.05E-09	-1.45E-09	-1.78E-09	-1.61E-09	-1.67E-09	-1.52E-09	-1.52E-09
867	-1.81E-09	-1.95E-09	-1.95E-09	-1.62E-09	-2.13E-09	-1.98E-09	-1.98E-09
868	4.40E-09	4.48E-09	4.49E-09	4.48E-09	4.27E-09	4.42E-09	4.42E-09
869	-1.74E-09	-2.50E-09	-2.52E-09	-2.58E-09	-2.85E-09	-2.79E-09	-2.79E-09
870	-2.98E-09	-2.83E-09	-2.52E-09	-2.52E-09	-2.62E-09	-2.55E-09	-2.55E-09
871	-4.15E-09	-4.40E-09	-4.40E-09	-4.19E-09	-3.81E-09	-3.33E-09	-3.33E-09
872	-2.26E-09	-2.39E-09	-2.43E-09	-2.22E-09	-2.60E-09	-1.89E-09	-1.89E-09
873	7.09E-10	7.29E-10	4.24E-10	1.29E-09	1.41E-09	1.28E-09	1.28E-09
874	-1.15E-10	-4.88E-10	-3.20E-11	1.19E-10	7.09E-10	5.33E-10	5.33E-10
876	2.95E-09	2.70E-09	2.65E-09	3.11E-09	2.90E-09	2.57E-09	2.57E-09
877	1.98E-09	1.92E-09	1.95E-09	1.99E-09	1.93E-09	1.95E-09	1.95E-09
Biased Statistics							
Average Biased	-6.36E-10	-8.49E-10	-8.58E-10	-7.70E-10	-1.00E-09	-8.82E-10	-8.82E-10
Std Dev Biased	2.90E-09	3.03E-09	3.01E-09	2.97E-09	2.98E-09	3.01E-09	3.01E-09
Ps90%/90% (+KTL) Biased	7.31E-09	7.45E-09	7.39E-09	7.38E-09	7.17E-09	7.36E-09	7.36E-09
Ps90%/90% (-KTL) Biased	-8.59E-09	-9.15E-09	-9.10E-09	-8.92E-09	-9.17E-09	-9.13E-09	-9.13E-09
Un-Biased Statistics							
Average Un-Biased	-5.73E-10	-7.71E-10	-7.56E-10	-3.77E-10	-2.79E-10	-1.68E-10	-1.68E-10
Std Dev Un-Biased	2.74E-09	2.75E-09	2.72E-09	2.87E-09	2.82E-09	2.40E-09	2.40E-09
Ps90%/90% (+KTL) Un-Biased	6.93E-09	6.76E-09	6.70E-09	7.51E-09	7.45E-09	6.41E-09	6.41E-09
Ps90%/90% (-KTL) Un-Biased	-8.08E-09	-8.30E-09	-8.21E-09	-8.26E-09	-8.01E-09	-6.74E-09	-6.74E-09
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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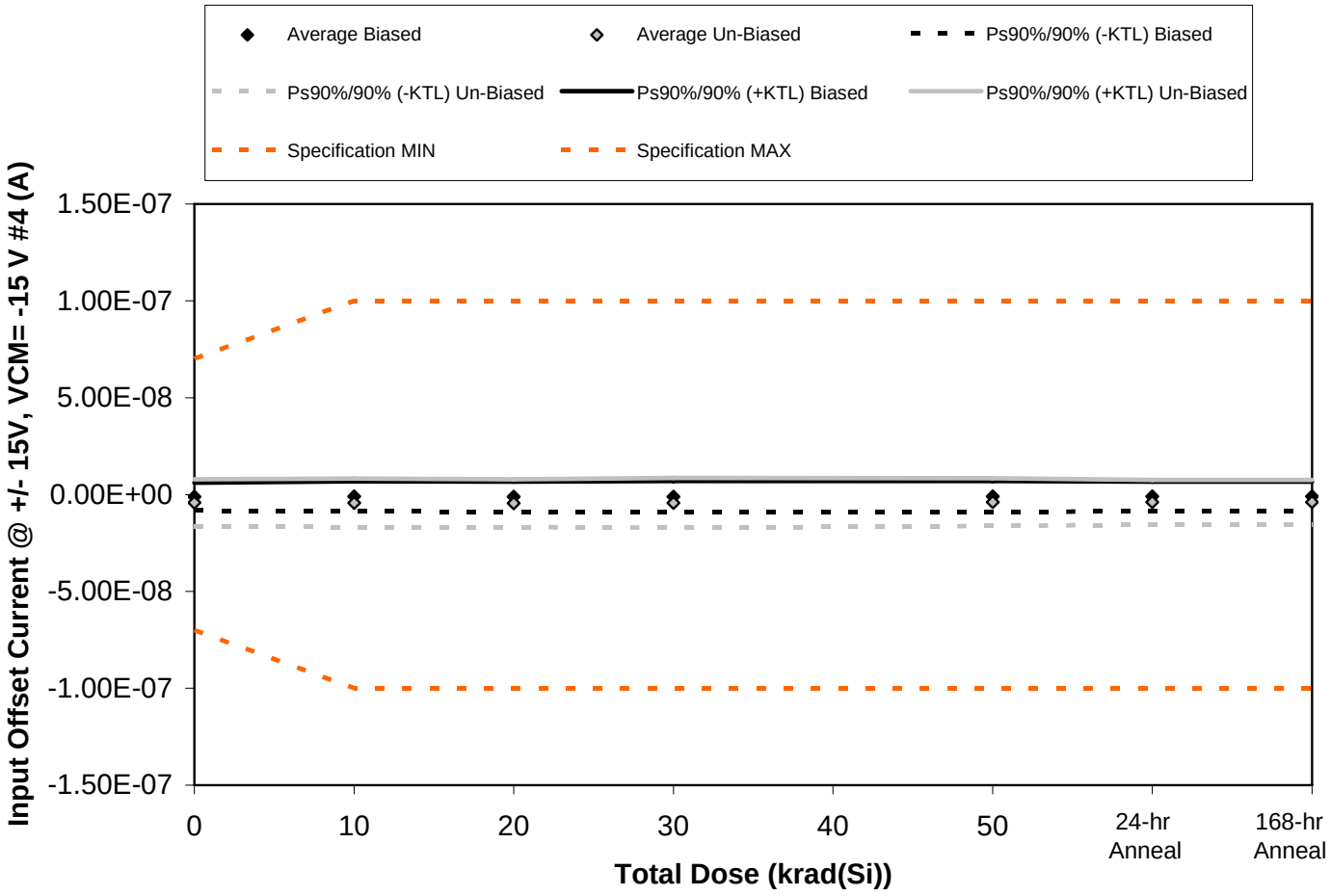

Figure 5.42. Plot of Input Offset Current @ +/- 15V, VCM= -15 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.42. Raw data for Input Offset Current @ +/- 15V, VCM= -15 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ +/- 15V, VCM= -15 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-1.23E-09	-1.69E-09	-1.73E-09	-1.70E-09	-1.72E-09	-1.79E-09	-1.79E-09
867	2.87E-09	3.50E-09	3.22E-09	3.49E-09	3.54E-09	3.34E-09	3.34E-09
868	-4.52E-09	-4.42E-09	-4.66E-09	-4.65E-09	-4.25E-09	-4.28E-09	-4.28E-09
869	-1.32E-09	-9.95E-10	-1.01E-09	-1.04E-09	-3.39E-10	-2.70E-10	-2.70E-10
870	-1.27E-09	-1.21E-09	-1.56E-09	-1.33E-09	-1.99E-09	-1.90E-09	-1.90E-09
871	-2.23E-09	-2.69E-09	-2.42E-09	-2.40E-09	-2.50E-09	-2.37E-09	-2.37E-09
872	8.51E-10	9.44E-10	2.77E-10	8.79E-10	1.39E-09	9.01E-10	9.01E-10
873	-1.11E-08	-1.16E-08	-1.18E-08	-1.17E-08	-1.10E-08	-1.06E-08	-1.06E-08
874	-4.01E-09	-4.05E-09	-4.13E-09	-3.22E-09	-3.21E-09	-3.42E-09	-3.42E-09
876	-4.66E-09	-4.18E-09	-4.06E-09	-4.85E-09	-4.30E-09	-4.11E-09	-4.11E-09
877	-4.54E-10	-3.95E-10	-4.98E-10	-4.54E-10	-5.41E-10	-5.03E-10	-5.03E-10
Biased Statistics							
Average Biased	-1.09E-09	-9.62E-10	-1.15E-09	-1.05E-09	-9.53E-10	-9.79E-10	-9.79E-10
Std Dev Biased	2.63E-09	2.85E-09	2.83E-09	2.92E-09	2.88E-09	2.81E-09	2.81E-09
Ps90%/90% (+KTL) Biased	6.11E-09	6.84E-09	6.60E-09	6.96E-09	6.94E-09	6.72E-09	6.72E-09
Ps90%/90% (-KTL) Biased	-8.30E-09	-8.77E-09	-8.90E-09	-9.05E-09	-8.85E-09	-8.67E-09	-8.67E-09
Un-Biased Statistics							
Average Un-Biased	-4.24E-09	-4.32E-09	-4.42E-09	-4.27E-09	-3.92E-09	-3.92E-09	-3.92E-09
Std Dev Un-Biased	4.41E-09	4.57E-09	4.49E-09	4.67E-09	4.50E-09	4.21E-09	4.21E-09
Ps90%/90% (+KTL) Un-Biased	7.85E-09	8.23E-09	7.89E-09	8.55E-09	8.41E-09	7.62E-09	7.62E-09
Ps90%/90% (-KTL) Un-Biased	-1.63E-08	-1.69E-08	-1.67E-08	-1.71E-08	-1.63E-08	-1.55E-08	-1.55E-08
Specification MIN	-7.00E-08	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07	-1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.00E-08	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07	1.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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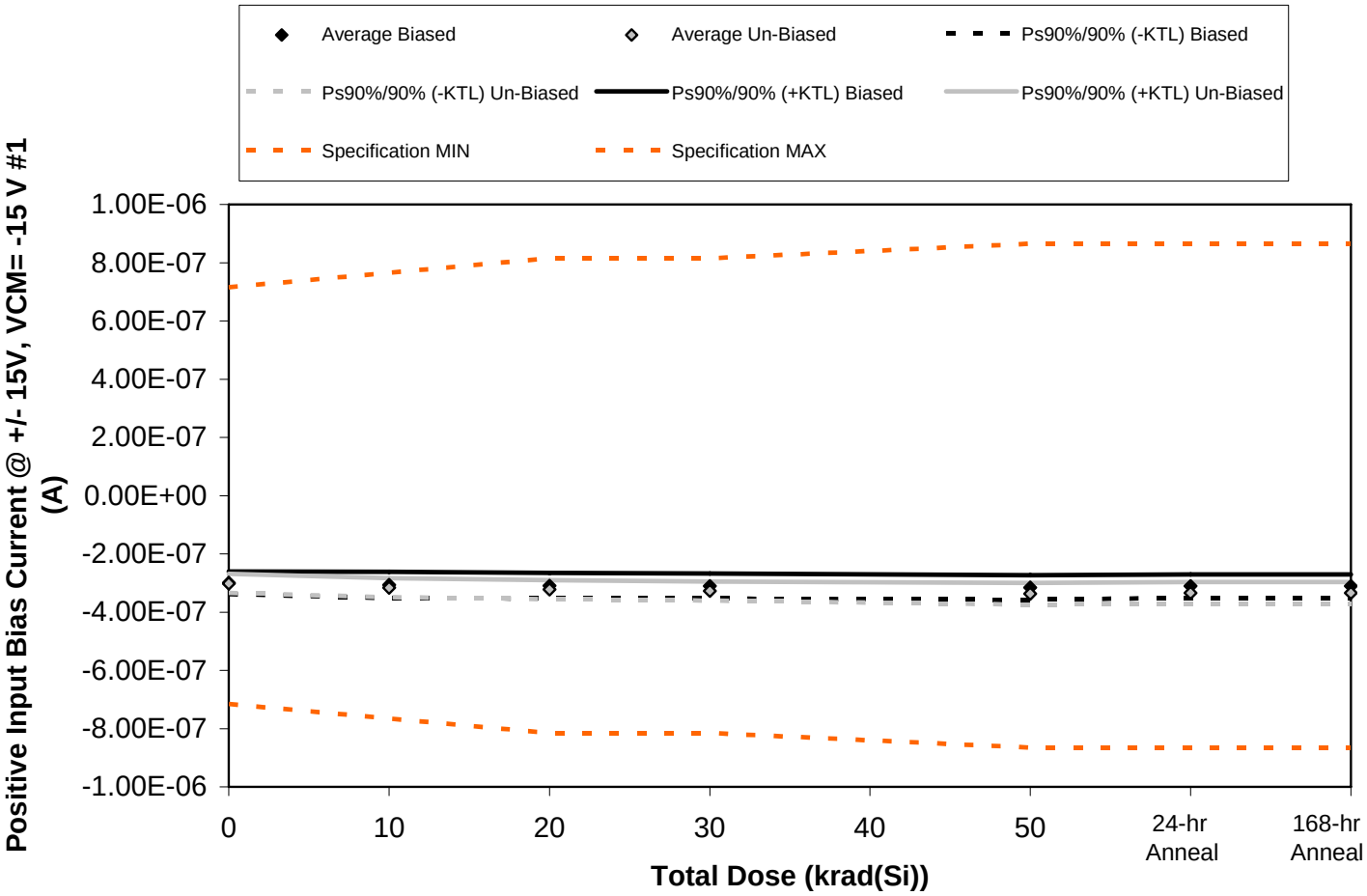

Figure 5.43. Plot of Positive Input Bias Current @ +/- 15V, VCM= -15 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.43. Raw data for Positive Input Bias Current @ +/- 15V, VCM= -15 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= -15 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.12E-07	-3.26E-07	-3.29E-07	-3.29E-07	-3.33E-07	-3.28E-07	-3.28E-07
867	-2.87E-07	-2.92E-07	-2.96E-07	-2.98E-07	-3.03E-07	-2.99E-07	-2.99E-07
868	-2.83E-07	-2.88E-07	-2.92E-07	-2.93E-07	-2.97E-07	-2.94E-07	-2.94E-07
869	-3.01E-07	-3.07E-07	-3.10E-07	-3.11E-07	-3.15E-07	-3.10E-07	-3.10E-07
870	-3.14E-07	-3.20E-07	-3.22E-07	-3.23E-07	-3.27E-07	-3.23E-07	-3.23E-07
871	-3.16E-07	-3.30E-07	-3.35E-07	-3.40E-07	-3.52E-07	-3.48E-07	-3.48E-07
872	-3.11E-07	-3.27E-07	-3.35E-07	-3.40E-07	-3.51E-07	-3.50E-07	-3.50E-07
873	-2.98E-07	-3.13E-07	-3.20E-07	-3.25E-07	-3.33E-07	-3.30E-07	-3.30E-07
874	-2.91E-07	-3.06E-07	-3.12E-07	-3.17E-07	-3.25E-07	-3.23E-07	-3.23E-07
876	-2.90E-07	-3.04E-07	-3.10E-07	-3.15E-07	-3.24E-07	-3.21E-07	-3.21E-07
877	-3.01E-07	-3.03E-07	-3.04E-07	-3.03E-07	-3.03E-07	-3.04E-07	-3.04E-07
Biased Statistics							
Average Biased	-2.99E-07	-3.07E-07	-3.10E-07	-3.11E-07	-3.15E-07	-3.11E-07	-3.11E-07
Std Dev Biased	1.41E-08	1.63E-08	1.60E-08	1.57E-08	1.53E-08	1.46E-08	1.46E-08
Ps90%/90% (+KTL) Biased	-2.61E-07	-2.62E-07	-2.66E-07	-2.68E-07	-2.73E-07	-2.70E-07	-2.70E-07
Ps90%/90% (-KTL) Biased	-3.38E-07	-3.51E-07	-3.54E-07	-3.54E-07	-3.57E-07	-3.51E-07	-3.51E-07
Un-Biased Statistics							
Average Un-Biased	-3.01E-07	-3.16E-07	-3.22E-07	-3.27E-07	-3.37E-07	-3.34E-07	-3.34E-07
Std Dev Un-Biased	1.18E-08	1.19E-08	1.19E-08	1.19E-08	1.37E-08	1.37E-08	1.37E-08
Ps90%/90% (+KTL) Un-Biased	-2.69E-07	-2.84E-07	-2.90E-07	-2.95E-07	-2.99E-07	-2.97E-07	-2.97E-07
Ps90%/90% (-KTL) Un-Biased	-3.34E-07	-3.49E-07	-3.55E-07	-3.60E-07	-3.75E-07	-3.72E-07	-3.72E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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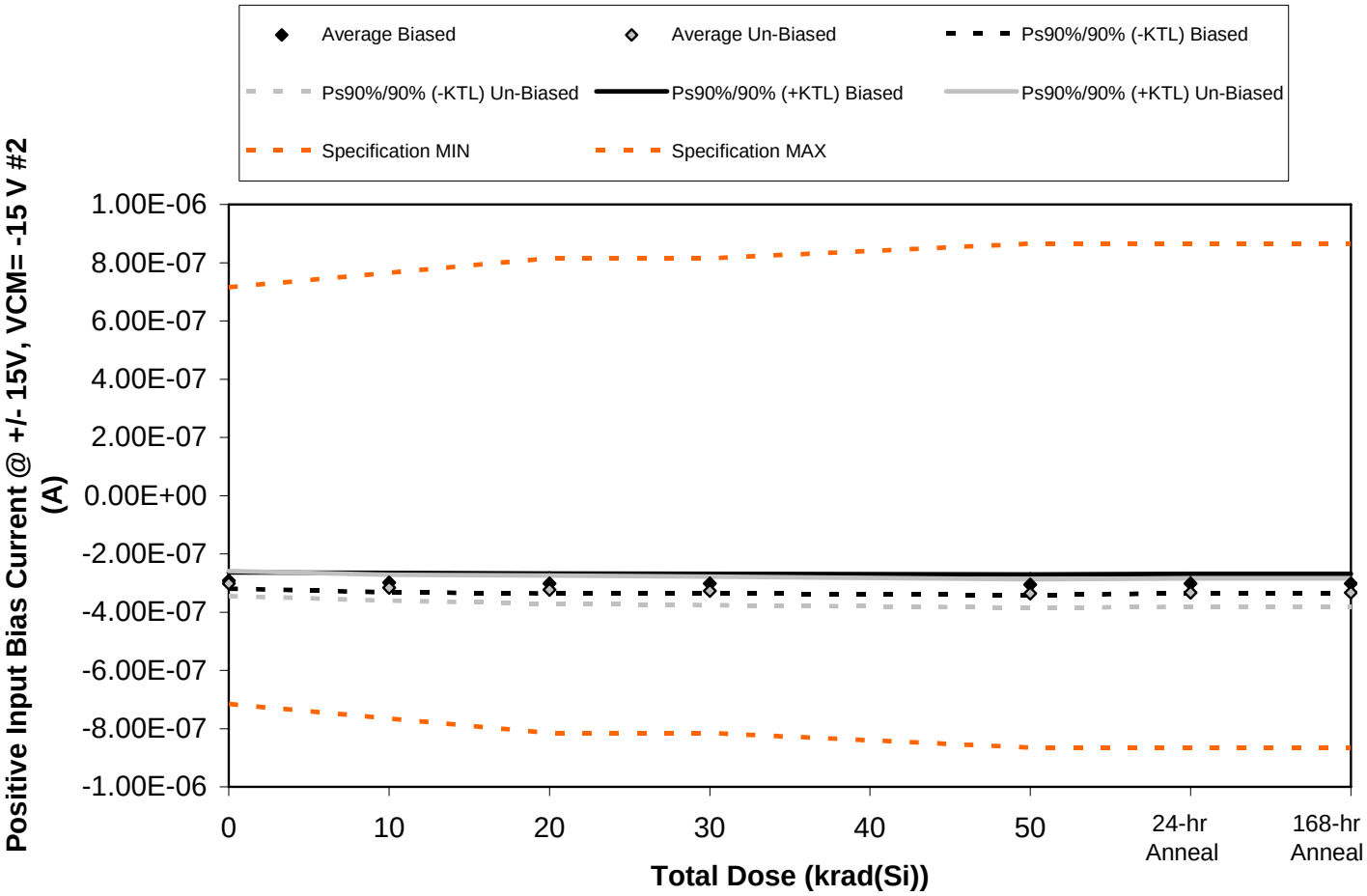

Figure 5.44. Plot of Positive Input Bias Current @ +/- 15V, VCM= -15 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.44. Raw data for Positive Input Bias Current @ +/- 15V, VCM= -15 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= -15 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.99E-07	-3.14E-07	-3.16E-07	-3.16E-07	-3.21E-07	-3.14E-07	-3.14E-07
867	-2.93E-07	-2.98E-07	-3.01E-07	-3.02E-07	-3.06E-07	-3.02E-07	-3.02E-07
868	-2.97E-07	-3.02E-07	-3.05E-07	-3.06E-07	-3.11E-07	-3.07E-07	-3.07E-07
869	-2.74E-07	-2.80E-07	-2.82E-07	-2.82E-07	-2.85E-07	-2.82E-07	-2.82E-07
870	-2.95E-07	-3.00E-07	-3.03E-07	-3.03E-07	-3.07E-07	-3.03E-07	-3.03E-07
871	-2.83E-07	-2.96E-07	-3.02E-07	-3.06E-07	-3.15E-07	-3.12E-07	-3.12E-07
872	-3.11E-07	-3.24E-07	-3.30E-07	-3.33E-07	-3.41E-07	-3.38E-07	-3.38E-07
873	-3.24E-07	-3.39E-07	-3.49E-07	-3.54E-07	-3.63E-07	-3.60E-07	-3.60E-07
874	-2.95E-07	-3.10E-07	-3.16E-07	-3.21E-07	-3.29E-07	-3.26E-07	-3.26E-07
876	-2.96E-07	-3.11E-07	-3.17E-07	-3.22E-07	-3.31E-07	-3.29E-07	-3.29E-07
877	-2.89E-07	-2.90E-07	-2.91E-07	-2.91E-07	-2.90E-07	-2.91E-07	-2.91E-07
Biased Statistics							
Average Biased	-2.92E-07	-2.99E-07	-3.01E-07	-3.02E-07	-3.06E-07	-3.02E-07	-3.02E-07
Std Dev Biased	1.01E-08	1.22E-08	1.25E-08	1.23E-08	1.29E-08	1.21E-08	1.21E-08
Ps90%/90% (+KTL) Biased	-2.64E-07	-2.65E-07	-2.67E-07	-2.68E-07	-2.71E-07	-2.68E-07	-2.68E-07
Ps90%/90% (-KTL) Biased	-3.19E-07	-3.32E-07	-3.36E-07	-3.35E-07	-3.41E-07	-3.35E-07	-3.35E-07
Un-Biased Statistics							
Average Un-Biased	-3.02E-07	-3.16E-07	-3.23E-07	-3.27E-07	-3.36E-07	-3.33E-07	-3.33E-07
Std Dev Un-Biased	1.58E-08	1.62E-08	1.77E-08	1.79E-08	1.78E-08	1.78E-08	1.78E-08
Ps90%/90% (+KTL) Un-Biased	-2.58E-07	-2.72E-07	-2.74E-07	-2.78E-07	-2.87E-07	-2.84E-07	-2.84E-07
Ps90%/90% (-KTL) Un-Biased	-3.45E-07	-3.61E-07	-3.71E-07	-3.76E-07	-3.85E-07	-3.82E-07	-3.82E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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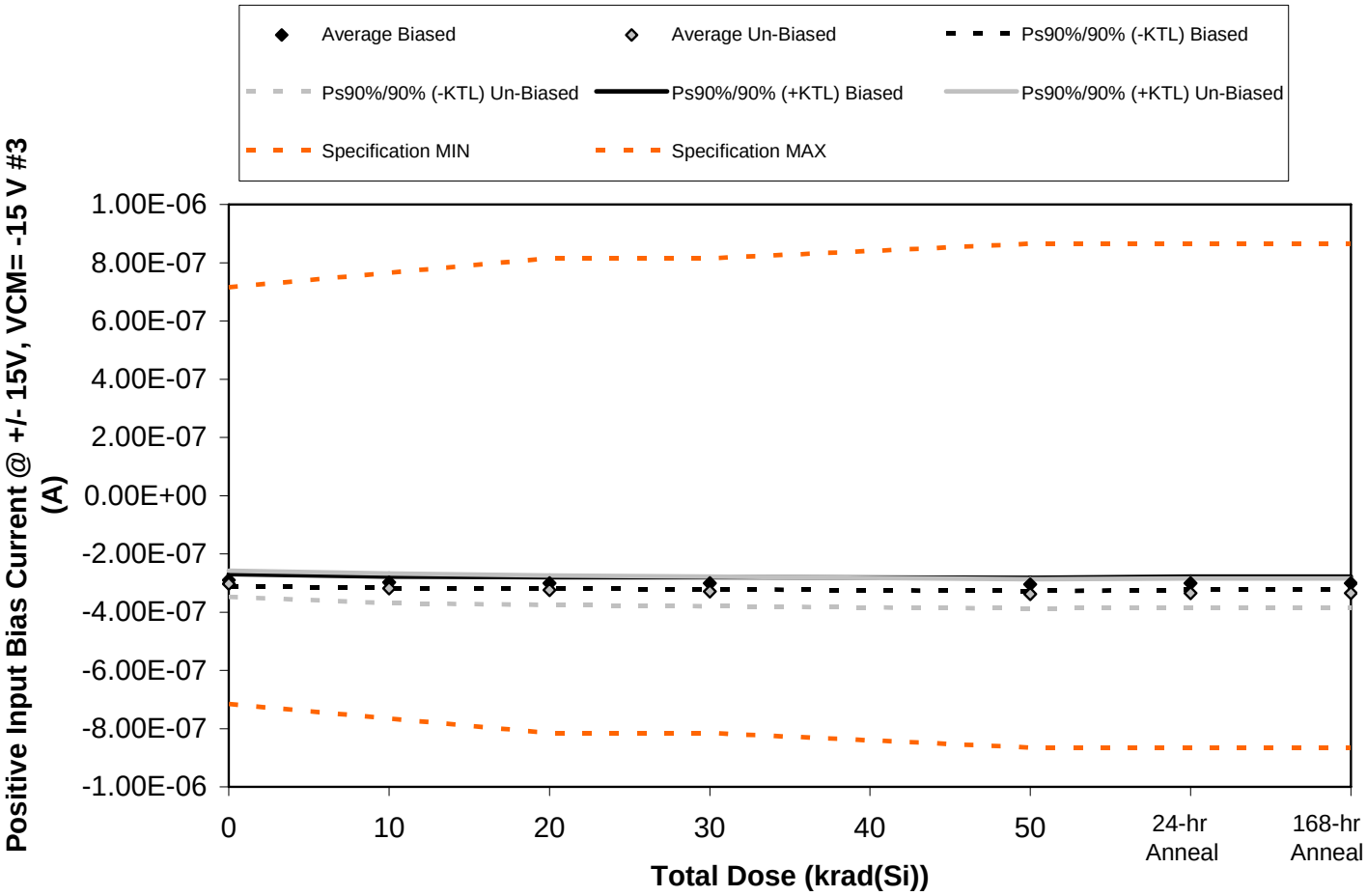

Figure 5.45. Plot of Positive Input Bias Current @ +/- 15V, VCM= -15 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.45. Raw data for Positive Input Bias Current @ +/- 15V, VCM= -15 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= -15 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.86E-07	-3.00E-07	-3.03E-07	-3.03E-07	-3.07E-07	-3.02E-07	-3.02E-07
867	-2.94E-07	-2.99E-07	-3.03E-07	-3.04E-07	-3.09E-07	-3.05E-07	-3.05E-07
868	-2.99E-07	-3.03E-07	-3.07E-07	-3.08E-07	-3.12E-07	-3.08E-07	-3.08E-07
869	-2.79E-07	-2.85E-07	-2.88E-07	-2.88E-07	-2.91E-07	-2.87E-07	-2.87E-07
870	-2.94E-07	-2.99E-07	-3.02E-07	-3.02E-07	-3.06E-07	-3.02E-07	-3.02E-07
871	-2.86E-07	-3.00E-07	-3.05E-07	-3.10E-07	-3.18E-07	-3.15E-07	-3.15E-07
872	-3.13E-07	-3.26E-07	-3.32E-07	-3.36E-07	-3.46E-07	-3.40E-07	-3.40E-07
873	-3.27E-07	-3.47E-07	-3.53E-07	-3.58E-07	-3.65E-07	-3.64E-07	-3.64E-07
874	-2.94E-07	-3.09E-07	-3.16E-07	-3.20E-07	-3.28E-07	-3.26E-07	-3.26E-07
876	-2.95E-07	-3.10E-07	-3.17E-07	-3.22E-07	-3.31E-07	-3.29E-07	-3.29E-07
877	-2.86E-07	-2.88E-07	-2.88E-07	-2.88E-07	-2.87E-07	-2.88E-07	-2.88E-07
Biased Statistics							
Average Biased	-2.90E-07	-2.97E-07	-3.00E-07	-3.01E-07	-3.05E-07	-3.01E-07	-3.01E-07
Std Dev Biased	7.68E-09	7.13E-09	7.34E-09	7.44E-09	8.31E-09	8.14E-09	8.14E-09
Ps90%/90% (+KTL) Biased	-2.69E-07	-2.78E-07	-2.80E-07	-2.81E-07	-2.82E-07	-2.79E-07	-2.79E-07
Ps90%/90% (-KTL) Biased	-3.11E-07	-3.17E-07	-3.20E-07	-3.21E-07	-3.28E-07	-3.23E-07	-3.23E-07
Un-Biased Statistics							
Average Un-Biased	-3.03E-07	-3.18E-07	-3.24E-07	-3.29E-07	-3.38E-07	-3.35E-07	-3.35E-07
Std Dev Un-Biased	1.64E-08	1.84E-08	1.84E-08	1.84E-08	1.84E-08	1.85E-08	1.85E-08
Ps90%/90% (+KTL) Un-Biased	-2.58E-07	-2.68E-07	-2.74E-07	-2.79E-07	-2.87E-07	-2.84E-07	-2.84E-07
Ps90%/90% (-KTL) Un-Biased	-3.48E-07	-3.69E-07	-3.75E-07	-3.80E-07	-3.88E-07	-3.86E-07	-3.86E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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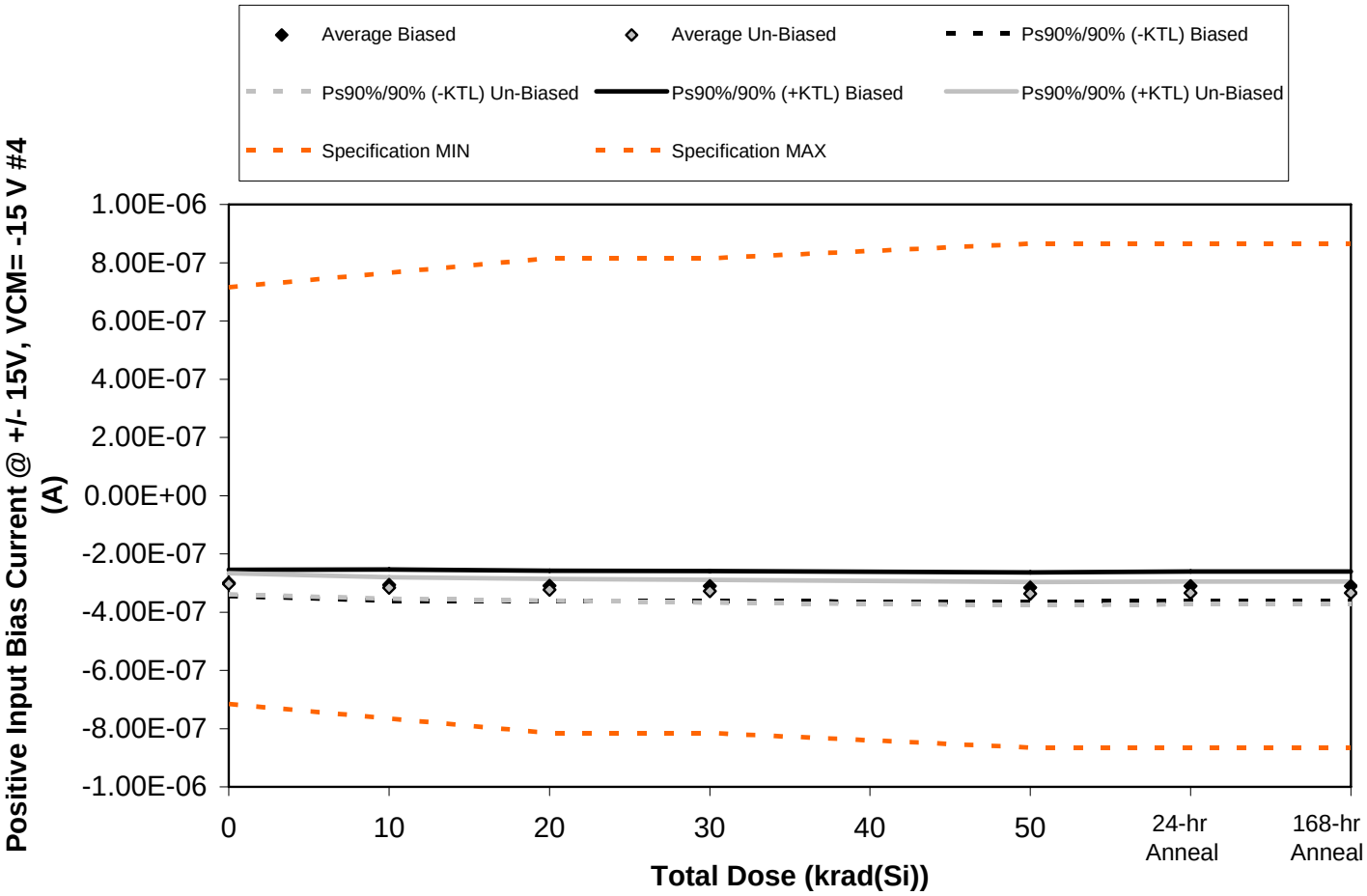

Figure 5.46. Plot of Positive Input Bias Current @ +/- 15V, VCM= -15 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.46. Raw data for Positive Input Bias Current @ +/- 15V, VCM= -15 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ +/- 15V, VCM= -15 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.20E-07	-3.34E-07	-3.37E-07	-3.37E-07	-3.42E-07	-3.37E-07	-3.37E-07
867	-2.83E-07	-2.88E-07	-2.92E-07	-2.93E-07	-2.98E-07	-2.94E-07	-2.94E-07
868	-2.85E-07	-2.90E-07	-2.93E-07	-2.94E-07	-2.99E-07	-2.95E-07	-2.95E-07
869	-2.98E-07	-3.04E-07	-3.06E-07	-3.07E-07	-3.10E-07	-3.06E-07	-3.06E-07
870	-3.13E-07	-3.18E-07	-3.21E-07	-3.21E-07	-3.25E-07	-3.21E-07	-3.21E-07
871	-3.12E-07	-3.25E-07	-3.31E-07	-3.35E-07	-3.45E-07	-3.40E-07	-3.40E-07
872	-3.17E-07	-3.32E-07	-3.39E-07	-3.47E-07	-3.54E-07	-3.53E-07	-3.53E-07
873	-3.06E-07	-3.21E-07	-3.27E-07	-3.32E-07	-3.40E-07	-3.37E-07	-3.37E-07
874	-2.88E-07	-3.02E-07	-3.09E-07	-3.13E-07	-3.21E-07	-3.19E-07	-3.19E-07
876	-2.89E-07	-3.03E-07	-3.09E-07	-3.14E-07	-3.22E-07	-3.20E-07	-3.20E-07
877	-2.99E-07	-3.01E-07	-3.01E-07	-3.01E-07	-3.00E-07	-3.01E-07	-3.01E-07
Biased Statistics							
Average Biased	-3.00E-07	-3.07E-07	-3.10E-07	-3.11E-07	-3.15E-07	-3.10E-07	-3.10E-07
Std Dev Biased	1.64E-08	1.94E-08	1.91E-08	1.88E-08	1.89E-08	1.82E-08	1.82E-08
Ps90%/90% (+KTL) Biased	-2.55E-07	-2.54E-07	-2.57E-07	-2.59E-07	-2.63E-07	-2.61E-07	-2.61E-07
Ps90%/90% (-KTL) Biased	-3.45E-07	-3.60E-07	-3.62E-07	-3.62E-07	-3.67E-07	-3.60E-07	-3.60E-07
Un-Biased Statistics							
Average Un-Biased	-3.02E-07	-3.17E-07	-3.23E-07	-3.28E-07	-3.37E-07	-3.34E-07	-3.34E-07
Std Dev Un-Biased	1.32E-08	1.34E-08	1.35E-08	1.43E-08	1.44E-08	1.43E-08	1.43E-08
Ps90%/90% (+KTL) Un-Biased	-2.66E-07	-2.80E-07	-2.86E-07	-2.89E-07	-2.97E-07	-2.95E-07	-2.95E-07
Ps90%/90% (-KTL) Un-Biased	-3.39E-07	-3.54E-07	-3.60E-07	-3.68E-07	-3.76E-07	-3.73E-07	-3.73E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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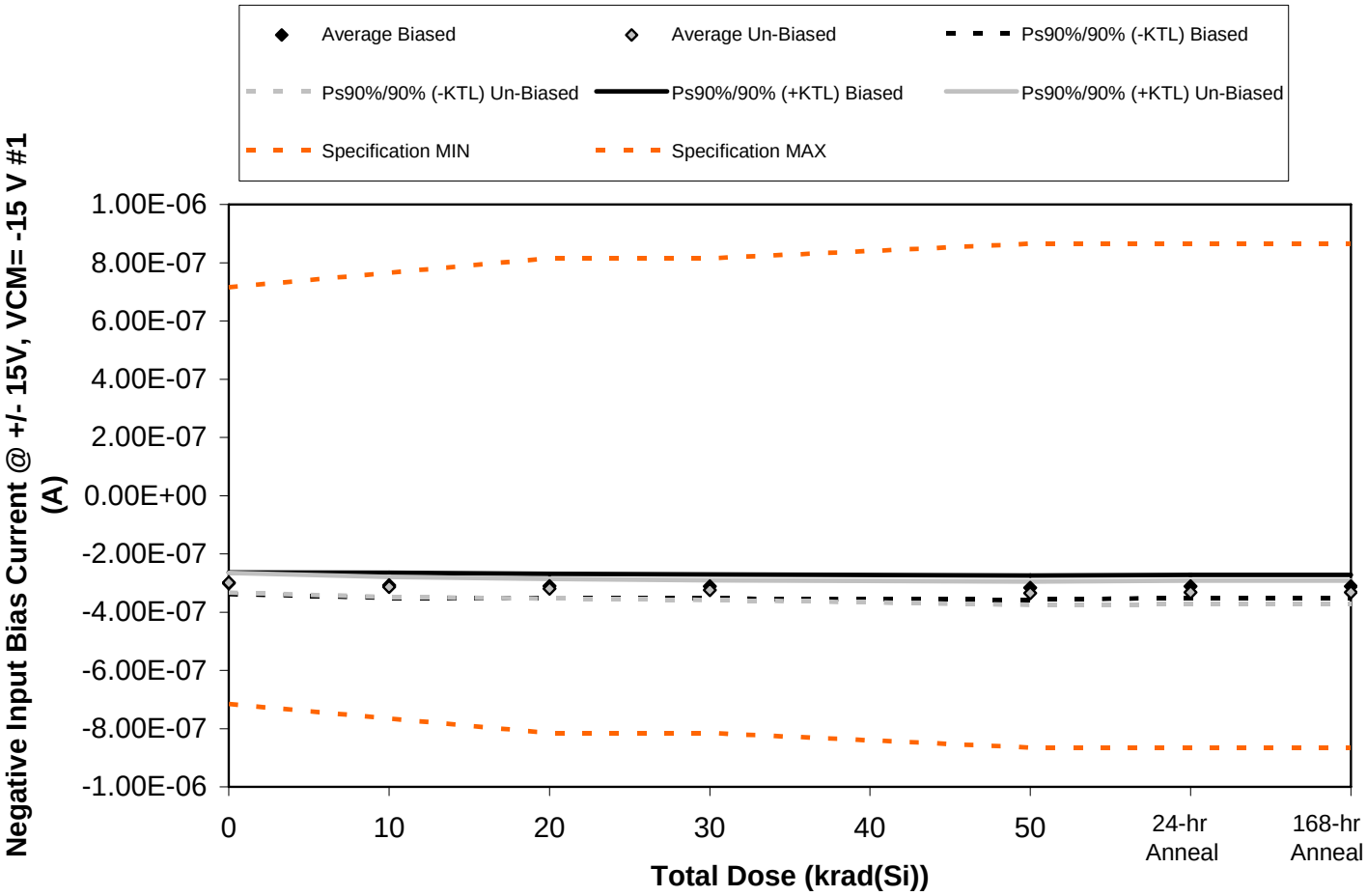

Figure 5.47. Plot of Negative Input Bias Current @ +/- 15V, VCM= -15 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.47. Raw data for Negative Input Bias Current @ +/- 15V, VCM= -15 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= -15 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.12E-07	-3.25E-07	-3.28E-07	-3.29E-07	-3.34E-07	-3.28E-07	-3.28E-07
867	-2.92E-07	-2.97E-07	-3.01E-07	-3.02E-07	-3.07E-07	-3.03E-07	-3.03E-07
868	-2.82E-07	-2.87E-07	-2.90E-07	-2.91E-07	-2.95E-07	-2.92E-07	-2.92E-07
869	-3.05E-07	-3.11E-07	-3.14E-07	-3.14E-07	-3.18E-07	-3.13E-07	-3.13E-07
870	-3.13E-07	-3.18E-07	-3.21E-07	-3.22E-07	-3.26E-07	-3.21E-07	-3.21E-07
871	-3.12E-07	-3.26E-07	-3.31E-07	-3.36E-07	-3.48E-07	-3.45E-07	-3.45E-07
872	-3.11E-07	-3.27E-07	-3.34E-07	-3.39E-07	-3.52E-07	-3.50E-07	-3.50E-07
873	-2.97E-07	-3.11E-07	-3.17E-07	-3.23E-07	-3.32E-07	-3.29E-07	-3.29E-07
874	-2.87E-07	-3.02E-07	-3.09E-07	-3.14E-07	-3.22E-07	-3.19E-07	-3.19E-07
876	-2.87E-07	-3.01E-07	-3.07E-07	-3.12E-07	-3.20E-07	-3.18E-07	-3.18E-07
877	-3.00E-07	-3.02E-07	-3.02E-07	-3.02E-07	-3.01E-07	-3.02E-07	-3.02E-07
Biased Statistics							
Average Biased	-3.01E-07	-3.08E-07	-3.11E-07	-3.12E-07	-3.16E-07	-3.12E-07	-3.12E-07
Std Dev Biased	1.35E-08	1.57E-08	1.54E-08	1.51E-08	1.51E-08	1.44E-08	1.44E-08
Ps90%/90% (+KTL) Biased	-2.64E-07	-2.65E-07	-2.69E-07	-2.70E-07	-2.75E-07	-2.72E-07	-2.72E-07
Ps90%/90% (-KTL) Biased	-3.38E-07	-3.51E-07	-3.53E-07	-3.53E-07	-3.58E-07	-3.51E-07	-3.51E-07
Un-Biased Statistics							
Average Un-Biased	-2.99E-07	-3.13E-07	-3.20E-07	-3.25E-07	-3.35E-07	-3.32E-07	-3.32E-07
Std Dev Un-Biased	1.23E-08	1.23E-08	1.24E-08	1.23E-08	1.47E-08	1.47E-08	1.47E-08
Ps90%/90% (+KTL) Un-Biased	-2.65E-07	-2.80E-07	-2.86E-07	-2.91E-07	-2.94E-07	-2.92E-07	-2.92E-07
Ps90%/90% (-KTL) Un-Biased	-3.33E-07	-3.47E-07	-3.54E-07	-3.58E-07	-3.75E-07	-3.73E-07	-3.73E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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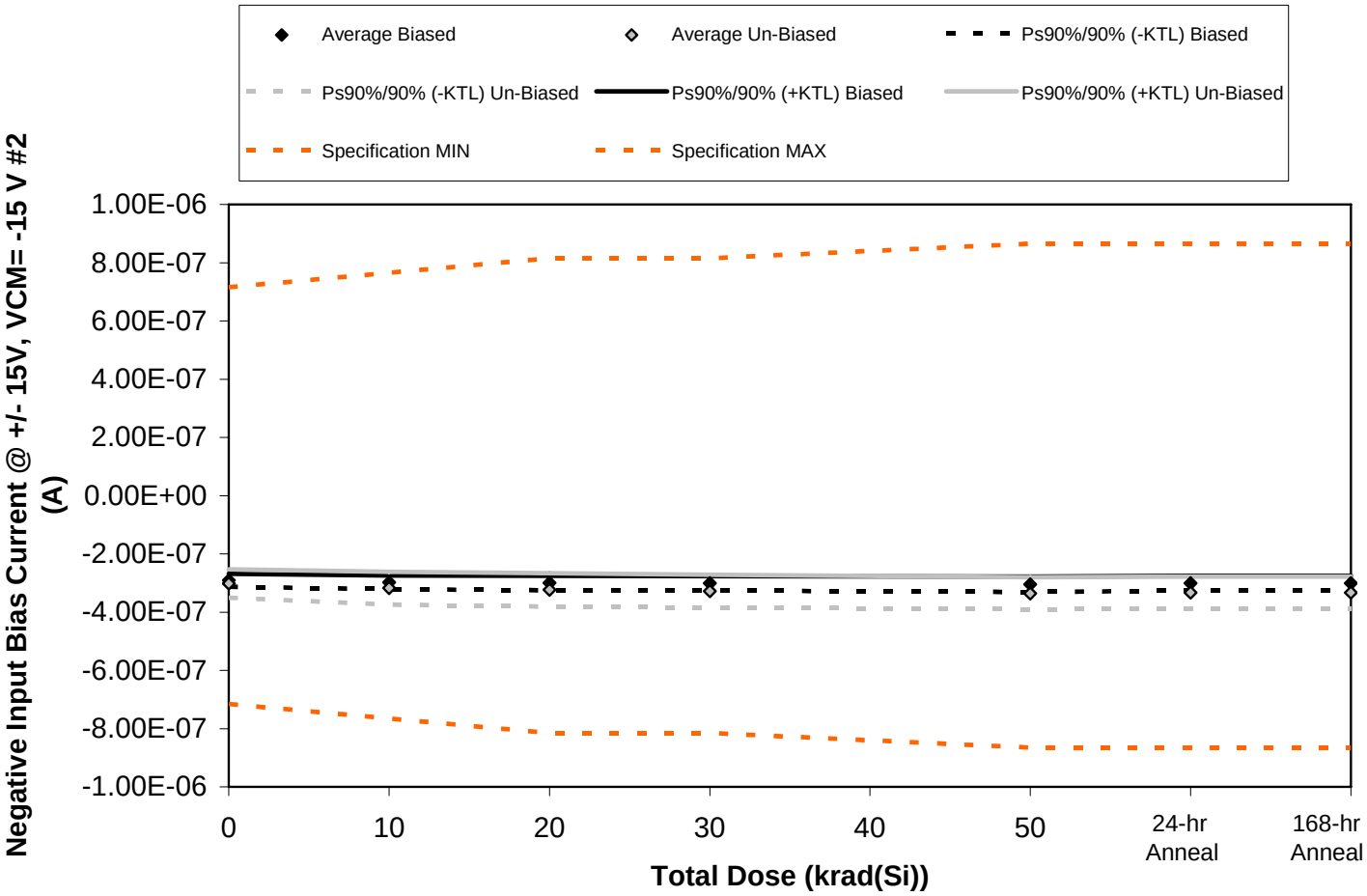

Figure 5.48. Plot of Negative Input Bias Current @ +/- 15V, VCM= -15 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.48. Raw data for Negative Input Bias Current @ +/- 15V, VCM= -15 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= -15 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.91E-07	-3.04E-07	-3.07E-07	-3.07E-07	-3.11E-07	-3.06E-07	-3.06E-07
867	-2.93E-07	-2.97E-07	-3.01E-07	-3.02E-07	-3.06E-07	-3.02E-07	-3.02E-07
868	-2.98E-07	-3.02E-07	-3.05E-07	-3.06E-07	-3.11E-07	-3.07E-07	-3.07E-07
869	-2.77E-07	-2.83E-07	-2.84E-07	-2.85E-07	-2.88E-07	-2.84E-07	-2.84E-07
870	-2.95E-07	-3.00E-07	-3.03E-07	-3.04E-07	-3.07E-07	-3.04E-07	-3.04E-07
871	-2.82E-07	-2.95E-07	-3.01E-07	-3.05E-07	-3.13E-07	-3.11E-07	-3.11E-07
872	-3.12E-07	-3.25E-07	-3.31E-07	-3.34E-07	-3.41E-07	-3.38E-07	-3.38E-07
873	-3.27E-07	-3.49E-07	-3.56E-07	-3.60E-07	-3.67E-07	-3.65E-07	-3.65E-07
874	-2.92E-07	-3.08E-07	-3.13E-07	-3.19E-07	-3.27E-07	-3.25E-07	-3.25E-07
876	-2.96E-07	-3.11E-07	-3.18E-07	-3.22E-07	-3.31E-07	-3.29E-07	-3.29E-07
877	-2.83E-07	-2.85E-07	-2.85E-07	-2.84E-07	-2.84E-07	-2.85E-07	-2.85E-07
Biased Statistics							
Average Biased	-2.91E-07	-2.97E-07	-3.00E-07	-3.01E-07	-3.05E-07	-3.01E-07	-3.01E-07
Std Dev Biased	8.02E-09	8.55E-09	9.16E-09	9.07E-09	9.60E-09	9.27E-09	9.27E-09
Ps90%/90% (+KTL) Biased	-2.69E-07	-2.74E-07	-2.75E-07	-2.76E-07	-2.78E-07	-2.75E-07	-2.75E-07
Ps90%/90% (-KTL) Biased	-3.13E-07	-3.21E-07	-3.25E-07	-3.26E-07	-3.31E-07	-3.26E-07	-3.26E-07
Un-Biased Statistics							
Average Un-Biased	-3.02E-07	-3.18E-07	-3.24E-07	-3.28E-07	-3.36E-07	-3.33E-07	-3.33E-07
Std Dev Un-Biased	1.77E-08	2.05E-08	2.08E-08	2.07E-08	2.02E-08	2.02E-08	2.02E-08
Ps90%/90% (+KTL) Un-Biased	-2.53E-07	-2.61E-07	-2.67E-07	-2.71E-07	-2.80E-07	-2.78E-07	-2.78E-07
Ps90%/90% (-KTL) Un-Biased	-3.50E-07	-3.74E-07	-3.81E-07	-3.85E-07	-3.91E-07	-3.89E-07	-3.89E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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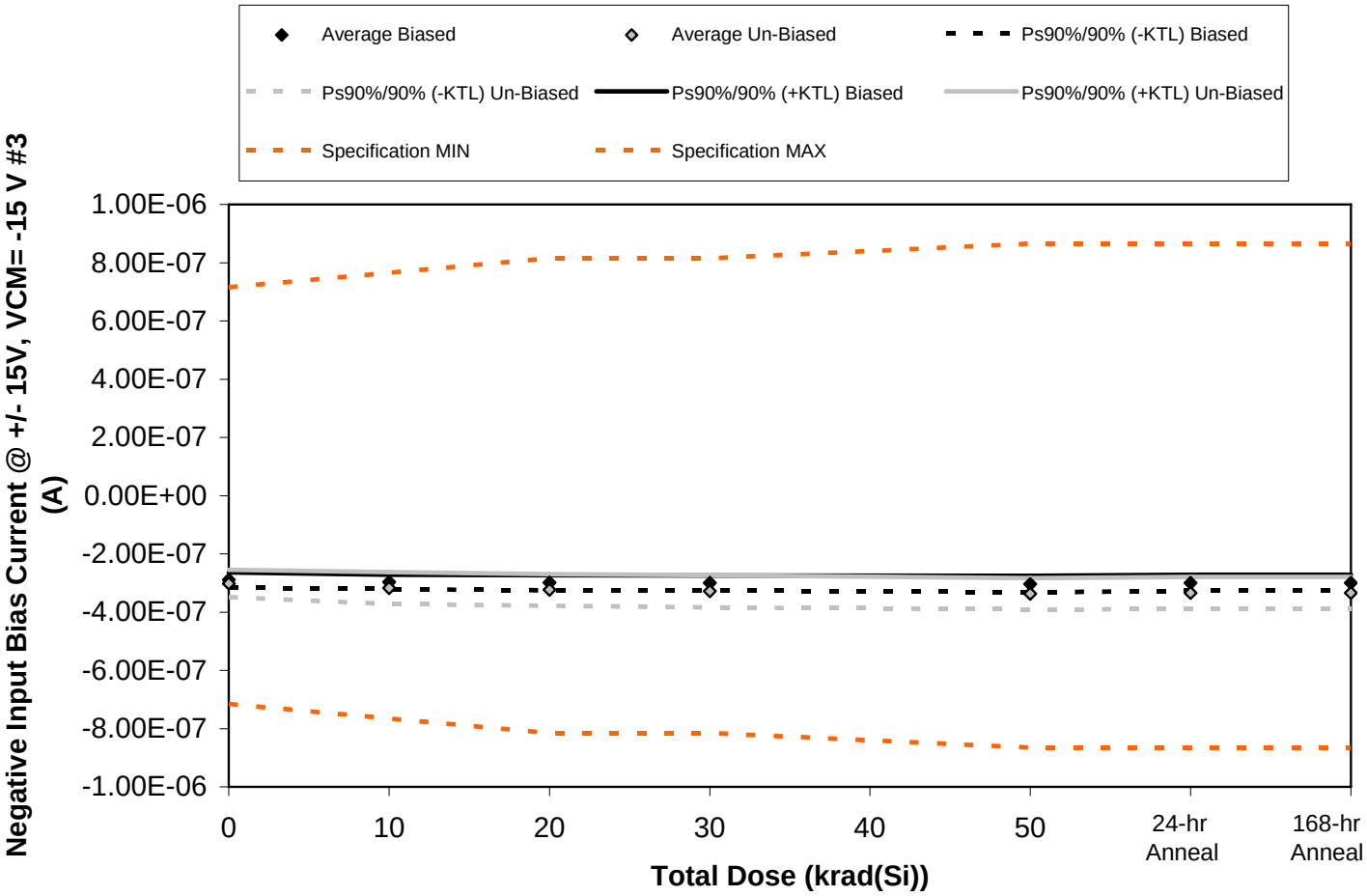

Figure 5.49. Plot of Negative Input Bias Current @ +/- 15V, VCM= -15 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.49. Raw data for Negative Input Bias Current @ +/- 15V, VCM= -15 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= -15 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.85E-07	-2.99E-07	-3.01E-07	-3.01E-07	-3.05E-07	-3.00E-07	-3.00E-07
867	-2.92E-07	-2.97E-07	-3.00E-07	-3.02E-07	-3.06E-07	-3.03E-07	-3.03E-07
868	-3.03E-07	-3.08E-07	-3.11E-07	-3.12E-07	-3.16E-07	-3.12E-07	-3.12E-07
869	-2.77E-07	-2.83E-07	-2.85E-07	-2.85E-07	-2.88E-07	-2.84E-07	-2.84E-07
870	-2.90E-07	-2.96E-07	-2.99E-07	-3.00E-07	-3.03E-07	-2.99E-07	-2.99E-07
871	-2.82E-07	-2.95E-07	-3.01E-07	-3.05E-07	-3.14E-07	-3.11E-07	-3.11E-07
872	-3.10E-07	-3.23E-07	-3.29E-07	-3.33E-07	-3.40E-07	-3.38E-07	-3.38E-07
873	-3.26E-07	-3.48E-07	-3.54E-07	-3.60E-07	-3.68E-07	-3.66E-07	-3.66E-07
874	-2.93E-07	-3.08E-07	-3.15E-07	-3.20E-07	-3.29E-07	-3.26E-07	-3.26E-07
876	-2.98E-07	-3.12E-07	-3.19E-07	-3.24E-07	-3.33E-07	-3.31E-07	-3.31E-07
877	-2.88E-07	-2.89E-07	-2.90E-07	-2.89E-07	-2.89E-07	-2.90E-07	-2.90E-07
Biased Statistics							
Average Biased	-2.89E-07	-2.96E-07	-2.99E-07	-3.00E-07	-3.04E-07	-3.00E-07	-3.00E-07
Std Dev Biased	9.40E-09	8.96E-09	9.41E-09	9.44E-09	1.04E-08	1.02E-08	1.02E-08
Ps90%/90% (+KTL) Biased	-2.64E-07	-2.72E-07	-2.73E-07	-2.74E-07	-2.75E-07	-2.72E-07	-2.72E-07
Ps90%/90% (-KTL) Biased	-3.15E-07	-3.21E-07	-3.25E-07	-3.26E-07	-3.32E-07	-3.28E-07	-3.28E-07
Un-Biased Statistics							
Average Un-Biased	-3.02E-07	-3.17E-07	-3.24E-07	-3.29E-07	-3.37E-07	-3.34E-07	-3.34E-07
Std Dev Un-Biased	1.70E-08	2.01E-08	1.98E-08	2.03E-08	1.97E-08	2.01E-08	2.01E-08
Ps90%/90% (+KTL) Un-Biased	-2.55E-07	-2.62E-07	-2.69E-07	-2.73E-07	-2.83E-07	-2.79E-07	-2.79E-07
Ps90%/90% (-KTL) Un-Biased	-3.48E-07	-3.72E-07	-3.78E-07	-3.84E-07	-3.91E-07	-3.90E-07	-3.90E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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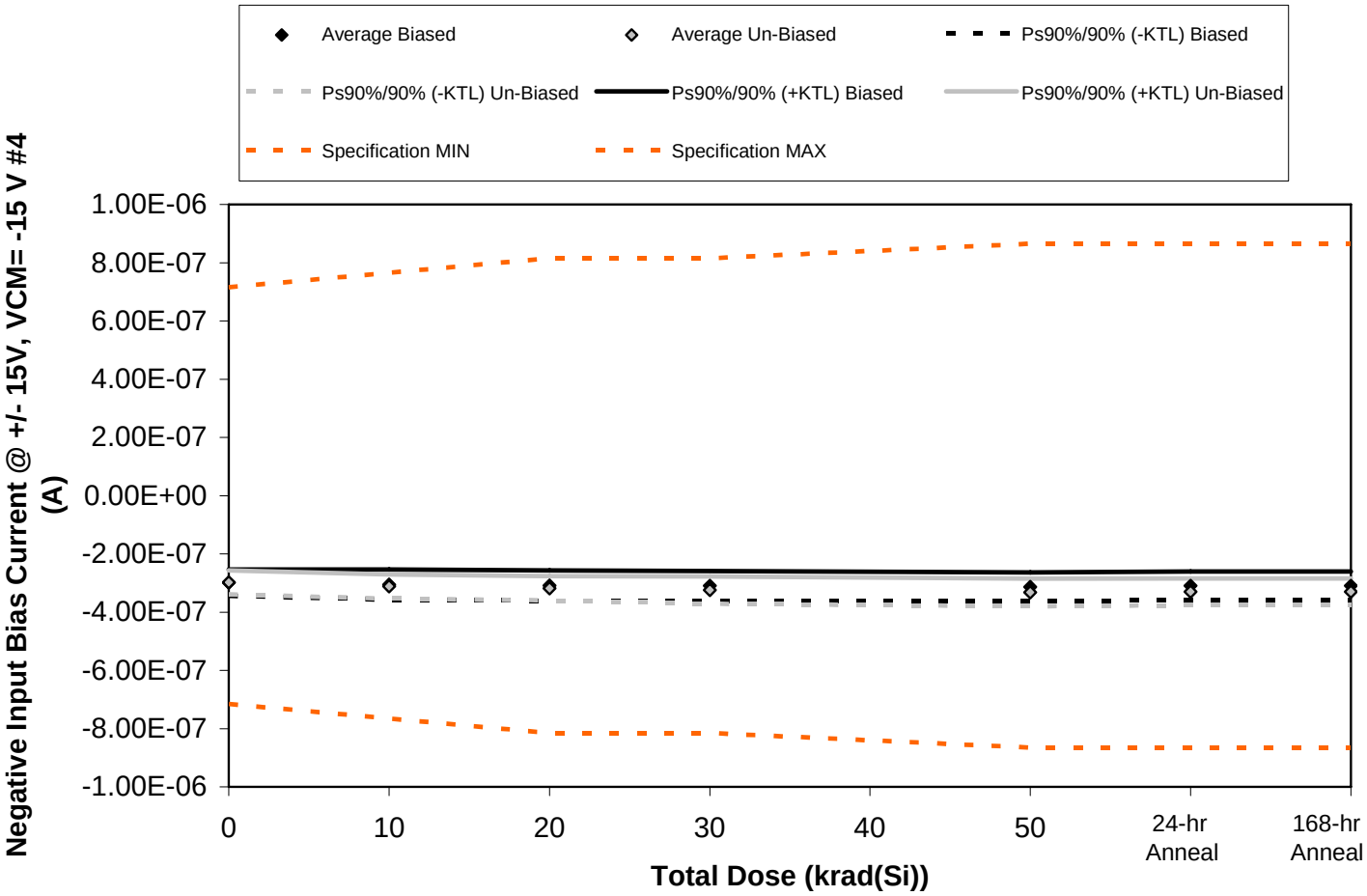

Figure 5.50. Plot of Negative Input Bias Current @ +/- 15V, VCM= -15 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.50. Raw data for Negative Input Bias Current @ +/- 15V, VCM= -15 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ +/- 15V, VCM= -15 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.19E-07	-3.32E-07	-3.35E-07	-3.36E-07	-3.40E-07	-3.35E-07	-3.35E-07
867	-2.86E-07	-2.91E-07	-2.95E-07	-2.96E-07	-3.01E-07	-2.97E-07	-2.97E-07
868	-2.80E-07	-2.86E-07	-2.88E-07	-2.90E-07	-2.94E-07	-2.91E-07	-2.91E-07
869	-2.97E-07	-3.03E-07	-3.05E-07	-3.06E-07	-3.10E-07	-3.05E-07	-3.05E-07
870	-3.12E-07	-3.16E-07	-3.19E-07	-3.20E-07	-3.23E-07	-3.19E-07	-3.19E-07
871	-3.09E-07	-3.22E-07	-3.28E-07	-3.32E-07	-3.40E-07	-3.37E-07	-3.37E-07
872	-3.17E-07	-3.33E-07	-3.39E-07	-3.50E-07	-3.58E-07	-3.55E-07	-3.55E-07
873	-2.95E-07	-3.08E-07	-3.15E-07	-3.20E-07	-3.29E-07	-3.26E-07	-3.26E-07
874	-2.83E-07	-2.98E-07	-3.04E-07	-3.10E-07	-3.18E-07	-3.15E-07	-3.15E-07
876	-2.84E-07	-2.99E-07	-3.05E-07	-3.09E-07	-3.18E-07	-3.15E-07	-3.15E-07
877	-2.98E-07	-3.00E-07	-3.01E-07	-3.00E-07	-2.99E-07	-3.00E-07	-3.00E-07
Biased Statistics							
Average Biased	-2.99E-07	-3.06E-07	-3.08E-07	-3.09E-07	-3.14E-07	-3.09E-07	-3.09E-07
Std Dev Biased	1.64E-08	1.88E-08	1.88E-08	1.85E-08	1.82E-08	1.76E-08	1.76E-08
Ps90%/90% (+KTL) Biased	-2.54E-07	-2.54E-07	-2.57E-07	-2.59E-07	-2.64E-07	-2.61E-07	-2.61E-07
Ps90%/90% (-KTL) Biased	-3.44E-07	-3.57E-07	-3.60E-07	-3.60E-07	-3.64E-07	-3.58E-07	-3.58E-07
Un-Biased Statistics							
Average Un-Biased	-2.98E-07	-3.12E-07	-3.18E-07	-3.24E-07	-3.32E-07	-3.30E-07	-3.30E-07
Std Dev Un-Biased	1.50E-08	1.52E-08	1.51E-08	1.72E-08	1.72E-08	1.68E-08	1.68E-08
Ps90%/90% (+KTL) Un-Biased	-2.57E-07	-2.70E-07	-2.77E-07	-2.77E-07	-2.85E-07	-2.84E-07	-2.84E-07
Ps90%/90% (-KTL) Un-Biased	-3.39E-07	-3.54E-07	-3.60E-07	-3.71E-07	-3.80E-07	-3.76E-07	-3.76E-07
Specification MIN	-7.15E-07	-7.65E-07	-8.15E-07	-8.15E-07	-8.65E-07	-8.65E-07	-8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	7.15E-07	7.65E-07	8.15E-07	8.15E-07	8.65E-07	8.65E-07	8.65E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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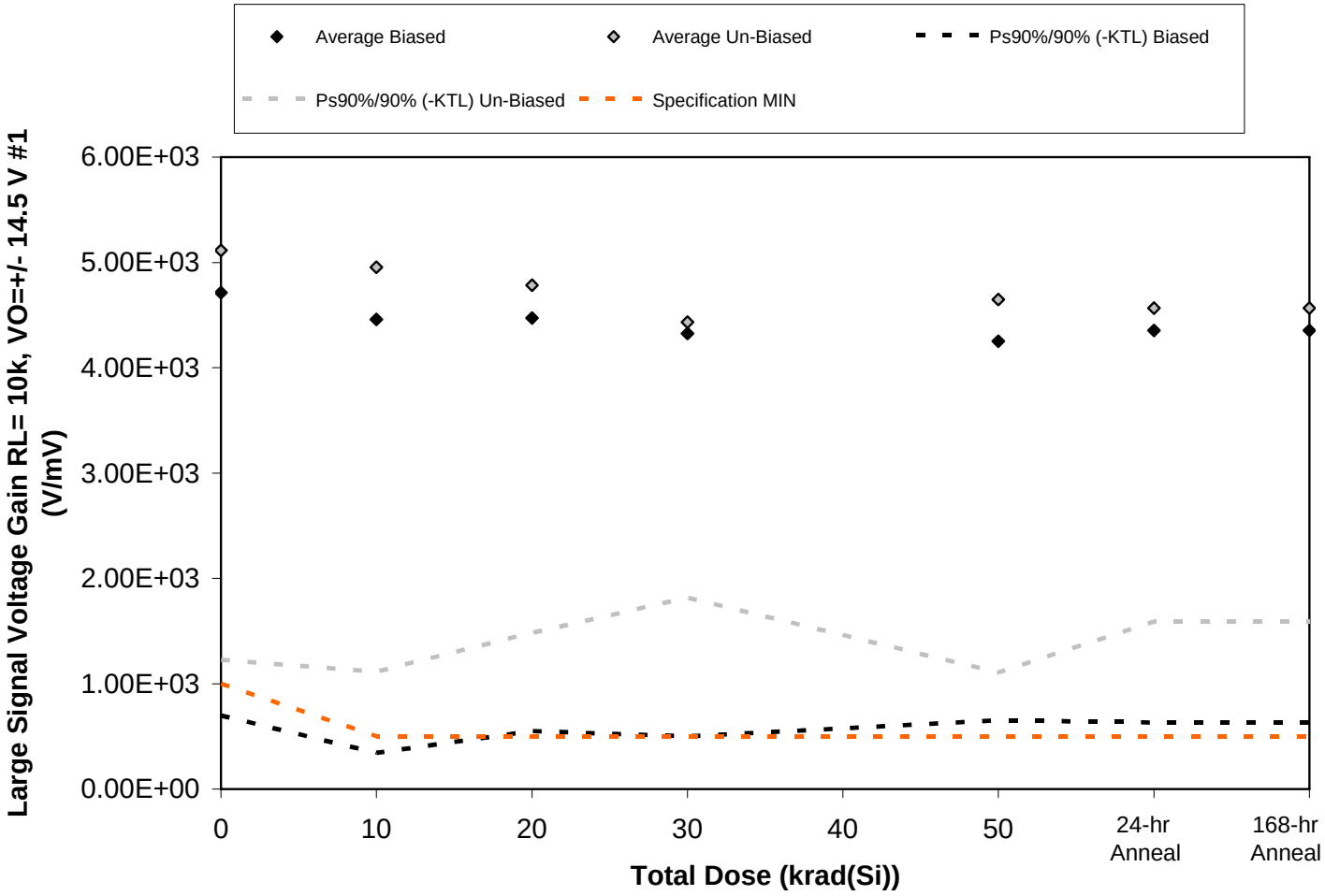

Figure 5.51. Plot of Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #1 (V/mV) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.51. Raw data for Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #1 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #1 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.49E+03	3.42E+03	3.42E+03	3.35E+03	3.35E+03	3.22E+03	3.22E+03
867	3.78E+03	3.53E+03	3.57E+03	3.39E+03	3.45E+03	3.45E+03	3.45E+03
868	6.37E+03	6.06E+03	6.35E+03	6.11E+03	5.87E+03	6.06E+03	6.06E+03
869	3.68E+03	3.16E+03	3.35E+03	3.22E+03	3.11E+03	3.45E+03	3.45E+03
870	6.26E+03	6.13E+03	5.68E+03	5.56E+03	5.48E+03	5.60E+03	5.60E+03
871	6.28E+03	5.56E+03	5.34E+03	4.89E+03	6.18E+03	5.47E+03	5.47E+03
872	3.53E+03	3.36E+03	3.47E+03	3.47E+03	3.38E+03	3.38E+03	3.38E+03
873	6.03E+03	6.20E+03	5.36E+03	5.26E+03	5.10E+03	5.20E+03	5.20E+03
874	3.60E+03	3.53E+03	3.58E+03	3.33E+03	3.23E+03	3.38E+03	3.38E+03
876	6.13E+03	6.13E+03	6.19E+03	5.20E+03	5.34E+03	5.40E+03	5.40E+03
877	6.17E+03	6.19E+03	5.88E+03	6.13E+03	5.69E+03	5.75E+03	5.75E+03
Biased Statistics							
Average Biased	4.71E+03	4.46E+03	4.47E+03	4.33E+03	4.25E+03	4.35E+03	4.35E+03
Std Dev Biased	1.47E+03	1.50E+03	1.43E+03	1.39E+03	1.31E+03	1.36E+03	1.36E+03
Ps90%/90% (+KTL) Biased	8.73E+03	8.58E+03	8.39E+03	8.15E+03	7.85E+03	8.08E+03	8.08E+03
Ps90%/90% (-KTL) Biased	6.96E+02	3.43E+02	5.51E+02	5.02E+02	6.53E+02	6.31E+02	6.31E+02
Un-Biased Statistics							
Average Un-Biased	5.11E+03	4.96E+03	4.78E+03	4.43E+03	4.65E+03	4.57E+03	4.57E+03
Std Dev Un-Biased	1.42E+03	1.40E+03	1.20E+03	9.54E+02	1.29E+03	1.09E+03	1.09E+03
Ps90%/90% (+KTL) Un-Biased	9.00E+03	8.79E+03	8.08E+03	7.05E+03	8.19E+03	7.54E+03	7.54E+03
Ps90%/90% (-KTL) Un-Biased	1.23E+03	1.12E+03	1.48E+03	1.82E+03	1.11E+03	1.59E+03	1.59E+03
Specification MIN	1.00E+03	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02
Status	FAIL	FAIL	PASS	PASS	PASS	PASS	PASS

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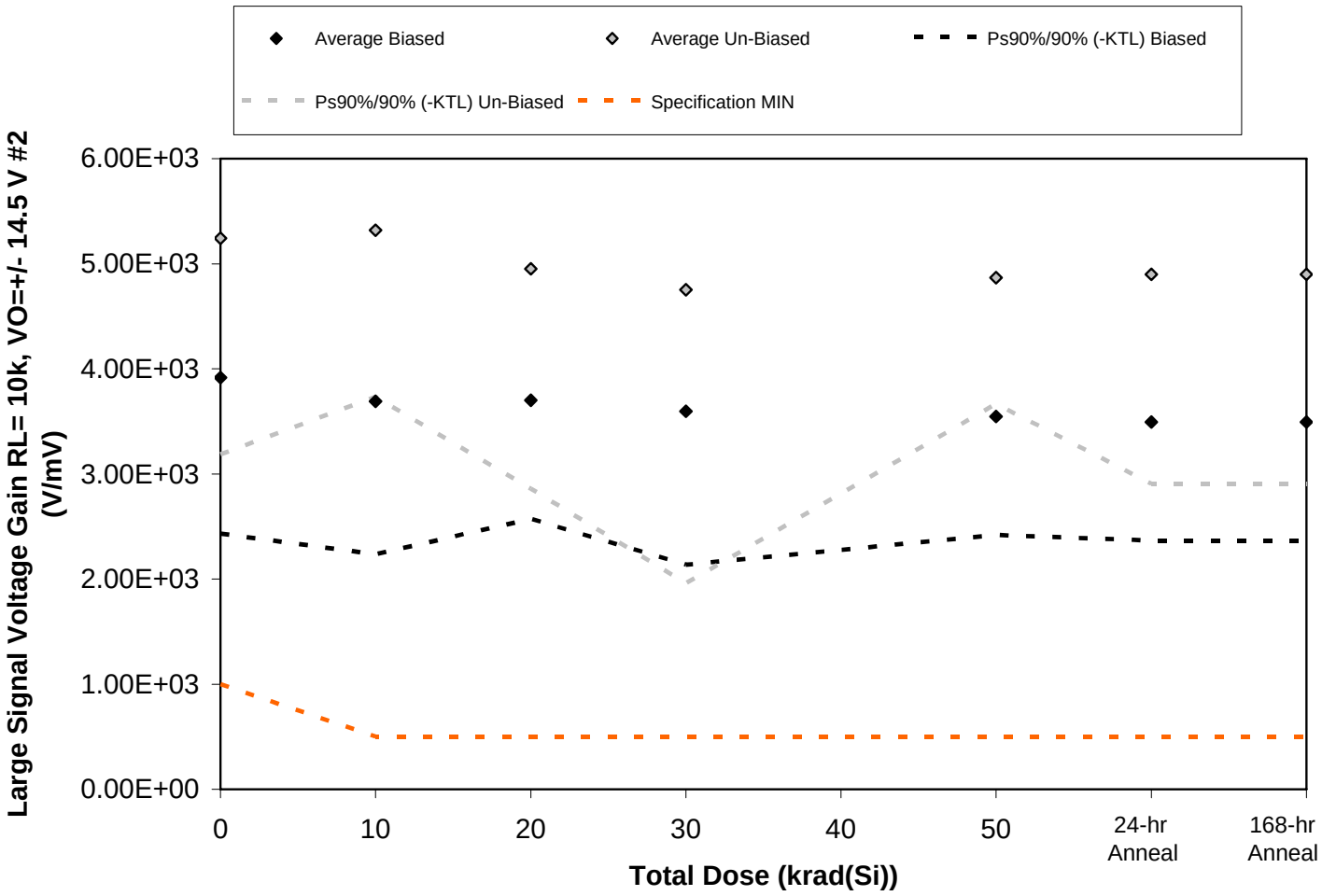

Figure 5.52. Plot of Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #2 (V/mV) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.52. Raw data for Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #2 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #2 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.56E+03	3.49E+03	3.43E+03	3.24E+03	3.35E+03	3.28E+03	3.28E+03
867	3.73E+03	3.50E+03	3.54E+03	3.45E+03	3.47E+03	3.27E+03	3.27E+03
868	3.63E+03	3.41E+03	3.46E+03	3.36E+03	3.29E+03	3.23E+03	3.23E+03
869	4.87E+03	4.64E+03	4.42E+03	4.54E+03	4.28E+03	4.21E+03	4.21E+03
870	3.79E+03	3.42E+03	3.66E+03	3.40E+03	3.36E+03	3.48E+03	3.48E+03
871	4.82E+03	5.14E+03	4.76E+03	4.91E+03	4.21E+03	4.86E+03	4.86E+03
872	5.66E+03	5.67E+03	5.08E+03	5.17E+03	5.09E+03	4.79E+03	4.79E+03
873	5.92E+03	5.95E+03	6.01E+03	5.40E+03	4.99E+03	5.69E+03	5.69E+03
874	5.69E+03	5.39E+03	5.03E+03	5.32E+03	5.36E+03	5.38E+03	5.38E+03
876	4.13E+03	4.44E+03	3.88E+03	2.96E+03	4.69E+03	3.78E+03	3.78E+03
877	6.12E+03	5.47E+03	5.70E+03	4.55E+03	5.14E+03	5.38E+03	5.38E+03
Biased Statistics							
Average Biased	3.92E+03	3.69E+03	3.70E+03	3.60E+03	3.55E+03	3.49E+03	3.49E+03
Std Dev Biased	5.42E+02	5.31E+02	4.12E+02	5.32E+02	4.12E+02	4.11E+02	4.11E+02
Ps90%/90% (+KTL) Biased	5.40E+03	5.15E+03	4.83E+03	5.05E+03	4.68E+03	4.62E+03	4.62E+03
Ps90%/90% (-KTL) Biased	2.43E+03	2.24E+03	2.57E+03	2.14E+03	2.42E+03	2.37E+03	2.37E+03
Un-Biased Statistics							
Average Un-Biased	5.24E+03	5.32E+03	4.95E+03	4.75E+03	4.87E+03	4.90E+03	4.90E+03
Std Dev Un-Biased	7.50E+02	5.78E+02	7.63E+02	1.02E+03	4.38E+02	7.27E+02	7.27E+02
Ps90%/90% (+KTL) Un-Biased	7.30E+03	6.90E+03	7.04E+03	7.54E+03	6.07E+03	6.89E+03	6.89E+03
Ps90%/90% (-KTL) Un-Biased	3.19E+03	3.73E+03	2.86E+03	1.96E+03	3.67E+03	2.91E+03	2.91E+03
Specification MIN	1.00E+03	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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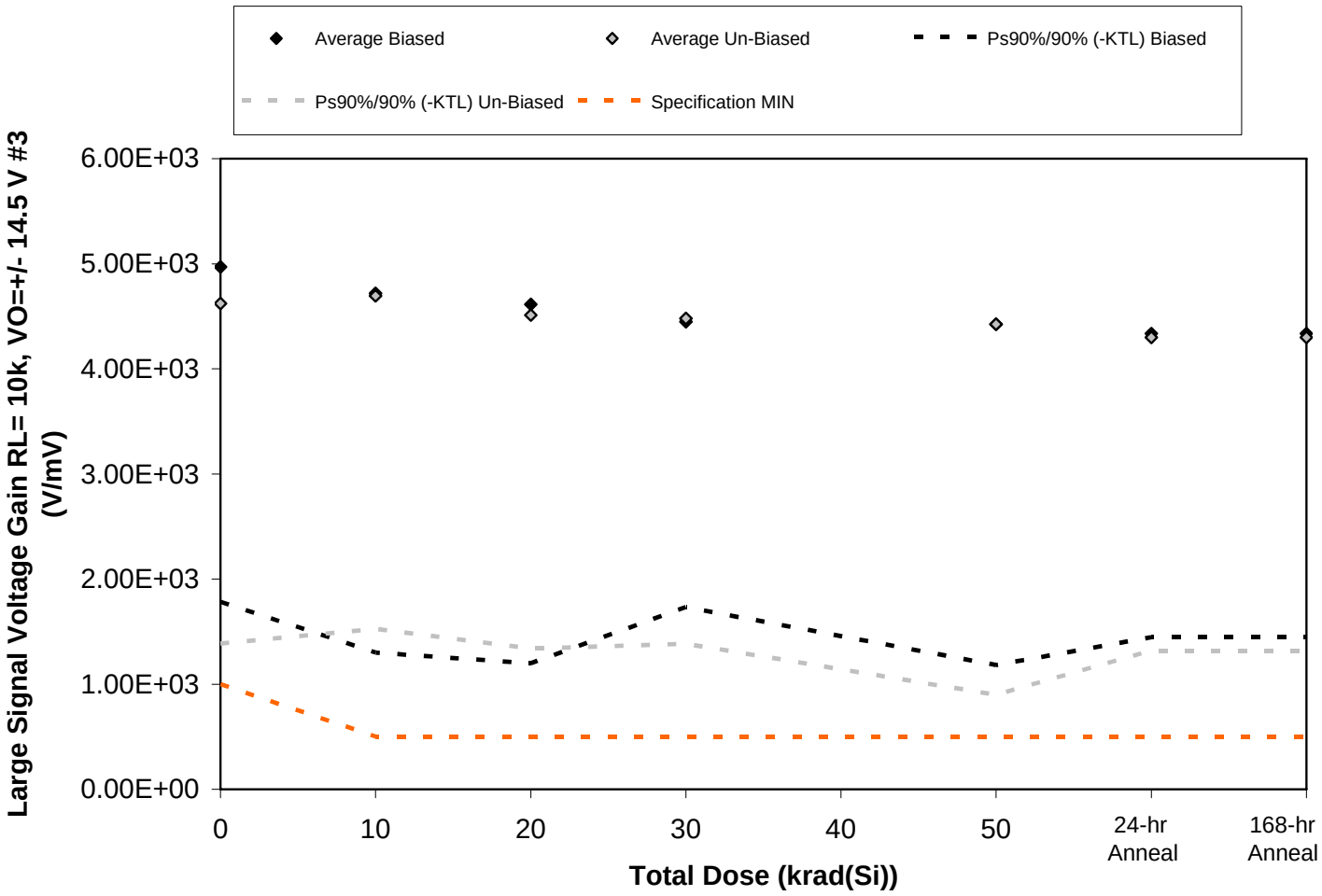

Figure 5.53. Plot of Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #3 (V/mV) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.53. Raw data for Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #3 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #3 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.36E+03	6.47E+03	6.32E+03	5.70E+03	6.20E+03	5.67E+03	5.67E+03
867	4.87E+03	4.49E+03	4.63E+03	4.68E+03	4.15E+03	4.44E+03	4.44E+03
868	3.60E+03	3.42E+03	3.16E+03	3.31E+03	3.35E+03	3.08E+03	3.08E+03
869	4.12E+03	3.77E+03	3.72E+03	3.59E+03	3.46E+03	3.53E+03	3.53E+03
870	5.89E+03	5.43E+03	5.24E+03	4.96E+03	4.97E+03	4.97E+03	4.97E+03
871	6.56E+03	6.42E+03	6.35E+03	6.15E+03	6.64E+03	6.00E+03	6.00E+03
872	4.79E+03	5.26E+03	4.80E+03	5.12E+03	4.36E+03	4.64E+03	4.64E+03
873	4.38E+03	4.35E+03	4.28E+03	3.91E+03	4.00E+03	4.05E+03	4.05E+03
874	3.71E+03	3.62E+03	3.43E+03	3.74E+03	3.57E+03	3.27E+03	3.27E+03
876	3.68E+03	3.82E+03	3.71E+03	3.47E+03	3.54E+03	3.53E+03	3.53E+03
877	3.50E+03	3.63E+03	3.54E+03	3.75E+03	3.54E+03	3.58E+03	3.58E+03
Biased Statistics							
Average Biased	4.97E+03	4.72E+03	4.61E+03	4.45E+03	4.43E+03	4.34E+03	4.34E+03
Std Dev Biased	1.16E+03	1.25E+03	1.25E+03	9.90E+02	1.18E+03	1.05E+03	1.05E+03
Ps90%/90% (+KTL) Biased	8.15E+03	8.13E+03	8.03E+03	7.16E+03	7.67E+03	7.22E+03	7.22E+03
Ps90%/90% (-KTL) Biased	1.78E+03	1.30E+03	1.20E+03	1.73E+03	1.18E+03	1.45E+03	1.45E+03
Un-Biased Statistics							
Average Un-Biased	4.62E+03	4.69E+03	4.51E+03	4.48E+03	4.42E+03	4.30E+03	4.30E+03
Std Dev Un-Biased	1.18E+03	1.16E+03	1.16E+03	1.13E+03	1.29E+03	1.09E+03	1.09E+03
Ps90%/90% (+KTL) Un-Biased	7.86E+03	7.86E+03	7.68E+03	7.57E+03	7.95E+03	7.28E+03	7.28E+03
Ps90%/90% (-KTL) Un-Biased	1.39E+03	1.53E+03	1.34E+03	1.38E+03	8.98E+02	1.32E+03	1.32E+03
Specification MIN	1.00E+03	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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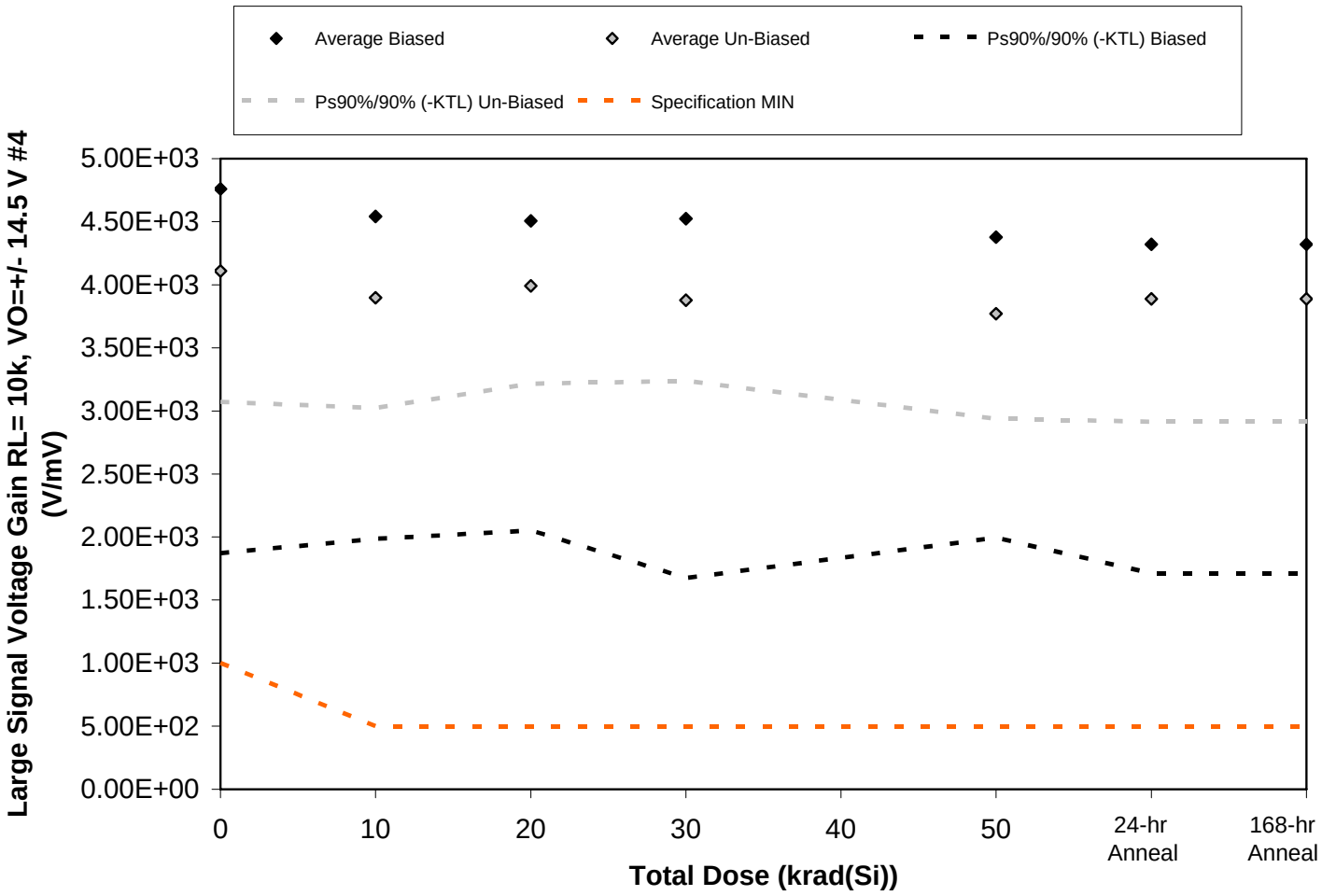

Figure 5.54. Plot of Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #4 (V/mV) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.54. Raw data for Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #4 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #4 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.31E+03	4.36E+03	4.18E+03	4.37E+03	3.93E+03	4.04E+03	4.04E+03
867	3.75E+03	3.62E+03	3.48E+03	3.44E+03	3.61E+03	3.28E+03	3.28E+03
868	6.16E+03	5.94E+03	5.70E+03	6.10E+03	5.65E+03	5.65E+03	5.65E+03
869	5.58E+03	4.93E+03	5.15E+03	4.90E+03	4.91E+03	4.91E+03	4.91E+03
870	4.01E+03	3.84E+03	4.04E+03	3.82E+03	3.80E+03	3.73E+03	3.73E+03
871	3.90E+03	3.83E+03	3.79E+03	3.67E+03	3.73E+03	3.59E+03	3.59E+03
872	4.36E+03	4.10E+03	4.01E+03	3.96E+03	3.89E+03	4.18E+03	4.18E+03
873	4.65E+03	4.34E+03	4.47E+03	4.22E+03	4.23E+03	4.33E+03	4.33E+03
874	3.85E+03	3.62E+03	3.88E+03	3.90E+03	3.51E+03	3.81E+03	3.81E+03
876	3.79E+03	3.60E+03	3.80E+03	3.64E+03	3.49E+03	3.53E+03	3.53E+03
877	6.23E+03	5.84E+03	6.18E+03	5.97E+03	5.64E+03	6.07E+03	6.07E+03
Biased Statistics							
Average Biased	4.76E+03	4.54E+03	4.51E+03	4.52E+03	4.38E+03	4.32E+03	4.32E+03
Std Dev Biased	1.05E+03	9.32E+02	8.96E+02	1.04E+03	8.69E+02	9.51E+02	9.51E+02
Ps90%/90% (+KTL) Biased	7.65E+03	7.10E+03	6.96E+03	7.37E+03	6.76E+03	6.93E+03	6.93E+03
Ps90%/90% (-KTL) Biased	1.87E+03	1.99E+03	2.05E+03	1.67E+03	1.99E+03	1.71E+03	1.71E+03
Un-Biased Statistics							
Average Un-Biased	4.11E+03	3.90E+03	3.99E+03	3.88E+03	3.77E+03	3.89E+03	3.89E+03
Std Dev Un-Biased	3.78E+02	3.19E+02	2.83E+02	2.34E+02	3.04E+02	3.55E+02	3.55E+02
Ps90%/90% (+KTL) Un-Biased	5.15E+03	4.77E+03	4.77E+03	4.52E+03	4.60E+03	4.86E+03	4.86E+03
Ps90%/90% (-KTL) Un-Biased	3.07E+03	3.02E+03	3.21E+03	3.24E+03	2.94E+03	2.91E+03	2.91E+03
Specification MIN	1.00E+03	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02	5.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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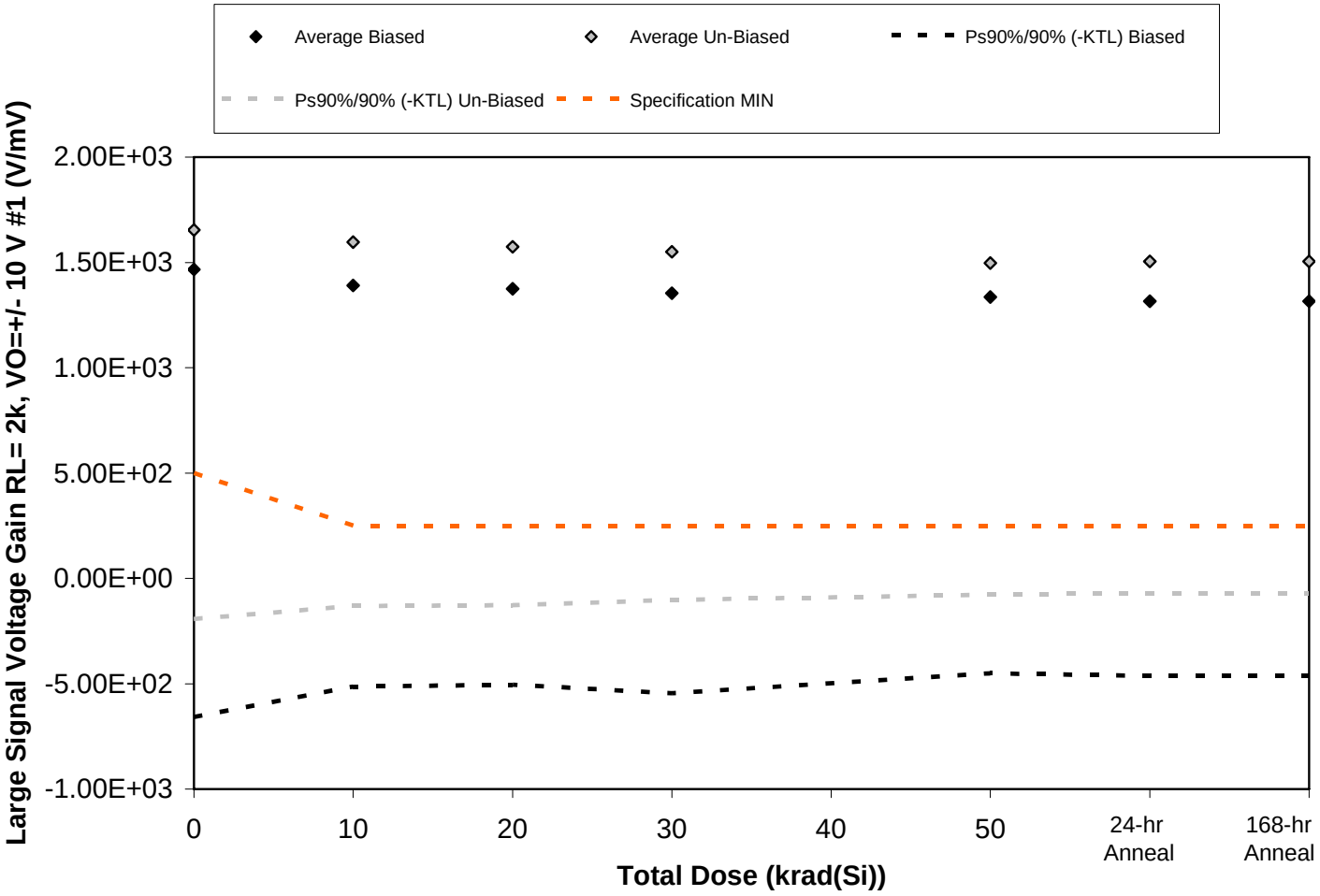

Figure 5.55. Plot of Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #1 (V/mV) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.55. Raw data for Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #1 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #1 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	8.86E+02	8.73E+02	8.65E+02	8.48E+02	8.57E+02	8.41E+02	8.41E+02
867	9.44E+02	9.05E+02	8.92E+02	8.80E+02	8.80E+02	8.50E+02	8.50E+02
868	2.38E+03	2.20E+03	2.17E+03	2.19E+03	2.13E+03	2.11E+03	2.11E+03
869	8.76E+02	8.73E+02	8.68E+02	8.22E+02	8.49E+02	8.41E+02	8.41E+02
870	2.25E+03	2.10E+03	2.09E+03	2.03E+03	1.97E+03	1.94E+03	1.94E+03
871	2.12E+03	2.03E+03	1.99E+03	1.99E+03	1.95E+03	1.95E+03	1.95E+03
872	9.04E+02	9.01E+02	8.90E+02	8.93E+02	8.64E+02	8.62E+02	8.62E+02
873	2.18E+03	2.09E+03	2.06E+03	2.01E+03	1.93E+03	1.93E+03	1.93E+03
874	9.29E+02	9.12E+02	9.00E+02	8.88E+02	8.74E+02	8.90E+02	8.90E+02
876	2.14E+03	2.04E+03	2.03E+03	1.97E+03	1.86E+03	1.90E+03	1.90E+03
877	2.15E+03	2.09E+03	2.13E+03	2.11E+03	2.08E+03	2.14E+03	2.14E+03
Biased Statistics							
Average Biased	1.47E+03	1.39E+03	1.38E+03	1.35E+03	1.34E+03	1.32E+03	1.32E+03
Std Dev Biased	7.74E+02	6.94E+02	6.85E+02	6.92E+02	6.51E+02	6.48E+02	6.48E+02
Ps90%/90% (+KTL) Biased	3.59E+03	3.29E+03	3.25E+03	3.25E+03	3.12E+03	3.09E+03	3.09E+03
Ps90%/90% (-KTL) Biased	-6.57E+02	-5.14E+02	-5.04E+02	-5.45E+02	-4.50E+02	-4.62E+02	-4.62E+02
Un-Biased Statistics							
Average Un-Biased	1.65E+03	1.60E+03	1.57E+03	1.55E+03	1.50E+03	1.50E+03	1.50E+03
Std Dev Un-Biased	6.73E+02	6.30E+02	6.20E+02	6.03E+02	5.74E+02	5.74E+02	5.74E+02
Ps90%/90% (+KTL) Un-Biased	3.50E+03	3.32E+03	3.27E+03	3.20E+03	3.07E+03	3.08E+03	3.08E+03
Ps90%/90% (-KTL) Un-Biased	-1.93E+02	-1.32E+02	-1.27E+02	-1.02E+02	-7.72E+01	-7.00E+01	-7.00E+01
Specification MIN	5.00E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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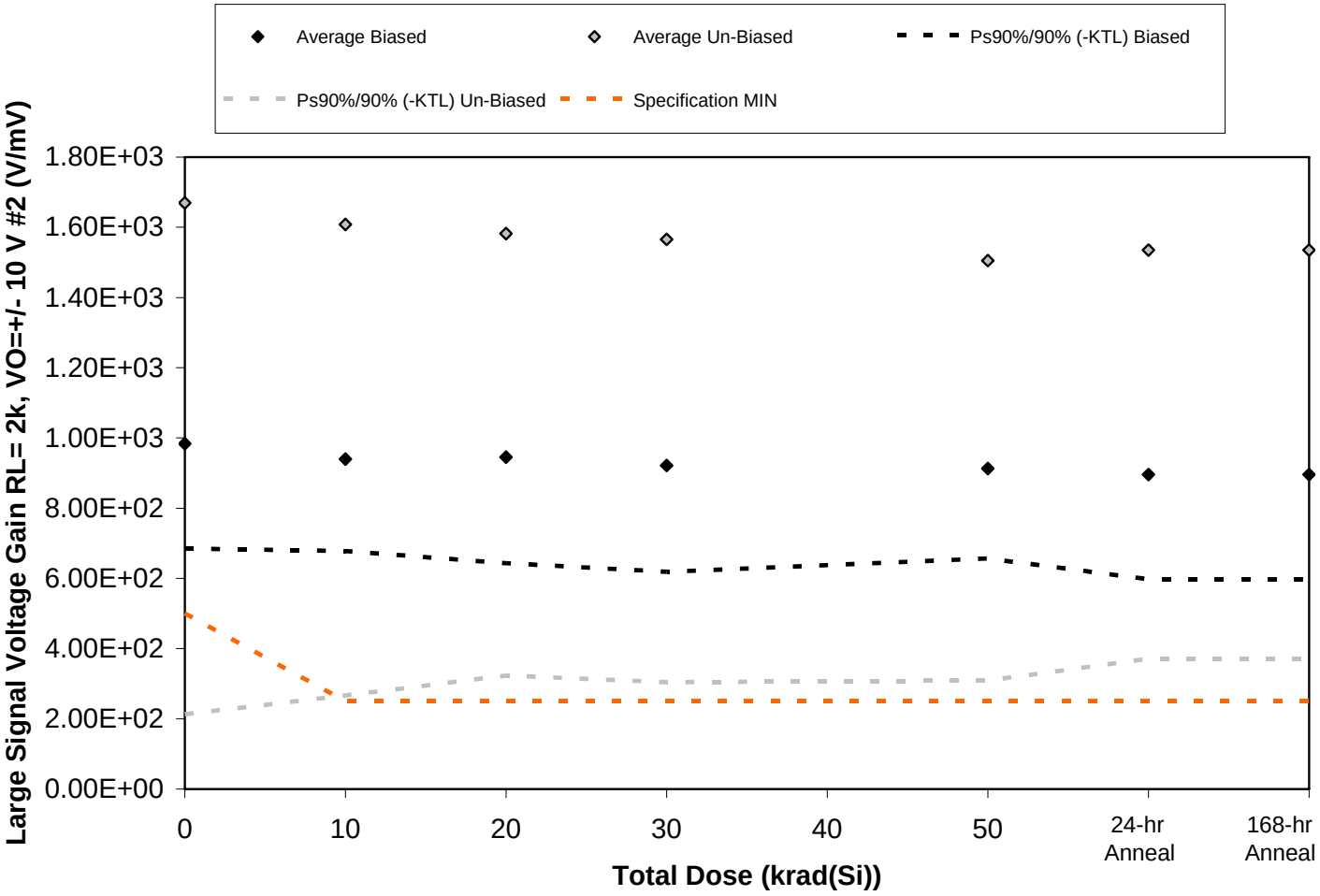

Figure 5.56. Plot of Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #2 (V/mV) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.56. Raw data for Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #2 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #2 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	9.07E+02	8.94E+02	8.88E+02	8.34E+02	8.34E+02	8.51E+02	8.51E+02
867	9.76E+02	9.25E+02	9.35E+02	9.11E+02	9.04E+02	8.84E+02	8.84E+02
868	9.27E+02	8.94E+02	8.85E+02	8.76E+02	8.74E+02	8.53E+02	8.53E+02
869	1.17E+03	1.11E+03	1.14E+03	1.11E+03	1.07E+03	1.08E+03	1.08E+03
870	9.35E+02	8.77E+02	8.79E+02	8.74E+02	8.79E+02	8.06E+02	8.06E+02
871	1.14E+03	1.12E+03	1.14E+03	1.09E+03	1.09E+03	1.09E+03	1.09E+03
872	2.00E+03	1.92E+03	1.91E+03	1.89E+03	1.74E+03	1.77E+03	1.77E+03
873	2.12E+03	2.03E+03	1.96E+03	1.94E+03	1.87E+03	1.91E+03	1.91E+03
874	2.05E+03	1.94E+03	1.88E+03	1.87E+03	1.85E+03	1.84E+03	1.84E+03
876	1.05E+03	1.03E+03	1.03E+03	1.04E+03	9.77E+02	1.06E+03	1.06E+03
877	2.25E+03	2.10E+03	2.18E+03	1.93E+03	2.24E+03	2.11E+03	2.11E+03
Biased Statistics							
Average Biased	9.84E+02	9.39E+02	9.45E+02	9.22E+02	9.13E+02	8.95E+02	8.95E+02
Std Dev Biased	1.09E+02	9.53E+01	1.10E+02	1.10E+02	9.34E+01	1.08E+02	1.08E+02
Ps90%/90% (+KTL) Biased	1.28E+03	1.20E+03	1.25E+03	1.22E+03	1.17E+03	1.19E+03	1.19E+03
Ps90%/90% (-KTL) Biased	6.85E+02	6.78E+02	6.43E+02	6.19E+02	6.57E+02	5.98E+02	5.98E+02
Un-Biased Statistics							
Average Un-Biased	1.67E+03	1.61E+03	1.58E+03	1.57E+03	1.50E+03	1.54E+03	1.54E+03
Std Dev Un-Biased	5.31E+02	4.89E+02	4.59E+02	4.60E+02	4.36E+02	4.24E+02	4.24E+02
Ps90%/90% (+KTL) Un-Biased	3.13E+03	2.95E+03	2.84E+03	2.83E+03	2.70E+03	2.70E+03	2.70E+03
Ps90%/90% (-KTL) Un-Biased	2.13E+02	2.67E+02	3.23E+02	3.04E+02	3.09E+02	3.71E+02	3.71E+02
Specification MIN	5.00E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02
Status	FAIL	PASS	PASS	PASS	PASS	PASS	PASS

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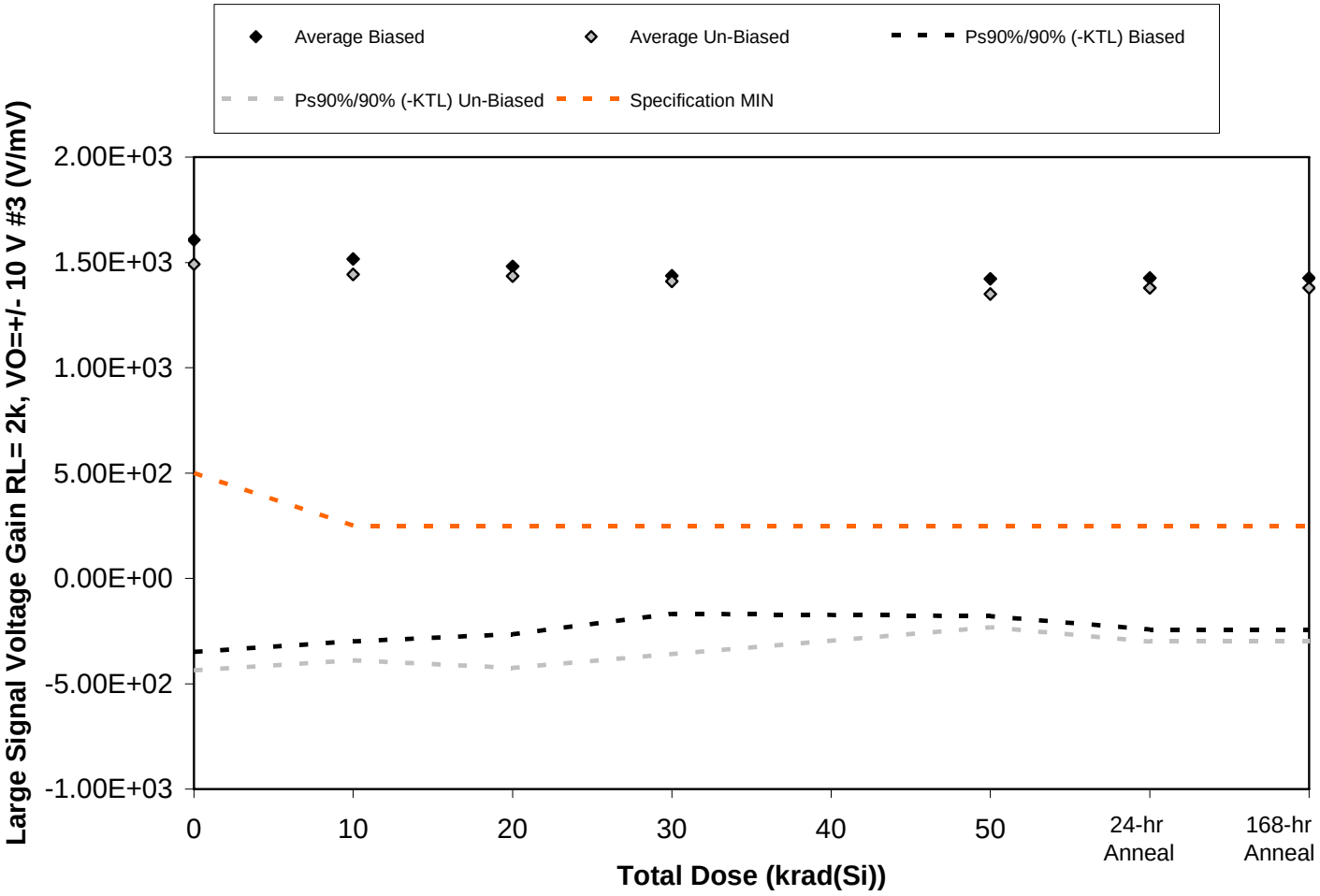

Figure 5.57. Plot of Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #3 (V/mV) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.57. Raw data for Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #3 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #3 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.50E+03	2.41E+03	2.31E+03	2.17E+03	2.17E+03	2.21E+03	2.21E+03
867	1.40E+03	1.33E+03	1.28E+03	1.28E+03	1.27E+03	1.24E+03	1.24E+03
868	9.13E+02	8.80E+02	8.73E+02	8.60E+02	8.48E+02	8.47E+02	8.47E+02
869	1.02E+03	9.73E+02	9.56E+02	9.50E+02	9.31E+02	9.16E+02	9.16E+02
870	2.21E+03	1.98E+03	1.99E+03	1.93E+03	1.89E+03	1.91E+03	1.91E+03
871	2.54E+03	2.48E+03	2.49E+03	2.42E+03	2.27E+03	2.30E+03	2.30E+03
872	1.89E+03	1.75E+03	1.75E+03	1.70E+03	1.57E+03	1.72E+03	1.72E+03
873	1.08E+03	1.08E+03	1.04E+03	1.06E+03	1.04E+03	1.03E+03	1.03E+03
874	9.48E+02	9.26E+02	9.25E+02	9.25E+02	9.11E+02	8.92E+02	8.92E+02
876	9.95E+02	9.78E+02	9.73E+02	9.54E+02	9.58E+02	9.53E+02	9.53E+02
877	9.39E+02	9.46E+02	9.45E+02	9.48E+02	9.59E+02	9.42E+02	9.42E+02
Biased Statistics							
Average Biased	1.61E+03	1.52E+03	1.48E+03	1.44E+03	1.42E+03	1.43E+03	1.43E+03
Std Dev Biased	7.13E+02	6.62E+02	6.37E+02	5.85E+02	5.84E+02	6.08E+02	6.08E+02
Ps90%/90% (+KTL) Biased	3.56E+03	3.33E+03	3.23E+03	3.04E+03	3.02E+03	3.09E+03	3.09E+03
Ps90%/90% (-KTL) Biased	-3.49E+02	-2.99E+02	-2.65E+02	-1.67E+02	-1.80E+02	-2.42E+02	-2.42E+02
Un-Biased Statistics							
Average Un-Biased	1.49E+03	1.44E+03	1.44E+03	1.41E+03	1.35E+03	1.38E+03	1.38E+03
Std Dev Un-Biased	7.03E+02	6.68E+02	6.78E+02	6.45E+02	5.77E+02	6.13E+02	6.13E+02
Ps90%/90% (+KTL) Un-Biased	3.42E+03	3.28E+03	3.30E+03	3.18E+03	2.93E+03	3.06E+03	3.06E+03
Ps90%/90% (-KTL) Un-Biased	-4.36E+02	-3.89E+02	-4.24E+02	-3.60E+02	-2.32E+02	-3.00E+02	-3.00E+02
Specification MIN	5.00E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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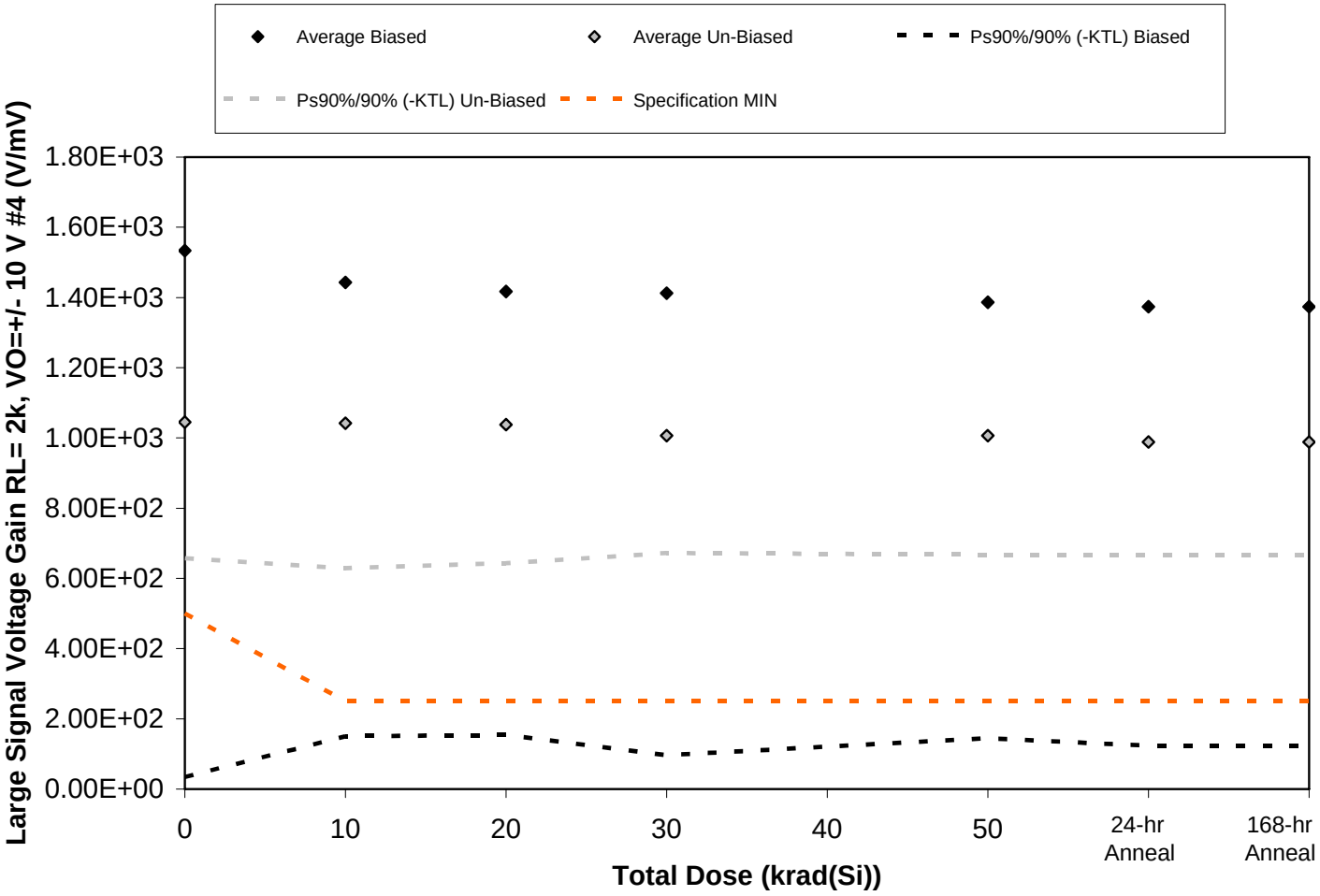

Figure 5.58. Plot of Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #4 (V/mV) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.58. Raw data for Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #4 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #4 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.28E+03	1.24E+03	1.23E+03	1.20E+03	1.21E+03	1.17E+03	1.17E+03
867	9.56E+02	9.13E+02	9.07E+02	8.99E+02	8.72E+02	8.64E+02	8.64E+02
868	2.24E+03	2.00E+03	2.03E+03	2.04E+03	1.94E+03	1.92E+03	1.92E+03
869	1.97E+03	1.88E+03	1.76E+03	1.79E+03	1.78E+03	1.79E+03	1.79E+03
870	1.22E+03	1.18E+03	1.17E+03	1.14E+03	1.13E+03	1.13E+03	1.13E+03
871	9.99E+02	9.82E+02	9.87E+02	9.57E+02	9.80E+02	9.55E+02	9.55E+02
872	1.05E+03	1.04E+03	1.05E+03	1.02E+03	1.01E+03	1.00E+03	1.00E+03
873	1.29E+03	1.30E+03	1.28E+03	1.21E+03	1.21E+03	1.18E+03	1.18E+03
874	9.61E+02	9.54E+02	9.54E+02	9.46E+02	9.39E+02	9.23E+02	9.23E+02
876	9.30E+02	9.29E+02	9.21E+02	9.02E+02	8.93E+02	8.82E+02	8.82E+02
877	2.18E+03	2.14E+03	2.20E+03	2.13E+03	2.13E+03	2.13E+03	2.13E+03
Biased Statistics							
Average Biased	1.53E+03	1.44E+03	1.42E+03	1.41E+03	1.39E+03	1.37E+03	1.37E+03
Std Dev Biased	5.47E+02	4.71E+02	4.61E+02	4.80E+02	4.53E+02	4.56E+02	4.56E+02
Ps90%/90% (+KTL) Biased	3.03E+03	2.74E+03	2.68E+03	2.73E+03	2.63E+03	2.62E+03	2.62E+03
Ps90%/90% (-KTL) Biased	3.35E+01	1.50E+02	1.54E+02	9.69E+01	1.45E+02	1.23E+02	1.23E+02
Un-Biased Statistics							
Average Un-Biased	1.05E+03	1.04E+03	1.04E+03	1.01E+03	1.01E+03	9.89E+02	9.89E+02
Std Dev Un-Biased	1.41E+02	1.51E+02	1.44E+02	1.22E+02	1.24E+02	1.17E+02	1.17E+02
Ps90%/90% (+KTL) Un-Biased	1.43E+03	1.45E+03	1.43E+03	1.34E+03	1.35E+03	1.31E+03	1.31E+03
Ps90%/90% (-KTL) Un-Biased	6.57E+02	6.29E+02	6.43E+02	6.72E+02	6.67E+02	6.67E+02	6.67E+02
Specification MIN	5.00E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02	2.50E+02
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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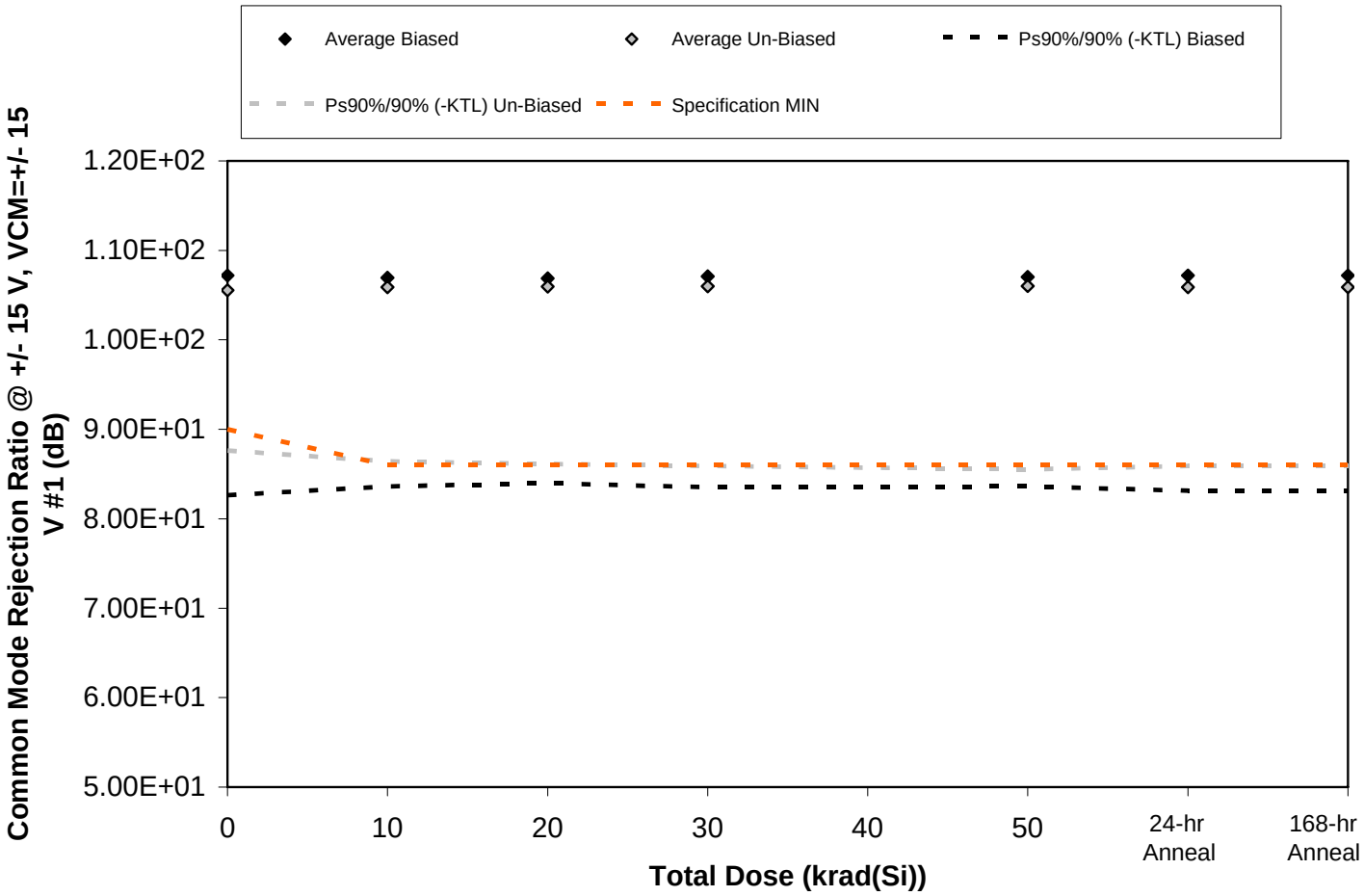

Figure 5.59. Plot of Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #1 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.59. Raw data for Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #1 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #1 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	9.81E+01	9.84E+01	9.84E+01	9.85E+01	9.86E+01	9.85E+01	9.85E+01
867	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02
868	9.99E+01	9.99E+01	9.99E+01	9.99E+01	9.98E+01	9.98E+01	9.98E+01
869	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
870	1.17E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.17E+02	1.17E+02
871	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02
872	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02
873	1.12E+02	1.13E+02	1.13E+02	1.13E+02	1.14E+02	1.13E+02	1.13E+02
874	9.86E+01	9.85E+01	9.85E+01	9.84E+01	9.84E+01	9.84E+01	9.84E+01
876	1.13E+02	1.14E+02	1.14E+02	1.14E+02	1.15E+02	1.14E+02	1.14E+02
877	1.13E+02	1.13E+02	1.12E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02
Biased Statistics							
Average Biased	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02
Std Dev Biased	8.96E+00	8.51E+00	8.36E+00	8.60E+00	8.54E+00	8.77E+00	8.77E+00
Ps90%/90% (+KTL) Biased	1.32E+02	1.30E+02	1.30E+02	1.31E+02	1.30E+02	1.31E+02	1.31E+02
Ps90%/90% (-KTL) Biased	8.26E+01	8.36E+01	8.40E+01	8.35E+01	8.36E+01	8.32E+01	8.32E+01
Un-Biased Statistics							
Average Un-Biased	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
Std Dev Un-Biased	6.54E+00	7.11E+00	7.23E+00	7.32E+00	7.48E+00	7.30E+00	7.30E+00
Ps90%/90% (+KTL) Un-Biased	1.23E+02	1.25E+02	1.26E+02	1.26E+02	1.27E+02	1.26E+02	1.26E+02
Ps90%/90% (-KTL) Un-Biased	8.76E+01	8.64E+01	8.61E+01	8.59E+01	8.55E+01	8.59E+01	8.59E+01
Specification MIN	9.00E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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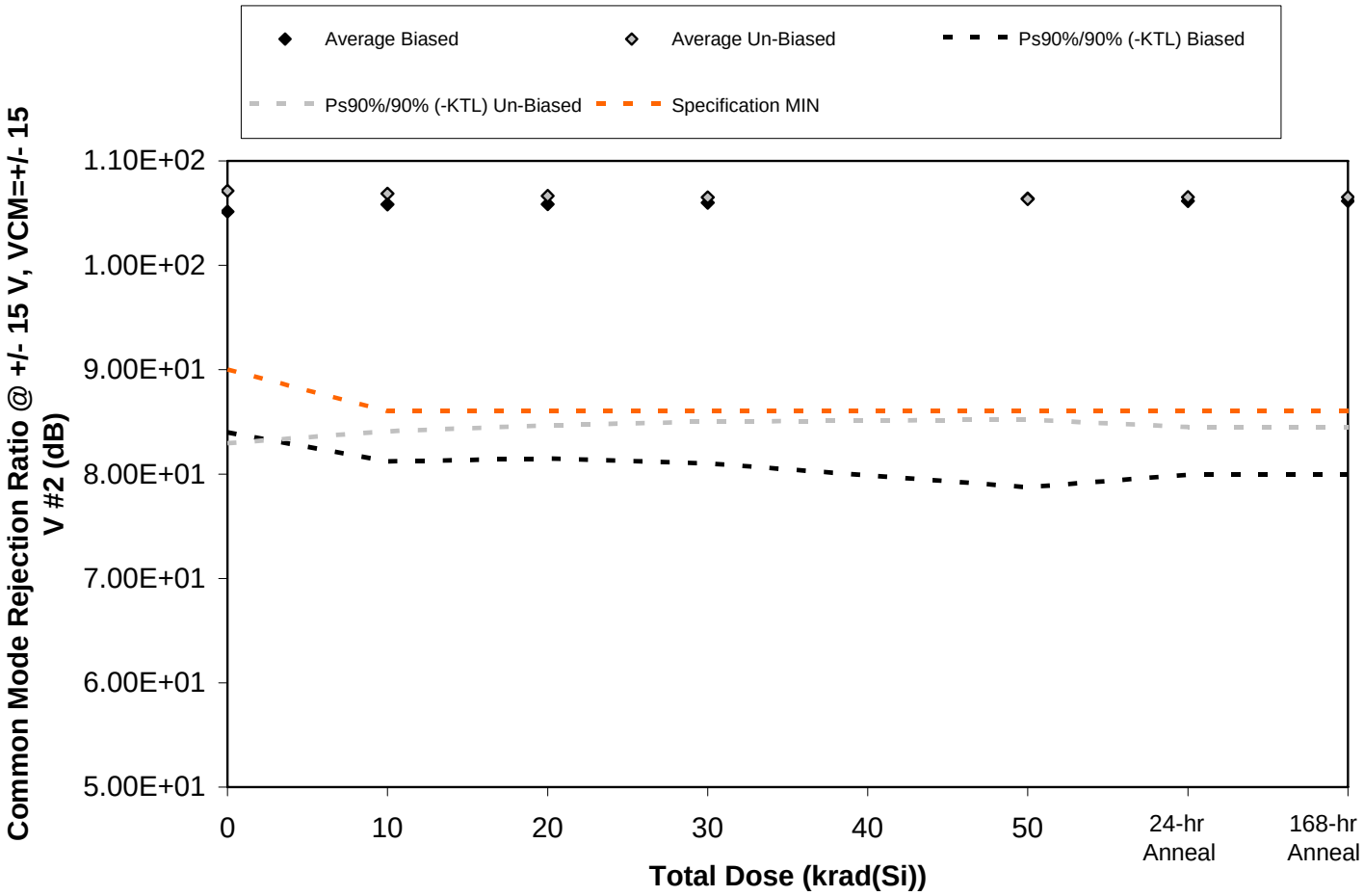

Figure 5.60. Plot of Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #2 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.60. Raw data for Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #2 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #2 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.19E+02	1.22E+02	1.22E+02	1.22E+02	1.24E+02	1.23E+02	1.23E+02
867	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
868	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
869	9.98E+01	1.00E+02	1.00E+02	1.00E+02	1.01E+02	1.00E+02	1.00E+02
870	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
871	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02
872	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.02E+02	1.02E+02	1.02E+02
873	1.23E+02	1.22E+02	1.21E+02	1.20E+02	1.20E+02	1.21E+02	1.21E+02
874	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
876	1.04E+02	1.05E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
877	1.08E+02	1.09E+02	1.08E+02	1.09E+02	1.08E+02	1.08E+02	1.08E+02
Biased Statistics							
Average Biased	1.05E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
Std Dev Biased	7.72E+00	8.98E+00	8.88E+00	9.11E+00	1.01E+01	9.57E+00	9.57E+00
Ps90%/90% (+KTL) Biased	1.26E+02	1.30E+02	1.30E+02	1.31E+02	1.34E+02	1.32E+02	1.32E+02
Ps90%/90% (-KTL) Biased	8.40E+01	8.12E+01	8.15E+01	8.10E+01	7.87E+01	7.99E+01	7.99E+01
Un-Biased Statistics							
Average Un-Biased	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.06E+02	1.07E+02	1.07E+02
Std Dev Un-Biased	8.82E+00	8.31E+00	8.02E+00	7.84E+00	7.70E+00	8.03E+00	8.03E+00
Ps90%/90% (+KTL) Un-Biased	1.31E+02	1.30E+02	1.29E+02	1.28E+02	1.27E+02	1.29E+02	1.29E+02
Ps90%/90% (-KTL) Un-Biased	8.30E+01	8.41E+01	8.47E+01	8.50E+01	8.52E+01	8.45E+01	8.45E+01
Specification MIN	9.00E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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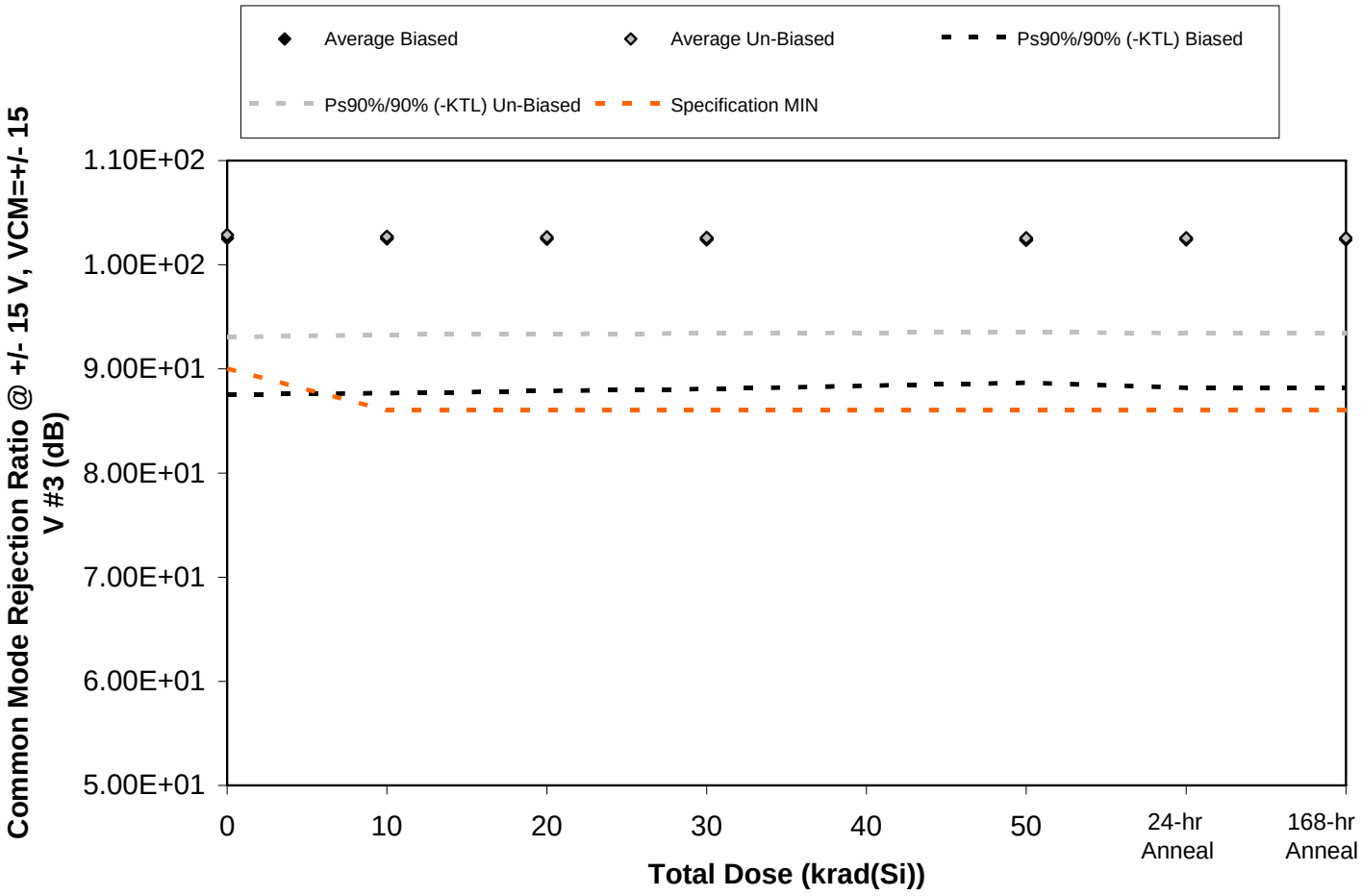

Figure 5.61. Plot of Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #3 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.61. Raw data for Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #3 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #3 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.06E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
867	9.92E+01	9.94E+01	9.95E+01	9.95E+01	9.96E+01	9.96E+01	9.96E+01
868	9.79E+01	9.78E+01	9.79E+01	9.79E+01	9.82E+01	9.81E+01	9.81E+01
869	9.92E+01	9.92E+01	9.92E+01	9.92E+01	9.92E+01	9.91E+01	9.91E+01
870	1.11E+02	1.11E+02	1.11E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
871	1.05E+02	1.05E+02	1.05E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
872	1.06E+02	1.06E+02	1.06E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
873	9.82E+01	9.82E+01	9.82E+01	9.82E+01	9.83E+01	9.82E+01	9.82E+01
874	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
876	9.98E+01	9.98E+01	9.98E+01	9.98E+01	9.98E+01	9.98E+01	9.98E+01
877	9.77E+01	9.78E+01	9.78E+01	9.78E+01	9.77E+01	9.78E+01	9.78E+01
Biased Statistics							
Average Biased	1.03E+02	1.03E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02
Std Dev Biased	5.48E+00	5.41E+00	5.32E+00	5.23E+00	4.99E+00	5.20E+00	5.20E+00
Ps90%/90% (+KTL) Biased	1.18E+02	1.17E+02	1.17E+02	1.17E+02	1.16E+02	1.17E+02	1.17E+02
Ps90%/90% (-KTL) Biased	8.75E+01	8.77E+01	8.79E+01	8.81E+01	8.87E+01	8.82E+01	8.82E+01
Un-Biased Statistics							
Average Un-Biased	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
Std Dev Un-Biased	3.58E+00	3.44E+00	3.38E+00	3.34E+00	3.29E+00	3.33E+00	3.33E+00
Ps90%/90% (+KTL) Un-Biased	1.13E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02
Ps90%/90% (-KTL) Un-Biased	9.31E+01	9.33E+01	9.34E+01	9.34E+01	9.35E+01	9.34E+01	9.34E+01
Specification MIN	9.00E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01
Status	FAIL	PASS	PASS	PASS	PASS	PASS	PASS

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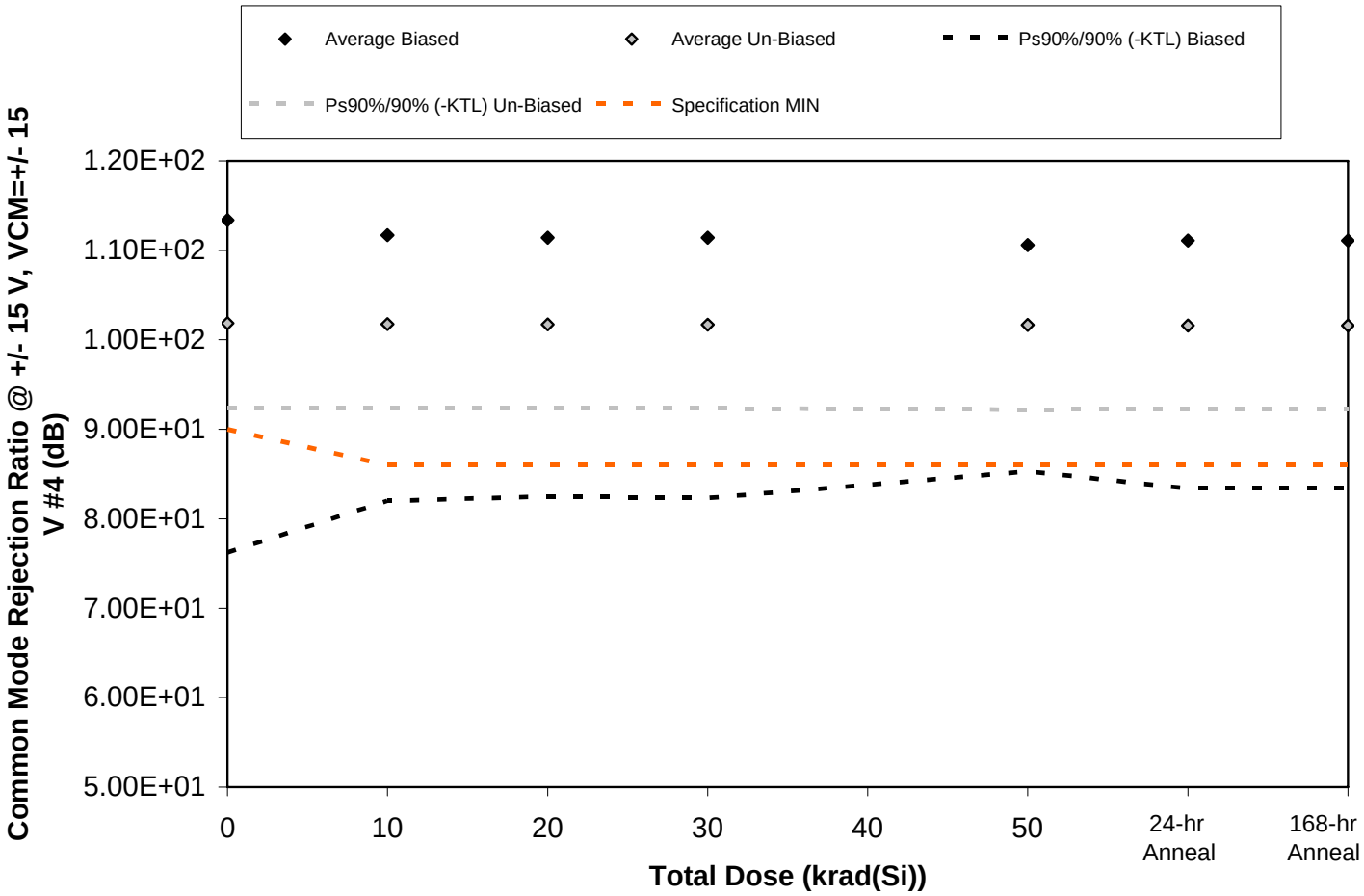

Figure 5.62. Plot of Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #4 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.62. Raw data for Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #4 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #4 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.16E+02	1.14E+02	1.13E+02	1.13E+02	1.12E+02	1.13E+02	1.13E+02
867	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02
868	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
869	1.05E+02	1.05E+02	1.05E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
870	1.36E+02	1.30E+02	1.29E+02	1.29E+02	1.26E+02	1.28E+02	1.28E+02
871	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
872	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
873	9.77E+01	9.75E+01	9.74E+01	9.74E+01	9.73E+01	9.73E+01	9.73E+01
874	9.92E+01	9.92E+01	9.92E+01	9.91E+01	9.90E+01	9.90E+01	9.90E+01
876	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
877	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02
Biased Statistics							
Average Biased	1.13E+02	1.12E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02
Std Dev Biased	1.36E+01	1.08E+01	1.05E+01	1.06E+01	9.22E+00	1.01E+01	1.01E+01
Ps90%/90% (+KTL) Biased	1.51E+02	1.41E+02	1.40E+02	1.41E+02	1.36E+02	1.39E+02	1.39E+02
Ps90%/90% (-KTL) Biased	7.62E+01	8.20E+01	8.25E+01	8.23E+01	8.53E+01	8.34E+01	8.34E+01
Un-Biased Statistics							
Average Un-Biased	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02
Std Dev Un-Biased	3.45E+00	3.41E+00	3.40E+00	3.41E+00	3.44E+00	3.42E+00	3.42E+00
Ps90%/90% (+KTL) Un-Biased	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02
Ps90%/90% (-KTL) Un-Biased	9.24E+01	9.24E+01	9.24E+01	9.24E+01	9.22E+01	9.22E+01	9.22E+01
Specification MIN	9.00E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01	8.60E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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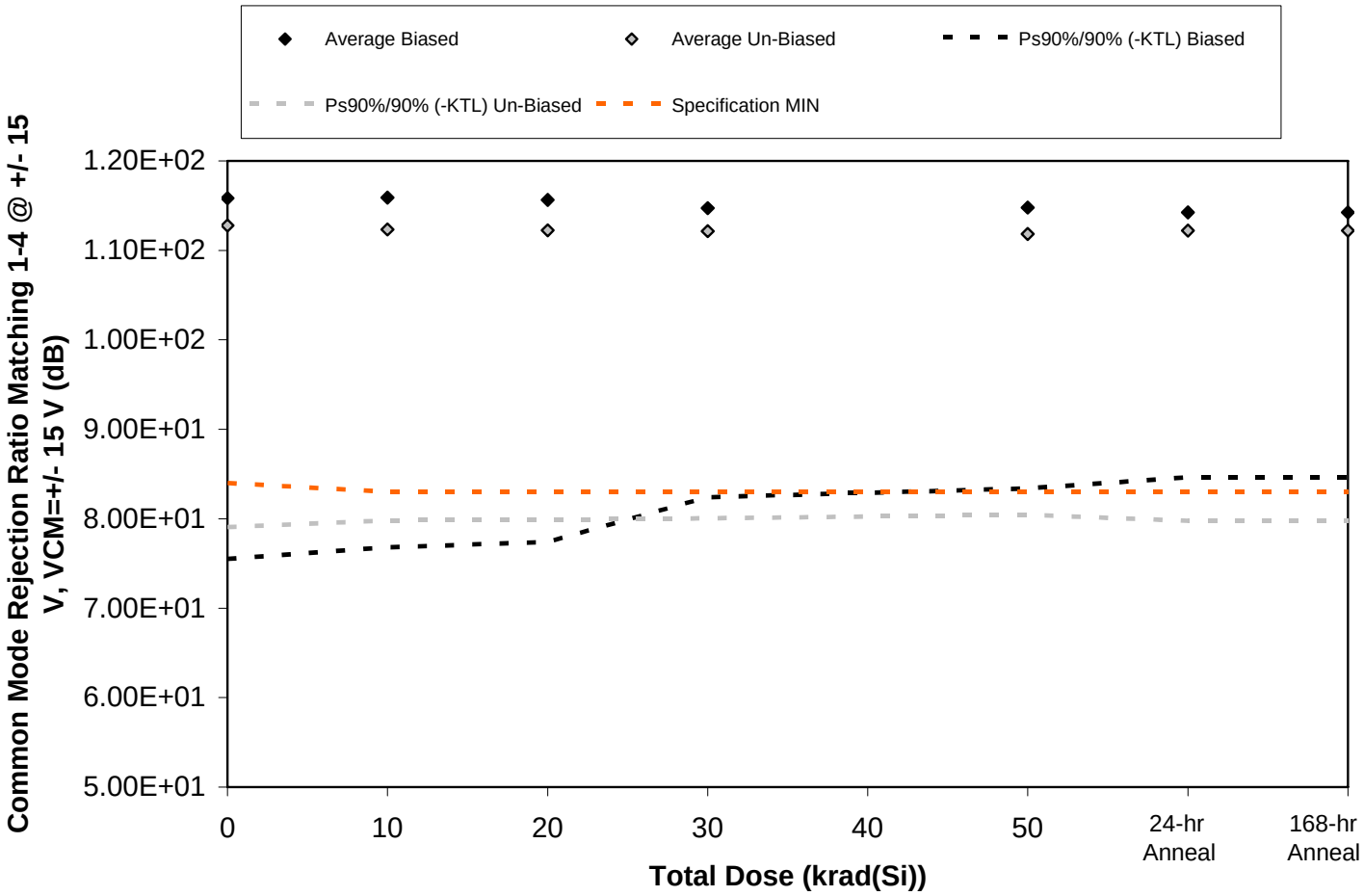

Figure 5.63. Plot of Common Mode Rejection Ratio Matching 1-4 @ +/- 15 V, VCM=+/- 15 V (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.63. Raw data for Common Mode Rejection Ratio Matching 1-4 @ +/- 15 V, VCM=+/- 15 V (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio Matching 1-4 @ +/- 15 V, VCM=+/- 15 V (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	9.93E+01	1.00E+02	1.00E+02	1.00E+02	1.01E+02	1.00E+02	1.00E+02
867	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02
868	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.10E+02	1.10E+02	1.10E+02
869	1.39E+02	1.39E+02	1.38E+02	1.32E+02	1.31E+02	1.29E+02	1.29E+02
870	1.18E+02	1.18E+02	1.18E+02	1.19E+02	1.20E+02	1.20E+02	1.20E+02
871	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.20E+02	1.21E+02	1.21E+02
872	1.21E+02	1.20E+02	1.20E+02	1.20E+02	1.19E+02	1.20E+02	1.20E+02
873	9.61E+01	9.62E+01	9.61E+01	9.61E+01	9.61E+01	9.60E+01	9.60E+01
874	1.22E+02	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.21E+02
876	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
877	1.17E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02
Biased Statistics							
Average Biased	1.16E+02	1.16E+02	1.16E+02	1.15E+02	1.15E+02	1.14E+02	1.14E+02
Std Dev Biased	1.47E+01	1.43E+01	1.40E+01	1.18E+01	1.14E+01	1.08E+01	1.08E+01
Ps90%/90% (+KTL) Biased	1.56E+02	1.55E+02	1.54E+02	1.47E+02	1.46E+02	1.44E+02	1.44E+02
Ps90%/90% (-KTL) Biased	7.55E+01	7.68E+01	7.74E+01	8.24E+01	8.34E+01	8.46E+01	8.46E+01
Un-Biased Statistics							
Average Un-Biased	1.13E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02
Std Dev Un-Biased	1.23E+01	1.19E+01	1.18E+01	1.17E+01	1.14E+01	1.18E+01	1.18E+01
Ps90%/90% (+KTL) Un-Biased	1.47E+02	1.45E+02	1.45E+02	1.44E+02	1.43E+02	1.45E+02	1.45E+02
Ps90%/90% (-KTL) Un-Biased	7.91E+01	7.98E+01	7.99E+01	8.01E+01	8.04E+01	7.98E+01	7.98E+01
Specification MIN	8.40E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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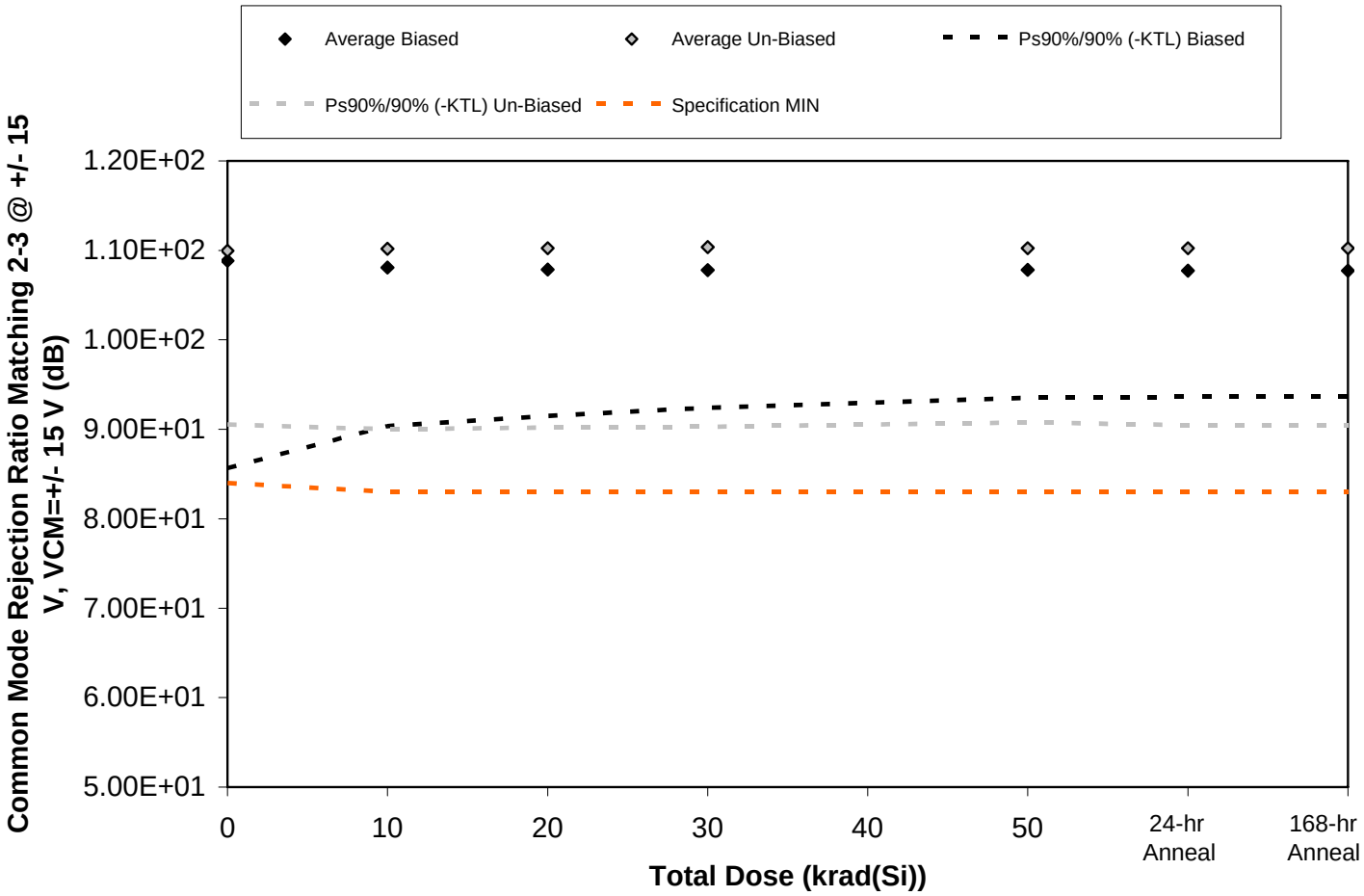

Figure 5.64. Plot of Common Mode Rejection Ratio Matching 2-3 @ +/- 15 V, VCM=+/- 15 V (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.64. Raw data for Common Mode Rejection Ratio Matching 2-3 @ +/- 15 V, VCM=+/- 15 V (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio Matching 2-3 @ +/- 15 V, VCM=+/- 15 V (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
867	1.08E+02	1.09E+02	1.09E+02	1.09E+02	1.10E+02	1.10E+02	1.10E+02
868	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.05E+02	1.04E+02	1.04E+02
869	1.24E+02	1.19E+02	1.18E+02	1.17E+02	1.16E+02	1.16E+02	1.16E+02
870	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
871	1.14E+02	1.14E+02	1.14E+02	1.14E+02	1.15E+02	1.15E+02	1.15E+02
872	1.13E+02	1.14E+02	1.14E+02	1.14E+02	1.13E+02	1.13E+02	1.13E+02
873	9.87E+01	9.88E+01	9.89E+01	9.89E+01	9.90E+01	9.88E+01	9.88E+01
874	1.16E+02	1.18E+02	1.17E+02	1.17E+02	1.17E+02	1.17E+02	1.17E+02
876	1.07E+02	1.07E+02	1.07E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02
877	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
Biased Statistics							
Average Biased	1.09E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02
Std Dev Biased	8.46E+00	6.47E+00	5.97E+00	5.61E+00	5.22E+00	5.14E+00	5.14E+00
Ps90%/90% (+KTL) Biased	1.32E+02	1.26E+02	1.24E+02	1.23E+02	1.22E+02	1.22E+02	1.22E+02
Ps90%/90% (-KTL) Biased	8.56E+01	9.03E+01	9.15E+01	9.24E+01	9.35E+01	9.36E+01	9.36E+01
Un-Biased Statistics							
Average Un-Biased	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
Std Dev Un-Biased	7.07E+00	7.35E+00	7.32E+00	7.32E+00	7.11E+00	7.21E+00	7.21E+00
Ps90%/90% (+KTL) Un-Biased	1.29E+02	1.30E+02	1.30E+02	1.30E+02	1.30E+02	1.30E+02	1.30E+02
Ps90%/90% (-KTL) Un-Biased	9.06E+01	9.00E+01	9.02E+01	9.03E+01	9.08E+01	9.05E+01	9.05E+01
Specification MIN	8.40E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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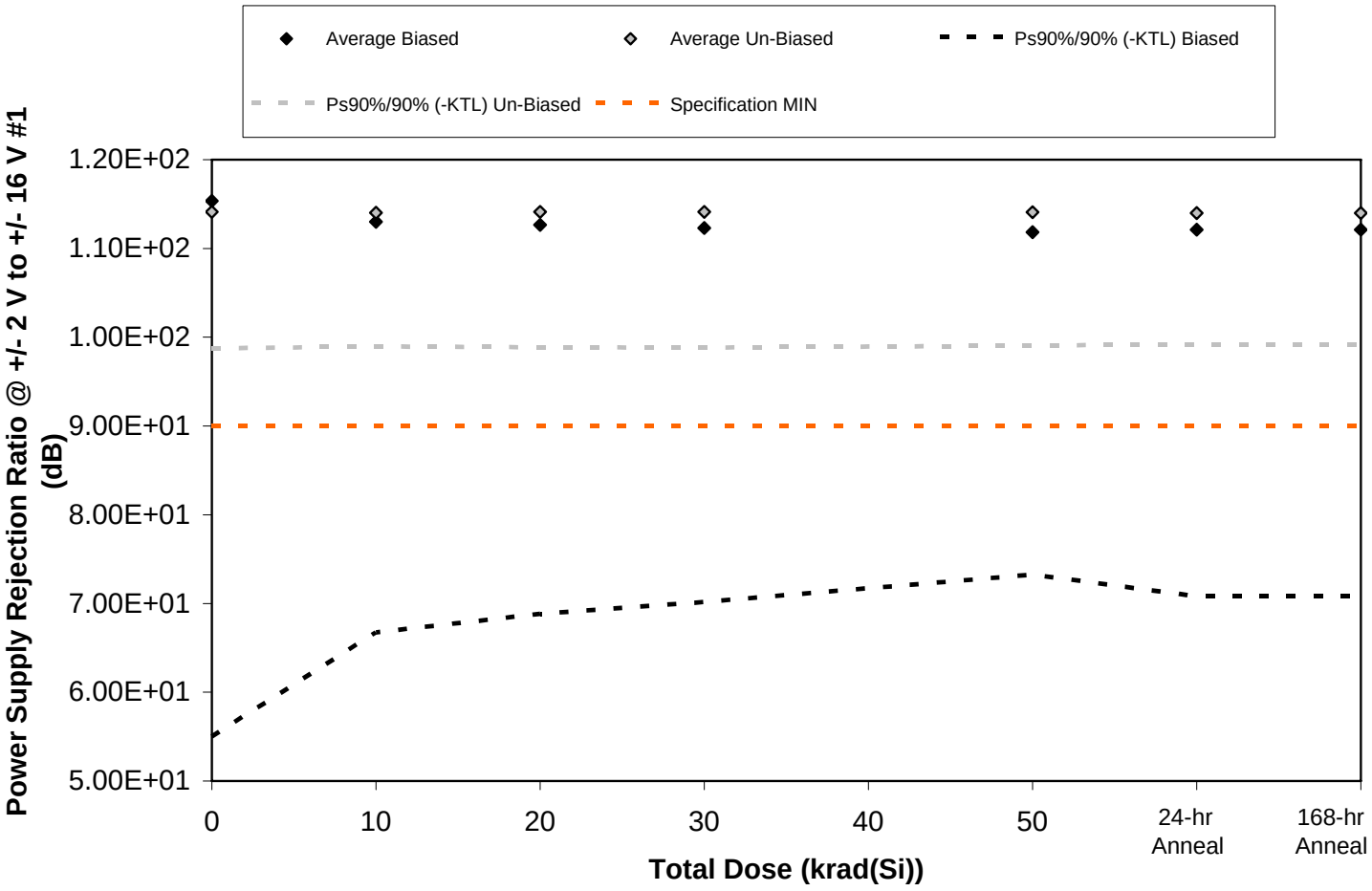

Figure 5.65. Plot of Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #1 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.65. Raw data for Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #1 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #1 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02
867	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
868	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
869	1.54E+02	1.43E+02	1.41E+02	1.39E+02	1.36E+02	1.38E+02	1.38E+02
870	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
871	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02
872	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02
873	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02
874	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02
876	1.24E+02	1.24E+02	1.24E+02	1.24E+02	1.24E+02	1.23E+02	1.23E+02
877	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02
Biased Statistics							
Average Biased	1.15E+02	1.13E+02	1.13E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02
Std Dev Biased	2.20E+01	1.69E+01	1.60E+01	1.54E+01	1.41E+01	1.51E+01	1.51E+01
Ps90%/90% (+KTL) Biased	1.76E+02	1.59E+02	1.57E+02	1.54E+02	1.50E+02	1.53E+02	1.53E+02
Ps90%/90% (-KTL) Biased	5.50E+01	6.67E+01	6.88E+01	7.02E+01	7.32E+01	7.08E+01	7.08E+01
Un-Biased Statistics							
Average Un-Biased	1.14E+02	1.14E+02	1.14E+02	1.14E+02	1.14E+02	1.14E+02	1.14E+02
Std Dev Un-Biased	5.61E+00	5.50E+00	5.56E+00	5.57E+00	5.48E+00	5.40E+00	5.40E+00
Ps90%/90% (+KTL) Un-Biased	1.30E+02	1.29E+02	1.29E+02	1.29E+02	1.29E+02	1.29E+02	1.29E+02
Ps90%/90% (-KTL) Un-Biased	9.87E+01	9.90E+01	9.89E+01	9.88E+01	9.91E+01	9.92E+01	9.92E+01
Specification MIN	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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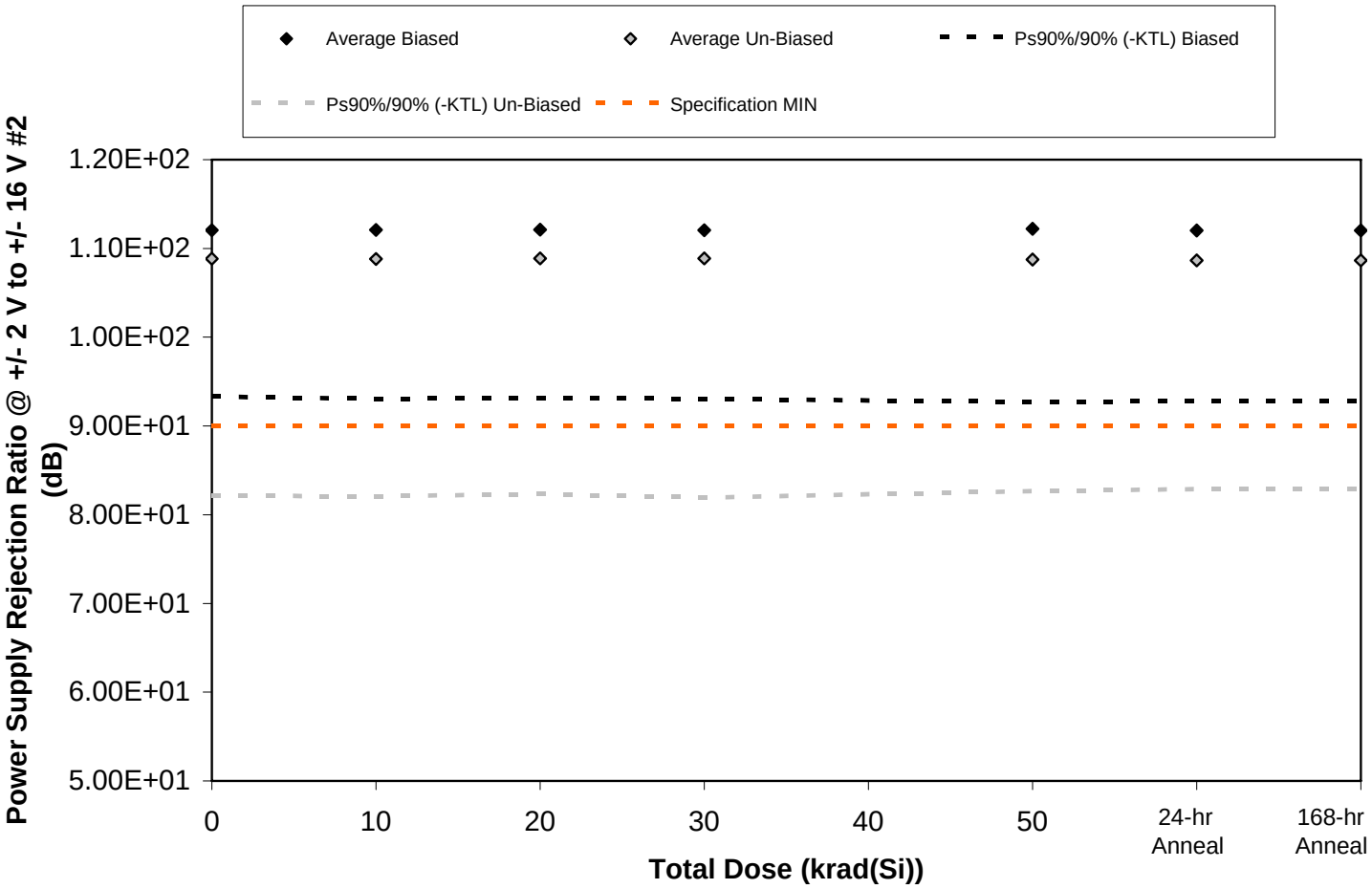

Figure 5.66. Plot of Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #2 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.66. Raw data for Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #2 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #2 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.15E+02	1.15E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02
867	1.14E+02	1.14E+02	1.14E+02	1.14E+02	1.14E+02	1.14E+02	1.14E+02
868	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.21E+02
869	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
870	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
871	9.83E+01	9.82E+01	9.82E+01	9.82E+01	9.82E+01	9.82E+01	9.82E+01
872	1.25E+02	1.25E+02	1.24E+02	1.25E+02	1.24E+02	1.24E+02	1.24E+02
873	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
874	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
876	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
877	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
Biased Statistics							
Average Biased	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02
Std Dev Biased	6.84E+00	6.95E+00	6.93E+00	6.93E+00	7.12E+00	7.01E+00	7.01E+00
Ps90%/90% (+KTL) Biased	1.31E+02	1.31E+02	1.31E+02	1.31E+02	1.32E+02	1.31E+02	1.31E+02
Ps90%/90% (-KTL) Biased	9.33E+01	9.30E+01	9.31E+01	9.30E+01	9.27E+01	9.28E+01	9.28E+01
Un-Biased Statistics							
Average Un-Biased	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02
Std Dev Un-Biased	9.75E+00	9.75E+00	9.69E+00	9.83E+00	9.52E+00	9.39E+00	9.39E+00
Ps90%/90% (+KTL) Un-Biased	1.36E+02	1.36E+02	1.35E+02	1.36E+02	1.35E+02	1.34E+02	1.34E+02
Ps90%/90% (-KTL) Un-Biased	8.21E+01	8.21E+01	8.23E+01	8.19E+01	8.27E+01	8.29E+01	8.29E+01
Specification MIN	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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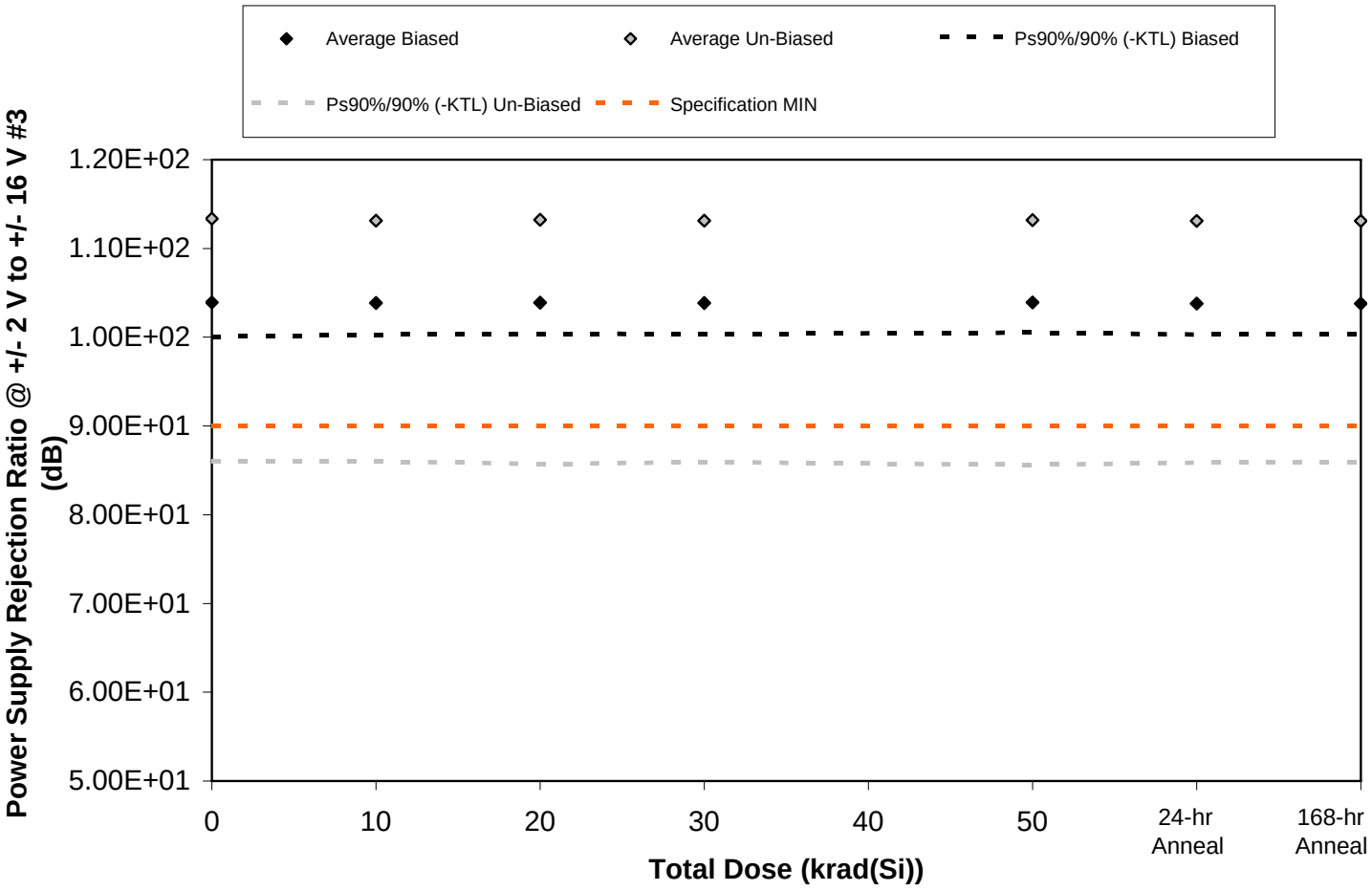

Figure 5.67. Plot of Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #3 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.67. Raw data for Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #3 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #3 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02
867	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
868	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
869	1.05E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
870	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
871	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
872	1.11E+02	1.11E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
873	1.06E+02	1.06E+02	1.06E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
874	1.25E+02	1.25E+02	1.25E+02	1.25E+02	1.26E+02	1.25E+02	1.25E+02
876	1.22E+02	1.22E+02	1.22E+02	1.22E+02	1.22E+02	1.22E+02	1.22E+02
877	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02
Biased Statistics							
Average Biased	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
Std Dev Biased	1.40E+00	1.31E+00	1.27E+00	1.27E+00	1.24E+00	1.27E+00	1.27E+00
Ps90%/90% (+KTL) Biased	1.08E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02
Ps90%/90% (-KTL) Biased	1.00E+02	1.00E+02	1.00E+02	1.00E+02	1.01E+02	1.00E+02	1.00E+02
Un-Biased Statistics							
Average Un-Biased	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02
Std Dev Un-Biased	9.97E+00	9.88E+00	1.00E+01	9.92E+00	1.01E+01	9.93E+00	9.93E+00
Ps90%/90% (+KTL) Un-Biased	1.41E+02	1.40E+02	1.41E+02	1.40E+02	1.41E+02	1.40E+02	1.40E+02
Ps90%/90% (-KTL) Un-Biased	8.60E+01	8.60E+01	8.57E+01	8.59E+01	8.56E+01	8.59E+01	8.59E+01
Specification MIN	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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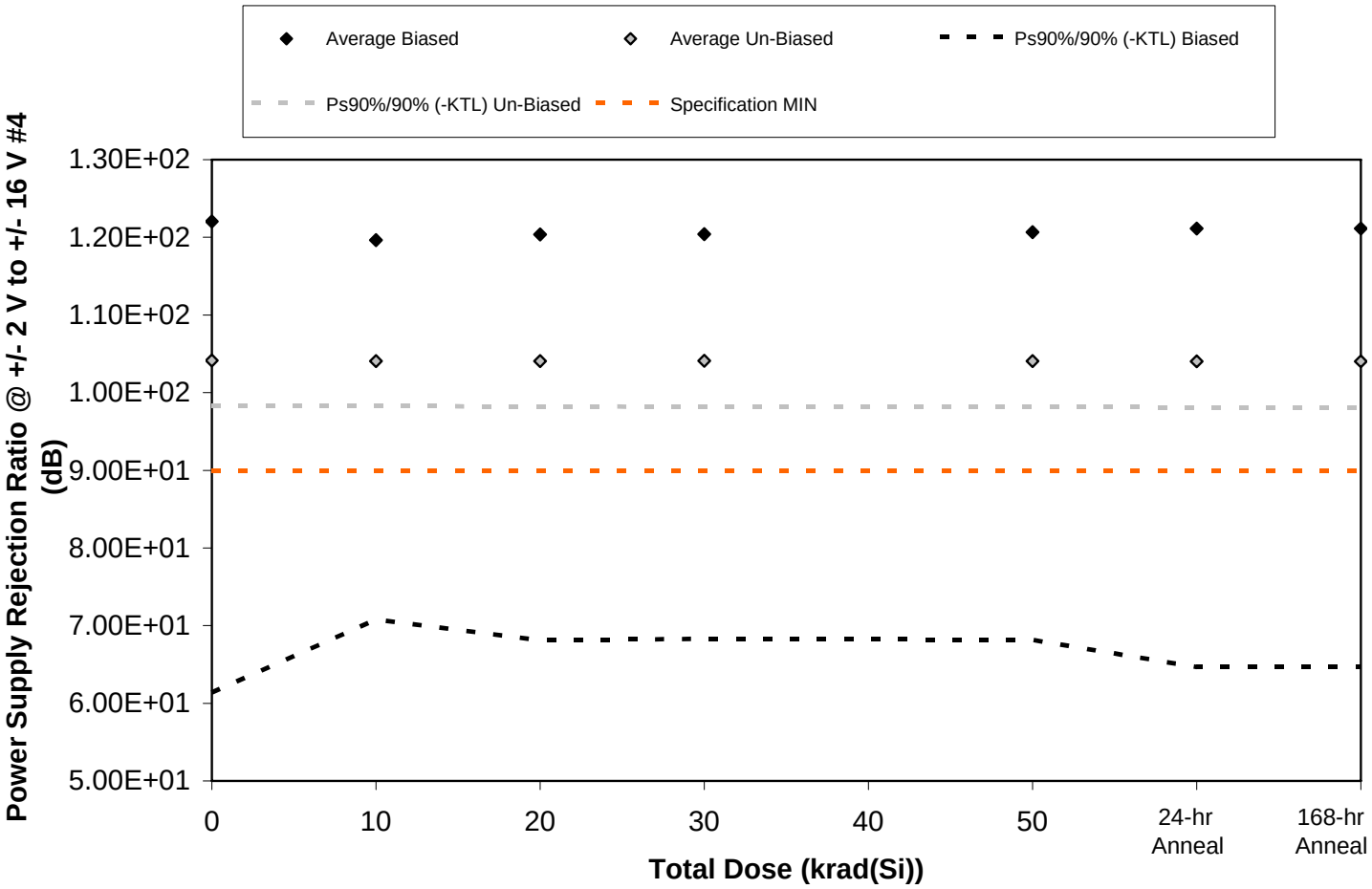

Figure 5.68. Plot of Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #4 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.68. Raw data for Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #4 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #4 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.31E+02	1.31E+02	1.31E+02	1.31E+02	1.32E+02	1.31E+02	1.31E+02
867	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02
868	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
869	1.10E+02	1.09E+02	1.09E+02	1.10E+02	1.10E+02	1.09E+02	1.09E+02
870	1.57E+02	1.46E+02	1.49E+02	1.49E+02	1.49E+02	1.53E+02	1.53E+02
871	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
872	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.03E+02	1.03E+02	1.03E+02
873	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02
874	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02
876	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02
877	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
Biased Statistics							
Average Biased	1.22E+02	1.20E+02	1.20E+02	1.20E+02	1.21E+02	1.21E+02	1.21E+02
Std Dev Biased	2.21E+01	1.78E+01	1.91E+01	1.90E+01	1.91E+01	2.06E+01	2.06E+01
Ps90%/90% (+KTL) Biased	1.83E+02	1.69E+02	1.73E+02	1.72E+02	1.73E+02	1.78E+02	1.78E+02
Ps90%/90% (-KTL) Biased	6.14E+01	7.08E+01	6.81E+01	6.83E+01	6.82E+01	6.47E+01	6.47E+01
Un-Biased Statistics							
Average Un-Biased	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
Std Dev Un-Biased	2.12E+00	2.13E+00	2.14E+00	2.15E+00	2.15E+00	2.16E+00	2.16E+00
Ps90%/90% (+KTL) Un-Biased	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
Ps90%/90% (-KTL) Un-Biased	9.83E+01	9.83E+01	9.82E+01	9.82E+01	9.82E+01	9.81E+01	9.81E+01
Specification MIN	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01	9.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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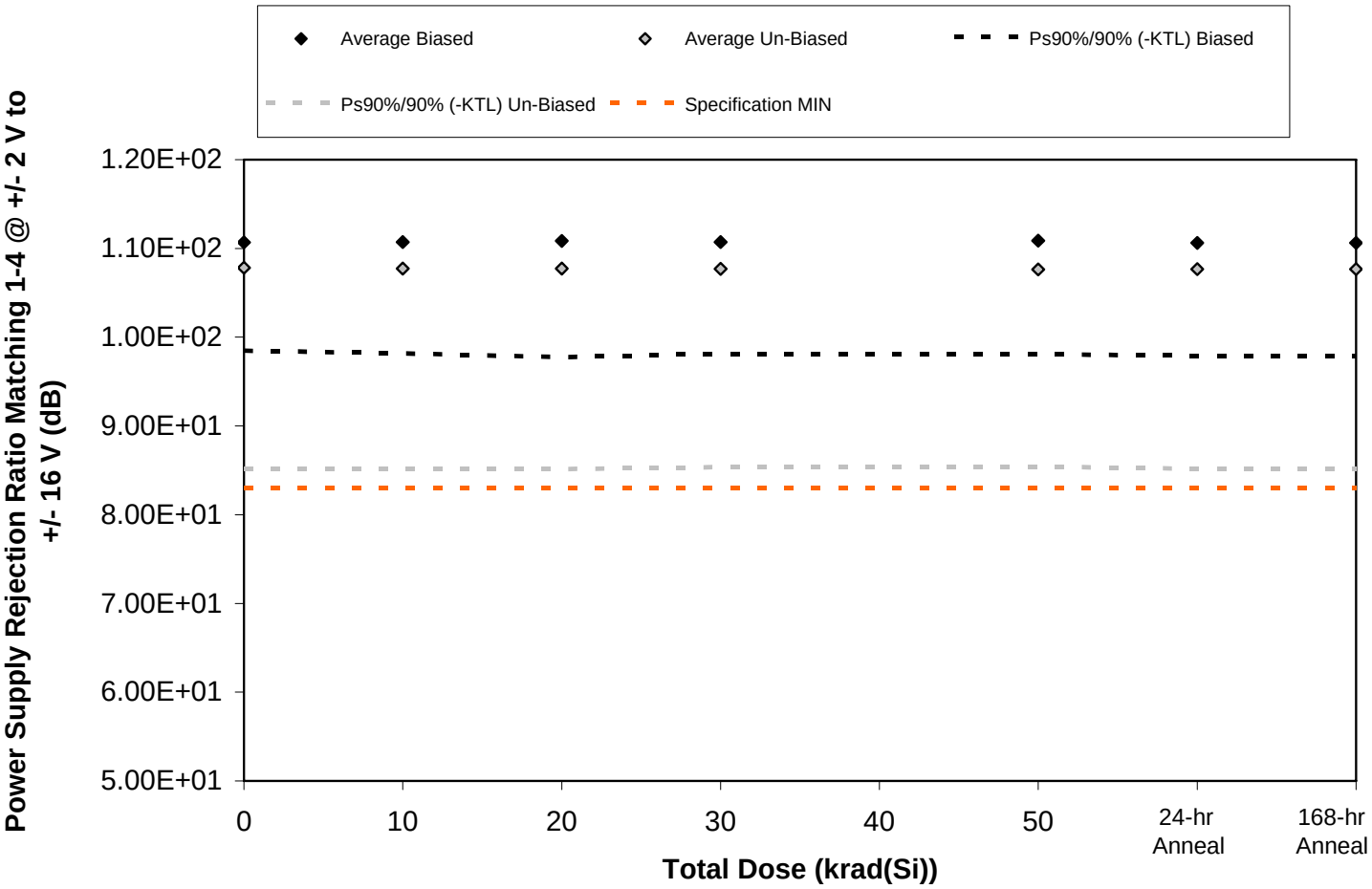

Figure 5.69. Plot of Power Supply Rejection Ratio Matching 1-4 @ +/- 2 V to +/- 16 V (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.69. Raw data for Power Supply Rejection Ratio Matching 1-4 @ +/- 2 V to +/- 16 V (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio Matching 1-4 @ +/- 2 V to +/- 16 V (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.06E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.06E+02	1.06E+02
867	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02
868	1.18E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
869	1.10E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02
870	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
871	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
872	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
873	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.05E+02	1.05E+02
874	1.21E+02	1.21E+02	1.21E+02	1.21E+02	1.20E+02	1.21E+02	1.21E+02
876	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
877	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02
Biased Statistics							
Average Biased	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02
Std Dev Biased	4.45E+00	4.57E+00	4.78E+00	4.59E+00	4.67E+00	4.64E+00	4.64E+00
Ps90%/90% (+KTL) Biased	1.23E+02	1.23E+02	1.24E+02	1.23E+02	1.24E+02	1.23E+02	1.23E+02
Ps90%/90% (-KTL) Biased	9.85E+01	9.82E+01	9.77E+01	9.81E+01	9.81E+01	9.79E+01	9.79E+01
Un-Biased Statistics							
Average Un-Biased	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02
Std Dev Un-Biased	8.27E+00	8.24E+00	8.24E+00	8.15E+00	8.10E+00	8.20E+00	8.20E+00
Ps90%/90% (+KTL) Un-Biased	1.31E+02	1.30E+02	1.30E+02	1.30E+02	1.30E+02	1.30E+02	1.30E+02
Ps90%/90% (-KTL) Un-Biased	8.52E+01	8.52E+01	8.51E+01	8.54E+01	8.54E+01	8.52E+01	8.52E+01
Specification MIN	8.30E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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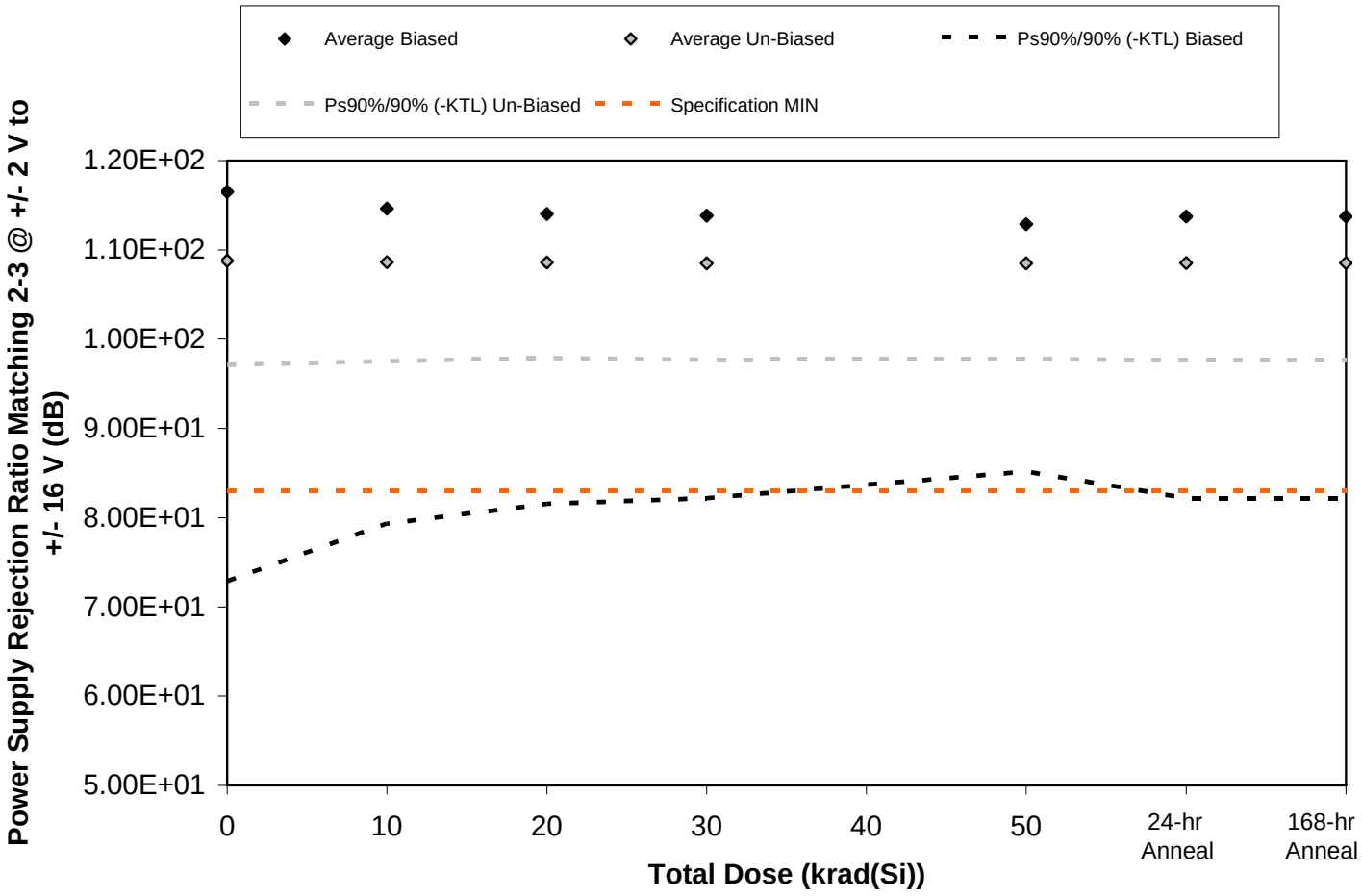

Figure 5.70. Plot of Power Supply Rejection Ratio Matching 2-3 @ +/- 2 V to +/- 16 V (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.70. Raw data for Power Supply Rejection Ratio Matching 2-3 @ +/- 2 V to +/- 16 V (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio Matching 2-3 @ +/- 2 V to +/- 16 V (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
867	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02
868	1.05E+02	1.04E+02	1.05E+02	1.04E+02	1.05E+02	1.04E+02	1.04E+02
869	1.41E+02	1.32E+02	1.30E+02	1.29E+02	1.24E+02	1.28E+02	1.28E+02
870	1.25E+02	1.24E+02	1.24E+02	1.24E+02	1.23E+02	1.24E+02	1.24E+02
871	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
872	1.13E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02
873	1.14E+02	1.14E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02
874	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
876	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
877	1.01E+02	1.01E+02	1.00E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
Biased Statistics							
Average Biased	1.16E+02	1.15E+02	1.14E+02	1.14E+02	1.13E+02	1.14E+02	1.14E+02
Std Dev Biased	1.59E+01	1.29E+01	1.18E+01	1.15E+01	1.01E+01	1.15E+01	1.15E+01
Ps90%/90% (+KTL) Biased	1.60E+02	1.50E+02	1.47E+02	1.45E+02	1.41E+02	1.45E+02	1.45E+02
Ps90%/90% (-KTL) Biased	7.29E+01	7.93E+01	8.16E+01	8.22E+01	8.52E+01	8.22E+01	8.22E+01
Un-Biased Statistics							
Average Un-Biased	1.09E+02	1.09E+02	1.09E+02	1.08E+02	1.08E+02	1.09E+02	1.09E+02
Std Dev Un-Biased	4.25E+00	4.04E+00	3.91E+00	3.94E+00	3.90E+00	3.97E+00	3.97E+00
Ps90%/90% (+KTL) Un-Biased	1.20E+02	1.20E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02	1.19E+02
Ps90%/90% (-KTL) Un-Biased	9.71E+01	9.75E+01	9.79E+01	9.77E+01	9.78E+01	9.76E+01	9.76E+01
Specification MIN	8.30E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01	8.30E+01
Status	FAIL	FAIL	FAIL	FAIL	PASS	FAIL	FAIL

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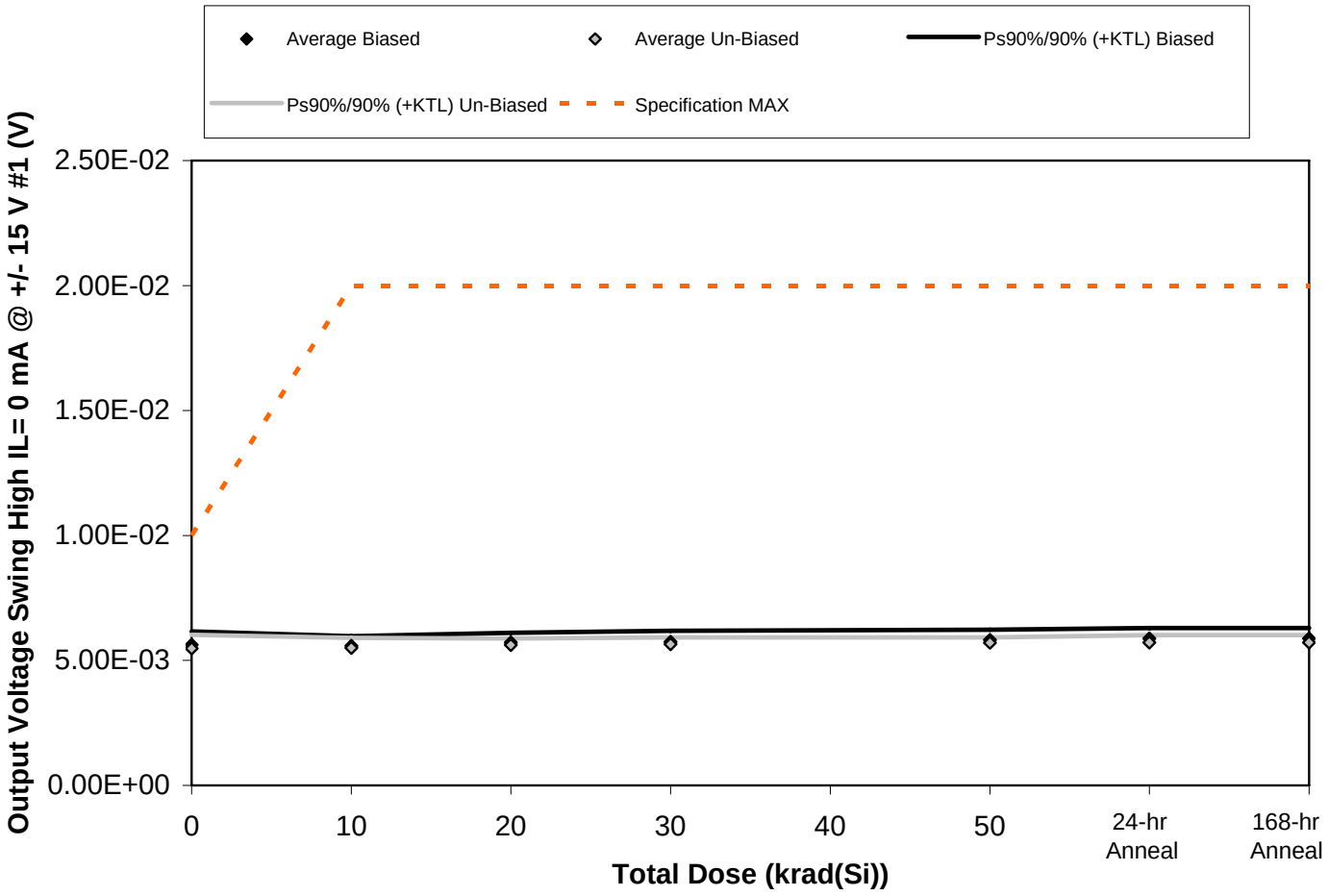

Figure 5.71. Plot of Output Voltage Swing High IL= 0 mA @ +/- 15 V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.71. Raw data for Output Voltage Swing High IL= 0 mA @ +/- 15 V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0 mA @ +/- 15 V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	5.91E-03	5.73E-03	5.92E-03	6.00E-03	6.05E-03	6.03E-03	6.03E-03
867	5.47E-03	5.53E-03	5.73E-03	5.65E-03	5.86E-03	5.83E-03	5.83E-03
868	5.74E-03	5.70E-03	5.76E-03	5.77E-03	5.76E-03	6.03E-03	6.03E-03
869	5.46E-03	5.58E-03	5.60E-03	5.58E-03	5.64E-03	5.67E-03	5.67E-03
870	5.57E-03	5.38E-03	5.56E-03	5.72E-03	5.78E-03	5.84E-03	5.84E-03
871	5.51E-03	5.55E-03	5.71E-03	5.73E-03	5.76E-03	5.79E-03	5.79E-03
872	5.49E-03	5.47E-03	5.70E-03	5.72E-03	5.80E-03	5.84E-03	5.84E-03
873	5.49E-03	5.62E-03	5.53E-03	5.60E-03	5.71E-03	5.67E-03	5.67E-03
874	5.17E-03	5.26E-03	5.51E-03	5.50E-03	5.59E-03	5.57E-03	5.57E-03
876	5.73E-03	5.60E-03	5.65E-03	5.70E-03	5.69E-03	5.73E-03	5.73E-03
877	5.71E-03	5.45E-03	5.75E-03	5.63E-03	5.68E-03	5.79E-03	5.79E-03
Biased Statistics							
Average Biased	5.63E-03	5.58E-03	5.71E-03	5.74E-03	5.82E-03	5.88E-03	5.88E-03
Std Dev Biased	1.93E-04	1.41E-04	1.43E-04	1.60E-04	1.52E-04	1.53E-04	1.53E-04
Ps90%/90% (+KTL) Biased	6.16E-03	5.97E-03	6.11E-03	6.18E-03	6.23E-03	6.30E-03	6.30E-03
Ps90%/90% (-KTL) Biased	5.10E-03	5.20E-03	5.32E-03	5.31E-03	5.40E-03	5.46E-03	5.46E-03
Un-Biased Statistics							
Average Un-Biased	5.48E-03	5.50E-03	5.62E-03	5.65E-03	5.71E-03	5.72E-03	5.72E-03
Std Dev Un-Biased	2.00E-04	1.46E-04	9.43E-05	9.85E-05	7.97E-05	1.05E-04	1.05E-04
Ps90%/90% (+KTL) Un-Biased	6.03E-03	5.90E-03	5.88E-03	5.92E-03	5.93E-03	6.01E-03	6.01E-03
Ps90%/90% (-KTL) Un-Biased	4.93E-03	5.10E-03	5.36E-03	5.38E-03	5.49E-03	5.43E-03	5.43E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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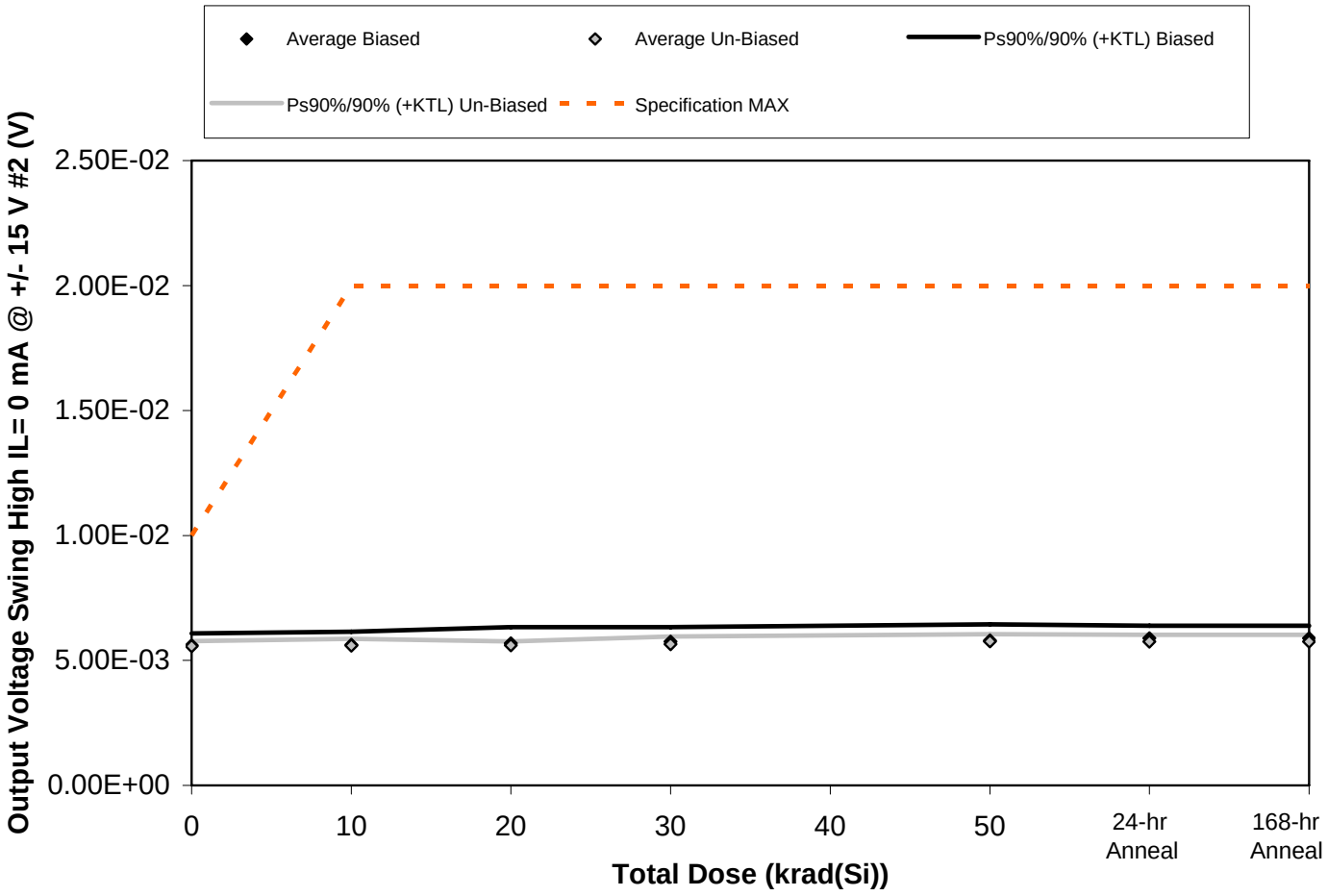

Figure 5.72. Plot of Output Voltage Swing High IL= 0 mA @ +/- 15 V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.72. Raw data for Output Voltage Swing High IL= 0 mA @ +/- 15 V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0 mA @ +/- 15 V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	5.57E-03	5.65E-03	5.58E-03	5.87E-03	5.81E-03	5.84E-03	5.84E-03
867	5.86E-03	5.94E-03	6.00E-03	6.00E-03	6.12E-03	6.13E-03	6.13E-03
868	5.39E-03	5.45E-03	5.46E-03	5.51E-03	5.54E-03	5.67E-03	5.67E-03
869	5.67E-03	5.58E-03	5.87E-03	5.83E-03	5.93E-03	6.01E-03	6.01E-03
870	5.56E-03	5.52E-03	5.53E-03	5.55E-03	5.61E-03	5.79E-03	5.79E-03
871	5.59E-03	5.70E-03	5.55E-03	5.63E-03	5.64E-03	5.84E-03	5.84E-03
872	5.52E-03	5.62E-03	5.68E-03	5.72E-03	5.86E-03	5.84E-03	5.84E-03
873	5.69E-03	5.62E-03	5.65E-03	5.58E-03	5.86E-03	5.66E-03	5.66E-03
874	5.49E-03	5.43E-03	5.55E-03	5.51E-03	5.66E-03	5.64E-03	5.64E-03
876	5.56E-03	5.62E-03	5.61E-03	5.80E-03	5.78E-03	5.81E-03	5.81E-03
877	5.46E-03	5.30E-03	5.65E-03	5.48E-03	5.37E-03	5.49E-03	5.49E-03
Biased Statistics							
Average Biased	5.61E-03	5.63E-03	5.69E-03	5.75E-03	5.80E-03	5.89E-03	5.89E-03
Std Dev Biased	1.72E-04	1.89E-04	2.34E-04	2.13E-04	2.36E-04	1.82E-04	1.82E-04
Ps90%/90% (+KTL) Biased	6.08E-03	6.15E-03	6.33E-03	6.34E-03	6.45E-03	6.39E-03	6.39E-03
Ps90%/90% (-KTL) Biased	5.14E-03	5.11E-03	5.05E-03	5.17E-03	5.15E-03	5.39E-03	5.39E-03
Un-Biased Statistics							
Average Un-Biased	5.57E-03	5.60E-03	5.61E-03	5.65E-03	5.76E-03	5.76E-03	5.76E-03
Std Dev Un-Biased	7.71E-05	1.00E-04	5.85E-05	1.14E-04	1.06E-04	9.96E-05	9.96E-05
Ps90%/90% (+KTL) Un-Biased	5.78E-03	5.87E-03	5.77E-03	5.96E-03	6.05E-03	6.03E-03	6.03E-03
Ps90%/90% (-KTL) Un-Biased	5.36E-03	5.32E-03	5.45E-03	5.33E-03	5.47E-03	5.48E-03	5.48E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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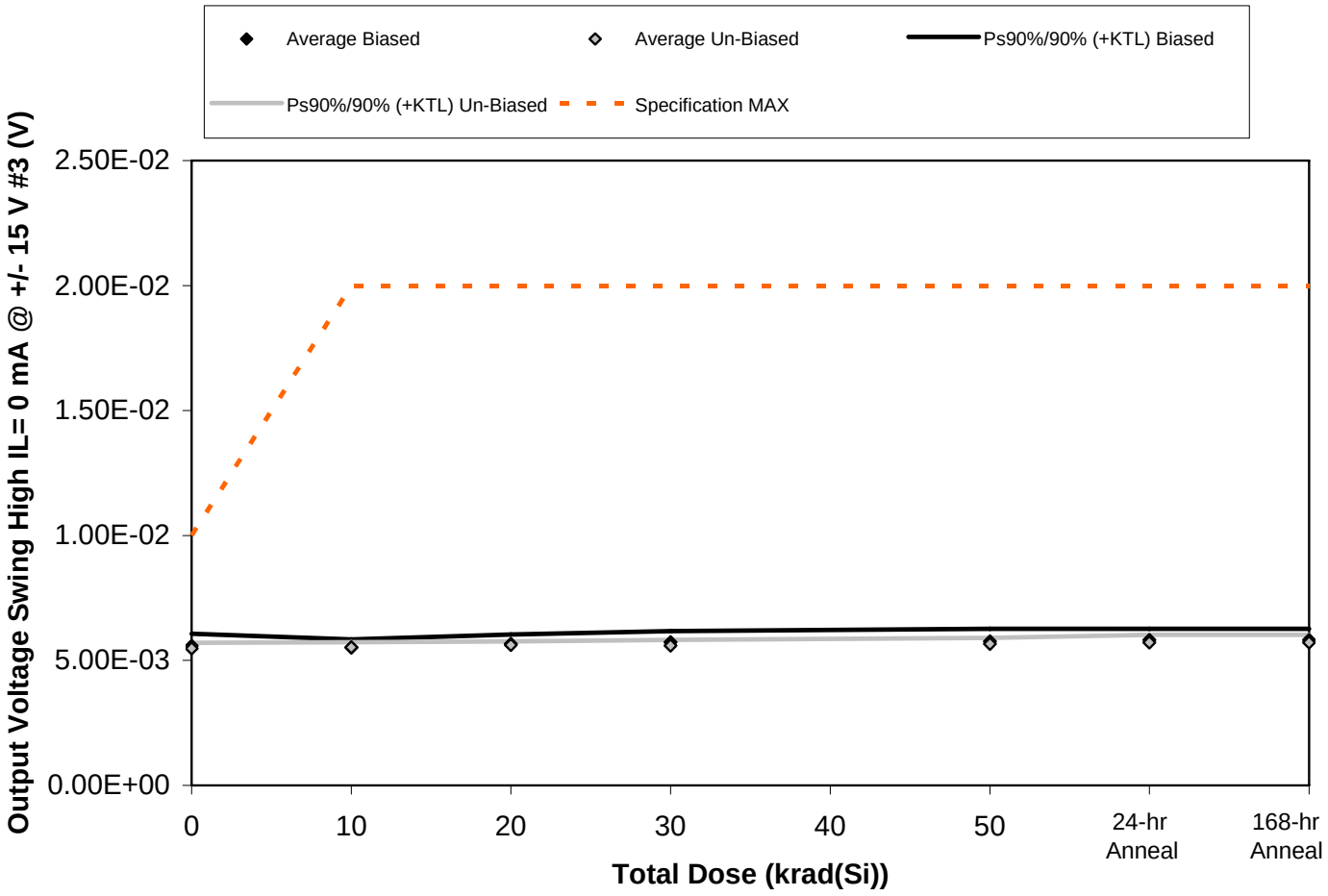

Figure 5.73. Plot of Output Voltage Swing High IL= 0 mA @ +/- 15 V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.73. Raw data for Output Voltage Swing High IL= 0 mA @ +/- 15 V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0 mA @ +/- 15 V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	5.81E-03	5.41E-03	5.71E-03	5.75E-03	5.76E-03	5.79E-03	5.79E-03
867	5.69E-03	5.62E-03	5.78E-03	5.92E-03	6.01E-03	5.93E-03	5.93E-03
868	5.35E-03	5.47E-03	5.44E-03	5.55E-03	5.53E-03	5.57E-03	5.57E-03
869	5.57E-03	5.67E-03	5.75E-03	5.85E-03	5.86E-03	6.00E-03	6.00E-03
870	5.51E-03	5.43E-03	5.61E-03	5.60E-03	5.66E-03	5.79E-03	5.79E-03
871	5.51E-03	5.55E-03	5.58E-03	5.63E-03	5.63E-03	5.88E-03	5.88E-03
872	5.52E-03	5.47E-03	5.60E-03	5.65E-03	5.81E-03	5.66E-03	5.66E-03
873	5.46E-03	5.50E-03	5.55E-03	5.51E-03	5.59E-03	5.59E-03	5.59E-03
874	5.35E-03	5.47E-03	5.63E-03	5.51E-03	5.61E-03	5.67E-03	5.67E-03
876	5.57E-03	5.65E-03	5.70E-03	5.68E-03	5.68E-03	5.78E-03	5.78E-03
877	5.49E-03	5.48E-03	5.55E-03	5.53E-03	5.51E-03	5.41E-03	5.41E-03
Biased Statistics							
Average Biased	5.59E-03	5.52E-03	5.66E-03	5.73E-03	5.76E-03	5.82E-03	5.82E-03
Std Dev Biased	1.75E-04	1.17E-04	1.38E-04	1.58E-04	1.84E-04	1.65E-04	1.65E-04
Ps90%/90% (+KTL) Biased	6.07E-03	5.84E-03	6.04E-03	6.17E-03	6.27E-03	6.27E-03	6.27E-03
Ps90%/90% (-KTL) Biased	5.11E-03	5.20E-03	5.28E-03	5.30E-03	5.26E-03	5.36E-03	5.36E-03
Un-Biased Statistics							
Average Un-Biased	5.48E-03	5.53E-03	5.61E-03	5.60E-03	5.66E-03	5.72E-03	5.72E-03
Std Dev Un-Biased	8.35E-05	7.56E-05	5.72E-05	8.05E-05	8.82E-05	1.14E-04	1.14E-04
Ps90%/90% (+KTL) Un-Biased	5.71E-03	5.74E-03	5.77E-03	5.82E-03	5.91E-03	6.03E-03	6.03E-03
Ps90%/90% (-KTL) Un-Biased	5.25E-03	5.32E-03	5.46E-03	5.38E-03	5.42E-03	5.40E-03	5.40E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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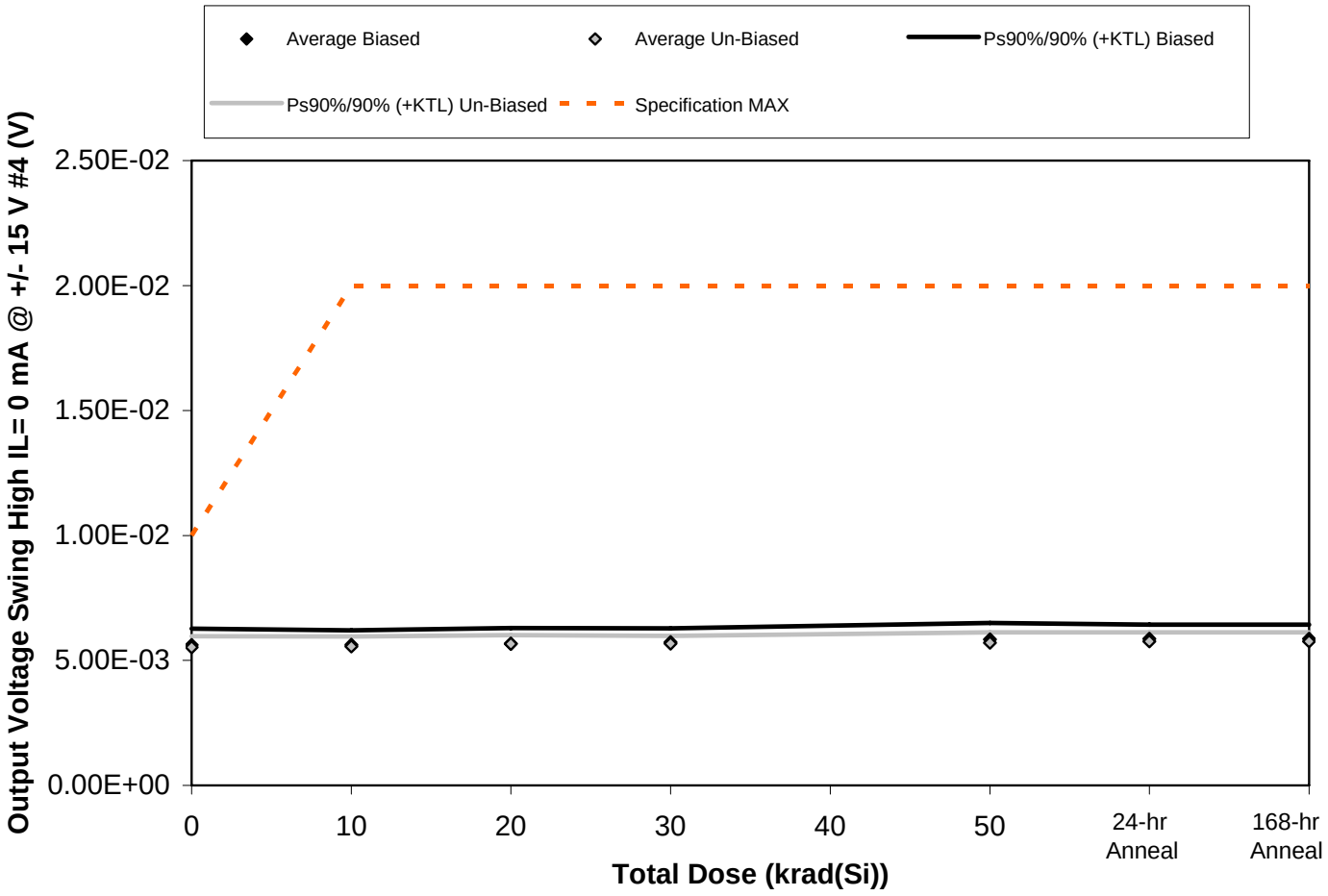

Figure 5.74. Plot of Output Voltage Swing High IL= 0 mA @ +/- 15 V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.74. Raw data for Output Voltage Swing High IL= 0 mA @ +/- 15 V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0 mA @ +/- 15 V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.05E-03	5.95E-03	6.07E-03	6.02E-03	6.27E-03	6.20E-03	6.20E-03
867	5.51E-03	5.53E-03	5.60E-03	5.68E-03	5.75E-03	5.83E-03	5.83E-03
868	5.54E-03	5.65E-03	5.49E-03	5.78E-03	5.75E-03	5.64E-03	5.64E-03
869	5.52E-03	5.65E-03	5.56E-03	5.46E-03	5.73E-03	5.78E-03	5.78E-03
870	5.49E-03	5.38E-03	5.66E-03	5.73E-03	5.71E-03	5.86E-03	5.86E-03
871	5.62E-03	5.70E-03	5.70E-03	5.72E-03	5.83E-03	5.76E-03	5.76E-03
872	5.51E-03	5.50E-03	5.58E-03	5.68E-03	5.66E-03	5.73E-03	5.73E-03
873	5.49E-03	5.67E-03	5.83E-03	5.77E-03	5.71E-03	5.86E-03	5.86E-03
874	5.30E-03	5.35E-03	5.49E-03	5.48E-03	5.48E-03	5.57E-03	5.57E-03
876	5.73E-03	5.60E-03	5.70E-03	5.70E-03	5.86E-03	5.91E-03	5.91E-03
877	5.66E-03	5.60E-03	5.76E-03	5.77E-03	5.63E-03	5.67E-03	5.67E-03
Biased Statistics							
Average Biased	5.62E-03	5.63E-03	5.68E-03	5.73E-03	5.84E-03	5.86E-03	5.86E-03
Std Dev Biased	2.40E-04	2.10E-04	2.29E-04	2.01E-04	2.40E-04	2.07E-04	2.07E-04
Ps90%/90% (+KTL) Biased	6.28E-03	6.21E-03	6.30E-03	6.29E-03	6.50E-03	6.43E-03	6.43E-03
Ps90%/90% (-KTL) Biased	4.96E-03	5.06E-03	5.05E-03	5.18E-03	5.18E-03	5.29E-03	5.29E-03
Un-Biased Statistics							
Average Un-Biased	5.53E-03	5.56E-03	5.66E-03	5.67E-03	5.71E-03	5.77E-03	5.77E-03
Std Dev Un-Biased	1.60E-04	1.42E-04	1.30E-04	1.11E-04	1.52E-04	1.32E-04	1.32E-04
Ps90%/90% (+KTL) Un-Biased	5.97E-03	5.95E-03	6.02E-03	5.98E-03	6.12E-03	6.13E-03	6.13E-03
Ps90%/90% (-KTL) Un-Biased	5.09E-03	5.17E-03	5.30E-03	5.36E-03	5.29E-03	5.41E-03	5.41E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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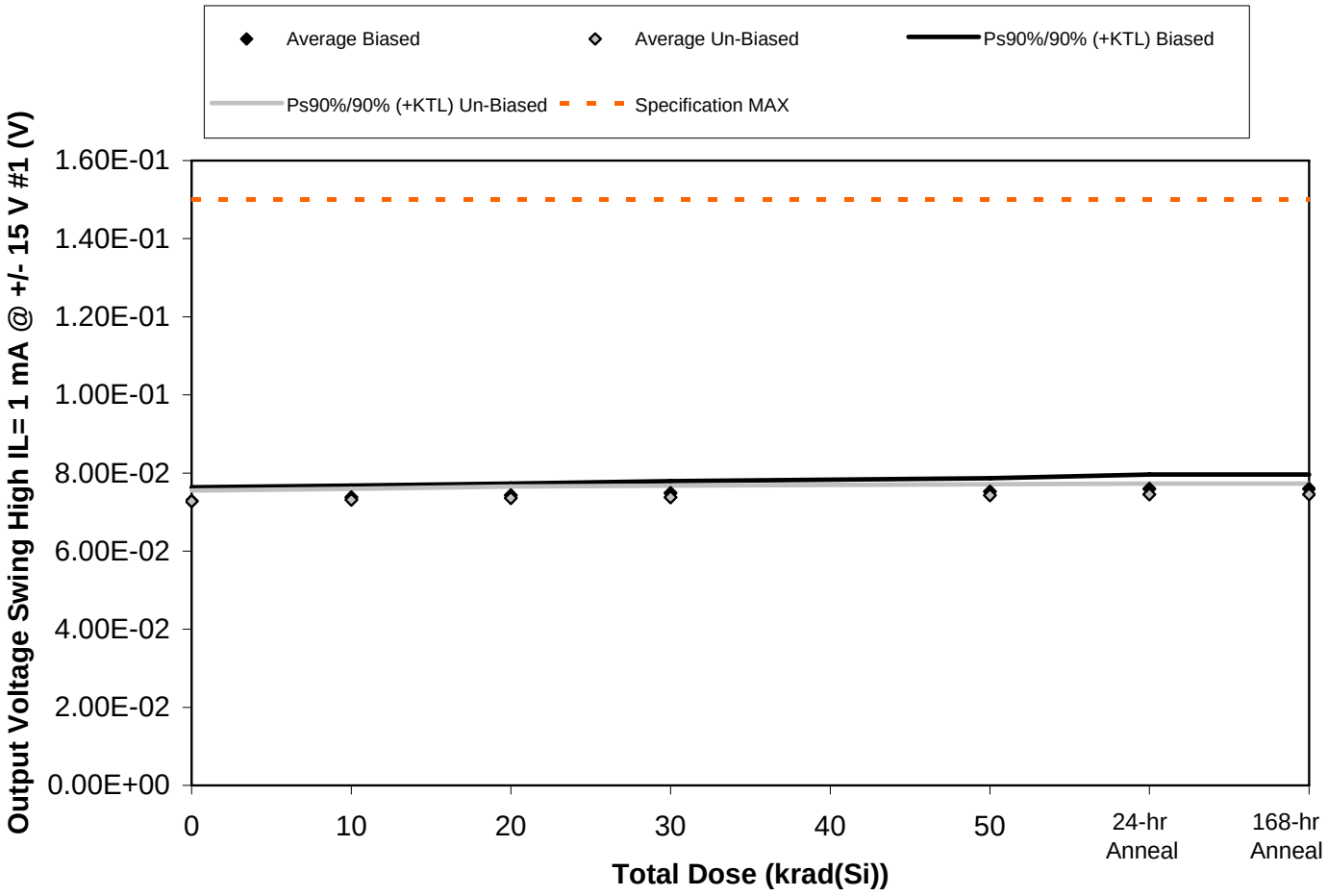

Figure 5.75. Plot of Output Voltage Swing High IL= 1 mA @ +/- 15 V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.75. Raw data for Output Voltage Swing High IL= 1 mA @ +/- 15 V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1 mA @ +/- 15 V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.50E-02	7.55E-02	7.60E-02	7.66E-02	7.73E-02	7.81E-02	7.81E-02
867	7.24E-02	7.38E-02	7.41E-02	7.48E-02	7.49E-02	7.57E-02	7.57E-02
868	7.30E-02	7.39E-02	7.45E-02	7.51E-02	7.54E-02	7.61E-02	7.61E-02
869	7.17E-02	7.26E-02	7.33E-02	7.37E-02	7.39E-02	7.47E-02	7.47E-02
870	7.22E-02	7.31E-02	7.37E-02	7.43E-02	7.47E-02	7.51E-02	7.51E-02
871	7.38E-02	7.42E-02	7.47E-02	7.49E-02	7.54E-02	7.56E-02	7.56E-02
872	7.20E-02	7.24E-02	7.29E-02	7.29E-02	7.34E-02	7.37E-02	7.37E-02
873	7.27E-02	7.30E-02	7.34E-02	7.35E-02	7.40E-02	7.43E-02	7.43E-02
874	7.17E-02	7.20E-02	7.23E-02	7.27E-02	7.32E-02	7.35E-02	7.35E-02
876	7.39E-02	7.42E-02	7.47E-02	7.50E-02	7.54E-02	7.55E-02	7.55E-02
877	7.41E-02	7.38E-02	7.37E-02	7.38E-02	7.40E-02	7.38E-02	7.38E-02
Biased Statistics							
Average Biased	7.28E-02	7.38E-02	7.43E-02	7.49E-02	7.52E-02	7.59E-02	7.59E-02
Std Dev Biased	1.29E-03	1.10E-03	1.06E-03	1.10E-03	1.27E-03	1.33E-03	1.33E-03
Ps90%/90% (+KTL) Biased	7.64E-02	7.68E-02	7.72E-02	7.79E-02	7.87E-02	7.96E-02	7.96E-02
Ps90%/90% (-KTL) Biased	6.93E-02	7.07E-02	7.14E-02	7.19E-02	7.17E-02	7.23E-02	7.23E-02
Un-Biased Statistics							
Average Un-Biased	7.28E-02	7.32E-02	7.36E-02	7.38E-02	7.43E-02	7.45E-02	7.45E-02
Std Dev Un-Biased	1.01E-03	1.02E-03	1.07E-03	1.10E-03	1.06E-03	1.00E-03	1.00E-03
Ps90%/90% (+KTL) Un-Biased	7.55E-02	7.60E-02	7.65E-02	7.68E-02	7.72E-02	7.73E-02	7.73E-02
Ps90%/90% (-KTL) Un-Biased	7.00E-02	7.04E-02	7.07E-02	7.08E-02	7.14E-02	7.18E-02	7.18E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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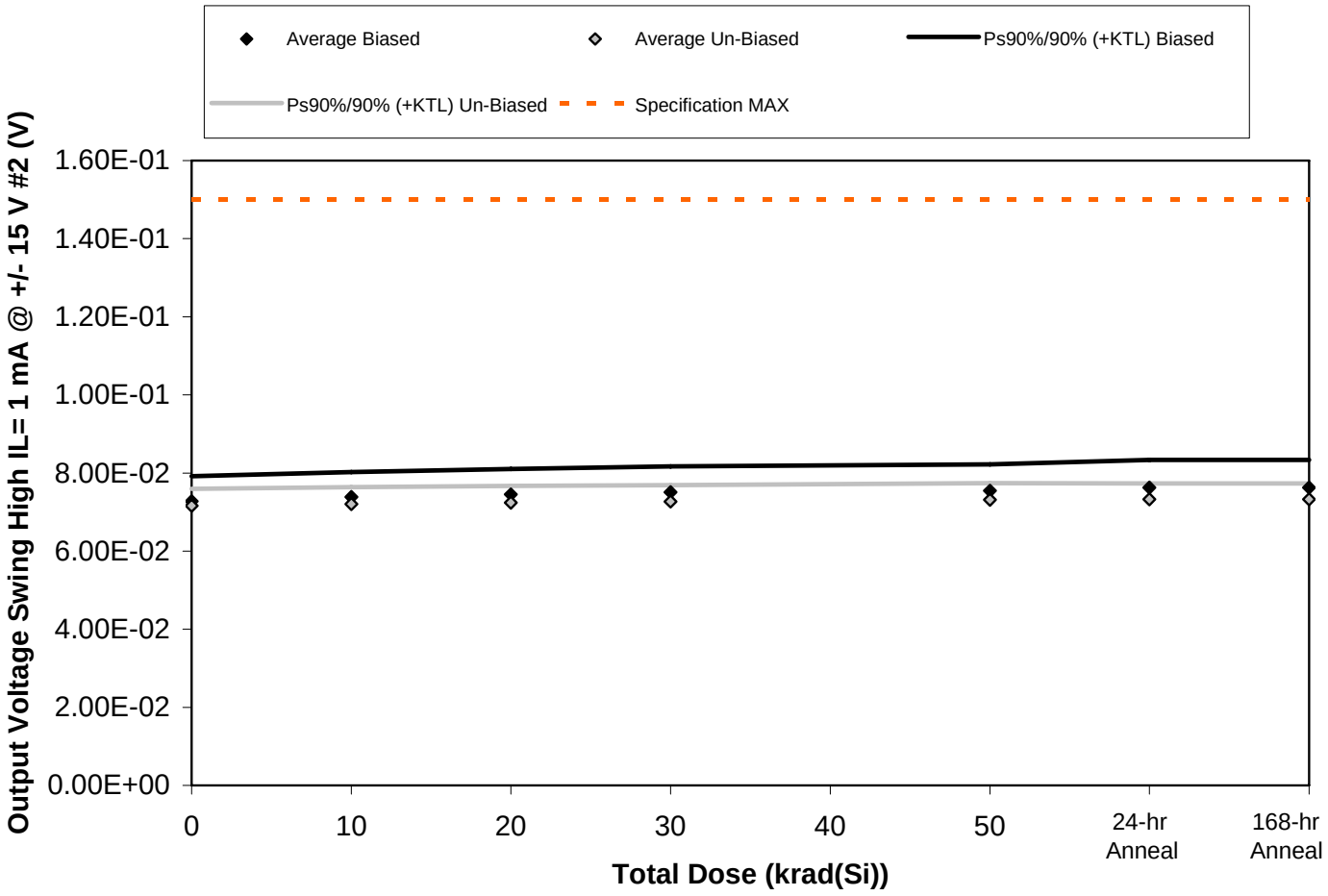

Figure 5.76. Plot of Output Voltage Swing High IL= 1 mA @ +/- 15 V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.76. Raw data for Output Voltage Swing High IL= 1 mA @ +/- 15 V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1 mA @ +/- 15 V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.33E-02	7.40E-02	7.47E-02	7.55E-02	7.57E-02	7.67E-02	7.67E-02
867	7.42E-02	7.56E-02	7.62E-02	7.67E-02	7.70E-02	7.79E-02	7.79E-02
868	6.97E-02	7.09E-02	7.14E-02	7.18E-02	7.21E-02	7.29E-02	7.29E-02
869	7.55E-02	7.65E-02	7.73E-02	7.78E-02	7.84E-02	7.93E-02	7.93E-02
870	7.12E-02	7.22E-02	7.28E-02	7.35E-02	7.39E-02	7.43E-02	7.43E-02
871	7.26E-02	7.29E-02	7.34E-02	7.35E-02	7.41E-02	7.42E-02	7.42E-02
872	7.27E-02	7.31E-02	7.34E-02	7.36E-02	7.41E-02	7.42E-02	7.42E-02
873	6.91E-02	6.95E-02	7.00E-02	7.03E-02	7.07E-02	7.09E-02	7.09E-02
874	7.11E-02	7.14E-02	7.17E-02	7.21E-02	7.25E-02	7.28E-02	7.28E-02
876	7.27E-02	7.33E-02	7.37E-02	7.40E-02	7.44E-02	7.44E-02	7.44E-02
877	7.25E-02	7.25E-02	7.25E-02	7.25E-02	7.25E-02	7.23E-02	7.23E-02
Biased Statistics							
Average Biased	7.28E-02	7.39E-02	7.45E-02	7.51E-02	7.54E-02	7.62E-02	7.62E-02
Std Dev Biased	2.32E-03	2.32E-03	2.40E-03	2.41E-03	2.49E-03	2.60E-03	2.60E-03
Ps90%/90% (+KTL) Biased	7.91E-02	8.02E-02	8.11E-02	8.17E-02	8.22E-02	8.34E-02	8.34E-02
Ps90%/90% (-KTL) Biased	6.64E-02	6.75E-02	6.79E-02	6.85E-02	6.86E-02	6.91E-02	6.91E-02
Un-Biased Statistics							
Average Un-Biased	7.16E-02	7.20E-02	7.24E-02	7.27E-02	7.31E-02	7.33E-02	7.33E-02
Std Dev Un-Biased	1.58E-03	1.60E-03	1.57E-03	1.53E-03	1.56E-03	1.48E-03	1.48E-03
Ps90%/90% (+KTL) Un-Biased	7.60E-02	7.64E-02	7.67E-02	7.69E-02	7.74E-02	7.74E-02	7.74E-02
Ps90%/90% (-KTL) Un-Biased	6.73E-02	6.76E-02	6.81E-02	6.85E-02	6.89E-02	6.93E-02	6.93E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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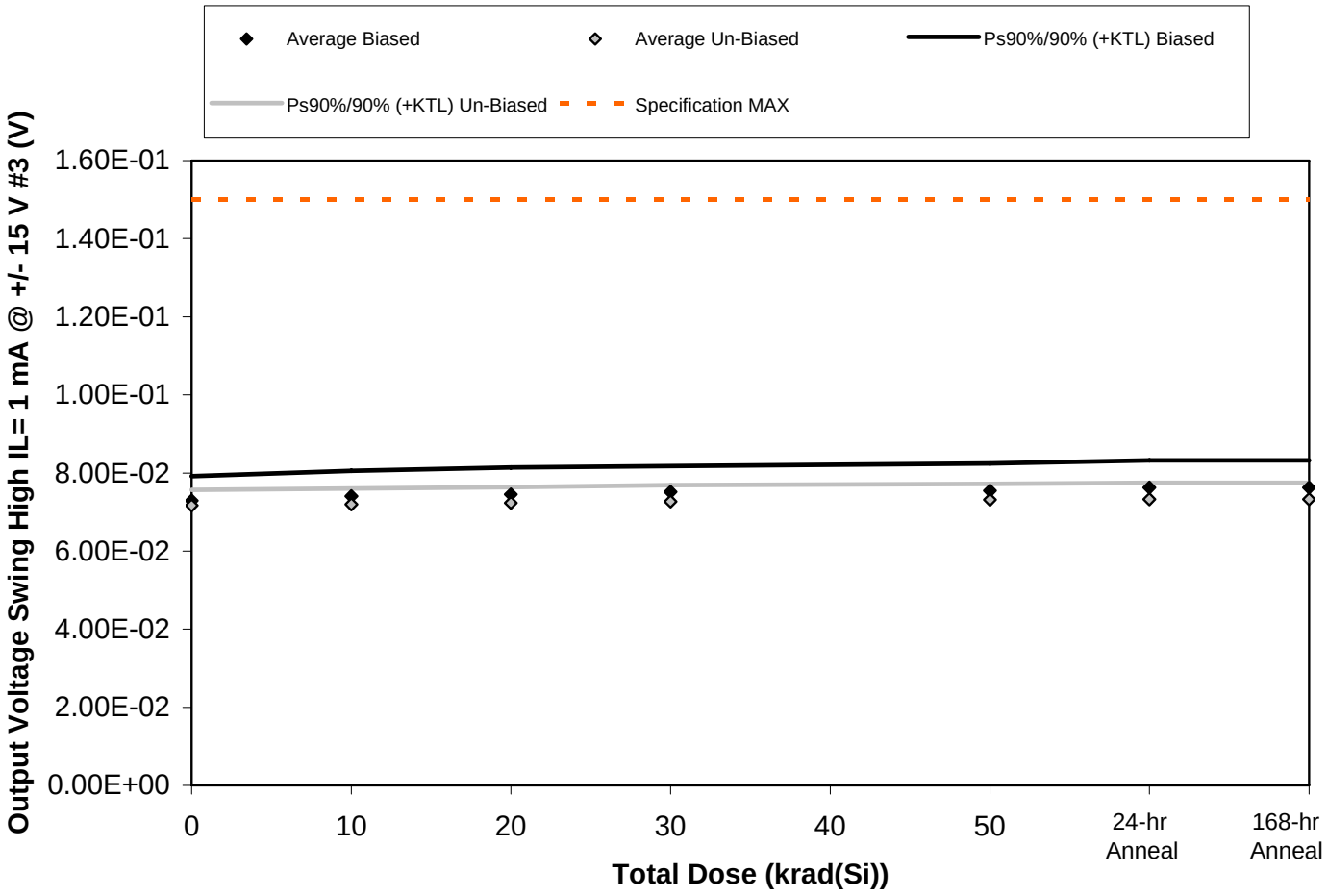

Figure 5.77. Plot of Output Voltage Swing High IL= 1 mA @ +/- 15 V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.77. Raw data for Output Voltage Swing High IL= 1 mA @ +/- 15 V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1 mA @ +/- 15 V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.34E-02	7.41E-02	7.47E-02	7.54E-02	7.56E-02	7.65E-02	7.65E-02
867	7.43E-02	7.59E-02	7.62E-02	7.69E-02	7.73E-02	7.79E-02	7.79E-02
868	6.97E-02	7.09E-02	7.09E-02	7.18E-02	7.19E-02	7.27E-02	7.27E-02
869	7.55E-02	7.67E-02	7.74E-02	7.78E-02	7.83E-02	7.92E-02	7.92E-02
870	7.18E-02	7.26E-02	7.34E-02	7.38E-02	7.44E-02	7.50E-02	7.50E-02
871	7.26E-02	7.29E-02	7.33E-02	7.35E-02	7.38E-02	7.41E-02	7.41E-02
872	7.22E-02	7.25E-02	7.30E-02	7.35E-02	7.37E-02	7.39E-02	7.39E-02
873	6.92E-02	6.94E-02	6.98E-02	7.02E-02	7.06E-02	7.07E-02	7.07E-02
874	7.15E-02	7.18E-02	7.23E-02	7.25E-02	7.33E-02	7.31E-02	7.31E-02
876	7.28E-02	7.31E-02	7.34E-02	7.40E-02	7.44E-02	7.46E-02	7.46E-02
877	7.30E-02	7.26E-02	7.23E-02	7.27E-02	7.27E-02	7.27E-02	7.27E-02
Biased Statistics							
Average Biased	7.29E-02	7.40E-02	7.45E-02	7.51E-02	7.55E-02	7.63E-02	7.63E-02
Std Dev Biased	2.27E-03	2.37E-03	2.52E-03	2.43E-03	2.52E-03	2.54E-03	2.54E-03
Ps90%/90% (+KTL) Biased	7.92E-02	8.05E-02	8.14E-02	8.18E-02	8.24E-02	8.32E-02	8.32E-02
Ps90%/90% (-KTL) Biased	6.67E-02	6.76E-02	6.76E-02	6.85E-02	6.86E-02	6.93E-02	6.93E-02
Un-Biased Statistics							
Average Un-Biased	7.17E-02	7.20E-02	7.24E-02	7.27E-02	7.32E-02	7.33E-02	7.33E-02
Std Dev Un-Biased	1.47E-03	1.48E-03	1.48E-03	1.52E-03	1.48E-03	1.54E-03	1.54E-03
Ps90%/90% (+KTL) Un-Biased	7.57E-02	7.60E-02	7.64E-02	7.69E-02	7.72E-02	7.75E-02	7.75E-02
Ps90%/90% (-KTL) Un-Biased	6.76E-02	6.79E-02	6.83E-02	6.86E-02	6.91E-02	6.90E-02	6.90E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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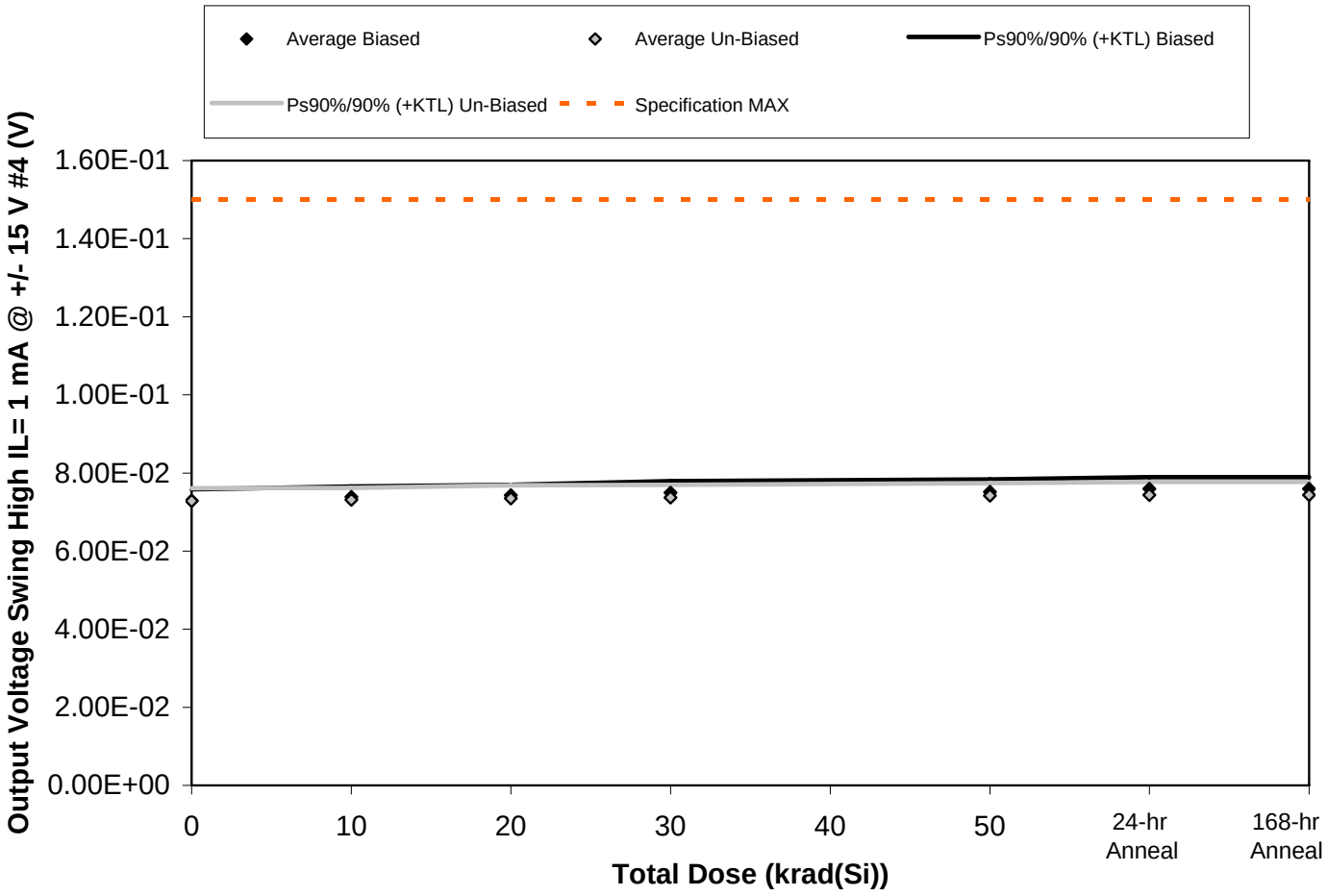

Figure 5.78. Plot of Output Voltage Swing High IL= 1 mA @ +/- 15 V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.78. Raw data for Output Voltage Swing High IL= 1 mA @ +/- 15 V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1 mA @ +/- 15 V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.46E-02	7.52E-02	7.57E-02	7.64E-02	7.68E-02	7.76E-02	7.76E-02
867	7.22E-02	7.33E-02	7.39E-02	7.46E-02	7.47E-02	7.57E-02	7.57E-02
868	7.32E-02	7.44E-02	7.47E-02	7.56E-02	7.59E-02	7.64E-02	7.64E-02
869	7.19E-02	7.27E-02	7.31E-02	7.35E-02	7.38E-02	7.47E-02	7.47E-02
870	7.26E-02	7.37E-02	7.40E-02	7.46E-02	7.48E-02	7.55E-02	7.55E-02
871	7.38E-02	7.41E-02	7.47E-02	7.48E-02	7.53E-02	7.55E-02	7.55E-02
872	7.17E-02	7.21E-02	7.24E-02	7.26E-02	7.30E-02	7.35E-02	7.35E-02
873	7.31E-02	7.33E-02	7.38E-02	7.41E-02	7.45E-02	7.47E-02	7.47E-02
874	7.14E-02	7.18E-02	7.21E-02	7.24E-02	7.30E-02	7.28E-02	7.28E-02
876	7.40E-02	7.42E-02	7.46E-02	7.49E-02	7.54E-02	7.55E-02	7.55E-02
877	7.42E-02	7.40E-02	7.41E-02	7.39E-02	7.41E-02	7.40E-02	7.40E-02
Biased Statistics							
Average Biased	7.29E-02	7.39E-02	7.43E-02	7.49E-02	7.52E-02	7.60E-02	7.60E-02
Std Dev Biased	1.06E-03	9.78E-04	9.80E-04	1.09E-03	1.15E-03	1.10E-03	1.10E-03
Ps90%/90% (+KTL) Biased	7.58E-02	7.66E-02	7.70E-02	7.79E-02	7.83E-02	7.90E-02	7.90E-02
Ps90%/90% (-KTL) Biased	7.00E-02	7.12E-02	7.16E-02	7.20E-02	7.20E-02	7.30E-02	7.30E-02
Un-Biased Statistics							
Average Un-Biased	7.28E-02	7.31E-02	7.35E-02	7.38E-02	7.42E-02	7.44E-02	7.44E-02
Std Dev Un-Biased	1.20E-03	1.12E-03	1.21E-03	1.19E-03	1.17E-03	1.22E-03	1.22E-03
Ps90%/90% (+KTL) Un-Biased	7.61E-02	7.62E-02	7.68E-02	7.70E-02	7.74E-02	7.77E-02	7.77E-02
Ps90%/90% (-KTL) Un-Biased	6.95E-02	7.00E-02	7.02E-02	7.05E-02	7.10E-02	7.11E-02	7.11E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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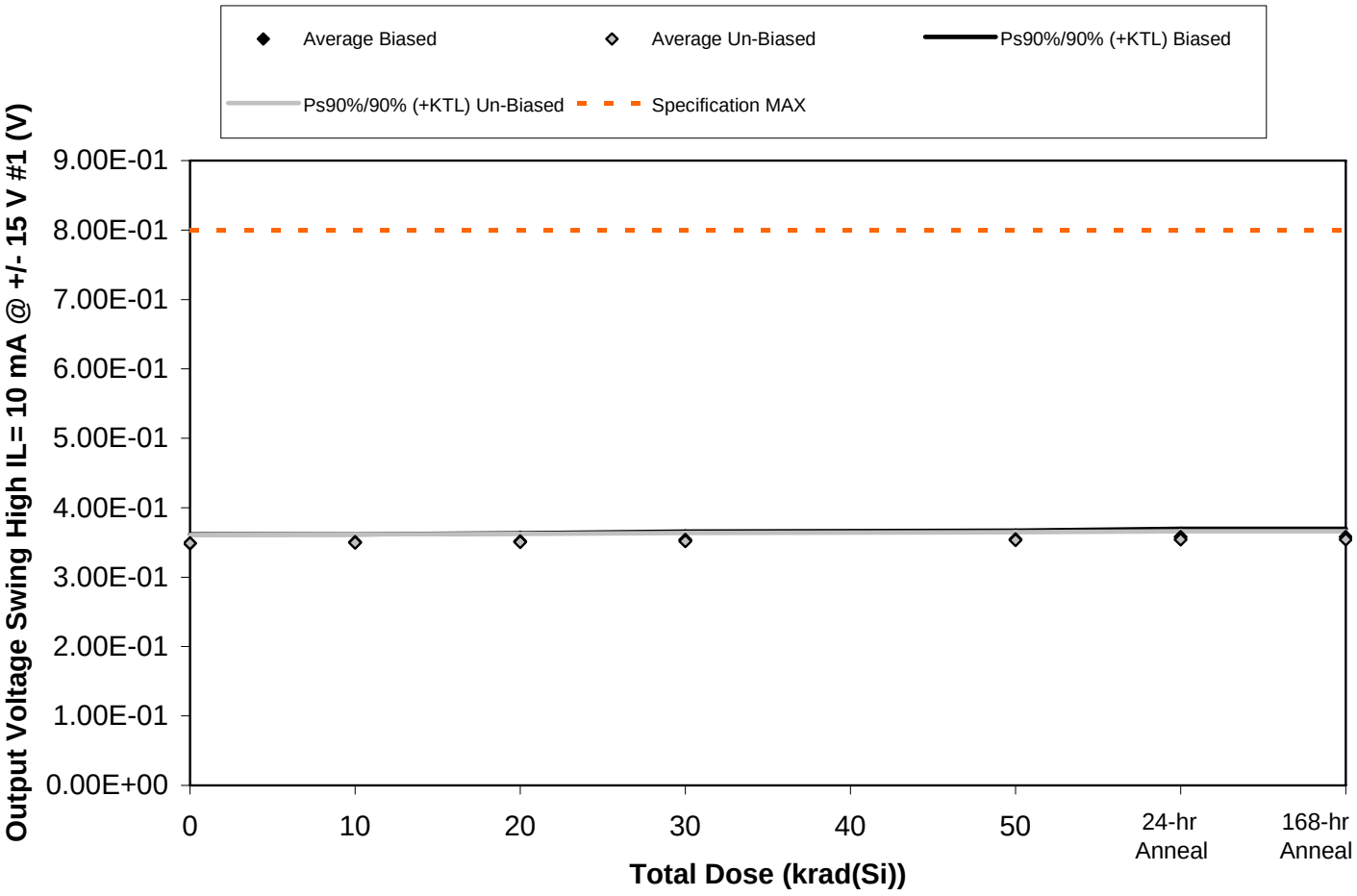

Figure 5.79. Plot of Output Voltage Swing High IL= 10 mA @ +/- 15 V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.79. Raw data for Output Voltage Swing High IL= 10 mA @ +/- 15 V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 10 mA @ +/- 15 V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.55E-01	3.55E-01	3.56E-01	3.58E-01	3.60E-01	3.62E-01	3.62E-01
867	3.48E-01	3.51E-01	3.53E-01	3.55E-01	3.56E-01	3.59E-01	3.59E-01
868	3.50E-01	3.53E-01	3.54E-01	3.57E-01	3.57E-01	3.61E-01	3.61E-01
869	3.43E-01	3.45E-01	3.46E-01	3.47E-01	3.48E-01	3.52E-01	3.52E-01
870	3.46E-01	3.48E-01	3.49E-01	3.51E-01	3.52E-01	3.55E-01	3.55E-01
871	3.52E-01	3.53E-01	3.54E-01	3.55E-01	3.57E-01	3.58E-01	3.58E-01
872	3.45E-01	3.46E-01	3.47E-01	3.47E-01	3.49E-01	3.50E-01	3.50E-01
873	3.50E-01	3.51E-01	3.52E-01	3.52E-01	3.54E-01	3.55E-01	3.55E-01
874	3.44E-01	3.45E-01	3.45E-01	3.47E-01	3.49E-01	3.49E-01	3.49E-01
876	3.54E-01	3.54E-01	3.55E-01	3.56E-01	3.58E-01	3.59E-01	3.59E-01
877	3.52E-01	3.51E-01	3.51E-01	3.52E-01	3.52E-01	3.51E-01	3.51E-01
Biased Statistics							
Average Biased	3.48E-01	3.50E-01	3.52E-01	3.54E-01	3.55E-01	3.58E-01	3.58E-01
Std Dev Biased	4.77E-03	4.05E-03	4.16E-03	4.32E-03	4.44E-03	4.39E-03	4.39E-03
Ps90%/90% (+KTL) Biased	3.61E-01	3.61E-01	3.63E-01	3.65E-01	3.67E-01	3.70E-01	3.70E-01
Ps90%/90% (-KTL) Biased	3.35E-01	3.39E-01	3.40E-01	3.42E-01	3.42E-01	3.46E-01	3.46E-01
Un-Biased Statistics							
Average Un-Biased	3.49E-01	3.50E-01	3.51E-01	3.52E-01	3.53E-01	3.54E-01	3.54E-01
Std Dev Un-Biased	4.33E-03	4.33E-03	4.38E-03	4.34E-03	4.15E-03	4.35E-03	4.35E-03
Ps90%/90% (+KTL) Un-Biased	3.61E-01	3.61E-01	3.63E-01	3.63E-01	3.65E-01	3.66E-01	3.66E-01
Ps90%/90% (-KTL) Un-Biased	3.37E-01	3.38E-01	3.39E-01	3.40E-01	3.42E-01	3.42E-01	3.42E-01
Specification MAX	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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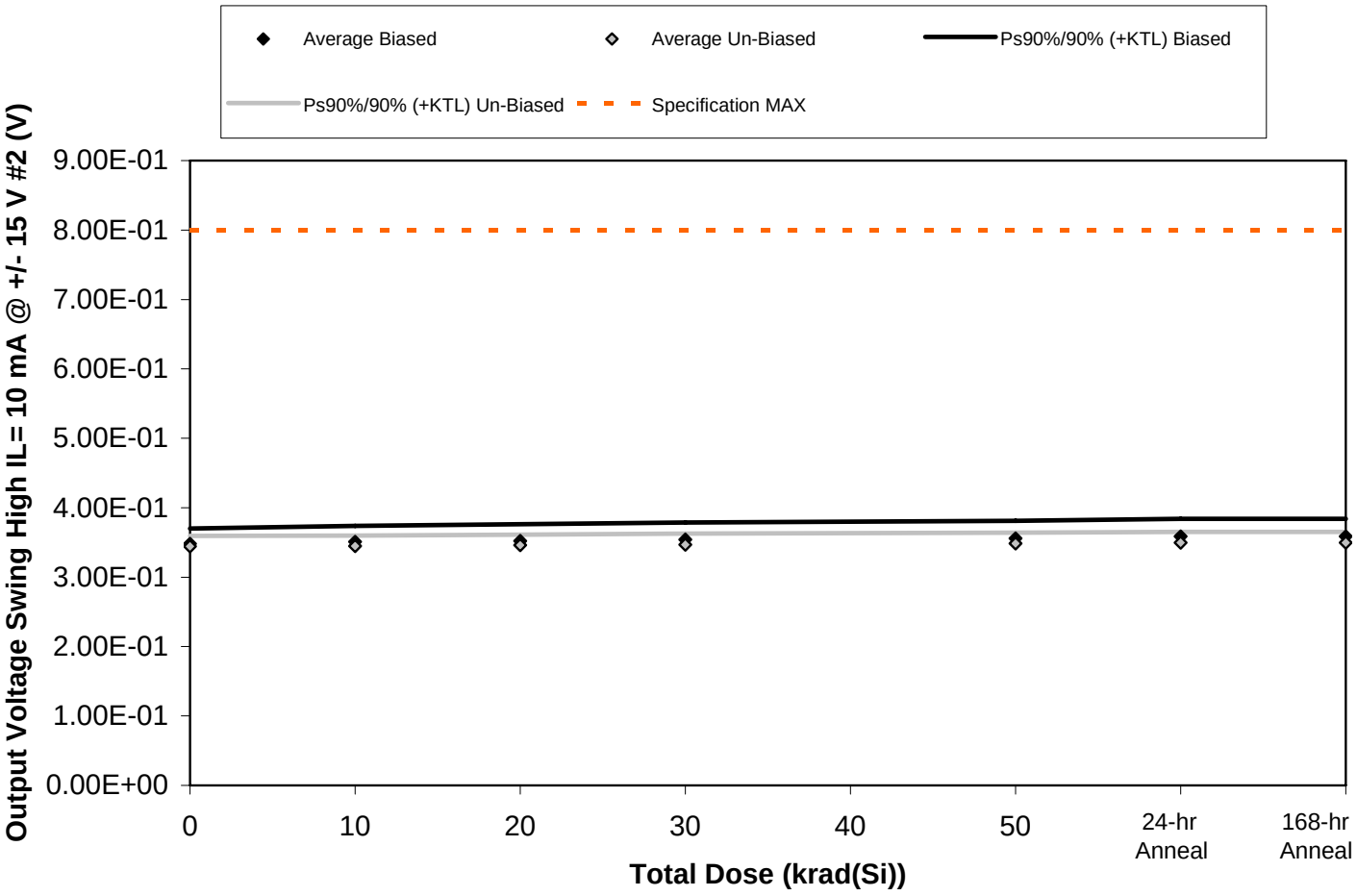

Figure 5.80. Plot of Output Voltage Swing High IL= 10 mA @ +/- 15 V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.80. Raw data for Output Voltage Swing High IL= 10 mA @ +/- 15 V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 10 mA @ +/- 15 V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.50E-01	3.49E-01	3.50E-01	3.53E-01	3.54E-01	3.57E-01	3.57E-01
867	3.53E-01	3.58E-01	3.59E-01	3.62E-01	3.63E-01	3.66E-01	3.66E-01
868	3.38E-01	3.41E-01	3.42E-01	3.45E-01	3.45E-01	3.48E-01	3.48E-01
869	3.58E-01	3.61E-01	3.63E-01	3.65E-01	3.67E-01	3.70E-01	3.70E-01
870	3.41E-01	3.45E-01	3.46E-01	3.48E-01	3.50E-01	3.52E-01	3.52E-01
871	3.48E-01	3.48E-01	3.49E-01	3.51E-01	3.52E-01	3.53E-01	3.53E-01
872	3.46E-01	3.47E-01	3.48E-01	3.49E-01	3.50E-01	3.51E-01	3.51E-01
873	3.36E-01	3.36E-01	3.37E-01	3.38E-01	3.39E-01	3.40E-01	3.40E-01
874	3.43E-01	3.43E-01	3.44E-01	3.45E-01	3.47E-01	3.48E-01	3.48E-01
876	3.50E-01	3.50E-01	3.51E-01	3.52E-01	3.54E-01	3.55E-01	3.55E-01
877	3.49E-01	3.48E-01	3.47E-01	3.48E-01	3.48E-01	3.48E-01	3.48E-01
Biased Statistics							
Average Biased	3.48E-01	3.51E-01	3.52E-01	3.54E-01	3.56E-01	3.59E-01	3.59E-01
Std Dev Biased	8.10E-03	8.46E-03	8.81E-03	8.81E-03	9.22E-03	9.24E-03	9.24E-03
Ps90%/90% (+KTL) Biased	3.70E-01	3.74E-01	3.76E-01	3.79E-01	3.81E-01	3.84E-01	3.84E-01
Ps90%/90% (-KTL) Biased	3.26E-01	3.28E-01	3.28E-01	3.30E-01	3.30E-01	3.33E-01	3.33E-01
Un-Biased Statistics							
Average Un-Biased	3.45E-01	3.45E-01	3.46E-01	3.47E-01	3.49E-01	3.50E-01	3.50E-01
Std Dev Un-Biased	5.44E-03	5.40E-03	5.56E-03	5.82E-03	5.65E-03	5.75E-03	5.75E-03
Ps90%/90% (+KTL) Un-Biased	3.59E-01	3.60E-01	3.61E-01	3.63E-01	3.64E-01	3.65E-01	3.65E-01
Ps90%/90% (-KTL) Un-Biased	3.30E-01	3.30E-01	3.31E-01	3.31E-01	3.33E-01	3.34E-01	3.34E-01
Specification MAX	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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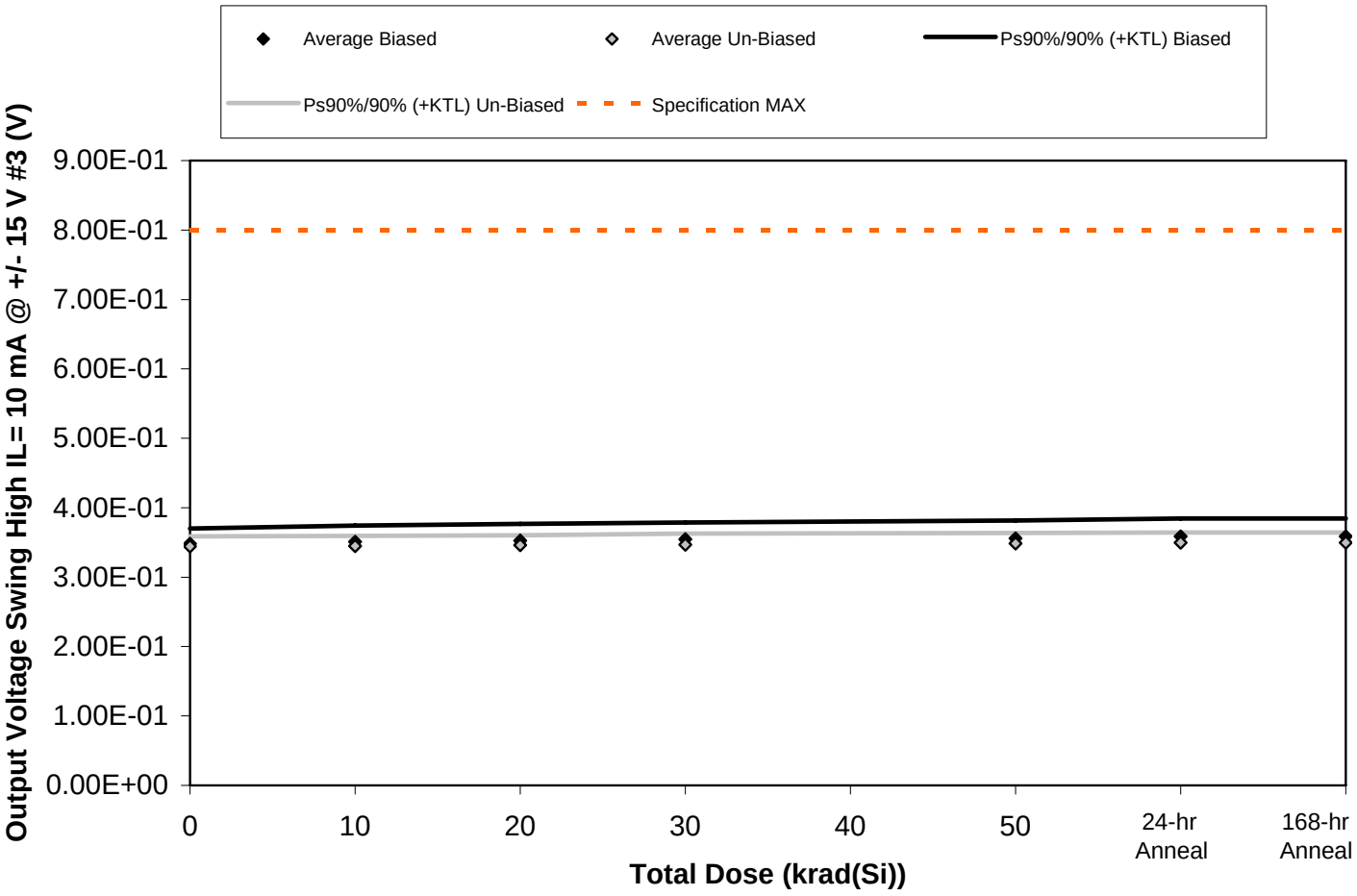

Figure 5.81. Plot of Output Voltage Swing High IL= 10 mA @ +/- 15 V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.81. Raw data for Output Voltage Swing High IL= 10 mA @ +/- 15 V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 10 mA @ +/- 15 V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.49E-01	3.49E-01	3.50E-01	3.52E-01	3.53E-01	3.57E-01	3.57E-01
867	3.54E-01	3.58E-01	3.60E-01	3.62E-01	3.63E-01	3.67E-01	3.67E-01
868	3.37E-01	3.40E-01	3.42E-01	3.43E-01	3.44E-01	3.47E-01	3.47E-01
869	3.57E-01	3.61E-01	3.63E-01	3.65E-01	3.67E-01	3.70E-01	3.70E-01
870	3.43E-01	3.46E-01	3.48E-01	3.50E-01	3.51E-01	3.53E-01	3.53E-01
871	3.47E-01	3.48E-01	3.49E-01	3.50E-01	3.51E-01	3.53E-01	3.53E-01
872	3.45E-01	3.46E-01	3.47E-01	3.48E-01	3.49E-01	3.50E-01	3.50E-01
873	3.36E-01	3.36E-01	3.37E-01	3.38E-01	3.39E-01	3.41E-01	3.41E-01
874	3.44E-01	3.44E-01	3.45E-01	3.47E-01	3.48E-01	3.49E-01	3.49E-01
876	3.50E-01	3.50E-01	3.51E-01	3.53E-01	3.54E-01	3.55E-01	3.55E-01
877	3.49E-01	3.48E-01	3.47E-01	3.48E-01	3.49E-01	3.48E-01	3.48E-01
Biased Statistics							
Average Biased	3.48E-01	3.51E-01	3.52E-01	3.55E-01	3.56E-01	3.59E-01	3.59E-01
Std Dev Biased	8.03E-03	8.58E-03	8.82E-03	8.81E-03	9.34E-03	9.29E-03	9.29E-03
Ps90%/90% (+KTL) Biased	3.70E-01	3.74E-01	3.77E-01	3.79E-01	3.81E-01	3.84E-01	3.84E-01
Ps90%/90% (-KTL) Biased	3.26E-01	3.27E-01	3.28E-01	3.30E-01	3.30E-01	3.33E-01	3.33E-01
Un-Biased Statistics							
Average Un-Biased	3.44E-01	3.45E-01	3.46E-01	3.47E-01	3.48E-01	3.50E-01	3.50E-01
Std Dev Un-Biased	5.24E-03	5.28E-03	5.29E-03	5.74E-03	5.62E-03	5.44E-03	5.44E-03
Ps90%/90% (+KTL) Un-Biased	3.59E-01	3.59E-01	3.60E-01	3.63E-01	3.64E-01	3.64E-01	3.64E-01
Ps90%/90% (-KTL) Un-Biased	3.30E-01	3.30E-01	3.31E-01	3.31E-01	3.33E-01	3.35E-01	3.35E-01
Specification MAX	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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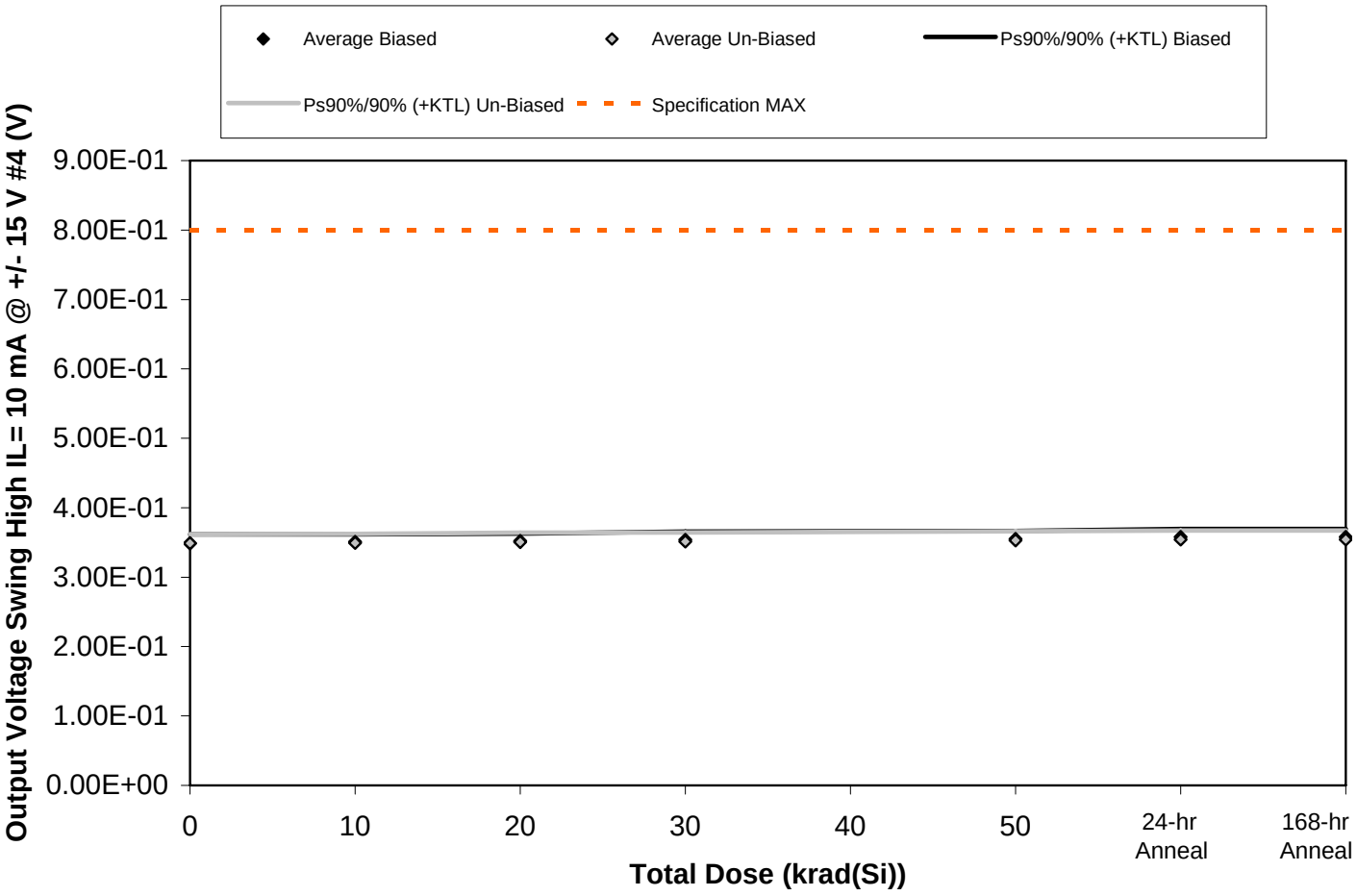

Figure 5.82. Plot of Output Voltage Swing High IL= 10 mA @ +/- 15 V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.82. Raw data for Output Voltage Swing High IL= 10 mA @ +/- 15 V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 10 mA @ +/- 15 V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.55E-01	3.54E-01	3.55E-01	3.57E-01	3.58E-01	3.61E-01	3.61E-01
867	3.47E-01	3.50E-01	3.52E-01	3.54E-01	3.55E-01	3.58E-01	3.58E-01
868	3.52E-01	3.55E-01	3.56E-01	3.59E-01	3.60E-01	3.62E-01	3.62E-01
869	3.43E-01	3.45E-01	3.46E-01	3.48E-01	3.49E-01	3.52E-01	3.52E-01
870	3.46E-01	3.49E-01	3.50E-01	3.52E-01	3.53E-01	3.56E-01	3.56E-01
871	3.51E-01	3.52E-01	3.54E-01	3.55E-01	3.56E-01	3.57E-01	3.57E-01
872	3.45E-01	3.45E-01	3.46E-01	3.47E-01	3.48E-01	3.49E-01	3.49E-01
873	3.51E-01	3.52E-01	3.53E-01	3.54E-01	3.55E-01	3.57E-01	3.57E-01
874	3.43E-01	3.44E-01	3.45E-01	3.46E-01	3.48E-01	3.49E-01	3.49E-01
876	3.54E-01	3.54E-01	3.56E-01	3.56E-01	3.58E-01	3.59E-01	3.59E-01
877	3.53E-01	3.52E-01	3.52E-01	3.53E-01	3.53E-01	3.53E-01	3.53E-01
Biased Statistics							
Average Biased	3.48E-01	3.51E-01	3.52E-01	3.54E-01	3.55E-01	3.58E-01	3.58E-01
Std Dev Biased	4.79E-03	3.89E-03	3.94E-03	4.26E-03	4.19E-03	4.03E-03	4.03E-03
Ps90%/90% (+KTL) Biased	3.62E-01	3.61E-01	3.63E-01	3.66E-01	3.66E-01	3.69E-01	3.69E-01
Ps90%/90% (-KTL) Biased	3.35E-01	3.40E-01	3.41E-01	3.42E-01	3.43E-01	3.47E-01	3.47E-01
Un-Biased Statistics							
Average Un-Biased	3.49E-01	3.49E-01	3.51E-01	3.52E-01	3.53E-01	3.54E-01	3.54E-01
Std Dev Un-Biased	4.71E-03	4.66E-03	4.81E-03	4.69E-03	4.72E-03	4.79E-03	4.79E-03
Ps90%/90% (+KTL) Un-Biased	3.62E-01	3.62E-01	3.64E-01	3.64E-01	3.66E-01	3.67E-01	3.67E-01
Ps90%/90% (-KTL) Un-Biased	3.36E-01	3.37E-01	3.38E-01	3.39E-01	3.40E-01	3.41E-01	3.41E-01
Specification MAX	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01	8.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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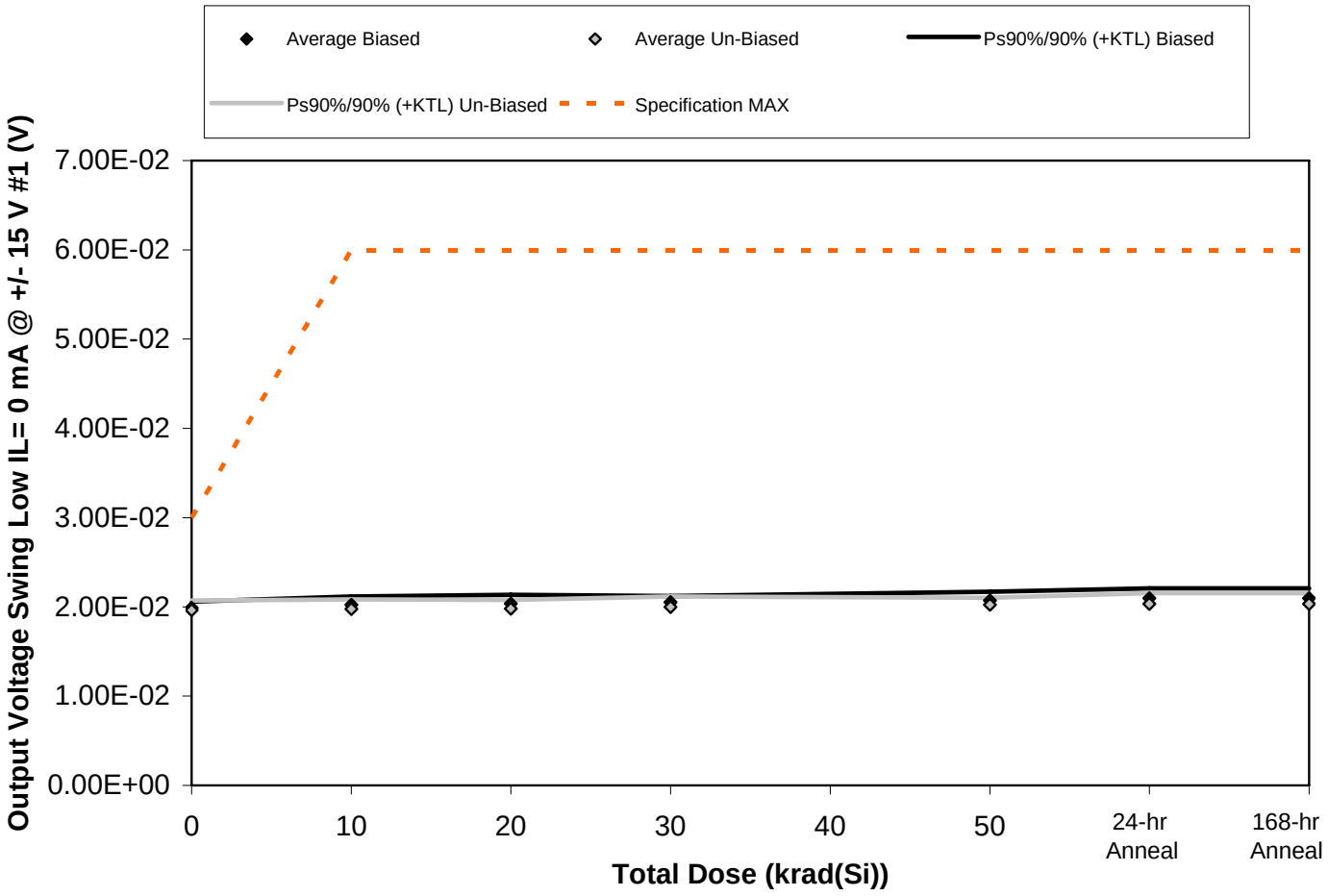

Figure 5.83. Plot of Output Voltage Swing Low IL= 0 mA @ +/- 15 V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.83. Raw data for Output Voltage Swing Low IL= 0 mA @ +/- 15 V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0 mA @ +/- 15 V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.99E-02	1.99E-02	1.98E-02	2.01E-02	2.02E-02	2.05E-02	2.05E-02
867	1.99E-02	2.04E-02	2.06E-02	2.07E-02	2.11E-02	2.12E-02	2.12E-02
868	1.96E-02	2.00E-02	2.02E-02	2.05E-02	2.07E-02	2.07E-02	2.07E-02
869	2.03E-02	2.07E-02	2.08E-02	2.08E-02	2.11E-02	2.15E-02	2.15E-02
870	1.98E-02	2.01E-02	2.04E-02	2.05E-02	2.06E-02	2.09E-02	2.09E-02
871	1.94E-02	1.96E-02	1.97E-02	1.98E-02	2.01E-02	2.01E-02	2.01E-02
872	1.94E-02	1.95E-02	1.96E-02	1.98E-02	2.01E-02	2.00E-02	2.00E-02
873	1.93E-02	1.95E-02	1.94E-02	1.95E-02	1.99E-02	2.00E-02	2.00E-02
874	2.02E-02	2.04E-02	2.03E-02	2.06E-02	2.07E-02	2.10E-02	2.10E-02
876	1.99E-02	2.00E-02	2.01E-02	2.02E-02	2.03E-02	2.06E-02	2.06E-02
877	1.99E-02	1.98E-02	1.97E-02	1.99E-02	1.97E-02	1.96E-02	1.96E-02
Biased Statistics							
Average Biased	1.99E-02	2.02E-02	2.04E-02	2.05E-02	2.07E-02	2.10E-02	2.10E-02
Std Dev Biased	2.57E-04	3.44E-04	3.61E-04	2.52E-04	3.60E-04	3.97E-04	3.97E-04
Ps90%/90% (+KTL) Biased	2.06E-02	2.12E-02	2.13E-02	2.12E-02	2.17E-02	2.21E-02	2.21E-02
Ps90%/90% (-KTL) Biased	1.92E-02	1.93E-02	1.94E-02	1.98E-02	1.97E-02	1.99E-02	1.99E-02
Un-Biased Statistics							
Average Un-Biased	1.96E-02	1.98E-02	1.98E-02	2.00E-02	2.02E-02	2.03E-02	2.03E-02
Std Dev Un-Biased	3.96E-04	3.97E-04	3.50E-04	4.33E-04	2.88E-04	4.32E-04	4.32E-04
Ps90%/90% (+KTL) Un-Biased	2.07E-02	2.09E-02	2.08E-02	2.12E-02	2.10E-02	2.15E-02	2.15E-02
Ps90%/90% (-KTL) Un-Biased	1.85E-02	1.87E-02	1.89E-02	1.88E-02	1.94E-02	1.92E-02	1.92E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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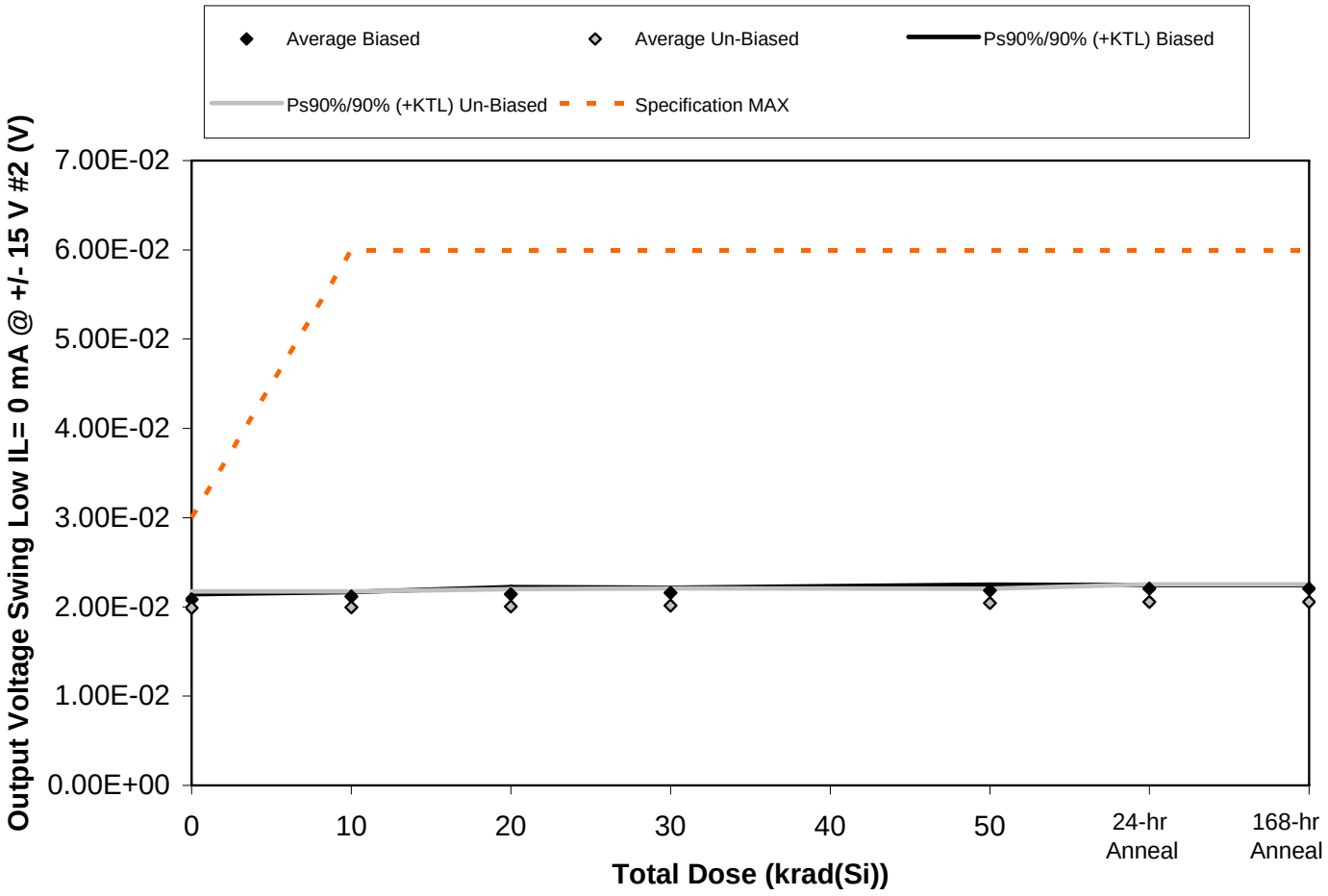

Figure 5.84. Plot of Output Voltage Swing Low IL= 0 mA @ +/- 15 V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.84. Raw data for Output Voltage Swing Low IL= 0 mA @ +/- 15 V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0 mA @ +/- 15 V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.11E-02	2.12E-02	2.14E-02	2.15E-02	2.17E-02	2.20E-02	2.20E-02
867	2.06E-02	2.10E-02	2.14E-02	2.15E-02	2.18E-02	2.19E-02	2.19E-02
868	2.07E-02	2.10E-02	2.11E-02	2.13E-02	2.15E-02	2.19E-02	2.19E-02
869	2.10E-02	2.14E-02	2.19E-02	2.19E-02	2.22E-02	2.22E-02	2.22E-02
870	2.07E-02	2.12E-02	2.15E-02	2.17E-02	2.19E-02	2.21E-02	2.21E-02
871	2.01E-02	2.03E-02	2.04E-02	2.04E-02	2.06E-02	2.09E-02	2.09E-02
872	2.07E-02	2.05E-02	2.06E-02	2.08E-02	2.09E-02	2.12E-02	2.12E-02
873	1.97E-02	1.99E-02	2.00E-02	2.00E-02	2.02E-02	2.03E-02	2.03E-02
874	2.02E-02	2.03E-02	2.05E-02	2.05E-02	2.10E-02	2.10E-02	2.10E-02
876	1.89E-02	1.89E-02	1.89E-02	1.90E-02	1.95E-02	1.94E-02	1.94E-02
877	2.03E-02	2.02E-02	2.02E-02	2.02E-02	2.02E-02	2.04E-02	2.04E-02
Biased Statistics							
Average Biased	2.08E-02	2.12E-02	2.14E-02	2.16E-02	2.18E-02	2.20E-02	2.20E-02
Std Dev Biased	2.10E-04	1.84E-04	2.91E-04	2.12E-04	2.44E-04	1.39E-04	1.39E-04
Ps90%/90% (+KTL) Biased	2.14E-02	2.17E-02	2.22E-02	2.21E-02	2.25E-02	2.24E-02	2.24E-02
Ps90%/90% (-KTL) Biased	2.03E-02	2.07E-02	2.06E-02	2.10E-02	2.11E-02	2.17E-02	2.17E-02
Un-Biased Statistics							
Average Un-Biased	1.99E-02	2.00E-02	2.01E-02	2.02E-02	2.04E-02	2.06E-02	2.06E-02
Std Dev Un-Biased	6.74E-04	6.43E-04	7.08E-04	7.00E-04	5.94E-04	7.20E-04	7.20E-04
Ps90%/90% (+KTL) Un-Biased	2.17E-02	2.17E-02	2.20E-02	2.21E-02	2.21E-02	2.25E-02	2.25E-02
Ps90%/90% (-KTL) Un-Biased	1.80E-02	1.82E-02	1.81E-02	1.82E-02	1.88E-02	1.86E-02	1.86E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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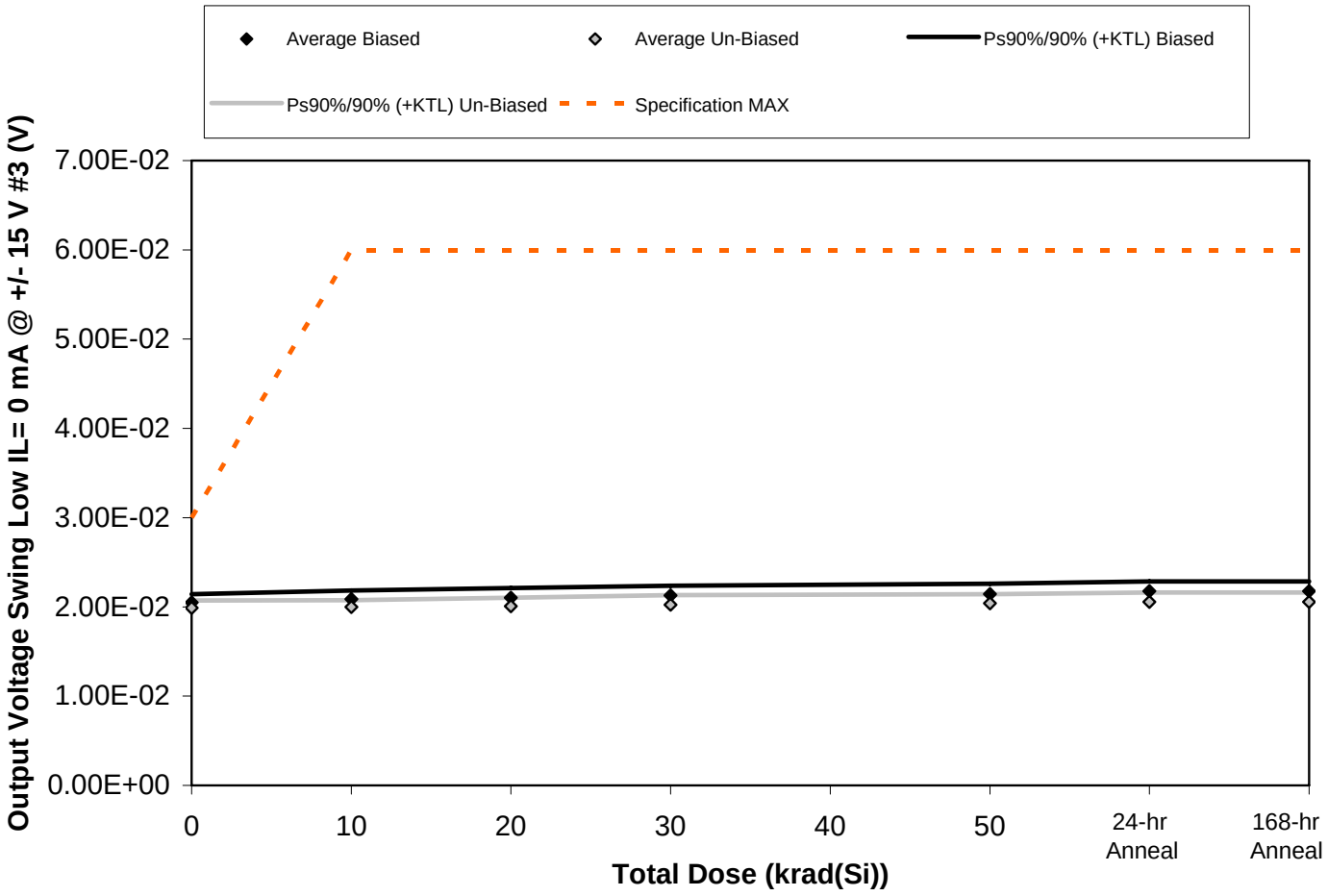

Figure 5.85. Plot of Output Voltage Swing Low IL= 0 mA @ +/- 15 V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.85. Raw data for Output Voltage Swing Low IL= 0 mA @ +/- 15 V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0 mA @ +/- 15 V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.06E-02	2.07E-02	2.09E-02	2.10E-02	2.12E-02	2.15E-02	2.15E-02
867	2.00E-02	2.05E-02	2.06E-02	2.10E-02	2.10E-02	2.13E-02	2.13E-02
868	2.03E-02	2.07E-02	2.08E-02	2.11E-02	2.12E-02	2.16E-02	2.16E-02
869	2.08E-02	2.13E-02	2.16E-02	2.18E-02	2.20E-02	2.22E-02	2.22E-02
870	2.08E-02	2.12E-02	2.13E-02	2.16E-02	2.18E-02	2.22E-02	2.22E-02
871	1.98E-02	1.97E-02	2.01E-02	2.01E-02	2.02E-02	2.04E-02	2.04E-02
872	2.01E-02	2.02E-02	2.04E-02	2.06E-02	2.06E-02	2.08E-02	2.08E-02
873	1.97E-02	2.00E-02	2.00E-02	2.00E-02	2.03E-02	2.06E-02	2.06E-02
874	2.03E-02	2.03E-02	2.04E-02	2.07E-02	2.10E-02	2.10E-02	2.10E-02
876	1.95E-02	1.97E-02	1.96E-02	1.98E-02	2.00E-02	2.01E-02	2.01E-02
877	1.99E-02	1.96E-02	1.97E-02	1.98E-02	1.98E-02	1.98E-02	1.98E-02
Biased Statistics							
Average Biased	2.05E-02	2.09E-02	2.10E-02	2.13E-02	2.14E-02	2.18E-02	2.18E-02
Std Dev Biased	3.34E-04	3.48E-04	3.99E-04	3.90E-04	4.24E-04	4.00E-04	4.00E-04
Ps90%/90% (+KTL) Biased	2.14E-02	2.18E-02	2.21E-02	2.24E-02	2.26E-02	2.29E-02	2.29E-02
Ps90%/90% (-KTL) Biased	1.96E-02	1.99E-02	1.99E-02	2.02E-02	2.03E-02	2.07E-02	2.07E-02
Un-Biased Statistics							
Average Un-Biased	1.99E-02	2.00E-02	2.01E-02	2.02E-02	2.04E-02	2.06E-02	2.06E-02
Std Dev Un-Biased	3.08E-04	2.85E-04	3.48E-04	3.93E-04	3.72E-04	3.81E-04	3.81E-04
Ps90%/90% (+KTL) Un-Biased	2.07E-02	2.08E-02	2.10E-02	2.13E-02	2.14E-02	2.16E-02	2.16E-02
Ps90%/90% (-KTL) Un-Biased	1.90E-02	1.92E-02	1.91E-02	1.92E-02	1.94E-02	1.95E-02	1.95E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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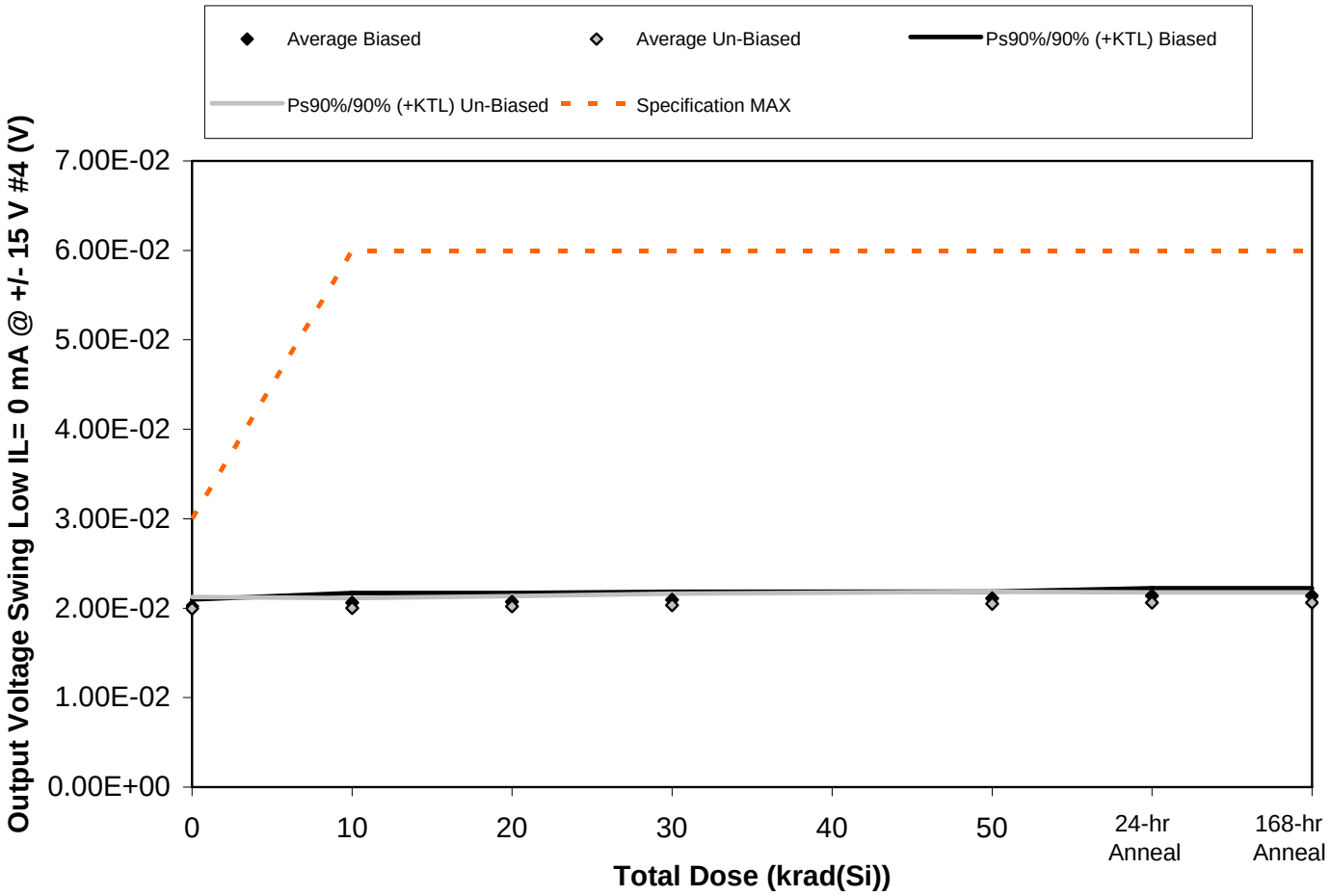

Figure 5.86. Plot of Output Voltage Swing Low IL= 0 mA @ +/- 15 V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.86. Raw data for Output Voltage Swing Low IL= 0 mA @ +/- 15 V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0 mA @ +/- 15 V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.00E-02	2.01E-02	2.02E-02	2.06E-02	2.07E-02	2.09E-02	2.09E-02
867	2.01E-02	2.06E-02	2.08E-02	2.10E-02	2.11E-02	2.14E-02	2.14E-02
868	2.03E-02	2.07E-02	2.09E-02	2.11E-02	2.12E-02	2.14E-02	2.14E-02
869	2.07E-02	2.12E-02	2.11E-02	2.14E-02	2.15E-02	2.18E-02	2.18E-02
870	2.01E-02	2.06E-02	2.06E-02	2.07E-02	2.10E-02	2.14E-02	2.14E-02
871	1.97E-02	1.98E-02	2.01E-02	2.02E-02	2.03E-02	2.04E-02	2.04E-02
872	1.95E-02	1.97E-02	2.00E-02	1.99E-02	2.01E-02	2.03E-02	2.03E-02
873	1.97E-02	1.98E-02	1.99E-02	2.00E-02	2.02E-02	2.04E-02	2.04E-02
874	2.07E-02	2.06E-02	2.09E-02	2.11E-02	2.13E-02	2.13E-02	2.13E-02
876	2.02E-02	2.02E-02	2.03E-02	2.05E-02	2.07E-02	2.07E-02	2.07E-02
877	2.03E-02	2.01E-02	2.01E-02	2.01E-02	2.01E-02	2.01E-02	2.01E-02
Biased Statistics							
Average Biased	2.02E-02	2.06E-02	2.07E-02	2.09E-02	2.11E-02	2.14E-02	2.14E-02
Std Dev Biased	2.77E-04	3.92E-04	3.57E-04	3.27E-04	2.79E-04	3.16E-04	3.16E-04
Ps90%/90% (+KTL) Biased	2.10E-02	2.17E-02	2.17E-02	2.18E-02	2.19E-02	2.23E-02	2.23E-02
Ps90%/90% (-KTL) Biased	1.95E-02	1.95E-02	1.97E-02	2.00E-02	2.03E-02	2.05E-02	2.05E-02
Un-Biased Statistics							
Average Un-Biased	2.00E-02	2.00E-02	2.02E-02	2.03E-02	2.05E-02	2.06E-02	2.06E-02
Std Dev Un-Biased	4.75E-04	4.03E-04	4.12E-04	4.78E-04	4.89E-04	4.10E-04	4.10E-04
Ps90%/90% (+KTL) Un-Biased	2.13E-02	2.11E-02	2.14E-02	2.16E-02	2.18E-02	2.18E-02	2.18E-02
Ps90%/90% (-KTL) Un-Biased	1.86E-02	1.89E-02	1.91E-02	1.90E-02	1.92E-02	1.95E-02	1.95E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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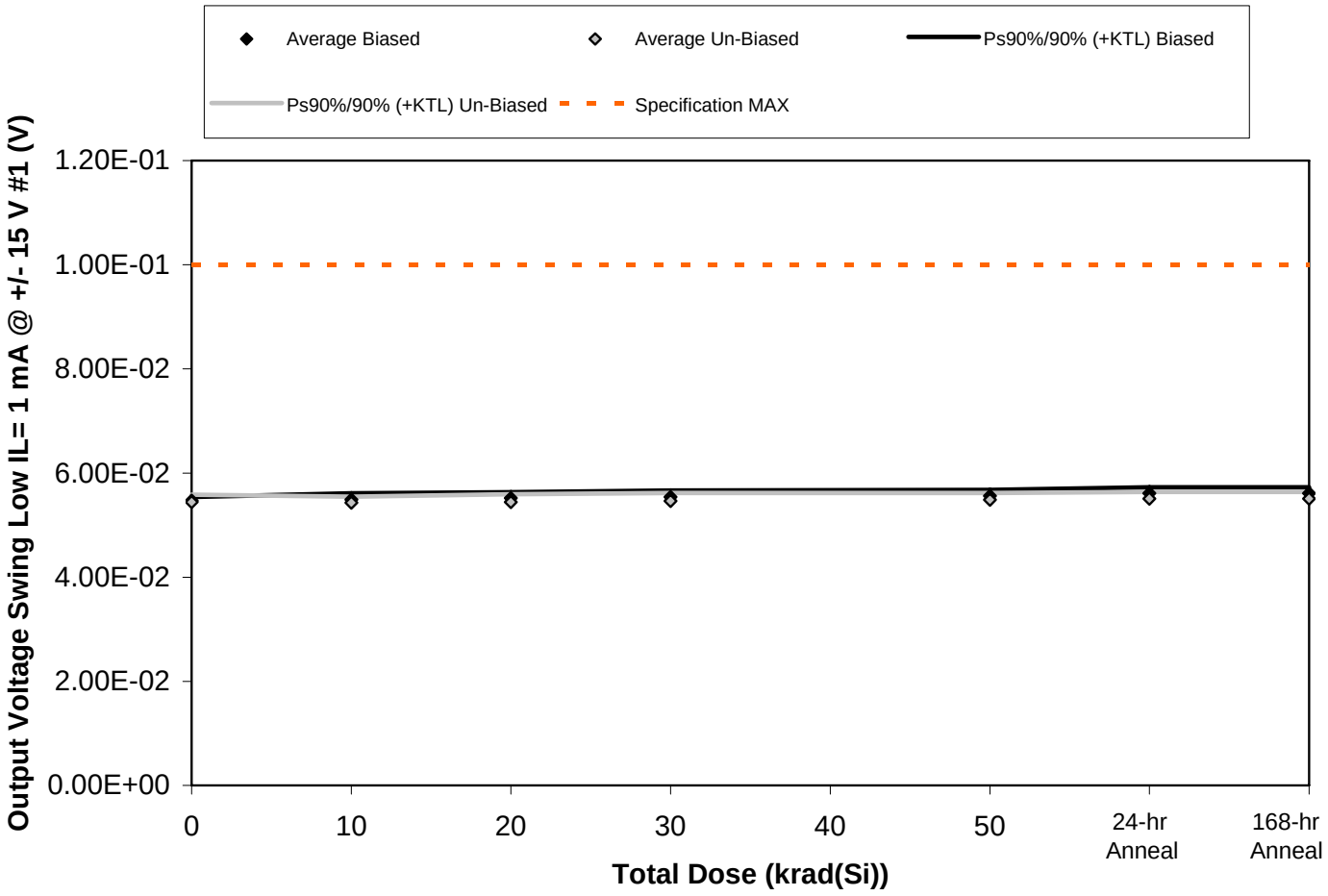

Figure 5.87. Plot of Output Voltage Swing Low IL= 1 mA @ +/- 15 V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.87. Raw data for Output Voltage Swing Low IL= 1 mA @ +/- 15 V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1 mA @ +/- 15 V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	5.47E-02	5.44E-02	5.46E-02	5.49E-02	5.52E-02	5.55E-02	5.55E-02
867	5.50E-02	5.55E-02	5.58E-02	5.59E-02	5.62E-02	5.66E-02	5.66E-02
868	5.48E-02	5.52E-02	5.54E-02	5.58E-02	5.59E-02	5.64E-02	5.64E-02
869	5.46E-02	5.50E-02	5.51E-02	5.54E-02	5.54E-02	5.61E-02	5.61E-02
870	5.43E-02	5.46E-02	5.50E-02	5.51E-02	5.54E-02	5.58E-02	5.58E-02
871	5.43E-02	5.42E-02	5.42E-02	5.44E-02	5.47E-02	5.49E-02	5.49E-02
872	5.38E-02	5.38E-02	5.38E-02	5.40E-02	5.43E-02	5.46E-02	5.46E-02
873	5.42E-02	5.42E-02	5.42E-02	5.45E-02	5.45E-02	5.47E-02	5.47E-02
874	5.47E-02	5.46E-02	5.49E-02	5.51E-02	5.52E-02	5.54E-02	5.54E-02
876	5.51E-02	5.49E-02	5.51E-02	5.54E-02	5.55E-02	5.57E-02	5.57E-02
877	5.43E-02	5.41E-02	5.40E-02	5.41E-02	5.42E-02	5.41E-02	5.41E-02
Biased Statistics							
Average Biased	5.47E-02	5.49E-02	5.52E-02	5.54E-02	5.56E-02	5.61E-02	5.61E-02
Std Dev Biased	2.73E-04	4.38E-04	4.18E-04	4.46E-04	4.23E-04	4.23E-04	4.23E-04
Ps90%/90% (+KTL) Biased	5.54E-02	5.61E-02	5.63E-02	5.66E-02	5.68E-02	5.73E-02	5.73E-02
Ps90%/90% (-KTL) Biased	5.39E-02	5.37E-02	5.40E-02	5.42E-02	5.44E-02	5.49E-02	5.49E-02
Un-Biased Statistics							
Average Un-Biased	5.44E-02	5.43E-02	5.44E-02	5.47E-02	5.48E-02	5.51E-02	5.51E-02
Std Dev Un-Biased	5.00E-04	4.14E-04	5.39E-04	5.46E-04	4.81E-04	4.75E-04	4.75E-04
Ps90%/90% (+KTL) Un-Biased	5.58E-02	5.55E-02	5.59E-02	5.61E-02	5.62E-02	5.64E-02	5.64E-02
Ps90%/90% (-KTL) Un-Biased	5.31E-02	5.32E-02	5.30E-02	5.32E-02	5.35E-02	5.38E-02	5.38E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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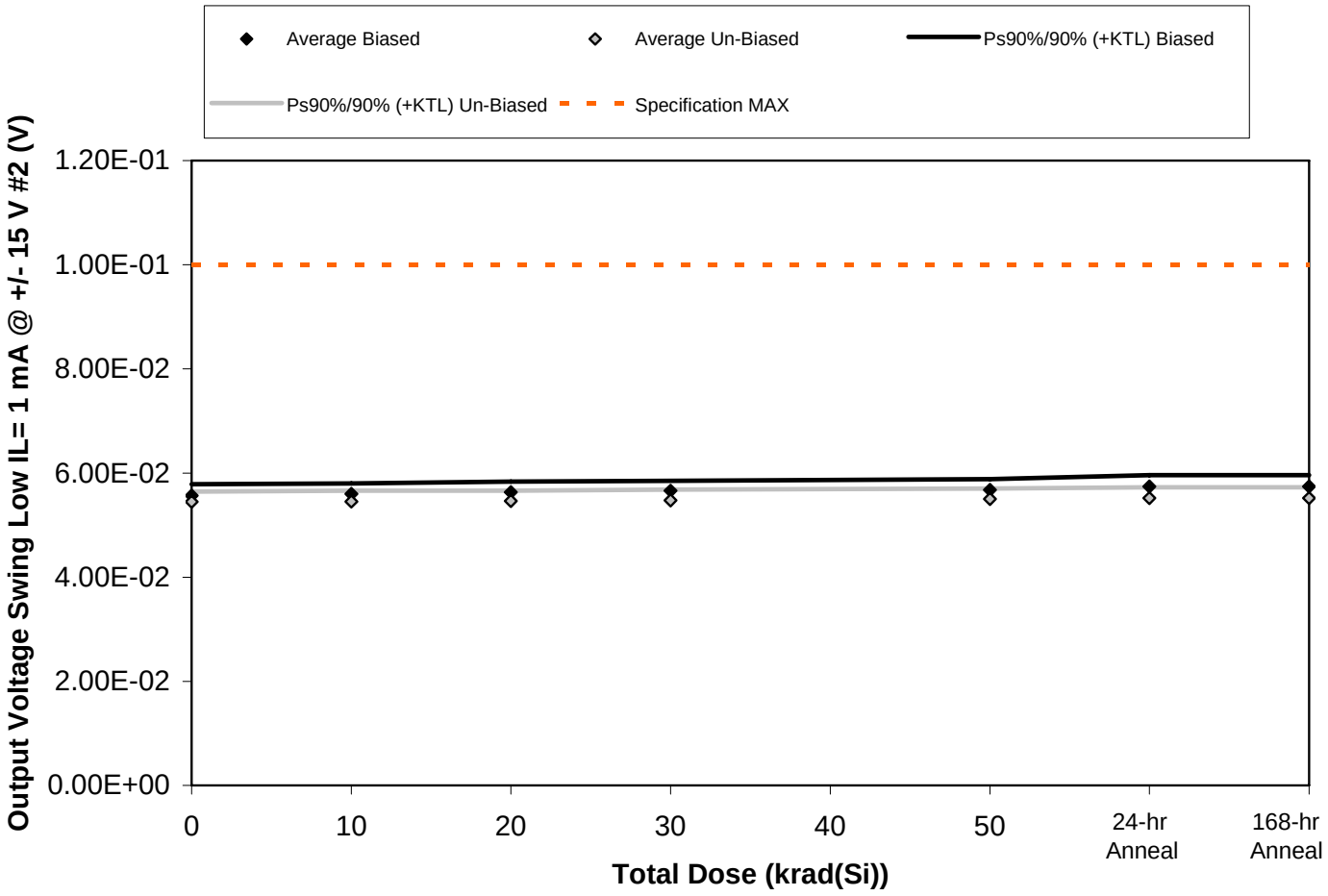

Figure 5.88. Plot of Output Voltage Swing Low IL= 1 mA @ +/- 15 V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.88. Raw data for Output Voltage Swing Low IL= 1 mA @ +/- 15 V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1 mA @ +/- 15 V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	5.62E-02	5.59E-02	5.63E-02	5.65E-02	5.66E-02	5.75E-02	5.75E-02
867	5.56E-02	5.60E-02	5.64E-02	5.67E-02	5.68E-02	5.75E-02	5.75E-02
868	5.46E-02	5.50E-02	5.55E-02	5.58E-02	5.58E-02	5.63E-02	5.63E-02
869	5.67E-02	5.71E-02	5.75E-02	5.77E-02	5.79E-02	5.85E-02	5.85E-02
870	5.54E-02	5.60E-02	5.60E-02	5.66E-02	5.67E-02	5.73E-02	5.73E-02
871	5.54E-02	5.52E-02	5.54E-02	5.56E-02	5.58E-02	5.60E-02	5.60E-02
872	5.49E-02	5.51E-02	5.52E-02	5.53E-02	5.55E-02	5.57E-02	5.57E-02
873	5.37E-02	5.35E-02	5.38E-02	5.38E-02	5.40E-02	5.43E-02	5.43E-02
874	5.46E-02	5.48E-02	5.47E-02	5.51E-02	5.53E-02	5.54E-02	5.54E-02
876	5.39E-02	5.39E-02	5.40E-02	5.41E-02	5.45E-02	5.44E-02	5.44E-02
877	5.54E-02	5.50E-02	5.50E-02	5.51E-02	5.53E-02	5.53E-02	5.53E-02
Biased Statistics							
Average Biased	5.57E-02	5.60E-02	5.63E-02	5.66E-02	5.68E-02	5.74E-02	5.74E-02
Std Dev Biased	7.97E-04	7.27E-04	7.30E-04	6.91E-04	7.59E-04	7.82E-04	7.82E-04
Ps90%/90% (+KTL) Biased	5.79E-02	5.80E-02	5.83E-02	5.85E-02	5.89E-02	5.96E-02	5.96E-02
Ps90%/90% (-KTL) Biased	5.35E-02	5.40E-02	5.43E-02	5.47E-02	5.47E-02	5.53E-02	5.53E-02
Un-Biased Statistics							
Average Un-Biased	5.45E-02	5.45E-02	5.46E-02	5.48E-02	5.50E-02	5.52E-02	5.52E-02
Std Dev Un-Biased	7.04E-04	7.59E-04	7.16E-04	7.48E-04	7.31E-04	7.62E-04	7.62E-04
Ps90%/90% (+KTL) Un-Biased	5.64E-02	5.66E-02	5.66E-02	5.68E-02	5.70E-02	5.73E-02	5.73E-02
Ps90%/90% (-KTL) Un-Biased	5.26E-02	5.24E-02	5.27E-02	5.27E-02	5.30E-02	5.31E-02	5.31E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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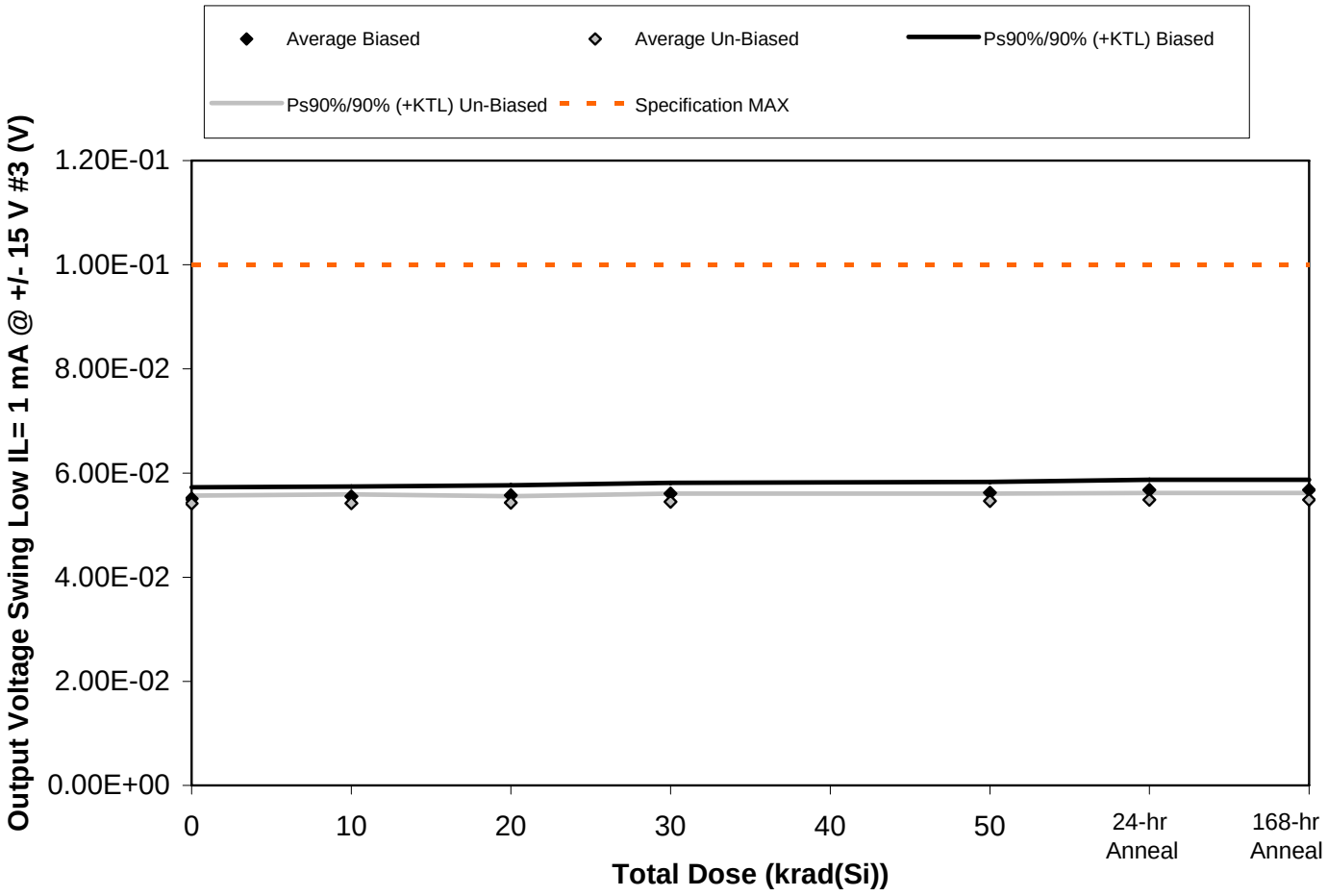

Figure 5.89. Plot of Output Voltage Swing Low IL= 1 mA @ +/- 15 V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.89. Raw data for Output Voltage Swing Low IL= 1 mA @ +/- 15 V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1 mA @ +/- 15 V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	5.56E-02	5.55E-02	5.58E-02	5.61E-02	5.61E-02	5.66E-02	5.66E-02
867	5.45E-02	5.53E-02	5.55E-02	5.59E-02	5.62E-02	5.65E-02	5.65E-02
868	5.42E-02	5.46E-02	5.48E-02	5.50E-02	5.52E-02	5.59E-02	5.59E-02
869	5.61E-02	5.65E-02	5.68E-02	5.71E-02	5.73E-02	5.79E-02	5.79E-02
870	5.50E-02	5.55E-02	5.57E-02	5.61E-02	5.64E-02	5.69E-02	5.69E-02
871	5.46E-02	5.46E-02	5.47E-02	5.47E-02	5.49E-02	5.51E-02	5.51E-02
872	5.45E-02	5.46E-02	5.44E-02	5.47E-02	5.48E-02	5.52E-02	5.52E-02
873	5.32E-02	5.32E-02	5.35E-02	5.36E-02	5.37E-02	5.41E-02	5.41E-02
874	5.44E-02	5.46E-02	5.46E-02	5.50E-02	5.51E-02	5.52E-02	5.52E-02
876	5.40E-02	5.39E-02	5.43E-02	5.42E-02	5.47E-02	5.47E-02	5.47E-02
877	5.46E-02	5.44E-02	5.42E-02	5.43E-02	5.45E-02	5.43E-02	5.43E-02
Biased Statistics							
Average Biased	5.51E-02	5.55E-02	5.57E-02	5.60E-02	5.62E-02	5.68E-02	5.68E-02
Std Dev Biased	7.89E-04	6.98E-04	6.92E-04	7.53E-04	7.42E-04	7.21E-04	7.21E-04
Ps90%/90% (+KTL) Biased	5.72E-02	5.74E-02	5.76E-02	5.81E-02	5.83E-02	5.87E-02	5.87E-02
Ps90%/90% (-KTL) Biased	5.29E-02	5.36E-02	5.38E-02	5.40E-02	5.42E-02	5.48E-02	5.48E-02
Un-Biased Statistics							
Average Un-Biased	5.42E-02	5.42E-02	5.43E-02	5.45E-02	5.46E-02	5.48E-02	5.48E-02
Std Dev Un-Biased	5.61E-04	6.14E-04	4.52E-04	5.76E-04	5.20E-04	4.80E-04	4.80E-04
Ps90%/90% (+KTL) Un-Biased	5.57E-02	5.59E-02	5.55E-02	5.60E-02	5.61E-02	5.62E-02	5.62E-02
Ps90%/90% (-KTL) Un-Biased	5.26E-02	5.25E-02	5.31E-02	5.29E-02	5.32E-02	5.35E-02	5.35E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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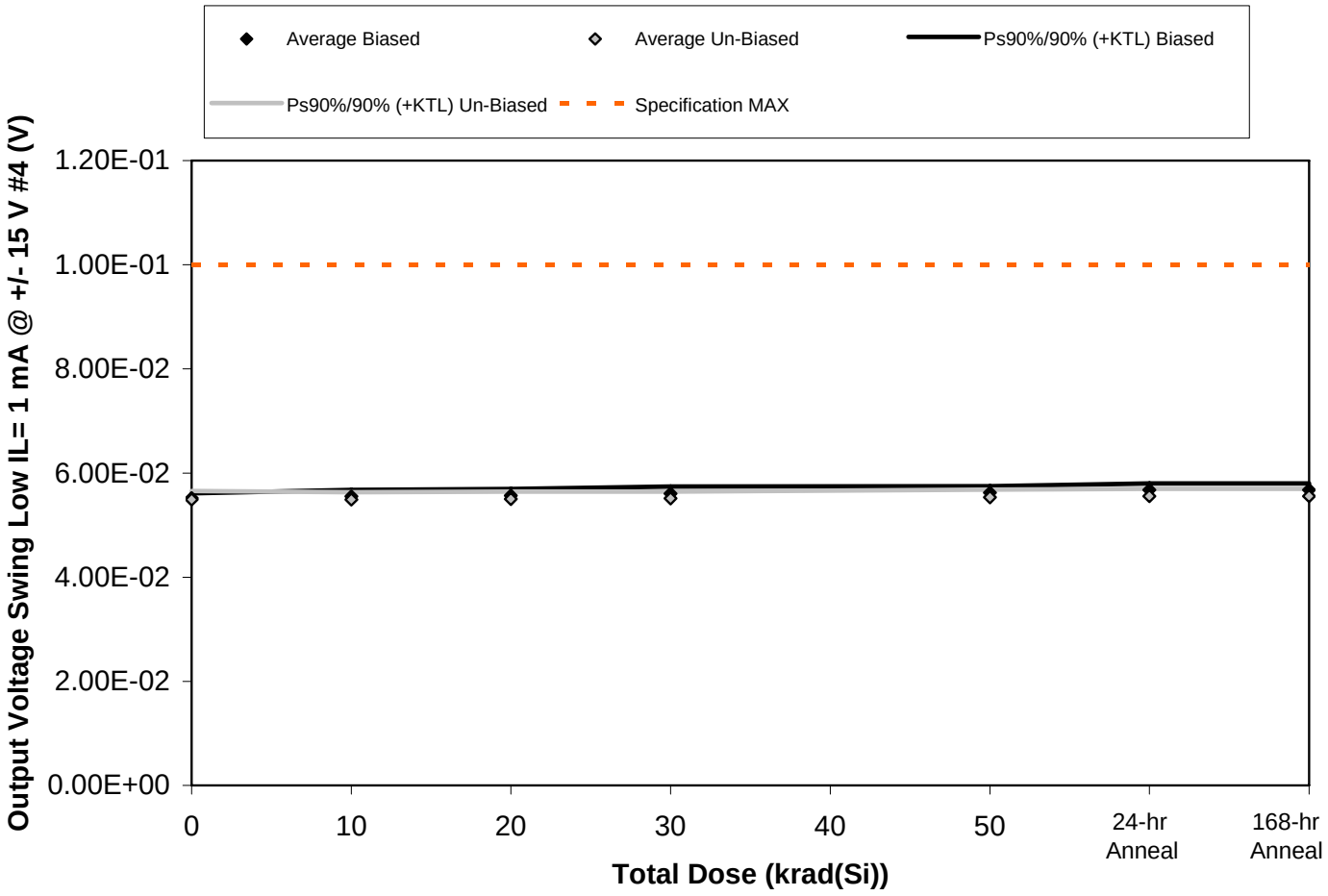

Figure 5.90. Plot of Output Voltage Swing Low IL= 1 mA @ +/- 15 V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.90. Raw data for Output Voltage Swing Low IL= 1 mA @ +/- 15 V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1 mA @ +/- 15 V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	5.53E-02	5.50E-02	5.51E-02	5.55E-02	5.57E-02	5.63E-02	5.63E-02
867	5.53E-02	5.59E-02	5.58E-02	5.64E-02	5.65E-02	5.71E-02	5.71E-02
868	5.54E-02	5.60E-02	5.62E-02	5.66E-02	5.68E-02	5.72E-02	5.72E-02
869	5.52E-02	5.56E-02	5.59E-02	5.62E-02	5.63E-02	5.68E-02	5.68E-02
870	5.46E-02	5.51E-02	5.53E-02	5.56E-02	5.58E-02	5.63E-02	5.63E-02
871	5.47E-02	5.48E-02	5.50E-02	5.50E-02	5.51E-02	5.55E-02	5.55E-02
872	5.41E-02	5.42E-02	5.42E-02	5.45E-02	5.47E-02	5.48E-02	5.48E-02
873	5.47E-02	5.48E-02	5.49E-02	5.48E-02	5.53E-02	5.53E-02	5.53E-02
874	5.56E-02	5.55E-02	5.54E-02	5.57E-02	5.60E-02	5.61E-02	5.61E-02
876	5.55E-02	5.53E-02	5.56E-02	5.55E-02	5.58E-02	5.60E-02	5.60E-02
877	5.49E-02	5.46E-02	5.45E-02	5.47E-02	5.48E-02	5.46E-02	5.46E-02
Biased Statistics							
Average Biased	5.52E-02	5.55E-02	5.57E-02	5.60E-02	5.62E-02	5.67E-02	5.67E-02
Std Dev Biased	3.33E-04	4.50E-04	4.68E-04	5.04E-04	4.60E-04	4.55E-04	4.55E-04
Ps90%/90% (+KTL) Biased	5.61E-02	5.67E-02	5.69E-02	5.74E-02	5.75E-02	5.80E-02	5.80E-02
Ps90%/90% (-KTL) Biased	5.43E-02	5.43E-02	5.44E-02	5.47E-02	5.50E-02	5.55E-02	5.55E-02
Un-Biased Statistics							
Average Un-Biased	5.49E-02	5.49E-02	5.50E-02	5.51E-02	5.54E-02	5.56E-02	5.56E-02
Std Dev Un-Biased	6.09E-04	5.18E-04	5.13E-04	4.88E-04	5.37E-04	5.28E-04	5.28E-04
Ps90%/90% (+KTL) Un-Biased	5.66E-02	5.63E-02	5.64E-02	5.64E-02	5.68E-02	5.70E-02	5.70E-02
Ps90%/90% (-KTL) Un-Biased	5.32E-02	5.35E-02	5.36E-02	5.38E-02	5.39E-02	5.41E-02	5.41E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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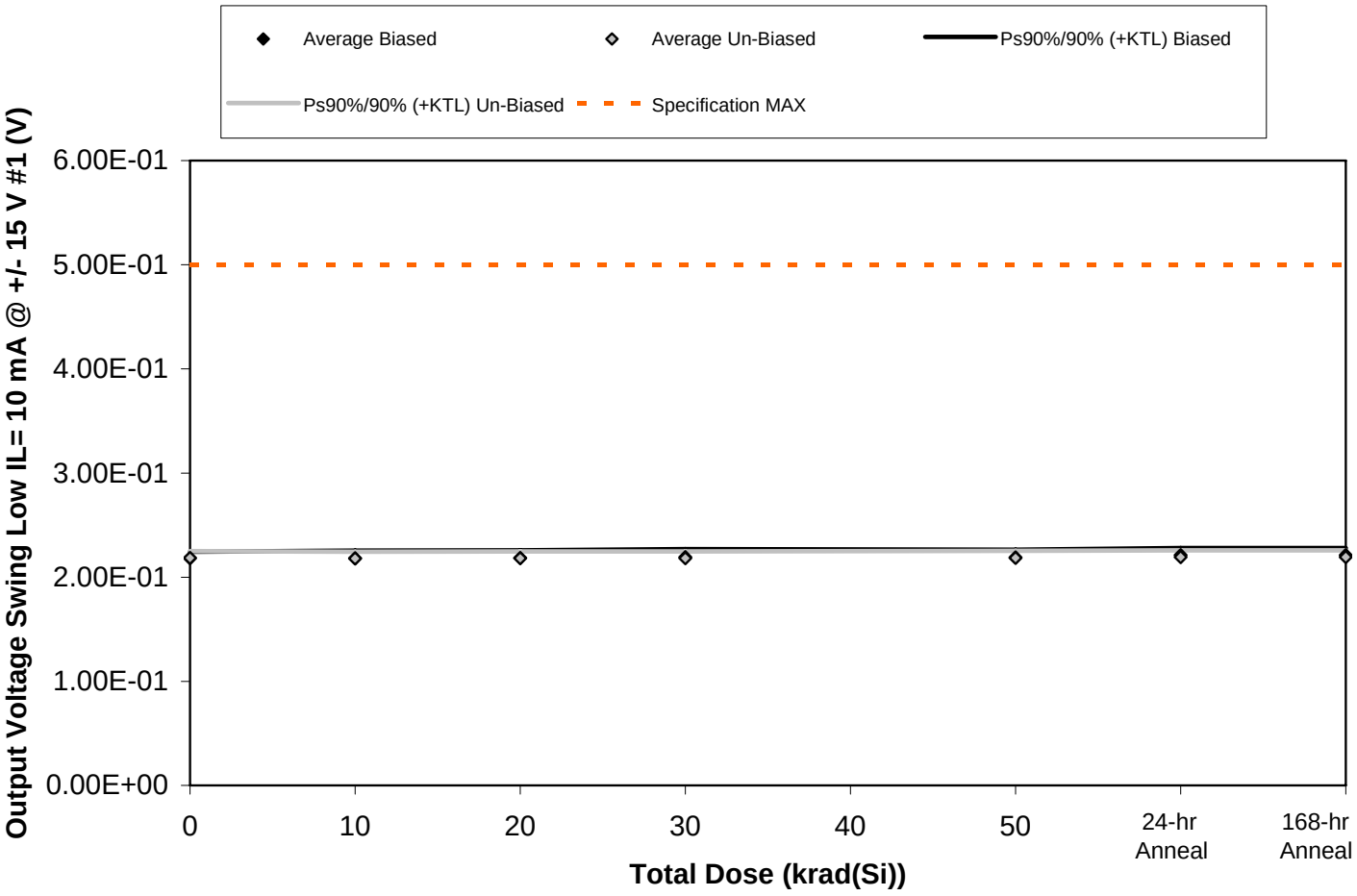

Figure 5.91. Plot of Output Voltage Swing Low IL= 10 mA @ +/- 15 V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.91. Raw data for Output Voltage Swing Low IL= 10 mA @ +/- 15 V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 10 mA @ +/- 15 V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.19E-01	2.17E-01	2.17E-01	2.18E-01	2.18E-01	2.20E-01	2.20E-01
867	2.20E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.24E-01	2.24E-01
868	2.20E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.24E-01	2.24E-01
869	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.19E-01	2.19E-01
870	2.16E-01	2.16E-01	2.16E-01	2.17E-01	2.17E-01	2.19E-01	2.19E-01
871	2.17E-01	2.17E-01	2.17E-01	2.17E-01	2.17E-01	2.18E-01	2.18E-01
872	2.17E-01	2.16E-01	2.16E-01	2.16E-01	2.17E-01	2.18E-01	2.18E-01
873	2.20E-01	2.20E-01	2.20E-01	2.20E-01	2.20E-01	2.22E-01	2.22E-01
874	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.17E-01	2.17E-01
876	2.21E-01	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01
877	2.16E-01	2.15E-01	2.15E-01	2.16E-01	2.15E-01	2.15E-01	2.15E-01
Biased Statistics							
Average Biased	2.18E-01	2.18E-01	2.18E-01	2.19E-01	2.19E-01	2.21E-01	2.21E-01
Std Dev Biased	2.30E-03	2.65E-03	2.70E-03	2.78E-03	2.67E-03	2.43E-03	2.43E-03
Ps90%/90% (+KTL) Biased	2.24E-01	2.26E-01	2.26E-01	2.27E-01	2.26E-01	2.28E-01	2.28E-01
Ps90%/90% (-KTL) Biased	2.12E-01	2.11E-01	2.11E-01	2.12E-01	2.12E-01	2.15E-01	2.15E-01
Un-Biased Statistics							
Average Un-Biased	2.18E-01	2.18E-01	2.18E-01	2.18E-01	2.18E-01	2.19E-01	2.19E-01
Std Dev Un-Biased	2.38E-03	2.36E-03	2.42E-03	2.40E-03	2.46E-03	2.39E-03	2.39E-03
Ps90%/90% (+KTL) Un-Biased	2.25E-01	2.24E-01	2.25E-01	2.25E-01	2.25E-01	2.26E-01	2.26E-01
Ps90%/90% (-KTL) Un-Biased	2.12E-01	2.11E-01	2.11E-01	2.12E-01	2.12E-01	2.13E-01	2.13E-01
Specification MAX	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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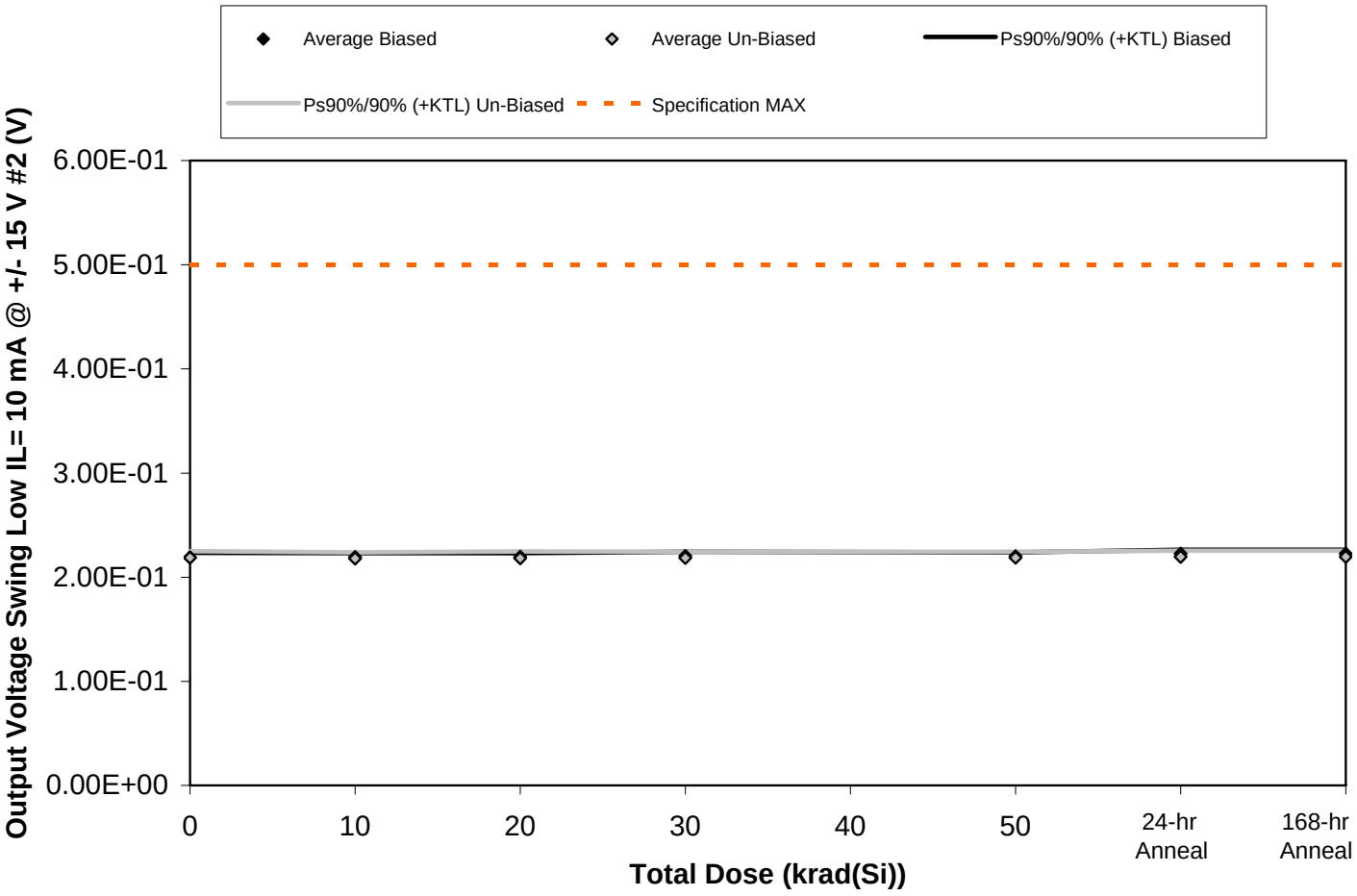

Figure 5.92. Plot of Output Voltage Swing Low IL= 10 mA @ +/- 15 V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.92. Raw data for Output Voltage Swing Low IL= 10 mA @ +/- 15 V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 10 mA @ +/- 15 V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.21E-01	2.19E-01	2.19E-01	2.20E-01	2.20E-01	2.22E-01	2.22E-01
867	2.20E-01	2.21E-01	2.21E-01	2.22E-01	2.21E-01	2.24E-01	2.24E-01
868	2.17E-01	2.18E-01	2.18E-01	2.19E-01	2.19E-01	2.21E-01	2.21E-01
869	2.20E-01	2.20E-01	2.21E-01	2.22E-01	2.22E-01	2.24E-01	2.24E-01
870	2.17E-01	2.18E-01	2.19E-01	2.19E-01	2.19E-01	2.21E-01	2.21E-01
871	2.22E-01	2.21E-01	2.22E-01	2.22E-01	2.22E-01	2.23E-01	2.23E-01
872	2.18E-01	2.17E-01	2.17E-01	2.18E-01	2.18E-01	2.19E-01	2.19E-01
873	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.18E-01	2.18E-01
874	2.18E-01	2.17E-01	2.17E-01	2.17E-01	2.18E-01	2.18E-01	2.18E-01
876	2.19E-01	2.19E-01	2.19E-01	2.19E-01	2.19E-01	2.20E-01	2.20E-01
877	2.21E-01	2.19E-01	2.19E-01	2.20E-01	2.20E-01	2.20E-01	2.20E-01
Biased Statistics							
Average Biased	2.19E-01	2.19E-01	2.19E-01	2.20E-01	2.20E-01	2.22E-01	2.22E-01
Std Dev Biased	1.60E-03	1.36E-03	1.33E-03	1.47E-03	1.33E-03	1.44E-03	1.44E-03
Ps90%/90% (+KTL) Biased	2.23E-01	2.23E-01	2.23E-01	2.24E-01	2.24E-01	2.26E-01	2.26E-01
Ps90%/90% (-KTL) Biased	2.15E-01	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.18E-01	2.18E-01
Un-Biased Statistics							
Average Un-Biased	2.19E-01	2.18E-01	2.18E-01	2.18E-01	2.19E-01	2.20E-01	2.20E-01
Std Dev Un-Biased	2.24E-03	2.10E-03	2.38E-03	2.20E-03	2.15E-03	2.14E-03	2.14E-03
Ps90%/90% (+KTL) Un-Biased	2.25E-01	2.24E-01	2.25E-01	2.24E-01	2.25E-01	2.25E-01	2.25E-01
Ps90%/90% (-KTL) Un-Biased	2.13E-01	2.12E-01	2.12E-01	2.12E-01	2.13E-01	2.14E-01	2.14E-01
Specification MAX	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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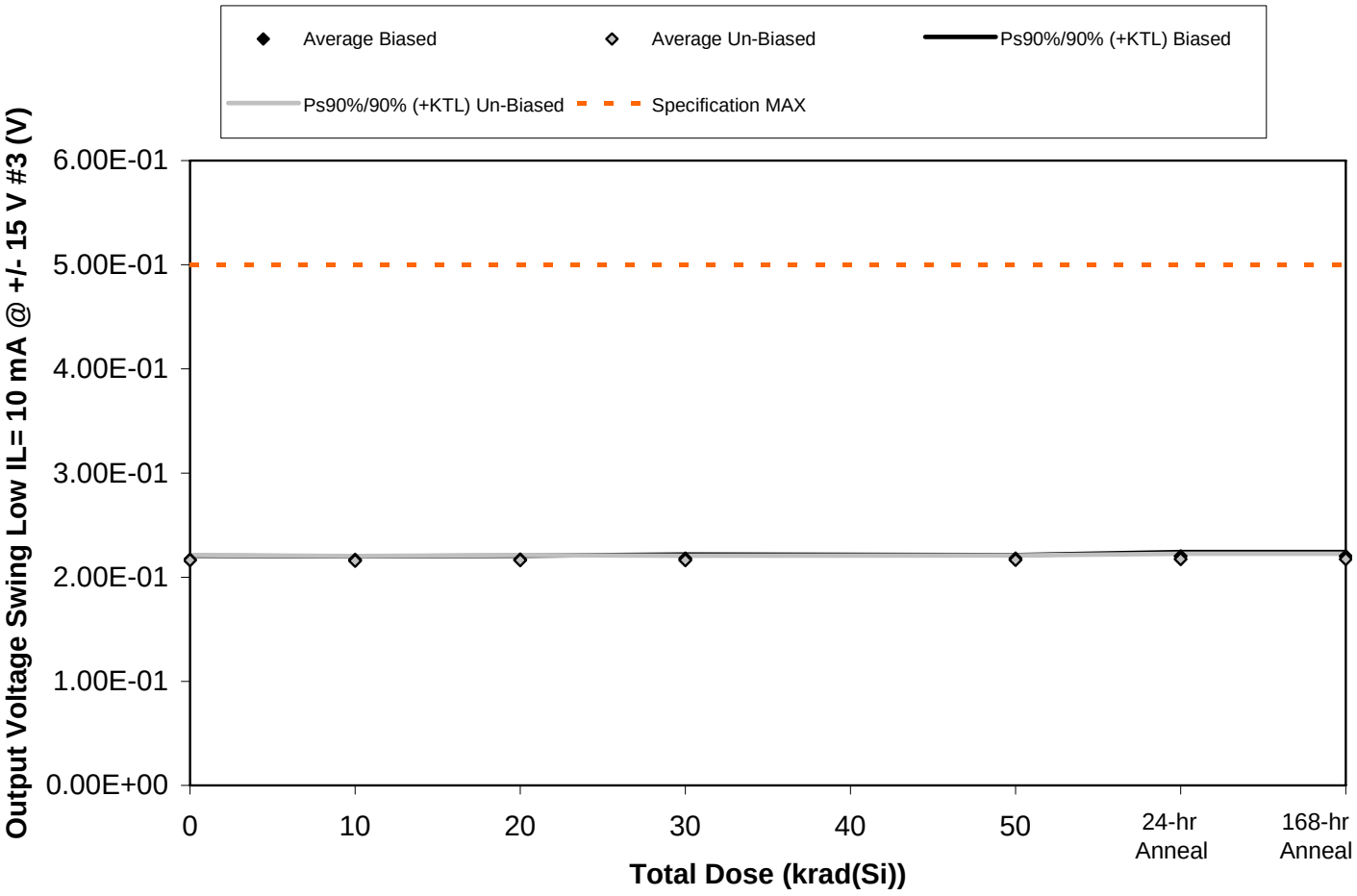

Figure 5.93. Plot of Output Voltage Swing Low IL= 10 mA @ +/- 15 V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.93. Raw data for Output Voltage Swing Low IL= 10 mA @ +/- 15 V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 10 mA @ +/- 15 V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.19E-01	2.16E-01	2.17E-01	2.18E-01	2.18E-01	2.20E-01	2.20E-01
867	2.17E-01	2.18E-01	2.18E-01	2.19E-01	2.19E-01	2.22E-01	2.22E-01
868	2.15E-01	2.16E-01	2.16E-01	2.17E-01	2.17E-01	2.19E-01	2.19E-01
869	2.18E-01	2.18E-01	2.18E-01	2.19E-01	2.19E-01	2.22E-01	2.22E-01
870	2.15E-01	2.16E-01	2.16E-01	2.17E-01	2.16E-01	2.19E-01	2.19E-01
871	2.19E-01	2.19E-01	2.19E-01	2.19E-01	2.19E-01	2.20E-01	2.20E-01
872	2.16E-01	2.15E-01	2.15E-01	2.16E-01	2.16E-01	2.16E-01	2.16E-01
873	2.14E-01	2.14E-01	2.14E-01	2.14E-01	2.15E-01	2.16E-01	2.16E-01
874	2.16E-01	2.15E-01	2.15E-01	2.16E-01	2.15E-01	2.16E-01	2.16E-01
876	2.17E-01	2.16E-01	2.17E-01	2.17E-01	2.17E-01	2.18E-01	2.18E-01
877	2.18E-01	2.16E-01	2.17E-01	2.17E-01	2.17E-01	2.17E-01	2.17E-01
Biased Statistics							
Average Biased	2.17E-01	2.17E-01	2.17E-01	2.18E-01	2.18E-01	2.20E-01	2.20E-01
Std Dev Biased	1.47E-03	1.22E-03	1.28E-03	1.32E-03	1.25E-03	1.47E-03	1.47E-03
Ps90%/90% (+KTL) Biased	2.21E-01	2.20E-01	2.21E-01	2.22E-01	2.21E-01	2.24E-01	2.24E-01
Ps90%/90% (-KTL) Biased	2.13E-01	2.13E-01	2.14E-01	2.14E-01	2.14E-01	2.16E-01	2.16E-01
Un-Biased Statistics							
Average Un-Biased	2.16E-01	2.16E-01	2.16E-01	2.16E-01	2.17E-01	2.17E-01	2.17E-01
Std Dev Un-Biased	1.76E-03	1.72E-03	1.79E-03	1.63E-03	1.65E-03	1.86E-03	1.86E-03
Ps90%/90% (+KTL) Un-Biased	2.21E-01	2.20E-01	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01
Ps90%/90% (-KTL) Un-Biased	2.11E-01	2.11E-01	2.11E-01	2.12E-01	2.12E-01	2.12E-01	2.12E-01
Specification MAX	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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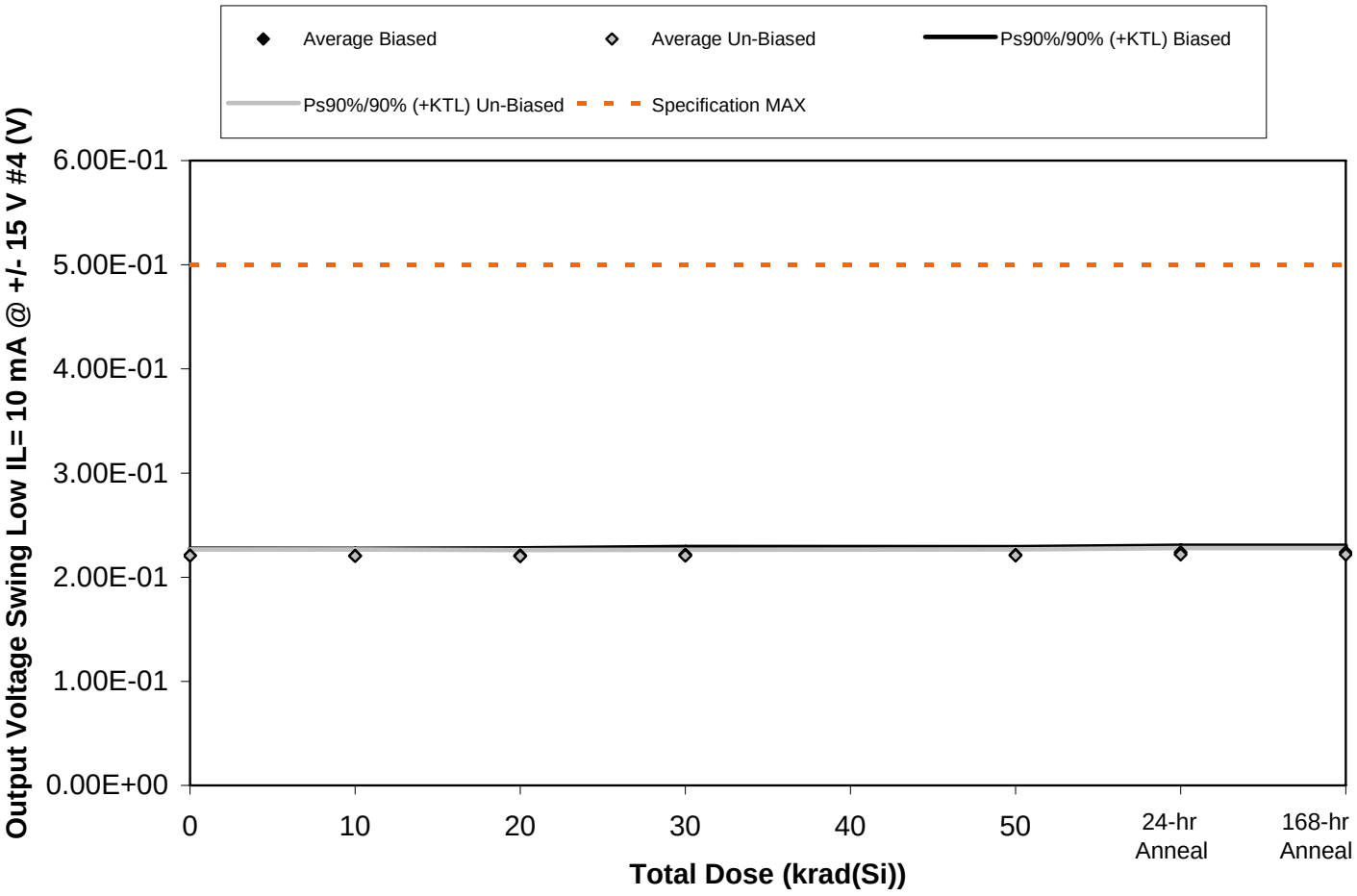

Figure 5.94. Plot of Output Voltage Swing Low IL= 10 mA @ +/- 15 V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.94. Raw data for Output Voltage Swing Low IL= 10 mA @ +/- 15 V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 10 mA @ +/- 15 V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.22E-01	2.20E-01	2.20E-01	2.21E-01	2.21E-01	2.23E-01	2.23E-01
867	2.22E-01	2.23E-01	2.24E-01	2.24E-01	2.25E-01	2.26E-01	2.26E-01
868	2.23E-01	2.23E-01	2.23E-01	2.25E-01	2.24E-01	2.26E-01	2.26E-01
869	2.18E-01	2.19E-01	2.19E-01	2.19E-01	2.19E-01	2.22E-01	2.22E-01
870	2.18E-01	2.19E-01	2.19E-01	2.19E-01	2.19E-01	2.22E-01	2.22E-01
871	2.20E-01	2.20E-01	2.20E-01	2.20E-01	2.20E-01	2.21E-01	2.21E-01
872	2.19E-01	2.18E-01	2.18E-01	2.19E-01	2.19E-01	2.20E-01	2.20E-01
873	2.23E-01	2.23E-01	2.22E-01	2.23E-01	2.23E-01	2.24E-01	2.24E-01
874	2.19E-01	2.18E-01	2.18E-01	2.19E-01	2.19E-01	2.20E-01	2.20E-01
876	2.23E-01	2.23E-01	2.23E-01	2.23E-01	2.23E-01	2.24E-01	2.24E-01
877	2.19E-01	2.18E-01	2.18E-01	2.18E-01	2.18E-01	2.18E-01	2.18E-01
Biased Statistics							
Average Biased	2.21E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01	2.24E-01	2.24E-01
Std Dev Biased	2.44E-03	2.41E-03	2.41E-03	2.65E-03	2.66E-03	2.33E-03	2.33E-03
Ps90%/90% (+KTL) Biased	2.27E-01	2.27E-01	2.28E-01	2.29E-01	2.29E-01	2.30E-01	2.30E-01
Ps90%/90% (-KTL) Biased	2.14E-01	2.14E-01	2.14E-01	2.14E-01	2.14E-01	2.17E-01	2.17E-01
Un-Biased Statistics							
Average Un-Biased	2.21E-01	2.20E-01	2.20E-01	2.21E-01	2.21E-01	2.22E-01	2.22E-01
Std Dev Un-Biased	2.13E-03	2.34E-03	2.19E-03	2.09E-03	2.10E-03	2.28E-03	2.28E-03
Ps90%/90% (+KTL) Un-Biased	2.27E-01	2.27E-01	2.26E-01	2.26E-01	2.27E-01	2.28E-01	2.28E-01
Ps90%/90% (-KTL) Un-Biased	2.15E-01	2.14E-01	2.14E-01	2.15E-01	2.15E-01	2.15E-01	2.15E-01
Specification MAX	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01	5.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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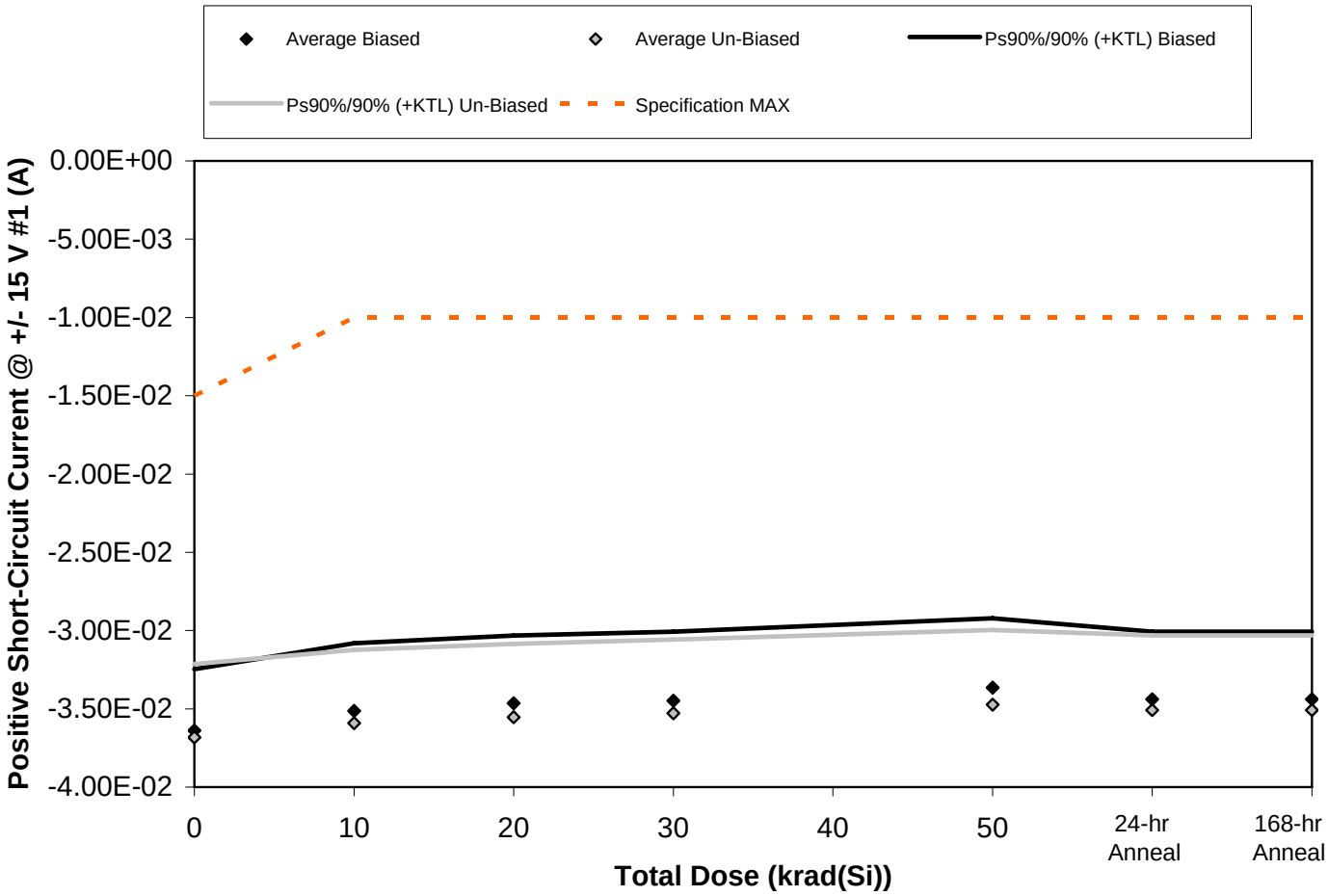

Figure 5.95. Plot of Positive Short-Circuit Current @ +/- 15 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.95. Raw data for Positive Short-Circuit Current @ +/- 15 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ +/- 15 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.56E-02	-3.37E-02	-3.31E-02	-3.29E-02	-3.20E-02	-3.28E-02	-3.28E-02
867	-3.78E-02	-3.67E-02	-3.62E-02	-3.60E-02	-3.52E-02	-3.59E-02	-3.59E-02
868	-3.81E-02	-3.70E-02	-3.65E-02	-3.64E-02	-3.56E-02	-3.62E-02	-3.62E-02
869	-3.52E-02	-3.41E-02	-3.37E-02	-3.35E-02	-3.27E-02	-3.35E-02	-3.35E-02
870	-3.53E-02	-3.42E-02	-3.38E-02	-3.36E-02	-3.28E-02	-3.35E-02	-3.35E-02
871	-3.48E-02	-3.40E-02	-3.37E-02	-3.34E-02	-3.28E-02	-3.32E-02	-3.32E-02
872	-3.70E-02	-3.61E-02	-3.57E-02	-3.54E-02	-3.49E-02	-3.53E-02	-3.53E-02
873	-3.93E-02	-3.85E-02	-3.81E-02	-3.78E-02	-3.73E-02	-3.77E-02	-3.77E-02
874	-3.57E-02	-3.47E-02	-3.43E-02	-3.40E-02	-3.34E-02	-3.37E-02	-3.37E-02
876	-3.72E-02	-3.63E-02	-3.60E-02	-3.57E-02	-3.52E-02	-3.55E-02	-3.55E-02
877	-3.57E-02	-3.53E-02	-3.53E-02	-3.54E-02	-3.55E-02	-3.54E-02	-3.54E-02
Biased Statistics							
Average Biased	-3.64E-02	-3.51E-02	-3.46E-02	-3.45E-02	-3.36E-02	-3.44E-02	-3.44E-02
Std Dev Biased	1.43E-03	1.57E-03	1.57E-03	1.61E-03	1.62E-03	1.58E-03	1.58E-03
Ps90%/90% (+KTL) Biased	-3.25E-02	-3.08E-02	-3.03E-02	-3.01E-02	-2.92E-02	-3.01E-02	-3.01E-02
Ps90%/90% (-KTL) Biased	-4.03E-02	-3.94E-02	-3.90E-02	-3.89E-02	-3.81E-02	-3.87E-02	-3.87E-02
Un-Biased Statistics							
Average Un-Biased	-3.68E-02	-3.59E-02	-3.55E-02	-3.53E-02	-3.47E-02	-3.51E-02	-3.51E-02
Std Dev Un-Biased	1.71E-03	1.71E-03	1.71E-03	1.71E-03	1.74E-03	1.74E-03	1.74E-03
Ps90%/90% (+KTL) Un-Biased	-3.21E-02	-3.12E-02	-3.09E-02	-3.06E-02	-3.00E-02	-3.03E-02	-3.03E-02
Ps90%/90% (-KTL) Un-Biased	-4.15E-02	-4.06E-02	-4.02E-02	-4.00E-02	-3.95E-02	-3.98E-02	-3.98E-02
Specification MAX	-1.50E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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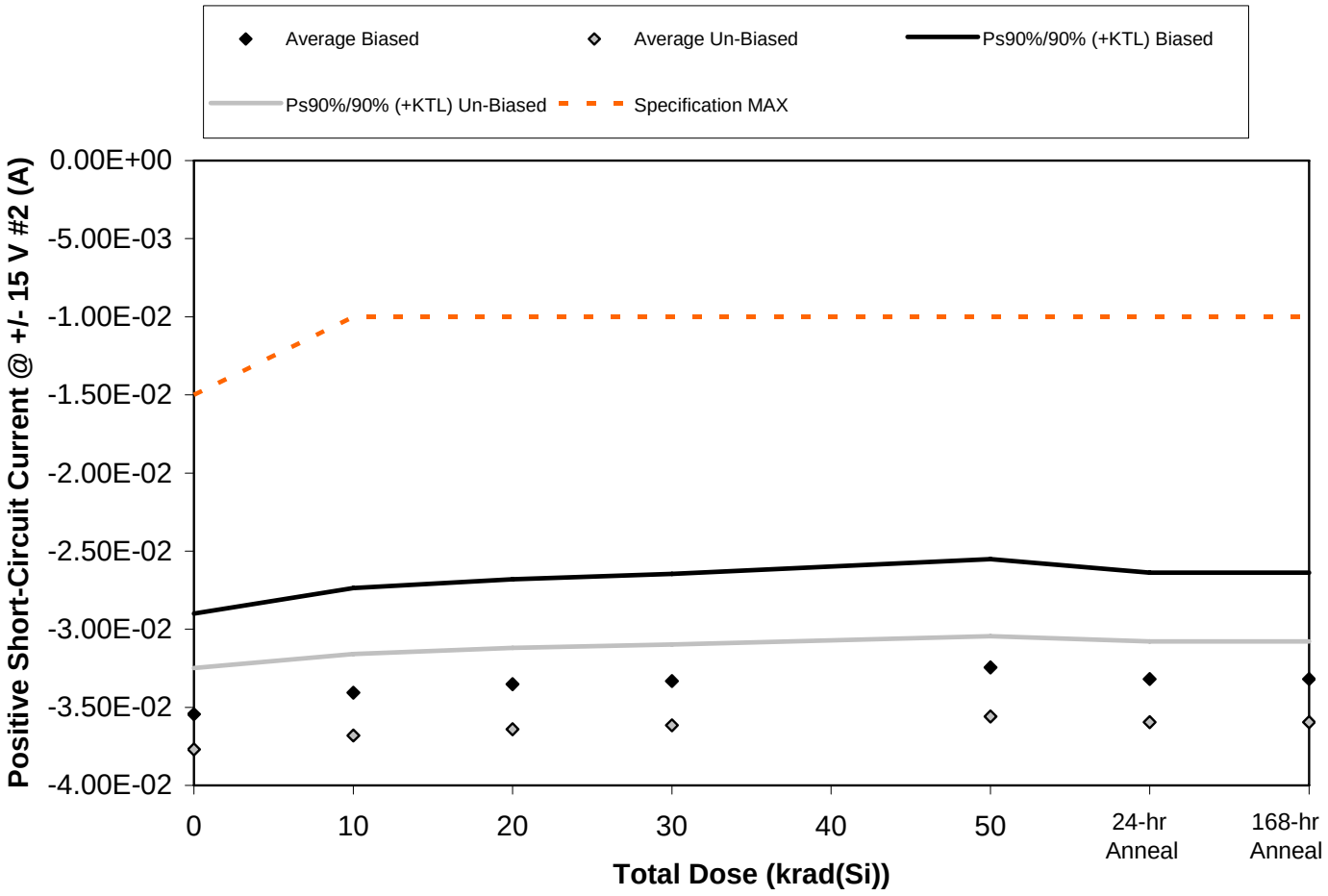

Figure 5.96. Plot of Positive Short-Circuit Current @ +/- 15 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.96. Raw data for Positive Short-Circuit Current @ +/- 15 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ +/- 15 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.52E-02	-3.33E-02	-3.27E-02	-3.25E-02	-3.15E-02	-3.23E-02	-3.23E-02
867	-3.57E-02	-3.46E-02	-3.40E-02	-3.39E-02	-3.30E-02	-3.38E-02	-3.38E-02
868	-3.87E-02	-3.75E-02	-3.70E-02	-3.69E-02	-3.61E-02	-3.67E-02	-3.67E-02
869	-3.21E-02	-3.08E-02	-3.02E-02	-3.00E-02	-2.91E-02	-2.99E-02	-2.99E-02
870	-3.55E-02	-3.43E-02	-3.37E-02	-3.34E-02	-3.26E-02	-3.33E-02	-3.33E-02
871	-3.82E-02	-3.75E-02	-3.71E-02	-3.69E-02	-3.63E-02	-3.67E-02	-3.67E-02
872	-3.49E-02	-3.40E-02	-3.36E-02	-3.34E-02	-3.29E-02	-3.32E-02	-3.32E-02
873	-4.00E-02	-3.91E-02	-3.87E-02	-3.84E-02	-3.79E-02	-3.82E-02	-3.82E-02
874	-3.71E-02	-3.60E-02	-3.56E-02	-3.53E-02	-3.48E-02	-3.51E-02	-3.51E-02
876	-3.84E-02	-3.74E-02	-3.70E-02	-3.67E-02	-3.62E-02	-3.65E-02	-3.65E-02
877	-3.76E-02	-3.72E-02	-3.72E-02	-3.73E-02	-3.74E-02	-3.73E-02	-3.73E-02
Biased Statistics							
Average Biased	-3.54E-02	-3.41E-02	-3.35E-02	-3.33E-02	-3.24E-02	-3.32E-02	-3.32E-02
Std Dev Biased	2.35E-03	2.44E-03	2.45E-03	2.50E-03	2.53E-03	2.48E-03	2.48E-03
Ps90%/90% (+KTL) Biased	-2.90E-02	-2.74E-02	-2.68E-02	-2.64E-02	-2.55E-02	-2.64E-02	-2.64E-02
Ps90%/90% (-KTL) Biased	-4.19E-02	-4.08E-02	-4.03E-02	-4.02E-02	-3.94E-02	-4.00E-02	-4.00E-02
Un-Biased Statistics							
Average Un-Biased	-3.77E-02	-3.68E-02	-3.64E-02	-3.61E-02	-3.56E-02	-3.59E-02	-3.59E-02
Std Dev Un-Biased	1.91E-03	1.90E-03	1.90E-03	1.88E-03	1.87E-03	1.88E-03	1.88E-03
Ps90%/90% (+KTL) Un-Biased	-3.25E-02	-3.16E-02	-3.12E-02	-3.10E-02	-3.04E-02	-3.08E-02	-3.08E-02
Ps90%/90% (-KTL) Un-Biased	-4.29E-02	-4.20E-02	-4.16E-02	-4.13E-02	-4.07E-02	-4.11E-02	-4.11E-02
Specification MAX	-1.50E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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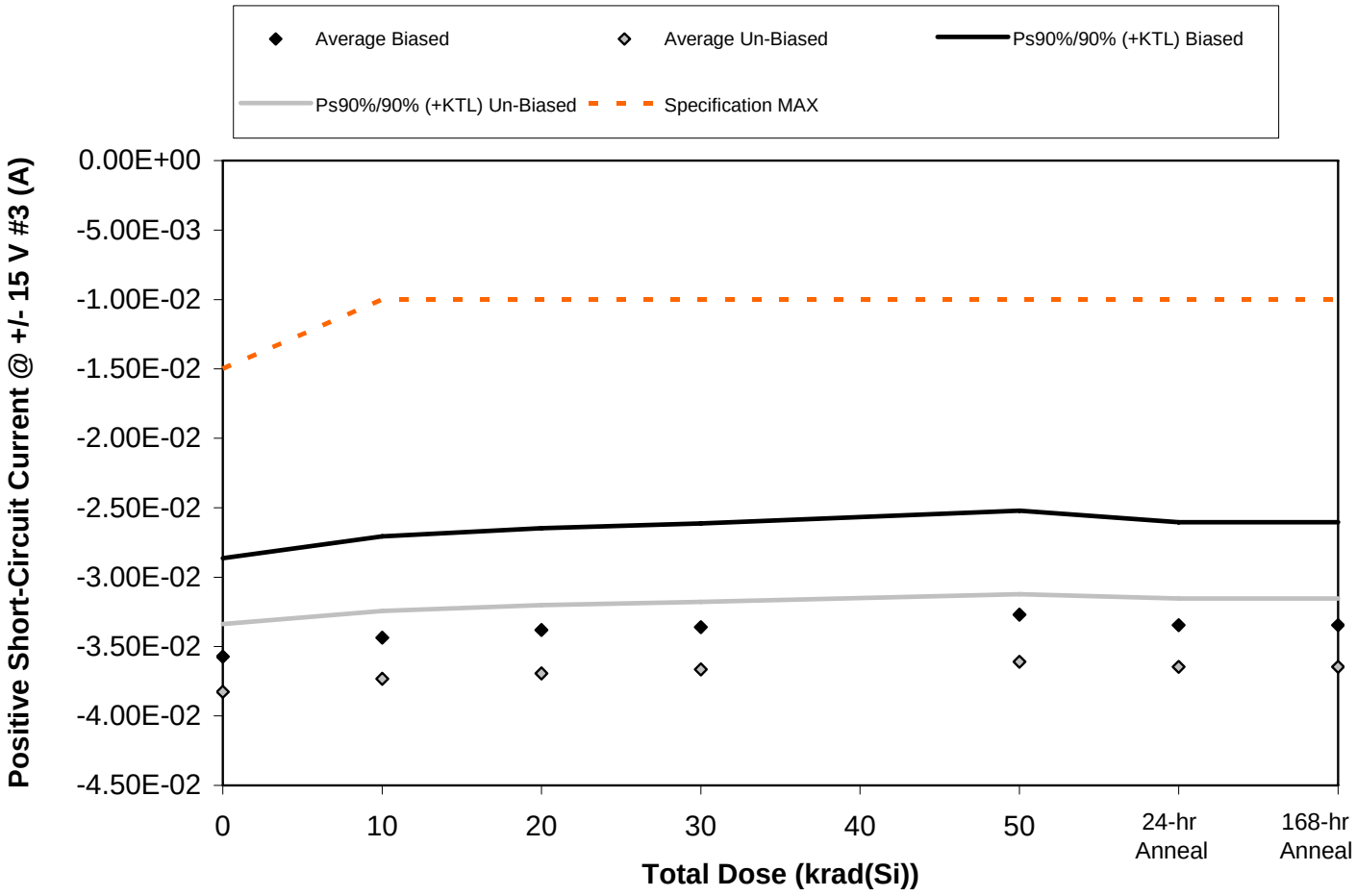

Figure 5.97. Plot of Positive Short-Circuit Current @ +/- 15 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.97. Raw data for Positive Short-Circuit Current @ +/- 15 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ +/- 15 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.57E-02	-3.37E-02	-3.31E-02	-3.29E-02	-3.19E-02	-3.27E-02	-3.27E-02
867	-3.60E-02	-3.48E-02	-3.43E-02	-3.41E-02	-3.32E-02	-3.40E-02	-3.40E-02
868	-3.96E-02	-3.84E-02	-3.79E-02	-3.77E-02	-3.69E-02	-3.76E-02	-3.76E-02
869	-3.23E-02	-3.10E-02	-3.05E-02	-3.02E-02	-2.93E-02	-3.01E-02	-3.01E-02
870	-3.51E-02	-3.39E-02	-3.33E-02	-3.31E-02	-3.22E-02	-3.29E-02	-3.29E-02
871	-3.92E-02	-3.83E-02	-3.80E-02	-3.77E-02	-3.71E-02	-3.75E-02	-3.75E-02
872	-3.59E-02	-3.51E-02	-3.47E-02	-3.44E-02	-3.39E-02	-3.43E-02	-3.43E-02
873	-4.04E-02	-3.95E-02	-3.91E-02	-3.88E-02	-3.82E-02	-3.86E-02	-3.86E-02
874	-3.70E-02	-3.60E-02	-3.55E-02	-3.53E-02	-3.47E-02	-3.50E-02	-3.50E-02
876	-3.87E-02	-3.78E-02	-3.74E-02	-3.71E-02	-3.65E-02	-3.69E-02	-3.69E-02
877	-3.79E-02	-3.76E-02	-3.75E-02	-3.77E-02	-3.77E-02	-3.77E-02	-3.77E-02
Biased Statistics							
Average Biased	-3.57E-02	-3.44E-02	-3.38E-02	-3.36E-02	-3.27E-02	-3.35E-02	-3.35E-02
Std Dev Biased	2.59E-03	2.66E-03	2.67E-03	2.73E-03	2.74E-03	2.70E-03	2.70E-03
Ps90%/90% (+KTL) Biased	-2.86E-02	-2.71E-02	-2.65E-02	-2.61E-02	-2.52E-02	-2.60E-02	-2.60E-02
Ps90%/90% (-KTL) Biased	-4.28E-02	-4.16E-02	-4.11E-02	-4.11E-02	-4.02E-02	-4.09E-02	-4.09E-02
Un-Biased Statistics							
Average Un-Biased	-3.83E-02	-3.73E-02	-3.69E-02	-3.67E-02	-3.61E-02	-3.65E-02	-3.65E-02
Std Dev Un-Biased	1.78E-03	1.79E-03	1.80E-03	1.78E-03	1.77E-03	1.80E-03	1.80E-03
Ps90%/90% (+KTL) Un-Biased	-3.34E-02	-3.24E-02	-3.20E-02	-3.18E-02	-3.12E-02	-3.15E-02	-3.15E-02
Ps90%/90% (-KTL) Un-Biased	-4.31E-02	-4.22E-02	-4.19E-02	-4.15E-02	-4.09E-02	-4.14E-02	-4.14E-02
Specification MAX	-1.50E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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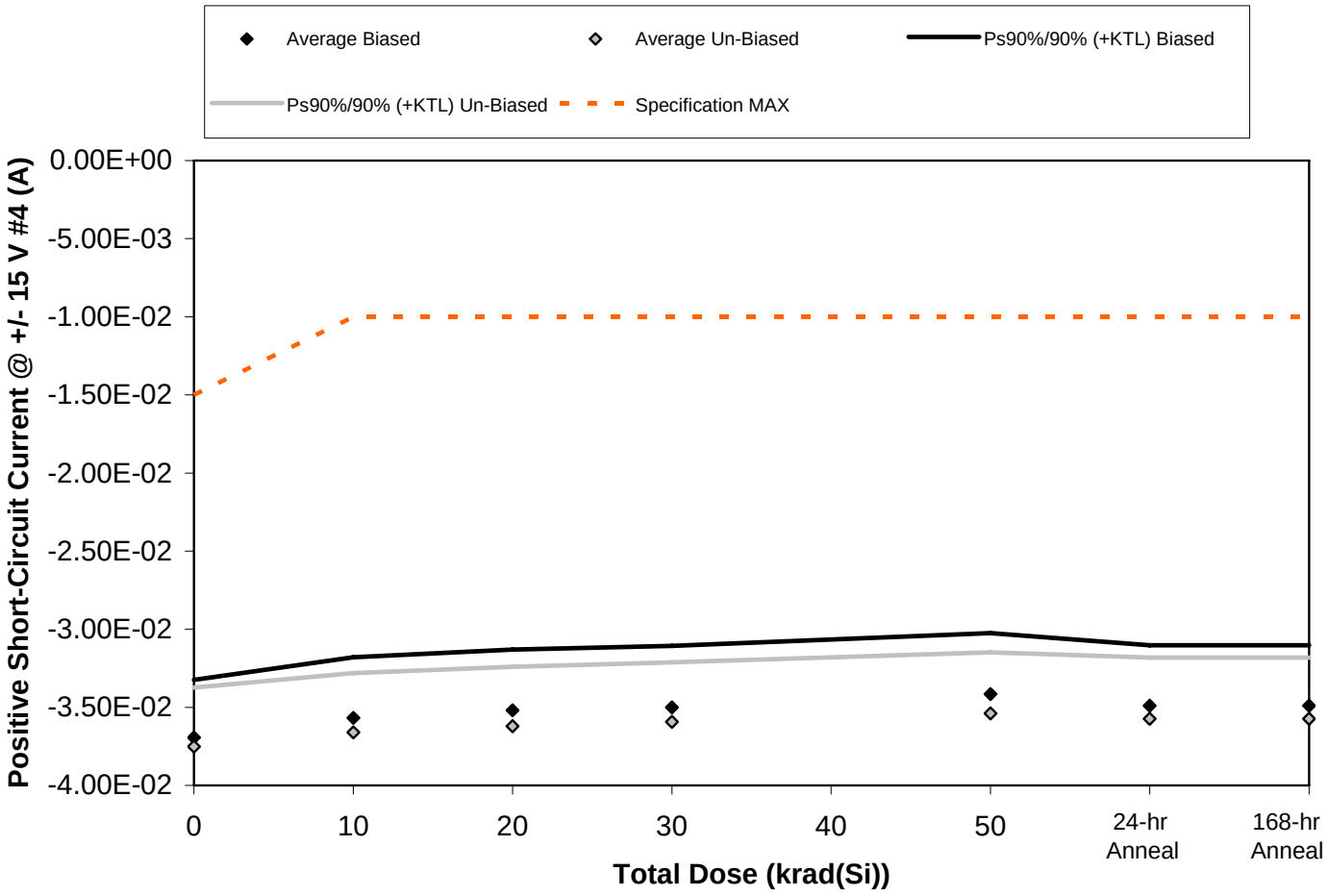

Figure 5.98. Plot of Positive Short-Circuit Current @ +/- 15 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.98. Raw data for Positive Short-Circuit Current @ +/- 15 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ +/- 15 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.67E-02	-3.48E-02	-3.43E-02	-3.41E-02	-3.31E-02	-3.39E-02	-3.39E-02
867	-3.87E-02	-3.76E-02	-3.71E-02	-3.69E-02	-3.60E-02	-3.68E-02	-3.68E-02
868	-3.79E-02	-3.68E-02	-3.63E-02	-3.62E-02	-3.54E-02	-3.61E-02	-3.61E-02
869	-3.59E-02	-3.48E-02	-3.44E-02	-3.41E-02	-3.33E-02	-3.41E-02	-3.41E-02
870	-3.55E-02	-3.44E-02	-3.39E-02	-3.37E-02	-3.30E-02	-3.37E-02	-3.37E-02
871	-3.57E-02	-3.49E-02	-3.45E-02	-3.43E-02	-3.37E-02	-3.41E-02	-3.41E-02
872	-3.81E-02	-3.72E-02	-3.67E-02	-3.65E-02	-3.59E-02	-3.63E-02	-3.63E-02
873	-3.93E-02	-3.84E-02	-3.80E-02	-3.78E-02	-3.72E-02	-3.76E-02	-3.76E-02
874	-3.66E-02	-3.56E-02	-3.51E-02	-3.49E-02	-3.43E-02	-3.46E-02	-3.46E-02
876	-3.79E-02	-3.70E-02	-3.66E-02	-3.63E-02	-3.59E-02	-3.62E-02	-3.62E-02
877	-3.62E-02	-3.59E-02	-3.59E-02	-3.60E-02	-3.60E-02	-3.60E-02	-3.60E-02
Biased Statistics							
Average Biased	-3.69E-02	-3.57E-02	-3.52E-02	-3.50E-02	-3.42E-02	-3.49E-02	-3.49E-02
Std Dev Biased	1.35E-03	1.42E-03	1.42E-03	1.43E-03	1.43E-03	1.41E-03	1.41E-03
Ps90%/90% (+KTL) Biased	-3.32E-02	-3.18E-02	-3.13E-02	-3.11E-02	-3.02E-02	-3.10E-02	-3.10E-02
Ps90%/90% (-KTL) Biased	-4.06E-02	-3.96E-02	-3.91E-02	-3.89E-02	-3.81E-02	-3.88E-02	-3.88E-02
Un-Biased Statistics							
Average Un-Biased	-3.75E-02	-3.66E-02	-3.62E-02	-3.59E-02	-3.54E-02	-3.57E-02	-3.57E-02
Std Dev Un-Biased	1.37E-03	1.38E-03	1.39E-03	1.39E-03	1.43E-03	1.43E-03	1.43E-03
Ps90%/90% (+KTL) Un-Biased	-3.37E-02	-3.28E-02	-3.24E-02	-3.21E-02	-3.15E-02	-3.18E-02	-3.18E-02
Ps90%/90% (-KTL) Un-Biased	-4.13E-02	-4.04E-02	-4.00E-02	-3.98E-02	-3.93E-02	-3.96E-02	-3.96E-02
Specification MAX	-1.50E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02	-1.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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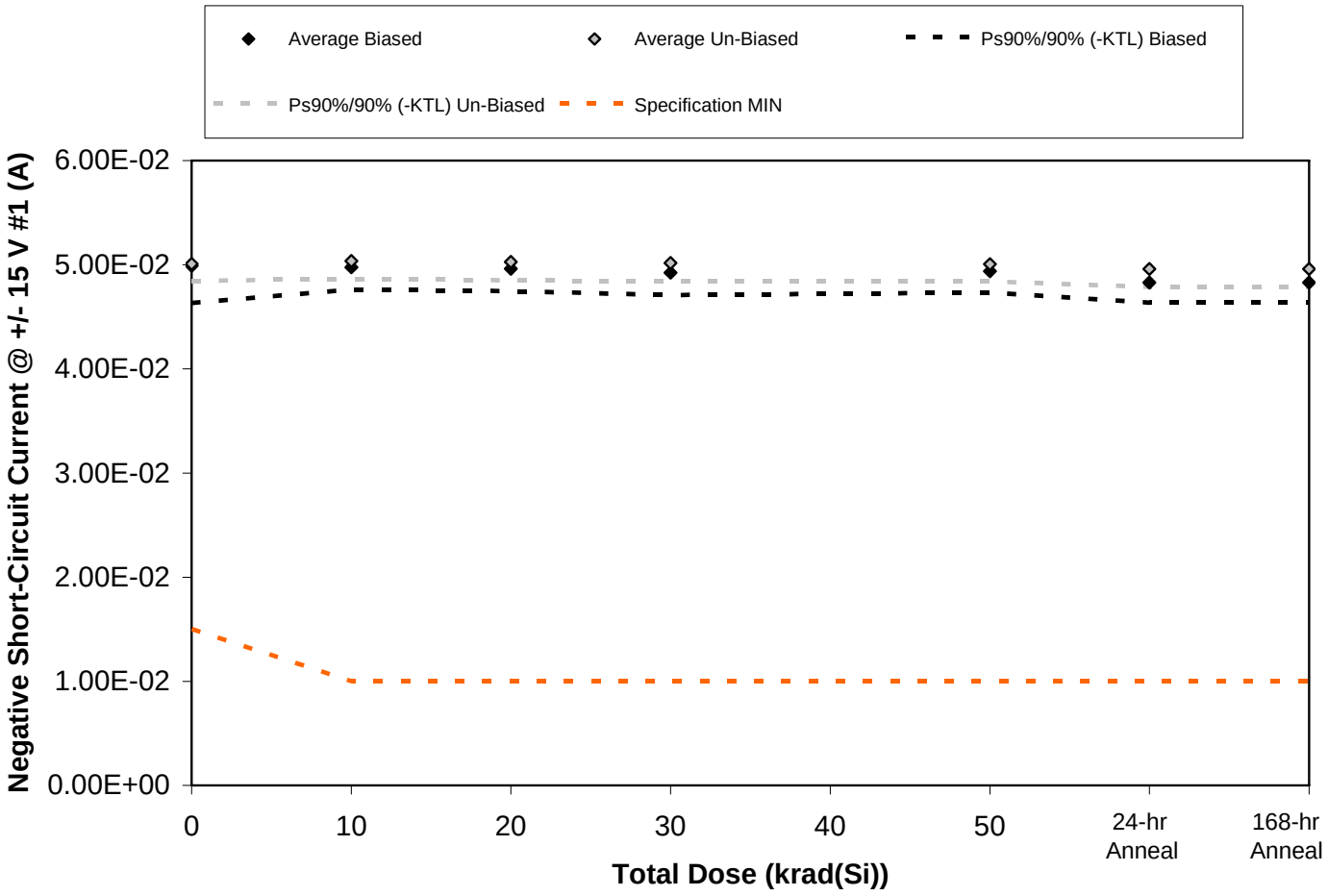

Figure 5.99. Plot of Negative Short-Circuit Current @ +/- 15 V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.99. Raw data for Negative Short-Circuit Current @ +/- 15 V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ +/- 15 V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.76E-02	4.84E-02	4.83E-02	4.79E-02	4.82E-02	4.71E-02	4.71E-02
867	5.05E-02	4.99E-02	4.98E-02	4.93E-02	4.95E-02	4.83E-02	4.83E-02
868	5.09E-02	5.05E-02	5.04E-02	4.99E-02	5.00E-02	4.90E-02	4.90E-02
869	5.04E-02	5.02E-02	5.00E-02	4.98E-02	4.99E-02	4.87E-02	4.87E-02
870	5.01E-02	4.98E-02	4.97E-02	4.93E-02	4.94E-02	4.83E-02	4.83E-02
871	4.92E-02	4.94E-02	4.92E-02	4.92E-02	4.91E-02	4.86E-02	4.86E-02
872	5.05E-02	5.08E-02	5.07E-02	5.06E-02	5.05E-02	5.00E-02	5.00E-02
873	5.06E-02	5.08E-02	5.07E-02	5.07E-02	5.05E-02	5.01E-02	5.01E-02
874	4.98E-02	5.01E-02	5.01E-02	4.99E-02	4.98E-02	4.94E-02	4.94E-02
876	5.04E-02	5.08E-02	5.07E-02	5.05E-02	5.04E-02	5.00E-02	5.00E-02
877	4.98E-02	5.02E-02	5.03E-02	5.01E-02	5.00E-02	5.01E-02	5.01E-02
Biased Statistics							
Average Biased	4.99E-02	4.98E-02	4.96E-02	4.92E-02	4.94E-02	4.83E-02	4.83E-02
Std Dev Biased	1.30E-03	7.82E-04	7.83E-04	7.84E-04	7.41E-04	7.08E-04	7.08E-04
Ps90%/90% (+KTL) Biased	5.34E-02	5.19E-02	5.18E-02	5.14E-02	5.14E-02	5.02E-02	5.02E-02
Ps90%/90% (-KTL) Biased	4.63E-02	4.76E-02	4.75E-02	4.71E-02	4.73E-02	4.63E-02	4.63E-02
Un-Biased Statistics							
Average Un-Biased	5.01E-02	5.04E-02	5.03E-02	5.02E-02	5.01E-02	4.96E-02	4.96E-02
Std Dev Un-Biased	5.95E-04	6.32E-04	6.49E-04	6.43E-04	6.09E-04	6.25E-04	6.25E-04
Ps90%/90% (+KTL) Un-Biased	5.17E-02	5.21E-02	5.21E-02	5.19E-02	5.17E-02	5.13E-02	5.13E-02
Ps90%/90% (-KTL) Un-Biased	4.84E-02	4.86E-02	4.85E-02	4.84E-02	4.84E-02	4.79E-02	4.79E-02
Specification MIN	1.50E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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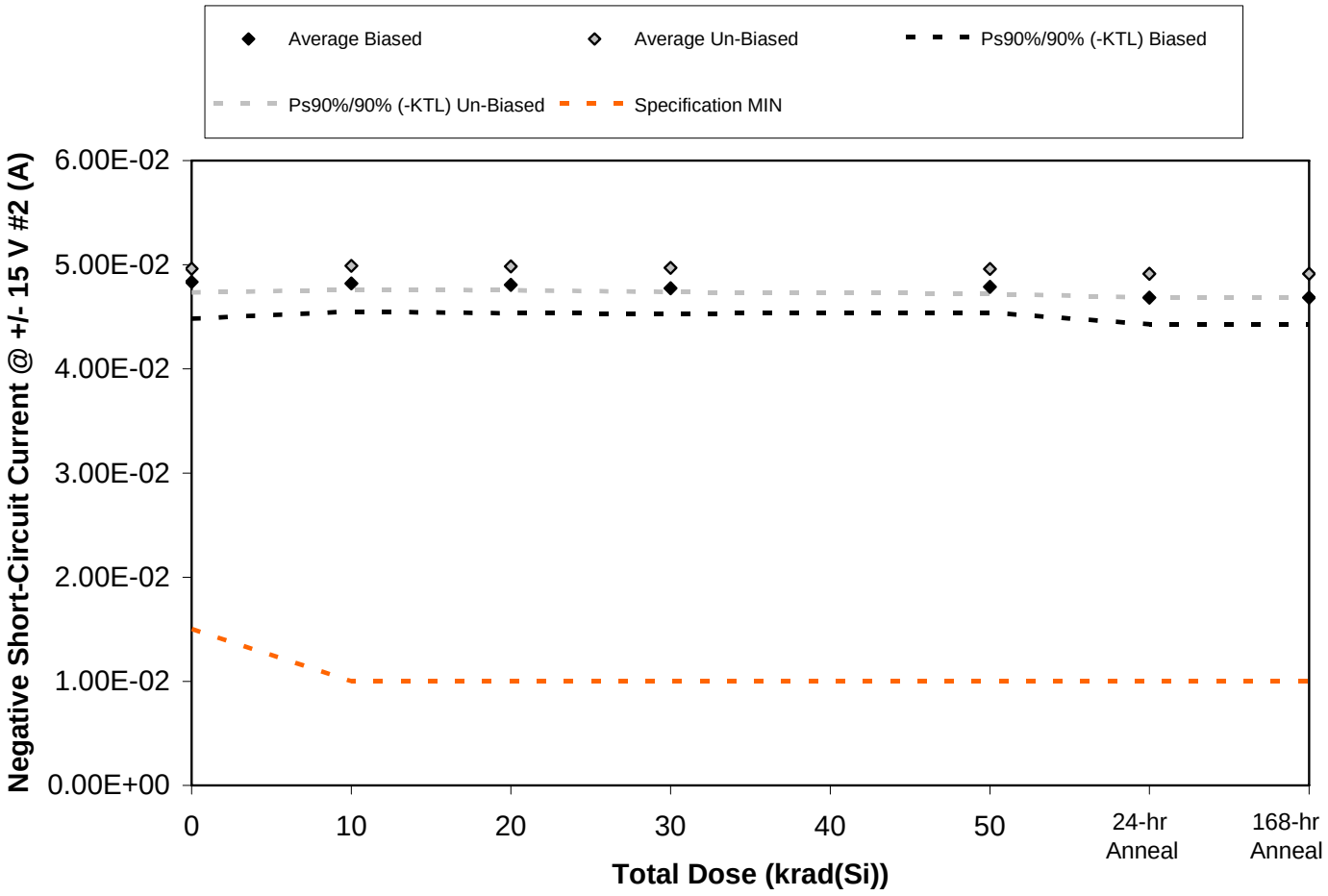

Figure 5.100. Plot of Negative Short-Circuit Current @ +/- 15 V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.100. Raw data for Negative Short-Circuit Current @ +/- 15 V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ +/- 15 V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.70E-02	4.76E-02	4.75E-02	4.73E-02	4.76E-02	4.64E-02	4.64E-02
867	4.89E-02	4.83E-02	4.82E-02	4.77E-02	4.79E-02	4.70E-02	4.70E-02
868	5.03E-02	4.99E-02	4.97E-02	4.93E-02	4.94E-02	4.84E-02	4.84E-02
869	4.76E-02	4.76E-02	4.74E-02	4.71E-02	4.72E-02	4.61E-02	4.61E-02
870	4.80E-02	4.76E-02	4.74E-02	4.73E-02	4.74E-02	4.64E-02	4.64E-02
871	5.07E-02	5.09E-02	5.08E-02	5.07E-02	5.07E-02	5.01E-02	5.01E-02
872	4.90E-02	4.92E-02	4.92E-02	4.90E-02	4.89E-02	4.84E-02	4.84E-02
873	4.89E-02	4.91E-02	4.91E-02	4.90E-02	4.88E-02	4.83E-02	4.83E-02
874	4.92E-02	4.96E-02	4.95E-02	4.93E-02	4.92E-02	4.88E-02	4.88E-02
876	5.04E-02	5.07E-02	5.06E-02	5.05E-02	5.03E-02	4.99E-02	4.99E-02
877	5.00E-02	5.05E-02	5.05E-02	5.04E-02	5.03E-02	5.03E-02	5.03E-02
Biased Statistics							
Average Biased	4.83E-02	4.82E-02	4.81E-02	4.78E-02	4.79E-02	4.69E-02	4.69E-02
Std Dev Biased	1.28E-03	9.85E-04	9.90E-04	8.93E-04	9.05E-04	9.34E-04	9.34E-04
Ps90%/90% (+KTL) Biased	5.18E-02	5.09E-02	5.08E-02	5.02E-02	5.04E-02	4.94E-02	4.94E-02
Ps90%/90% (-KTL) Biased	4.48E-02	4.55E-02	4.54E-02	4.53E-02	4.54E-02	4.43E-02	4.43E-02
Un-Biased Statistics							
Average Un-Biased	4.96E-02	4.99E-02	4.98E-02	4.97E-02	4.96E-02	4.91E-02	4.91E-02
Std Dev Un-Biased	8.42E-04	8.33E-04	8.27E-04	8.41E-04	8.68E-04	8.37E-04	8.37E-04
Ps90%/90% (+KTL) Un-Biased	5.19E-02	5.22E-02	5.21E-02	5.20E-02	5.20E-02	5.14E-02	5.14E-02
Ps90%/90% (-KTL) Un-Biased	4.73E-02	4.76E-02	4.76E-02	4.74E-02	4.72E-02	4.68E-02	4.68E-02
Specification MIN	1.50E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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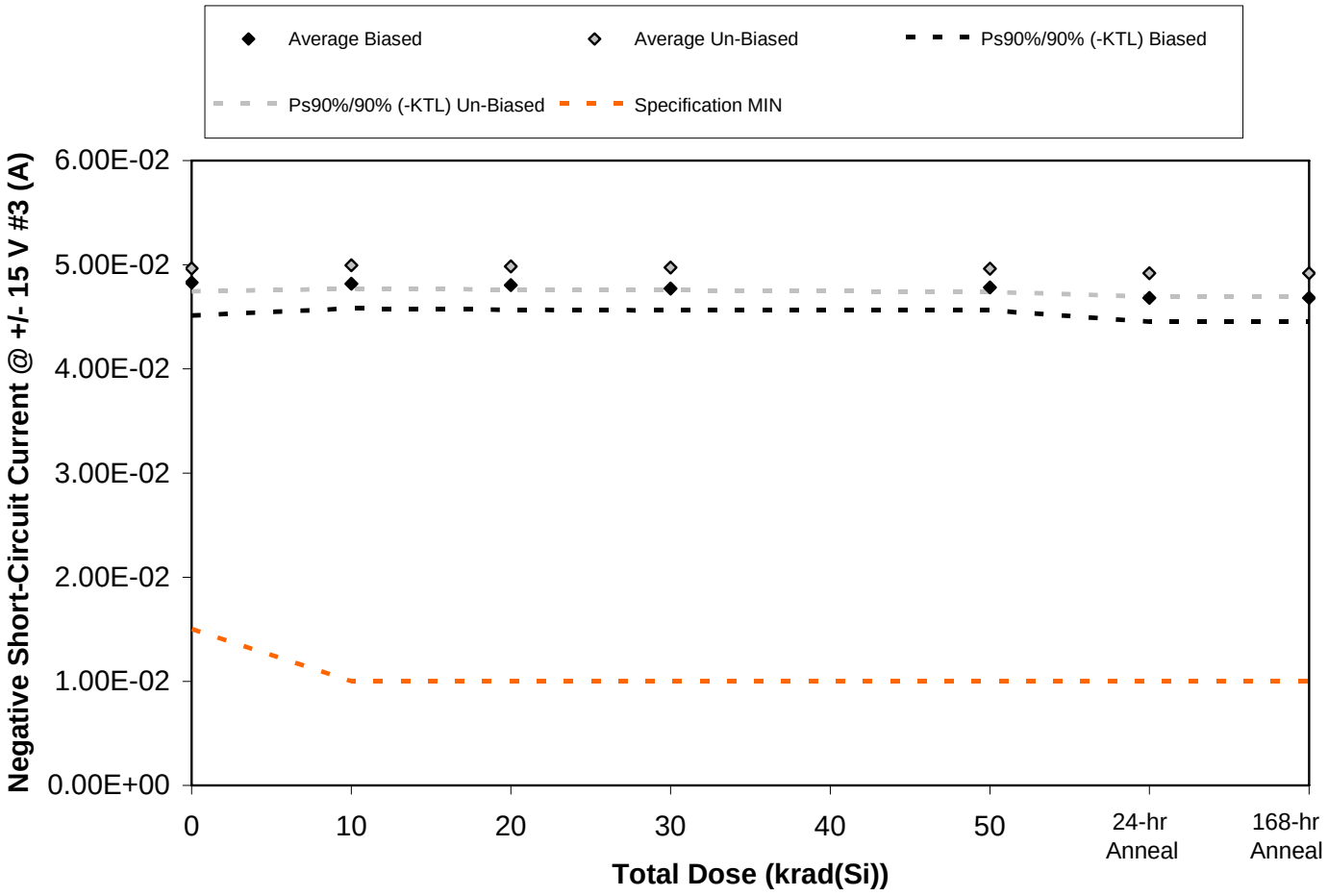

Figure 5.101. Plot of Negative Short-Circuit Current @ +/- 15 V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.101. Raw data for Negative Short-Circuit Current @ +/- 15 V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ +/- 15 V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.71E-02	4.77E-02	4.76E-02	4.74E-02	4.76E-02	4.65E-02	4.65E-02
867	4.88E-02	4.83E-02	4.81E-02	4.77E-02	4.78E-02	4.70E-02	4.70E-02
868	5.00E-02	4.97E-02	4.95E-02	4.90E-02	4.92E-02	4.82E-02	4.82E-02
869	4.76E-02	4.77E-02	4.75E-02	4.72E-02	4.73E-02	4.61E-02	4.61E-02
870	4.79E-02	4.76E-02	4.75E-02	4.73E-02	4.73E-02	4.63E-02	4.63E-02
871	5.06E-02	5.09E-02	5.07E-02	5.06E-02	5.06E-02	5.01E-02	5.01E-02
872	4.92E-02	4.95E-02	4.94E-02	4.93E-02	4.92E-02	4.87E-02	4.87E-02
873	4.89E-02	4.91E-02	4.90E-02	4.89E-02	4.88E-02	4.83E-02	4.83E-02
874	4.92E-02	4.95E-02	4.94E-02	4.93E-02	4.92E-02	4.88E-02	4.88E-02
876	5.04E-02	5.08E-02	5.07E-02	5.06E-02	5.04E-02	5.00E-02	5.00E-02
877	5.01E-02	5.06E-02	5.06E-02	5.05E-02	5.04E-02	5.04E-02	5.04E-02
Biased Statistics							
Average Biased	4.83E-02	4.82E-02	4.80E-02	4.77E-02	4.78E-02	4.68E-02	4.68E-02
Std Dev Biased	1.15E-03	8.63E-04	8.68E-04	7.69E-04	7.97E-04	8.34E-04	8.34E-04
Ps90%/90% (+KTL) Biased	5.14E-02	5.06E-02	5.04E-02	4.98E-02	5.00E-02	4.91E-02	4.91E-02
Ps90%/90% (-KTL) Biased	4.51E-02	4.58E-02	4.57E-02	4.56E-02	4.56E-02	4.45E-02	4.45E-02
Un-Biased Statistics							
Average Un-Biased	4.97E-02	4.99E-02	4.98E-02	4.97E-02	4.96E-02	4.92E-02	4.92E-02
Std Dev Un-Biased	8.09E-04	8.19E-04	8.10E-04	7.92E-04	8.15E-04	8.13E-04	8.13E-04
Ps90%/90% (+KTL) Un-Biased	5.19E-02	5.22E-02	5.21E-02	5.19E-02	5.19E-02	5.14E-02	5.14E-02
Ps90%/90% (-KTL) Un-Biased	4.74E-02	4.77E-02	4.76E-02	4.76E-02	4.74E-02	4.69E-02	4.69E-02
Specification MIN	1.50E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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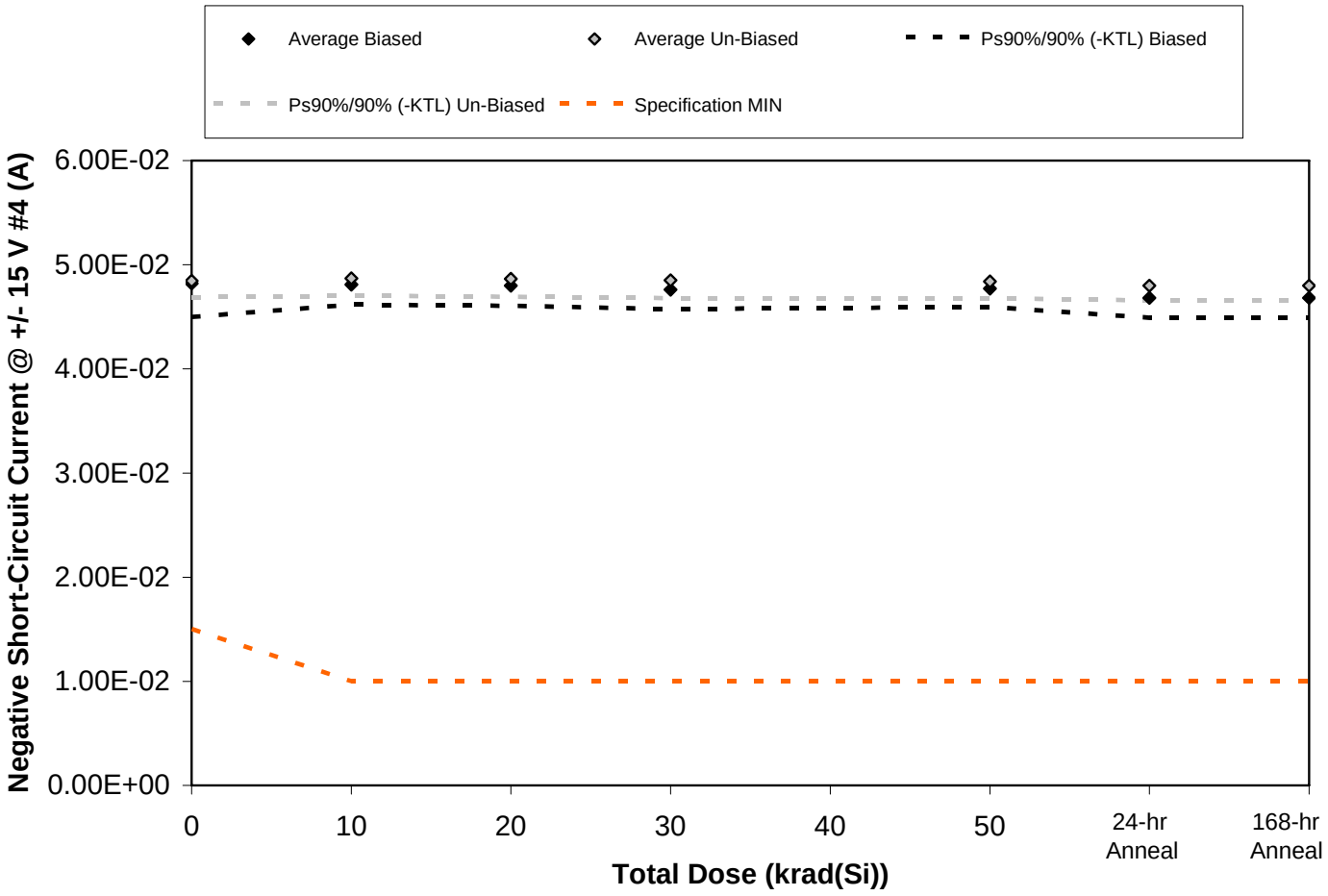

Figure 5.102. Plot of Negative Short-Circuit Current @ +/- 15 V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.102. Raw data for Negative Short-Circuit Current @ +/- 15 V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ +/- 15 V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.62E-02	4.70E-02	4.69E-02	4.65E-02	4.67E-02	4.57E-02	4.57E-02
867	4.88E-02	4.83E-02	4.81E-02	4.77E-02	4.78E-02	4.70E-02	4.70E-02
868	4.93E-02	4.89E-02	4.88E-02	4.84E-02	4.85E-02	4.75E-02	4.75E-02
869	4.84E-02	4.83E-02	4.82E-02	4.79E-02	4.80E-02	4.71E-02	4.71E-02
870	4.83E-02	4.80E-02	4.79E-02	4.76E-02	4.76E-02	4.68E-02	4.68E-02
871	4.76E-02	4.78E-02	4.76E-02	4.75E-02	4.75E-02	4.72E-02	4.72E-02
872	4.89E-02	4.92E-02	4.91E-02	4.90E-02	4.89E-02	4.84E-02	4.84E-02
873	4.90E-02	4.92E-02	4.91E-02	4.91E-02	4.90E-02	4.85E-02	4.85E-02
874	4.82E-02	4.85E-02	4.85E-02	4.83E-02	4.82E-02	4.78E-02	4.78E-02
876	4.86E-02	4.89E-02	4.88E-02	4.87E-02	4.85E-02	4.81E-02	4.81E-02
877	4.80E-02	4.85E-02	4.86E-02	4.84E-02	4.83E-02	4.84E-02	4.84E-02
Biased Statistics							
Average Biased	4.82E-02	4.81E-02	4.80E-02	4.76E-02	4.77E-02	4.68E-02	4.68E-02
Std Dev Biased	1.17E-03	7.11E-04	7.05E-04	6.71E-04	6.49E-04	6.93E-04	6.93E-04
Ps90%/90% (+KTL) Biased	5.14E-02	5.01E-02	4.99E-02	4.94E-02	4.95E-02	4.87E-02	4.87E-02
Ps90%/90% (-KTL) Biased	4.50E-02	4.62E-02	4.60E-02	4.58E-02	4.59E-02	4.49E-02	4.49E-02
Un-Biased Statistics							
Average Un-Biased	4.84E-02	4.87E-02	4.86E-02	4.85E-02	4.84E-02	4.80E-02	4.80E-02
Std Dev Un-Biased	5.78E-04	6.08E-04	6.20E-04	6.25E-04	5.86E-04	5.16E-04	5.16E-04
Ps90%/90% (+KTL) Un-Biased	5.00E-02	5.04E-02	5.03E-02	5.02E-02	5.00E-02	4.94E-02	4.94E-02
Ps90%/90% (-KTL) Un-Biased	4.69E-02	4.70E-02	4.69E-02	4.68E-02	4.68E-02	4.66E-02	4.66E-02
Specification MIN	1.50E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02	1.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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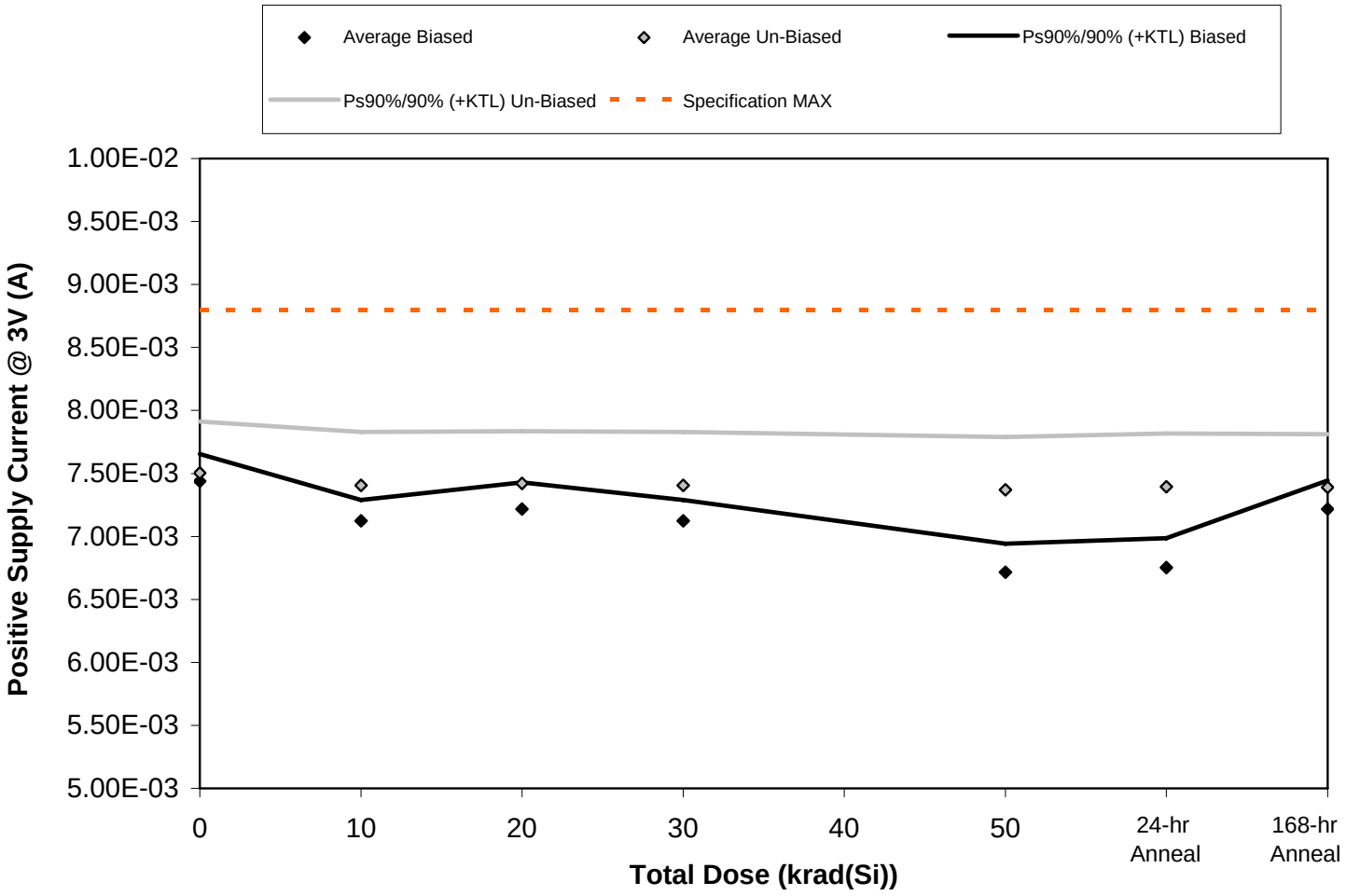

Figure 5.103. Plot of Positive Supply Current @ 3V (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.103. Raw data for Positive Supply Current @ 3V (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Supply Current @ 3V (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.38E-03	7.10E-03	7.14E-03	7.10E-03	6.65E-03	6.69E-03	7.14E-03
867	7.54E-03	7.20E-03	7.31E-03	7.20E-03	6.82E-03	6.86E-03	7.32E-03
868	7.47E-03	7.16E-03	7.27E-03	7.16E-03	6.77E-03	6.81E-03	7.27E-03
869	7.34E-03	7.04E-03	7.14E-03	7.04E-03	6.62E-03	6.65E-03	7.13E-03
870	7.46E-03	7.12E-03	7.23E-03	7.12E-03	6.72E-03	6.75E-03	7.23E-03
871	7.47E-03	7.38E-03	7.40E-03	7.38E-03	7.35E-03	7.37E-03	7.36E-03
872	7.50E-03	7.41E-03	7.43E-03	7.41E-03	7.37E-03	7.40E-03	7.40E-03
873	7.67E-03	7.56E-03	7.58E-03	7.56E-03	7.53E-03	7.55E-03	7.55E-03
874	7.28E-03	7.16E-03	7.18E-03	7.16E-03	7.13E-03	7.15E-03	7.15E-03
876	7.60E-03	7.51E-03	7.51E-03	7.51E-03	7.47E-03	7.50E-03	7.49E-03
877	7.59E-03	7.58E-03	7.56E-03	7.58E-03	7.58E-03	7.59E-03	7.57E-03
Biased Statistics							
Average Biased	7.44E-03	7.12E-03	7.22E-03	7.12E-03	6.72E-03	6.75E-03	7.22E-03
Std Dev Biased	7.89E-05	6.07E-05	7.66E-05	6.07E-05	8.26E-05	8.56E-05	8.23E-05
Ps90%/90% (+KTL) Biased	7.65E-03	7.29E-03	7.43E-03	7.29E-03	6.94E-03	6.99E-03	7.44E-03
Ps90%/90% (-KTL) Biased	7.22E-03	6.96E-03	7.01E-03	6.96E-03	6.49E-03	6.52E-03	6.99E-03
Un-Biased Statistics							
Average Un-Biased	7.50E-03	7.40E-03	7.42E-03	7.40E-03	7.37E-03	7.39E-03	7.39E-03
Std Dev Un-Biased	1.48E-04	1.55E-04	1.51E-04	1.55E-04	1.53E-04	1.55E-04	1.53E-04
Ps90%/90% (+KTL) Un-Biased	7.91E-03	7.83E-03	7.84E-03	7.83E-03	7.79E-03	7.82E-03	7.81E-03
Ps90%/90% (-KTL) Un-Biased	7.10E-03	6.98E-03	7.00E-03	6.98E-03	6.95E-03	6.97E-03	6.97E-03
Specification MAX	8.80E-03	8.80E-03	8.80E-03	8.80E-03	8.80E-03	8.80E-03	8.80E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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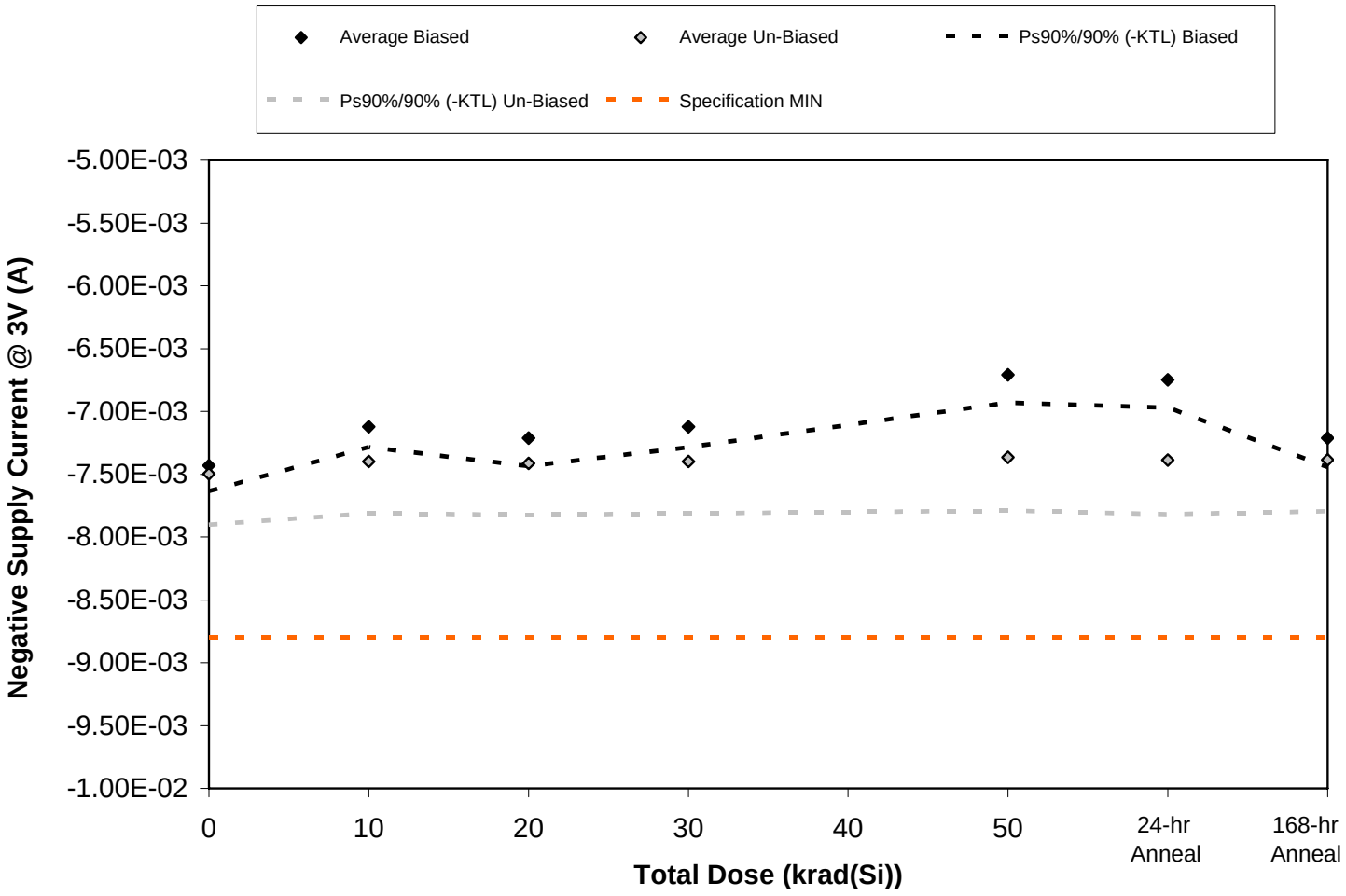

Figure 5.104. Plot of Negative Supply Current @ 3V (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.104. Raw data for Negative Supply Current @ 3V (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Supply Current @ 3V (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-7.38E-03	-7.10E-03	-7.13E-03	-7.10E-03	-6.65E-03	-6.69E-03	-7.13E-03
867	-7.53E-03	-7.20E-03	-7.31E-03	-7.20E-03	-6.81E-03	-6.85E-03	-7.31E-03
868	-7.46E-03	-7.15E-03	-7.27E-03	-7.15E-03	-6.76E-03	-6.80E-03	-7.27E-03
869	-7.34E-03	-7.04E-03	-7.13E-03	-7.04E-03	-6.61E-03	-6.65E-03	-7.12E-03
870	-7.45E-03	-7.12E-03	-7.22E-03	-7.12E-03	-6.71E-03	-6.75E-03	-7.23E-03
871	-7.47E-03	-7.37E-03	-7.39E-03	-7.37E-03	-7.35E-03	-7.37E-03	-7.36E-03
872	-7.49E-03	-7.41E-03	-7.42E-03	-7.41E-03	-7.37E-03	-7.39E-03	-7.40E-03
873	-7.66E-03	-7.55E-03	-7.57E-03	-7.55E-03	-7.52E-03	-7.55E-03	-7.54E-03
874	-7.27E-03	-7.16E-03	-7.18E-03	-7.16E-03	-7.12E-03	-7.14E-03	-7.15E-03
876	-7.59E-03	-7.50E-03	-7.51E-03	-7.50E-03	-7.47E-03	-7.49E-03	-7.48E-03
877	-7.59E-03	-7.57E-03	-7.56E-03	-7.57E-03	-7.57E-03	-7.59E-03	-7.57E-03
Biased Statistics							
Average Biased	-7.43E-03	-7.12E-03	-7.21E-03	-7.12E-03	-6.71E-03	-6.75E-03	-7.21E-03
Std Dev Biased	7.40E-05	5.93E-05	8.14E-05	5.93E-05	8.07E-05	8.07E-05	8.44E-05
Ps90%/90% (+KTL) Biased	-7.23E-03	-6.96E-03	-6.99E-03	-6.96E-03	-6.49E-03	-6.53E-03	-6.98E-03
Ps90%/90% (-KTL) Biased	-7.63E-03	-7.28E-03	-7.44E-03	-7.28E-03	-6.93E-03	-6.97E-03	-7.44E-03
Un-Biased Statistics							
Average Un-Biased	-7.50E-03	-7.40E-03	-7.41E-03	-7.40E-03	-7.37E-03	-7.39E-03	-7.39E-03
Std Dev Un-Biased	1.48E-04	1.51E-04	1.49E-04	1.51E-04	1.54E-04	1.57E-04	1.49E-04
Ps90%/90% (+KTL) Un-Biased	-7.09E-03	-6.98E-03	-7.01E-03	-6.98E-03	-6.94E-03	-6.96E-03	-6.98E-03
Ps90%/90% (-KTL) Un-Biased	-7.90E-03	-7.81E-03	-7.82E-03	-7.81E-03	-7.79E-03	-7.82E-03	-7.80E-03
Specification MIN	-8.80E-03	-8.80E-03	-8.80E-03	-8.80E-03	-8.80E-03	-8.80E-03	-8.80E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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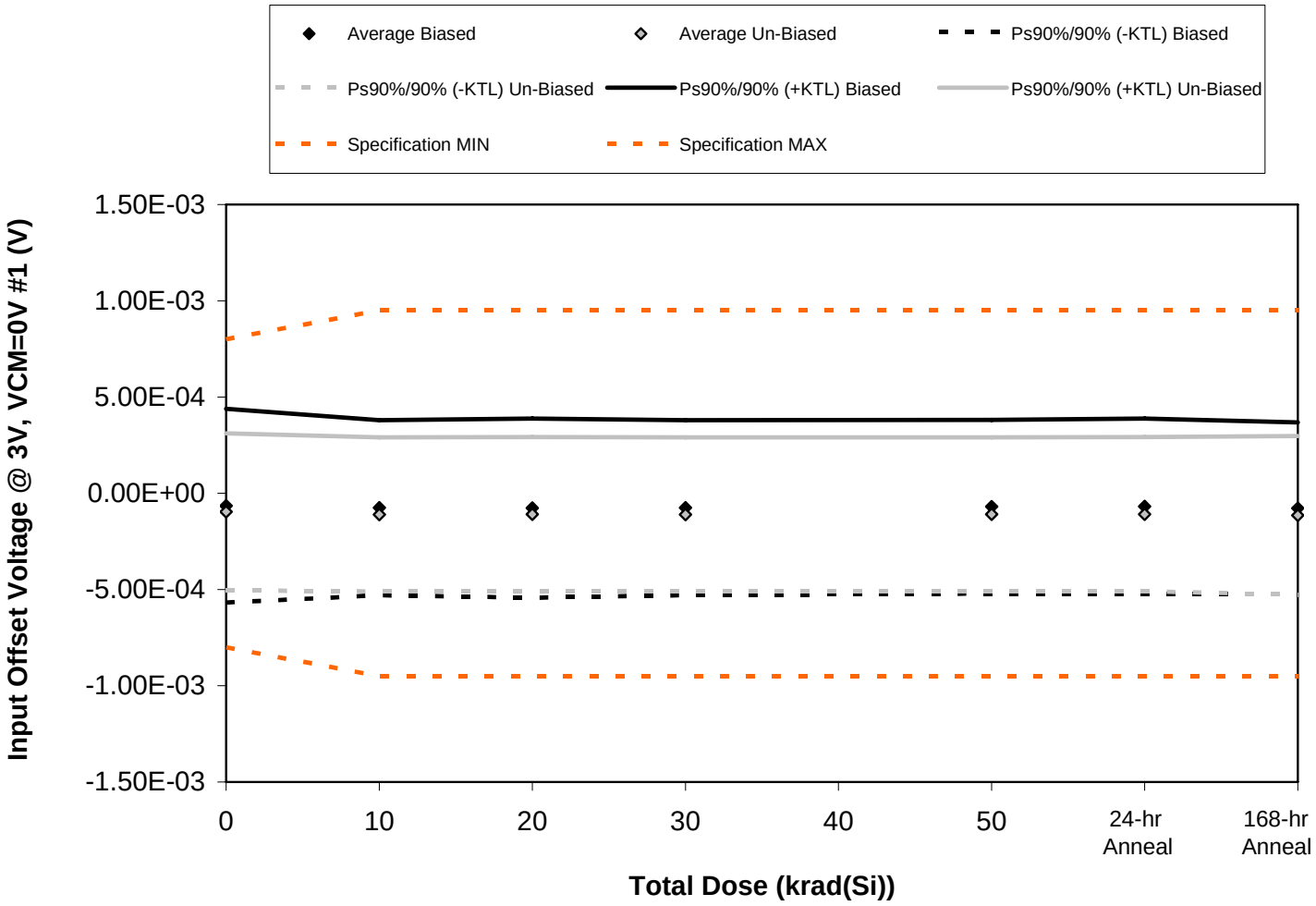

Figure 5.105. Plot of Input Offset Voltage @ 3V, VCM=0V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.105. Raw data for Input Offset Voltage @ 3V, VCM=0V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 3V, VCM=0V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.22E-04	-3.00E-04	-3.07E-04	-3.00E-04	-2.87E-04	-2.88E-04	-3.01E-04
867	1.53E-04	1.11E-04	1.16E-04	1.11E-04	1.09E-04	1.12E-04	9.57E-05
868	-1.24E-04	-1.43E-04	-1.42E-04	-1.43E-04	-1.48E-04	-1.46E-04	-1.54E-04
869	6.53E-05	6.28E-05	6.18E-05	6.28E-05	7.75E-05	8.14E-05	6.36E-05
870	-9.53E-05	-1.05E-04	-1.14E-04	-1.05E-04	-1.02E-04	-9.88E-05	-9.49E-05
871	-1.07E-04	-1.19E-04	-1.15E-04	-1.19E-04	-1.18E-04	-1.19E-04	-1.24E-04
872	-3.33E-04	-3.45E-04	-3.45E-04	-3.45E-04	-3.44E-04	-3.43E-04	-3.55E-04
873	7.22E-05	5.03E-05	5.09E-05	5.03E-05	5.13E-05	5.35E-05	5.47E-05
874	-3.67E-05	-4.83E-05	-4.78E-05	-4.83E-05	-4.90E-05	-4.88E-05	-5.31E-05
876	-7.96E-05	-8.76E-05	-9.04E-05	-8.76E-05	-8.77E-05	-8.66E-05	-9.72E-05
877	-2.92E-04	-2.95E-04	-2.96E-04	-2.95E-04	-2.96E-04	-2.95E-04	-2.95E-04
Biased Statistics							
Average Biased	-6.46E-05	-7.47E-05	-7.71E-05	-7.47E-05	-7.00E-05	-6.79E-05	-7.82E-05
Std Dev Biased	1.84E-04	1.66E-04	1.70E-04	1.66E-04	1.64E-04	1.66E-04	1.63E-04
Ps90%/90% (+KTL) Biased	4.39E-04	3.80E-04	3.88E-04	3.80E-04	3.81E-04	3.88E-04	3.68E-04
Ps90%/90% (-KTL) Biased	-5.68E-04	-5.29E-04	-5.42E-04	-5.29E-04	-5.21E-04	-5.23E-04	-5.24E-04
Un-Biased Statistics							
Average Un-Biased	-9.68E-05	-1.10E-04	-1.10E-04	-1.10E-04	-1.09E-04	-1.09E-04	-1.15E-04
Std Dev Un-Biased	1.49E-04	1.46E-04	1.46E-04	1.46E-04	1.46E-04	1.46E-04	1.50E-04
Ps90%/90% (+KTL) Un-Biased	3.11E-04	2.91E-04	2.91E-04	2.91E-04	2.90E-04	2.92E-04	2.98E-04
Ps90%/90% (-KTL) Un-Biased	-5.05E-04	-5.10E-04	-5.10E-04	-5.10E-04	-5.09E-04	-5.09E-04	-5.28E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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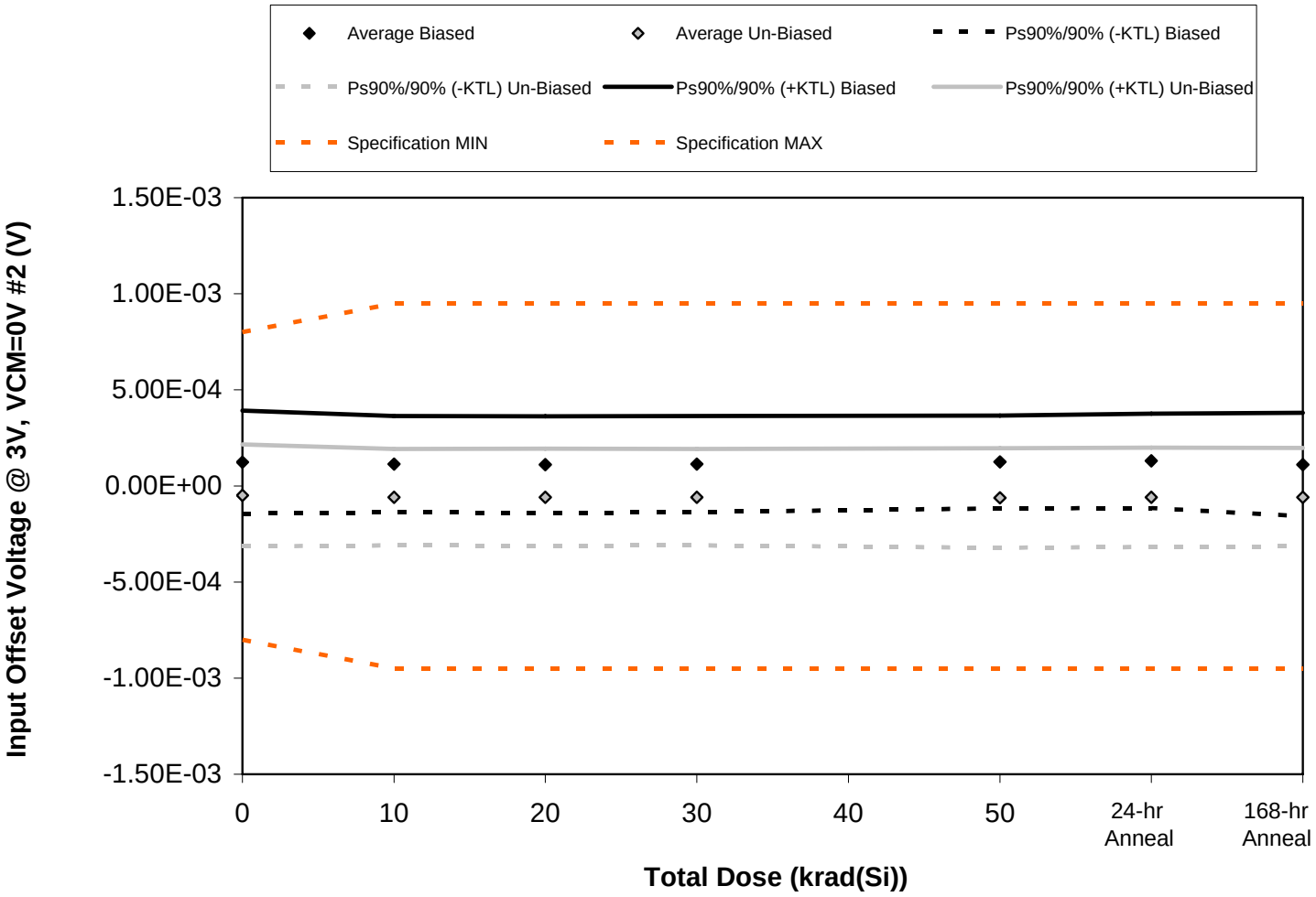

Figure 5.106. Plot of Input Offset Voltage @ 3V, VCM=0V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.106. Raw data for Input Offset Voltage @ 3V, VCM=0V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 3V, VCM=0V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.52E-04	2.45E-04	2.43E-04	2.45E-04	2.55E-04	2.60E-04	2.47E-04
867	4.28E-05	3.37E-05	3.18E-05	3.37E-05	4.62E-05	4.82E-05	5.22E-05
868	1.11E-04	1.03E-04	1.02E-04	1.03E-04	1.16E-04	1.18E-04	7.20E-05
869	2.02E-05	2.72E-05	2.30E-05	2.72E-05	4.50E-05	5.02E-05	8.73E-06
870	1.92E-04	1.58E-04	1.55E-04	1.58E-04	1.65E-04	1.74E-04	1.78E-04
871	7.45E-05	5.80E-05	5.98E-05	5.80E-05	5.79E-05	6.14E-05	6.10E-05
872	7.65E-06	2.57E-06	2.09E-06	2.57E-06	5.20E-07	2.93E-06	-4.55E-06
873	-1.05E-04	-1.15E-04	-1.14E-04	-1.15E-04	-1.17E-04	-1.16E-04	-1.08E-04
874	-1.74E-04	-1.72E-04	-1.73E-04	-1.72E-04	-1.81E-04	-1.77E-04	-1.82E-04
876	-4.89E-05	-6.51E-05	-6.65E-05	-6.51E-05	-7.04E-05	-6.70E-05	-5.93E-05
877	-1.72E-04	-1.76E-04	-1.78E-04	-1.76E-04	-1.75E-04	-1.75E-04	-1.75E-04
Biased Statistics							
Average Biased	1.24E-04	1.13E-04	1.11E-04	1.13E-04	1.25E-04	1.30E-04	1.12E-04
Std Dev Biased	9.80E-05	9.12E-05	9.15E-05	9.12E-05	8.82E-05	8.96E-05	9.79E-05
Ps90%/90% (+KTL) Biased	3.92E-04	3.63E-04	3.62E-04	3.63E-04	3.67E-04	3.76E-04	3.80E-04
Ps90%/90% (-KTL) Biased	-1.45E-04	-1.37E-04	-1.40E-04	-1.37E-04	-1.17E-04	-1.15E-04	-1.57E-04
Un-Biased Statistics							
Average Un-Biased	-4.93E-05	-5.84E-05	-5.83E-05	-5.84E-05	-6.21E-05	-5.90E-05	-5.86E-05
Std Dev Un-Biased	9.66E-05	9.15E-05	9.21E-05	9.15E-05	9.44E-05	9.42E-05	9.34E-05
Ps90%/90% (+KTL) Un-Biased	2.16E-04	1.93E-04	1.94E-04	1.93E-04	1.97E-04	1.99E-04	1.97E-04
Ps90%/90% (-KTL) Un-Biased	-3.14E-04	-3.09E-04	-3.11E-04	-3.09E-04	-3.21E-04	-3.17E-04	-3.15E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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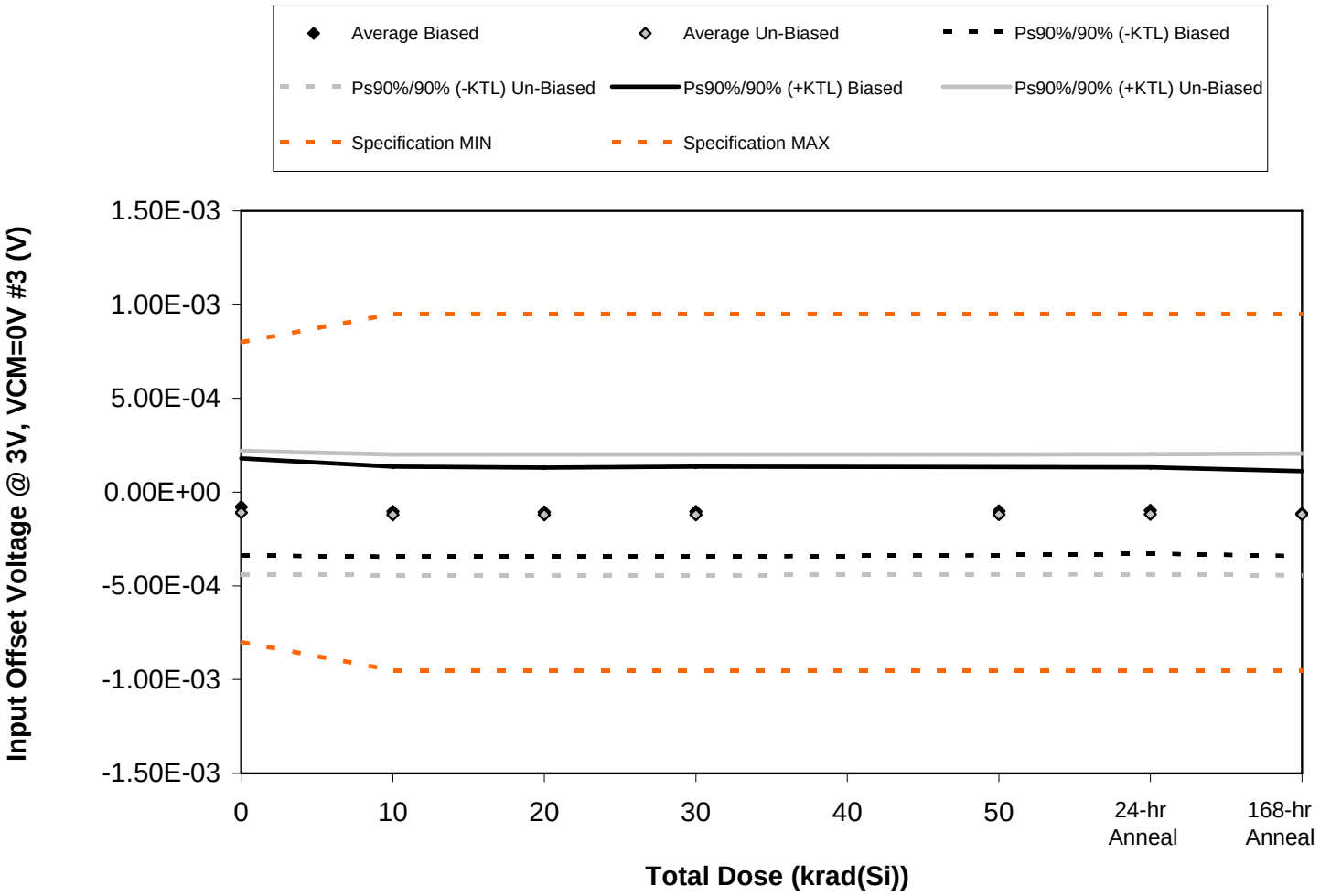

Figure 5.107. Plot of Input Offset Voltage @ 3V, VCM=0V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.107. Raw data for Input Offset Voltage @ 3V, VCM=0V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 3V, VCM=0V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.17E-05	-6.37E-05	-6.57E-05	-6.37E-05	-7.23E-05	-6.98E-05	-9.53E-05
867	-1.73E-04	-2.13E-04	-2.12E-04	-2.13E-04	-2.20E-04	-2.14E-04	-2.05E-04
868	-1.89E-04	-1.81E-04	-1.87E-04	-1.81E-04	-1.60E-04	-1.55E-04	-1.96E-04
869	1.25E-05	-2.76E-05	-2.93E-05	-2.76E-05	-1.95E-05	-1.91E-05	-2.98E-05
870	-1.53E-05	-3.12E-05	-3.86E-05	-3.12E-05	-3.42E-05	-3.08E-05	-4.44E-05
871	-5.99E-06	-2.62E-05	-2.47E-05	-2.62E-05	-2.79E-05	-2.52E-05	-1.08E-05
872	-2.24E-05	-3.44E-05	-3.54E-05	-3.44E-05	-3.42E-05	-3.19E-05	-4.65E-05
873	-1.65E-04	-1.74E-04	-1.76E-04	-1.74E-04	-1.73E-04	-1.71E-04	-1.72E-04
874	-2.93E-04	-3.03E-04	-3.02E-04	-3.03E-04	-3.01E-04	-2.99E-04	-3.02E-04
876	-5.84E-05	-6.59E-05	-6.76E-05	-6.59E-05	-6.22E-05	-6.19E-05	-6.54E-05
877	-2.17E-04	-2.17E-04	-2.18E-04	-2.17E-04	-2.21E-04	-2.19E-04	-2.20E-04
Biased Statistics							
Average Biased	-7.92E-05	-1.04E-04	-1.07E-04	-1.04E-04	-1.01E-04	-9.78E-05	-1.14E-04
Std Dev Biased	9.42E-05	8.77E-05	8.65E-05	8.77E-05	8.59E-05	8.41E-05	8.26E-05
Ps90%/90% (+KTL) Biased	1.79E-04	1.37E-04	1.31E-04	1.37E-04	1.34E-04	1.33E-04	1.12E-04
Ps90%/90% (-KTL) Biased	-3.38E-04	-3.44E-04	-3.44E-04	-3.44E-04	-3.37E-04	-3.28E-04	-3.41E-04
Un-Biased Statistics							
Average Un-Biased	-1.09E-04	-1.21E-04	-1.21E-04	-1.21E-04	-1.20E-04	-1.18E-04	-1.19E-04
Std Dev Un-Biased	1.20E-04	1.18E-04	1.18E-04	1.18E-04	1.17E-04	1.17E-04	1.19E-04
Ps90%/90% (+KTL) Un-Biased	2.20E-04	2.02E-04	2.01E-04	2.02E-04	2.01E-04	2.03E-04	2.06E-04
Ps90%/90% (-KTL) Un-Biased	-4.38E-04	-4.43E-04	-4.43E-04	-4.43E-04	-4.40E-04	-4.38E-04	-4.44E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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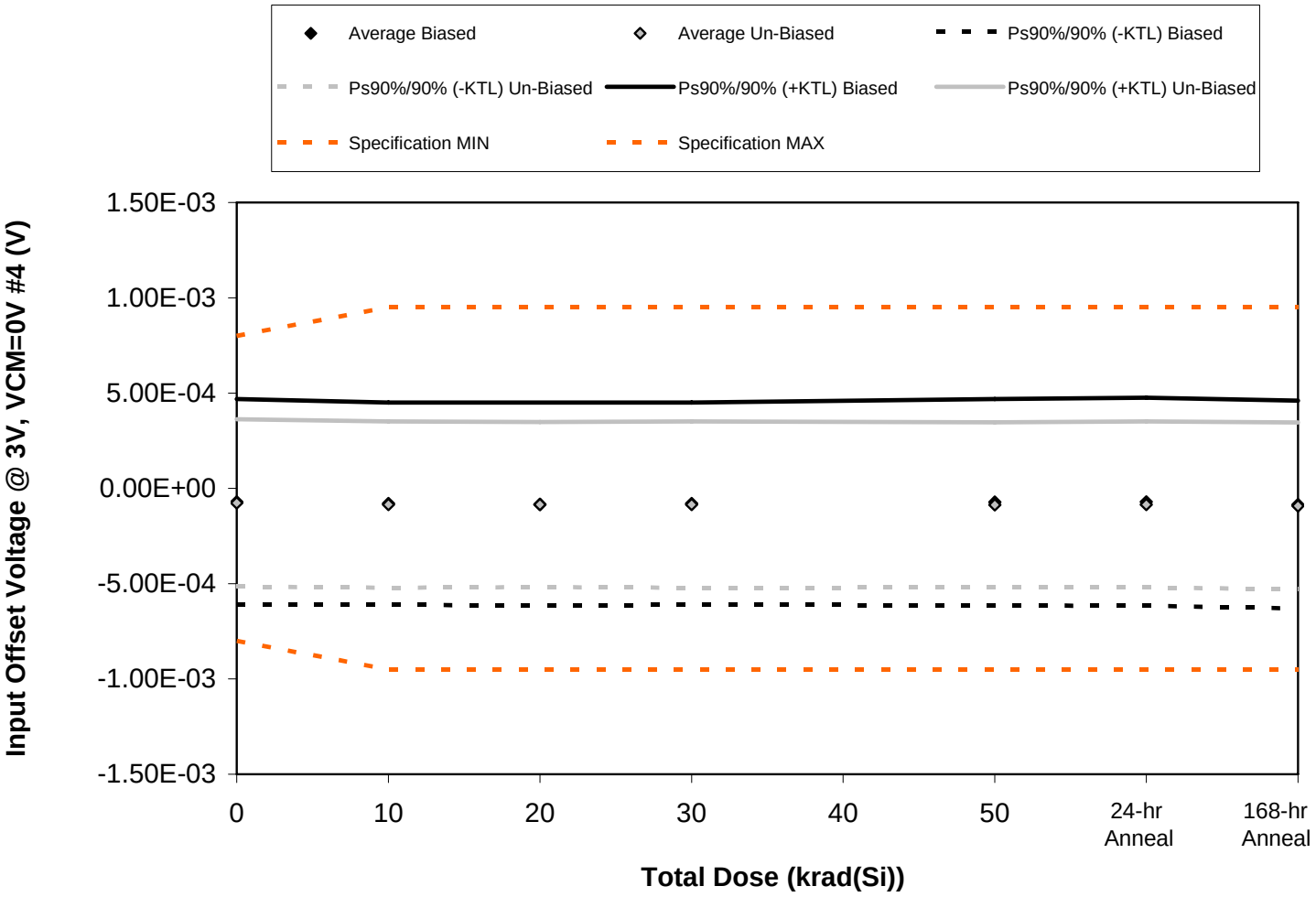

Figure 5.108. Plot of Input Offset Voltage @ 3V, VCM=0V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.108. Raw data for Input Offset Voltage @ 3V, VCM=0V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 3V, VCM=0V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-8.06E-05	-7.77E-05	-8.66E-05	-7.77E-05	-6.31E-05	-6.00E-05	-8.69E-05
867	2.02E-04	1.83E-04	1.82E-04	1.83E-04	1.91E-04	1.98E-04	1.73E-04
868	-3.29E-04	-3.41E-04	-3.43E-04	-3.41E-04	-3.45E-04	-3.44E-04	-3.63E-04
869	1.14E-05	-1.17E-06	-3.46E-06	-1.17E-06	4.75E-06	5.23E-06	9.46E-06
870	-1.55E-04	-1.60E-04	-1.67E-04	-1.60E-04	-1.51E-04	-1.50E-04	-1.59E-04
871	-4.42E-06	-1.64E-05	-1.49E-05	-1.64E-05	-1.83E-05	-1.70E-05	-1.71E-05
872	-1.80E-04	-1.82E-04	-1.82E-04	-1.82E-04	-1.84E-04	-1.82E-04	-2.03E-04
873	-2.84E-04	-2.98E-04	-2.95E-04	-2.98E-04	-2.95E-04	-2.94E-04	-3.01E-04
874	1.30E-04	1.16E-04	1.14E-04	1.16E-04	1.15E-04	1.19E-04	1.04E-04
876	-4.40E-05	-4.69E-05	-4.71E-05	-4.69E-05	-4.85E-05	-4.82E-05	-4.56E-05
877	-4.51E-05	-4.62E-05	-5.02E-05	-4.62E-05	-4.85E-05	-4.66E-05	-4.97E-05
Biased Statistics							
Average Biased	-7.03E-05	-7.95E-05	-8.35E-05	-7.95E-05	-7.27E-05	-7.03E-05	-8.53E-05
Std Dev Biased	1.97E-04	1.93E-04	1.94E-04	1.93E-04	1.98E-04	1.99E-04	1.99E-04
Ps90%/90% (+KTL) Biased	4.69E-04	4.51E-04	4.50E-04	4.51E-04	4.69E-04	4.76E-04	4.60E-04
Ps90%/90% (-KTL) Biased	-6.10E-04	-6.10E-04	-6.17E-04	-6.10E-04	-6.14E-04	-6.17E-04	-6.30E-04
Un-Biased Statistics							
Average Un-Biased	-7.65E-05	-8.54E-05	-8.51E-05	-8.54E-05	-8.62E-05	-8.44E-05	-9.24E-05
Std Dev Un-Biased	1.60E-04	1.59E-04	1.58E-04	1.59E-04	1.58E-04	1.59E-04	1.60E-04
Ps90%/90% (+KTL) Un-Biased	3.62E-04	3.51E-04	3.48E-04	3.51E-04	3.47E-04	3.51E-04	3.46E-04
Ps90%/90% (-KTL) Un-Biased	-5.15E-04	-5.21E-04	-5.18E-04	-5.21E-04	-5.19E-04	-5.20E-04	-5.30E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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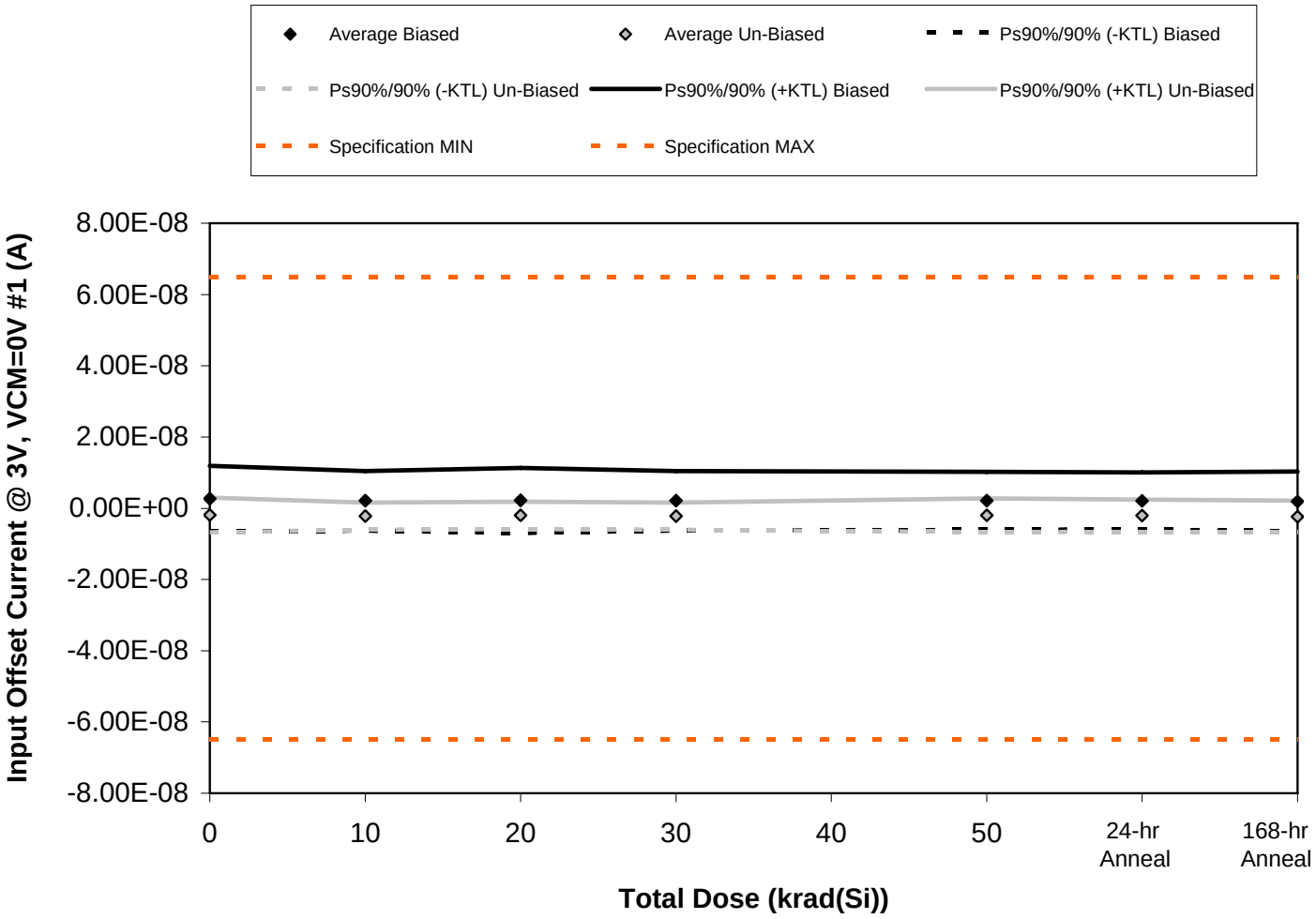

Figure 5.109. Plot of Input Offset Current @ 3V, VCM=0V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.109. Raw data for Input Offset Current @ 3V, VCM=0V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 3V, VCM=0V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.62E-10	2.35E-10	1.63E-10	2.35E-10	9.12E-10	8.49E-10	1.23E-10
867	7.59E-09	6.49E-09	7.16E-09	6.49E-09	6.32E-09	6.16E-09	6.07E-09
868	2.21E-10	-2.08E-10	-4.46E-10	-2.08E-10	-6.59E-10	-6.26E-10	-9.60E-10
869	4.79E-09	4.10E-09	4.15E-09	4.10E-09	3.96E-09	3.96E-09	4.21E-09
870	2.83E-10	-8.50E-11	2.00E-12	-8.50E-11	-2.10E-11	-1.22E-10	1.83E-10
871	-3.41E-09	-3.35E-09	-3.46E-09	-3.35E-09	-3.50E-09	-3.59E-09	-4.08E-09
872	5.04E-10	-5.00E-10	-1.10E-11	-5.00E-10	3.17E-10	1.00E-12	-4.28E-10
873	-6.32E-10	-8.54E-10	-1.17E-09	-8.54E-10	-5.65E-10	-6.62E-10	-8.13E-10
874	-3.51E-09	-3.00E-09	-2.74E-09	-3.00E-09	-3.04E-09	-2.65E-09	-3.11E-09
876	-2.54E-09	-3.22E-09	-2.67E-09	-3.22E-09	-3.12E-09	-3.48E-09	-3.26E-09
877	-6.24E-10	-6.53E-10	-6.20E-10	-6.53E-10	-6.47E-10	-6.67E-10	-5.97E-10
Biased Statistics							
Average Biased	2.67E-09	2.11E-09	2.20E-09	2.11E-09	2.10E-09	2.04E-09	1.92E-09
Std Dev Biased	3.36E-09	3.04E-09	3.33E-09	3.04E-09	2.95E-09	2.91E-09	3.04E-09
Ps90%/90% (+KTL) Biased	1.19E-08	1.04E-08	1.13E-08	1.04E-08	1.02E-08	1.00E-08	1.03E-08
Ps90%/90% (-KTL) Biased	-6.55E-09	-6.22E-09	-6.92E-09	-6.22E-09	-5.98E-09	-5.94E-09	-6.41E-09
Un-Biased Statistics							
Average Un-Biased	-1.92E-09	-2.19E-09	-2.01E-09	-2.19E-09	-1.98E-09	-2.08E-09	-2.34E-09
Std Dev Un-Biased	1.78E-09	1.39E-09	1.39E-09	1.39E-09	1.73E-09	1.65E-09	1.62E-09
Ps90%/90% (+KTL) Un-Biased	2.96E-09	1.62E-09	1.81E-09	1.62E-09	2.77E-09	2.45E-09	2.10E-09
Ps90%/90% (-KTL) Un-Biased	-6.79E-09	-5.99E-09	-5.83E-09	-5.99E-09	-6.73E-09	-6.61E-09	-6.78E-09
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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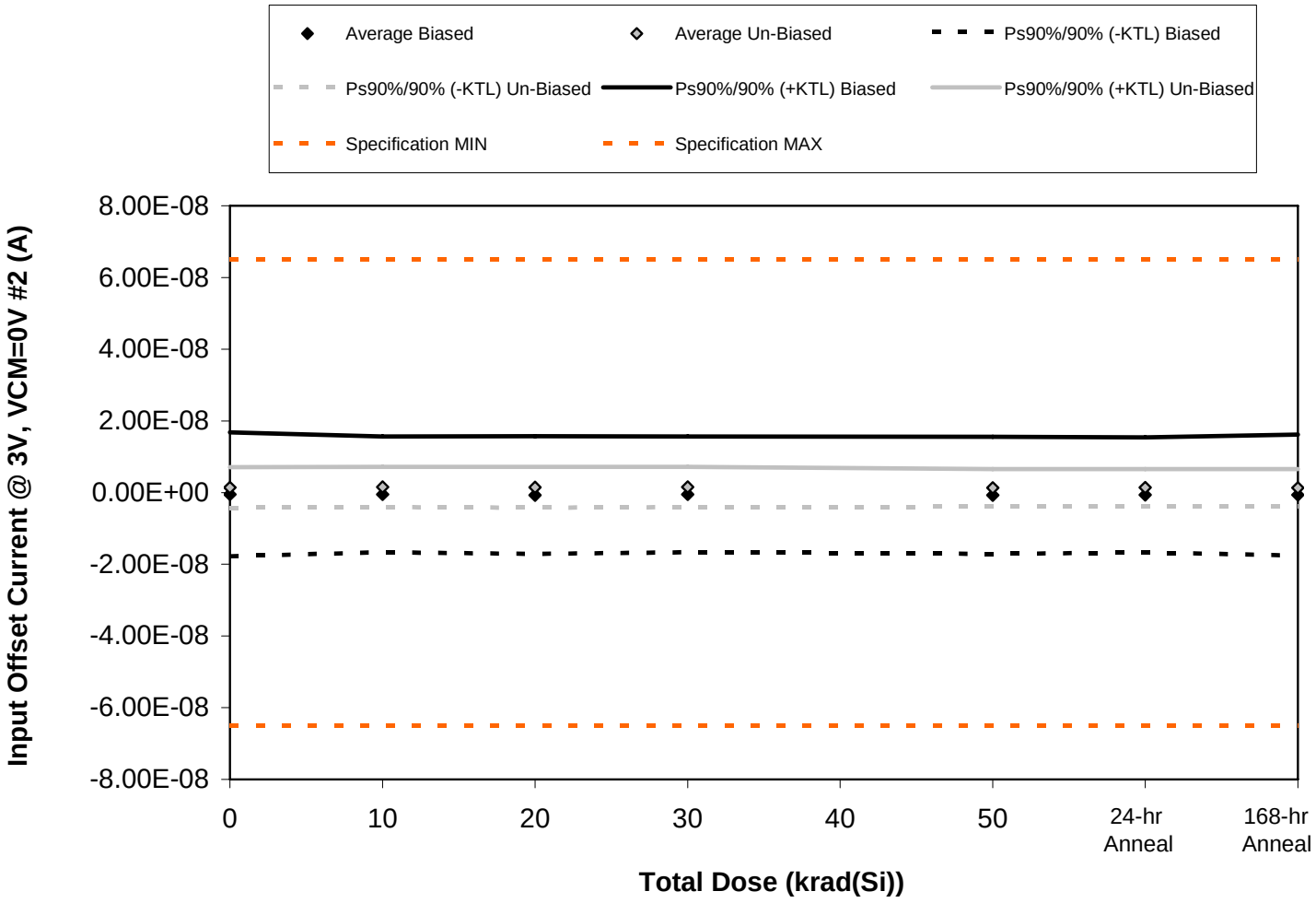

Figure 5.110. Plot of Input Offset Current @ 3V, VCM=0V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.110. Raw data for Input Offset Current @ 3V, VCM=0V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 3V, VCM=0V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-1.12E-08	-1.03E-08	-1.08E-08	-1.03E-08	-1.08E-08	-1.05E-08	-1.09E-08
867	2.70E-10	2.70E-10	2.51E-10	2.70E-10	-4.60E-11	2.08E-10	2.85E-10
868	1.19E-09	7.02E-10	7.09E-10	7.02E-10	4.36E-10	2.64E-10	3.17E-10
869	5.62E-09	5.47E-09	5.29E-09	5.47E-09	5.10E-09	5.10E-09	5.65E-09
870	1.56E-09	1.58E-09	1.03E-09	1.58E-09	1.51E-09	1.71E-09	1.37E-09
871	1.34E-09	1.85E-09	2.02E-09	1.85E-09	1.30E-09	1.55E-09	1.41E-09
872	2.11E-09	1.90E-09	1.90E-09	1.90E-09	1.08E-09	9.99E-10	1.69E-09
873	4.10E-09	4.07E-09	3.92E-09	4.07E-09	4.14E-09	4.04E-09	3.89E-09
874	-1.64E-09	-1.64E-09	-1.80E-09	-1.64E-09	-1.25E-09	-1.25E-09	-1.45E-09
876	1.14E-09	1.48E-09	1.36E-09	1.48E-09	1.37E-09	1.59E-09	1.17E-09
877	-5.12E-09	-5.24E-09	-5.28E-09	-5.24E-09	-5.23E-09	-5.21E-09	-5.14E-09
Biased Statistics							
Average Biased	-5.04E-10	-4.64E-10	-7.02E-10	-4.64E-10	-7.55E-10	-6.40E-10	-6.64E-10
Std Dev Biased	6.30E-09	5.89E-09	5.99E-09	5.89E-09	5.95E-09	5.85E-09	6.15E-09
Ps90%/90% (+KTL) Biased	1.68E-08	1.57E-08	1.57E-08	1.57E-08	1.56E-08	1.54E-08	1.62E-08
Ps90%/90% (-KTL) Biased	-1.78E-08	-1.66E-08	-1.71E-08	-1.66E-08	-1.71E-08	-1.67E-08	-1.75E-08
Un-Biased Statistics							
Average Un-Biased	1.41E-09	1.53E-09	1.48E-09	1.53E-09	1.33E-09	1.39E-09	1.34E-09
Std Dev Un-Biased	2.07E-09	2.04E-09	2.07E-09	2.04E-09	1.91E-09	1.88E-09	1.90E-09
Ps90%/90% (+KTL) Un-Biased	7.08E-09	7.13E-09	7.16E-09	7.13E-09	6.57E-09	6.55E-09	6.55E-09
Ps90%/90% (-KTL) Un-Biased	-4.26E-09	-4.07E-09	-4.20E-09	-4.07E-09	-3.92E-09	-3.78E-09	-3.87E-09
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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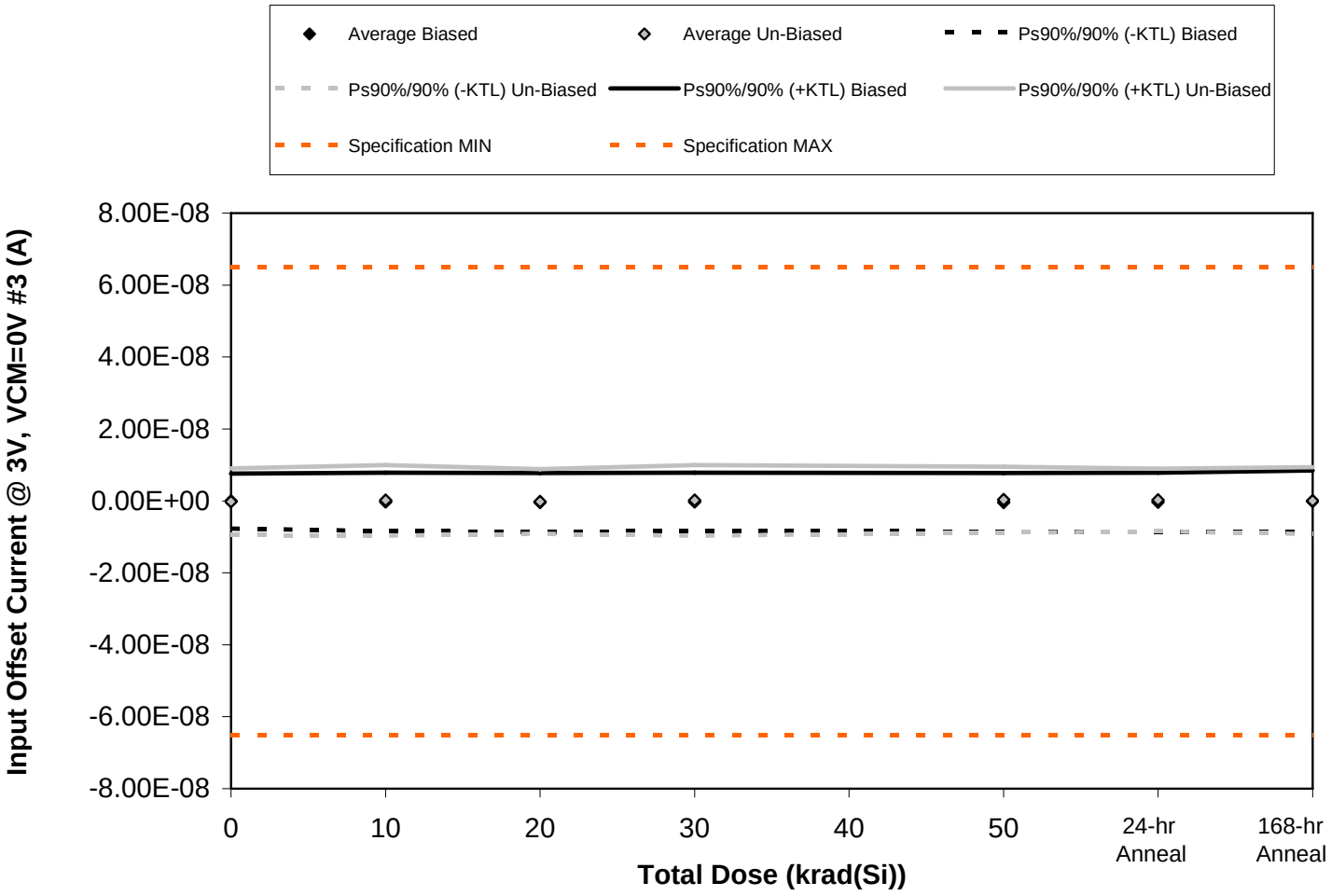

Figure 5.111. Plot of Input Offset Current @ 3V, VCM=0V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.111. Raw data for Input Offset Current @ 3V, VCM=0V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 3V, VCM=0V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.72E-10	-8.88E-10	-9.61E-10	-8.88E-10	-6.91E-10	-7.22E-10	-3.41E-10
867	-7.66E-10	-6.57E-10	-1.05E-09	-6.57E-10	-1.20E-09	-8.94E-10	-6.61E-10
868	4.63E-09	4.85E-09	4.77E-09	4.85E-09	4.73E-09	4.76E-09	5.13E-09
869	-1.01E-09	-2.36E-09	-2.41E-09	-2.36E-09	-2.52E-09	-2.57E-09	-1.69E-09
870	-2.82E-09	-2.30E-09	-2.40E-09	-2.30E-09	-2.32E-09	-2.33E-09	-3.01E-09
871	-4.11E-09	-3.85E-09	-3.94E-09	-3.85E-09	-3.06E-09	-3.06E-09	-3.77E-09
872	-3.33E-09	-3.20E-09	-3.23E-09	-3.20E-09	-3.25E-09	-3.01E-09	-3.24E-09
873	2.81E-09	3.84E-09	2.90E-09	3.84E-09	4.06E-09	3.58E-09	3.18E-09
874	2.94E-10	7.33E-10	4.75E-10	7.33E-10	1.20E-09	1.02E-09	8.65E-10
876	3.23E-09	3.36E-09	2.90E-09	3.36E-09	2.80E-09	2.93E-09	3.22E-09
877	2.44E-09	2.47E-09	2.45E-09	2.47E-09	2.45E-09	2.47E-09	2.50E-09
Biased Statistics							
Average Biased	-6.54E-11	-2.72E-10	-4.10E-10	-2.72E-10	-4.01E-10	-3.51E-10	-1.15E-10
Std Dev Biased	2.79E-09	2.97E-09	2.98E-09	2.97E-09	2.97E-09	2.97E-09	3.11E-09
Ps90%/90% (+KTL) Biased	7.58E-09	7.86E-09	7.76E-09	7.86E-09	7.73E-09	7.80E-09	8.42E-09
Ps90%/90% (-KTL) Biased	-7.71E-09	-8.41E-09	-8.58E-09	-8.41E-09	-8.53E-09	-8.50E-09	-8.65E-09
Un-Biased Statistics							
Average Un-Biased	-2.19E-10	1.78E-10	-1.78E-10	1.78E-10	3.49E-10	2.90E-10	5.34E-11
Std Dev Un-Biased	3.39E-09	3.58E-09	3.27E-09	3.58E-09	3.36E-09	3.18E-09	3.39E-09
Ps90%/90% (+KTL) Un-Biased	9.09E-09	1.00E-08	8.80E-09	1.00E-08	9.55E-09	9.01E-09	9.34E-09
Ps90%/90% (-KTL) Un-Biased	-9.53E-09	-9.65E-09	-9.15E-09	-9.65E-09	-8.86E-09	-8.43E-09	-9.24E-09
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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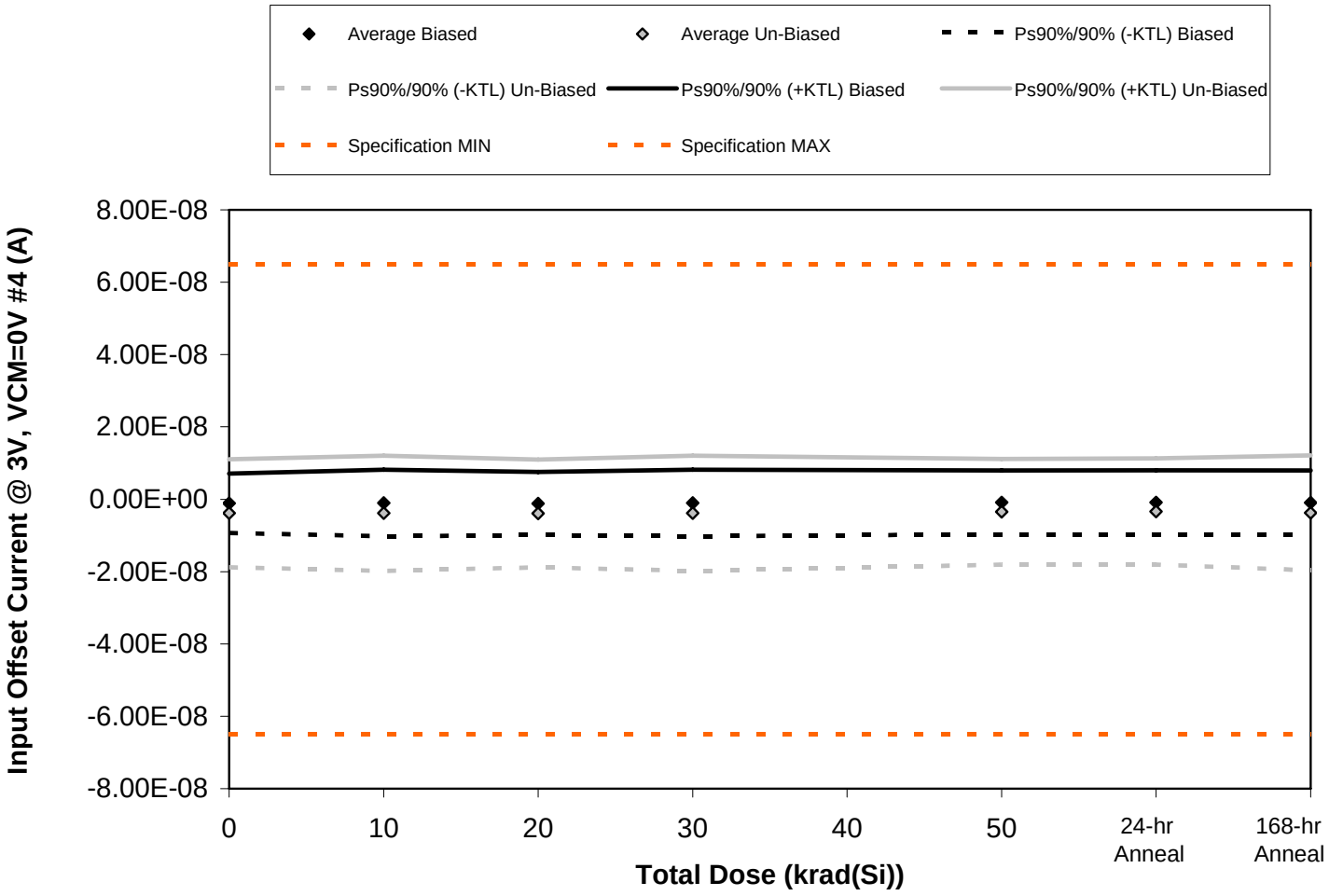

Figure 5.112. Plot of Input Offset Current @ 3V, VCM=0V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.112. Raw data for Input Offset Current @ 3V, VCM=0V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 3V, VCM=0V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.03E-09	-2.25E-09	-2.38E-09	-2.25E-09	-2.11E-09	-2.28E-09	-2.97E-09
867	3.82E-09	4.55E-09	4.11E-09	4.55E-09	4.49E-09	4.44E-09	4.56E-09
868	-4.34E-09	-4.48E-09	-4.40E-09	-4.48E-09	-3.95E-09	-4.19E-09	-3.59E-09
869	-1.57E-09	-1.29E-09	-1.25E-09	-1.29E-09	-5.79E-10	-5.06E-10	-1.16E-09
870	-1.42E-09	-1.71E-09	-1.96E-09	-1.71E-09	-2.14E-09	-2.00E-09	-1.72E-09
871	-1.43E-09	-1.31E-09	-1.49E-09	-1.31E-09	-1.80E-09	-1.62E-09	-1.80E-09
872	2.65E-09	2.56E-09	2.18E-09	2.56E-09	3.15E-09	3.13E-09	3.09E-09
873	-1.22E-08	-1.31E-08	-1.26E-08	-1.31E-08	-1.16E-08	-1.17E-08	-1.29E-08
874	-3.82E-09	-2.88E-09	-3.75E-09	-2.88E-09	-2.93E-09	-3.01E-09	-3.17E-09
876	-4.53E-09	-4.53E-09	-3.94E-09	-4.53E-09	-4.05E-09	-3.76E-09	-4.16E-09
877	-2.67E-10	-2.09E-10	-2.29E-10	-2.09E-10	-3.00E-10	-2.72E-10	-2.49E-10
Biased Statistics							
Average Biased	-1.11E-09	-1.04E-09	-1.18E-09	-1.04E-09	-8.56E-10	-9.07E-10	-9.75E-10
Std Dev Biased	2.99E-09	3.36E-09	3.18E-09	3.36E-09	3.22E-09	3.27E-09	3.24E-09
Ps90%/90% (+KTL) Biased	7.10E-09	8.16E-09	7.53E-09	8.16E-09	7.97E-09	8.05E-09	7.91E-09
Ps90%/90% (-KTL) Biased	-9.32E-09	-1.02E-08	-9.88E-09	-1.02E-08	-9.68E-09	-9.86E-09	-9.86E-09
Un-Biased Statistics							
Average Un-Biased	-3.87E-09	-3.86E-09	-3.92E-09	-3.86E-09	-3.45E-09	-3.39E-09	-3.78E-09
Std Dev Un-Biased	5.46E-09	5.81E-09	5.44E-09	5.81E-09	5.33E-09	5.35E-09	5.79E-09
Ps90%/90% (+KTL) Un-Biased	1.11E-08	1.21E-08	1.10E-08	1.21E-08	1.12E-08	1.13E-08	1.21E-08
Ps90%/90% (-KTL) Un-Biased	-1.88E-08	-1.98E-08	-1.88E-08	-1.98E-08	-1.81E-08	-1.81E-08	-1.97E-08
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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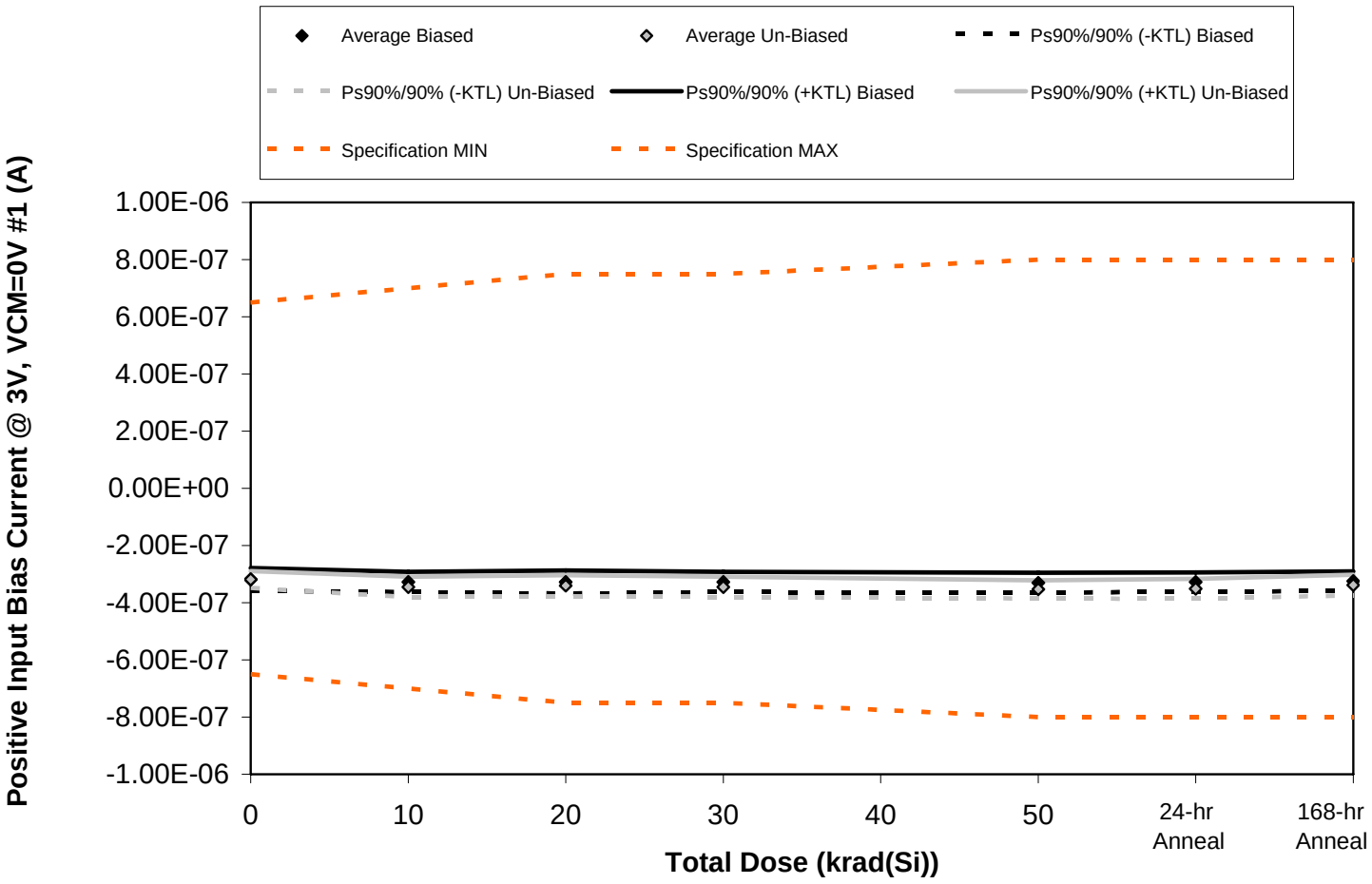

Figure 5.113. Plot of Positive Input Bias Current @ 3V, VCM=0V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.113. Raw data for Positive Input Bias Current @ 3V, VCM=0V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 3V, VCM=0V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.34E-07	-3.40E-07	-3.44E-07	-3.40E-07	-3.41E-07	-3.39E-07	-3.38E-07
867	-3.06E-07	-3.17E-07	-3.15E-07	-3.17E-07	-3.21E-07	-3.19E-07	-3.15E-07
868	-3.02E-07	-3.12E-07	-3.10E-07	-3.12E-07	-3.14E-07	-3.13E-07	-3.09E-07
869	-3.21E-07	-3.28E-07	-3.27E-07	-3.28E-07	-3.30E-07	-3.28E-07	-3.25E-07
870	-3.31E-07	-3.40E-07	-3.39E-07	-3.40E-07	-3.44E-07	-3.40E-07	-3.36E-07
871	-3.32E-07	-3.60E-07	-3.57E-07	-3.60E-07	-3.65E-07	-3.65E-07	-3.54E-07
872	-3.28E-07	-3.58E-07	-3.54E-07	-3.58E-07	-3.66E-07	-3.64E-07	-3.51E-07
873	-3.13E-07	-3.39E-07	-3.34E-07	-3.39E-07	-3.50E-07	-3.49E-07	-3.32E-07
874	-3.09E-07	-3.33E-07	-3.29E-07	-3.33E-07	-3.40E-07	-3.38E-07	-3.25E-07
876	-3.11E-07	-3.35E-07	-3.30E-07	-3.35E-07	-3.47E-07	-3.41E-07	-3.29E-07
877	-3.29E-07	-3.30E-07	-3.31E-07	-3.30E-07	-3.30E-07	-3.29E-07	-3.30E-07
Biased Statistics							
Average Biased	-3.19E-07	-3.27E-07	-3.27E-07	-3.27E-07	-3.30E-07	-3.28E-07	-3.25E-07
Std Dev Biased	1.45E-08	1.29E-08	1.47E-08	1.29E-08	1.28E-08	1.21E-08	1.28E-08
Ps90%/90% (+KTL) Biased	-2.79E-07	-2.92E-07	-2.87E-07	-2.92E-07	-2.95E-07	-2.94E-07	-2.90E-07
Ps90%/90% (-KTL) Biased	-3.59E-07	-3.63E-07	-3.67E-07	-3.63E-07	-3.65E-07	-3.61E-07	-3.60E-07
Un-Biased Statistics							
Average Un-Biased	-3.19E-07	-3.45E-07	-3.41E-07	-3.45E-07	-3.53E-07	-3.51E-07	-3.38E-07
Std Dev Un-Biased	1.07E-08	1.31E-08	1.34E-08	1.31E-08	1.15E-08	1.27E-08	1.32E-08
Ps90%/90% (+KTL) Un-Biased	-2.89E-07	-3.09E-07	-3.04E-07	-3.09E-07	-3.22E-07	-3.16E-07	-3.02E-07
Ps90%/90% (-KTL) Un-Biased	-3.48E-07	-3.81E-07	-3.77E-07	-3.81E-07	-3.85E-07	-3.86E-07	-3.74E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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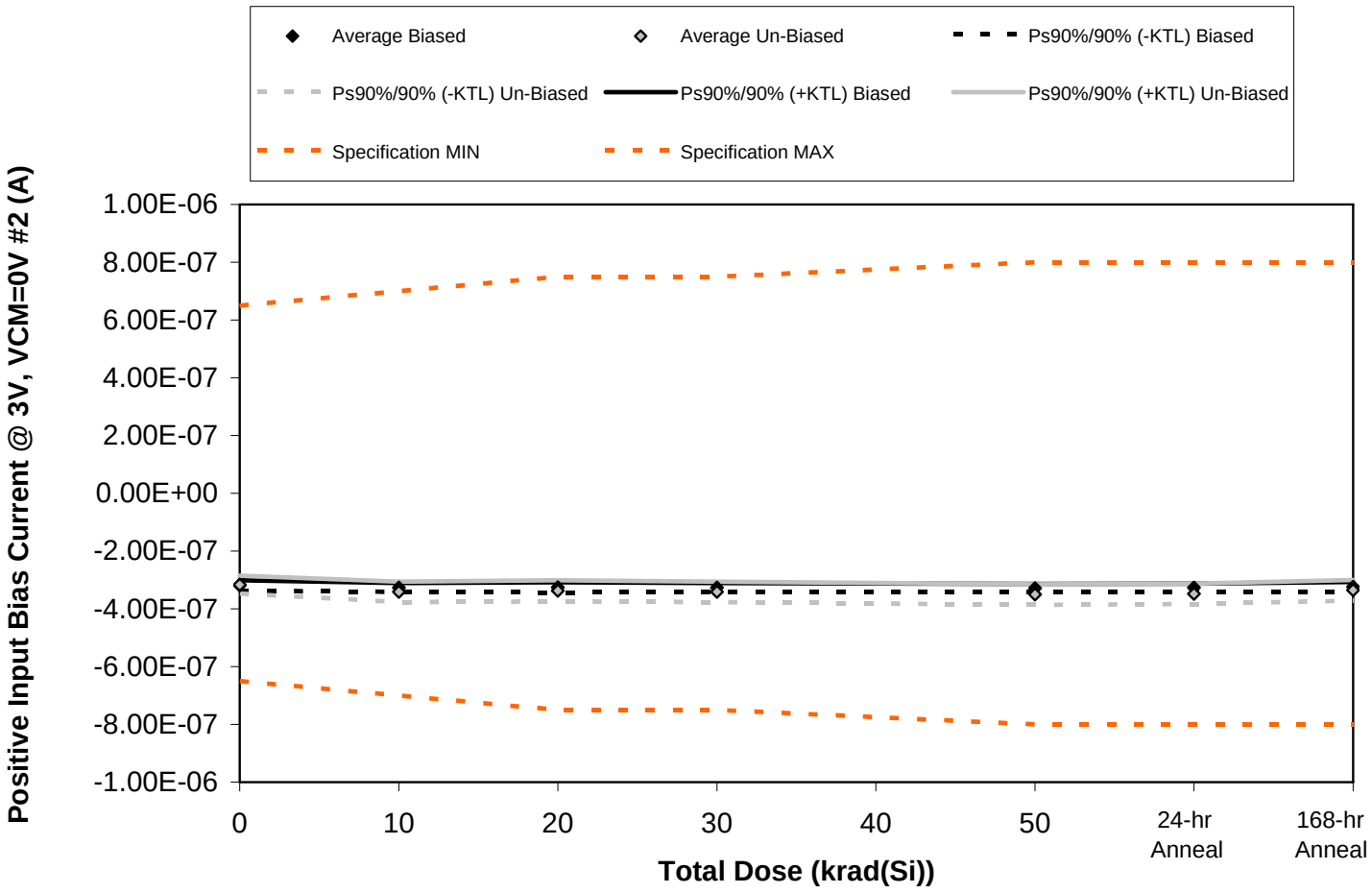

Figure 5.114. Plot of Positive Input Bias Current @ 3V, VCM=0V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.114. Raw data for Positive Input Bias Current @ 3V, VCM=0V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 3V, VCM=0V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.30E-07	-3.34E-07	-3.36E-07	-3.34E-07	-3.35E-07	-3.33E-07	-3.33E-07
867	-3.17E-07	-3.26E-07	-3.25E-07	-3.26E-07	-3.28E-07	-3.26E-07	-3.23E-07
868	-3.14E-07	-3.22E-07	-3.21E-07	-3.22E-07	-3.25E-07	-3.23E-07	-3.20E-07
869	-3.14E-07	-3.20E-07	-3.19E-07	-3.20E-07	-3.22E-07	-3.20E-07	-3.17E-07
870	-3.21E-07	-3.29E-07	-3.28E-07	-3.29E-07	-3.30E-07	-3.28E-07	-3.26E-07
871	-3.03E-07	-3.26E-07	-3.21E-07	-3.26E-07	-3.33E-07	-3.31E-07	-3.20E-07
872	-3.30E-07	-3.55E-07	-3.52E-07	-3.55E-07	-3.62E-07	-3.60E-07	-3.49E-07
873	-3.26E-07	-3.54E-07	-3.51E-07	-3.54E-07	-3.63E-07	-3.60E-07	-3.50E-07
874	-3.11E-07	-3.35E-07	-3.30E-07	-3.35E-07	-3.41E-07	-3.39E-07	-3.28E-07
876	-3.13E-07	-3.38E-07	-3.34E-07	-3.38E-07	-3.53E-07	-3.48E-07	-3.32E-07
877	-3.11E-07	-3.12E-07	-3.12E-07	-3.12E-07	-3.11E-07	-3.11E-07	-3.12E-07
Biased Statistics							
Average Biased	-3.19E-07	-3.26E-07	-3.26E-07	-3.26E-07	-3.28E-07	-3.26E-07	-3.24E-07
Std Dev Biased	6.69E-09	5.44E-09	6.62E-09	5.44E-09	5.09E-09	5.06E-09	6.09E-09
Ps90%/90% (+KTL) Biased	-3.01E-07	-3.11E-07	-3.08E-07	-3.11E-07	-3.14E-07	-3.12E-07	-3.07E-07
Ps90%/90% (-KTL) Biased	-3.37E-07	-3.41E-07	-3.44E-07	-3.41E-07	-3.42E-07	-3.40E-07	-3.41E-07
Un-Biased Statistics							
Average Un-Biased	-3.17E-07	-3.41E-07	-3.38E-07	-3.41E-07	-3.50E-07	-3.48E-07	-3.36E-07
Std Dev Un-Biased	1.13E-08	1.28E-08	1.34E-08	1.28E-08	1.31E-08	1.29E-08	1.31E-08
Ps90%/90% (+KTL) Un-Biased	-2.86E-07	-3.06E-07	-3.01E-07	-3.06E-07	-3.15E-07	-3.12E-07	-3.00E-07
Ps90%/90% (-KTL) Un-Biased	-3.48E-07	-3.77E-07	-3.74E-07	-3.77E-07	-3.86E-07	-3.83E-07	-3.72E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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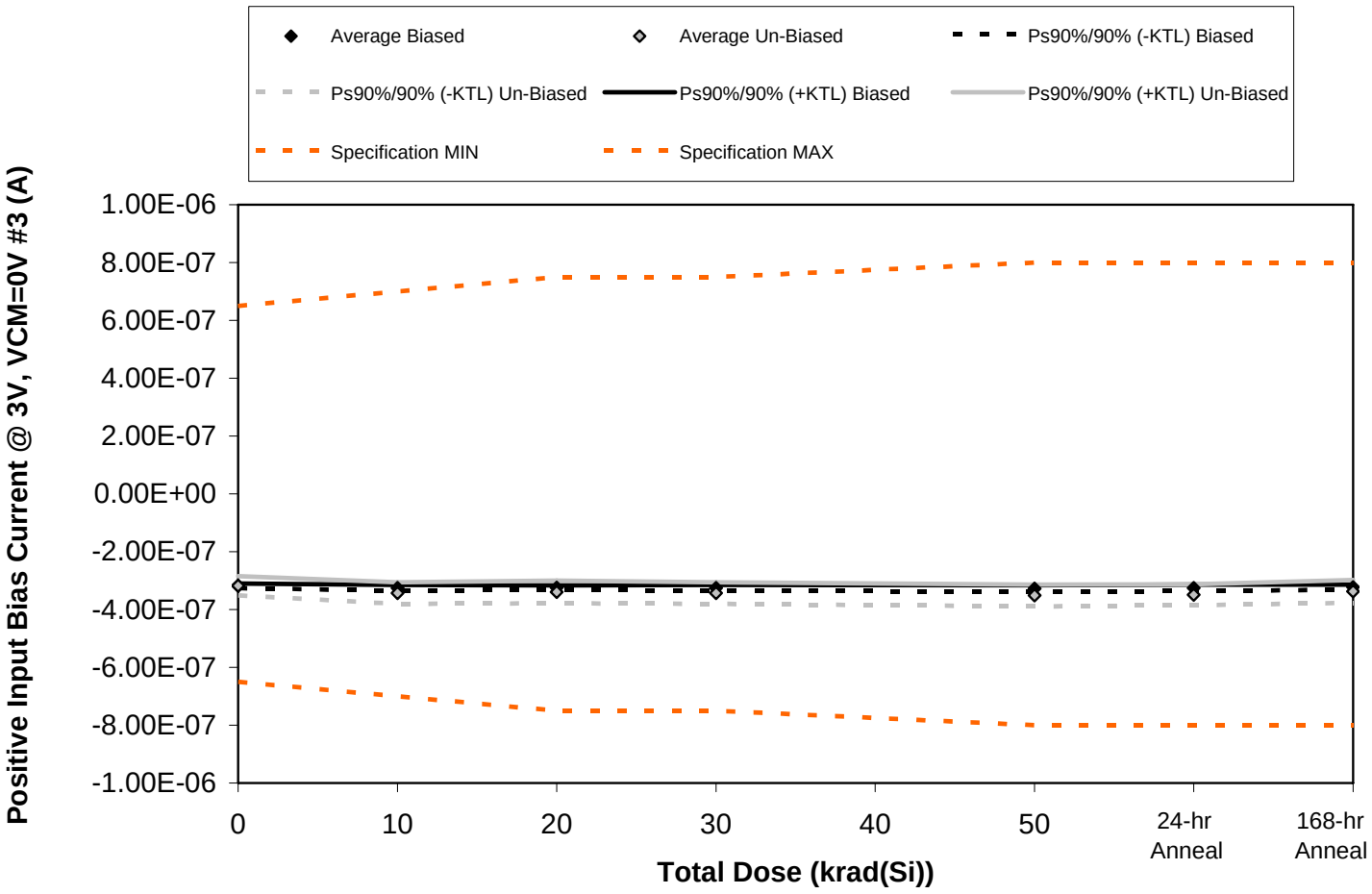

Figure 5.115. Plot of Positive Input Bias Current @ 3V, VCM=0V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.115. Raw data for Positive Input Bias Current @ 3V, VCM=0V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 3V, VCM=0V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.13E-07	-3.19E-07	-3.20E-07	-3.19E-07	-3.20E-07	-3.18E-07	-3.17E-07
867	-3.17E-07	-3.27E-07	-3.26E-07	-3.27E-07	-3.30E-07	-3.29E-07	-3.25E-07
868	-3.16E-07	-3.25E-07	-3.23E-07	-3.25E-07	-3.27E-07	-3.25E-07	-3.22E-07
869	-3.21E-07	-3.28E-07	-3.27E-07	-3.28E-07	-3.29E-07	-3.27E-07	-3.25E-07
870	-3.20E-07	-3.28E-07	-3.27E-07	-3.28E-07	-3.29E-07	-3.27E-07	-3.24E-07
871	-3.05E-07	-3.28E-07	-3.23E-07	-3.28E-07	-3.34E-07	-3.33E-07	-3.22E-07
872	-3.33E-07	-3.57E-07	-3.53E-07	-3.57E-07	-3.63E-07	-3.61E-07	-3.51E-07
873	-3.29E-07	-3.58E-07	-3.55E-07	-3.58E-07	-3.66E-07	-3.63E-07	-3.54E-07
874	-3.10E-07	-3.34E-07	-3.30E-07	-3.34E-07	-3.41E-07	-3.39E-07	-3.27E-07
876	-3.14E-07	-3.38E-07	-3.34E-07	-3.38E-07	-3.51E-07	-3.49E-07	-3.32E-07
877	-3.09E-07	-3.10E-07	-3.11E-07	-3.10E-07	-3.10E-07	-3.09E-07	-3.10E-07
Biased Statistics							
Average Biased	-3.17E-07	-3.25E-07	-3.25E-07	-3.25E-07	-3.27E-07	-3.25E-07	-3.23E-07
Std Dev Biased	2.85E-09	3.78E-09	2.86E-09	3.78E-09	4.11E-09	4.06E-09	3.07E-09
Ps90%/90% (+KTL) Biased	-3.10E-07	-3.15E-07	-3.17E-07	-3.15E-07	-3.16E-07	-3.14E-07	-3.14E-07
Ps90%/90% (-KTL) Biased	-3.25E-07	-3.36E-07	-3.32E-07	-3.36E-07	-3.38E-07	-3.36E-07	-3.31E-07
Un-Biased Statistics							
Average Un-Biased	-3.18E-07	-3.43E-07	-3.39E-07	-3.43E-07	-3.51E-07	-3.49E-07	-3.37E-07
Std Dev Un-Biased	1.22E-08	1.37E-08	1.42E-08	1.37E-08	1.37E-08	1.32E-08	1.43E-08
Ps90%/90% (+KTL) Un-Biased	-2.85E-07	-3.05E-07	-3.00E-07	-3.05E-07	-3.14E-07	-3.13E-07	-2.98E-07
Ps90%/90% (-KTL) Un-Biased	-3.51E-07	-3.80E-07	-3.78E-07	-3.80E-07	-3.89E-07	-3.85E-07	-3.76E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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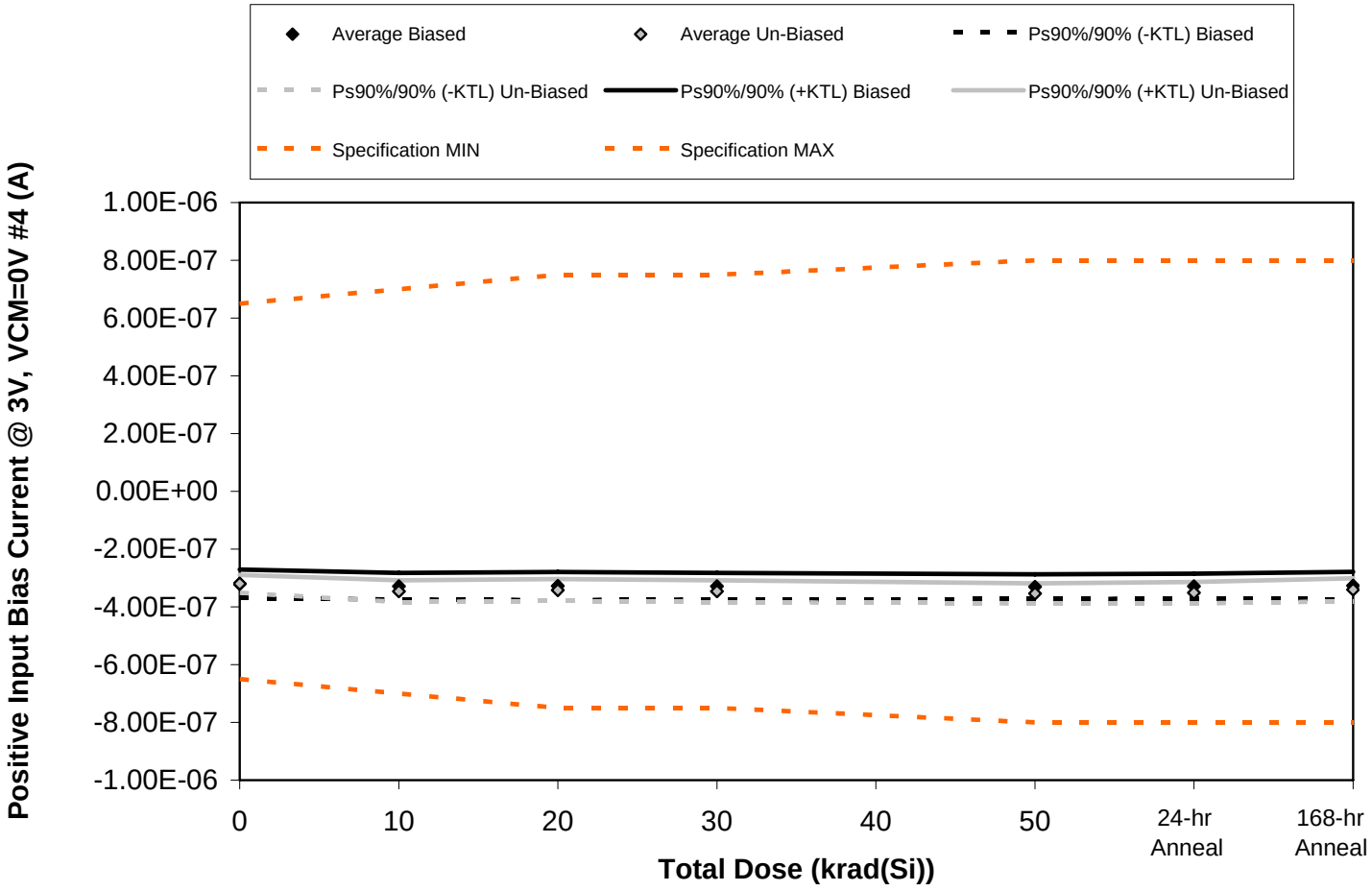

Figure 5.116. Plot of Positive Input Bias Current @ 3V, VCM=0V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.116. Raw data for Positive Input Bias Current @ 3V, VCM=0V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 3V, VCM=0V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.46E-07	-3.52E-07	-3.54E-07	-3.52E-07	-3.52E-07	-3.51E-07	-3.52E-07
867	-3.02E-07	-3.13E-07	-3.12E-07	-3.13E-07	-3.16E-07	-3.14E-07	-3.11E-07
868	-3.05E-07	-3.14E-07	-3.12E-07	-3.14E-07	-3.16E-07	-3.15E-07	-3.11E-07
869	-3.19E-07	-3.25E-07	-3.24E-07	-3.25E-07	-3.26E-07	-3.24E-07	-3.23E-07
870	-3.30E-07	-3.38E-07	-3.37E-07	-3.38E-07	-3.40E-07	-3.38E-07	-3.35E-07
871	-3.29E-07	-3.54E-07	-3.52E-07	-3.54E-07	-3.62E-07	-3.59E-07	-3.50E-07
872	-3.32E-07	-3.60E-07	-3.56E-07	-3.60E-07	-3.67E-07	-3.65E-07	-3.55E-07
873	-3.23E-07	-3.52E-07	-3.48E-07	-3.52E-07	-3.59E-07	-3.57E-07	-3.47E-07
874	-3.06E-07	-3.29E-07	-3.25E-07	-3.29E-07	-3.36E-07	-3.34E-07	-3.22E-07
876	-3.11E-07	-3.34E-07	-3.30E-07	-3.34E-07	-3.46E-07	-3.39E-07	-3.28E-07
877	-3.27E-07	-3.28E-07	-3.29E-07	-3.28E-07	-3.28E-07	-3.27E-07	-3.28E-07
Biased Statistics							
Average Biased	-3.21E-07	-3.28E-07	-3.28E-07	-3.28E-07	-3.30E-07	-3.28E-07	-3.26E-07
Std Dev Biased	1.80E-08	1.67E-08	1.78E-08	1.67E-08	1.56E-08	1.58E-08	1.73E-08
Ps90%/90% (+KTL) Biased	-2.71E-07	-2.83E-07	-2.79E-07	-2.83E-07	-2.87E-07	-2.85E-07	-2.79E-07
Ps90%/90% (-KTL) Biased	-3.70E-07	-3.74E-07	-3.77E-07	-3.74E-07	-3.73E-07	-3.72E-07	-3.74E-07
Un-Biased Statistics							
Average Un-Biased	-3.20E-07	-3.46E-07	-3.42E-07	-3.46E-07	-3.54E-07	-3.51E-07	-3.40E-07
Std Dev Un-Biased	1.14E-08	1.37E-08	1.38E-08	1.37E-08	1.27E-08	1.35E-08	1.45E-08
Ps90%/90% (+KTL) Un-Biased	-2.89E-07	-3.08E-07	-3.04E-07	-3.08E-07	-3.19E-07	-3.14E-07	-3.01E-07
Ps90%/90% (-KTL) Un-Biased	-3.51E-07	-3.84E-07	-3.80E-07	-3.84E-07	-3.89E-07	-3.88E-07	-3.80E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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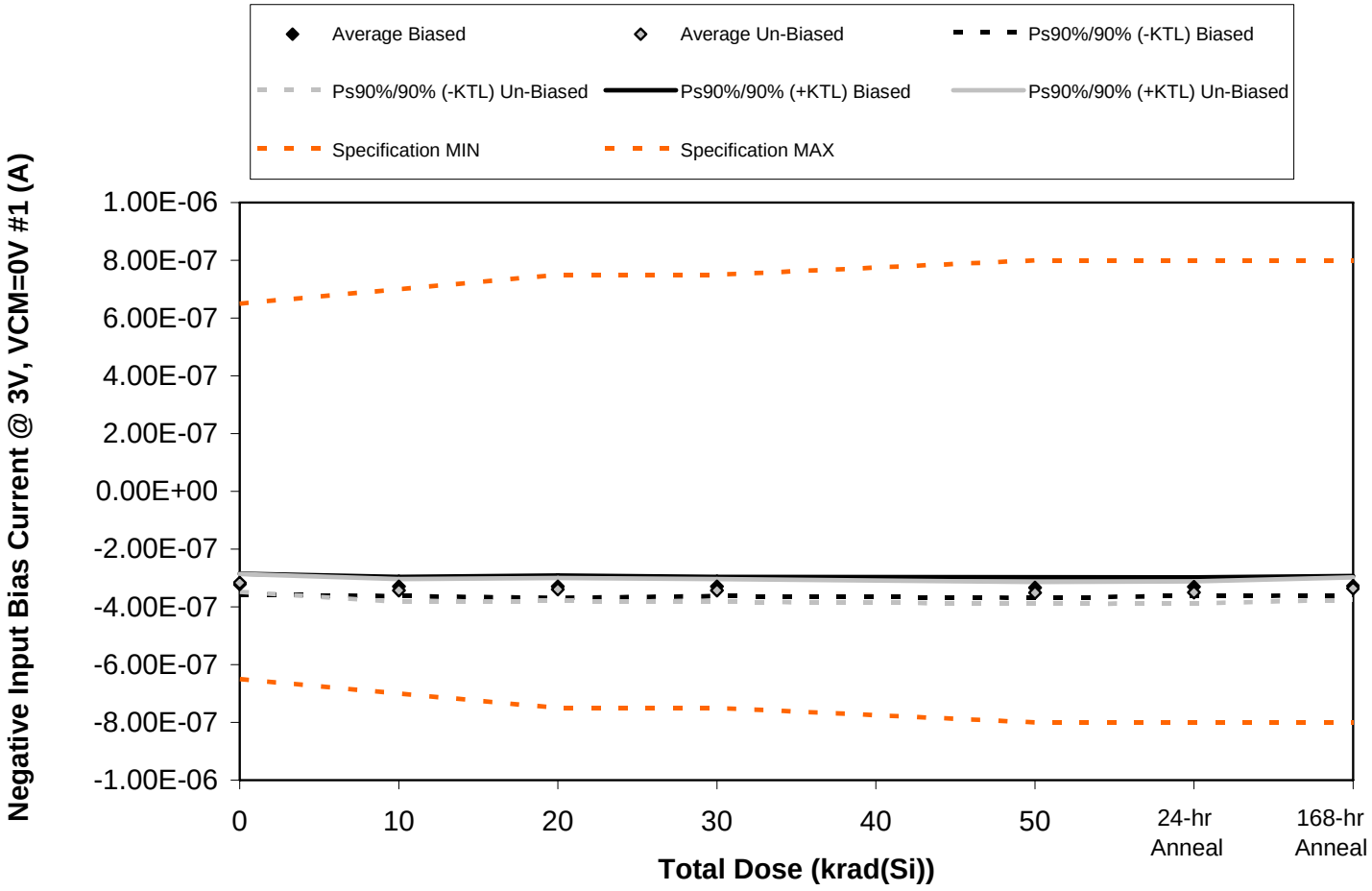

Figure 5.117. Plot of Negative Input Bias Current @ 3V, VCM=0V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.117. Raw data for Negative Input Bias Current @ 3V, VCM=0V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 3V, VCM=0V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.35E-07	-3.41E-07	-3.46E-07	-3.41E-07	-3.44E-07	-3.41E-07	-3.39E-07
867	-3.13E-07	-3.24E-07	-3.23E-07	-3.24E-07	-3.27E-07	-3.25E-07	-3.21E-07
868	-3.03E-07	-3.12E-07	-3.10E-07	-3.12E-07	-3.14E-07	-3.12E-07	-3.09E-07
869	-3.26E-07	-3.32E-07	-3.31E-07	-3.32E-07	-3.34E-07	-3.32E-07	-3.30E-07
870	-3.31E-07	-3.40E-07	-3.39E-07	-3.40E-07	-3.46E-07	-3.40E-07	-3.37E-07
871	-3.29E-07	-3.58E-07	-3.54E-07	-3.58E-07	-3.63E-07	-3.62E-07	-3.51E-07
872	-3.28E-07	-3.59E-07	-3.56E-07	-3.59E-07	-3.68E-07	-3.66E-07	-3.52E-07
873	-3.12E-07	-3.38E-07	-3.33E-07	-3.38E-07	-3.50E-07	-3.48E-07	-3.32E-07
874	-3.06E-07	-3.30E-07	-3.26E-07	-3.30E-07	-3.37E-07	-3.35E-07	-3.23E-07
876	-3.09E-07	-3.32E-07	-3.28E-07	-3.32E-07	-3.40E-07	-3.37E-07	-3.26E-07
877	-3.29E-07	-3.30E-07	-3.30E-07	-3.30E-07	-3.29E-07	-3.28E-07	-3.29E-07
Biased Statistics							
Average Biased	-3.22E-07	-3.30E-07	-3.30E-07	-3.30E-07	-3.33E-07	-3.30E-07	-3.27E-07
Std Dev Biased	1.34E-08	1.22E-08	1.41E-08	1.22E-08	1.31E-08	1.17E-08	1.24E-08
Ps90%/90% (+KTL) Biased	-2.85E-07	-2.96E-07	-2.91E-07	-2.96E-07	-2.97E-07	-2.98E-07	-2.93E-07
Ps90%/90% (-KTL) Biased	-3.58E-07	-3.63E-07	-3.69E-07	-3.63E-07	-3.69E-07	-3.62E-07	-3.61E-07
Un-Biased Statistics							
Average Un-Biased	-3.17E-07	-3.43E-07	-3.39E-07	-3.43E-07	-3.51E-07	-3.50E-07	-3.37E-07
Std Dev Un-Biased	1.12E-08	1.42E-08	1.45E-08	1.42E-08	1.37E-08	1.40E-08	1.40E-08
Ps90%/90% (+KTL) Un-Biased	-2.86E-07	-3.04E-07	-3.00E-07	-3.04E-07	-3.14E-07	-3.11E-07	-2.98E-07
Ps90%/90% (-KTL) Un-Biased	-3.48E-07	-3.82E-07	-3.79E-07	-3.82E-07	-3.89E-07	-3.88E-07	-3.75E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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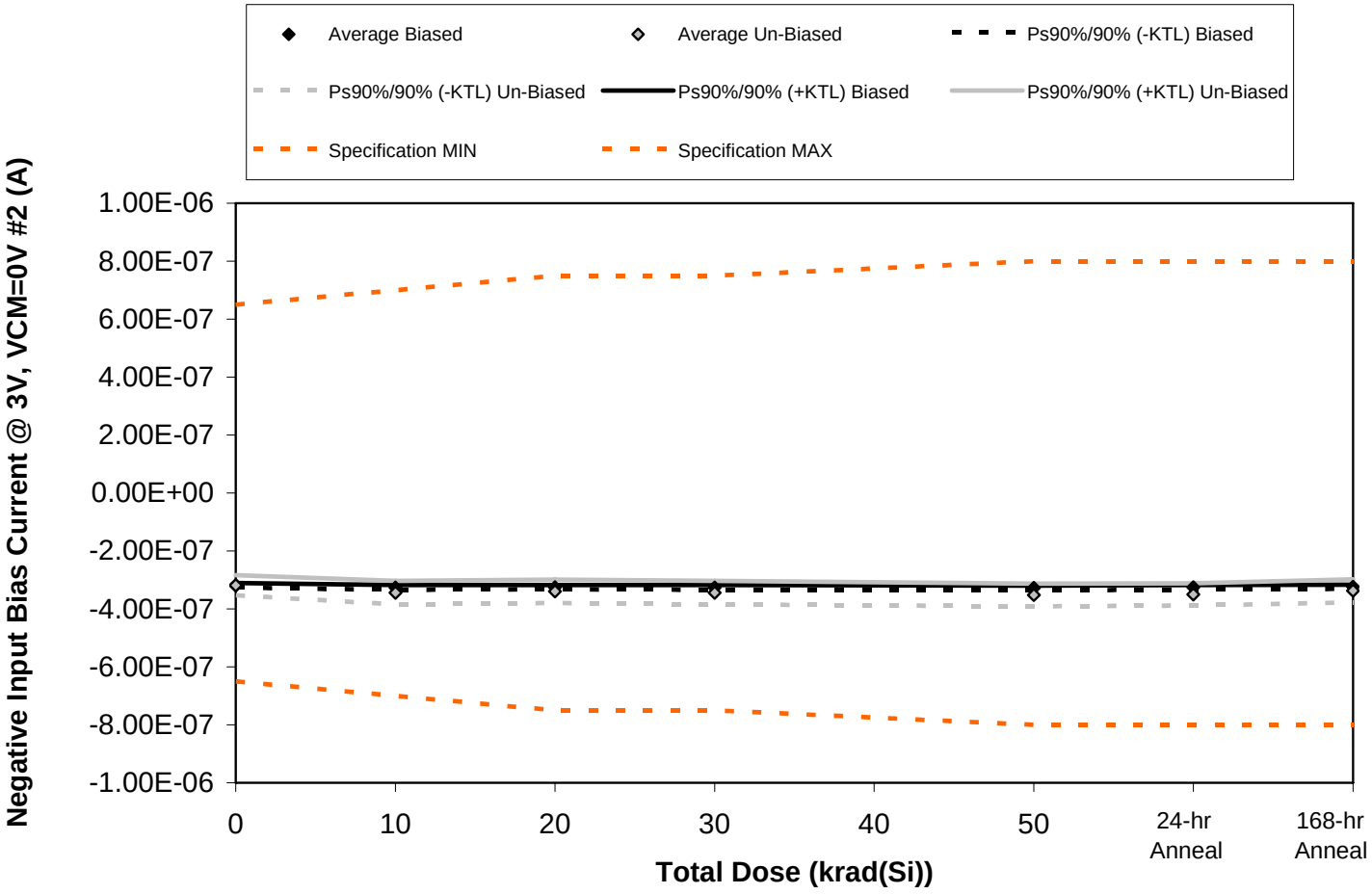

Figure 5.118. Plot of Negative Input Bias Current @ 3V, VCM=0V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.118. Raw data for Negative Input Bias Current @ 3V, VCM=0V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 3V, VCM=0V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.19E-07	-3.24E-07	-3.26E-07	-3.24E-07	-3.25E-07	-3.23E-07	-3.22E-07
867	-3.17E-07	-3.26E-07	-3.25E-07	-3.26E-07	-3.29E-07	-3.27E-07	-3.24E-07
868	-3.15E-07	-3.23E-07	-3.22E-07	-3.23E-07	-3.25E-07	-3.23E-07	-3.20E-07
869	-3.20E-07	-3.26E-07	-3.25E-07	-3.26E-07	-3.28E-07	-3.26E-07	-3.23E-07
870	-3.23E-07	-3.31E-07	-3.29E-07	-3.31E-07	-3.32E-07	-3.30E-07	-3.27E-07
871	-3.04E-07	-3.27E-07	-3.23E-07	-3.27E-07	-3.35E-07	-3.32E-07	-3.22E-07
872	-3.32E-07	-3.57E-07	-3.53E-07	-3.57E-07	-3.63E-07	-3.60E-07	-3.52E-07
873	-3.31E-07	-3.61E-07	-3.57E-07	-3.61E-07	-3.68E-07	-3.65E-07	-3.54E-07
874	-3.10E-07	-3.33E-07	-3.29E-07	-3.33E-07	-3.41E-07	-3.39E-07	-3.27E-07
876	-3.15E-07	-3.40E-07	-3.35E-07	-3.40E-07	-3.55E-07	-3.54E-07	-3.34E-07
877	-3.06E-07	-3.07E-07	-3.07E-07	-3.07E-07	-3.06E-07	-3.06E-07	-3.06E-07
Biased Statistics							
Average Biased	-3.19E-07	-3.26E-07	-3.25E-07	-3.26E-07	-3.28E-07	-3.26E-07	-3.23E-07
Std Dev Biased	2.90E-09	2.93E-09	2.68E-09	2.93E-09	2.93E-09	3.03E-09	2.49E-09
Ps90%/90% (+KTL) Biased	-3.11E-07	-3.18E-07	-3.18E-07	-3.18E-07	-3.20E-07	-3.18E-07	-3.17E-07
Ps90%/90% (-KTL) Biased	-3.27E-07	-3.34E-07	-3.33E-07	-3.34E-07	-3.36E-07	-3.34E-07	-3.30E-07
Un-Biased Statistics							
Average Un-Biased	-3.18E-07	-3.44E-07	-3.39E-07	-3.44E-07	-3.52E-07	-3.50E-07	-3.37E-07
Std Dev Un-Biased	1.27E-08	1.48E-08	1.47E-08	1.48E-08	1.43E-08	1.40E-08	1.45E-08
Ps90%/90% (+KTL) Un-Biased	-2.84E-07	-3.03E-07	-2.99E-07	-3.03E-07	-3.13E-07	-3.12E-07	-2.98E-07
Ps90%/90% (-KTL) Un-Biased	-3.53E-07	-3.84E-07	-3.80E-07	-3.84E-07	-3.91E-07	-3.88E-07	-3.77E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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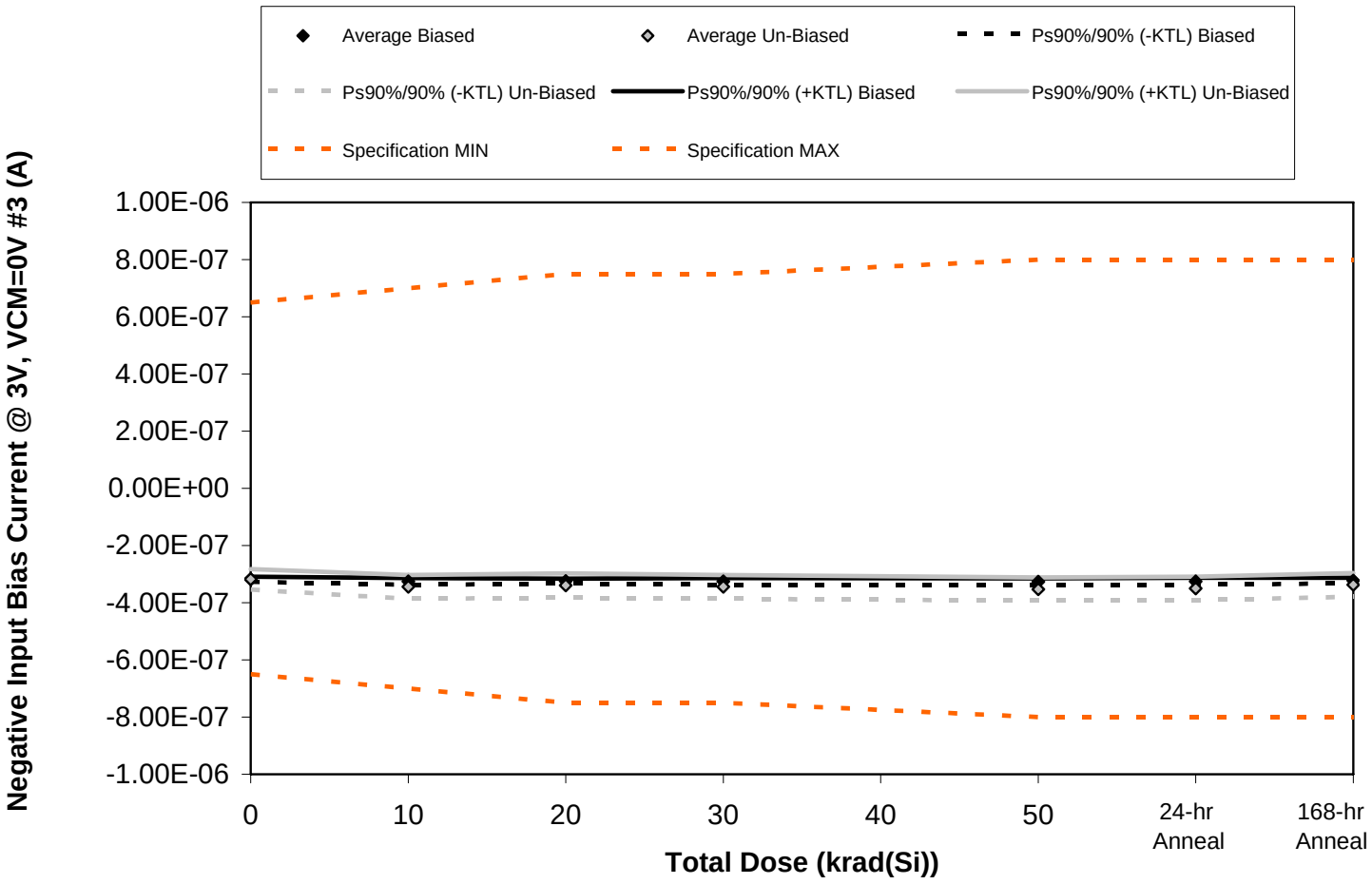

Figure 5.119. Plot of Negative Input Bias Current @ 3V, VCM=0V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.119. Raw data for Negative Input Bias Current @ 3V, VCM=0V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 3V, VCM=0V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.13E-07	-3.18E-07	-3.20E-07	-3.18E-07	-3.20E-07	-3.18E-07	-3.17E-07
867	-3.17E-07	-3.27E-07	-3.25E-07	-3.27E-07	-3.29E-07	-3.28E-07	-3.24E-07
868	-3.21E-07	-3.30E-07	-3.28E-07	-3.30E-07	-3.32E-07	-3.30E-07	-3.27E-07
869	-3.20E-07	-3.26E-07	-3.25E-07	-3.26E-07	-3.27E-07	-3.25E-07	-3.23E-07
870	-3.17E-07	-3.26E-07	-3.25E-07	-3.26E-07	-3.27E-07	-3.25E-07	-3.22E-07
871	-3.01E-07	-3.24E-07	-3.19E-07	-3.24E-07	-3.32E-07	-3.30E-07	-3.19E-07
872	-3.30E-07	-3.54E-07	-3.52E-07	-3.54E-07	-3.60E-07	-3.59E-07	-3.49E-07
873	-3.32E-07	-3.63E-07	-3.58E-07	-3.63E-07	-3.71E-07	-3.68E-07	-3.56E-07
874	-3.11E-07	-3.35E-07	-3.31E-07	-3.35E-07	-3.46E-07	-3.41E-07	-3.28E-07
876	-3.17E-07	-3.47E-07	-3.37E-07	-3.47E-07	-3.55E-07	-3.53E-07	-3.35E-07
877	-3.12E-07	-3.13E-07	-3.13E-07	-3.13E-07	-3.12E-07	-3.11E-07	-3.13E-07
Biased Statistics							
Average Biased	-3.18E-07	-3.25E-07	-3.25E-07	-3.25E-07	-3.27E-07	-3.25E-07	-3.23E-07
Std Dev Biased	3.05E-09	4.24E-09	3.20E-09	4.24E-09	4.60E-09	4.49E-09	3.63E-09
Ps90%/90% (+KTL) Biased	-3.09E-07	-3.14E-07	-3.16E-07	-3.14E-07	-3.14E-07	-3.13E-07	-3.13E-07
Ps90%/90% (-KTL) Biased	-3.26E-07	-3.37E-07	-3.33E-07	-3.37E-07	-3.39E-07	-3.37E-07	-3.33E-07
Un-Biased Statistics							
Average Un-Biased	-3.18E-07	-3.45E-07	-3.39E-07	-3.45E-07	-3.53E-07	-3.50E-07	-3.38E-07
Std Dev Un-Biased	1.30E-08	1.53E-08	1.56E-08	1.53E-08	1.48E-08	1.50E-08	1.52E-08
Ps90%/90% (+KTL) Un-Biased	-2.83E-07	-3.03E-07	-2.97E-07	-3.03E-07	-3.12E-07	-3.09E-07	-2.96E-07
Ps90%/90% (-KTL) Un-Biased	-3.54E-07	-3.87E-07	-3.82E-07	-3.87E-07	-3.93E-07	-3.91E-07	-3.79E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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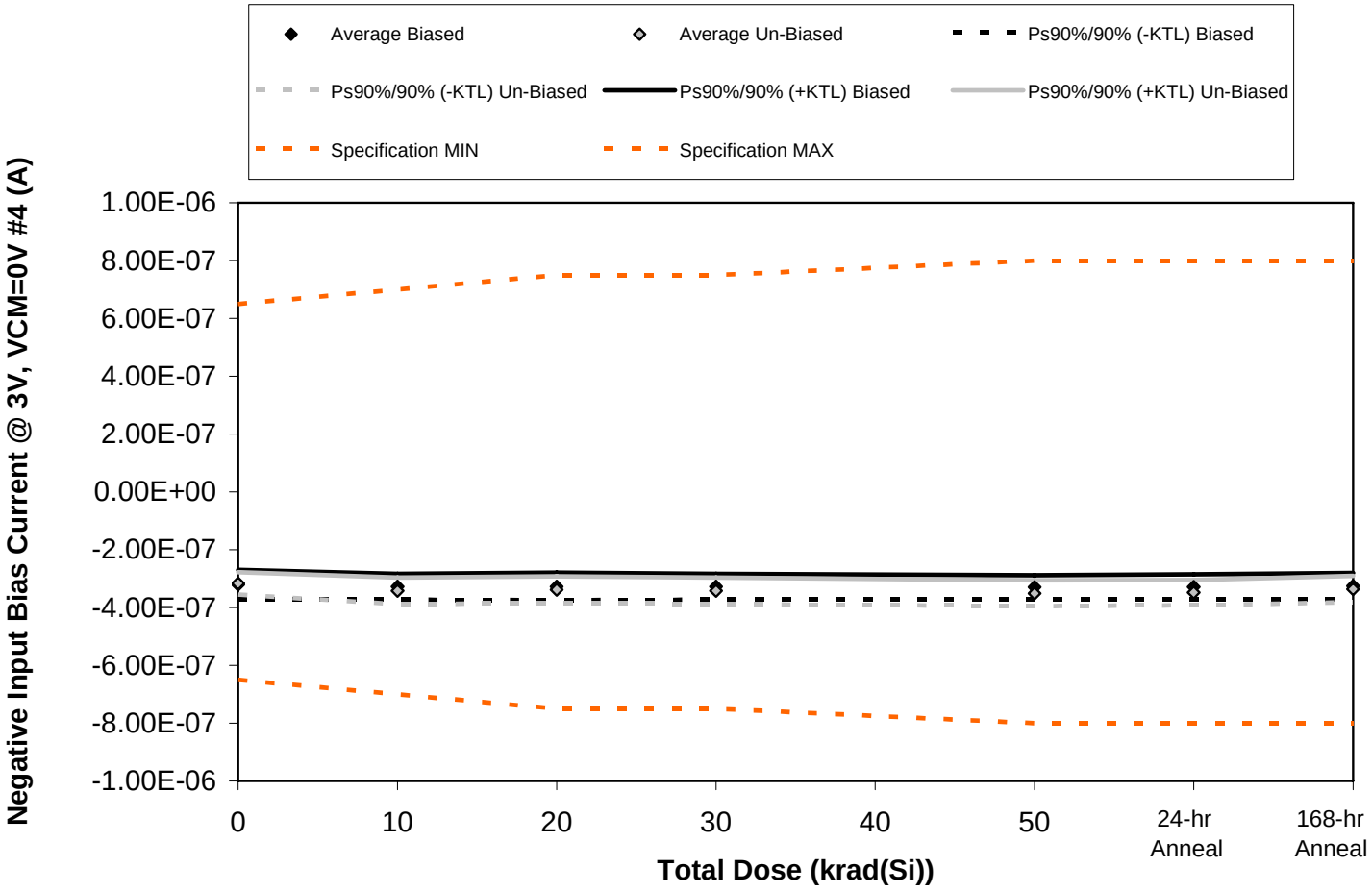

Figure 5.120. Plot of Negative Input Bias Current @ 3V, VCM=0V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.120. Raw data for Negative Input Bias Current @ 3V, VCM=0V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 3V, VCM=0V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.47E-07	-3.51E-07	-3.52E-07	-3.51E-07	-3.52E-07	-3.51E-07	-3.50E-07
867	-3.07E-07	-3.18E-07	-3.16E-07	-3.18E-07	-3.21E-07	-3.19E-07	-3.15E-07
868	-3.01E-07	-3.10E-07	-3.08E-07	-3.10E-07	-3.13E-07	-3.11E-07	-3.08E-07
869	-3.17E-07	-3.24E-07	-3.23E-07	-3.24E-07	-3.26E-07	-3.24E-07	-3.22E-07
870	-3.29E-07	-3.37E-07	-3.36E-07	-3.37E-07	-3.38E-07	-3.36E-07	-3.34E-07
871	-3.28E-07	-3.55E-07	-3.52E-07	-3.55E-07	-3.62E-07	-3.59E-07	-3.48E-07
872	-3.34E-07	-3.65E-07	-3.60E-07	-3.65E-07	-3.72E-07	-3.70E-07	-3.58E-07
873	-3.12E-07	-3.36E-07	-3.32E-07	-3.36E-07	-3.49E-07	-3.46E-07	-3.30E-07
874	-3.02E-07	-3.26E-07	-3.22E-07	-3.26E-07	-3.33E-07	-3.31E-07	-3.19E-07
876	-3.06E-07	-3.30E-07	-3.26E-07	-3.30E-07	-3.38E-07	-3.36E-07	-3.24E-07
877	-3.27E-07	-3.28E-07	-3.29E-07	-3.28E-07	-3.28E-07	-3.27E-07	-3.28E-07
Biased Statistics							
Average Biased	-3.20E-07	-3.28E-07	-3.27E-07	-3.28E-07	-3.30E-07	-3.28E-07	-3.26E-07
Std Dev Biased	1.84E-08	1.64E-08	1.74E-08	1.64E-08	1.54E-08	1.58E-08	1.67E-08
Ps90%/90% (+KTL) Biased	-2.70E-07	-2.83E-07	-2.79E-07	-2.83E-07	-2.88E-07	-2.85E-07	-2.80E-07
Ps90%/90% (-KTL) Biased	-3.71E-07	-3.73E-07	-3.75E-07	-3.73E-07	-3.72E-07	-3.71E-07	-3.72E-07
Un-Biased Statistics							
Average Un-Biased	-3.16E-07	-3.42E-07	-3.38E-07	-3.42E-07	-3.51E-07	-3.48E-07	-3.36E-07
Std Dev Un-Biased	1.40E-08	1.69E-08	1.68E-08	1.69E-08	1.62E-08	1.60E-08	1.67E-08
Ps90%/90% (+KTL) Un-Biased	-2.78E-07	-2.96E-07	-2.92E-07	-2.96E-07	-3.06E-07	-3.05E-07	-2.90E-07
Ps90%/90% (-KTL) Un-Biased	-3.55E-07	-3.89E-07	-3.84E-07	-3.89E-07	-3.95E-07	-3.92E-07	-3.82E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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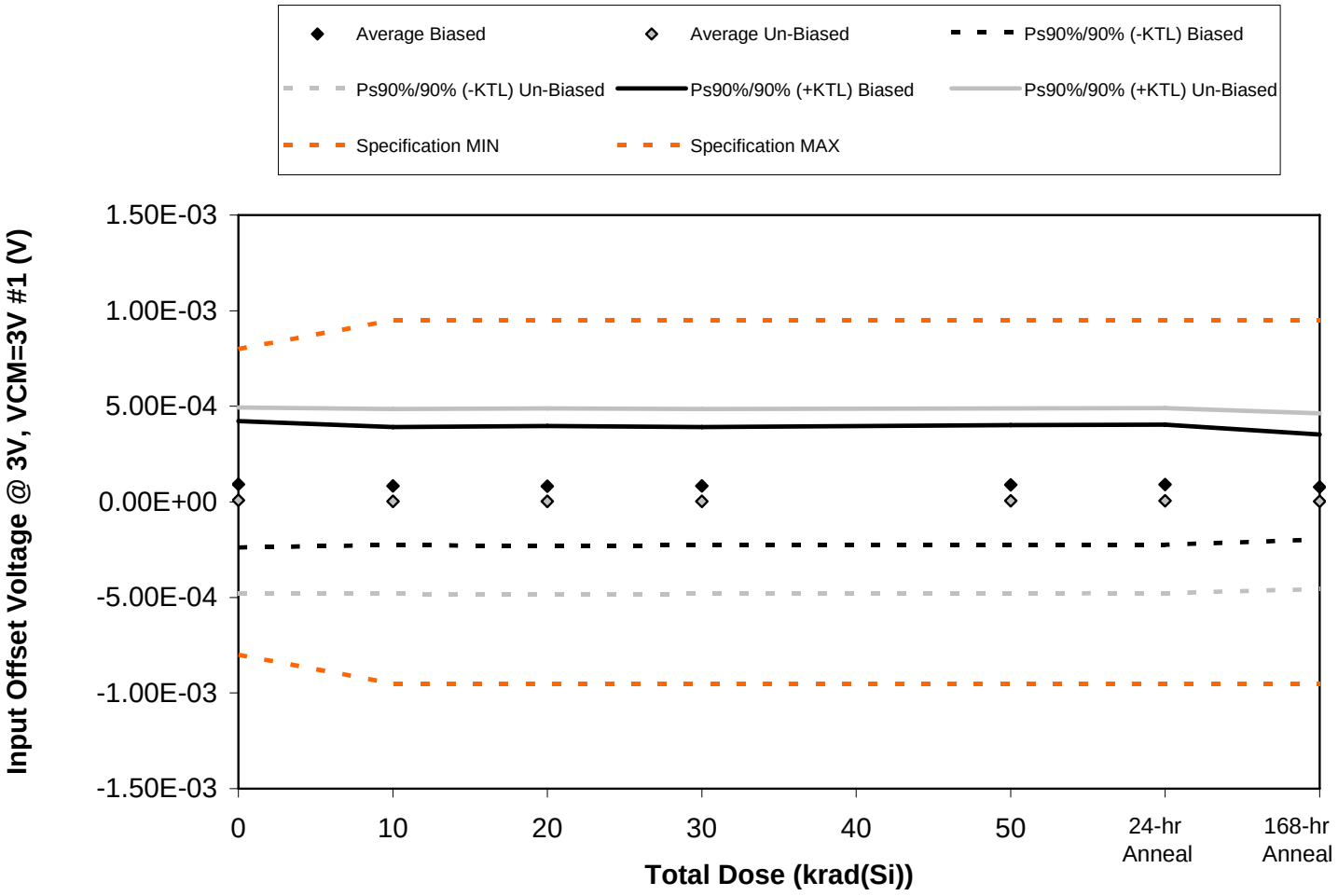

Figure 5.121. Plot of Input Offset Voltage @ 3V, VCM=3V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.121. Raw data for Input Offset Voltage @ 3V, VCM=3V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 3V, VCM=3V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.54E-05	2.49E-05	2.01E-05	2.49E-05	3.53E-05	3.54E-05	8.49E-06
867	1.77E-04	1.42E-04	1.46E-04	1.42E-04	1.42E-04	1.43E-04	1.25E-04
868	1.41E-04	1.26E-04	1.26E-04	1.26E-04	1.24E-04	1.25E-04	1.15E-04
869	2.08E-04	2.05E-04	2.05E-04	2.05E-04	2.20E-04	2.23E-04	1.95E-04
870	-7.87E-05	-8.12E-05	-8.43E-05	-8.12E-05	-7.79E-05	-7.66E-05	-5.61E-05
871	1.03E-04	9.73E-05	9.90E-05	9.73E-05	1.02E-04	1.02E-04	7.69E-05
872	-1.20E-04	-1.31E-04	-1.31E-04	-1.31E-04	-1.29E-04	-1.27E-04	-1.32E-04
873	-3.34E-05	-4.30E-05	-4.34E-05	-4.30E-05	-4.07E-05	-4.00E-05	-3.66E-05
874	2.64E-04	2.59E-04	2.59E-04	2.59E-04	2.61E-04	2.62E-04	2.56E-04
876	-1.73E-04	-1.69E-04	-1.73E-04	-1.69E-04	-1.67E-04	-1.67E-04	-1.49E-04
877	-2.42E-04	-2.42E-04	-2.42E-04	-2.42E-04	-2.44E-04	-2.44E-04	-2.43E-04
Biased Statistics							
Average Biased	9.26E-05	8.34E-05	8.25E-05	8.34E-05	8.87E-05	8.99E-05	7.74E-05
Std Dev Biased	1.21E-04	1.13E-04	1.15E-04	1.13E-04	1.14E-04	1.14E-04	1.00E-04
Ps90%/90% (+KTL) Biased	4.23E-04	3.92E-04	3.97E-04	3.92E-04	4.01E-04	4.04E-04	3.52E-04
Ps90%/90% (-KTL) Biased	-2.38E-04	-2.25E-04	-2.32E-04	-2.25E-04	-2.24E-04	-2.24E-04	-1.97E-04
Un-Biased Statistics							
Average Un-Biased	7.99E-06	2.67E-06	2.33E-06	2.67E-06	5.20E-06	5.85E-06	3.03E-06
Std Dev Un-Biased	1.77E-04	1.76E-04	1.77E-04	1.76E-04	1.76E-04	1.77E-04	1.68E-04
Ps90%/90% (+KTL) Un-Biased	4.93E-04	4.86E-04	4.89E-04	4.86E-04	4.89E-04	4.90E-04	4.63E-04
Ps90%/90% (-KTL) Un-Biased	-4.77E-04	-4.81E-04	-4.84E-04	-4.81E-04	-4.79E-04	-4.78E-04	-4.57E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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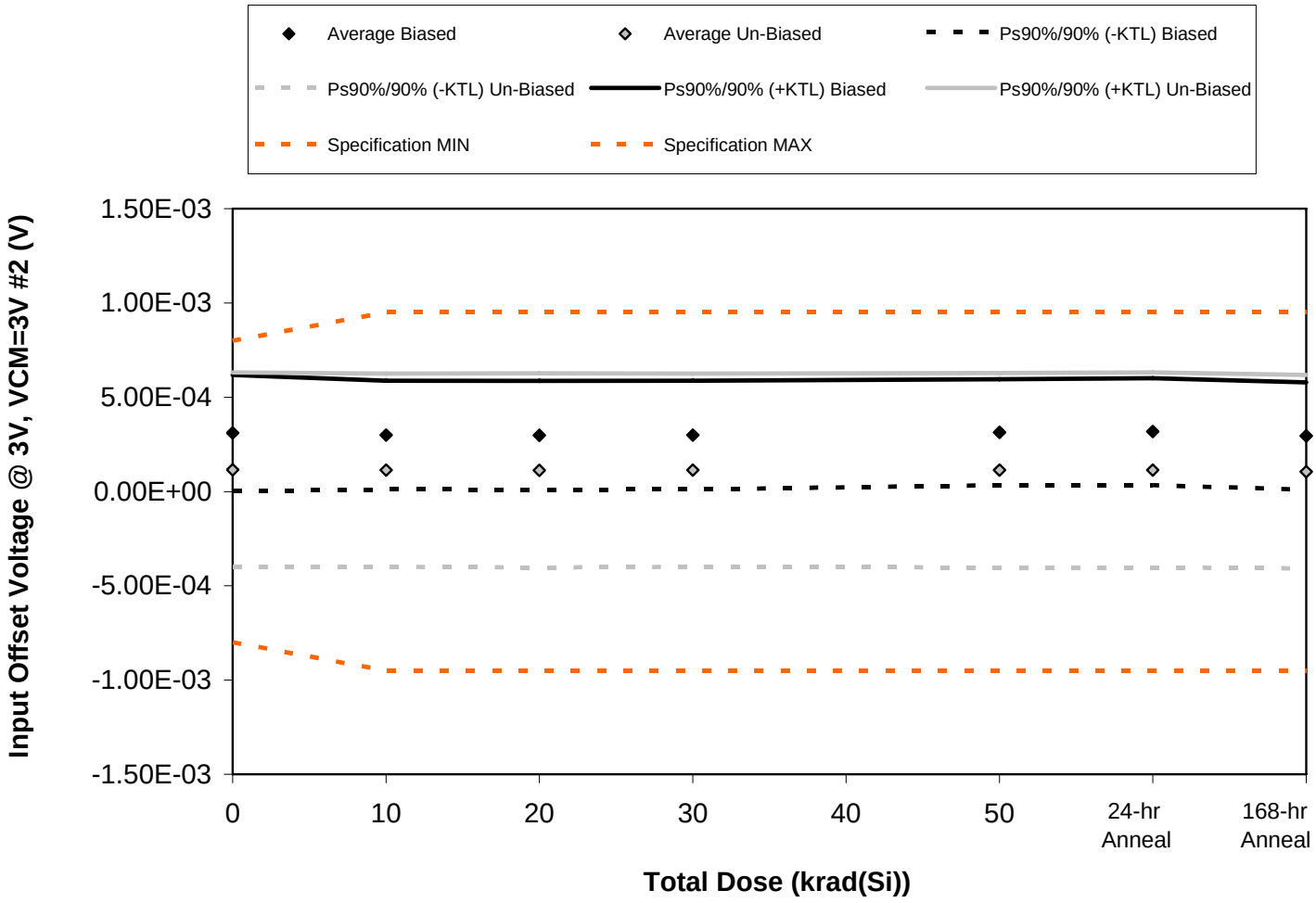

Figure 5.122. Plot of Input Offset Voltage @ 3V, VCM=3V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.122. Raw data for Input Offset Voltage @ 3V, VCM=3V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 3V, VCM=3V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.98E-04	1.98E-04	1.97E-04	1.98E-04	2.15E-04	2.20E-04	1.91E-04
867	2.21E-04	2.11E-04	2.09E-04	2.11E-04	2.31E-04	2.32E-04	2.17E-04
868	2.76E-04	2.66E-04	2.64E-04	2.66E-04	2.78E-04	2.79E-04	2.52E-04
869	4.20E-04	4.14E-04	4.12E-04	4.14E-04	4.29E-04	4.33E-04	4.02E-04
870	4.39E-04	4.07E-04	4.07E-04	4.07E-04	4.17E-04	4.24E-04	4.10E-04
871	3.91E-04	3.86E-04	3.86E-04	3.86E-04	3.87E-04	3.88E-04	3.79E-04
872	1.79E-04	1.86E-04	1.84E-04	1.86E-04	1.89E-04	1.89E-04	1.78E-04
873	-1.06E-04	-1.07E-04	-1.09E-04	-1.07E-04	-1.07E-04	-1.09E-04	-1.11E-04
874	3.79E-06	7.28E-06	5.23E-06	7.28E-06	2.09E-06	5.83E-06	-4.92E-06
876	1.06E-04	9.39E-05	9.36E-05	9.39E-05	9.59E-05	9.72E-05	8.48E-05
877	-9.86E-05	-9.77E-05	-1.01E-04	-9.77E-05	-1.01E-04	-1.02E-04	-1.00E-04
Biased Statistics							
Average Biased	3.11E-04	2.99E-04	2.98E-04	2.99E-04	3.14E-04	3.18E-04	2.94E-04
Std Dev Biased	1.12E-04	1.05E-04	1.05E-04	1.05E-04	1.02E-04	1.04E-04	1.04E-04
Ps90%/90% (+KTL) Biased	6.19E-04	5.87E-04	5.86E-04	5.87E-04	5.94E-04	6.02E-04	5.80E-04
Ps90%/90% (-KTL) Biased	2.76E-06	1.15E-05	9.37E-06	1.15E-05	3.38E-05	3.36E-05	9.35E-06
Un-Biased Statistics							
Average Un-Biased	1.15E-04	1.13E-04	1.12E-04	1.13E-04	1.13E-04	1.14E-04	1.05E-04
Std Dev Un-Biased	1.88E-04	1.87E-04	1.88E-04	1.87E-04	1.88E-04	1.89E-04	1.87E-04
Ps90%/90% (+KTL) Un-Biased	6.31E-04	6.26E-04	6.27E-04	6.26E-04	6.29E-04	6.32E-04	6.18E-04
Ps90%/90% (-KTL) Un-Biased	-4.01E-04	-3.99E-04	-4.03E-04	-3.99E-04	-4.03E-04	-4.03E-04	-4.08E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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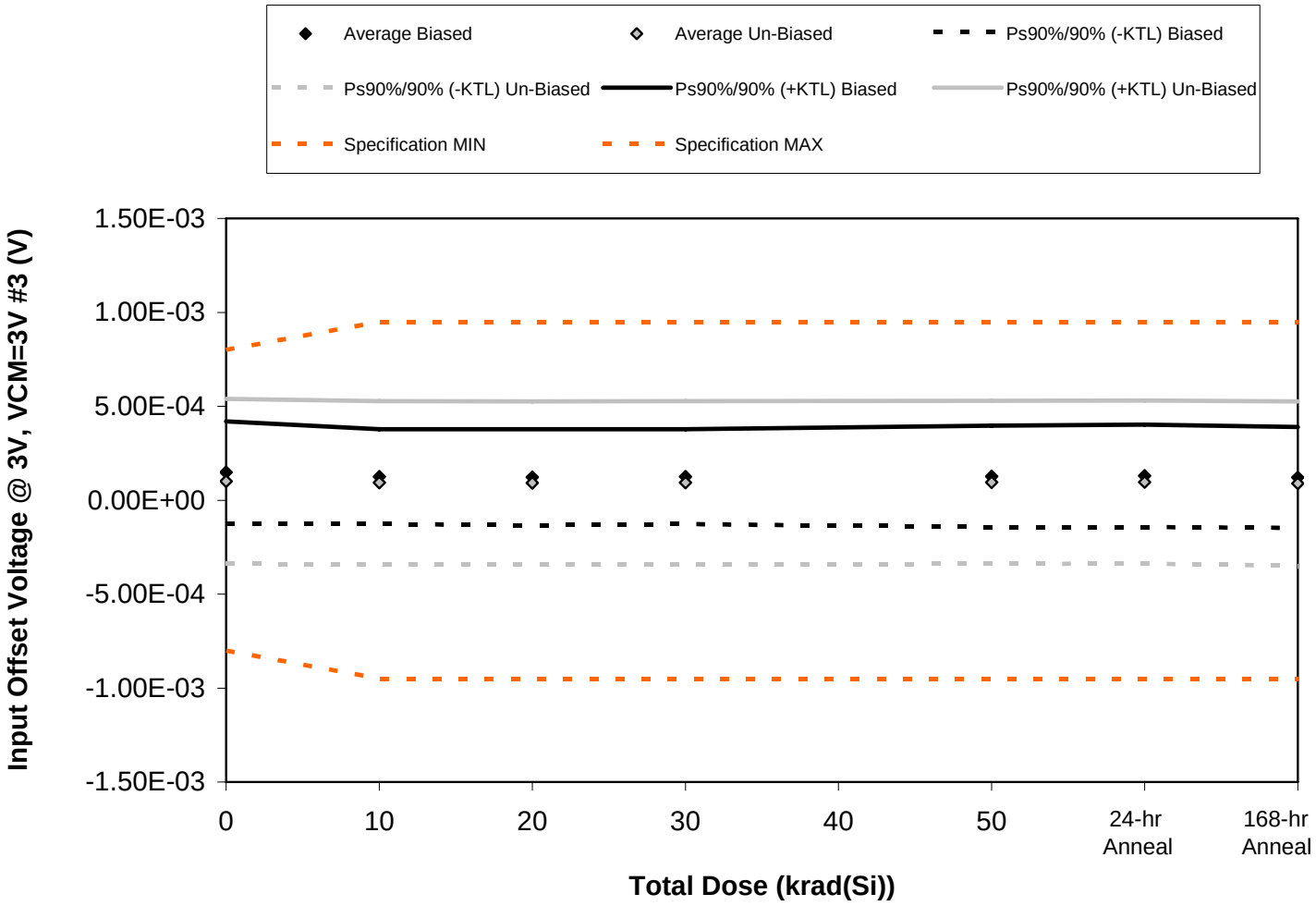

Figure 5.123. Plot of Input Offset Voltage @ 3V, VCM=3V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.123. Raw data for Input Offset Voltage @ 3V, VCM=3V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 3V, VCM=3V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	9.04E-05	7.60E-05	7.42E-05	7.60E-05	7.26E-05	7.35E-05	5.40E-05
867	1.39E-04	8.91E-05	9.16E-05	8.91E-05	7.82E-05	8.30E-05	8.58E-05
868	1.72E-04	1.65E-04	1.63E-04	1.65E-04	1.77E-04	1.82E-04	1.57E-04
869	3.02E-04	2.66E-04	2.63E-04	2.66E-04	2.75E-04	2.79E-04	2.75E-04
870	3.97E-05	3.18E-05	2.19E-05	3.18E-05	3.24E-05	3.31E-05	3.45E-05
871	1.25E-04	1.15E-04	1.13E-04	1.15E-04	1.16E-04	1.18E-04	1.16E-04
872	5.22E-05	4.71E-05	4.56E-05	4.71E-05	4.78E-05	4.79E-05	3.26E-05
873	2.49E-04	2.41E-04	2.40E-04	2.41E-04	2.41E-04	2.44E-04	2.39E-04
874	-1.49E-04	-1.53E-04	-1.55E-04	-1.53E-04	-1.51E-04	-1.49E-04	-1.56E-04
876	2.24E-04	2.17E-04	2.15E-04	2.17E-04	2.21E-04	2.20E-04	2.13E-04
877	1.42E-04	1.41E-04	1.40E-04	1.41E-04	1.38E-04	1.40E-04	1.39E-04
Biased Statistics							
Average Biased	1.49E-04	1.26E-04	1.23E-04	1.26E-04	1.27E-04	1.30E-04	1.21E-04
Std Dev Biased	9.92E-05	9.22E-05	9.33E-05	9.22E-05	9.85E-05	9.96E-05	9.77E-05
Ps90%/90% (+KTL) Biased	4.21E-04	3.79E-04	3.79E-04	3.79E-04	3.97E-04	4.03E-04	3.89E-04
Ps90%/90% (-KTL) Biased	-1.24E-04	-1.27E-04	-1.33E-04	-1.27E-04	-1.43E-04	-1.43E-04	-1.47E-04
Un-Biased Statistics							
Average Un-Biased	1.00E-04	9.35E-05	9.18E-05	9.35E-05	9.49E-05	9.62E-05	8.89E-05
Std Dev Un-Biased	1.60E-04	1.59E-04	1.58E-04	1.59E-04	1.58E-04	1.58E-04	1.60E-04
Ps90%/90% (+KTL) Un-Biased	5.39E-04	5.28E-04	5.26E-04	5.28E-04	5.29E-04	5.30E-04	5.27E-04
Ps90%/90% (-KTL) Un-Biased	-3.38E-04	-3.41E-04	-3.43E-04	-3.41E-04	-3.39E-04	-3.37E-04	-3.49E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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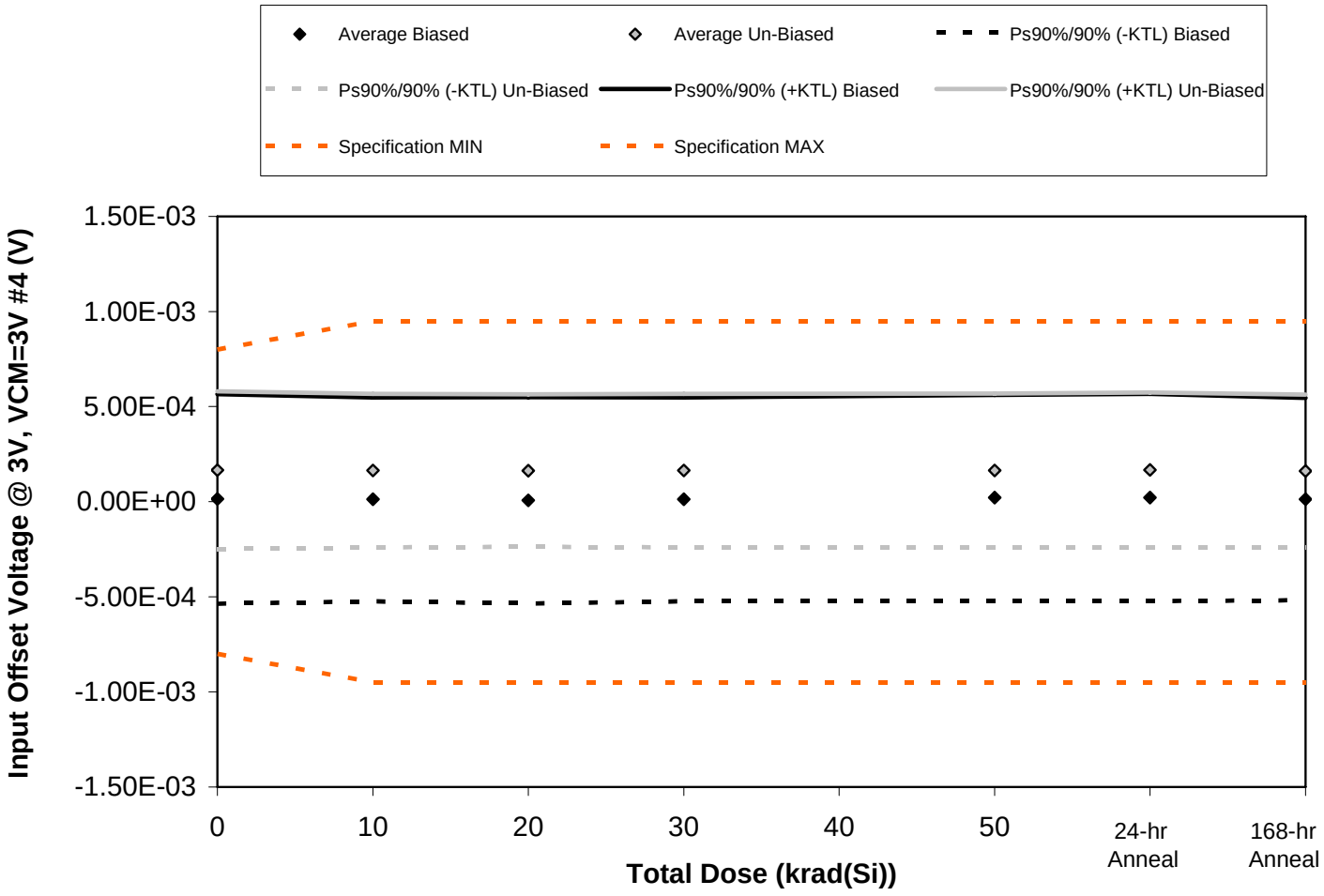

Figure 5.124. Plot of Input Offset Voltage @ 3V, VCM=3V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.124. Raw data for Input Offset Voltage @ 3V, VCM=3V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 3V, VCM=3V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-4.65E-05	-3.17E-05	-3.98E-05	-3.17E-05	-1.20E-05	-1.23E-05	-3.38E-05
867	3.11E-04	2.96E-04	2.96E-04	2.96E-04	3.04E-04	3.09E-04	2.88E-04
868	-1.43E-04	-1.55E-04	-1.59E-04	-1.55E-04	-1.59E-04	-1.59E-04	-1.58E-04
869	1.22E-04	1.18E-04	1.13E-04	1.18E-04	1.27E-04	1.27E-04	1.29E-04
870	-1.69E-04	-1.65E-04	-1.73E-04	-1.65E-04	-1.53E-04	-1.53E-04	-1.59E-04
871	1.73E-04	1.66E-04	1.68E-04	1.66E-04	1.66E-04	1.68E-04	1.67E-04
872	9.04E-05	8.83E-05	8.76E-05	8.83E-05	8.69E-05	8.93E-05	8.57E-05
873	6.25E-05	6.38E-05	6.36E-05	6.38E-05	7.01E-05	6.95E-05	6.48E-05
874	4.25E-04	4.18E-04	4.16E-04	4.18E-04	4.20E-04	4.24E-04	4.13E-04
876	7.92E-05	8.31E-05	8.34E-05	8.31E-05	8.30E-05	8.33E-05	7.84E-05
877	4.39E-05	4.29E-05	4.24E-05	4.29E-05	4.16E-05	4.24E-05	4.17E-05
Biased Statistics							
Average Biased	1.50E-05	1.25E-05	7.43E-06	1.25E-05	2.13E-05	2.24E-05	1.34E-05
Std Dev Biased	2.01E-04	1.96E-04	1.98E-04	1.96E-04	1.97E-04	1.99E-04	1.94E-04
Ps90%/90% (+KTL) Biased	5.66E-04	5.49E-04	5.50E-04	5.49E-04	5.62E-04	5.67E-04	5.45E-04
Ps90%/90% (-KTL) Biased	-5.36E-04	-5.24E-04	-5.35E-04	-5.24E-04	-5.19E-04	-5.22E-04	-5.18E-04
Un-Biased Statistics							
Average Un-Biased	1.66E-04	1.64E-04	1.64E-04	1.64E-04	1.65E-04	1.67E-04	1.62E-04
Std Dev Un-Biased	1.51E-04	1.47E-04	1.46E-04	1.47E-04	1.47E-04	1.49E-04	1.46E-04
Ps90%/90% (+KTL) Un-Biased	5.80E-04	5.68E-04	5.65E-04	5.68E-04	5.69E-04	5.75E-04	5.62E-04
Ps90%/90% (-KTL) Un-Biased	-2.48E-04	-2.40E-04	-2.38E-04	-2.40E-04	-2.39E-04	-2.41E-04	-2.39E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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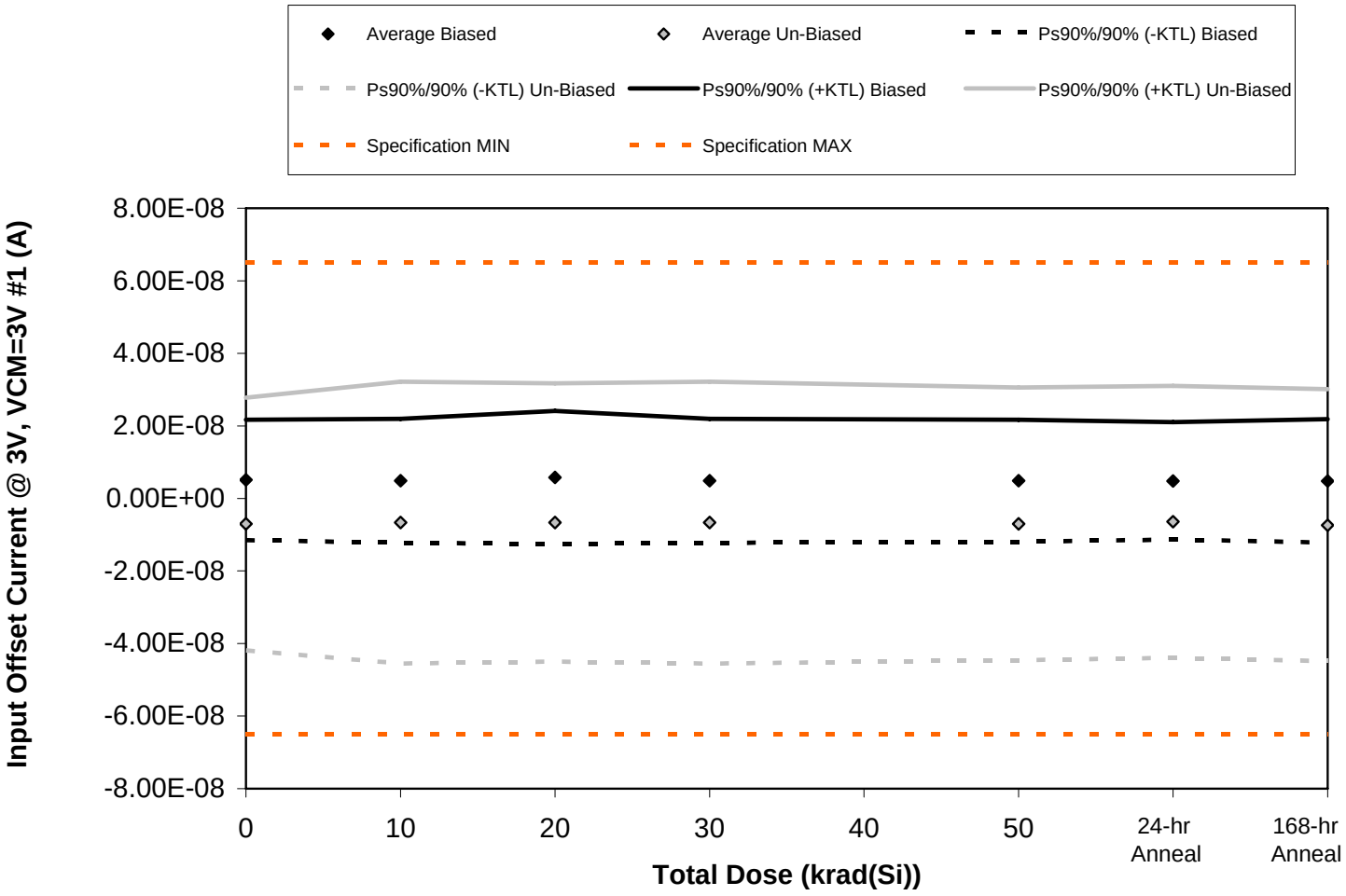

Figure 5.125. Plot of Input Offset Current @ 3V, VCM=3V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.125. Raw data for Input Offset Current @ 3V, VCM=3V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 3V, VCM=3V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	5.54E-09	5.11E-09	5.09E-09	5.11E-09	5.86E-09	5.84E-09	4.28E-09
867	1.02E-08	8.01E-09	8.82E-09	8.01E-09	7.91E-09	7.53E-09	9.23E-09
868	8.17E-09	7.09E-09	7.00E-09	7.09E-09	7.14E-09	6.92E-09	7.73E-09
869	-5.27E-09	-5.83E-09	-5.00E-09	-5.83E-09	-5.83E-09	-5.47E-09	-5.73E-09
870	6.91E-09	9.97E-09	1.30E-08	9.97E-09	9.40E-09	9.41E-09	8.64E-09
871	-1.07E-08	-9.88E-09	-1.05E-08	-9.88E-09	-9.33E-09	-8.97E-09	-1.10E-08
872	-2.63E-08	-2.84E-08	-2.81E-08	-2.84E-08	-2.82E-08	-2.74E-08	-2.82E-08
873	-2.66E-09	-2.32E-09	-2.11E-09	-2.32E-09	-2.99E-09	-2.42E-09	-2.11E-09
874	-3.53E-09	-3.13E-09	-2.15E-09	-3.13E-09	-4.14E-09	-3.35E-09	-4.27E-09
876	8.01E-09	1.04E-08	9.70E-09	1.04E-08	9.53E-09	1.01E-08	8.81E-09
877	-6.17E-09	-6.19E-09	-6.12E-09	-6.19E-09	-6.01E-09	-6.03E-09	-6.06E-09
Biased Statistics							
Average Biased	5.10E-09	4.87E-09	5.77E-09	4.87E-09	4.90E-09	4.85E-09	4.83E-09
Std Dev Biased	6.05E-09	6.23E-09	6.69E-09	6.23E-09	6.13E-09	5.91E-09	6.21E-09
Ps90%/90% (+KTL) Biased	2.17E-08	2.20E-08	2.41E-08	2.20E-08	2.17E-08	2.11E-08	2.18E-08
Ps90%/90% (-KTL) Biased	-1.15E-08	-1.22E-08	-1.26E-08	-1.22E-08	-1.19E-08	-1.14E-08	-1.22E-08
Un-Biased Statistics							
Average Un-Biased	-7.04E-09	-6.66E-09	-6.63E-09	-6.66E-09	-7.03E-09	-6.41E-09	-7.35E-09
Std Dev Un-Biased	1.27E-08	1.42E-08	1.40E-08	1.42E-08	1.37E-08	1.37E-08	1.37E-08
Ps90%/90% (+KTL) Un-Biased	2.78E-08	3.22E-08	3.18E-08	3.22E-08	3.06E-08	3.11E-08	3.01E-08
Ps90%/90% (-KTL) Un-Biased	-4.18E-08	-4.55E-08	-4.50E-08	-4.55E-08	-4.46E-08	-4.39E-08	-4.48E-08
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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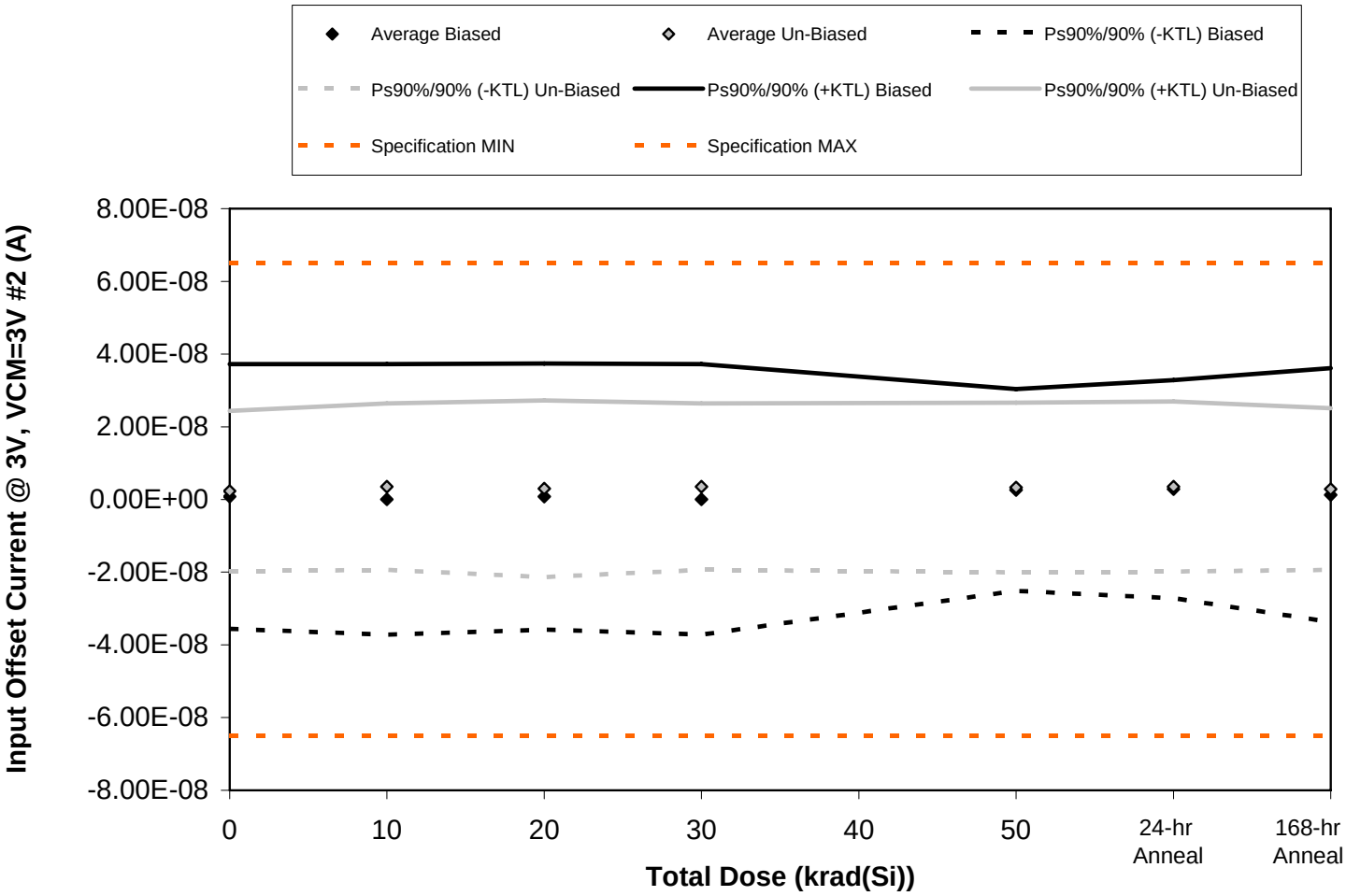

Figure 5.126. Plot of Input Offset Current @ 3V, VCM=3V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.126. Raw data for Input Offset Current @ 3V, VCM=3V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 3V, VCM=3V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.31E-08	1.24E-08	1.34E-08	1.24E-08	1.33E-08	1.64E-08	1.42E-08
867	-2.10E-08	-2.29E-08	-2.12E-08	-2.29E-08	-1.36E-08	-1.37E-08	-1.96E-08
868	-1.52E-09	7.60E-11	-1.17E-09	7.60E-11	5.77E-10	2.71E-10	-3.42E-10
869	7.24E-09	6.38E-09	7.13E-09	6.38E-09	6.45E-09	5.90E-09	5.99E-09
870	6.39E-09	4.15E-09	6.02E-09	4.15E-09	6.38E-09	5.50E-09	5.93E-09
871	5.50E-09	9.57E-09	9.52E-09	9.57E-09	9.48E-09	8.78E-09	7.92E-09
872	1.43E-08	1.50E-08	1.50E-08	1.50E-08	1.51E-08	1.58E-08	1.40E-08
873	-4.19E-09	-2.12E-09	-3.47E-09	-2.12E-09	-3.88E-09	-3.82E-09	-3.26E-09
874	1.46E-09	-2.41E-10	-8.44E-10	-2.41E-10	-6.32E-10	1.42E-10	1.35E-09
876	-5.48E-09	-4.52E-09	-5.37E-09	-4.52E-09	-3.50E-09	-3.24E-09	-5.69E-09
877	-2.84E-10	-3.29E-10	-5.12E-10	-3.29E-10	-3.23E-10	-3.54E-10	-3.86E-10
Biased Statistics							
Average Biased	8.34E-10	1.14E-11	8.26E-10	1.14E-11	2.63E-09	2.88E-09	1.23E-09
Std Dev Biased	1.33E-08	1.36E-08	1.33E-08	1.36E-08	1.01E-08	1.09E-08	1.27E-08
Ps90%/90% (+KTL) Biased	3.72E-08	3.72E-08	3.74E-08	3.72E-08	3.04E-08	3.29E-08	3.61E-08
Ps90%/90% (-KTL) Biased	-3.56E-08	-3.72E-08	-3.58E-08	-3.72E-08	-2.51E-08	-2.71E-08	-3.37E-08
Un-Biased Statistics							
Average Un-Biased	2.33E-09	3.54E-09	2.97E-09	3.54E-09	3.31E-09	3.54E-09	2.87E-09
Std Dev Un-Biased	8.04E-09	8.35E-09	8.86E-09	8.35E-09	8.52E-09	8.52E-09	8.11E-09
Ps90%/90% (+KTL) Un-Biased	2.44E-08	2.64E-08	2.73E-08	2.64E-08	2.67E-08	2.69E-08	2.51E-08
Ps90%/90% (-KTL) Un-Biased	-1.97E-08	-1.94E-08	-2.13E-08	-1.94E-08	-2.01E-08	-1.98E-08	-1.94E-08
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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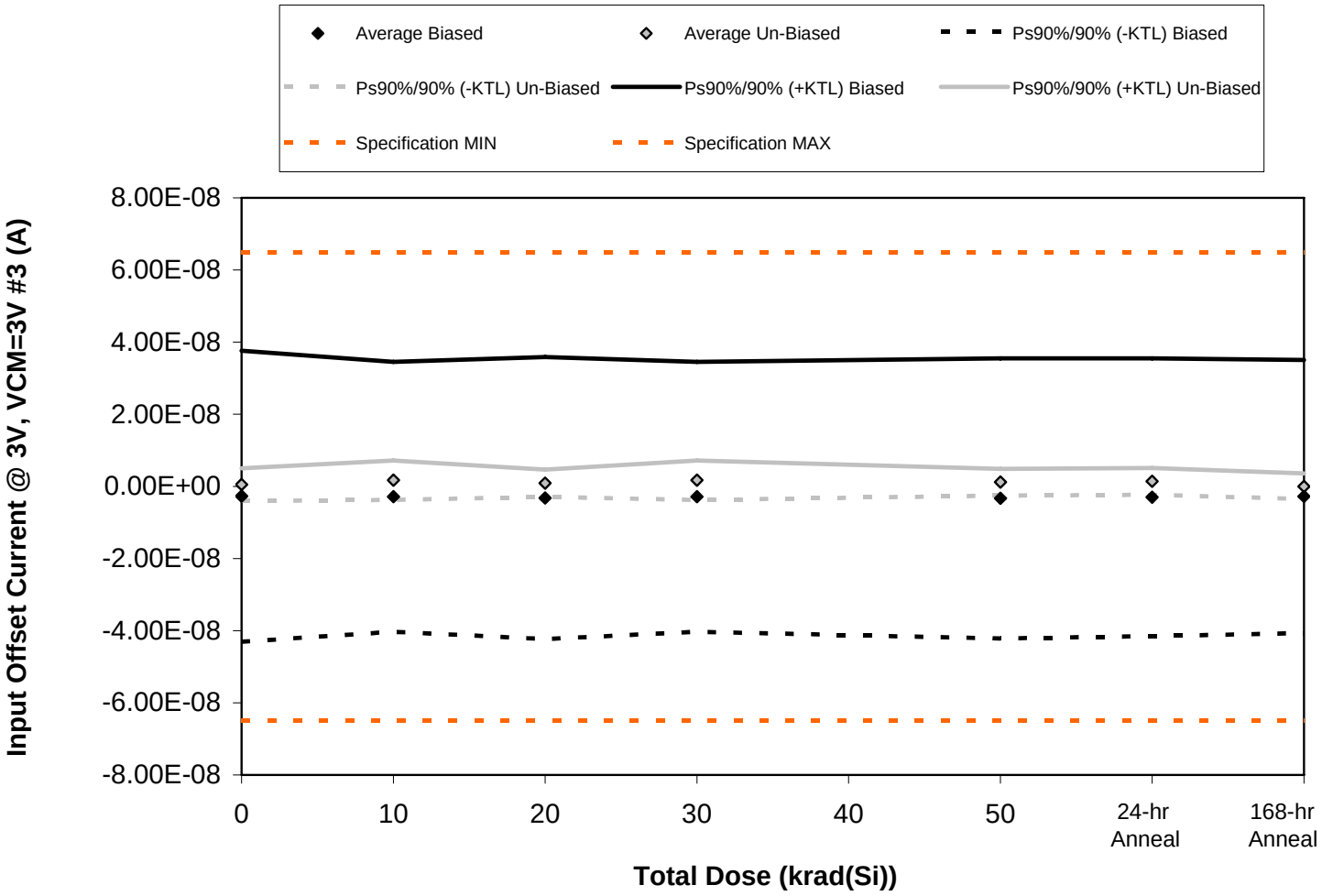

Figure 5.127. Plot of Input Offset Current @ 3V, VCM=3V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.127. Raw data for Input Offset Current @ 3V, VCM=3V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 3V, VCM=3V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.09E-08	1.11E-08	1.22E-08	1.11E-08	1.07E-08	1.15E-08	1.05E-08
867	-1.79E-08	-1.70E-08	-1.81E-08	-1.70E-08	-1.80E-08	-1.75E-08	-1.73E-08
868	-1.66E-08	-1.53E-08	-1.58E-08	-1.53E-08	-1.65E-08	-1.59E-08	-1.53E-08
869	1.33E-08	1.10E-08	1.06E-08	1.10E-08	1.13E-08	1.12E-08	1.20E-08
870	-3.39E-09	-4.01E-09	-5.13E-09	-4.01E-09	-4.15E-09	-4.35E-09	-3.86E-09
871	-4.65E-10	-3.71E-10	-2.06E-10	-3.71E-10	3.63E-10	7.67E-10	-4.56E-10
872	3.25E-09	4.76E-09	3.28E-09	4.76E-09	3.54E-09	3.29E-09	2.09E-09
873	-6.76E-10	2.21E-09	2.22E-10	2.21E-09	6.07E-10	1.45E-09	3.75E-10
874	-4.08E-10	1.64E-09	4.49E-10	1.64E-09	1.02E-09	1.86E-09	-5.55E-10
876	7.40E-10	3.35E-10	6.41E-10	3.35E-10	2.95E-10	-3.79E-10	-1.29E-09
877	-2.23E-09	-2.42E-09	-2.25E-09	-2.42E-09	-2.22E-09	-2.29E-09	-2.31E-09
Biased Statistics							
Average Biased	-2.72E-09	-2.85E-09	-3.24E-09	-2.85E-09	-3.33E-09	-2.99E-09	-2.79E-09
Std Dev Biased	1.47E-08	1.36E-08	1.43E-08	1.36E-08	1.42E-08	1.41E-08	1.38E-08
Ps90%/90% (+KTL) Biased	3.76E-08	3.46E-08	3.59E-08	3.46E-08	3.55E-08	3.55E-08	3.51E-08
Ps90%/90% (-KTL) Biased	-4.31E-08	-4.03E-08	-4.23E-08	-4.03E-08	-4.21E-08	-4.15E-08	-4.07E-08
Un-Biased Statistics							
Average Un-Biased	4.88E-10	1.71E-09	8.76E-10	1.71E-09	1.17E-09	1.40E-09	3.28E-11
Std Dev Un-Biased	1.64E-09	1.99E-09	1.38E-09	1.99E-09	1.36E-09	1.36E-09	1.29E-09
Ps90%/90% (+KTL) Un-Biased	4.99E-09	7.16E-09	4.65E-09	7.16E-09	4.88E-09	5.11E-09	3.58E-09
Ps90%/90% (-KTL) Un-Biased	-4.01E-09	-3.73E-09	-2.90E-09	-3.73E-09	-2.55E-09	-2.32E-09	-3.51E-09
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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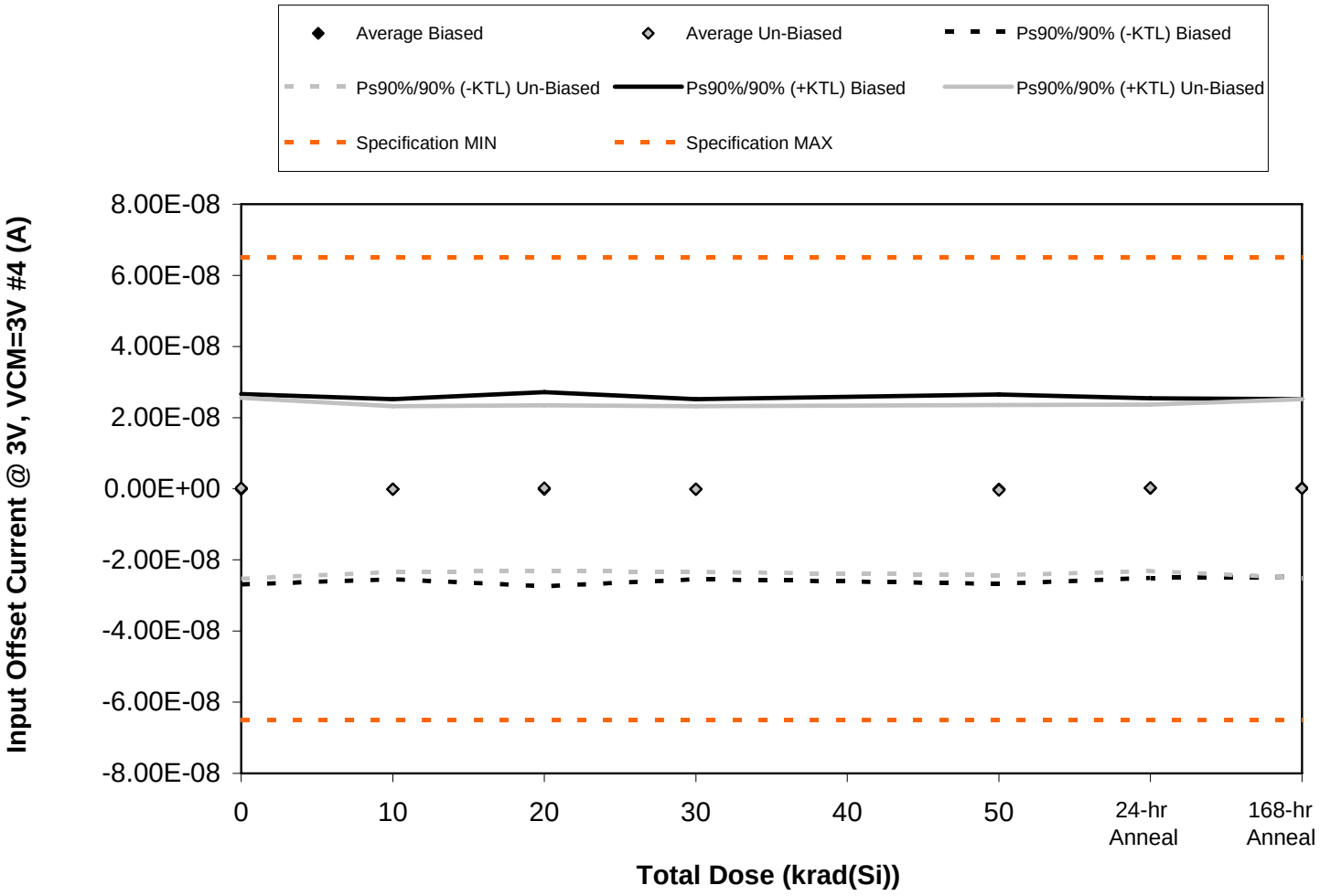

Figure 5.128. Plot of Input Offset Current @ 3V, VCM=3V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.128. Raw data for Input Offset Current @ 3V, VCM=3V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 3V, VCM=3V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.21E-08	1.12E-08	1.24E-08	1.12E-08	1.18E-08	1.14E-08	1.15E-08
867	-1.27E-09	-7.82E-10	-2.67E-10	-7.82E-10	-1.08E-09	-7.94E-10	-8.55E-10
868	-6.13E-09	-5.29E-09	-6.29E-09	-5.29E-09	-5.57E-09	-5.01E-09	-4.74E-09
869	-1.22E-08	-1.20E-08	-1.27E-08	-1.20E-08	-1.26E-08	-1.16E-08	-1.15E-08
870	6.87E-09	6.54E-09	6.43E-09	6.54E-09	6.84E-09	7.02E-09	6.67E-09
871	-8.33E-09	-8.09E-09	-7.63E-09	-8.09E-09	-8.74E-09	-7.74E-09	-8.40E-09
872	2.57E-09	2.22E-09	1.68E-09	2.22E-09	1.23E-09	1.86E-09	1.74E-09
873	1.37E-08	1.25E-08	1.32E-08	1.25E-08	1.21E-08	1.25E-08	1.37E-08
874	1.75E-09	6.33E-10	8.66E-10	6.33E-10	2.37E-09	2.79E-09	1.93E-09
876	-8.83E-09	-7.79E-09	-7.29E-09	-7.79E-09	-8.75E-09	-8.12E-09	-8.42E-09
877	-5.45E-09	-5.39E-09	-5.50E-09	-5.39E-09	-5.38E-09	-5.24E-09	-5.33E-09
Biased Statistics							
Average Biased	-1.10E-10	-7.86E-11	-9.82E-11	-7.86E-11	-1.19E-10	1.96E-10	2.08E-10
Std Dev Biased	9.77E-09	9.23E-09	9.96E-09	9.23E-09	9.70E-09	9.20E-09	9.10E-09
Ps90%/90% (+KTL) Biased	2.67E-08	2.52E-08	2.72E-08	2.52E-08	2.65E-08	2.54E-08	2.52E-08
Ps90%/90% (-KTL) Biased	-2.69E-08	-2.54E-08	-2.74E-08	-2.54E-08	-2.67E-08	-2.50E-08	-2.48E-08
Un-Biased Statistics							
Average Un-Biased	1.72E-10	-9.42E-11	1.62E-10	-9.42E-11	-3.68E-10	2.48E-10	1.08E-10
Std Dev Un-Biased	9.28E-09	8.50E-09	8.49E-09	8.50E-09	8.73E-09	8.55E-09	9.16E-09
Ps90%/90% (+KTL) Un-Biased	2.56E-08	2.32E-08	2.35E-08	2.32E-08	2.36E-08	2.37E-08	2.52E-08
Ps90%/90% (-KTL) Un-Biased	-2.53E-08	-2.34E-08	-2.31E-08	-2.34E-08	-2.43E-08	-2.32E-08	-2.50E-08
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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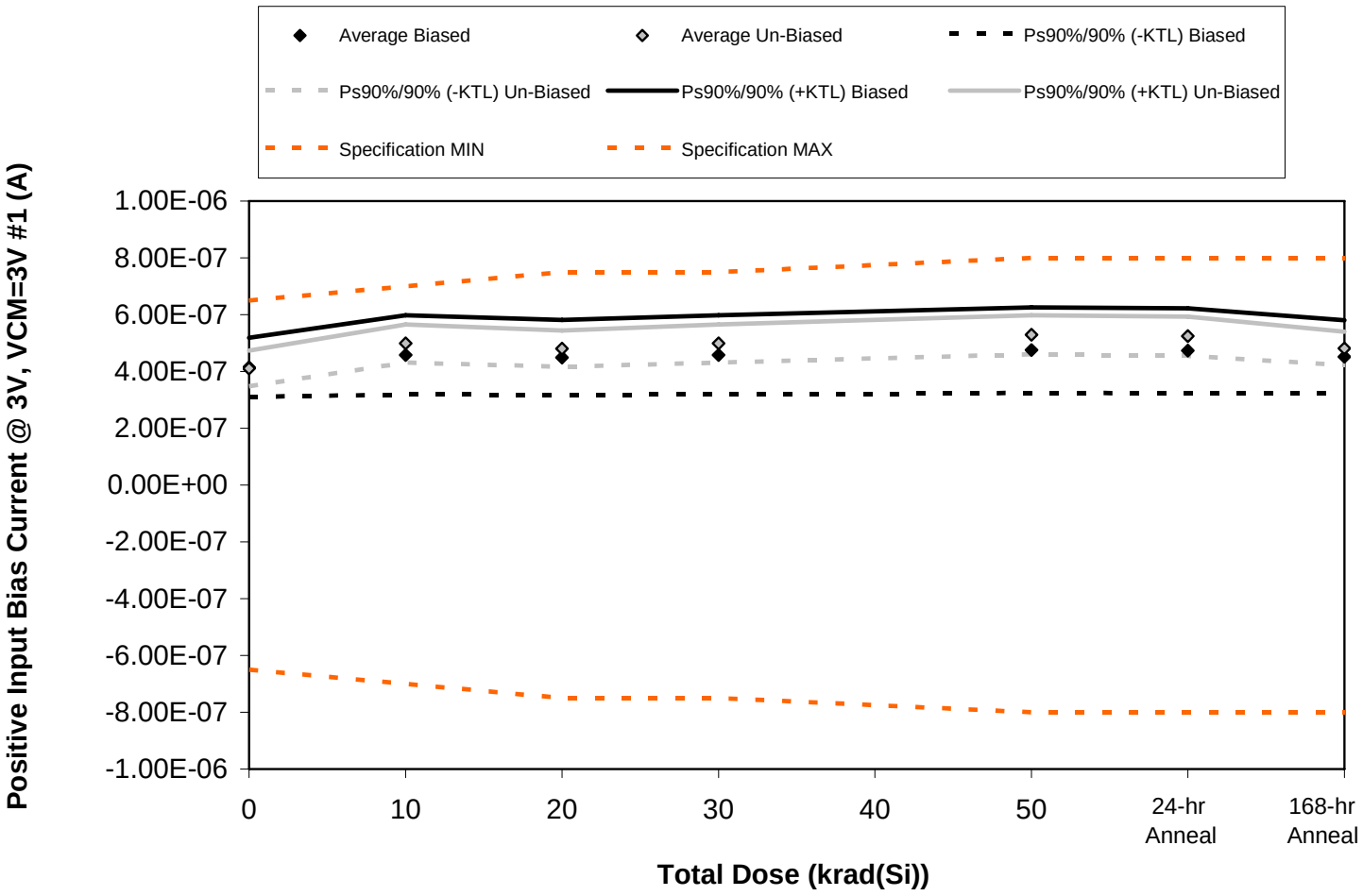

Figure 5.129. Plot of Positive Input Bias Current @ 3V, VCM=3V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.129. Raw data for Positive Input Bias Current @ 3V, VCM=3V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 3V, VCM=3V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.75E-07	5.45E-07	5.29E-07	5.45E-07	5.70E-07	5.67E-07	5.31E-07
867	3.85E-07	4.26E-07	4.17E-07	4.26E-07	4.43E-07	4.41E-07	4.22E-07
868	3.81E-07	4.19E-07	4.11E-07	4.19E-07	4.35E-07	4.34E-07	4.16E-07
869	4.07E-07	4.39E-07	4.32E-07	4.39E-07	4.52E-07	4.51E-07	4.34E-07
870	4.25E-07	4.62E-07	4.58E-07	4.62E-07	4.76E-07	4.74E-07	4.56E-07
871	4.44E-07	5.31E-07	5.11E-07	5.31E-07	5.62E-07	5.57E-07	5.12E-07
872	4.11E-07	5.00E-07	4.82E-07	5.00E-07	5.32E-07	5.27E-07	4.82E-07
873	3.86E-07	4.70E-07	4.53E-07	4.70E-07	5.00E-07	4.94E-07	4.58E-07
874	4.19E-07	5.12E-07	4.92E-07	5.12E-07	5.42E-07	5.37E-07	4.90E-07
876	3.93E-07	4.80E-07	4.62E-07	4.80E-07	5.09E-07	5.05E-07	4.65E-07
877	4.46E-07	4.45E-07	4.45E-07	4.45E-07	4.46E-07	4.46E-07	4.45E-07
Biased Statistics							
Average Biased	4.15E-07	4.58E-07	4.49E-07	4.58E-07	4.75E-07	4.73E-07	4.52E-07
Std Dev Biased	3.80E-08	5.09E-08	4.81E-08	5.09E-08	5.50E-08	5.45E-08	4.67E-08
Ps90%/90% (+KTL) Biased	5.19E-07	5.98E-07	5.81E-07	5.98E-07	6.26E-07	6.23E-07	5.80E-07
Ps90%/90% (-KTL) Biased	3.11E-07	3.19E-07	3.17E-07	3.19E-07	3.24E-07	3.24E-07	3.24E-07
Un-Biased Statistics							
Average Un-Biased	4.11E-07	4.99E-07	4.80E-07	4.99E-07	5.29E-07	5.24E-07	4.82E-07
Std Dev Un-Biased	2.29E-08	2.46E-08	2.33E-08	2.46E-08	2.50E-08	2.53E-08	2.15E-08
Ps90%/90% (+KTL) Un-Biased	4.73E-07	5.66E-07	5.44E-07	5.66E-07	5.98E-07	5.94E-07	5.41E-07
Ps90%/90% (-KTL) Un-Biased	3.48E-07	4.31E-07	4.16E-07	4.31E-07	4.60E-07	4.55E-07	4.23E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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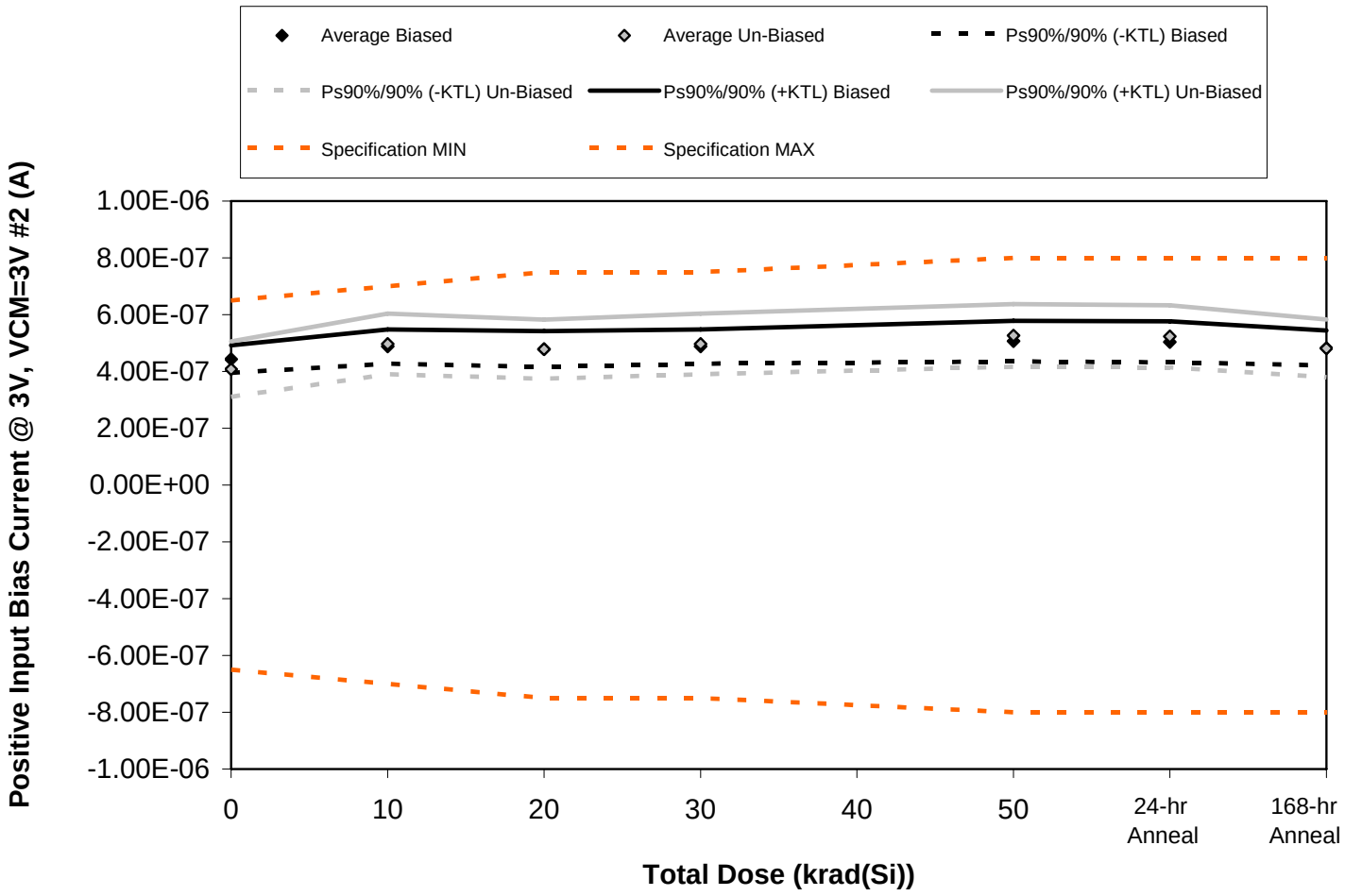

Figure 5.130. Plot of Positive Input Bias Current @ 3V, VCM=3V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.130. Raw data for Positive Input Bias Current @ 3V, VCM=3V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 3V, VCM=3V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.51E-07	5.12E-07	5.03E-07	5.12E-07	5.40E-07	5.38E-07	5.06E-07
867	4.39E-07	4.83E-07	4.73E-07	4.83E-07	5.02E-07	4.99E-07	4.78E-07
868	4.17E-07	4.56E-07	4.46E-07	4.56E-07	4.71E-07	4.69E-07	4.51E-07
869	4.45E-07	4.83E-07	4.75E-07	4.83E-07	4.99E-07	4.95E-07	4.77E-07
870	4.65E-07	5.05E-07	4.98E-07	5.05E-07	5.23E-07	5.20E-07	5.03E-07
871	3.55E-07	4.37E-07	4.20E-07	4.37E-07	4.63E-07	4.61E-07	4.25E-07
872	4.32E-07	5.14E-07	4.98E-07	5.14E-07	5.43E-07	5.39E-07	4.95E-07
873	4.44E-07	5.37E-07	5.15E-07	5.37E-07	5.66E-07	5.63E-07	5.22E-07
874	4.18E-07	5.16E-07	4.98E-07	5.16E-07	5.47E-07	5.45E-07	4.98E-07
876	3.92E-07	4.82E-07	4.63E-07	4.82E-07	5.16E-07	5.11E-07	4.67E-07
877	3.92E-07	3.94E-07	3.92E-07	3.94E-07	3.92E-07	3.92E-07	3.91E-07
Biased Statistics							
Average Biased	4.43E-07	4.88E-07	4.79E-07	4.88E-07	5.07E-07	5.04E-07	4.83E-07
Std Dev Biased	1.77E-08	2.21E-08	2.31E-08	2.21E-08	2.63E-08	2.62E-08	2.22E-08
Ps90%/90% (+KTL) Biased	4.92E-07	5.48E-07	5.42E-07	5.48E-07	5.79E-07	5.76E-07	5.44E-07
Ps90%/90% (-KTL) Biased	3.95E-07	4.27E-07	4.16E-07	4.27E-07	4.35E-07	4.32E-07	4.22E-07
Un-Biased Statistics							
Average Un-Biased	4.08E-07	4.97E-07	4.78E-07	4.97E-07	5.27E-07	5.24E-07	4.81E-07
Std Dev Un-Biased	3.56E-08	3.91E-08	3.80E-08	3.91E-08	4.02E-08	3.99E-08	3.72E-08
Ps90%/90% (+KTL) Un-Biased	5.06E-07	6.04E-07	5.83E-07	6.04E-07	6.37E-07	6.33E-07	5.83E-07
Ps90%/90% (-KTL) Un-Biased	3.10E-07	3.90E-07	3.74E-07	3.90E-07	4.17E-07	4.14E-07	3.79E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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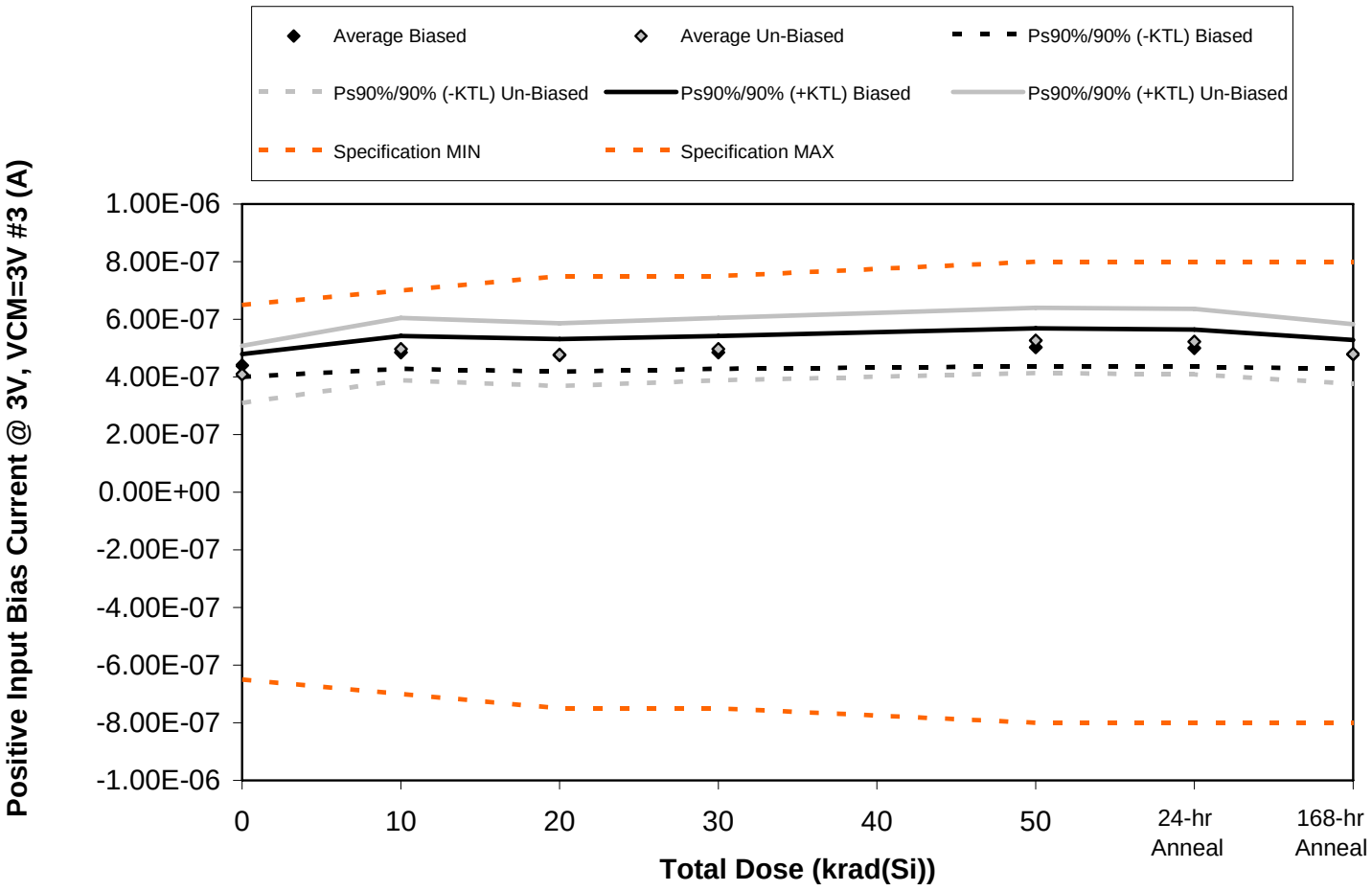

Figure 5.131. Plot of Positive Input Bias Current @ 3V, VCM=3V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.131. Raw data for Positive Input Bias Current @ 3V, VCM=3V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 3V, VCM=3V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.42E-07	5.06E-07	4.94E-07	5.06E-07	5.30E-07	5.27E-07	4.94E-07
867	4.40E-07	4.86E-07	4.76E-07	4.86E-07	5.03E-07	5.00E-07	4.80E-07
868	4.16E-07	4.51E-07	4.40E-07	4.51E-07	4.64E-07	4.62E-07	4.47E-07
869	4.51E-07	4.92E-07	4.82E-07	4.92E-07	5.10E-07	5.05E-07	4.84E-07
870	4.51E-07	4.91E-07	4.83E-07	4.91E-07	5.07E-07	5.06E-07	4.86E-07
871	3.57E-07	4.38E-07	4.19E-07	4.38E-07	4.65E-07	4.61E-07	4.25E-07
872	4.20E-07	5.01E-07	4.81E-07	5.01E-07	5.31E-07	5.26E-07	4.82E-07
873	4.53E-07	5.44E-07	5.25E-07	5.44E-07	5.76E-07	5.73E-07	5.28E-07
874	4.23E-07	5.16E-07	4.97E-07	5.16E-07	5.47E-07	5.44E-07	4.97E-07
876	3.93E-07	4.83E-07	4.64E-07	4.83E-07	5.14E-07	5.10E-07	4.67E-07
877	3.89E-07	3.87E-07	3.90E-07	3.87E-07	3.89E-07	3.87E-07	3.88E-07
Biased Statistics							
Average Biased	4.40E-07	4.85E-07	4.75E-07	4.85E-07	5.03E-07	5.00E-07	4.78E-07
Std Dev Biased	1.44E-08	2.06E-08	2.07E-08	2.06E-08	2.40E-08	2.37E-08	1.82E-08
Ps90%/90% (+KTL) Biased	4.79E-07	5.42E-07	5.32E-07	5.42E-07	5.69E-07	5.65E-07	5.28E-07
Ps90%/90% (-KTL) Biased	4.00E-07	4.29E-07	4.18E-07	4.29E-07	4.37E-07	4.35E-07	4.28E-07
Un-Biased Statistics							
Average Un-Biased	4.09E-07	4.97E-07	4.77E-07	4.97E-07	5.27E-07	5.23E-07	4.80E-07
Std Dev Un-Biased	3.62E-08	3.95E-08	3.97E-08	3.95E-08	4.13E-08	4.15E-08	3.78E-08
Ps90%/90% (+KTL) Un-Biased	5.08E-07	6.05E-07	5.86E-07	6.05E-07	6.40E-07	6.37E-07	5.83E-07
Ps90%/90% (-KTL) Un-Biased	3.10E-07	3.88E-07	3.69E-07	3.88E-07	4.13E-07	4.09E-07	3.76E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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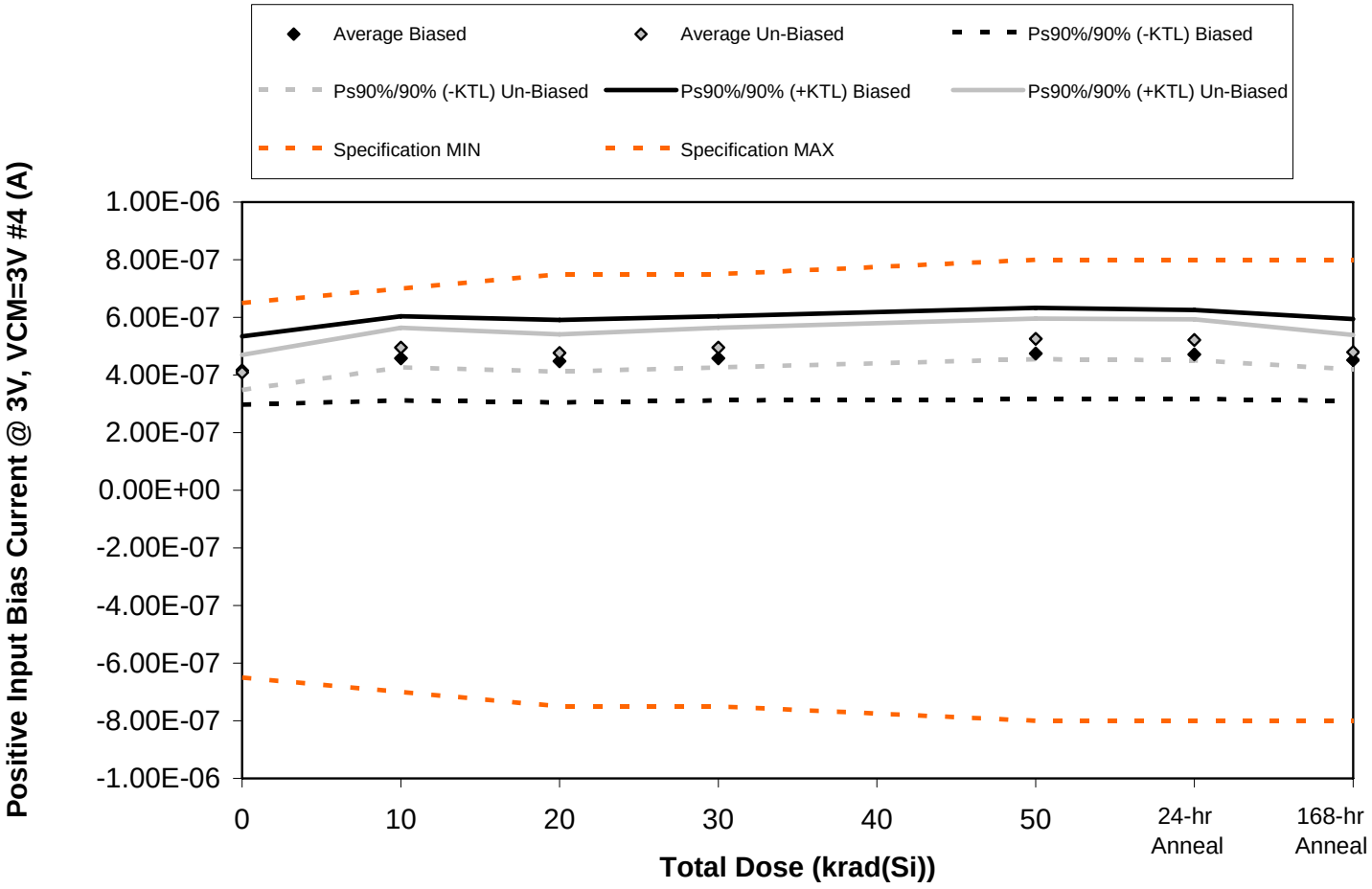

Figure 5.132. Plot of Positive Input Bias Current @ 3V, VCM=3V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.132. Raw data for Positive Input Bias Current @ 3V, VCM=3V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 3V, VCM=3V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.82E-07	5.45E-07	5.33E-07	5.45E-07	5.72E-07	5.66E-07	5.36E-07
867	3.81E-07	4.23E-07	4.12E-07	4.23E-07	4.40E-07	4.37E-07	4.18E-07
868	3.73E-07	4.10E-07	4.01E-07	4.10E-07	4.25E-07	4.25E-07	4.04E-07
869	4.12E-07	4.44E-07	4.36E-07	4.44E-07	4.56E-07	4.54E-07	4.40E-07
870	4.30E-07	4.66E-07	4.57E-07	4.66E-07	4.78E-07	4.76E-07	4.60E-07
871	4.40E-07	5.25E-07	5.05E-07	5.25E-07	5.55E-07	5.51E-07	5.06E-07
872	4.13E-07	5.05E-07	4.85E-07	5.05E-07	5.38E-07	5.33E-07	4.86E-07
873	3.98E-07	4.83E-07	4.64E-07	4.83E-07	5.11E-07	5.07E-07	4.70E-07
874	4.13E-07	5.04E-07	4.85E-07	5.04E-07	5.35E-07	5.33E-07	4.89E-07
876	3.80E-07	4.59E-07	4.43E-07	4.59E-07	4.89E-07	4.85E-07	4.48E-07
877	4.45E-07	4.45E-07	4.45E-07	4.45E-07	4.45E-07	4.45E-07	4.45E-07
Biased Statistics							
Average Biased	4.16E-07	4.58E-07	4.48E-07	4.58E-07	4.74E-07	4.71E-07	4.52E-07
Std Dev Biased	4.34E-08	5.32E-08	5.23E-08	5.32E-08	5.79E-08	5.61E-08	5.18E-08
Ps90%/90% (+KTL) Biased	5.35E-07	6.04E-07	5.91E-07	6.04E-07	6.33E-07	6.25E-07	5.94E-07
Ps90%/90% (-KTL) Biased	2.97E-07	3.12E-07	3.05E-07	3.12E-07	3.16E-07	3.18E-07	3.10E-07
Un-Biased Statistics							
Average Un-Biased	4.09E-07	4.95E-07	4.76E-07	4.95E-07	5.25E-07	5.22E-07	4.80E-07
Std Dev Un-Biased	2.21E-08	2.49E-08	2.37E-08	2.49E-08	2.58E-08	2.60E-08	2.18E-08
Ps90%/90% (+KTL) Un-Biased	4.69E-07	5.63E-07	5.41E-07	5.63E-07	5.96E-07	5.93E-07	5.39E-07
Ps90%/90% (-KTL) Un-Biased	3.48E-07	4.27E-07	4.12E-07	4.27E-07	4.54E-07	4.50E-07	4.20E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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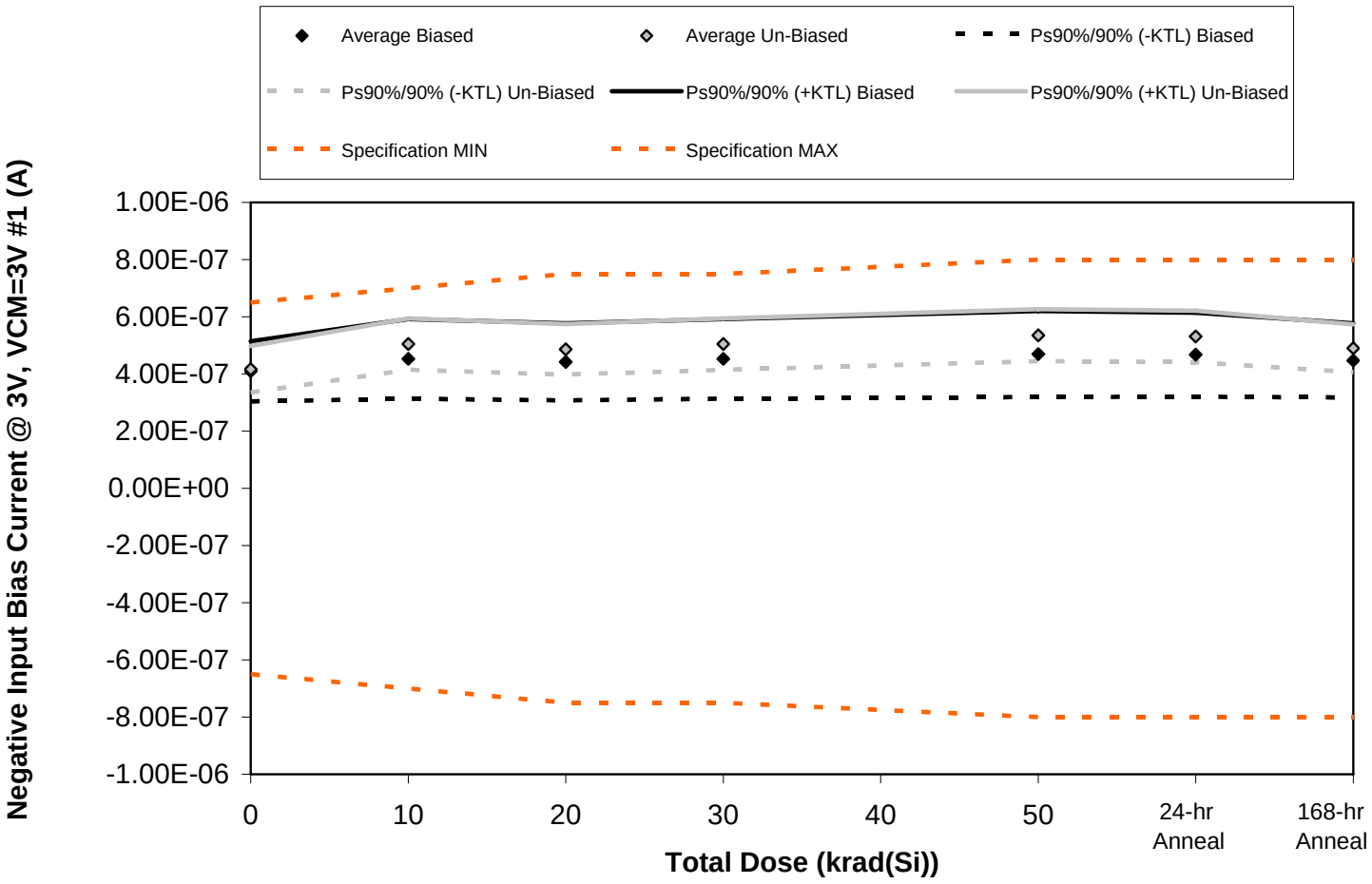

Figure 5.133. Plot of Negative Input Bias Current @ 3V, VCM=3V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.133. Raw data for Negative Input Bias Current @ 3V, VCM=3V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 3V, VCM=3V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.69E-07	5.38E-07	5.24E-07	5.38E-07	5.64E-07	5.59E-07	5.27E-07
867	3.76E-07	4.17E-07	4.06E-07	4.17E-07	4.36E-07	4.33E-07	4.14E-07
868	3.75E-07	4.12E-07	4.02E-07	4.12E-07	4.27E-07	4.26E-07	4.09E-07
869	4.12E-07	4.44E-07	4.36E-07	4.44E-07	4.58E-07	4.56E-07	4.40E-07
870	4.16E-07	4.52E-07	4.44E-07	4.52E-07	4.65E-07	4.64E-07	4.49E-07
871	4.54E-07	5.41E-07	5.21E-07	5.41E-07	5.70E-07	5.66E-07	5.25E-07
872	4.35E-07	5.28E-07	5.10E-07	5.28E-07	5.59E-07	5.56E-07	5.11E-07
873	3.87E-07	4.72E-07	4.54E-07	4.72E-07	5.02E-07	4.98E-07	4.60E-07
874	4.20E-07	5.14E-07	4.94E-07	5.14E-07	5.48E-07	5.42E-07	4.97E-07
876	3.87E-07	4.69E-07	4.52E-07	4.69E-07	4.98E-07	4.95E-07	4.57E-07
877	4.50E-07	4.49E-07	4.51E-07	4.49E-07	4.51E-07	4.50E-07	4.50E-07
Biased Statistics							
Average Biased	4.10E-07	4.53E-07	4.42E-07	4.53E-07	4.70E-07	4.68E-07	4.47E-07
Std Dev Biased	3.84E-08	5.07E-08	4.91E-08	5.07E-08	5.49E-08	5.36E-08	4.73E-08
Ps90%/90% (+KTL) Biased	5.15E-07	5.92E-07	5.77E-07	5.92E-07	6.20E-07	6.14E-07	5.77E-07
Ps90%/90% (-KTL) Biased	3.04E-07	3.14E-07	3.08E-07	3.14E-07	3.19E-07	3.21E-07	3.18E-07
Un-Biased Statistics							
Average Un-Biased	4.17E-07	5.05E-07	4.86E-07	5.05E-07	5.36E-07	5.31E-07	4.90E-07
Std Dev Un-Biased	2.97E-08	3.28E-08	3.21E-08	3.28E-08	3.32E-08	3.31E-08	3.05E-08
Ps90%/90% (+KTL) Un-Biased	4.98E-07	5.95E-07	5.74E-07	5.95E-07	6.27E-07	6.22E-07	5.73E-07
Ps90%/90% (-KTL) Un-Biased	3.35E-07	4.15E-07	3.98E-07	4.15E-07	4.45E-07	4.41E-07	4.06E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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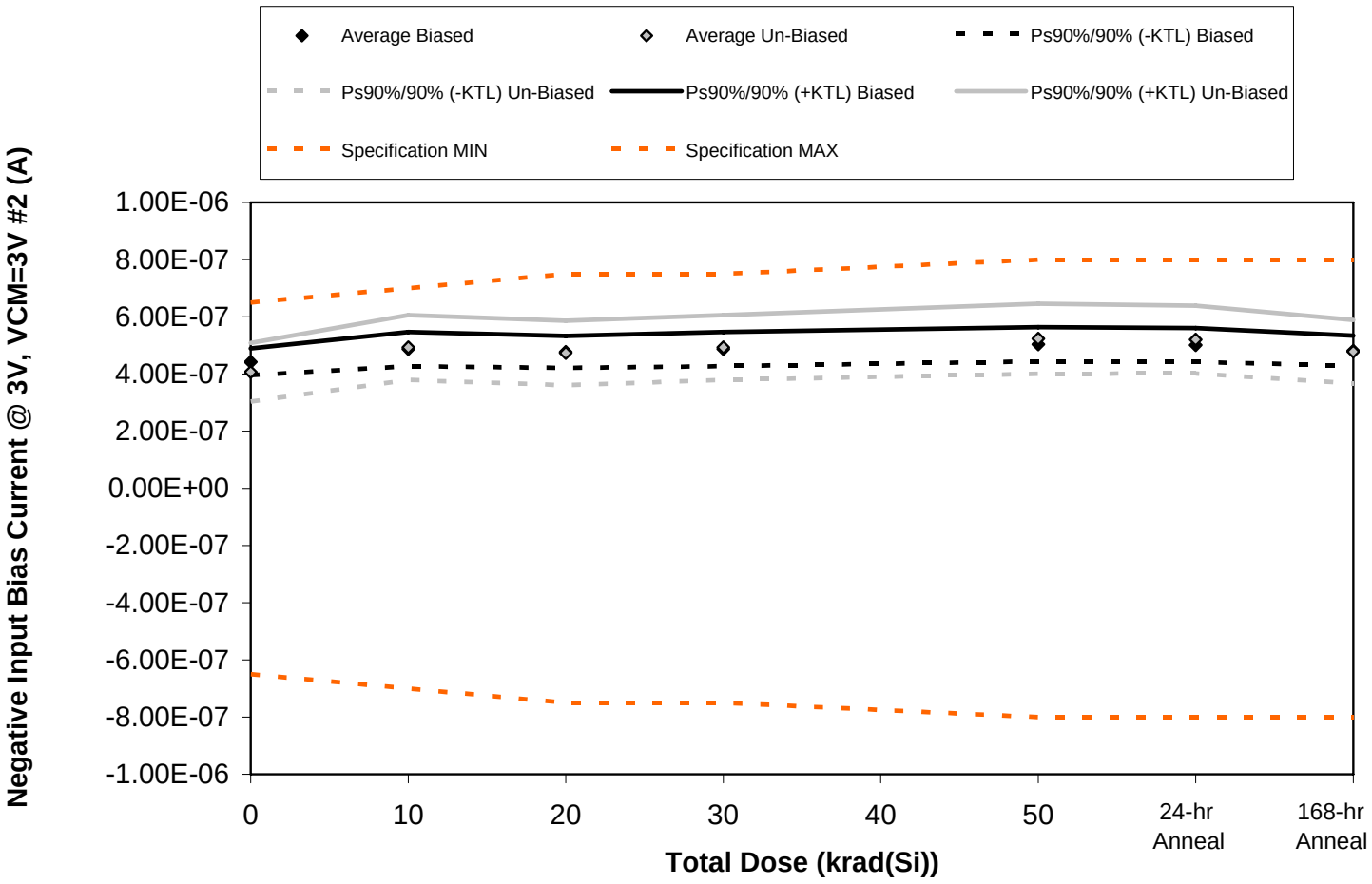

Figure 5.134. Plot of Negative Input Bias Current @ 3V, VCM=3V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.134. Raw data for Negative Input Bias Current @ 3V, VCM=3V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 3V, VCM=3V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.36E-07	5.01E-07	4.90E-07	5.01E-07	5.25E-07	5.20E-07	4.90E-07
867	4.60E-07	5.04E-07	4.91E-07	5.04E-07	5.16E-07	5.14E-07	4.97E-07
868	4.19E-07	4.55E-07	4.47E-07	4.55E-07	4.72E-07	4.69E-07	4.53E-07
869	4.38E-07	4.75E-07	4.67E-07	4.75E-07	4.92E-07	4.90E-07	4.72E-07
870	4.59E-07	5.02E-07	4.94E-07	5.02E-07	5.16E-07	5.14E-07	4.96E-07
871	3.47E-07	4.27E-07	4.09E-07	4.27E-07	4.53E-07	4.52E-07	4.15E-07
872	4.19E-07	4.99E-07	4.81E-07	4.99E-07	5.29E-07	5.25E-07	4.82E-07
873	4.49E-07	5.38E-07	5.19E-07	5.38E-07	5.71E-07	5.67E-07	5.24E-07
874	4.17E-07	5.14E-07	4.95E-07	5.14E-07	5.50E-07	5.45E-07	4.98E-07
876	4.00E-07	4.86E-07	4.65E-07	4.86E-07	5.17E-07	5.13E-07	4.74E-07
877	3.91E-07	3.95E-07	3.91E-07	3.95E-07	3.94E-07	3.94E-07	3.95E-07
Biased Statistics							
Average Biased	4.42E-07	4.87E-07	4.78E-07	4.87E-07	5.04E-07	5.01E-07	4.82E-07
Std Dev Biased	1.69E-08	2.17E-08	2.04E-08	2.17E-08	2.18E-08	2.15E-08	1.91E-08
Ps90%/90% (+KTL) Biased	4.89E-07	5.47E-07	5.34E-07	5.47E-07	5.64E-07	5.60E-07	5.34E-07
Ps90%/90% (-KTL) Biased	3.96E-07	4.28E-07	4.22E-07	4.28E-07	4.44E-07	4.42E-07	4.29E-07
Un-Biased Statistics							
Average Un-Biased	4.07E-07	4.93E-07	4.74E-07	4.93E-07	5.24E-07	5.20E-07	4.79E-07
Std Dev Un-Biased	3.73E-08	4.13E-08	4.11E-08	4.13E-08	4.47E-08	4.33E-08	4.04E-08
Ps90%/90% (+KTL) Un-Biased	5.09E-07	6.06E-07	5.86E-07	6.06E-07	6.46E-07	6.39E-07	5.90E-07
Ps90%/90% (-KTL) Un-Biased	3.04E-07	3.80E-07	3.61E-07	3.80E-07	4.01E-07	4.02E-07	3.68E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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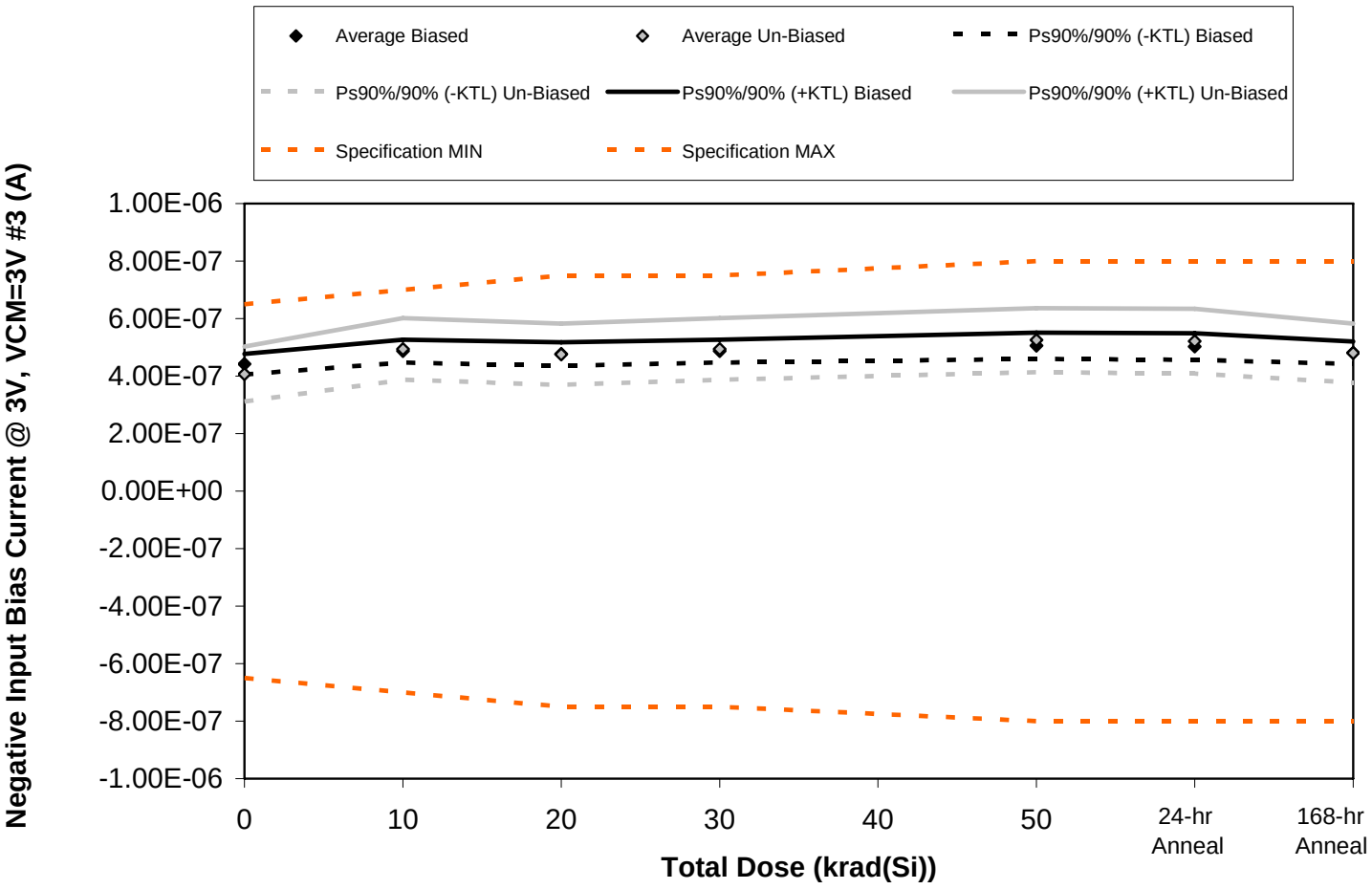

Figure 5.135. Plot of Negative Input Bias Current @ 3V, VCM=3V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.135. Raw data for Negative Input Bias Current @ 3V, VCM=3V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 3V, VCM=3V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.32E-07	4.93E-07	4.80E-07	4.93E-07	5.19E-07	5.15E-07	4.83E-07
867	4.60E-07	5.02E-07	4.94E-07	5.02E-07	5.20E-07	5.19E-07	4.99E-07
868	4.29E-07	4.65E-07	4.56E-07	4.65E-07	4.81E-07	4.78E-07	4.62E-07
869	4.37E-07	4.80E-07	4.70E-07	4.80E-07	4.97E-07	4.95E-07	4.73E-07
870	4.51E-07	4.94E-07	4.86E-07	4.94E-07	5.11E-07	5.09E-07	4.90E-07
871	3.58E-07	4.37E-07	4.19E-07	4.37E-07	4.65E-07	4.61E-07	4.26E-07
872	4.16E-07	4.96E-07	4.77E-07	4.96E-07	5.26E-07	5.23E-07	4.80E-07
873	4.51E-07	5.42E-07	5.24E-07	5.42E-07	5.75E-07	5.71E-07	5.28E-07
874	4.20E-07	5.14E-07	4.94E-07	5.14E-07	5.45E-07	5.42E-07	4.96E-07
876	3.91E-07	4.82E-07	4.64E-07	4.82E-07	5.16E-07	5.11E-07	4.70E-07
877	3.89E-07	3.89E-07	3.91E-07	3.89E-07	3.93E-07	3.90E-07	3.91E-07
Biased Statistics							
Average Biased	4.42E-07	4.87E-07	4.77E-07	4.87E-07	5.06E-07	5.03E-07	4.81E-07
Std Dev Biased	1.32E-08	1.45E-08	1.47E-08	1.45E-08	1.66E-08	1.67E-08	1.43E-08
Ps90%/90% (+KTL) Biased	4.78E-07	5.27E-07	5.18E-07	5.27E-07	5.51E-07	5.49E-07	5.21E-07
Ps90%/90% (-KTL) Biased	4.06E-07	4.47E-07	4.37E-07	4.47E-07	4.60E-07	4.57E-07	4.42E-07
Un-Biased Statistics							
Average Un-Biased	4.07E-07	4.94E-07	4.76E-07	4.94E-07	5.25E-07	5.22E-07	4.80E-07
Std Dev Un-Biased	3.49E-08	3.92E-08	3.89E-08	3.92E-08	4.06E-08	4.10E-08	3.74E-08
Ps90%/90% (+KTL) Un-Biased	5.03E-07	6.02E-07	5.83E-07	6.02E-07	6.37E-07	6.34E-07	5.83E-07
Ps90%/90% (-KTL) Un-Biased	3.12E-07	3.87E-07	3.69E-07	3.87E-07	4.14E-07	4.09E-07	3.78E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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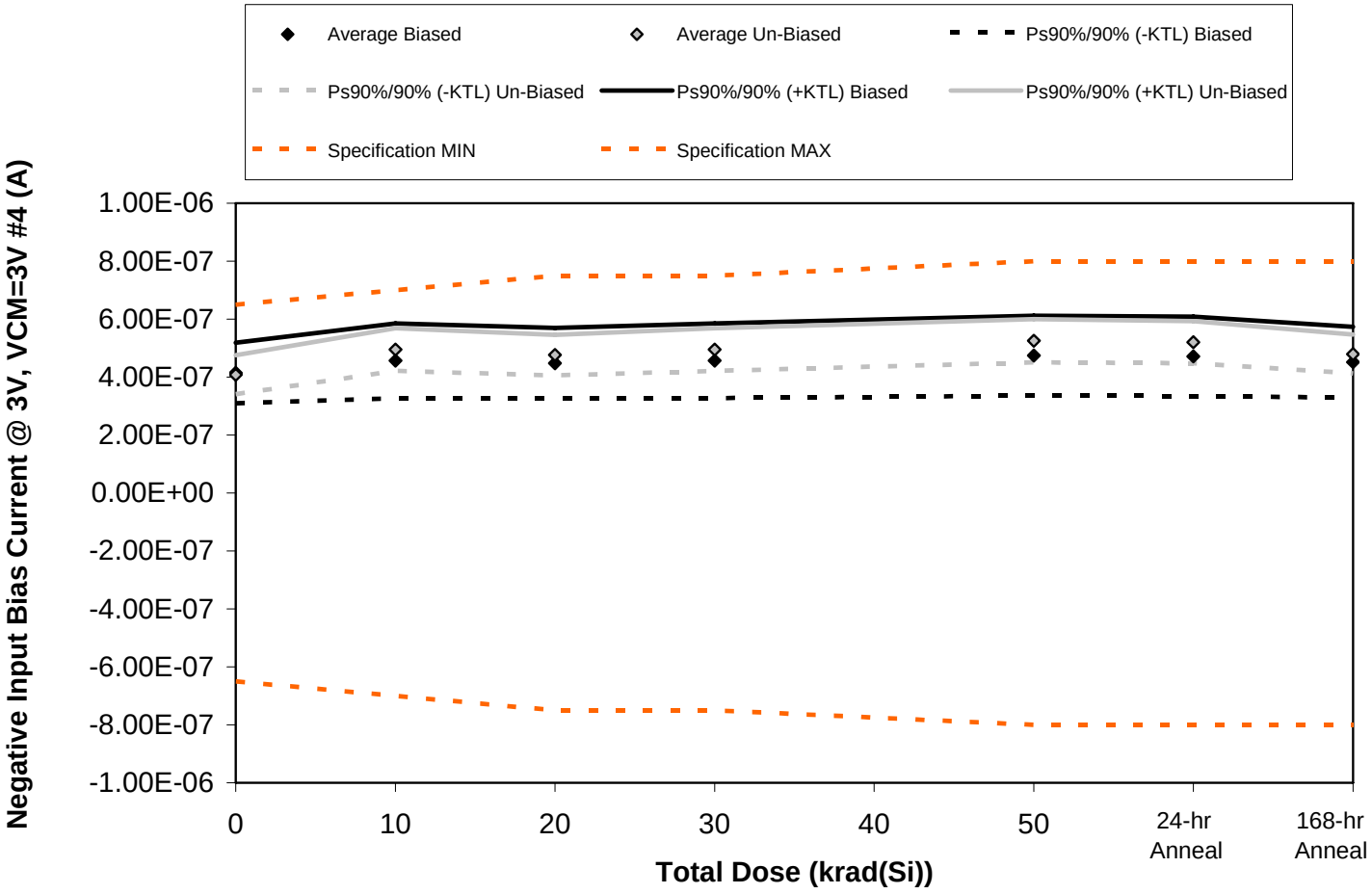

Figure 5.136. Plot of Negative Input Bias Current @ 3V, VCM=3V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.136. Raw data for Negative Input Bias Current @ 3V, VCM=3V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 3V, VCM=3V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.70E-07	5.33E-07	5.20E-07	5.33E-07	5.59E-07	5.56E-07	5.24E-07
867	3.79E-07	4.22E-07	4.13E-07	4.22E-07	4.41E-07	4.39E-07	4.19E-07
868	3.78E-07	4.15E-07	4.09E-07	4.15E-07	4.32E-07	4.28E-07	4.11E-07
869	4.23E-07	4.55E-07	4.48E-07	4.55E-07	4.70E-07	4.67E-07	4.52E-07
870	4.23E-07	4.57E-07	4.50E-07	4.57E-07	4.71E-07	4.68E-07	4.52E-07
871	4.46E-07	5.32E-07	5.11E-07	5.32E-07	5.62E-07	5.56E-07	5.15E-07
872	4.12E-07	5.02E-07	4.84E-07	5.02E-07	5.35E-07	5.29E-07	4.84E-07
873	3.85E-07	4.70E-07	4.51E-07	4.70E-07	5.00E-07	4.96E-07	4.56E-07
874	4.11E-07	5.04E-07	4.84E-07	5.04E-07	5.34E-07	5.30E-07	4.86E-07
876	3.87E-07	4.67E-07	4.50E-07	4.67E-07	4.98E-07	4.92E-07	4.56E-07
877	4.48E-07	4.49E-07	4.51E-07	4.49E-07	4.50E-07	4.50E-07	4.50E-07
Biased Statistics							
Average Biased	4.15E-07	4.56E-07	4.48E-07	4.56E-07	4.74E-07	4.72E-07	4.52E-07
Std Dev Biased	3.81E-08	4.69E-08	4.43E-08	4.69E-08	5.02E-08	5.00E-08	4.47E-08
Ps90%/90% (+KTL) Biased	5.19E-07	5.85E-07	5.69E-07	5.85E-07	6.12E-07	6.09E-07	5.74E-07
Ps90%/90% (-KTL) Biased	3.10E-07	3.28E-07	3.26E-07	3.28E-07	3.37E-07	3.34E-07	3.29E-07
Un-Biased Statistics							
Average Un-Biased	4.08E-07	4.95E-07	4.76E-07	4.95E-07	5.26E-07	5.21E-07	4.80E-07
Std Dev Un-Biased	2.46E-08	2.68E-08	2.57E-08	2.68E-08	2.71E-08	2.65E-08	2.46E-08
Ps90%/90% (+KTL) Un-Biased	4.75E-07	5.69E-07	5.47E-07	5.69E-07	6.00E-07	5.93E-07	5.47E-07
Ps90%/90% (-KTL) Un-Biased	3.41E-07	4.21E-07	4.06E-07	4.21E-07	4.51E-07	4.48E-07	4.12E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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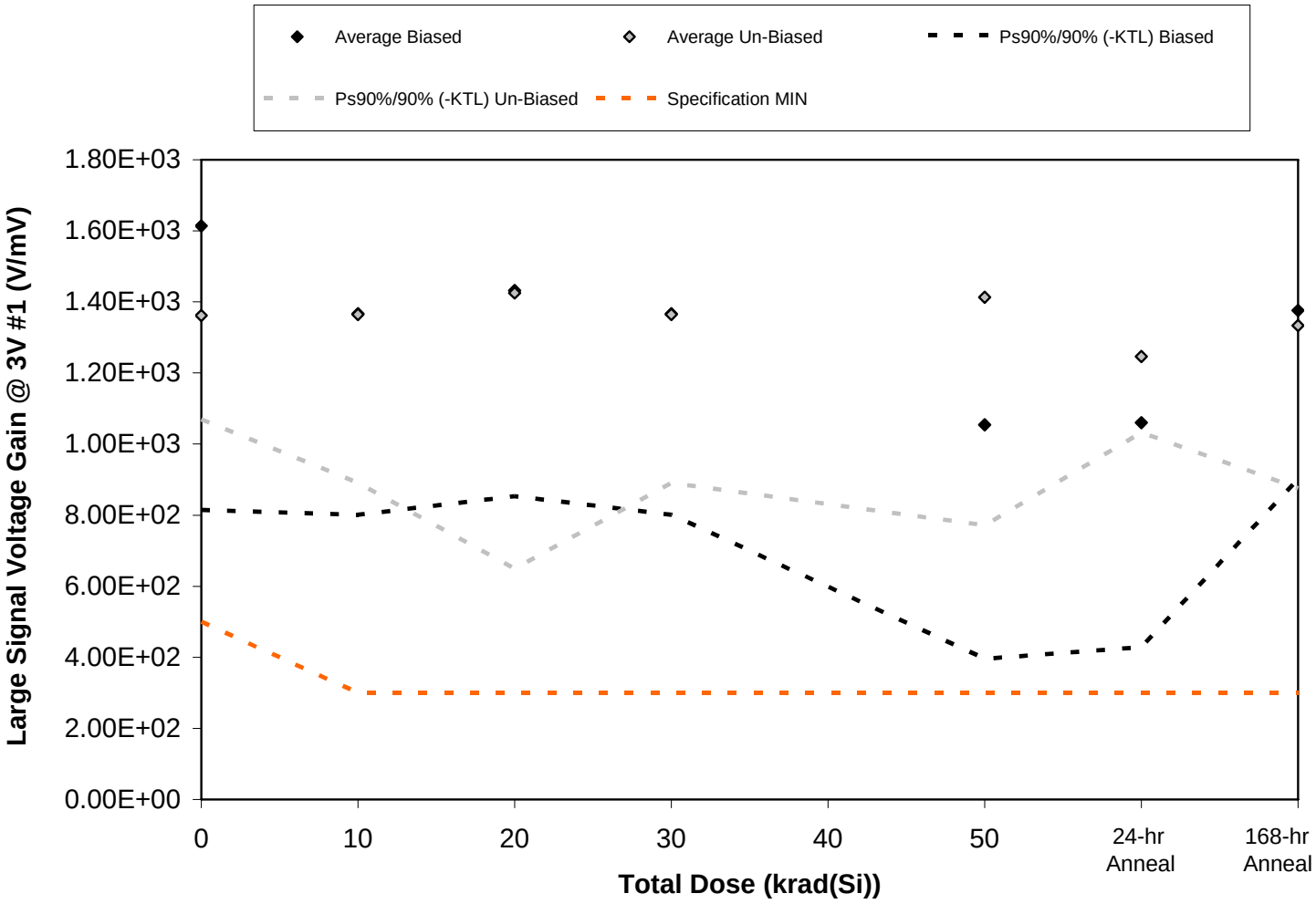

Figure 5.137. Plot of Large Signal Voltage Gain @ 3V #1 (V/mV) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.137. Raw data for Large Signal Voltage Gain @ 3V #1 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 3V #1 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.38E+03	1.28E+03	1.16E+03	1.28E+03	8.87E+02	8.33E+02	1.14E+03
867	1.46E+03	1.52E+03	1.60E+03	1.52E+03	1.18E+03	1.10E+03	1.45E+03
868	2.08E+03	1.56E+03	1.58E+03	1.56E+03	1.32E+03	1.39E+03	1.52E+03
869	1.44E+03	1.05E+03	1.24E+03	1.05E+03	7.31E+02	8.51E+02	1.25E+03
870	1.71E+03	1.43E+03	1.57E+03	1.43E+03	1.14E+03	1.12E+03	1.52E+03
871	1.54E+03	1.32E+03	1.36E+03	1.32E+03	1.78E+03	1.18E+03	1.44E+03
872	1.35E+03	1.21E+03	1.09E+03	1.21E+03	1.37E+03	1.23E+03	1.40E+03
873	1.29E+03	1.34E+03	1.78E+03	1.34E+03	1.48E+03	1.38E+03	1.51E+03
874	1.27E+03	1.30E+03	1.25E+03	1.30E+03	1.21E+03	1.20E+03	1.10E+03
876	1.37E+03	1.66E+03	1.65E+03	1.66E+03	1.23E+03	1.25E+03	1.22E+03
877	1.67E+03	1.55E+03	1.52E+03	1.55E+03	1.49E+03	1.71E+03	1.42E+03
Biased Statistics							
Average Biased	1.61E+03	1.37E+03	1.43E+03	1.37E+03	1.05E+03	1.06E+03	1.38E+03
Std Dev Biased	2.91E+02	2.06E+02	2.11E+02	2.06E+02	2.40E+02	2.30E+02	1.73E+02
Ps90%/90% (+KTL) Biased	2.41E+03	1.93E+03	2.01E+03	1.93E+03	1.71E+03	1.69E+03	1.85E+03
Ps90%/90% (-KTL) Biased	8.15E+02	8.01E+02	8.53E+02	8.01E+02	3.96E+02	4.28E+02	9.01E+02
Un-Biased Statistics							
Average Un-Biased	1.36E+03	1.36E+03	1.43E+03	1.36E+03	1.41E+03	1.25E+03	1.33E+03
Std Dev Un-Biased	1.07E+02	1.73E+02	2.83E+02	1.73E+02	2.34E+02	7.82E+01	1.67E+02
Ps90%/90% (+KTL) Un-Biased	1.65E+03	1.84E+03	2.20E+03	1.84E+03	2.06E+03	1.46E+03	1.79E+03
Ps90%/90% (-KTL) Un-Biased	1.07E+03	8.91E+02	6.49E+02	8.91E+02	7.72E+02	1.03E+03	8.75E+02
Specification MIN	5.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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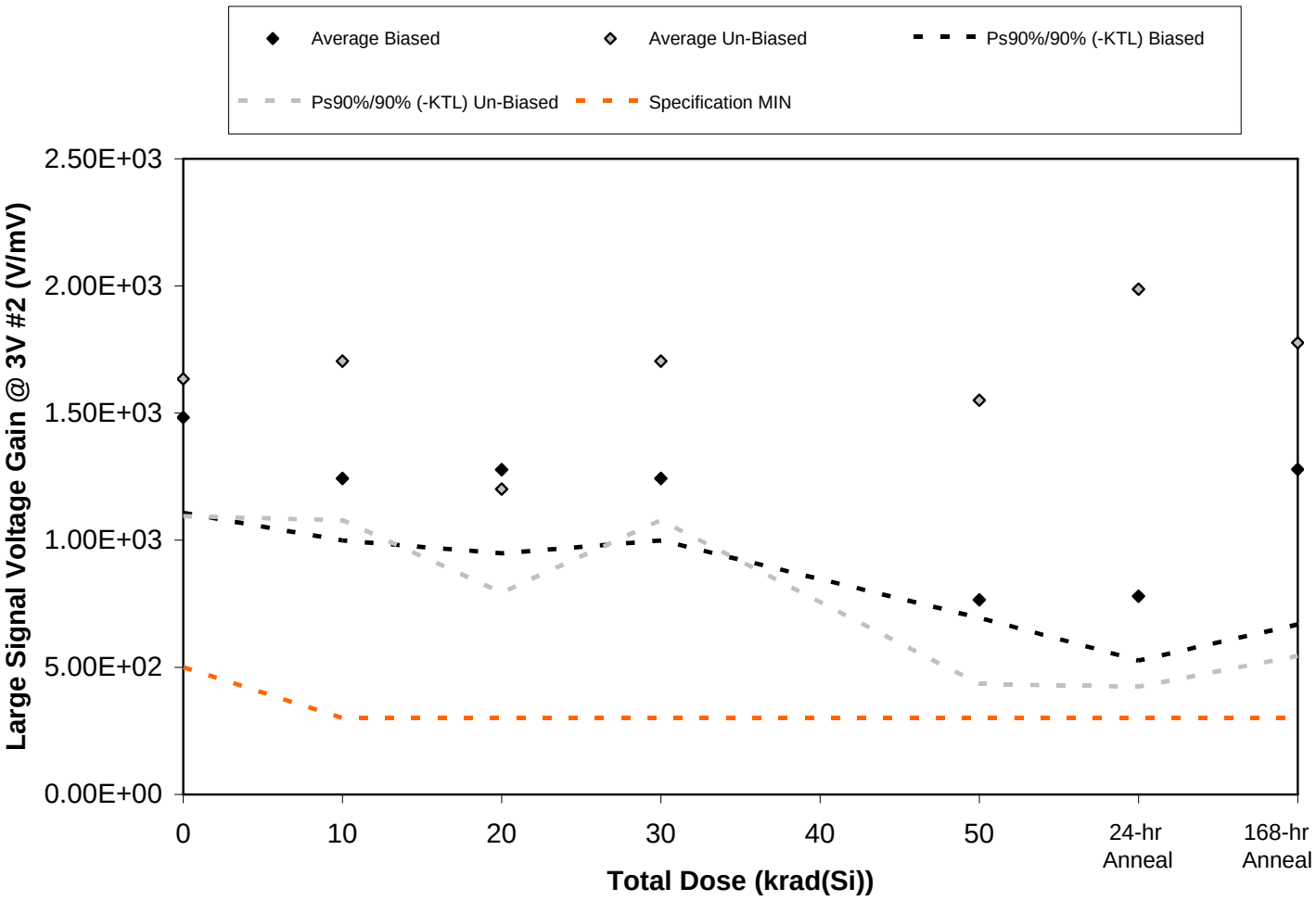

Figure 5.138. Plot of Large Signal Voltage Gain @ 3V #2 (V/mV) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.138. Raw data for Large Signal Voltage Gain @ 3V #2 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 3V #2 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.28E+03	1.31E+03	1.17E+03	1.31E+03	7.99E+02	8.41E+02	1.02E+03
867	1.45E+03	1.25E+03	1.30E+03	1.25E+03	7.65E+02	8.72E+02	1.29E+03
868	1.57E+03	1.09E+03	1.34E+03	1.09E+03	7.67E+02	7.38E+02	1.21E+03
869	1.63E+03	1.30E+03	1.43E+03	1.30E+03	7.26E+02	6.41E+02	1.63E+03
870	1.48E+03	1.28E+03	1.14E+03	1.28E+03	7.73E+02	8.04E+02	1.25E+03
871	1.91E+03	1.68E+03	1.32E+03	1.68E+03	2.26E+03	1.99E+03	1.76E+03
872	1.45E+03	2.07E+03	1.27E+03	2.07E+03	1.22E+03	2.97E+03	1.48E+03
873	1.77E+03	1.75E+03	9.69E+02	1.75E+03	1.48E+03	1.67E+03	1.48E+03
874	1.58E+03	1.52E+03	1.32E+03	1.52E+03	1.35E+03	1.68E+03	1.61E+03
876	1.47E+03	1.50E+03	1.14E+03	1.50E+03	1.45E+03	1.62E+03	2.55E+03
877	1.50E+03	1.92E+03	1.79E+03	1.92E+03	1.55E+03	1.36E+03	1.85E+03
Biased Statistics							
Average Biased	1.48E+03	1.24E+03	1.28E+03	1.24E+03	7.66E+02	7.79E+02	1.28E+03
Std Dev Biased	1.37E+02	8.90E+01	1.20E+02	8.90E+01	2.62E+01	9.20E+01	2.22E+02
Ps90%/90% (+KTL) Biased	1.86E+03	1.49E+03	1.61E+03	1.49E+03	8.38E+02	1.03E+03	1.89E+03
Ps90%/90% (-KTL) Biased	1.11E+03	9.99E+02	9.48E+02	9.99E+02	6.94E+02	5.27E+02	6.69E+02
Un-Biased Statistics							
Average Un-Biased	1.63E+03	1.70E+03	1.20E+03	1.70E+03	1.55E+03	1.99E+03	1.78E+03
Std Dev Un-Biased	1.97E+02	2.29E+02	1.49E+02	2.29E+02	4.07E+02	5.70E+02	4.49E+02
Ps90%/90% (+KTL) Un-Biased	2.18E+03	2.33E+03	1.61E+03	2.33E+03	2.67E+03	3.55E+03	3.01E+03
Ps90%/90% (-KTL) Un-Biased	1.09E+03	1.08E+03	7.93E+02	1.08E+03	4.34E+02	4.23E+02	5.46E+02
Specification MIN	5.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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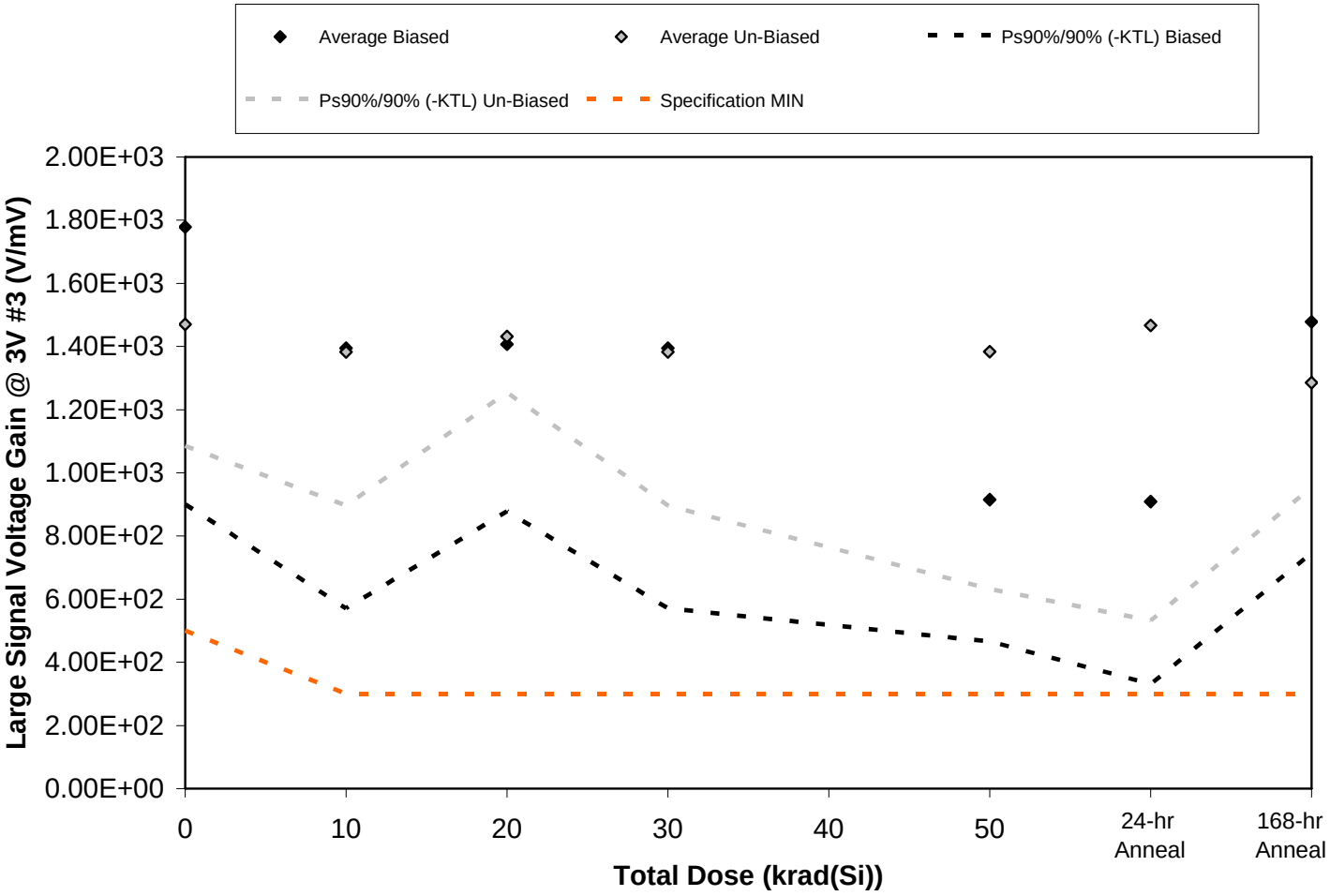

Figure 5.139. Plot of Large Signal Voltage Gain @ 3V #3 (V/mV) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.139. Raw data for Large Signal Voltage Gain @ 3V #3 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 3V #3 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.60E+03	1.03E+03	1.60E+03	1.03E+03	1.06E+03	9.88E+02	1.81E+03
867	1.70E+03	1.59E+03	1.36E+03	1.59E+03	1.01E+03	1.13E+03	1.67E+03
868	1.72E+03	1.23E+03	1.39E+03	1.23E+03	9.79E+02	7.92E+02	1.34E+03
869	2.34E+03	1.34E+03	1.12E+03	1.34E+03	6.47E+02	6.03E+02	1.43E+03
870	1.54E+03	1.79E+03	1.57E+03	1.79E+03	8.80E+02	1.03E+03	1.14E+03
871	1.47E+03	1.38E+03	1.40E+03	1.38E+03	1.82E+03	1.54E+03	1.31E+03
872	1.25E+03	1.33E+03	1.46E+03	1.33E+03	1.20E+03	1.01E+03	1.08E+03
873	1.56E+03	1.20E+03	1.53E+03	1.20E+03	1.48E+03	1.25E+03	1.29E+03
874	1.62E+03	1.68E+03	1.41E+03	1.68E+03	1.15E+03	1.85E+03	1.38E+03
876	1.45E+03	1.32E+03	1.36E+03	1.32E+03	1.27E+03	1.69E+03	1.37E+03
877	1.54E+03	1.66E+03	1.50E+03	1.66E+03	1.66E+03	1.44E+03	1.57E+03
Biased Statistics							
Average Biased	1.78E+03	1.40E+03	1.41E+03	1.40E+03	9.15E+02	9.09E+02	1.48E+03
Std Dev Biased	3.20E+02	3.01E+02	1.93E+02	3.01E+02	1.64E+02	2.11E+02	2.67E+02
Ps90%/90% (+KTL) Biased	2.66E+03	2.22E+03	1.93E+03	2.22E+03	1.36E+03	1.49E+03	2.21E+03
Ps90%/90% (-KTL) Biased	9.00E+02	5.71E+02	8.79E+02	5.71E+02	4.66E+02	3.31E+02	7.46E+02
Un-Biased Statistics							
Average Un-Biased	1.47E+03	1.38E+03	1.43E+03	1.38E+03	1.38E+03	1.47E+03	1.29E+03
Std Dev Un-Biased	1.40E+02	1.78E+02	6.49E+01	1.78E+02	2.74E+02	3.41E+02	1.21E+02
Ps90%/90% (+KTL) Un-Biased	1.85E+03	1.87E+03	1.61E+03	1.87E+03	2.13E+03	2.40E+03	1.62E+03
Ps90%/90% (-KTL) Un-Biased	1.09E+03	8.96E+02	1.25E+03	8.96E+02	6.32E+02	5.33E+02	9.55E+02
Specification MIN	5.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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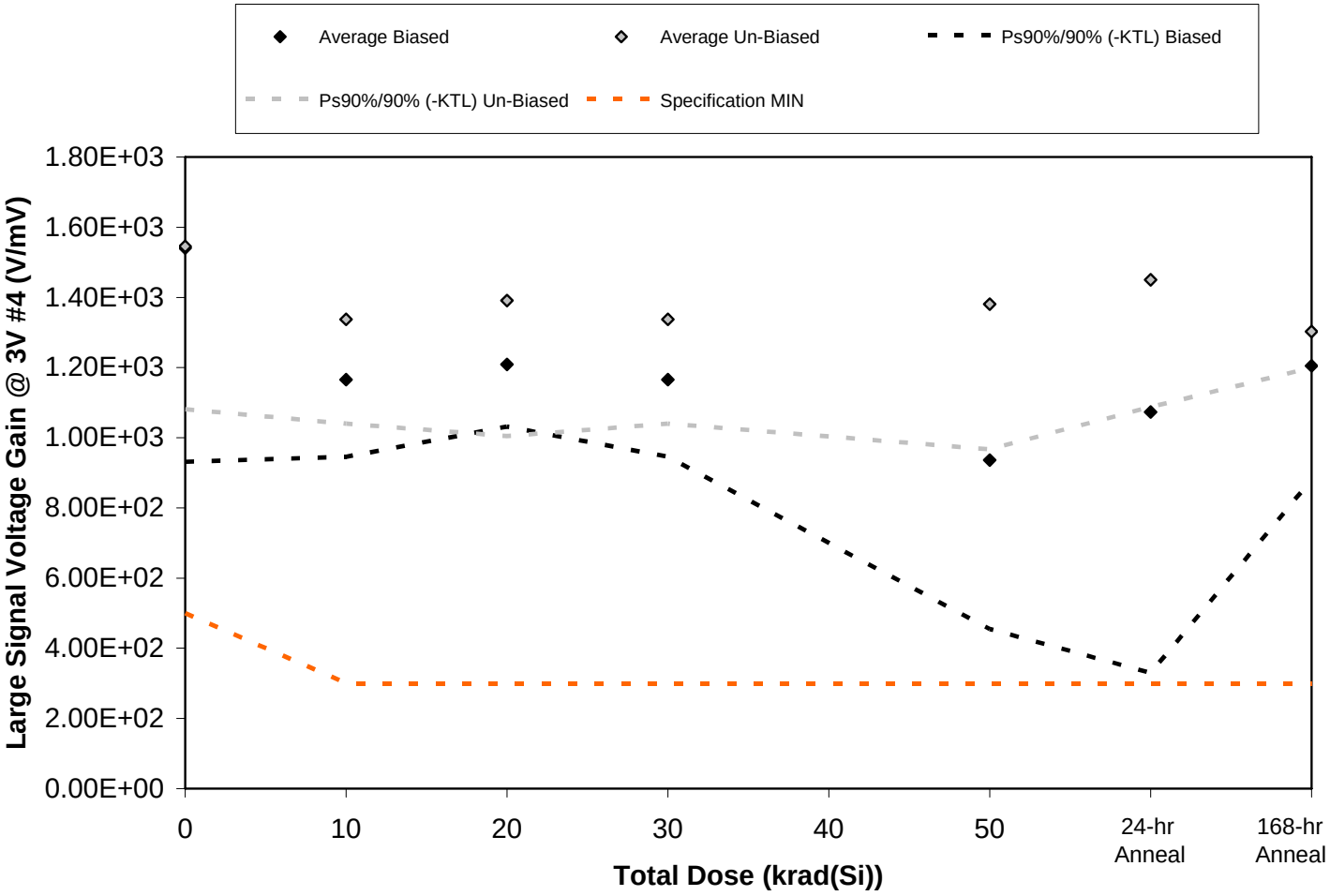

Figure 5.140. Plot of Large Signal Voltage Gain @ 3V #4 (V/mV) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.140. Raw data for Large Signal Voltage Gain @ 3V #4 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 3V #4 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.40E+03	1.10E+03	1.29E+03	1.10E+03	1.07E+03	9.41E+02	1.02E+03
867	1.58E+03	1.15E+03	1.20E+03	1.15E+03	8.38E+02	8.80E+02	1.21E+03
868	1.91E+03	1.21E+03	1.20E+03	1.21E+03	6.76E+02	1.54E+03	1.27E+03
869	1.39E+03	1.28E+03	1.12E+03	1.28E+03	1.08E+03	1.07E+03	1.33E+03
870	1.42E+03	1.09E+03	1.25E+03	1.09E+03	1.01E+03	9.37E+02	1.19E+03
871	1.37E+03	1.30E+03	1.28E+03	1.30E+03	1.21E+03	1.59E+03	1.34E+03
872	1.48E+03	1.29E+03	1.48E+03	1.29E+03	1.26E+03	1.59E+03	1.34E+03
873	1.43E+03	1.20E+03	1.32E+03	1.20E+03	1.56E+03	1.41E+03	1.28E+03
874	1.70E+03	1.43E+03	1.59E+03	1.43E+03	1.50E+03	1.35E+03	1.26E+03
876	1.75E+03	1.46E+03	1.28E+03	1.46E+03	1.38E+03	1.31E+03	1.30E+03
877	1.92E+03	1.52E+03	1.67E+03	1.52E+03	1.47E+03	1.61E+03	1.53E+03
Biased Statistics							
Average Biased	1.54E+03	1.17E+03	1.21E+03	1.17E+03	9.36E+02	1.07E+03	1.21E+03
Std Dev Biased	2.22E+02	8.02E+01	6.49E+01	8.02E+01	1.76E+02	2.71E+02	1.18E+02
Ps90%/90% (+KTL) Biased	2.15E+03	1.39E+03	1.39E+03	1.39E+03	1.42E+03	1.82E+03	1.53E+03
Ps90%/90% (-KTL) Biased	9.31E+02	9.46E+02	1.03E+03	9.46E+02	4.55E+02	3.30E+02	8.80E+02
Un-Biased Statistics							
Average Un-Biased	1.55E+03	1.34E+03	1.39E+03	1.34E+03	1.38E+03	1.45E+03	1.30E+03
Std Dev Un-Biased	1.69E+02	1.09E+02	1.41E+02	1.09E+02	1.51E+02	1.32E+02	3.76E+01
Ps90%/90% (+KTL) Un-Biased	2.01E+03	1.64E+03	1.78E+03	1.64E+03	1.80E+03	1.81E+03	1.41E+03
Ps90%/90% (-KTL) Un-Biased	1.08E+03	1.04E+03	1.00E+03	1.04E+03	9.67E+02	1.09E+03	1.20E+03
Specification MIN	5.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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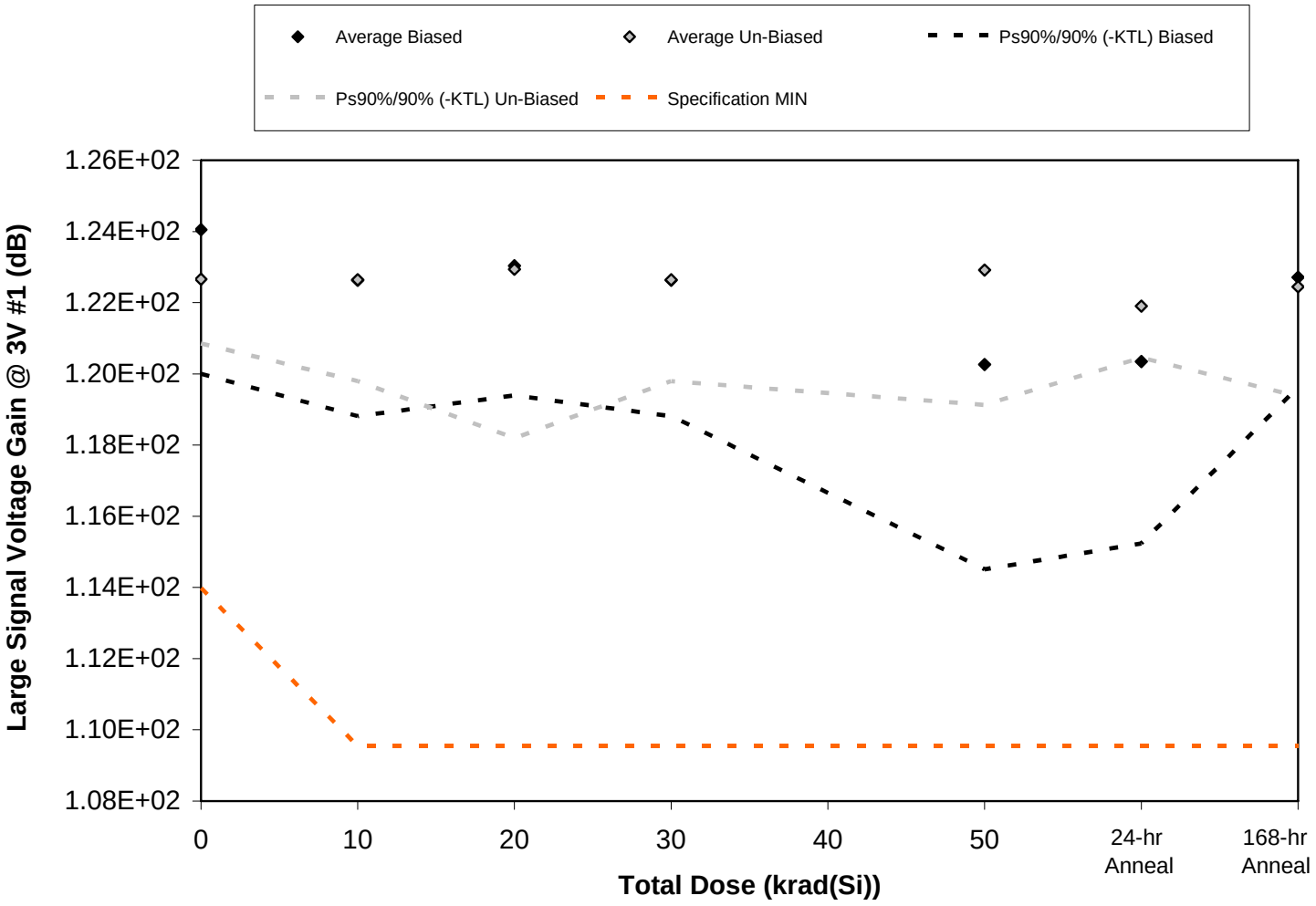

Figure 5.141. Plot of Large Signal Voltage Gain @ 3V #1 (dB) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.141. Raw data for Large Signal Voltage Gain @ 3V #1 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 3V #1 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.23E+02	1.22E+02	1.21E+02	1.22E+02	1.19E+02	1.18E+02	1.21E+02
867	1.23E+02	1.24E+02	1.24E+02	1.24E+02	1.21E+02	1.21E+02	1.23E+02
868	1.26E+02	1.24E+02	1.24E+02	1.24E+02	1.22E+02	1.23E+02	1.24E+02
869	1.23E+02	1.20E+02	1.22E+02	1.20E+02	1.17E+02	1.19E+02	1.22E+02
870	1.25E+02	1.23E+02	1.24E+02	1.23E+02	1.21E+02	1.21E+02	1.24E+02
871	1.24E+02	1.22E+02	1.23E+02	1.22E+02	1.25E+02	1.21E+02	1.23E+02
872	1.23E+02	1.22E+02	1.21E+02	1.22E+02	1.23E+02	1.22E+02	1.23E+02
873	1.22E+02	1.23E+02	1.25E+02	1.23E+02	1.23E+02	1.23E+02	1.24E+02
874	1.22E+02	1.22E+02	1.22E+02	1.22E+02	1.22E+02	1.22E+02	1.21E+02
876	1.23E+02	1.24E+02	1.24E+02	1.24E+02	1.22E+02	1.22E+02	1.22E+02
877	1.24E+02	1.24E+02	1.24E+02	1.24E+02	1.23E+02	1.25E+02	1.23E+02
Biased Statistics							
Average Biased	1.24E+02	1.23E+02	1.23E+02	1.23E+02	1.20E+02	1.20E+02	1.23E+02
Std Dev Biased	1.48E+00	1.39E+00	1.33E+00	1.39E+00	2.10E+00	1.86E+00	1.13E+00
Ps90%/90% (+KTL) Biased	1.28E+02	1.26E+02	1.27E+02	1.26E+02	1.26E+02	1.25E+02	1.26E+02
Ps90%/90% (-KTL) Biased	1.20E+02	1.19E+02	1.19E+02	1.19E+02	1.15E+02	1.15E+02	1.20E+02
Un-Biased Statistics							
Average Un-Biased	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.22E+02	1.22E+02
Std Dev Un-Biased	6.60E-01	1.04E+00	1.73E+00	1.04E+00	1.38E+00	5.29E-01	1.12E+00
Ps90%/90% (+KTL) Un-Biased	1.24E+02	1.25E+02	1.28E+02	1.25E+02	1.27E+02	1.23E+02	1.26E+02
Ps90%/90% (-KTL) Un-Biased	1.21E+02	1.20E+02	1.18E+02	1.20E+02	1.19E+02	1.20E+02	1.19E+02
Specification MIN	1.14E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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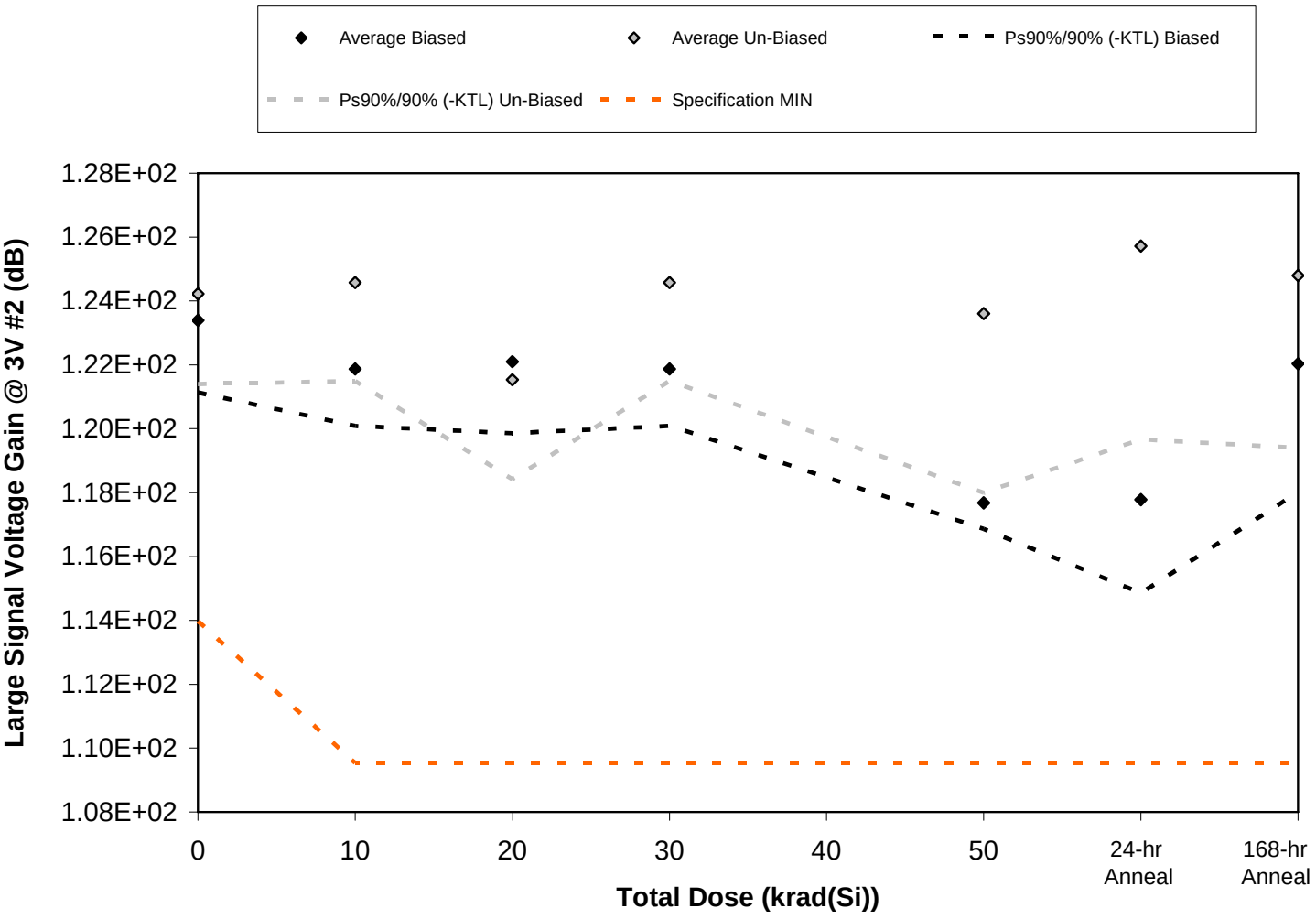

Figure 5.142. Plot of Large Signal Voltage Gain @ 3V #2 (dB) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.142. Raw data for Large Signal Voltage Gain @ 3V #2 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 3V #2 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.22E+02	1.22E+02	1.21E+02	1.22E+02	1.18E+02	1.18E+02	1.20E+02
867	1.23E+02	1.22E+02	1.22E+02	1.22E+02	1.18E+02	1.19E+02	1.22E+02
868	1.24E+02	1.21E+02	1.23E+02	1.21E+02	1.18E+02	1.17E+02	1.22E+02
869	1.24E+02	1.22E+02	1.23E+02	1.22E+02	1.17E+02	1.16E+02	1.24E+02
870	1.23E+02	1.22E+02	1.21E+02	1.22E+02	1.18E+02	1.18E+02	1.22E+02
871	1.26E+02	1.25E+02	1.22E+02	1.25E+02	1.27E+02	1.26E+02	1.25E+02
872	1.23E+02	1.26E+02	1.22E+02	1.26E+02	1.22E+02	1.29E+02	1.23E+02
873	1.25E+02	1.25E+02	1.20E+02	1.25E+02	1.23E+02	1.24E+02	1.23E+02
874	1.24E+02	1.24E+02	1.22E+02	1.24E+02	1.23E+02	1.25E+02	1.24E+02
876	1.23E+02	1.24E+02	1.21E+02	1.24E+02	1.23E+02	1.24E+02	1.28E+02
877	1.24E+02	1.26E+02	1.25E+02	1.26E+02	1.24E+02	1.23E+02	1.25E+02
Biased Statistics							
Average Biased	1.23E+02	1.22E+02	1.22E+02	1.22E+02	1.18E+02	1.18E+02	1.22E+02
Std Dev Biased	8.23E-01	6.50E-01	8.18E-01	6.50E-01	2.99E-01	1.07E+00	1.47E+00
Ps90%/90% (+KTL) Biased	1.26E+02	1.24E+02	1.24E+02	1.24E+02	1.19E+02	1.21E+02	1.26E+02
Ps90%/90% (-KTL) Biased	1.21E+02	1.20E+02	1.20E+02	1.20E+02	1.17E+02	1.15E+02	1.18E+02
Un-Biased Statistics							
Average Un-Biased	1.24E+02	1.25E+02	1.22E+02	1.25E+02	1.24E+02	1.26E+02	1.25E+02
Std Dev Un-Biased	1.03E+00	1.12E+00	1.13E+00	1.12E+00	2.05E+00	2.21E+00	1.97E+00
Ps90%/90% (+KTL) Un-Biased	1.27E+02	1.28E+02	1.25E+02	1.28E+02	1.29E+02	1.32E+02	1.30E+02
Ps90%/90% (-KTL) Un-Biased	1.21E+02	1.21E+02	1.18E+02	1.21E+02	1.18E+02	1.20E+02	1.19E+02
Specification MIN	1.14E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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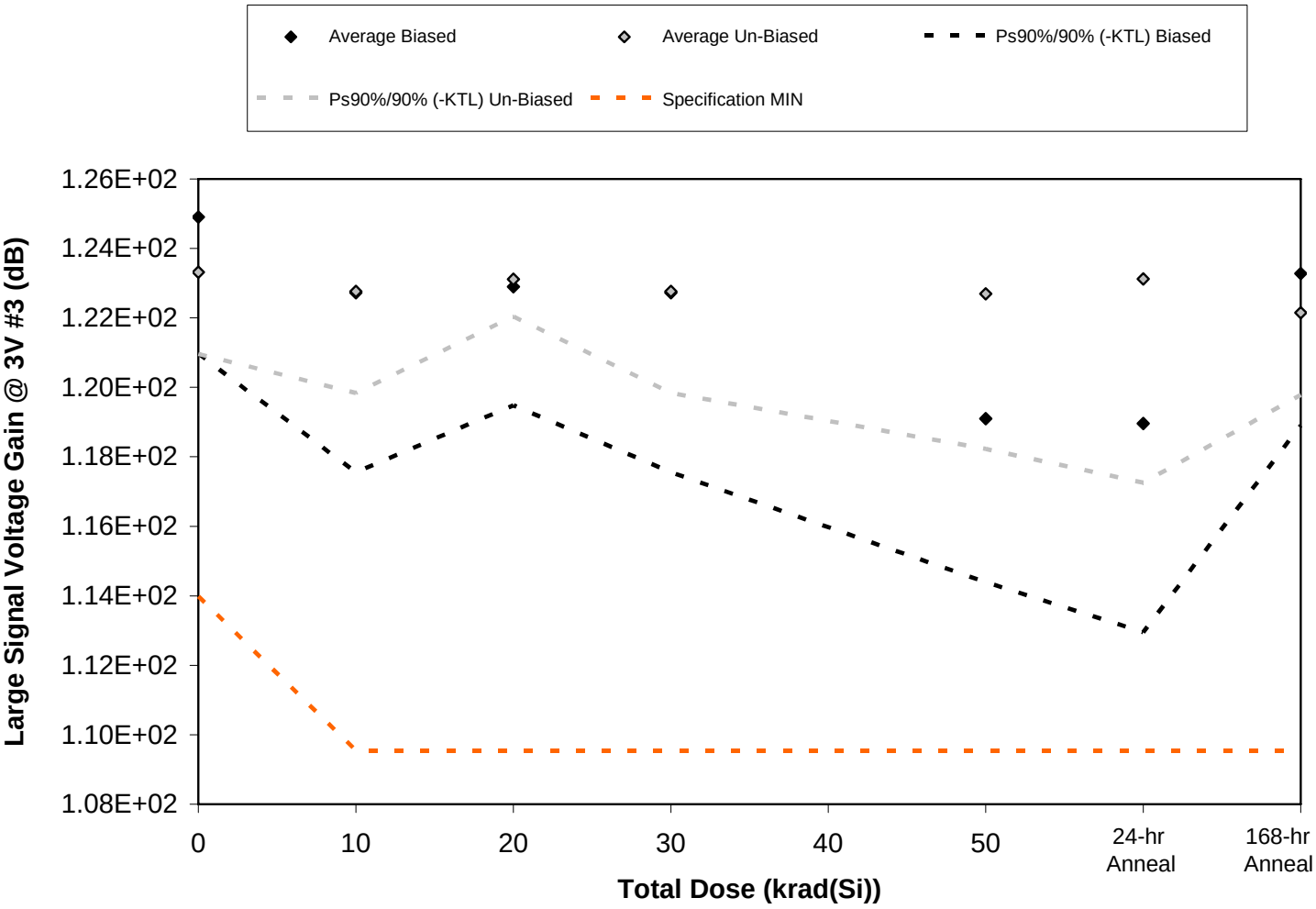

Figure 5.143. Plot of Large Signal Voltage Gain @ 3V #3 (dB) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.143. Raw data for Large Signal Voltage Gain @ 3V #3 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 3V #3 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.24E+02	1.20E+02	1.24E+02	1.20E+02	1.21E+02	1.20E+02	1.25E+02
867	1.25E+02	1.24E+02	1.23E+02	1.24E+02	1.20E+02	1.21E+02	1.24E+02
868	1.25E+02	1.22E+02	1.23E+02	1.22E+02	1.20E+02	1.18E+02	1.23E+02
869	1.27E+02	1.23E+02	1.21E+02	1.23E+02	1.16E+02	1.16E+02	1.23E+02
870	1.24E+02	1.25E+02	1.24E+02	1.25E+02	1.19E+02	1.20E+02	1.21E+02
871	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.25E+02	1.24E+02	1.22E+02
872	1.22E+02	1.22E+02	1.23E+02	1.22E+02	1.22E+02	1.20E+02	1.21E+02
873	1.24E+02	1.22E+02	1.24E+02	1.22E+02	1.23E+02	1.22E+02	1.22E+02
874	1.24E+02	1.25E+02	1.23E+02	1.25E+02	1.21E+02	1.25E+02	1.23E+02
876	1.23E+02	1.22E+02	1.23E+02	1.22E+02	1.22E+02	1.25E+02	1.23E+02
877	1.24E+02	1.24E+02	1.24E+02	1.24E+02	1.24E+02	1.23E+02	1.24E+02
Biased Statistics							
Average Biased	1.25E+02	1.23E+02	1.23E+02	1.23E+02	1.19E+02	1.19E+02	1.23E+02
Std Dev Biased	1.44E+00	1.89E+00	1.25E+00	1.89E+00	1.72E+00	2.19E+00	1.59E+00
Ps90%/90% (+KTL) Biased	1.29E+02	1.28E+02	1.26E+02	1.28E+02	1.24E+02	1.25E+02	1.28E+02
Ps90%/90% (-KTL) Biased	1.21E+02	1.18E+02	1.19E+02	1.18E+02	1.14E+02	1.13E+02	1.19E+02
Un-Biased Statistics							
Average Un-Biased	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.22E+02
Std Dev Un-Biased	8.60E-01	1.07E+00	3.90E-01	1.07E+00	1.63E+00	2.14E+00	8.61E-01
Ps90%/90% (+KTL) Un-Biased	1.26E+02	1.26E+02	1.24E+02	1.26E+02	1.27E+02	1.29E+02	1.25E+02
Ps90%/90% (-KTL) Un-Biased	1.21E+02	1.20E+02	1.22E+02	1.20E+02	1.18E+02	1.17E+02	1.20E+02
Specification MIN	1.14E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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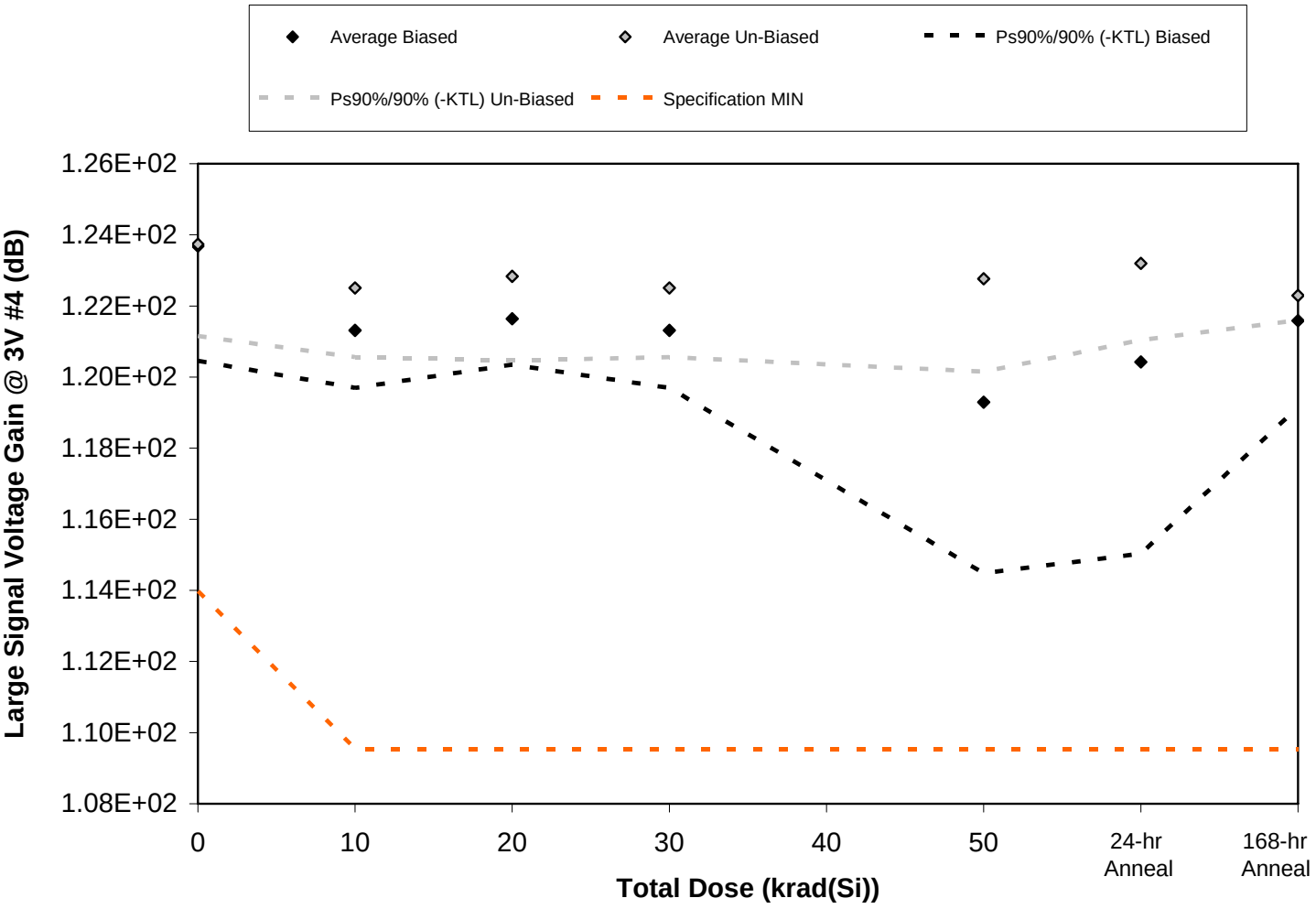

Figure 5.144. Plot of Large Signal Voltage Gain @ 3V #4 (dB) versus total dose. The data show some degradation with radiation, however it is not sufficient for any of the units-under-test to exceed specification. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.144. Raw data for Large Signal Voltage Gain @ 3V #4 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 3V #4 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.23E+02	1.21E+02	1.22E+02	1.21E+02	1.21E+02	1.19E+02	1.20E+02
867	1.24E+02	1.21E+02	1.22E+02	1.21E+02	1.18E+02	1.19E+02	1.22E+02
868	1.26E+02	1.22E+02	1.22E+02	1.22E+02	1.17E+02	1.24E+02	1.22E+02
869	1.23E+02	1.22E+02	1.21E+02	1.22E+02	1.21E+02	1.21E+02	1.22E+02
870	1.23E+02	1.21E+02	1.22E+02	1.21E+02	1.20E+02	1.19E+02	1.22E+02
871	1.23E+02	1.22E+02	1.22E+02	1.22E+02	1.22E+02	1.24E+02	1.23E+02
872	1.23E+02	1.22E+02	1.23E+02	1.22E+02	1.22E+02	1.24E+02	1.23E+02
873	1.23E+02	1.22E+02	1.22E+02	1.22E+02	1.24E+02	1.23E+02	1.22E+02
874	1.25E+02	1.23E+02	1.24E+02	1.23E+02	1.24E+02	1.23E+02	1.22E+02
876	1.25E+02	1.23E+02	1.22E+02	1.23E+02	1.23E+02	1.22E+02	1.22E+02
877	1.26E+02	1.24E+02	1.24E+02	1.24E+02	1.23E+02	1.24E+02	1.24E+02
Biased Statistics							
Average Biased	1.24E+02	1.21E+02	1.22E+02	1.21E+02	1.19E+02	1.20E+02	1.22E+02
Std Dev Biased	1.18E+00	5.91E-01	4.70E-01	5.91E-01	1.75E+00	1.96E+00	8.88E-01
Ps90%/90% (+KTL) Biased	1.27E+02	1.23E+02	1.23E+02	1.23E+02	1.24E+02	1.26E+02	1.24E+02
Ps90%/90% (-KTL) Biased	1.20E+02	1.20E+02	1.20E+02	1.20E+02	1.14E+02	1.15E+02	1.19E+02
Un-Biased Statistics							
Average Un-Biased	1.24E+02	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.22E+02
Std Dev Un-Biased	9.43E-01	7.07E-01	8.60E-01	7.07E-01	9.52E-01	7.89E-01	2.51E-01
Ps90%/90% (+KTL) Un-Biased	1.26E+02	1.24E+02	1.25E+02	1.24E+02	1.25E+02	1.25E+02	1.23E+02
Ps90%/90% (-KTL) Un-Biased	1.21E+02	1.21E+02	1.20E+02	1.21E+02	1.20E+02	1.21E+02	1.22E+02
Specification MIN	1.14E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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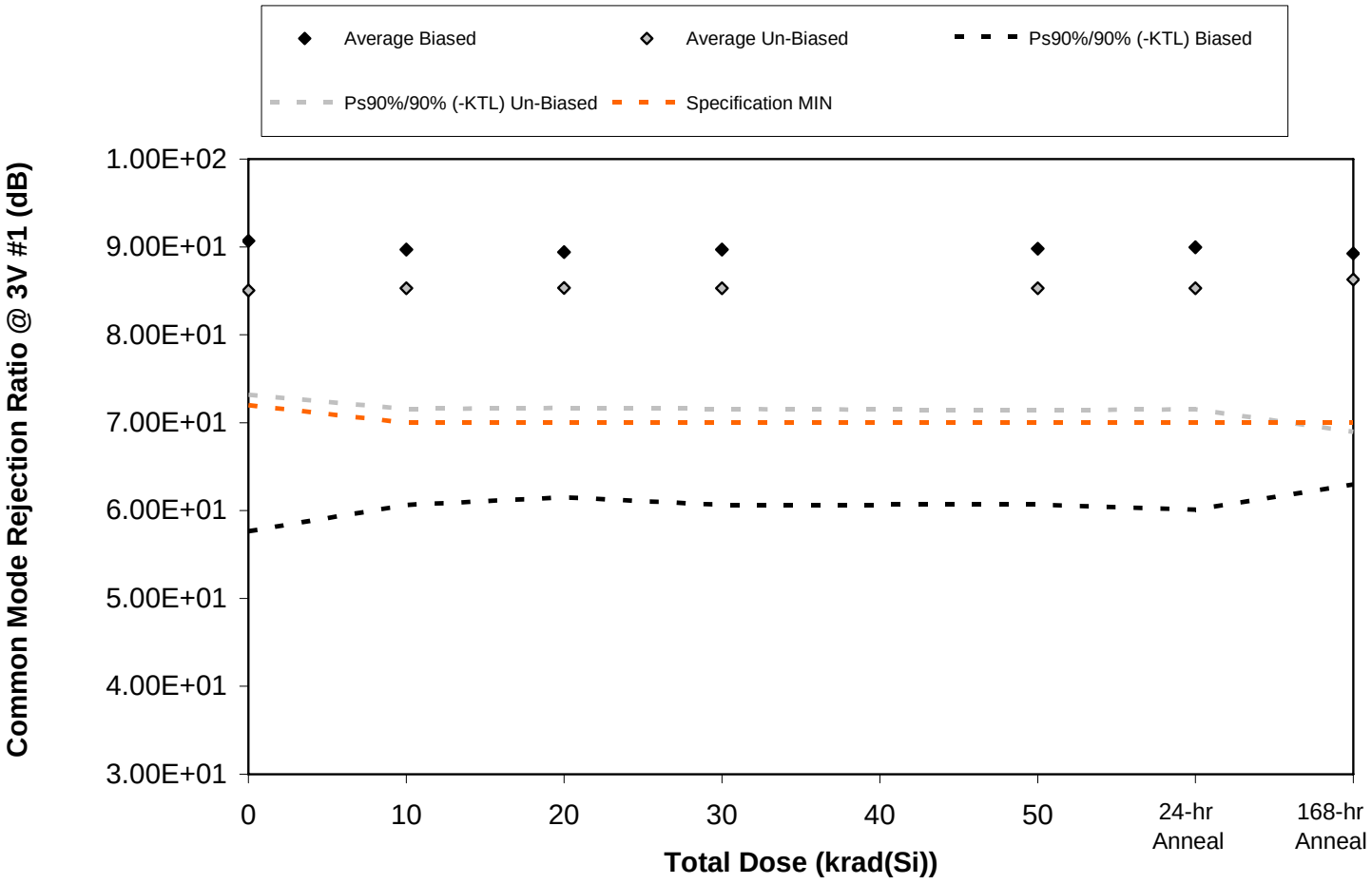

Figure 5.145. Plot of Common Mode Rejection Ratio @ 3V #1 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.145. Raw data for Common Mode Rejection Ratio @ 3V #1 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ 3V #1 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.89E+01	7.93E+01	7.92E+01	7.93E+01	7.94E+01	7.94E+01	7.97E+01
867	1.02E+02	1.00E+02	1.00E+02	1.00E+02	1.00E+02	1.00E+02	1.01E+02
868	8.11E+01	8.09E+01	8.10E+01	8.09E+01	8.09E+01	8.09E+01	8.09E+01
869	8.64E+01	8.65E+01	8.65E+01	8.65E+01	8.66E+01	8.66E+01	8.71E+01
870	1.05E+02	1.02E+02	1.00E+02	1.02E+02	1.02E+02	1.03E+02	9.79E+01
871	8.31E+01	8.27E+01	8.29E+01	8.27E+01	8.27E+01	8.27E+01	8.35E+01
872	8.30E+01	8.29E+01	8.29E+01	8.29E+01	8.29E+01	8.29E+01	8.26E+01
873	8.91E+01	9.00E+01	9.00E+01	9.00E+01	8.99E+01	9.00E+01	9.03E+01
874	8.00E+01	7.97E+01	7.98E+01	7.97E+01	7.97E+01	7.97E+01	7.98E+01
876	9.01E+01	9.12E+01	9.12E+01	9.12E+01	9.14E+01	9.13E+01	9.52E+01
877	9.57E+01	9.53E+01	9.51E+01	9.53E+01	9.54E+01	9.56E+01	9.53E+01
Biased Statistics							
Average Biased	9.07E+01	8.97E+01	8.94E+01	8.97E+01	8.98E+01	9.00E+01	8.92E+01
Std Dev Biased	1.20E+01	1.06E+01	1.02E+01	1.06E+01	1.06E+01	1.09E+01	9.59E+00
Ps90%/90% (+KTL) Biased	1.24E+02	1.19E+02	1.17E+02	1.19E+02	1.19E+02	1.20E+02	1.16E+02
Ps90%/90% (-KTL) Biased	5.77E+01	6.06E+01	6.15E+01	6.06E+01	6.07E+01	6.01E+01	6.30E+01
Un-Biased Statistics							
Average Un-Biased	8.51E+01	8.53E+01	8.53E+01	8.53E+01	8.53E+01	8.53E+01	8.63E+01
Std Dev Un-Biased	4.33E+00	5.01E+00	4.98E+00	5.01E+00	5.06E+00	5.02E+00	6.31E+00
Ps90%/90% (+KTL) Un-Biased	9.69E+01	9.90E+01	9.90E+01	9.90E+01	9.92E+01	9.91E+01	1.04E+02
Ps90%/90% (-KTL) Un-Biased	7.32E+01	7.16E+01	7.17E+01	7.16E+01	7.14E+01	7.15E+01	6.90E+01
Specification MIN	7.20E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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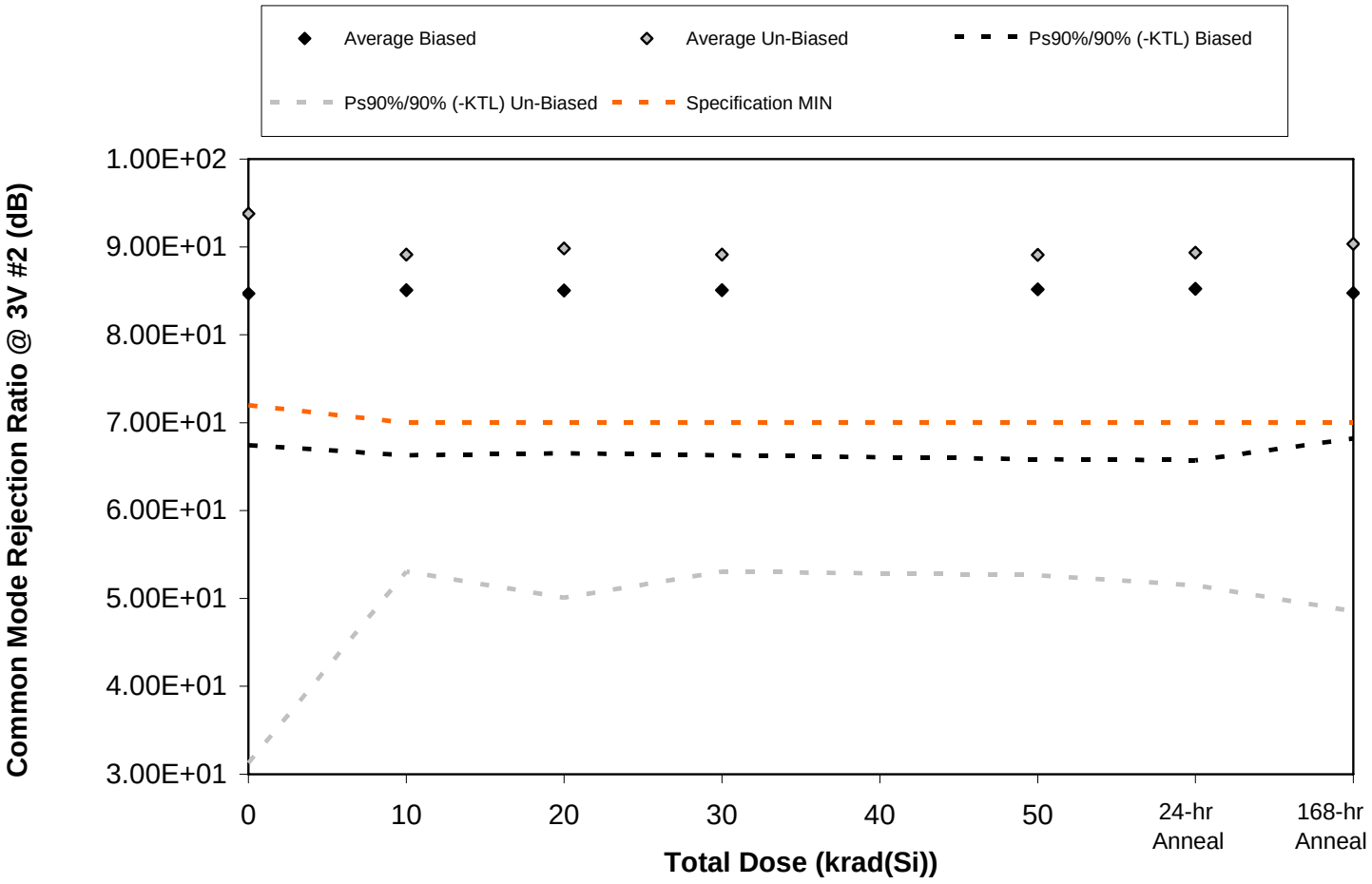

Figure 5.146. Plot of Common Mode Rejection Ratio @ 3V #2 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.146. Raw data for Common Mode Rejection Ratio @ 3V #2 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ 3V #2 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	9.46E+01	9.61E+01	9.59E+01	9.61E+01	9.67E+01	9.68E+01	9.42E+01
867	8.46E+01	8.45E+01	8.46E+01	8.45E+01	8.43E+01	8.43E+01	8.52E+01
868	8.52E+01	8.54E+01	8.54E+01	8.54E+01	8.54E+01	8.55E+01	8.45E+01
869	7.75E+01	7.78E+01	7.77E+01	7.78E+01	7.79E+01	7.79E+01	7.76E+01
870	8.17E+01	8.16E+01	8.16E+01	8.16E+01	8.15E+01	8.16E+01	8.23E+01
871	7.95E+01	7.93E+01	7.93E+01	7.93E+01	7.92E+01	7.93E+01	7.95E+01
872	8.48E+01	8.42E+01	8.43E+01	8.42E+01	8.41E+01	8.41E+01	8.43E+01
873	1.34E+02	1.12E+02	1.15E+02	1.12E+02	1.13E+02	1.14E+02	1.17E+02
874	8.45E+01	8.44E+01	8.46E+01	8.44E+01	8.43E+01	8.45E+01	8.45E+01
876	8.57E+01	8.55E+01	8.55E+01	8.55E+01	8.54E+01	8.53E+01	8.62E+01
877	9.18E+01	9.21E+01	9.21E+01	9.21E+01	9.21E+01	9.19E+01	9.23E+01
Biased Statistics							
Average Biased	8.47E+01	8.51E+01	8.50E+01	8.51E+01	8.52E+01	8.52E+01	8.48E+01
Std Dev Biased	6.29E+00	6.85E+00	6.75E+00	6.85E+00	7.05E+00	7.12E+00	6.04E+00
Ps90%/90% (+KTL) Biased	1.02E+02	1.04E+02	1.04E+02	1.04E+02	1.05E+02	1.05E+02	1.01E+02
Ps90%/90% (-KTL) Biased	6.74E+01	6.63E+01	6.65E+01	6.63E+01	6.58E+01	6.57E+01	6.82E+01
Un-Biased Statistics							
Average Un-Biased	9.38E+01	8.91E+01	8.98E+01	8.91E+01	8.91E+01	8.94E+01	9.03E+01
Std Dev Un-Biased	2.28E+01	1.32E+01	1.45E+01	1.32E+01	1.33E+01	1.38E+01	1.52E+01
Ps90%/90% (+KTL) Un-Biased	1.56E+02	1.25E+02	1.30E+02	1.25E+02	1.26E+02	1.27E+02	1.32E+02
Ps90%/90% (-KTL) Un-Biased	3.13E+01	5.31E+01	5.01E+01	5.31E+01	5.26E+01	5.15E+01	4.86E+01
Specification MIN	7.20E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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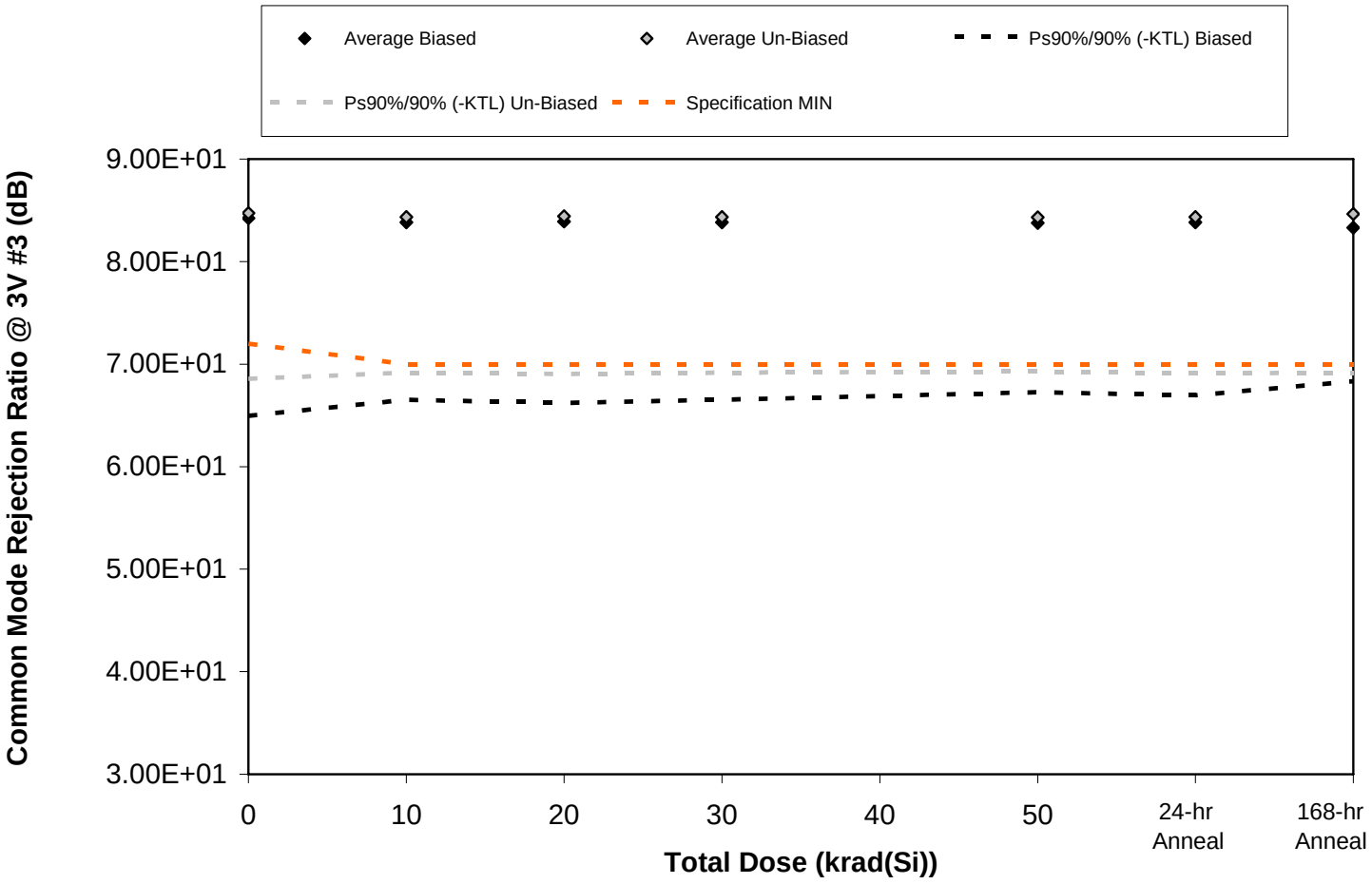

Figure 5.147. Plot of Common Mode Rejection Ratio @ 3V #3 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.147. Raw data for Common Mode Rejection Ratio @ 3V #3 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ 3V #3 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	8.79E+01	8.66E+01	8.68E+01	8.66E+01	8.64E+01	8.64E+01	8.61E+01
867	7.96E+01	7.99E+01	7.99E+01	7.99E+01	8.01E+01	8.01E+01	8.03E+01
868	7.84E+01	7.87E+01	7.87E+01	7.87E+01	7.90E+01	7.90E+01	7.86E+01
869	8.03E+01	8.02E+01	8.02E+01	8.02E+01	8.01E+01	8.01E+01	7.99E+01
870	9.48E+01	9.37E+01	9.40E+01	9.37E+01	9.32E+01	9.35E+01	9.16E+01
871	8.73E+01	8.66E+01	8.67E+01	8.66E+01	8.65E+01	8.65E+01	8.75E+01
872	9.21E+01	9.13E+01	9.15E+01	9.13E+01	9.12E+01	9.14E+01	9.15E+01
873	7.72E+01	7.71E+01	7.72E+01	7.71E+01	7.72E+01	7.72E+01	7.73E+01
874	8.64E+01	8.61E+01	8.62E+01	8.61E+01	8.61E+01	8.61E+01	8.63E+01
876	8.05E+01	8.06E+01	8.05E+01	8.06E+01	8.06E+01	8.06E+01	8.07E+01
877	7.84E+01	7.85E+01	7.84E+01	7.85E+01	7.84E+01	7.84E+01	7.85E+01
Biased Statistics							
Average Biased	8.42E+01	8.38E+01	8.39E+01	8.38E+01	8.38E+01	8.38E+01	8.33E+01
Std Dev Biased	7.02E+00	6.31E+00	6.45E+00	6.31E+00	6.03E+00	6.15E+00	5.46E+00
Ps90%/90% (+KTL) Biased	1.03E+02	1.01E+02	1.02E+02	1.01E+02	1.00E+02	1.01E+02	9.83E+01
Ps90%/90% (-KTL) Biased	6.50E+01	6.65E+01	6.62E+01	6.65E+01	6.72E+01	6.70E+01	6.83E+01
Un-Biased Statistics							
Average Un-Biased	8.47E+01	8.43E+01	8.44E+01	8.43E+01	8.43E+01	8.43E+01	8.46E+01
Std Dev Un-Biased	5.89E+00	5.54E+00	5.62E+00	5.54E+00	5.49E+00	5.56E+00	5.65E+00
Ps90%/90% (+KTL) Un-Biased	1.01E+02	9.95E+01	9.98E+01	9.95E+01	9.94E+01	9.96E+01	1.00E+02
Ps90%/90% (-KTL) Un-Biased	6.86E+01	6.92E+01	6.90E+01	6.92E+01	6.93E+01	6.91E+01	6.91E+01
Specification MIN	7.20E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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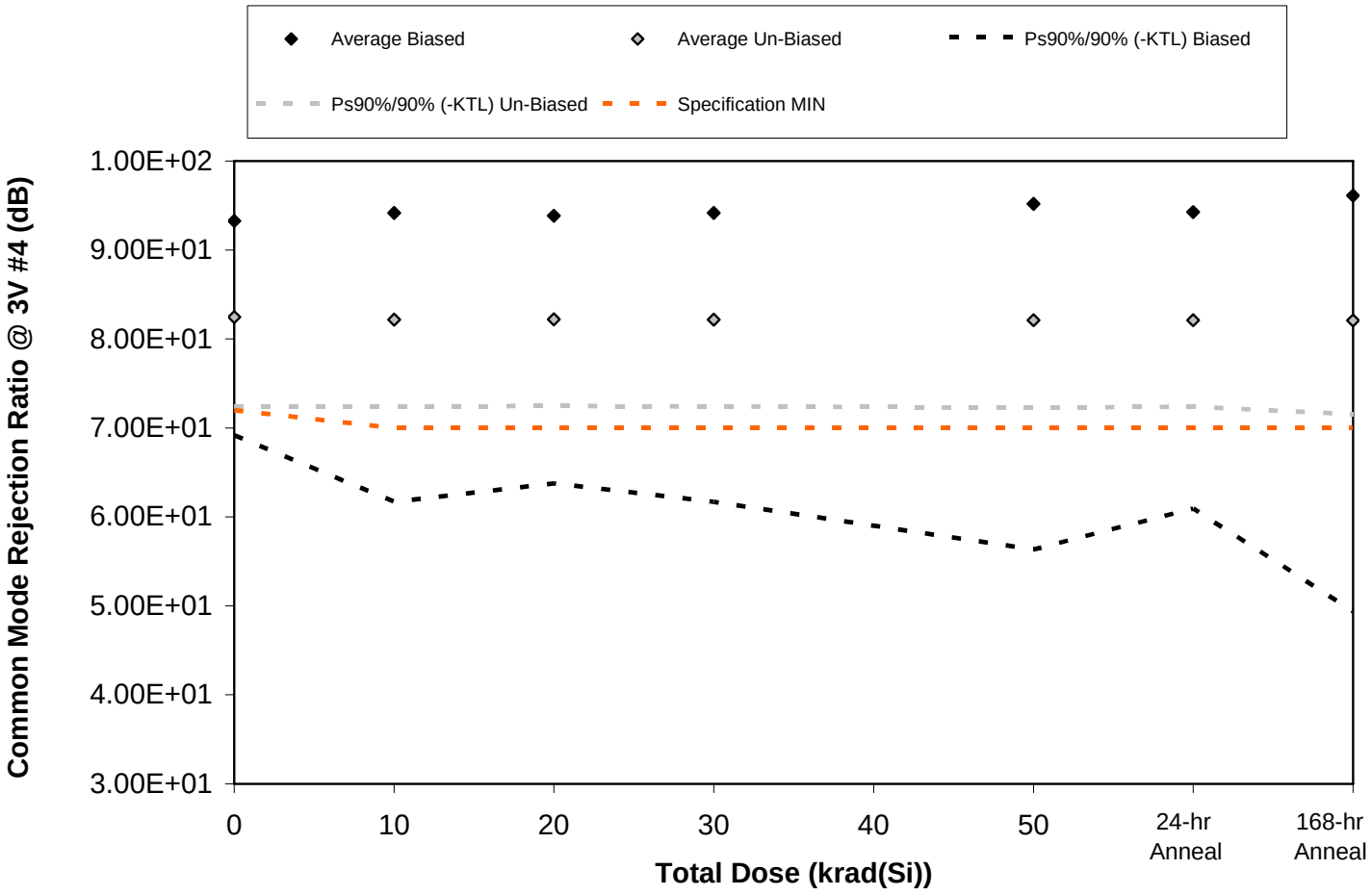

Figure 5.148. Plot of Common Mode Rejection Ratio @ 3V #4 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.148. Raw data for Common Mode Rejection Ratio @ 3V #4 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ 3V #4 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	9.96E+01	9.64E+01	9.65E+01	9.64E+01	9.59E+01	9.61E+01	9.52E+01
867	8.87E+01	8.85E+01	8.86E+01	8.85E+01	8.87E+01	8.87E+01	8.84E+01
868	8.41E+01	8.42E+01	8.42E+01	8.42E+01	8.42E+01	8.41E+01	8.33E+01
869	8.87E+01	8.80E+01	8.82E+01	8.80E+01	8.79E+01	8.79E+01	8.80E+01
870	1.05E+02	1.14E+02	1.12E+02	1.14E+02	1.19E+02	1.15E+02	1.26E+02
871	8.46E+01	8.43E+01	8.43E+01	8.43E+01	8.42E+01	8.42E+01	8.43E+01
872	8.09E+01	8.09E+01	8.09E+01	8.09E+01	8.09E+01	8.09E+01	8.03E+01
873	7.88E+01	7.84E+01	7.85E+01	7.84E+01	7.83E+01	7.84E+01	7.83E+01
874	8.02E+01	8.00E+01	8.00E+01	8.00E+01	7.99E+01	7.99E+01	7.98E+01
876	8.77E+01	8.72E+01	8.73E+01	8.72E+01	8.72E+01	8.72E+01	8.77E+01
877	9.06E+01	9.06E+01	9.04E+01	9.06E+01	9.06E+01	9.07E+01	9.05E+01
Biased Statistics							
Average Biased	9.33E+01	9.42E+01	9.39E+01	9.42E+01	9.52E+01	9.43E+01	9.61E+01
Std Dev Biased	8.80E+00	1.18E+01	1.10E+01	1.18E+01	1.42E+01	1.22E+01	1.70E+01
Ps90%/90% (+KTL) Biased	1.17E+02	1.27E+02	1.24E+02	1.27E+02	1.34E+02	1.28E+02	1.43E+02
Ps90%/90% (-KTL) Biased	6.92E+01	6.17E+01	6.38E+01	6.17E+01	5.64E+01	6.09E+01	4.94E+01
Un-Biased Statistics							
Average Un-Biased	8.24E+01	8.22E+01	8.22E+01	8.22E+01	8.21E+01	8.21E+01	8.21E+01
Std Dev Un-Biased	3.65E+00	3.55E+00	3.55E+00	3.55E+00	3.58E+00	3.56E+00	3.84E+00
Ps90%/90% (+KTL) Un-Biased	9.25E+01	9.19E+01	9.20E+01	9.19E+01	9.19E+01	9.19E+01	9.26E+01
Ps90%/90% (-KTL) Un-Biased	7.24E+01	7.24E+01	7.25E+01	7.24E+01	7.23E+01	7.24E+01	7.15E+01
Specification MIN	7.20E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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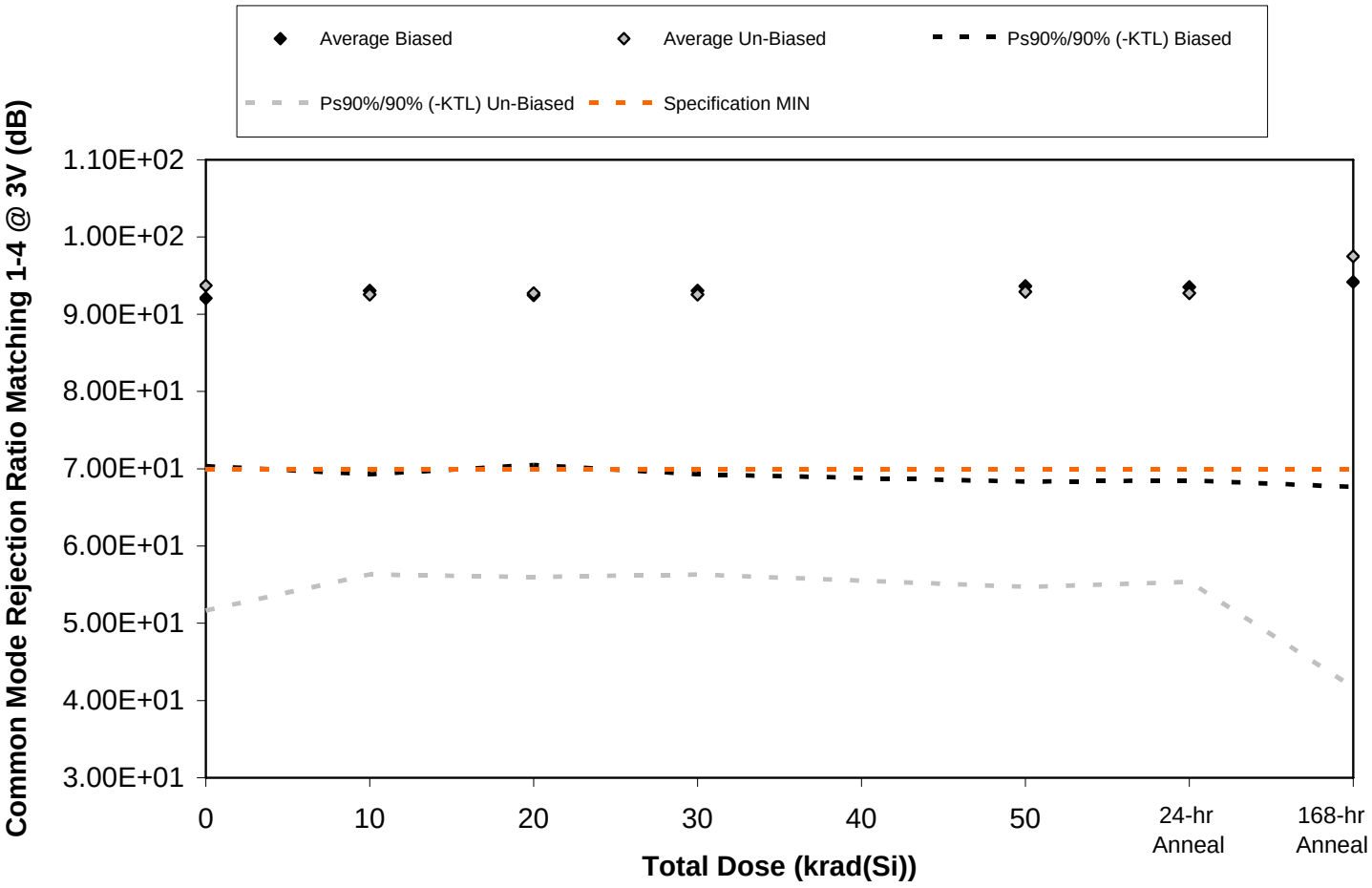

Figure 5.149. Plot of Common Mode Rejection Ratio Matching 1-4 @ 3V (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.149. Raw data for Common Mode Rejection Ratio Matching 1-4 @ 3V (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio Matching 1-4 @ 3V (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.98E+01	8.06E+01	8.05E+01	8.06E+01	8.08E+01	8.07E+01	8.13E+01
867	9.07E+01	9.12E+01	9.12E+01	9.12E+01	9.14E+01	9.13E+01	9.09E+01
868	9.17E+01	9.10E+01	9.12E+01	9.10E+01	9.08E+01	9.10E+01	9.34E+01
869	9.92E+01	1.03E+02	1.01E+02	1.03E+02	1.04E+02	1.04E+02	1.08E+02
870	9.89E+01	9.99E+01	9.81E+01	9.99E+01	1.01E+02	1.01E+02	9.76E+01
871	9.87E+01	9.85E+01	9.89E+01	9.85E+01	9.84E+01	9.88E+01	1.05E+02
872	9.44E+01	9.48E+01	9.48E+01	9.48E+01	9.46E+01	9.45E+01	9.31E+01
873	7.65E+01	7.64E+01	7.64E+01	7.64E+01	7.63E+01	7.63E+01	7.63E+01
874	1.16E+02	1.10E+02	1.11E+02	1.10E+02	1.12E+02	1.11E+02	1.29E+02
876	8.28E+01	8.30E+01	8.30E+01	8.30E+01	8.31E+01	8.30E+01	8.46E+01
877	9.76E+01	9.80E+01	9.79E+01	9.80E+01	9.80E+01	9.81E+01	9.78E+01
Biased Statistics							
Average Biased	9.21E+01	9.31E+01	9.25E+01	9.31E+01	9.36E+01	9.35E+01	9.42E+01
Std Dev Biased	7.92E+00	8.66E+00	8.02E+00	8.66E+00	9.22E+00	9.13E+00	9.67E+00
Ps90%/90% (+KTL) Biased	1.14E+02	1.17E+02	1.14E+02	1.17E+02	1.19E+02	1.19E+02	1.21E+02
Ps90%/90% (-KTL) Biased	7.03E+01	6.93E+01	7.05E+01	6.93E+01	6.83E+01	6.85E+01	6.77E+01
Un-Biased Statistics							
Average Un-Biased	9.37E+01	9.25E+01	9.27E+01	9.25E+01	9.29E+01	9.27E+01	9.75E+01
Std Dev Un-Biased	1.53E+01	1.32E+01	1.34E+01	1.32E+01	1.39E+01	1.36E+01	2.04E+01
Ps90%/90% (+KTL) Un-Biased	1.36E+02	1.29E+02	1.30E+02	1.29E+02	1.31E+02	1.30E+02	1.53E+02
Ps90%/90% (-KTL) Un-Biased	5.16E+01	5.63E+01	5.60E+01	5.63E+01	5.47E+01	5.54E+01	4.17E+01
Specification MIN	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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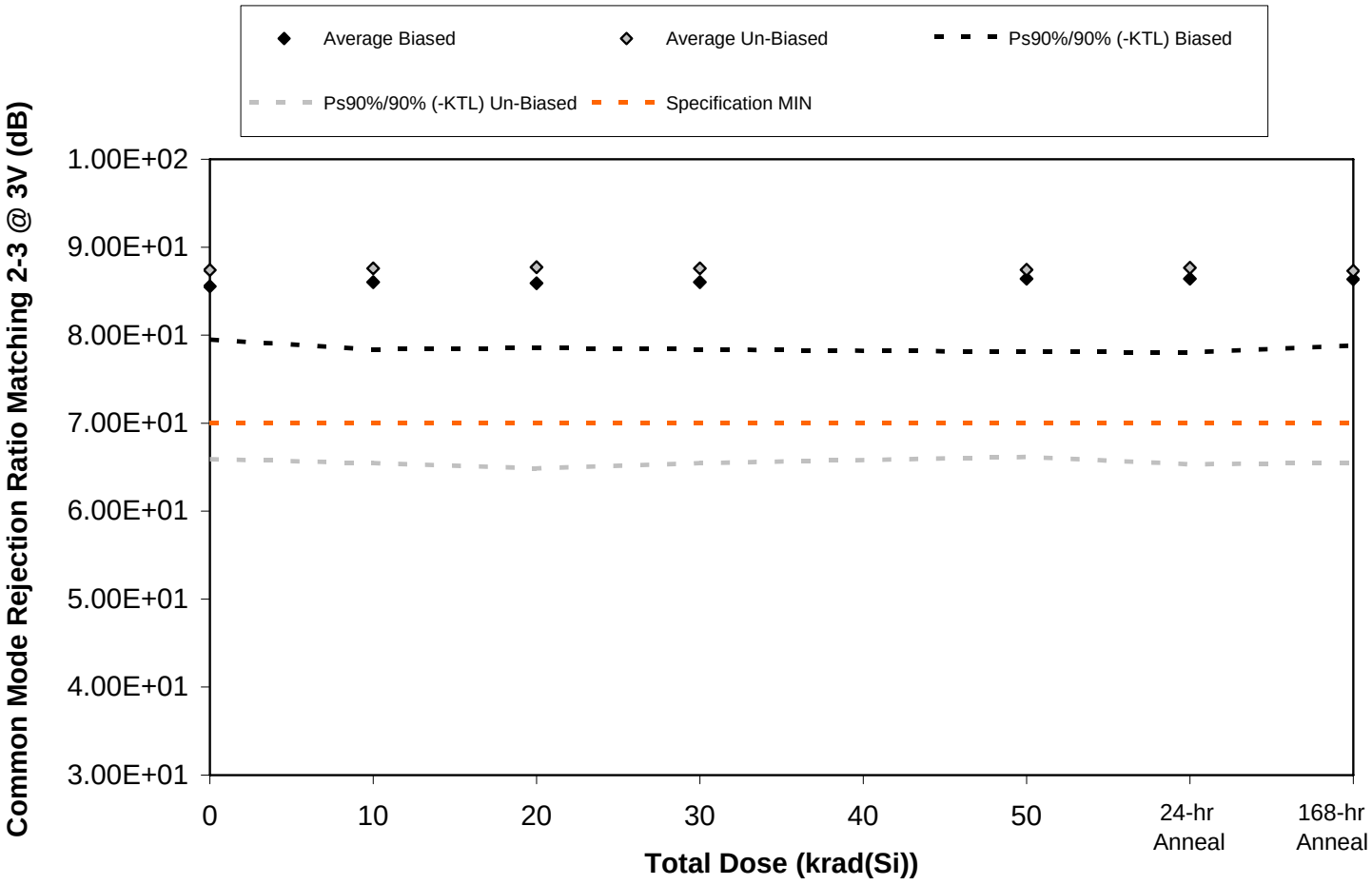

Figure 5.150. Plot of Common Mode Rejection Ratio Matching 2-3 @ 3V (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.150. Raw data for Common Mode Rejection Ratio Matching 2-3 @ 3V (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio Matching 2-3 @ 3V (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	8.46E+01	8.41E+01	8.42E+01	8.41E+01	8.40E+01	8.41E+01	8.32E+01
867	8.69E+01	8.77E+01	8.76E+01	8.77E+01	8.84E+01	8.84E+01	8.75E+01
868	8.37E+01	8.42E+01	8.40E+01	8.42E+01	8.47E+01	8.45E+01	8.47E+01
869	8.88E+01	9.02E+01	8.99E+01	9.02E+01	9.08E+01	9.08E+01	9.04E+01
870	8.38E+01	8.40E+01	8.40E+01	8.40E+01	8.42E+01	8.42E+01	8.59E+01
871	8.41E+01	8.41E+01	8.41E+01	8.41E+01	8.42E+01	8.42E+01	8.40E+01
872	8.98E+01	8.93E+01	8.93E+01	8.93E+01	8.91E+01	8.90E+01	8.92E+01
873	7.72E+01	7.73E+01	7.73E+01	7.73E+01	7.74E+01	7.73E+01	7.72E+01
874	9.86E+01	9.94E+01	1.00E+02	9.94E+01	9.86E+01	9.96E+01	9.90E+01
876	8.74E+01	8.78E+01	8.78E+01	8.78E+01	8.80E+01	8.81E+01	8.73E+01
877	8.05E+01	8.05E+01	8.05E+01	8.05E+01	8.04E+01	8.05E+01	8.04E+01
Biased Statistics							
Average Biased	8.55E+01	8.60E+01	8.59E+01	8.60E+01	8.64E+01	8.64E+01	8.63E+01
Std Dev Biased	2.20E+00	2.80E+00	2.68E+00	2.80E+00	3.04E+00	3.05E+00	2.74E+00
Ps90%/90% (+KTL) Biased	9.16E+01	9.37E+01	9.33E+01	9.37E+01	9.47E+01	9.48E+01	9.39E+01
Ps90%/90% (-KTL) Biased	7.95E+01	7.84E+01	7.86E+01	7.84E+01	7.81E+01	7.81E+01	7.88E+01
Un-Biased Statistics							
Average Un-Biased	8.74E+01	8.76E+01	8.77E+01	8.76E+01	8.74E+01	8.77E+01	8.73E+01
Std Dev Un-Biased	7.84E+00	8.07E+00	8.34E+00	8.07E+00	7.76E+00	8.14E+00	7.96E+00
Ps90%/90% (+KTL) Un-Biased	1.09E+02	1.10E+02	1.11E+02	1.10E+02	1.09E+02	1.10E+02	1.09E+02
Ps90%/90% (-KTL) Un-Biased	6.59E+01	6.55E+01	6.49E+01	6.55E+01	6.62E+01	6.53E+01	6.55E+01
Specification MIN	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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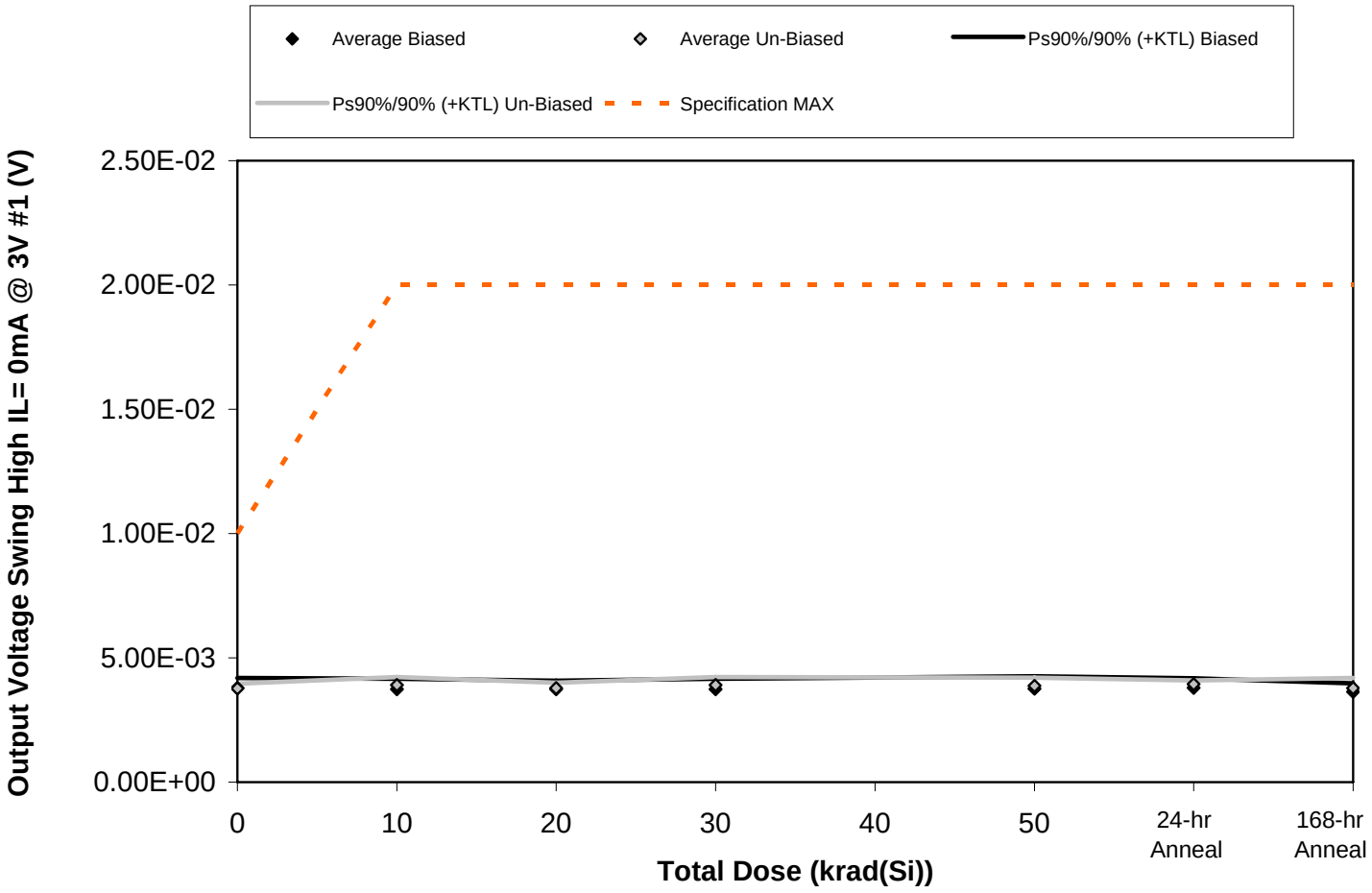

Figure 5.151. Plot of Output Voltage Swing High IL= 0mA @ 3V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.151. Raw data for Output Voltage Swing High IL= 0mA @ 3V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0mA @ 3V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.02E-03	3.96E-03	3.94E-03	3.96E-03	4.02E-03	3.99E-03	3.76E-03
867	3.83E-03	3.71E-03	3.72E-03	3.71E-03	3.65E-03	3.69E-03	3.73E-03
868	3.72E-03	3.53E-03	3.69E-03	3.53E-03	3.55E-03	3.62E-03	3.54E-03
869	3.63E-03	3.68E-03	3.60E-03	3.68E-03	3.83E-03	3.80E-03	3.68E-03
870	3.78E-03	3.78E-03	3.75E-03	3.78E-03	3.77E-03	3.84E-03	3.47E-03
871	3.83E-03	4.10E-03	3.81E-03	4.10E-03	3.93E-03	3.94E-03	3.90E-03
872	3.78E-03	3.88E-03	3.84E-03	3.88E-03	3.77E-03	3.97E-03	3.85E-03
873	3.73E-03	3.91E-03	3.84E-03	3.91E-03	3.90E-03	4.01E-03	3.81E-03
874	3.68E-03	3.78E-03	3.74E-03	3.78E-03	3.72E-03	3.87E-03	3.51E-03
876	3.85E-03	3.88E-03	3.65E-03	3.88E-03	4.02E-03	3.89E-03	3.81E-03
877	3.97E-03	3.95E-03	3.86E-03	3.95E-03	3.99E-03	3.89E-03	3.76E-03
Biased Statistics							
Average Biased	3.80E-03	3.73E-03	3.74E-03	3.73E-03	3.76E-03	3.79E-03	3.64E-03
Std Dev Biased	1.46E-04	1.57E-04	1.25E-04	1.57E-04	1.79E-04	1.43E-04	1.25E-04
Ps90%/90% (+KTL) Biased	4.20E-03	4.16E-03	4.08E-03	4.16E-03	4.26E-03	4.18E-03	3.98E-03
Ps90%/90% (-KTL) Biased	3.40E-03	3.30E-03	3.40E-03	3.30E-03	3.27E-03	3.40E-03	3.29E-03
Un-Biased Statistics							
Average Un-Biased	3.77E-03	3.91E-03	3.78E-03	3.91E-03	3.87E-03	3.94E-03	3.78E-03
Std Dev Un-Biased	7.02E-05	1.17E-04	8.14E-05	1.17E-04	1.22E-04	5.73E-05	1.53E-04
Ps90%/90% (+KTL) Un-Biased	3.97E-03	4.23E-03	4.00E-03	4.23E-03	4.20E-03	4.09E-03	4.20E-03
Ps90%/90% (-KTL) Un-Biased	3.58E-03	3.59E-03	3.55E-03	3.59E-03	3.53E-03	3.78E-03	3.36E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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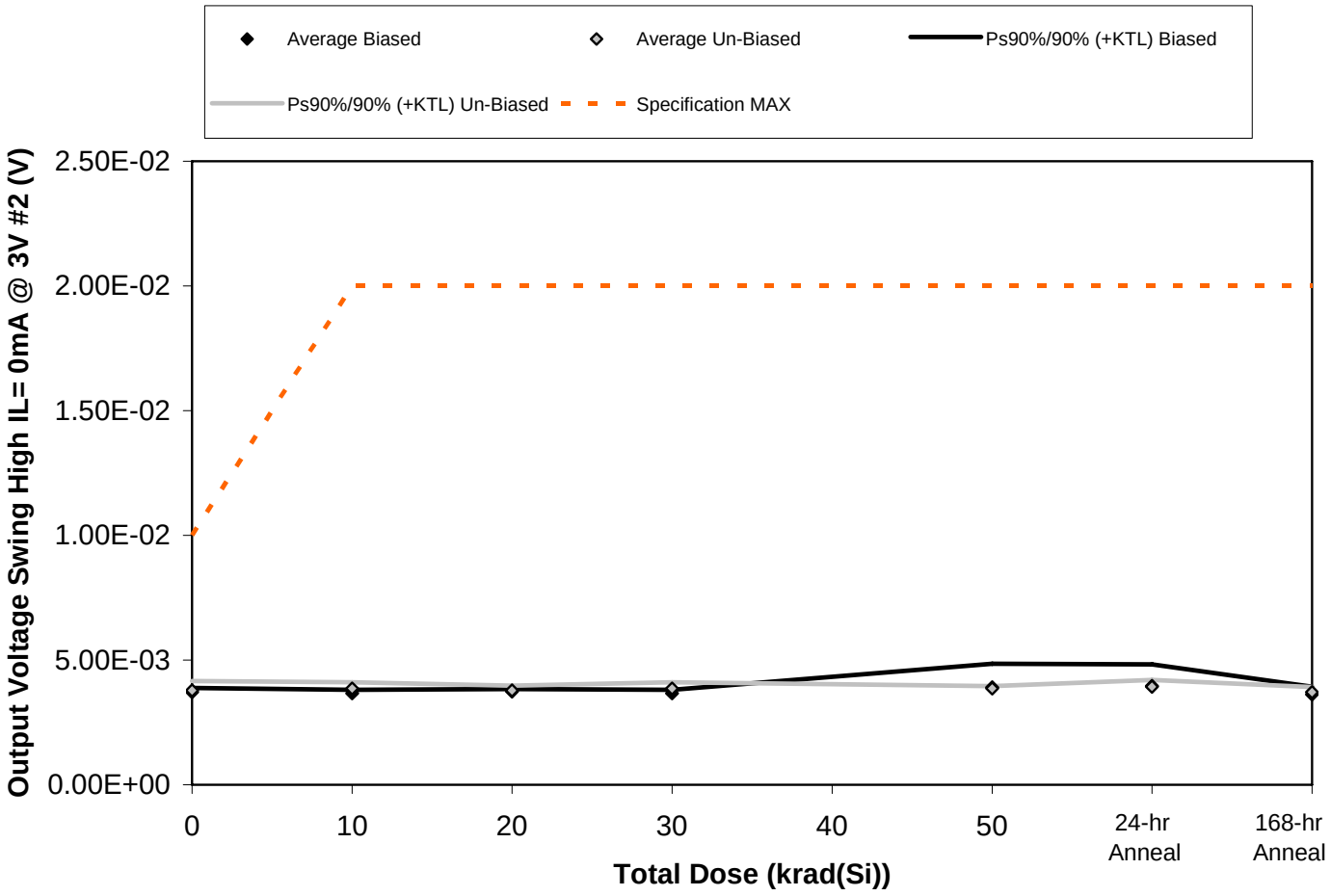

Figure 5.152. Plot of Output Voltage Swing High IL= 0mA @ 3V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.152. Raw data for Output Voltage Swing High IL= 0mA @ 3V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0mA @ 3V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.73E-03	3.69E-03	3.72E-03	3.69E-03	3.92E-03	4.02E-03	3.54E-03
867	3.73E-03	3.74E-03	3.75E-03	3.74E-03	3.87E-03	3.84E-03	3.69E-03
868	3.63E-03	3.61E-03	3.67E-03	3.61E-03	3.58E-03	3.70E-03	3.47E-03
869	3.80E-03	3.66E-03	3.77E-03	3.66E-03	4.47E-03	4.49E-03	3.74E-03
870	3.70E-03	3.64E-03	3.75E-03	3.64E-03	3.67E-03	3.79E-03	3.66E-03
871	3.65E-03	3.76E-03	3.72E-03	3.76E-03	3.82E-03	4.01E-03	3.69E-03
872	3.92E-03	3.91E-03	3.87E-03	3.91E-03	3.87E-03	3.91E-03	3.74E-03
873	3.77E-03	3.91E-03	3.70E-03	3.91E-03	3.88E-03	4.04E-03	3.76E-03
874	3.63E-03	3.76E-03	3.81E-03	3.76E-03	3.85E-03	3.79E-03	3.59E-03
876	3.92E-03	3.95E-03	3.81E-03	3.95E-03	3.90E-03	3.92E-03	3.78E-03
877	3.68E-03	3.73E-03	3.75E-03	3.73E-03	3.68E-03	3.80E-03	3.68E-03
Biased Statistics							
Average Biased	3.72E-03	3.67E-03	3.73E-03	3.67E-03	3.90E-03	3.97E-03	3.62E-03
Std Dev Biased	6.14E-05	4.97E-05	3.90E-05	4.97E-05	3.47E-04	3.14E-04	1.12E-04
Ps90%/90% (+KTL) Biased	3.89E-03	3.80E-03	3.84E-03	3.80E-03	4.85E-03	4.83E-03	3.93E-03
Ps90%/90% (-KTL) Biased	3.55E-03	3.53E-03	3.63E-03	3.53E-03	2.95E-03	3.11E-03	3.31E-03
Un-Biased Statistics							
Average Un-Biased	3.78E-03	3.86E-03	3.78E-03	3.86E-03	3.86E-03	3.93E-03	3.71E-03
Std Dev Un-Biased	1.40E-04	9.09E-05	7.05E-05	9.09E-05	3.05E-05	9.81E-05	7.60E-05
Ps90%/90% (+KTL) Un-Biased	4.16E-03	4.11E-03	3.98E-03	4.11E-03	3.95E-03	4.20E-03	3.92E-03
Ps90%/90% (-KTL) Un-Biased	3.39E-03	3.61E-03	3.59E-03	3.61E-03	3.78E-03	3.66E-03	3.50E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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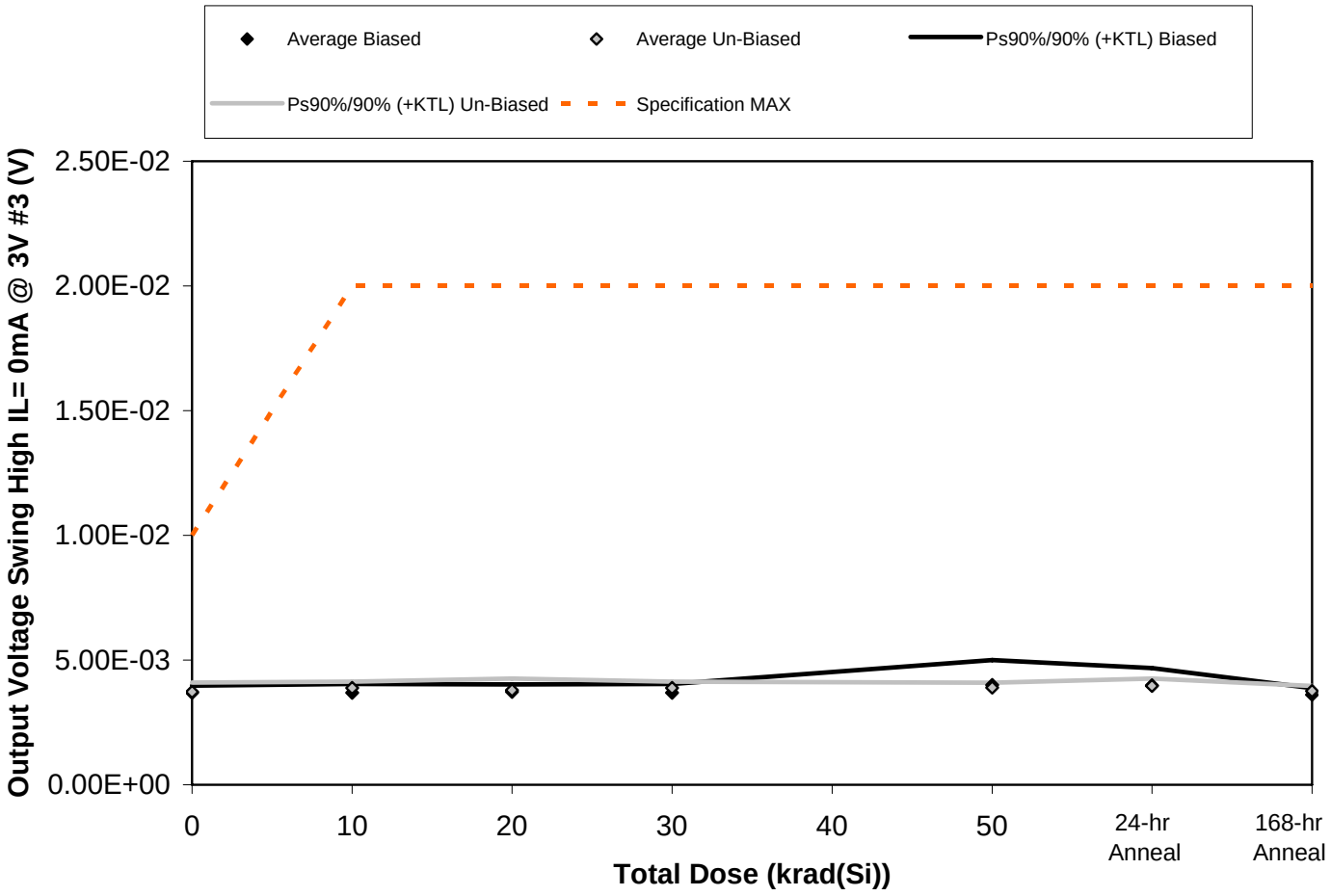

Figure 5.153. Plot of Output Voltage Swing High IL= 0mA @ 3V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.153. Raw data for Output Voltage Swing High IL= 0mA @ 3V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0mA @ 3V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.77E-03	3.88E-03	3.60E-03	3.88E-03	4.04E-03	4.04E-03	3.56E-03
867	3.78E-03	3.69E-03	3.81E-03	3.69E-03	3.75E-03	3.85E-03	3.78E-03
868	3.53E-03	3.53E-03	3.86E-03	3.53E-03	3.61E-03	3.65E-03	3.61E-03
869	3.72E-03	3.71E-03	3.65E-03	3.71E-03	4.56E-03	4.34E-03	3.56E-03
870	3.66E-03	3.64E-03	3.72E-03	3.64E-03	4.04E-03	4.04E-03	3.56E-03
871	3.61E-03	3.81E-03	3.82E-03	3.81E-03	3.82E-03	3.89E-03	3.71E-03
872	3.82E-03	3.83E-03	3.91E-03	3.83E-03	3.92E-03	4.11E-03	3.85E-03
873	3.80E-03	3.91E-03	3.64E-03	3.91E-03	3.90E-03	3.84E-03	3.79E-03
874	3.55E-03	3.85E-03	3.59E-03	3.85E-03	3.85E-03	3.99E-03	3.66E-03
876	3.85E-03	4.03E-03	3.99E-03	4.03E-03	4.00E-03	4.01E-03	3.78E-03
877	3.70E-03	3.71E-03	3.62E-03	3.71E-03	3.75E-03	3.77E-03	3.64E-03
Biased Statistics							
Average Biased	3.69E-03	3.69E-03	3.73E-03	3.69E-03	4.00E-03	3.98E-03	3.61E-03
Std Dev Biased	1.02E-04	1.27E-04	1.08E-04	1.27E-04	3.64E-04	2.56E-04	9.53E-05
Ps90%/90% (+KTL) Biased	3.97E-03	4.04E-03	4.02E-03	4.04E-03	5.00E-03	4.69E-03	3.88E-03
Ps90%/90% (-KTL) Biased	3.41E-03	3.34E-03	3.43E-03	3.34E-03	3.00E-03	3.28E-03	3.35E-03
Un-Biased Statistics							
Average Un-Biased	3.73E-03	3.89E-03	3.79E-03	3.89E-03	3.90E-03	3.97E-03	3.76E-03
Std Dev Un-Biased	1.36E-04	8.88E-05	1.72E-04	8.88E-05	6.94E-05	1.06E-04	7.40E-05
Ps90%/90% (+KTL) Un-Biased	4.10E-03	4.13E-03	4.26E-03	4.13E-03	4.09E-03	4.26E-03	3.96E-03
Ps90%/90% (-KTL) Un-Biased	3.35E-03	3.64E-03	3.32E-03	3.64E-03	3.71E-03	3.68E-03	3.56E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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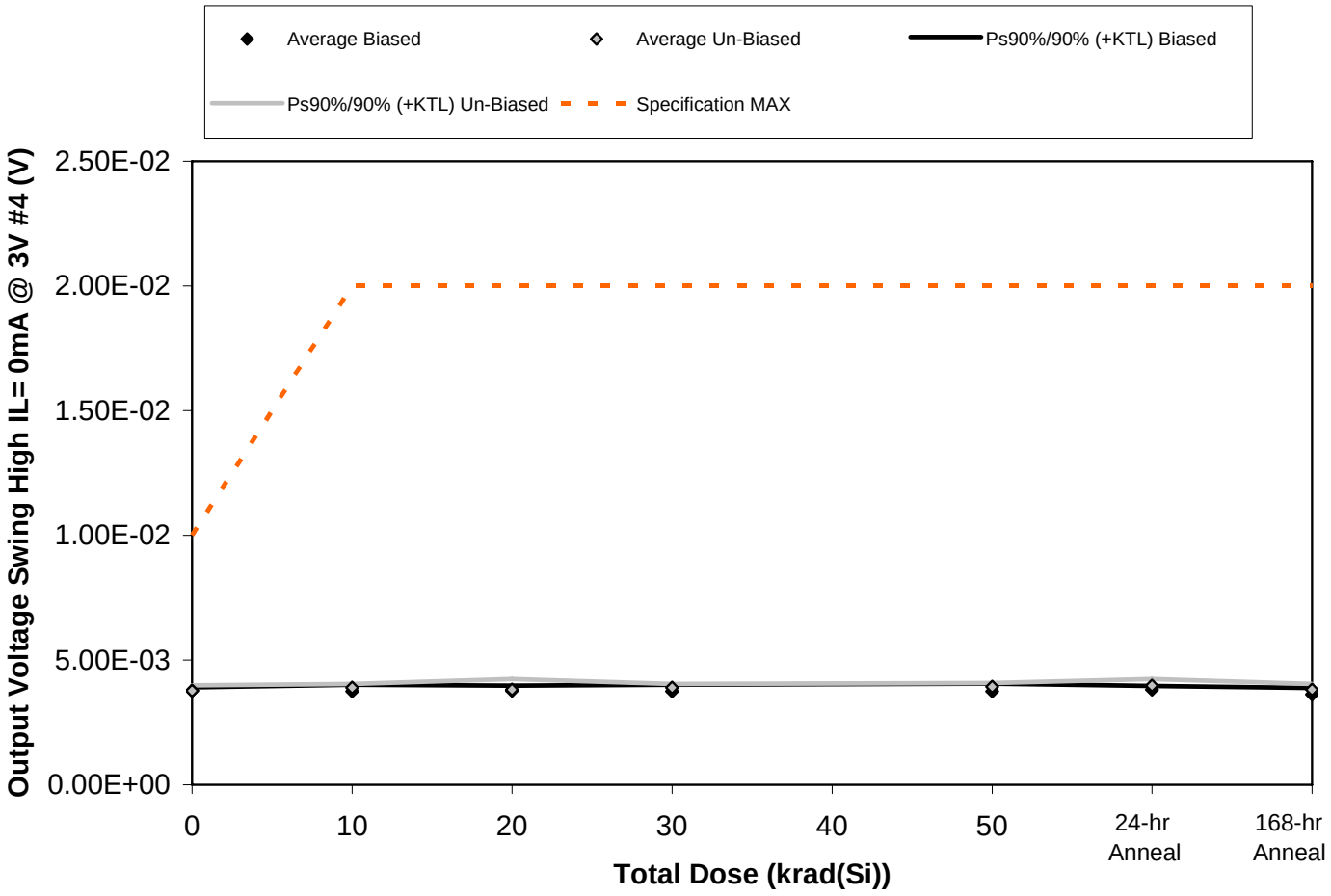

Figure 5.154. Plot of Output Voltage Swing High IL= 0mA @ 3V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.154. Raw data for Output Voltage Swing High IL= 0mA @ 3V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0mA @ 3V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.78E-03	3.91E-03	3.77E-03	3.91E-03	3.90E-03	3.87E-03	3.71E-03
867	3.82E-03	3.69E-03	3.77E-03	3.69E-03	3.78E-03	3.77E-03	3.63E-03
868	3.70E-03	3.68E-03	3.70E-03	3.68E-03	3.65E-03	3.74E-03	3.47E-03
869	3.73E-03	3.73E-03	3.72E-03	3.73E-03	3.63E-03	3.84E-03	3.68E-03
870	3.80E-03	3.74E-03	3.89E-03	3.74E-03	3.80E-03	3.85E-03	3.64E-03
871	3.82E-03	3.86E-03	3.87E-03	3.86E-03	3.99E-03	4.06E-03	3.78E-03
872	3.83E-03	3.88E-03	3.87E-03	3.88E-03	3.97E-03	4.07E-03	3.81E-03
873	3.83E-03	3.98E-03	3.92E-03	3.98E-03	3.95E-03	3.99E-03	3.90E-03
874	3.65E-03	3.85E-03	3.54E-03	3.85E-03	3.87E-03	3.85E-03	3.69E-03
876	3.73E-03	3.93E-03	3.86E-03	3.93E-03	3.88E-03	3.92E-03	3.88E-03
877	3.90E-03	3.90E-03	3.82E-03	3.90E-03	3.72E-03	3.79E-03	3.88E-03
Biased Statistics							
Average Biased	3.77E-03	3.75E-03	3.77E-03	3.75E-03	3.75E-03	3.81E-03	3.63E-03
Std Dev Biased	4.98E-05	9.30E-05	7.38E-05	9.30E-05	1.12E-04	5.59E-05	9.29E-05
Ps90%/90% (+KTL) Biased	3.90E-03	4.01E-03	3.97E-03	4.01E-03	4.06E-03	3.97E-03	3.88E-03
Ps90%/90% (-KTL) Biased	3.63E-03	3.49E-03	3.57E-03	3.49E-03	3.44E-03	3.66E-03	3.37E-03
Un-Biased Statistics							
Average Un-Biased	3.77E-03	3.90E-03	3.81E-03	3.90E-03	3.93E-03	3.98E-03	3.81E-03
Std Dev Un-Biased	8.01E-05	5.43E-05	1.54E-04	5.43E-05	5.40E-05	9.36E-05	8.41E-05
Ps90%/90% (+KTL) Un-Biased	3.99E-03	4.05E-03	4.23E-03	4.05E-03	4.08E-03	4.23E-03	4.04E-03
Ps90%/90% (-KTL) Un-Biased	3.55E-03	3.75E-03	3.39E-03	3.75E-03	3.78E-03	3.72E-03	3.58E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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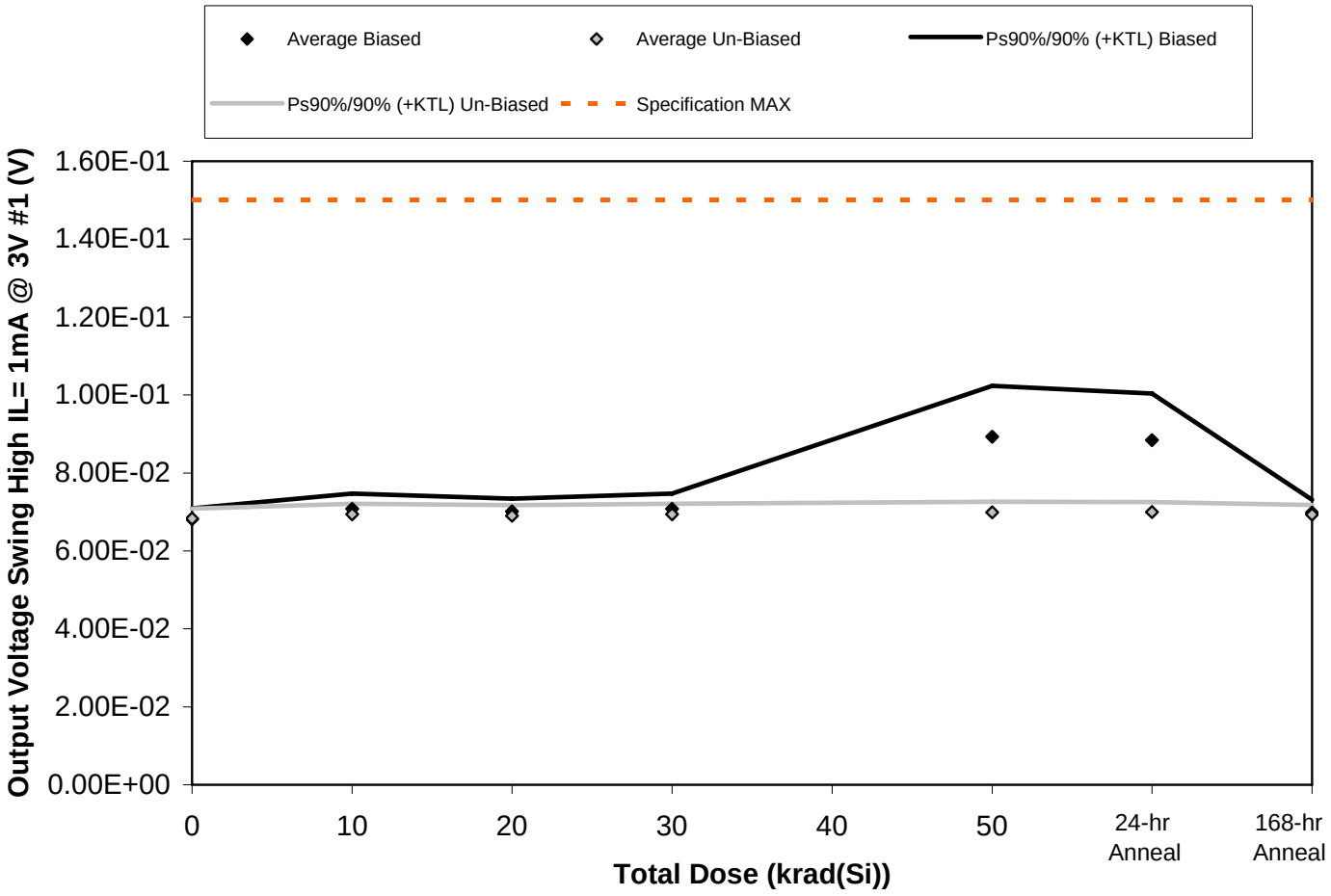

Figure 5.155. Plot of Output Voltage Swing High IL= 1mA @ 3V #1 (V) versus total dose. The data show a significant change with radiation, however it is not sufficient for any of the units-under-test to exceed specification (including after application of the KTL statistics). The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.155. Raw data for Output Voltage Swing High IL= 1mA @ 3V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1mA @ 3V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.99E-02	7.33E-02	7.23E-02	7.33E-02	9.13E-02	9.03E-02	7.19E-02
867	6.78E-02	7.02E-02	6.96E-02	7.02E-02	8.23E-02	8.19E-02	6.92E-02
868	6.81E-02	7.03E-02	6.99E-02	7.03E-02	8.67E-02	8.61E-02	6.96E-02
869	6.72E-02	6.95E-02	6.93E-02	6.95E-02	9.38E-02	9.24E-02	6.88E-02
870	6.78E-02	7.05E-02	6.96E-02	7.05E-02	9.26E-02	9.13E-02	6.96E-02
871	6.95E-02	7.07E-02	7.03E-02	7.07E-02	7.13E-02	7.12E-02	7.05E-02
872	6.75E-02	6.88E-02	6.85E-02	6.88E-02	6.92E-02	6.92E-02	6.86E-02
873	6.82E-02	6.91E-02	6.87E-02	6.91E-02	6.95E-02	6.98E-02	6.90E-02
874	6.73E-02	6.83E-02	6.79E-02	6.83E-02	6.89E-02	6.90E-02	6.85E-02
876	6.89E-02	7.02E-02	6.97E-02	7.02E-02	7.05E-02	7.07E-02	7.01E-02
877	6.88E-02	6.86E-02	6.88E-02	6.86E-02	6.88E-02	6.88E-02	6.86E-02
Biased Statistics							
Average Biased	6.82E-02	7.08E-02	7.01E-02	7.08E-02	8.93E-02	8.84E-02	6.98E-02
Std Dev Biased	1.02E-03	1.45E-03	1.20E-03	1.45E-03	4.76E-03	4.36E-03	1.21E-03
Ps90%/90% (+KTL) Biased	7.10E-02	7.47E-02	7.34E-02	7.47E-02	1.02E-01	1.00E-01	7.31E-02
Ps90%/90% (-KTL) Biased	6.54E-02	6.68E-02	6.69E-02	6.68E-02	7.63E-02	7.64E-02	6.65E-02
Un-Biased Statistics							
Average Un-Biased	6.83E-02	6.94E-02	6.90E-02	6.94E-02	6.99E-02	7.00E-02	6.94E-02
Std Dev Un-Biased	9.40E-04	9.78E-04	9.68E-04	9.78E-04	9.89E-04	9.25E-04	9.00E-04
Ps90%/90% (+KTL) Un-Biased	7.09E-02	7.21E-02	7.17E-02	7.21E-02	7.26E-02	7.25E-02	7.18E-02
Ps90%/90% (-KTL) Un-Biased	6.57E-02	6.67E-02	6.64E-02	6.67E-02	6.72E-02	6.74E-02	6.69E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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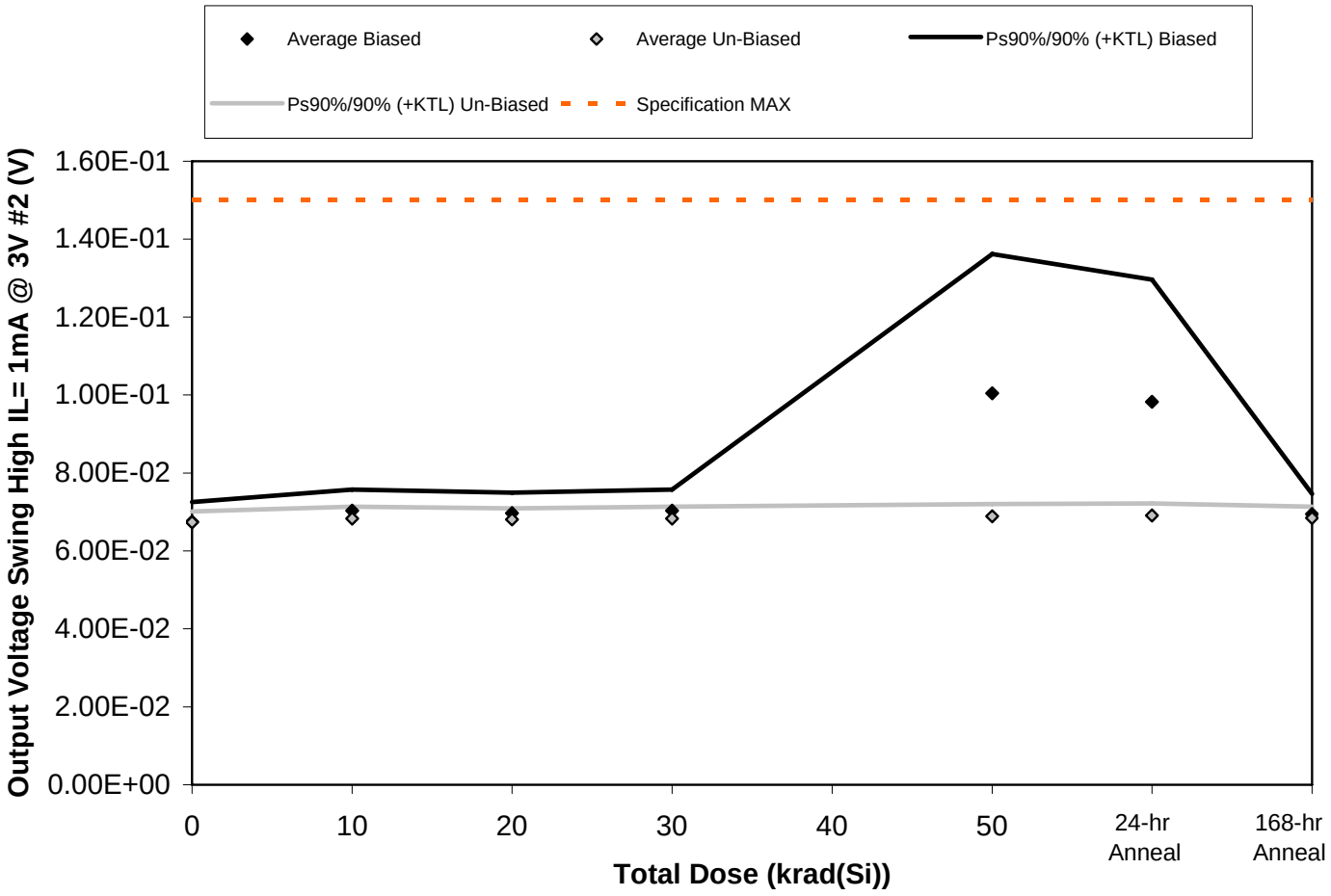

Figure 5.156. Plot of Output Voltage Swing High IL= 1mA @ 3V #2 (V) versus total dose. The data show a significant change with radiation, however it is not sufficient for any of the units-under-test to exceed specification (including after application of the KTL statistics). The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.156. Raw data for Output Voltage Swing High IL= 1mA @ 3V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1mA @ 3V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.79E-02	7.14E-02	7.07E-02	7.14E-02	1.03E-01	1.01E-01	7.03E-02
867	6.92E-02	7.17E-02	7.10E-02	7.17E-02	9.12E-02	9.04E-02	7.11E-02
868	6.51E-02	6.78E-02	6.71E-02	6.78E-02	9.13E-02	8.96E-02	6.69E-02
869	6.92E-02	7.21E-02	7.14E-02	7.21E-02	1.22E-01	1.17E-01	7.10E-02
870	6.60E-02	6.87E-02	6.82E-02	6.87E-02	9.49E-02	9.32E-02	6.81E-02
871	6.76E-02	6.86E-02	6.82E-02	6.86E-02	6.92E-02	6.93E-02	6.87E-02
872	6.83E-02	6.94E-02	6.92E-02	6.94E-02	6.97E-02	7.01E-02	6.94E-02
873	6.59E-02	6.66E-02	6.66E-02	6.66E-02	6.72E-02	6.75E-02	6.68E-02
874	6.69E-02	6.80E-02	6.75E-02	6.80E-02	6.84E-02	6.86E-02	6.80E-02
876	6.83E-02	6.92E-02	6.88E-02	6.92E-02	6.99E-02	7.01E-02	6.93E-02
877	6.77E-02	6.77E-02	6.77E-02	6.77E-02	6.77E-02	6.78E-02	6.75E-02
Biased Statistics							
Average Biased	6.75E-02	7.03E-02	6.97E-02	7.03E-02	1.00E-01	9.82E-02	6.95E-02
Std Dev Biased	1.85E-03	1.96E-03	1.91E-03	1.96E-03	1.30E-02	1.15E-02	1.88E-03
Ps90%/90% (+KTL) Biased	7.25E-02	7.57E-02	7.49E-02	7.57E-02	1.36E-01	1.30E-01	7.46E-02
Ps90%/90% (-KTL) Biased	6.24E-02	6.50E-02	6.44E-02	6.50E-02	6.47E-02	6.68E-02	6.43E-02
Un-Biased Statistics							
Average Un-Biased	6.74E-02	6.83E-02	6.81E-02	6.83E-02	6.89E-02	6.91E-02	6.84E-02
Std Dev Un-Biased	1.01E-03	1.10E-03	1.05E-03	1.10E-03	1.14E-03	1.12E-03	1.06E-03
Ps90%/90% (+KTL) Un-Biased	7.02E-02	7.14E-02	7.09E-02	7.14E-02	7.20E-02	7.22E-02	7.13E-02
Ps90%/90% (-KTL) Un-Biased	6.46E-02	6.53E-02	6.52E-02	6.53E-02	6.58E-02	6.60E-02	6.55E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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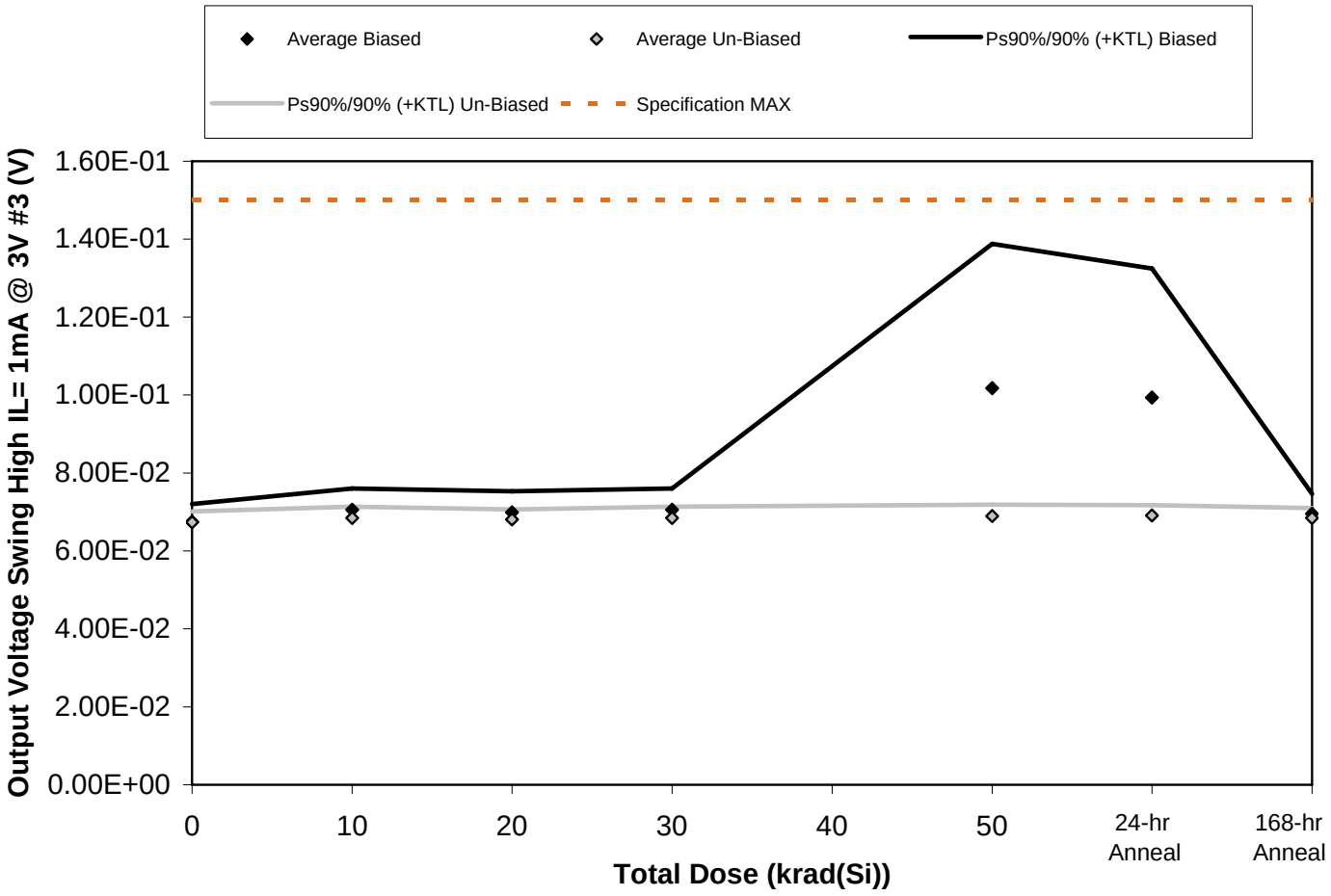

Figure 5.157. Plot of Output Voltage Swing High IL= 1mA @ 3V #3 (V) versus total dose. The data show a significant change with radiation, however it is not sufficient for any of the units-under-test to exceed specification (including after application of the KTL statistics). The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.157. Raw data for Output Voltage Swing High IL= 1mA @ 3V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1mA @ 3V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.76E-02	7.15E-02	7.06E-02	7.15E-02	1.03E-01	1.01E-01	7.04E-02
867	6.92E-02	7.23E-02	7.15E-02	7.23E-02	9.06E-02	8.97E-02	7.11E-02
868	6.52E-02	6.74E-02	6.69E-02	6.74E-02	8.72E-02	8.59E-02	6.68E-02
869	6.89E-02	7.19E-02	7.16E-02	7.19E-02	1.21E-01	1.16E-01	7.10E-02
870	6.67E-02	6.98E-02	6.88E-02	6.98E-02	1.07E-01	1.04E-01	6.85E-02
871	6.77E-02	6.88E-02	6.84E-02	6.88E-02	6.93E-02	6.93E-02	6.88E-02
872	6.78E-02	6.89E-02	6.84E-02	6.89E-02	6.92E-02	6.94E-02	6.89E-02
873	6.57E-02	6.67E-02	6.66E-02	6.67E-02	6.74E-02	6.76E-02	6.69E-02
874	6.72E-02	6.83E-02	6.80E-02	6.83E-02	6.88E-02	6.89E-02	6.82E-02
876	6.83E-02	6.95E-02	6.90E-02	6.95E-02	7.03E-02	7.02E-02	6.94E-02
877	6.77E-02	6.77E-02	6.77E-02	6.77E-02	6.79E-02	6.79E-02	6.77E-02
Biased Statistics							
Average Biased	6.75E-02	7.06E-02	6.99E-02	7.06E-02	1.02E-01	9.94E-02	6.95E-02
Std Dev Biased	1.65E-03	1.99E-03	1.98E-03	1.99E-03	1.35E-02	1.21E-02	1.86E-03
Ps90%/90% (+KTL) Biased	7.21E-02	7.60E-02	7.53E-02	7.60E-02	1.39E-01	1.32E-01	7.47E-02
Ps90%/90% (-KTL) Biased	6.30E-02	6.51E-02	6.44E-02	6.51E-02	6.48E-02	6.63E-02	6.44E-02
Un-Biased Statistics							
Average Un-Biased	6.74E-02	6.84E-02	6.81E-02	6.84E-02	6.90E-02	6.91E-02	6.84E-02
Std Dev Un-Biased	1.01E-03	1.06E-03	9.19E-04	1.06E-03	1.06E-03	9.69E-04	9.40E-04
Ps90%/90% (+KTL) Un-Biased	7.01E-02	7.14E-02	7.06E-02	7.14E-02	7.19E-02	7.17E-02	7.10E-02
Ps90%/90% (-KTL) Un-Biased	6.46E-02	6.55E-02	6.56E-02	6.55E-02	6.61E-02	6.64E-02	6.59E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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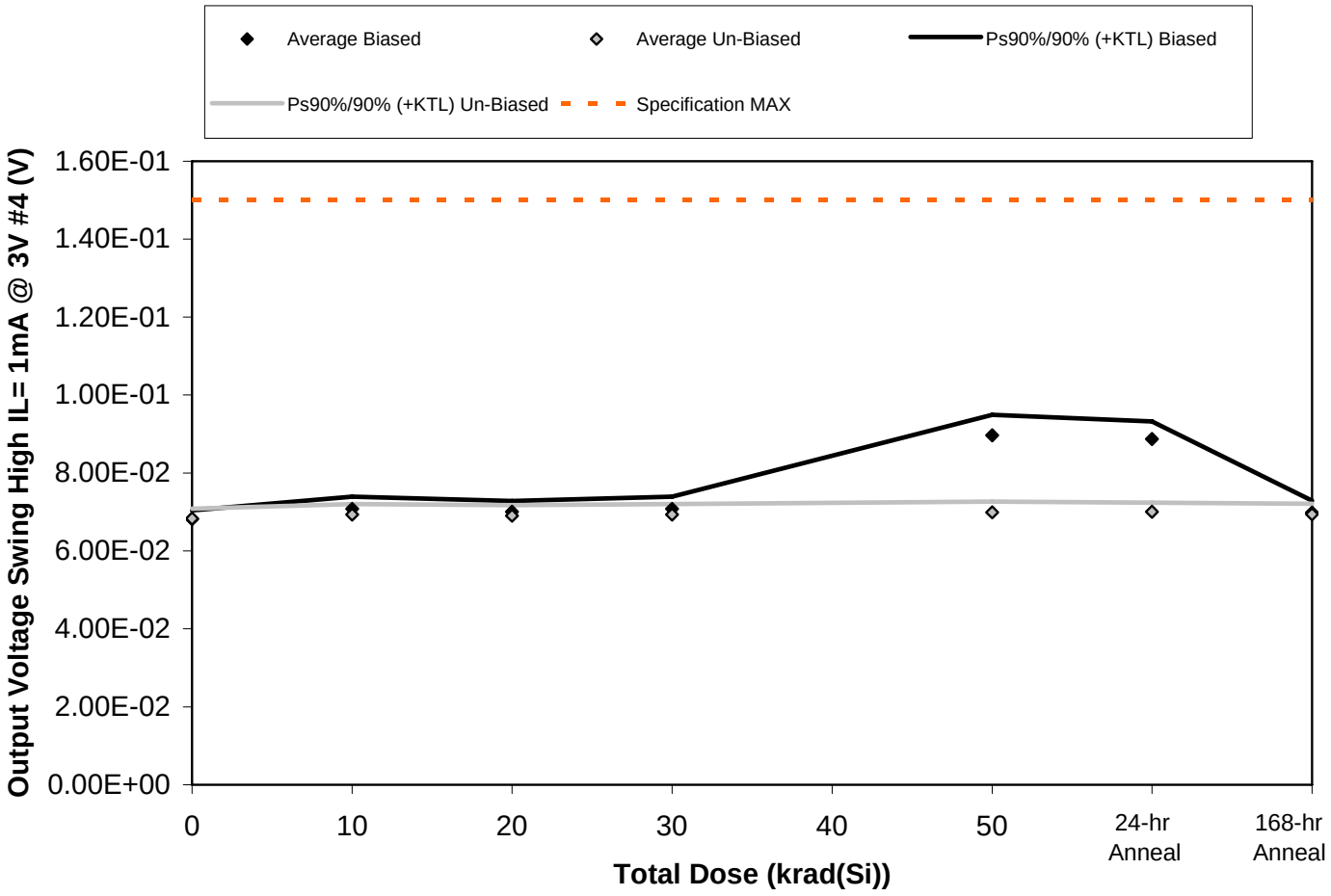

Figure 5.158. Plot of Output Voltage Swing High IL= 1mA @ 3V #4 (V) versus total dose. The data show a significant change with radiation, however it is not sufficient for any of the units-under-test to exceed specification (including after application of the KTL statistics). The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.158. Raw data for Output Voltage Swing High IL= 1mA @ 3V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1mA @ 3V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.94E-02	7.26E-02	7.16E-02	7.26E-02	8.81E-02	8.75E-02	7.15E-02
867	6.73E-02	7.01E-02	6.92E-02	7.01E-02	8.93E-02	8.85E-02	6.90E-02
868	6.84E-02	7.09E-02	7.04E-02	7.09E-02	9.23E-02	9.09E-02	7.03E-02
869	6.74E-02	6.96E-02	6.93E-02	6.96E-02	8.78E-02	8.69E-02	6.87E-02
870	6.83E-02	7.06E-02	7.00E-02	7.06E-02	9.09E-02	8.98E-02	6.96E-02
871	6.93E-02	7.04E-02	7.02E-02	7.04E-02	7.12E-02	7.11E-02	7.07E-02
872	6.77E-02	6.87E-02	6.86E-02	6.87E-02	6.91E-02	6.94E-02	6.86E-02
873	6.84E-02	6.95E-02	6.89E-02	6.95E-02	7.00E-02	7.01E-02	6.95E-02
874	6.70E-02	6.80E-02	6.77E-02	6.80E-02	6.87E-02	6.89E-02	6.83E-02
876	6.90E-02	7.00E-02	6.98E-02	7.00E-02	7.05E-02	7.06E-02	7.00E-02
877	6.89E-02	6.89E-02	6.88E-02	6.89E-02	6.91E-02	6.90E-02	6.85E-02
Biased Statistics							
Average Biased	6.81E-02	7.08E-02	7.01E-02	7.08E-02	8.97E-02	8.87E-02	6.98E-02
Std Dev Biased	8.33E-04	1.15E-03	1.00E-03	1.15E-03	1.91E-03	1.66E-03	1.13E-03
Ps90%/90% (+KTL) Biased	7.04E-02	7.39E-02	7.28E-02	7.39E-02	9.49E-02	9.33E-02	7.29E-02
Ps90%/90% (-KTL) Biased	6.59E-02	6.76E-02	6.73E-02	6.76E-02	8.45E-02	8.42E-02	6.67E-02
Un-Biased Statistics							
Average Un-Biased	6.83E-02	6.93E-02	6.90E-02	6.93E-02	6.99E-02	7.00E-02	6.94E-02
Std Dev Un-Biased	9.43E-04	9.88E-04	9.81E-04	9.88E-04	1.02E-03	8.67E-04	9.84E-04
Ps90%/90% (+KTL) Un-Biased	7.09E-02	7.20E-02	7.17E-02	7.20E-02	7.27E-02	7.24E-02	7.21E-02
Ps90%/90% (-KTL) Un-Biased	6.57E-02	6.66E-02	6.63E-02	6.66E-02	6.71E-02	6.77E-02	6.67E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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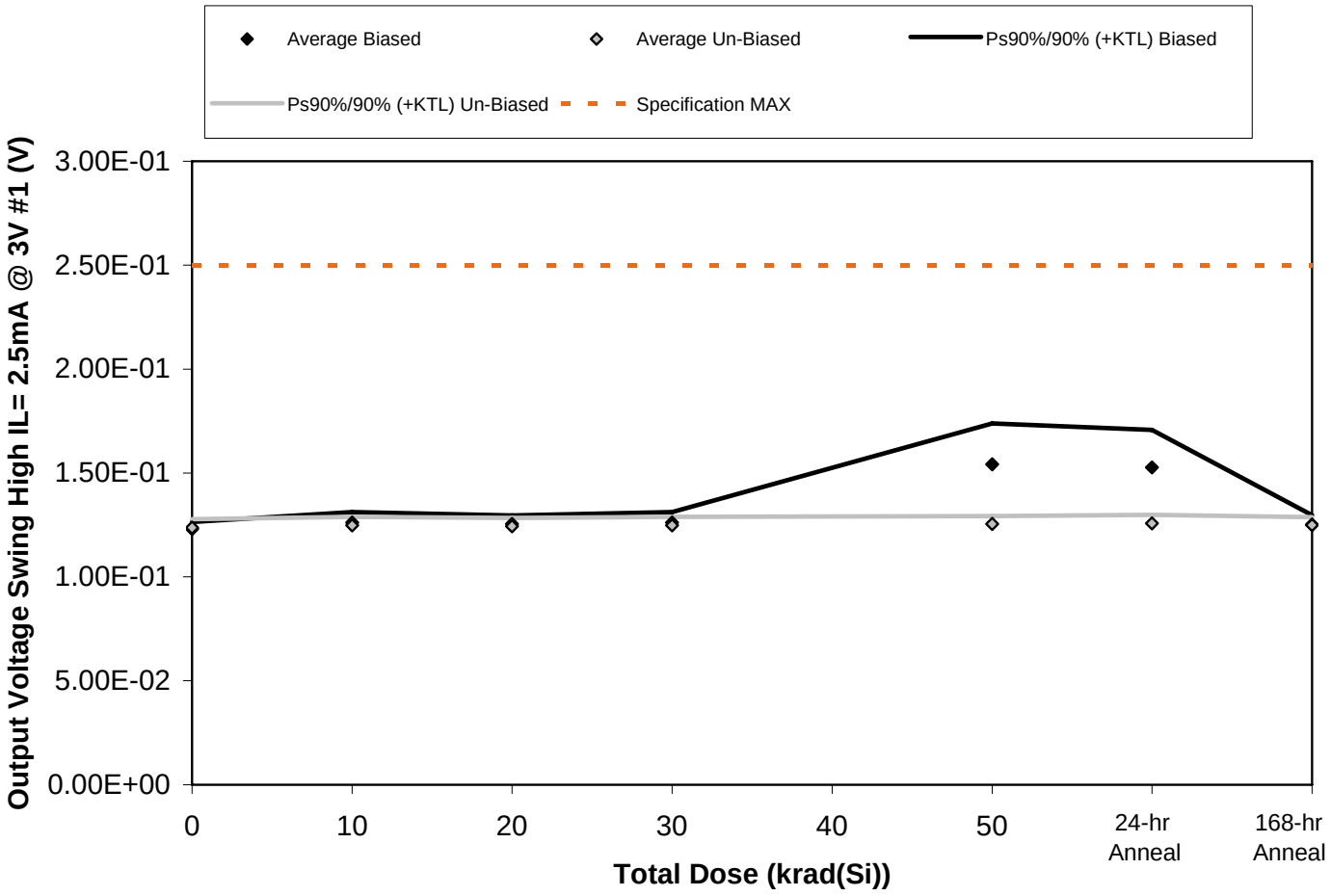

Figure 5.159. Plot of Output Voltage Swing High IL= 2.5mA @ 3V #1 (V) versus total dose. The data show a significant change with radiation, however it is not sufficient for any of the units-under-test to exceed specification (including after application of the KTL statistics). The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.159. Raw data for Output Voltage Swing High IL= 2.5mA @ 3V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 2.5mA @ 3V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.25E-01	1.29E-01	1.28E-01	1.29E-01	1.56E-01	1.55E-01	1.28E-01
867	1.23E-01	1.26E-01	1.25E-01	1.26E-01	1.44E-01	1.43E-01	1.25E-01
868	1.23E-01	1.26E-01	1.25E-01	1.26E-01	1.51E-01	1.49E-01	1.26E-01
869	1.22E-01	1.24E-01	1.24E-01	1.24E-01	1.61E-01	1.59E-01	1.23E-01
870	1.23E-01	1.26E-01	1.25E-01	1.26E-01	1.59E-01	1.58E-01	1.24E-01
871	1.25E-01	1.26E-01	1.26E-01	1.26E-01	1.27E-01	1.27E-01	1.26E-01
872	1.22E-01	1.24E-01	1.23E-01	1.24E-01	1.25E-01	1.25E-01	1.24E-01
873	1.24E-01	1.25E-01	1.25E-01	1.25E-01	1.25E-01	1.26E-01	1.25E-01
874	1.22E-01	1.23E-01	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.23E-01
876	1.25E-01	1.26E-01	1.25E-01	1.26E-01	1.27E-01	1.27E-01	1.26E-01
877	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01
Biased Statistics							
Average Biased	1.23E-01	1.26E-01	1.25E-01	1.26E-01	1.54E-01	1.53E-01	1.25E-01
Std Dev Biased	1.24E-03	1.82E-03	1.51E-03	1.82E-03	7.16E-03	6.58E-03	1.63E-03
Ps90%/90% (+KTL) Biased	1.26E-01	1.31E-01	1.30E-01	1.31E-01	1.74E-01	1.71E-01	1.30E-01
Ps90%/90% (-KTL) Biased	1.20E-01	1.21E-01	1.21E-01	1.21E-01	1.35E-01	1.35E-01	1.21E-01
Un-Biased Statistics							
Average Un-Biased	1.24E-01	1.25E-01	1.24E-01	1.25E-01	1.25E-01	1.26E-01	1.25E-01
Std Dev Un-Biased	1.50E-03	1.47E-03	1.43E-03	1.47E-03	1.38E-03	1.50E-03	1.38E-03
Ps90%/90% (+KTL) Un-Biased	1.28E-01	1.29E-01	1.28E-01	1.29E-01	1.29E-01	1.30E-01	1.29E-01
Ps90%/90% (-KTL) Un-Biased	1.20E-01	1.21E-01	1.21E-01	1.21E-01	1.22E-01	1.22E-01	1.21E-01
Specification MAX	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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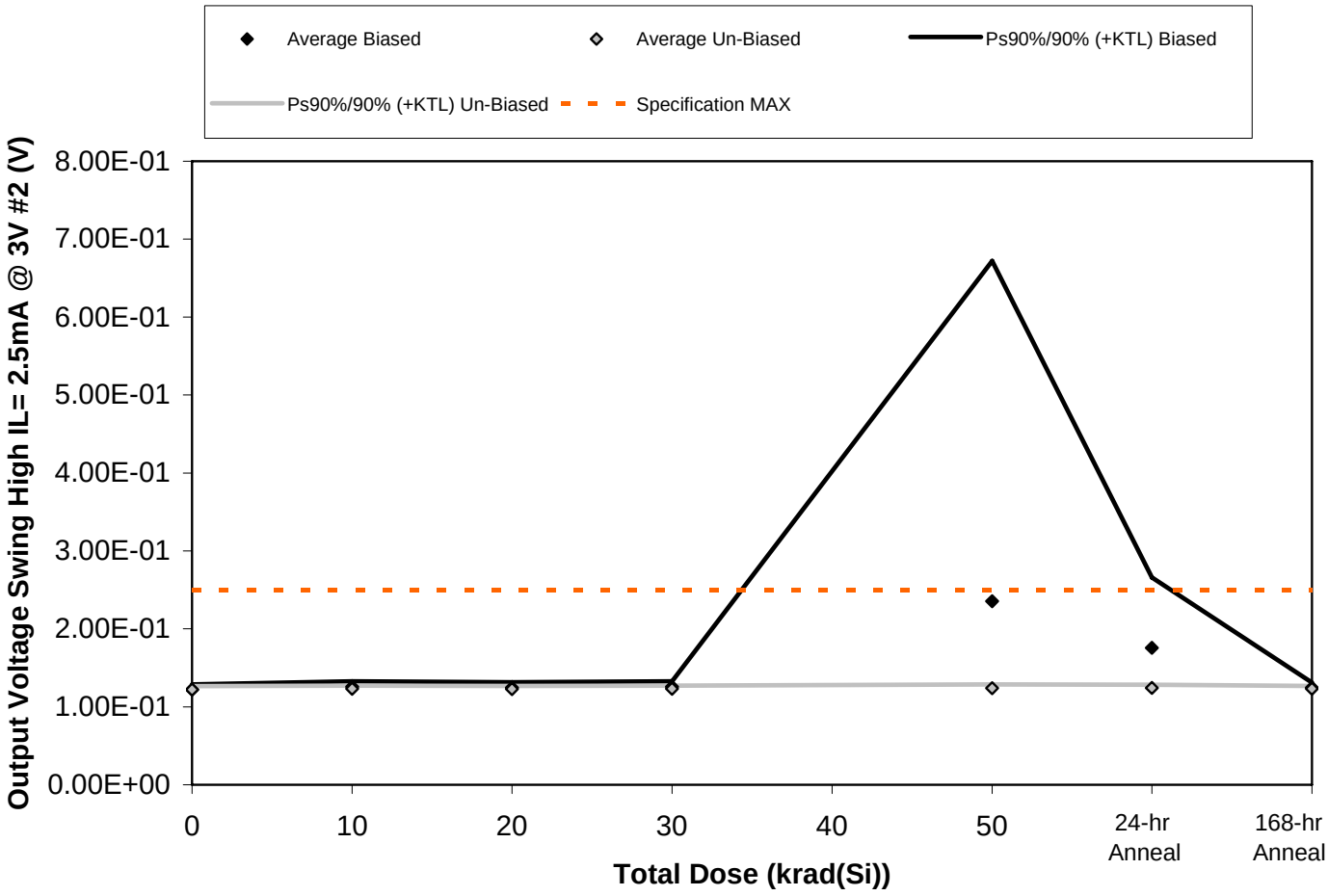

Figure 5.160. Plot of Output Voltage Swing High IL= 2.5mA @ 3V #2 (V) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.160. Raw data for Output Voltage Swing High IL= 2.5mA @ 3V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 2.5mA @ 3V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.22E-01	1.27E-01	1.25E-01	1.27E-01	1.78E-01	1.74E-01	1.25E-01
867	1.24E-01	1.28E-01	1.27E-01	1.28E-01	1.57E-01	1.55E-01	1.27E-01
868	1.20E-01	1.23E-01	1.22E-01	1.23E-01	1.58E-01	1.55E-01	1.21E-01
869	1.25E-01	1.28E-01	1.27E-01	1.28E-01	5.20E-01	2.33E-01	1.27E-01
870	1.20E-01	1.24E-01	1.23E-01	1.24E-01	1.64E-01	1.61E-01	1.22E-01
871	1.23E-01	1.24E-01	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.23E-01
872	1.23E-01	1.24E-01	1.24E-01	1.24E-01	1.25E-01	1.25E-01	1.24E-01
873	1.20E-01	1.21E-01	1.21E-01	1.21E-01	1.22E-01	1.22E-01	1.21E-01
874	1.21E-01	1.23E-01	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.23E-01
876	1.24E-01	1.25E-01	1.24E-01	1.25E-01	1.26E-01	1.26E-01	1.25E-01
877	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01
Biased Statistics							
Average Biased	1.22E-01	1.26E-01	1.25E-01	1.26E-01	2.35E-01	1.76E-01	1.24E-01
Std Dev Biased	2.31E-03	2.46E-03	2.44E-03	2.46E-03	1.59E-01	3.30E-02	2.44E-03
Ps90%/90% (+KTL) Biased	1.29E-01	1.33E-01	1.32E-01	1.33E-01	6.72E-01	2.66E-01	1.31E-01
Ps90%/90% (-KTL) Biased	1.16E-01	1.19E-01	1.18E-01	1.19E-01	-2.01E-01	8.52E-02	1.18E-01
Un-Biased Statistics							
Average Un-Biased	1.22E-01	1.23E-01	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.23E-01
Std Dev Un-Biased	1.62E-03	1.46E-03	1.50E-03	1.46E-03	1.61E-03	1.47E-03	1.30E-03
Ps90%/90% (+KTL) Un-Biased	1.27E-01	1.27E-01	1.27E-01	1.27E-01	1.28E-01	1.28E-01	1.27E-01
Ps90%/90% (-KTL) Un-Biased	1.18E-01	1.19E-01	1.19E-01	1.19E-01	1.20E-01	1.20E-01	1.20E-01
Specification MAX	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01
Status	PASS	PASS	PASS	PASS	FAIL	FAIL	PASS

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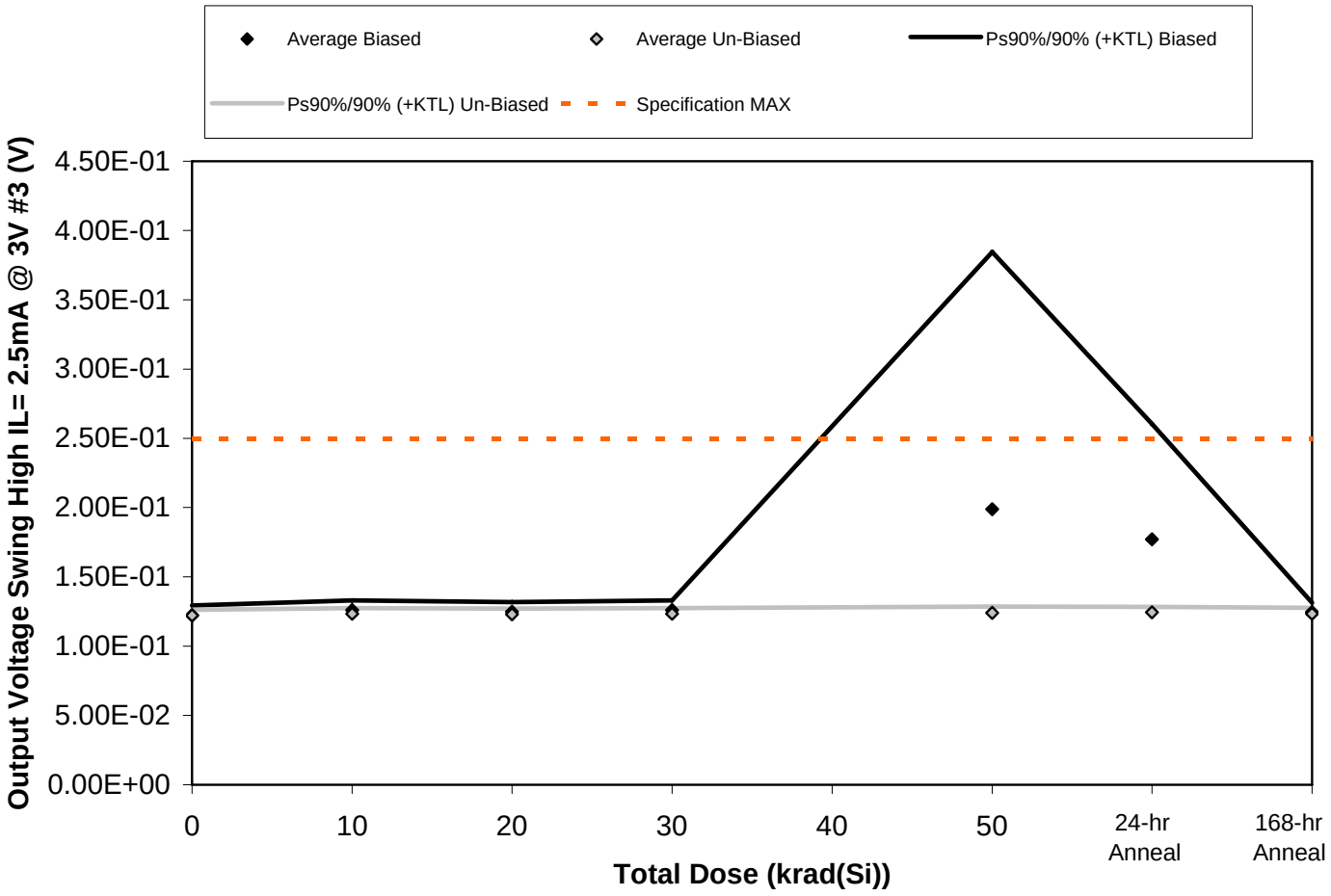

Figure 5.161. Plot of Output Voltage Swing High IL= 2.5mA @ 3V #3 (V) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.161. Raw data for Output Voltage Swing High IL= 2.5mA @ 3V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 2.5mA @ 3V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.22E-01	1.27E-01	1.26E-01	1.27E-01	1.79E-01	1.74E-01	1.25E-01
867	1.25E-01	1.29E-01	1.27E-01	1.29E-01	1.56E-01	1.54E-01	1.27E-01
868	1.19E-01	1.22E-01	1.21E-01	1.22E-01	1.51E-01	1.49E-01	1.21E-01
869	1.24E-01	1.28E-01	1.27E-01	1.28E-01	3.16E-01	2.26E-01	1.26E-01
870	1.21E-01	1.25E-01	1.23E-01	1.25E-01	1.94E-01	1.83E-01	1.23E-01
871	1.22E-01	1.24E-01	1.23E-01	1.24E-01	1.25E-01	1.25E-01	1.24E-01
872	1.23E-01	1.24E-01	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.24E-01
873	1.20E-01	1.21E-01	1.21E-01	1.21E-01	1.22E-01	1.22E-01	1.21E-01
874	1.22E-01	1.23E-01	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.24E-01
876	1.24E-01	1.25E-01	1.25E-01	1.25E-01	1.26E-01	1.26E-01	1.25E-01
877	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.23E-01
Biased Statistics							
Average Biased	1.22E-01	1.26E-01	1.25E-01	1.26E-01	1.99E-01	1.77E-01	1.25E-01
Std Dev Biased	2.55E-03	2.53E-03	2.57E-03	2.53E-03	6.76E-02	3.03E-02	2.48E-03
Ps90%/90% (+KTL) Biased	1.29E-01	1.33E-01	1.32E-01	1.33E-01	3.84E-01	2.60E-01	1.31E-01
Ps90%/90% (-KTL) Biased	1.15E-01	1.19E-01	1.18E-01	1.19E-01	1.35E-02	9.40E-02	1.18E-01
Un-Biased Statistics							
Average Un-Biased	1.22E-01	1.23E-01	1.23E-01	1.23E-01	1.24E-01	1.25E-01	1.23E-01
Std Dev Un-Biased	1.50E-03	1.53E-03	1.53E-03	1.53E-03	1.61E-03	1.38E-03	1.55E-03
Ps90%/90% (+KTL) Un-Biased	1.26E-01	1.28E-01	1.27E-01	1.28E-01	1.28E-01	1.28E-01	1.28E-01
Ps90%/90% (-KTL) Un-Biased	1.18E-01	1.19E-01	1.19E-01	1.19E-01	1.20E-01	1.21E-01	1.19E-01
Specification MAX	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01
Status	PASS	PASS	PASS	PASS	FAIL	FAIL	PASS

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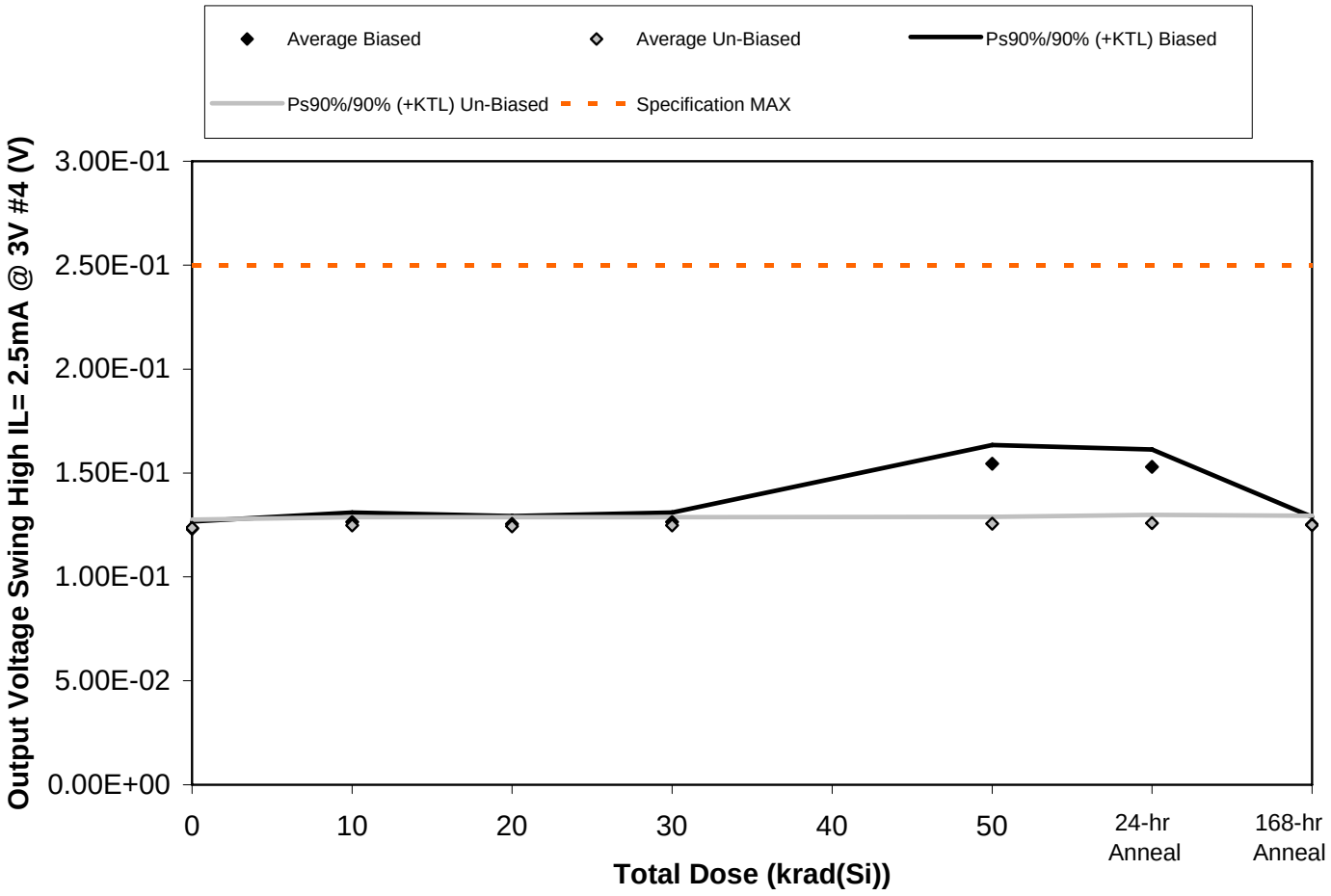

Figure 5.162. Plot of Output Voltage Swing High IL= 2.5mA @ 3V #4 (V) versus total dose. The data show a significant change with radiation, however it is not sufficient for any of the units-under-test to exceed specification (including after application of the KTL statistics). The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.162. Raw data for Output Voltage Swing High IL= 2.5mA @ 3V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 2.5mA @ 3V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.25E-01	1.29E-01	1.27E-01	1.29E-01	1.51E-01	1.50E-01	1.27E-01
867	1.22E-01	1.26E-01	1.25E-01	1.26E-01	1.54E-01	1.53E-01	1.24E-01
868	1.24E-01	1.27E-01	1.27E-01	1.27E-01	1.59E-01	1.57E-01	1.26E-01
869	1.22E-01	1.24E-01	1.24E-01	1.24E-01	1.51E-01	1.50E-01	1.24E-01
870	1.23E-01	1.26E-01	1.25E-01	1.26E-01	1.56E-01	1.54E-01	1.25E-01
871	1.25E-01	1.26E-01	1.26E-01	1.26E-01	1.27E-01	1.27E-01	1.26E-01
872	1.22E-01	1.24E-01	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.24E-01
873	1.24E-01	1.25E-01	1.25E-01	1.25E-01	1.26E-01	1.27E-01	1.26E-01
874	1.22E-01	1.23E-01	1.22E-01	1.23E-01	1.24E-01	1.24E-01	1.23E-01
876	1.25E-01	1.26E-01	1.26E-01	1.26E-01	1.27E-01	1.27E-01	1.26E-01
877	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01
Biased Statistics							
Average Biased	1.23E-01	1.26E-01	1.26E-01	1.26E-01	1.54E-01	1.53E-01	1.25E-01
Std Dev Biased	1.30E-03	1.64E-03	1.37E-03	1.64E-03	3.27E-03	3.07E-03	1.37E-03
Ps90%/90% (+KTL) Biased	1.27E-01	1.31E-01	1.29E-01	1.31E-01	1.63E-01	1.61E-01	1.29E-01
Ps90%/90% (-KTL) Biased	1.20E-01	1.22E-01	1.22E-01	1.22E-01	1.45E-01	1.45E-01	1.21E-01
Un-Biased Statistics							
Average Un-Biased	1.23E-01	1.25E-01	1.24E-01	1.25E-01	1.26E-01	1.26E-01	1.25E-01
Std Dev Un-Biased	1.47E-03	1.44E-03	1.59E-03	1.44E-03	1.23E-03	1.46E-03	1.63E-03
Ps90%/90% (+KTL) Un-Biased	1.28E-01	1.29E-01	1.29E-01	1.29E-01	1.29E-01	1.30E-01	1.29E-01
Ps90%/90% (-KTL) Un-Biased	1.19E-01	1.21E-01	1.20E-01	1.21E-01	1.22E-01	1.22E-01	1.20E-01
Specification MAX	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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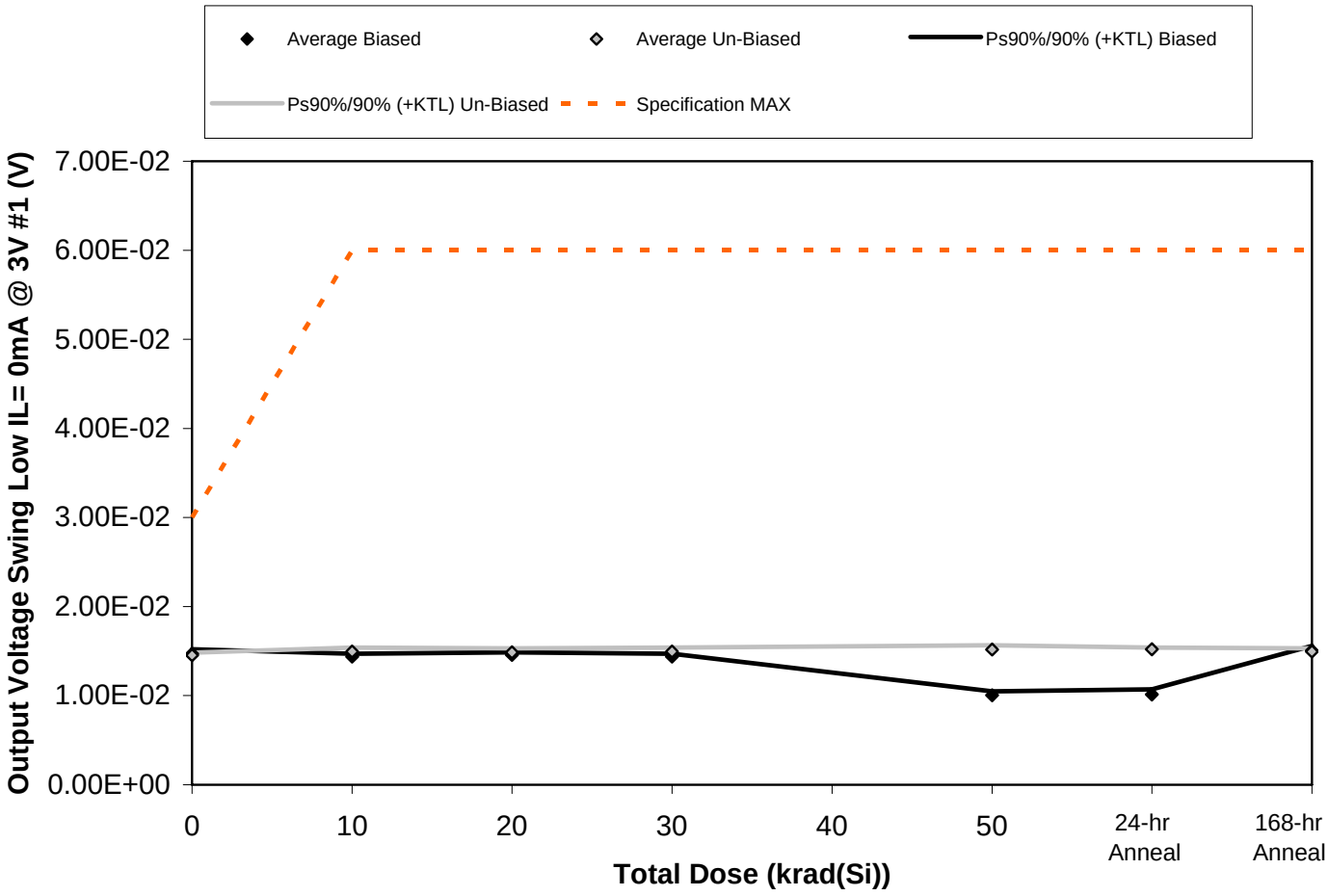

Figure 5.163. Plot of Output Voltage Swing Low IL= 0mA @ 3V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.163. Raw data for Output Voltage Swing Low IL= 0mA @ 3V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0mA @ 3V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.49E-02	1.44E-02	1.46E-02	1.44E-02	1.01E-02	1.03E-02	1.51E-02
867	1.47E-02	1.44E-02	1.46E-02	1.44E-02	1.02E-02	1.05E-02	1.51E-02
868	1.45E-02	1.42E-02	1.44E-02	1.42E-02	1.01E-02	1.00E-02	1.47E-02
869	1.49E-02	1.45E-02	1.47E-02	1.45E-02	9.79E-03	9.98E-03	1.53E-02
870	1.45E-02	1.43E-02	1.46E-02	1.43E-02	1.00E-02	9.99E-03	1.52E-02
871	1.46E-02	1.52E-02	1.51E-02	1.52E-02	1.52E-02	1.53E-02	1.51E-02
872	1.45E-02	1.49E-02	1.48E-02	1.49E-02	1.54E-02	1.52E-02	1.50E-02
873	1.44E-02	1.48E-02	1.47E-02	1.48E-02	1.49E-02	1.51E-02	1.48E-02
874	1.47E-02	1.49E-02	1.47E-02	1.49E-02	1.53E-02	1.53E-02	1.49E-02
876	1.46E-02	1.50E-02	1.50E-02	1.50E-02	1.51E-02	1.52E-02	1.51E-02
877	1.47E-02	1.46E-02	1.45E-02	1.46E-02	1.45E-02	1.46E-02	1.46E-02
Biased Statistics							
Average Biased	1.47E-02	1.44E-02	1.46E-02	1.44E-02	1.00E-02	1.01E-02	1.51E-02
Std Dev Biased	1.88E-04	1.15E-04	1.06E-04	1.15E-04	1.62E-04	2.05E-04	1.97E-04
Ps90%/90% (+KTL) Biased	1.52E-02	1.47E-02	1.49E-02	1.47E-02	1.05E-02	1.07E-02	1.56E-02
Ps90%/90% (-KTL) Biased	1.42E-02	1.41E-02	1.43E-02	1.41E-02	9.60E-03	9.58E-03	1.45E-02
Un-Biased Statistics							
Average Un-Biased	1.45E-02	1.50E-02	1.48E-02	1.50E-02	1.52E-02	1.52E-02	1.50E-02
Std Dev Un-Biased	1.09E-04	1.61E-04	1.63E-04	1.61E-04	1.74E-04	6.73E-05	1.28E-04
Ps90%/90% (+KTL) Un-Biased	1.48E-02	1.54E-02	1.53E-02	1.54E-02	1.57E-02	1.54E-02	1.53E-02
Ps90%/90% (-KTL) Un-Biased	1.42E-02	1.45E-02	1.44E-02	1.45E-02	1.47E-02	1.50E-02	1.46E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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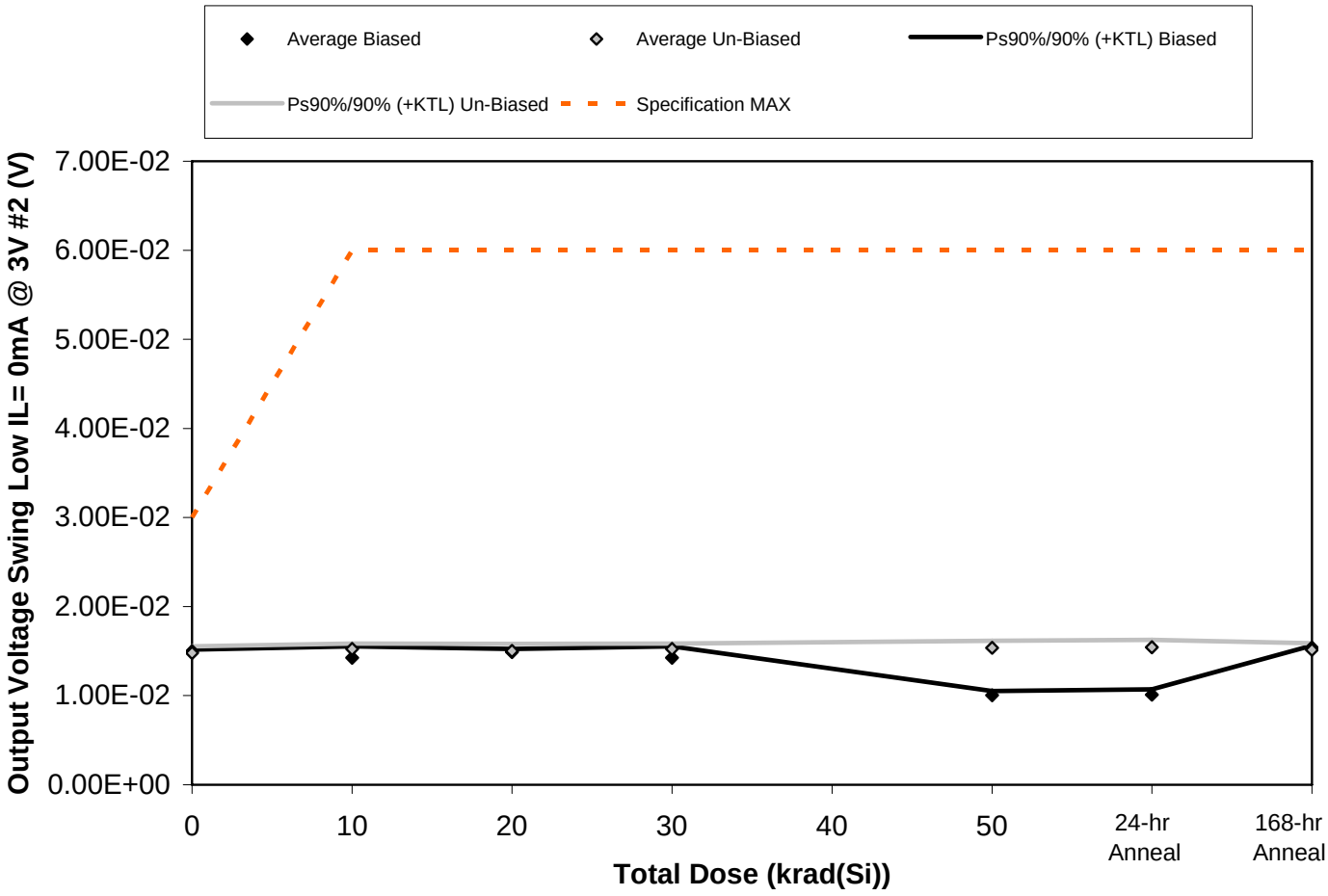

Figure 5.164. Plot of Output Voltage Swing Low IL= 0mA @ 3V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.164. Raw data for Output Voltage Swing Low IL= 0mA @ 3V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0mA @ 3V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.50E-02	1.47E-02	1.48E-02	1.47E-02	9.87E-03	9.93E-03	1.54E-02
867	1.51E-02	1.41E-02	1.51E-02	1.41E-02	1.03E-02	1.04E-02	1.55E-02
868	1.50E-02	1.36E-02	1.48E-02	1.36E-02	1.01E-02	1.02E-02	1.53E-02
869	1.49E-02	1.41E-02	1.47E-02	1.41E-02	9.99E-03	9.84E-03	1.53E-02
870	1.51E-02	1.47E-02	1.49E-02	1.47E-02	9.94E-03	1.03E-02	1.55E-02
871	1.47E-02	1.51E-02	1.49E-02	1.51E-02	1.52E-02	1.53E-02	1.50E-02
872	1.52E-02	1.55E-02	1.55E-02	1.55E-02	1.58E-02	1.58E-02	1.55E-02
873	1.49E-02	1.53E-02	1.50E-02	1.53E-02	1.54E-02	1.56E-02	1.53E-02
874	1.47E-02	1.54E-02	1.50E-02	1.54E-02	1.54E-02	1.55E-02	1.52E-02
876	1.45E-02	1.49E-02	1.47E-02	1.49E-02	1.50E-02	1.50E-02	1.48E-02
877	1.49E-02	1.46E-02	1.46E-02	1.46E-02	1.48E-02	1.49E-02	1.46E-02
Biased Statistics							
Average Biased	1.50E-02	1.42E-02	1.49E-02	1.42E-02	1.00E-02	1.01E-02	1.54E-02
Std Dev Biased	6.23E-05	4.69E-04	1.29E-04	4.69E-04	1.77E-04	2.19E-04	8.34E-05
Ps90%/90% (+KTL) Biased	1.52E-02	1.55E-02	1.52E-02	1.55E-02	1.05E-02	1.07E-02	1.56E-02
Ps90%/90% (-KTL) Biased	1.48E-02	1.30E-02	1.45E-02	1.30E-02	9.55E-03	9.51E-03	1.52E-02
Un-Biased Statistics							
Average Un-Biased	1.48E-02	1.52E-02	1.50E-02	1.52E-02	1.54E-02	1.54E-02	1.52E-02
Std Dev Un-Biased	2.63E-04	2.27E-04	2.92E-04	2.27E-04	2.97E-04	2.93E-04	2.59E-04
Ps90%/90% (+KTL) Un-Biased	1.55E-02	1.59E-02	1.58E-02	1.59E-02	1.62E-02	1.63E-02	1.59E-02
Ps90%/90% (-KTL) Un-Biased	1.41E-02	1.46E-02	1.42E-02	1.46E-02	1.46E-02	1.46E-02	1.44E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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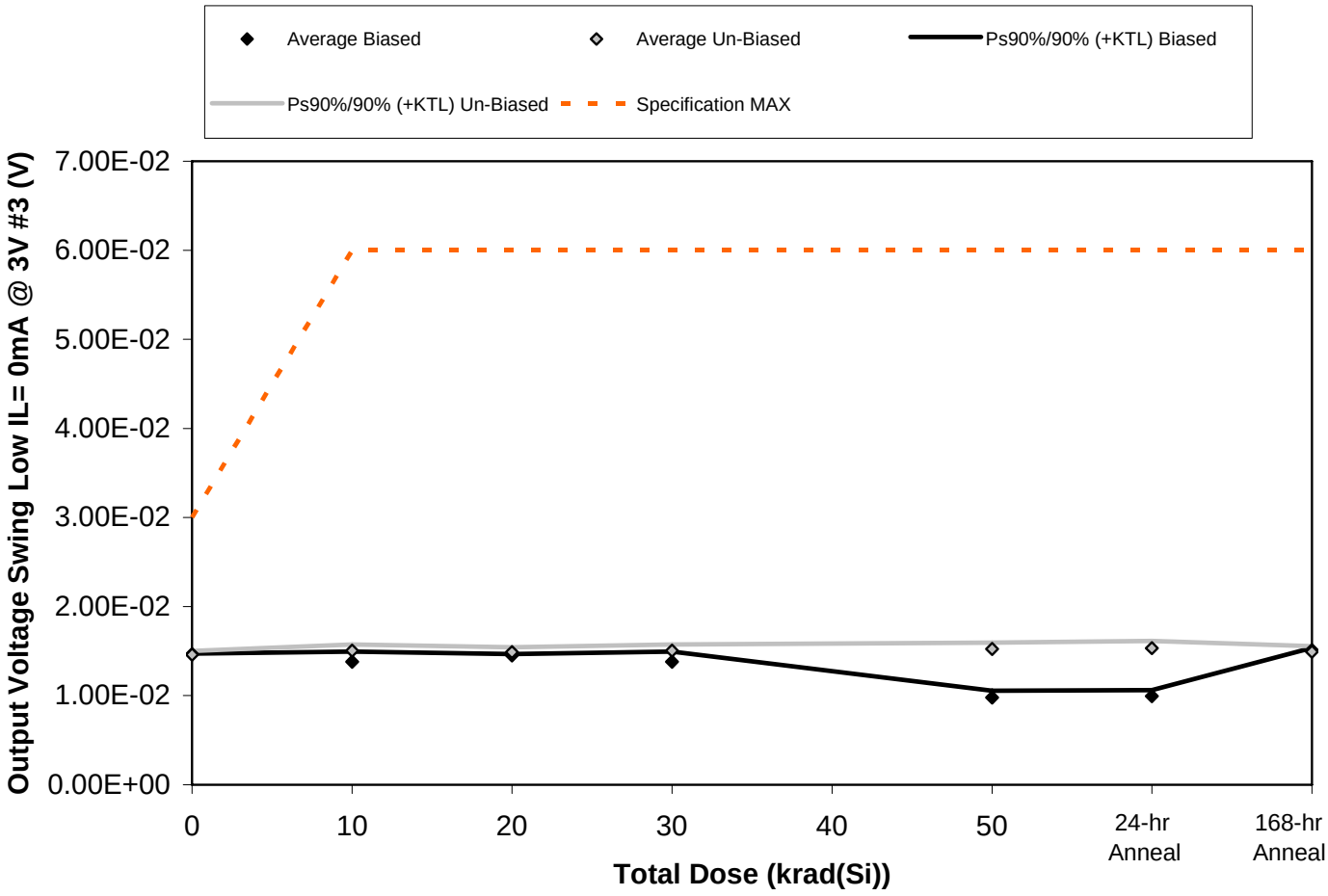

Figure 5.165. Plot of Output Voltage Swing Low IL= 0mA @ 3V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.165. Raw data for Output Voltage Swing Low IL= 0mA @ 3V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0mA @ 3V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.46E-02	1.43E-02	1.44E-02	1.43E-02	9.42E-03	9.67E-03	1.50E-02
867	1.47E-02	1.37E-02	1.46E-02	1.37E-02	1.01E-02	1.03E-02	1.51E-02
868	1.47E-02	1.40E-02	1.45E-02	1.40E-02	9.98E-03	9.91E-03	1.51E-02
869	1.47E-02	1.39E-02	1.46E-02	1.39E-02	9.79E-03	9.98E-03	1.51E-02
870	1.47E-02	1.32E-02	1.45E-02	1.32E-02	9.69E-03	9.79E-03	1.53E-02
871	1.46E-02	1.48E-02	1.47E-02	1.48E-02	1.50E-02	1.51E-02	1.46E-02
872	1.47E-02	1.53E-02	1.52E-02	1.53E-02	1.54E-02	1.55E-02	1.52E-02
873	1.47E-02	1.52E-02	1.49E-02	1.52E-02	1.55E-02	1.56E-02	1.50E-02
874	1.46E-02	1.52E-02	1.50E-02	1.52E-02	1.54E-02	1.56E-02	1.51E-02
876	1.44E-02	1.48E-02	1.47E-02	1.48E-02	1.50E-02	1.50E-02	1.48E-02
877	1.43E-02	1.43E-02	1.41E-02	1.43E-02	1.43E-02	1.43E-02	1.43E-02
Biased Statistics							
Average Biased	1.47E-02	1.38E-02	1.45E-02	1.38E-02	9.80E-03	9.94E-03	1.51E-02
Std Dev Biased	3.03E-05	4.21E-04	5.94E-05	4.21E-04	2.73E-04	2.50E-04	9.45E-05
Ps90%/90% (+KTL) Biased	1.47E-02	1.50E-02	1.47E-02	1.50E-02	1.06E-02	1.06E-02	1.54E-02
Ps90%/90% (-KTL) Biased	1.46E-02	1.27E-02	1.44E-02	1.27E-02	9.05E-03	9.25E-03	1.49E-02
Un-Biased Statistics							
Average Un-Biased	1.46E-02	1.51E-02	1.49E-02	1.51E-02	1.53E-02	1.53E-02	1.49E-02
Std Dev Un-Biased	1.51E-04	2.51E-04	1.92E-04	2.51E-04	2.54E-04	2.89E-04	2.32E-04
Ps90%/90% (+KTL) Un-Biased	1.50E-02	1.57E-02	1.54E-02	1.57E-02	1.59E-02	1.61E-02	1.56E-02
Ps90%/90% (-KTL) Un-Biased	1.42E-02	1.44E-02	1.44E-02	1.44E-02	1.46E-02	1.46E-02	1.43E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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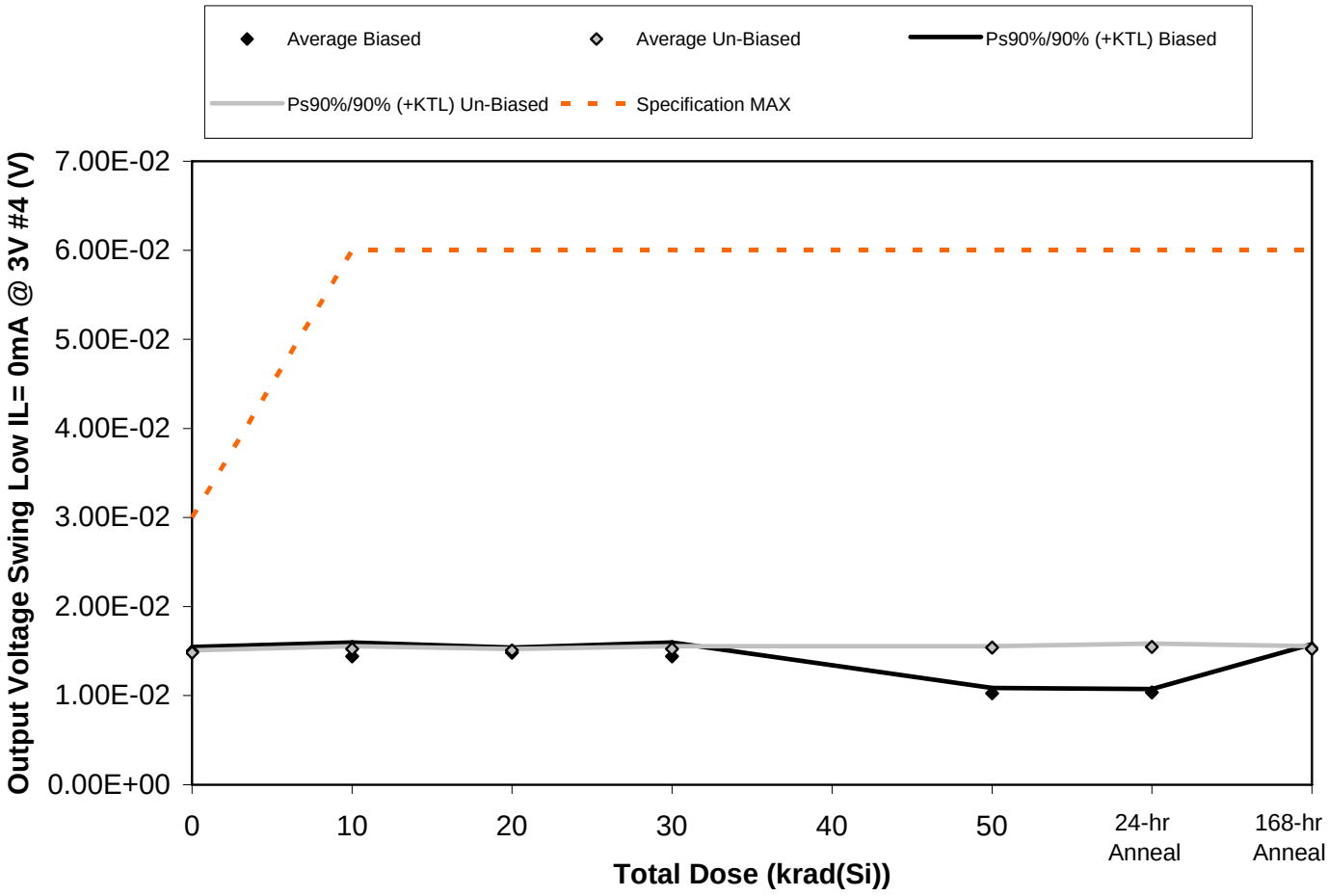

Figure 5.166. Plot of Output Voltage Swing Low IL= 0mA @ 3V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.166. Raw data for Output Voltage Swing Low IL= 0mA @ 3V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0mA @ 3V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.49E-02	1.48E-02	1.47E-02	1.48E-02	1.06E-02	1.06E-02	1.52E-02
867	1.48E-02	1.38E-02	1.47E-02	1.38E-02	1.03E-02	1.05E-02	1.50E-02
868	1.48E-02	1.39E-02	1.46E-02	1.39E-02	1.00E-02	1.03E-02	1.53E-02
869	1.53E-02	1.51E-02	1.52E-02	1.51E-02	1.01E-02	1.03E-02	1.55E-02
870	1.50E-02	1.45E-02	1.49E-02	1.45E-02	1.04E-02	1.03E-02	1.53E-02
871	1.49E-02	1.53E-02	1.52E-02	1.53E-02	1.55E-02	1.55E-02	1.53E-02
872	1.48E-02	1.51E-02	1.51E-02	1.51E-02	1.53E-02	1.54E-02	1.53E-02
873	1.47E-02	1.52E-02	1.50E-02	1.52E-02	1.54E-02	1.53E-02	1.50E-02
874	1.49E-02	1.54E-02	1.51E-02	1.54E-02	1.54E-02	1.57E-02	1.53E-02
876	1.48E-02	1.54E-02	1.51E-02	1.54E-02	1.54E-02	1.55E-02	1.53E-02
877	1.50E-02	1.48E-02	1.49E-02	1.48E-02	1.48E-02	1.49E-02	1.48E-02
Biased Statistics							
Average Biased	1.50E-02	1.44E-02	1.48E-02	1.44E-02	1.03E-02	1.04E-02	1.53E-02
Std Dev Biased	1.91E-04	5.69E-04	2.09E-04	5.69E-04	2.14E-04	1.40E-04	1.90E-04
Ps90%/90% (+KTL) Biased	1.55E-02	1.60E-02	1.54E-02	1.60E-02	1.09E-02	1.07E-02	1.58E-02
Ps90%/90% (-KTL) Biased	1.44E-02	1.29E-02	1.43E-02	1.29E-02	9.70E-03	9.98E-03	1.47E-02
Un-Biased Statistics							
Average Un-Biased	1.48E-02	1.53E-02	1.51E-02	1.53E-02	1.54E-02	1.55E-02	1.52E-02
Std Dev Un-Biased	9.34E-05	1.15E-04	5.94E-05	1.15E-04	6.44E-05	1.29E-04	1.15E-04
Ps90%/90% (+KTL) Un-Biased	1.51E-02	1.56E-02	1.52E-02	1.56E-02	1.56E-02	1.58E-02	1.55E-02
Ps90%/90% (-KTL) Un-Biased	1.46E-02	1.49E-02	1.49E-02	1.49E-02	1.52E-02	1.51E-02	1.49E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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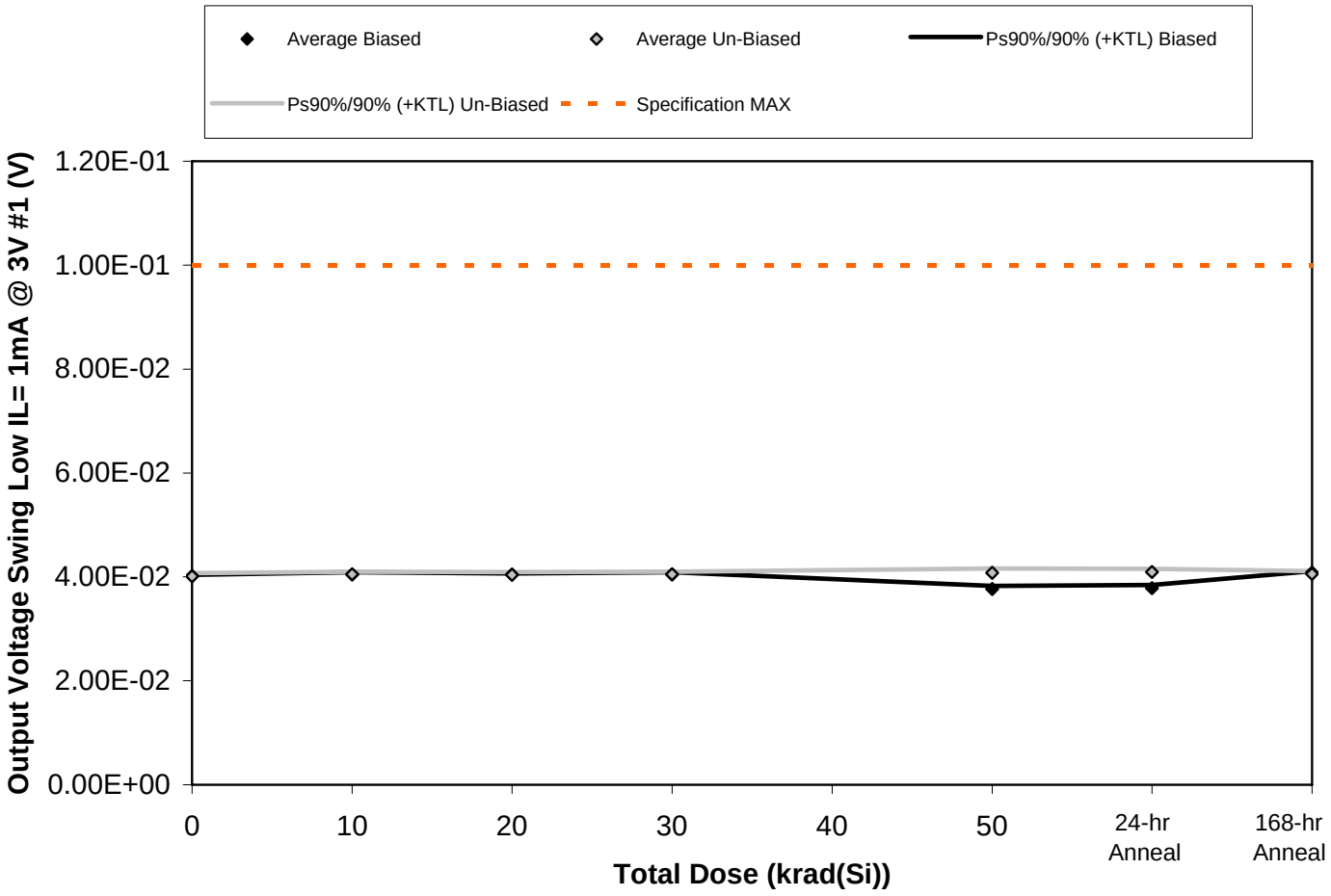

Figure 5.167. Plot of Output Voltage Swing Low IL= 1mA @ 3V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.167. Raw data for Output Voltage Swing Low IL= 1mA @ 3V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1mA @ 3V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.01E-02	4.06E-02	4.04E-02	4.06E-02	3.78E-02	3.80E-02	4.09E-02
867	4.03E-02	4.06E-02	4.05E-02	4.06E-02	3.79E-02	3.80E-02	4.09E-02
868	4.02E-02	4.05E-02	4.04E-02	4.05E-02	3.78E-02	3.80E-02	4.09E-02
869	4.02E-02	4.05E-02	4.06E-02	4.05E-02	3.74E-02	3.76E-02	4.09E-02
870	4.01E-02	4.02E-02	4.05E-02	4.02E-02	3.75E-02	3.77E-02	4.06E-02
871	4.01E-02	4.05E-02	4.05E-02	4.05E-02	4.07E-02	4.10E-02	4.06E-02
872	3.99E-02	4.03E-02	4.01E-02	4.03E-02	4.05E-02	4.08E-02	4.03E-02
873	3.98E-02	4.03E-02	4.03E-02	4.03E-02	4.05E-02	4.06E-02	4.04E-02
874	4.03E-02	4.07E-02	4.06E-02	4.07E-02	4.12E-02	4.11E-02	4.08E-02
876	4.04E-02	4.07E-02	4.06E-02	4.07E-02	4.10E-02	4.11E-02	4.07E-02
877	3.97E-02	3.98E-02	3.96E-02	3.98E-02	3.98E-02	3.97E-02	3.97E-02
Biased Statistics							
Average Biased	4.02E-02	4.05E-02	4.05E-02	4.05E-02	3.77E-02	3.79E-02	4.08E-02
Std Dev Biased	8.53E-05	1.49E-04	7.23E-05	1.49E-04	2.07E-04	2.05E-04	1.13E-04
Ps90%/90% (+KTL) Biased	4.04E-02	4.09E-02	4.07E-02	4.09E-02	3.82E-02	3.84E-02	4.11E-02
Ps90%/90% (-KTL) Biased	3.99E-02	4.01E-02	4.03E-02	4.01E-02	3.71E-02	3.73E-02	4.05E-02
Un-Biased Statistics							
Average Un-Biased	4.01E-02	4.05E-02	4.04E-02	4.05E-02	4.08E-02	4.09E-02	4.06E-02
Std Dev Un-Biased	2.36E-04	1.81E-04	1.99E-04	1.81E-04	2.96E-04	2.26E-04	1.94E-04
Ps90%/90% (+KTL) Un-Biased	4.07E-02	4.10E-02	4.09E-02	4.10E-02	4.16E-02	4.16E-02	4.11E-02
Ps90%/90% (-KTL) Un-Biased	3.95E-02	4.00E-02	3.99E-02	4.00E-02	4.00E-02	4.03E-02	4.00E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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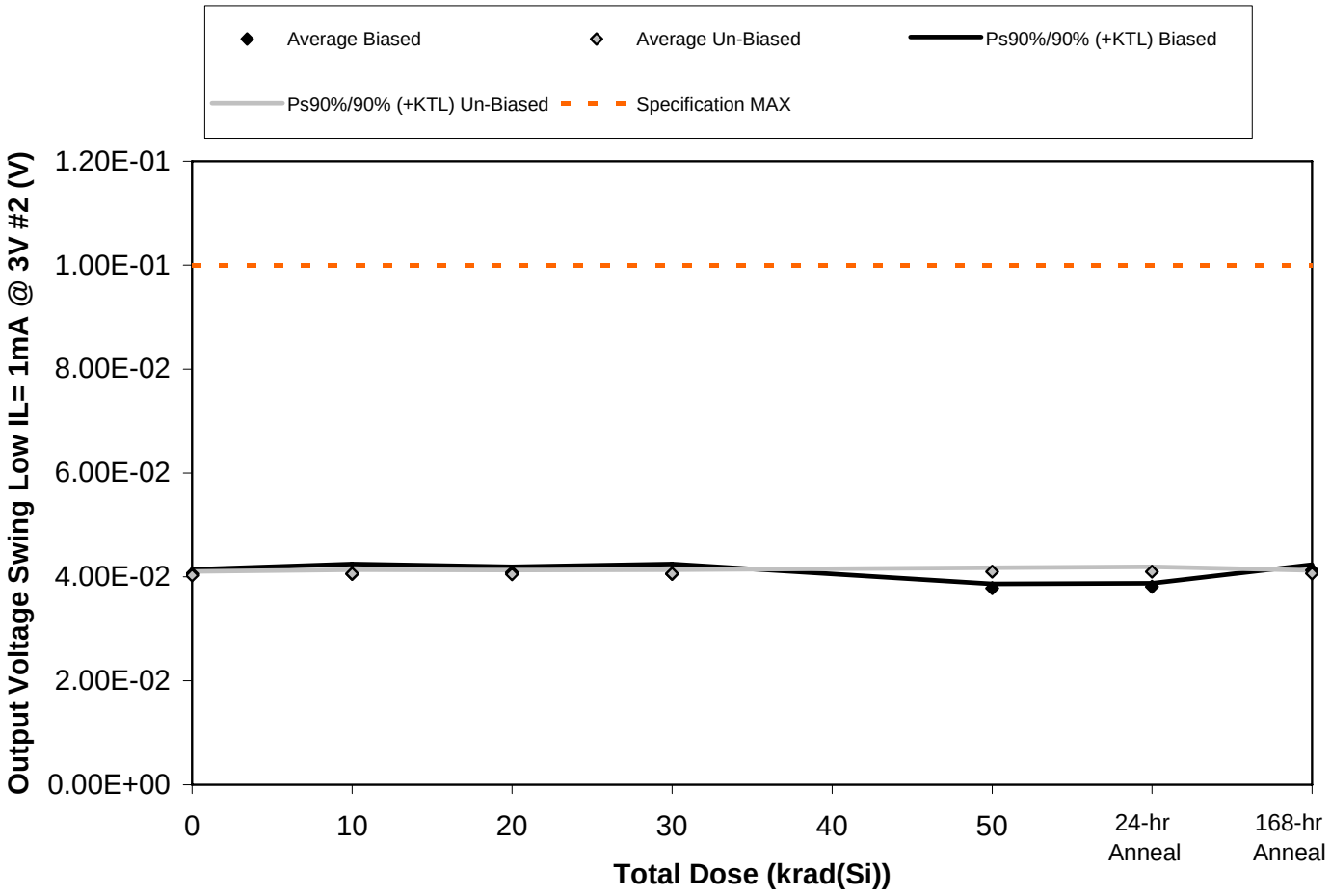

Figure 5.168. Plot of Output Voltage Swing Low IL= 1mA @ 3V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.168. Raw data for Output Voltage Swing Low IL= 1mA @ 3V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1mA @ 3V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.08E-02	4.13E-02	4.12E-02	4.13E-02	3.81E-02	3.82E-02	4.16E-02
867	4.06E-02	4.04E-02	4.09E-02	4.04E-02	3.80E-02	3.82E-02	4.13E-02
868	4.01E-02	3.94E-02	4.01E-02	3.94E-02	3.74E-02	3.77E-02	4.07E-02
869	4.09E-02	4.08E-02	4.11E-02	4.08E-02	3.80E-02	3.83E-02	4.16E-02
870	4.05E-02	4.09E-02	4.08E-02	4.09E-02	3.78E-02	3.80E-02	4.12E-02
871	4.05E-02	4.07E-02	4.06E-02	4.07E-02	4.10E-02	4.10E-02	4.08E-02
872	4.06E-02	4.10E-02	4.09E-02	4.10E-02	4.13E-02	4.15E-02	4.10E-02
873	4.01E-02	4.03E-02	4.02E-02	4.03E-02	4.07E-02	4.07E-02	4.04E-02
874	4.04E-02	4.07E-02	4.06E-02	4.07E-02	4.12E-02	4.12E-02	4.07E-02
876	3.99E-02	4.04E-02	4.02E-02	4.04E-02	4.07E-02	4.07E-02	4.06E-02
877	4.04E-02	4.05E-02	4.04E-02	4.05E-02	4.06E-02	4.06E-02	4.04E-02
Biased Statistics							
Average Biased	4.06E-02	4.05E-02	4.08E-02	4.05E-02	3.79E-02	3.81E-02	4.13E-02
Std Dev Biased	3.09E-04	7.04E-04	4.16E-04	7.04E-04	2.90E-04	2.49E-04	3.96E-04
Ps90%/90% (+KTL) Biased	4.14E-02	4.25E-02	4.20E-02	4.25E-02	3.86E-02	3.88E-02	4.24E-02
Ps90%/90% (-KTL) Biased	3.97E-02	3.86E-02	3.97E-02	3.86E-02	3.71E-02	3.74E-02	4.02E-02
Un-Biased Statistics							
Average Un-Biased	4.03E-02	4.06E-02	4.05E-02	4.06E-02	4.10E-02	4.10E-02	4.07E-02
Std Dev Un-Biased	2.68E-04	2.71E-04	3.04E-04	2.71E-04	2.95E-04	3.33E-04	2.08E-04
Ps90%/90% (+KTL) Un-Biased	4.10E-02	4.14E-02	4.14E-02	4.14E-02	4.18E-02	4.19E-02	4.13E-02
Ps90%/90% (-KTL) Un-Biased	3.96E-02	3.99E-02	3.97E-02	3.99E-02	4.02E-02	4.01E-02	4.01E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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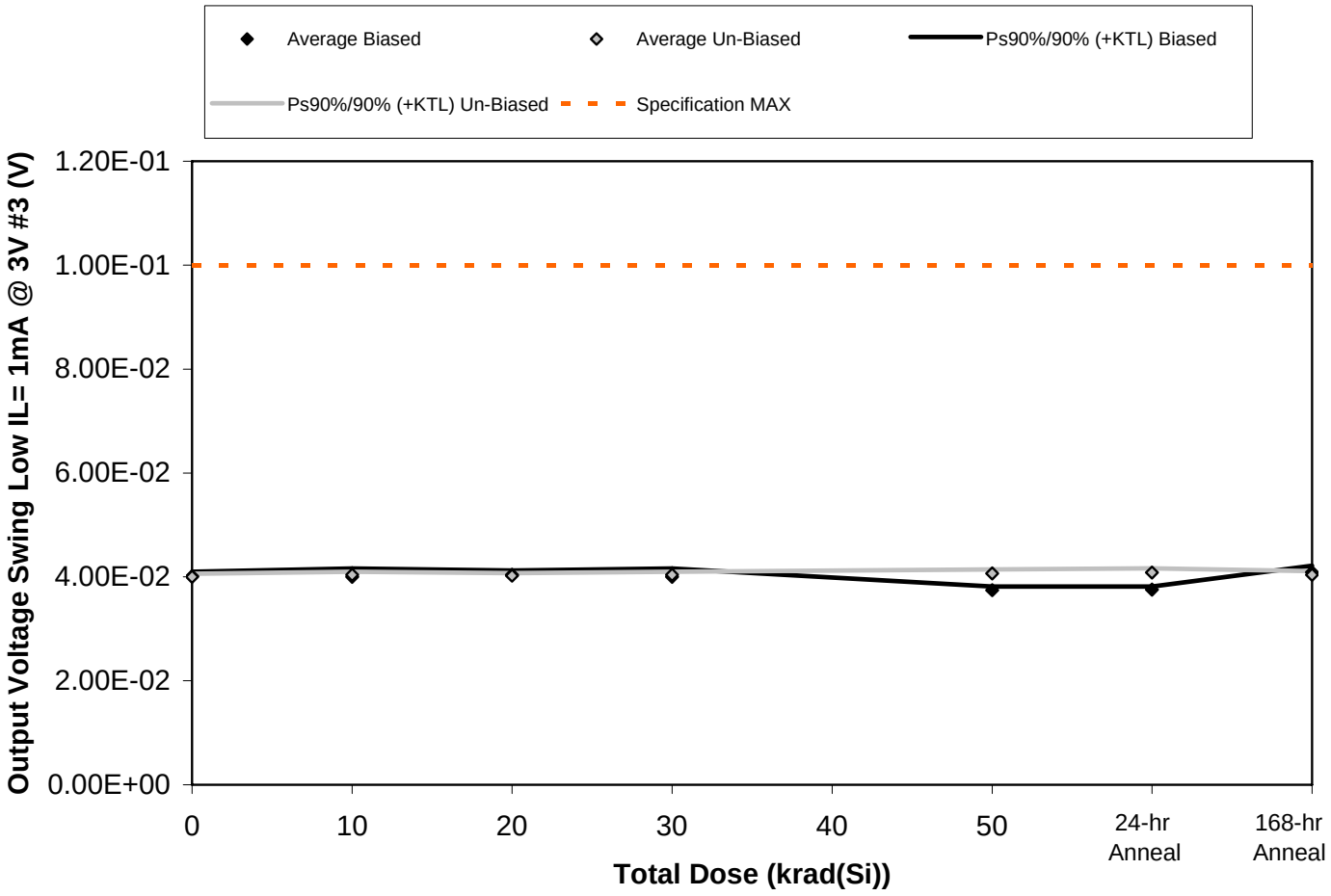

Figure 5.169. Plot of Output Voltage Swing Low IL= 1mA @ 3V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.169. Raw data for Output Voltage Swing Low IL= 1mA @ 3V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1mA @ 3V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.06E-02	4.08E-02	4.06E-02	4.08E-02	3.76E-02	3.77E-02	4.13E-02
867	4.00E-02	3.98E-02	4.04E-02	3.98E-02	3.77E-02	3.78E-02	4.07E-02
868	3.97E-02	3.97E-02	3.99E-02	3.97E-02	3.70E-02	3.73E-02	4.03E-02
869	4.03E-02	4.05E-02	4.07E-02	4.05E-02	3.76E-02	3.76E-02	4.13E-02
870	4.01E-02	3.94E-02	4.03E-02	3.94E-02	3.74E-02	3.75E-02	4.09E-02
871	4.01E-02	4.03E-02	4.02E-02	4.03E-02	4.05E-02	4.06E-02	4.03E-02
872	4.01E-02	4.07E-02	4.04E-02	4.07E-02	4.09E-02	4.12E-02	4.07E-02
873	3.98E-02	4.01E-02	4.01E-02	4.01E-02	4.05E-02	4.05E-02	4.02E-02
874	4.03E-02	4.06E-02	4.05E-02	4.06E-02	4.11E-02	4.11E-02	4.07E-02
876	3.98E-02	4.02E-02	4.01E-02	4.02E-02	4.04E-02	4.07E-02	4.02E-02
877	3.98E-02	3.98E-02	3.96E-02	3.98E-02	3.98E-02	3.99E-02	3.98E-02
Biased Statistics							
Average Biased	4.01E-02	4.00E-02	4.04E-02	4.00E-02	3.75E-02	3.76E-02	4.09E-02
Std Dev Biased	3.13E-04	5.65E-04	3.04E-04	5.65E-04	2.62E-04	2.19E-04	4.57E-04
Ps90%/90% (+KTL) Biased	4.10E-02	4.16E-02	4.12E-02	4.16E-02	3.82E-02	3.82E-02	4.22E-02
Ps90%/90% (-KTL) Biased	3.93E-02	3.85E-02	3.95E-02	3.85E-02	3.67E-02	3.70E-02	3.97E-02
Un-Biased Statistics							
Average Un-Biased	4.00E-02	4.04E-02	4.02E-02	4.04E-02	4.07E-02	4.08E-02	4.04E-02
Std Dev Un-Biased	2.13E-04	2.21E-04	1.85E-04	2.21E-04	2.67E-04	2.96E-04	2.54E-04
Ps90%/90% (+KTL) Un-Biased	4.06E-02	4.10E-02	4.07E-02	4.10E-02	4.14E-02	4.16E-02	4.11E-02
Ps90%/90% (-KTL) Un-Biased	3.94E-02	3.98E-02	3.97E-02	3.98E-02	4.00E-02	4.00E-02	3.97E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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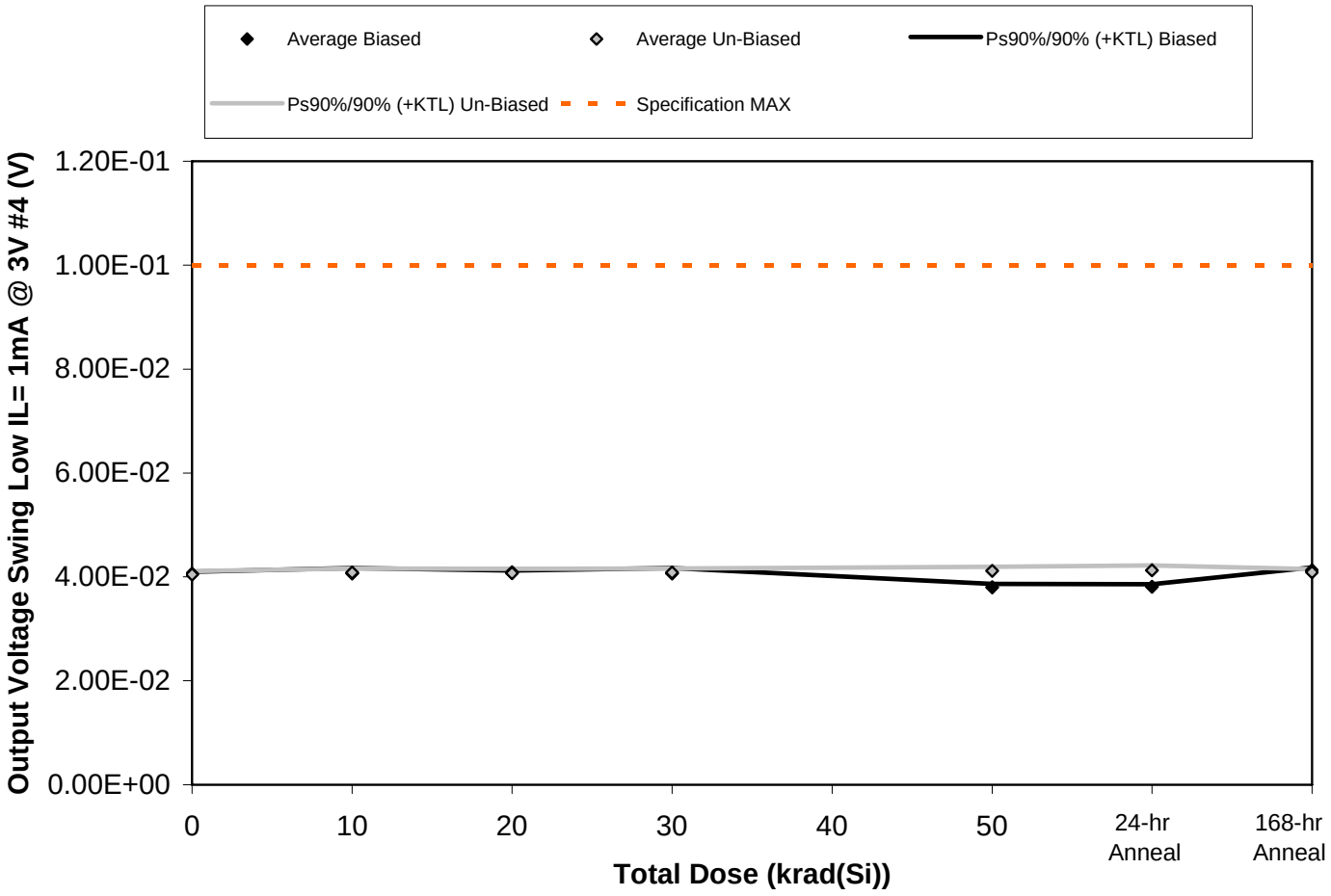

Figure 5.170. Plot of Output Voltage Swing Low IL= 1mA @ 3V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.170. Raw data for Output Voltage Swing Low IL= 1mA @ 3V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1mA @ 3V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.06E-02	4.11E-02	4.08E-02	4.11E-02	3.84E-02	3.84E-02	4.14E-02
867	4.06E-02	4.02E-02	4.08E-02	4.02E-02	3.80E-02	3.81E-02	4.11E-02
868	4.07E-02	4.05E-02	4.09E-02	4.05E-02	3.80E-02	3.81E-02	4.14E-02
869	4.08E-02	4.10E-02	4.11E-02	4.10E-02	3.80E-02	3.80E-02	4.14E-02
870	4.05E-02	4.06E-02	4.08E-02	4.06E-02	3.77E-02	3.78E-02	4.10E-02
871	4.05E-02	4.09E-02	4.09E-02	4.09E-02	4.13E-02	4.14E-02	4.09E-02
872	4.02E-02	4.07E-02	4.03E-02	4.07E-02	4.08E-02	4.09E-02	4.06E-02
873	4.03E-02	4.05E-02	4.05E-02	4.05E-02	4.09E-02	4.11E-02	4.07E-02
874	4.07E-02	4.12E-02	4.11E-02	4.12E-02	4.14E-02	4.17E-02	4.11E-02
876	4.07E-02	4.10E-02	4.08E-02	4.10E-02	4.13E-02	4.14E-02	4.11E-02
877	4.02E-02	4.01E-02	4.01E-02	4.01E-02	4.01E-02	4.03E-02	4.03E-02
Biased Statistics							
Average Biased	4.06E-02	4.07E-02	4.09E-02	4.07E-02	3.80E-02	3.81E-02	4.13E-02
Std Dev Biased	1.27E-04	3.88E-04	1.34E-04	3.88E-04	2.44E-04	1.86E-04	1.97E-04
Ps90%/90% (+KTL) Biased	4.10E-02	4.17E-02	4.12E-02	4.17E-02	3.87E-02	3.86E-02	4.18E-02
Ps90%/90% (-KTL) Biased	4.03E-02	3.96E-02	4.05E-02	3.96E-02	3.73E-02	3.76E-02	4.07E-02
Un-Biased Statistics							
Average Un-Biased	4.05E-02	4.09E-02	4.07E-02	4.09E-02	4.11E-02	4.13E-02	4.09E-02
Std Dev Un-Biased	2.39E-04	2.82E-04	3.10E-04	2.82E-04	2.82E-04	3.22E-04	2.09E-04
Ps90%/90% (+KTL) Un-Biased	4.11E-02	4.16E-02	4.16E-02	4.16E-02	4.19E-02	4.22E-02	4.15E-02
Ps90%/90% (-KTL) Un-Biased	3.98E-02	4.01E-02	3.99E-02	4.01E-02	4.04E-02	4.04E-02	4.03E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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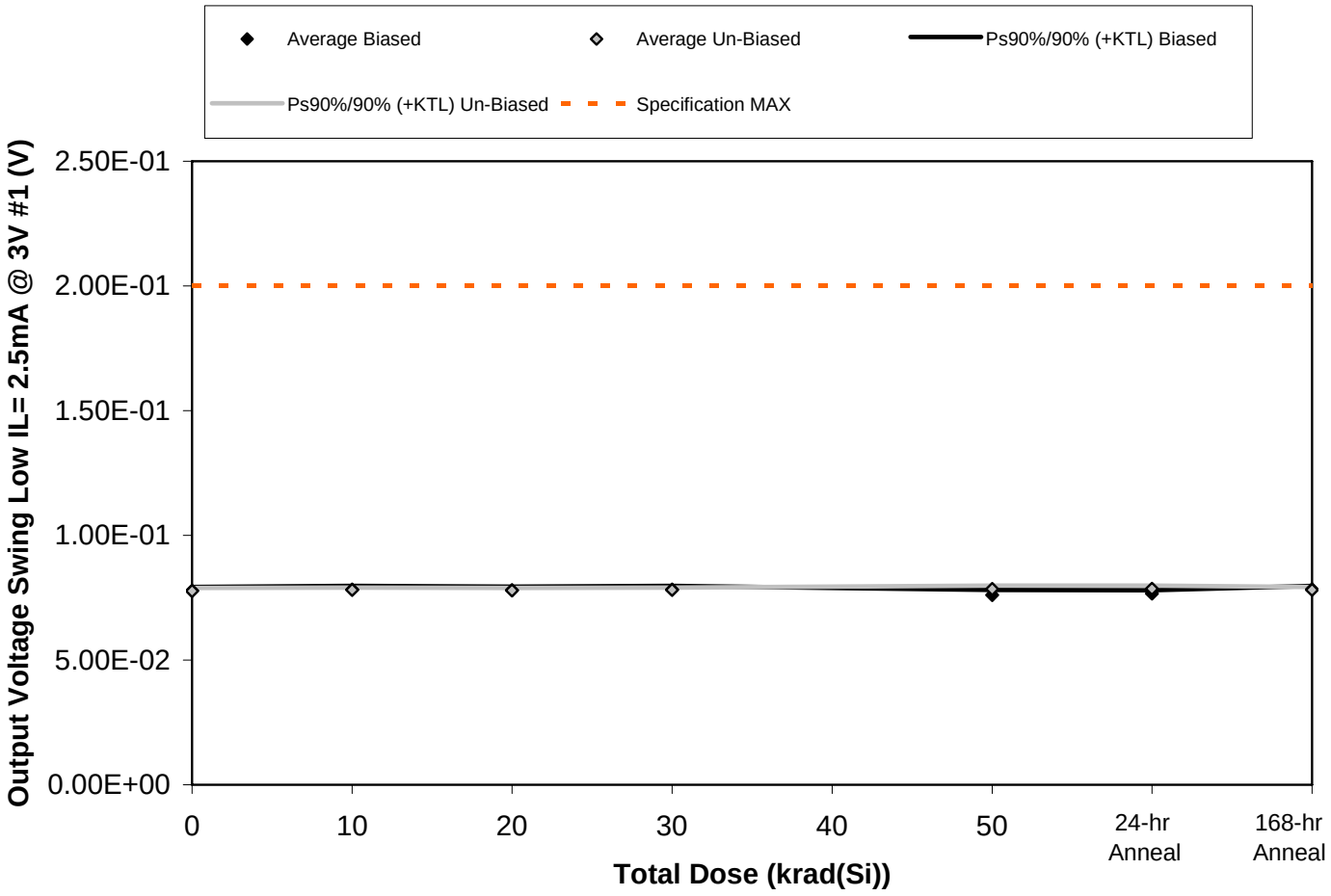

Figure 5.171. Plot of Output Voltage Swing Low IL= 2.5mA @ 3V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.171. Raw data for Output Voltage Swing Low IL= 2.5mA @ 3V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 2.5mA @ 3V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.80E-02	7.84E-02	7.80E-02	7.84E-02	7.64E-02	7.67E-02	7.83E-02
867	7.84E-02	7.90E-02	7.85E-02	7.90E-02	7.70E-02	7.73E-02	7.87E-02
868	7.82E-02	7.86E-02	7.86E-02	7.86E-02	7.65E-02	7.68E-02	7.91E-02
869	7.72E-02	7.79E-02	7.75E-02	7.79E-02	7.53E-02	7.61E-02	7.83E-02
870	7.73E-02	7.76E-02	7.78E-02	7.76E-02	7.54E-02	7.62E-02	7.78E-02
871	7.77E-02	7.80E-02	7.77E-02	7.80E-02	7.85E-02	7.81E-02	7.78E-02
872	7.71E-02	7.77E-02	7.75E-02	7.77E-02	7.77E-02	7.81E-02	7.78E-02
873	7.76E-02	7.82E-02	7.79E-02	7.82E-02	7.86E-02	7.87E-02	7.85E-02
874	7.75E-02	7.81E-02	7.80E-02	7.81E-02	7.86E-02	7.86E-02	7.82E-02
876	7.84E-02	7.87E-02	7.85E-02	7.87E-02	7.90E-02	7.92E-02	7.87E-02
877	7.67E-02	7.67E-02	7.63E-02	7.67E-02	7.70E-02	7.69E-02	7.65E-02
Biased Statistics							
Average Biased	7.78E-02	7.83E-02	7.81E-02	7.83E-02	7.61E-02	7.66E-02	7.84E-02
Std Dev Biased	5.22E-04	5.40E-04	4.64E-04	5.40E-04	7.30E-04	4.95E-04	4.80E-04
Ps90%/90% (+KTL) Biased	7.92E-02	7.98E-02	7.93E-02	7.98E-02	7.81E-02	7.80E-02	7.97E-02
Ps90%/90% (-KTL) Biased	7.64E-02	7.68E-02	7.68E-02	7.68E-02	7.41E-02	7.53E-02	7.71E-02
Un-Biased Statistics							
Average Un-Biased	7.76E-02	7.81E-02	7.79E-02	7.81E-02	7.85E-02	7.85E-02	7.82E-02
Std Dev Un-Biased	4.66E-04	3.34E-04	3.77E-04	3.34E-04	4.94E-04	4.74E-04	4.03E-04
Ps90%/90% (+KTL) Un-Biased	7.89E-02	7.91E-02	7.89E-02	7.91E-02	7.99E-02	7.98E-02	7.93E-02
Ps90%/90% (-KTL) Un-Biased	7.64E-02	7.72E-02	7.69E-02	7.72E-02	7.71E-02	7.72E-02	7.71E-02
Specification MAX	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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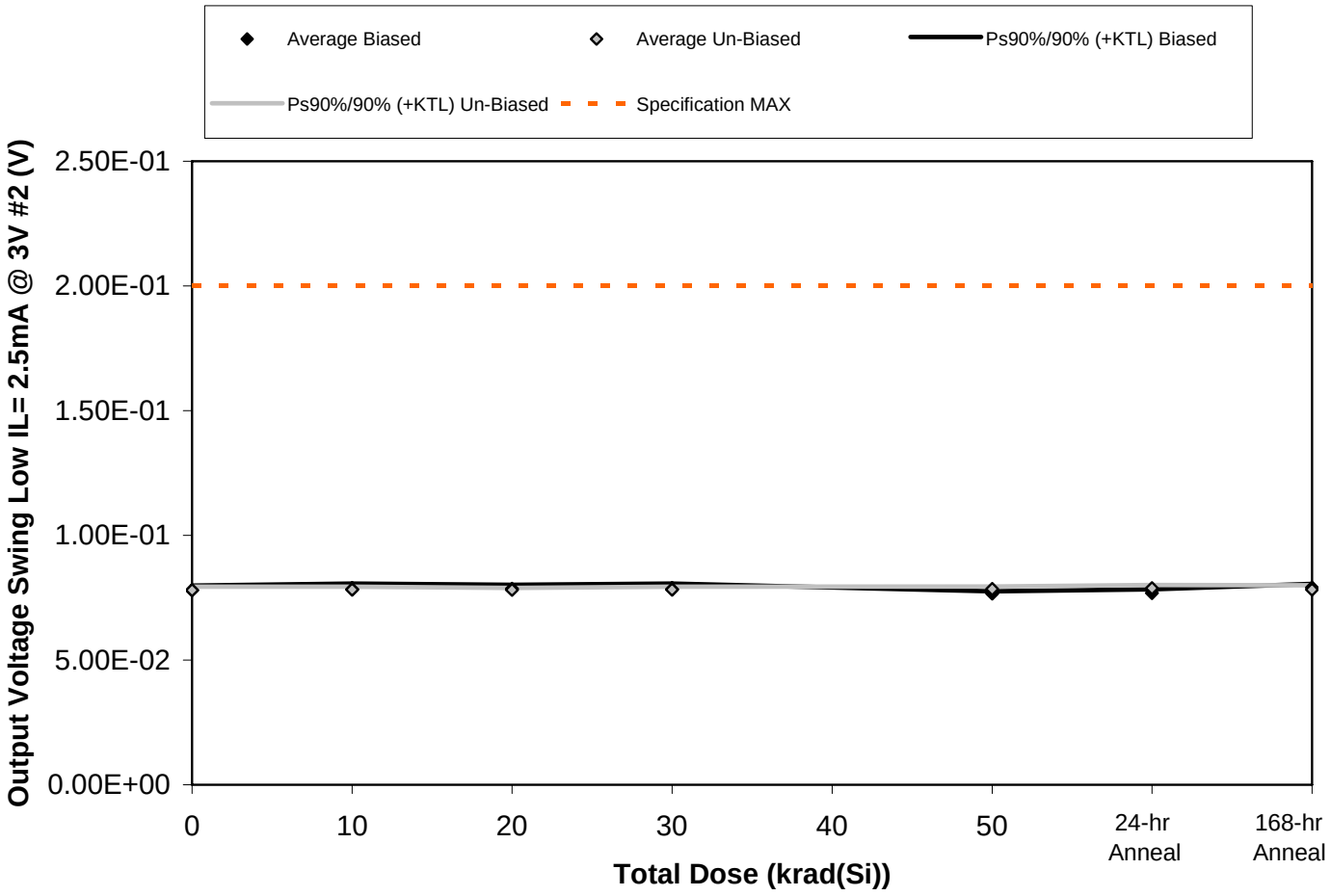

Figure 5.172. Plot of Output Voltage Swing Low IL= 2.5mA @ 3V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.172. Raw data for Output Voltage Swing Low IL= 2.5mA @ 3V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 2.5mA @ 3V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.87E-02	7.92E-02	7.87E-02	7.92E-02	7.69E-02	7.72E-02	7.93E-02
867	7.83E-02	7.85E-02	7.89E-02	7.85E-02	7.68E-02	7.73E-02	7.93E-02
868	7.72E-02	7.70E-02	7.77E-02	7.70E-02	7.60E-02	7.61E-02	7.81E-02
869	7.86E-02	7.87E-02	7.92E-02	7.87E-02	7.67E-02	7.73E-02	7.95E-02
870	7.77E-02	7.82E-02	7.84E-02	7.82E-02	7.68E-02	7.67E-02	7.87E-02
871	7.88E-02	7.86E-02	7.85E-02	7.86E-02	7.90E-02	7.91E-02	7.91E-02
872	7.80E-02	7.85E-02	7.81E-02	7.85E-02	7.88E-02	7.92E-02	7.84E-02
873	7.73E-02	7.77E-02	7.77E-02	7.77E-02	7.82E-02	7.80E-02	7.73E-02
874	7.78E-02	7.85E-02	7.83E-02	7.85E-02	7.84E-02	7.90E-02	7.83E-02
876	7.81E-02	7.79E-02	7.80E-02	7.79E-02	7.82E-02	7.86E-02	7.83E-02
877	7.83E-02	7.80E-02	7.82E-02	7.80E-02	7.82E-02	7.81E-02	7.80E-02
Biased Statistics							
Average Biased	7.81E-02	7.83E-02	7.86E-02	7.83E-02	7.66E-02	7.69E-02	7.90E-02
Std Dev Biased	6.38E-04	8.28E-04	5.77E-04	8.28E-04	3.57E-04	5.23E-04	5.67E-04
Ps90%/90% (+KTL) Biased	7.98E-02	8.06E-02	8.02E-02	8.06E-02	7.76E-02	7.83E-02	8.06E-02
Ps90%/90% (-KTL) Biased	7.63E-02	7.60E-02	7.70E-02	7.60E-02	7.56E-02	7.55E-02	7.74E-02
Un-Biased Statistics							
Average Un-Biased	7.80E-02	7.83E-02	7.81E-02	7.83E-02	7.85E-02	7.88E-02	7.83E-02
Std Dev Un-Biased	5.18E-04	3.99E-04	3.07E-04	3.99E-04	3.47E-04	4.83E-04	6.25E-04
Ps90%/90% (+KTL) Un-Biased	7.94E-02	7.94E-02	7.90E-02	7.94E-02	7.95E-02	8.01E-02	8.00E-02
Ps90%/90% (-KTL) Un-Biased	7.66E-02	7.72E-02	7.73E-02	7.72E-02	7.76E-02	7.75E-02	7.66E-02
Specification MAX	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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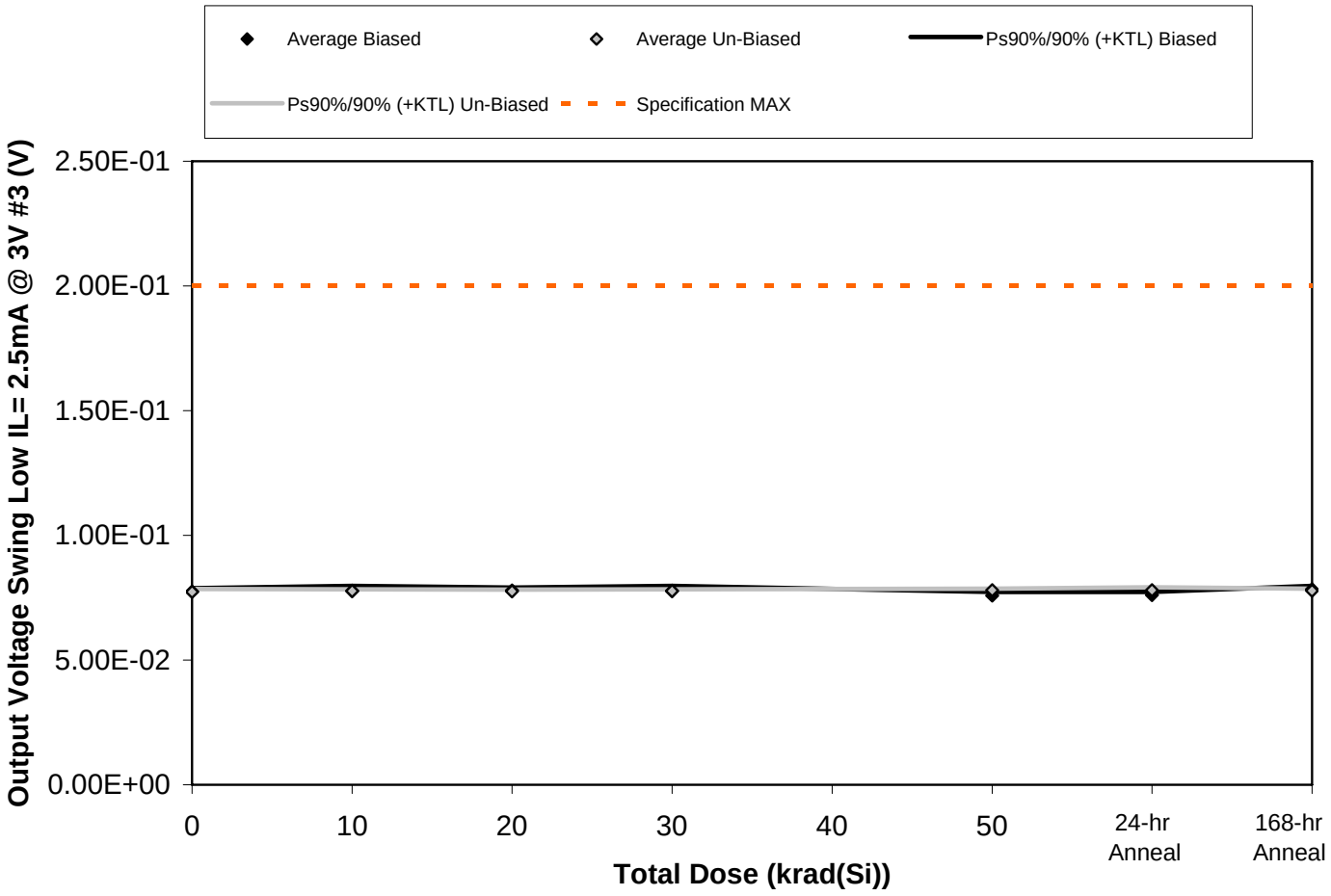

Figure 5.173. Plot of Output Voltage Swing Low IL= 2.5mA @ 3V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.173. Raw data for Output Voltage Swing Low IL= 2.5mA @ 3V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 2.5mA @ 3V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.77E-02	7.86E-02	7.83E-02	7.86E-02	7.63E-02	7.65E-02	7.88E-02
867	7.75E-02	7.77E-02	7.79E-02	7.77E-02	7.63E-02	7.65E-02	7.85E-02
868	7.66E-02	7.69E-02	7.73E-02	7.69E-02	7.51E-02	7.54E-02	7.76E-02
869	7.79E-02	7.81E-02	7.82E-02	7.81E-02	7.62E-02	7.62E-02	7.88E-02
870	7.74E-02	7.70E-02	7.76E-02	7.70E-02	7.56E-02	7.59E-02	7.80E-02
871	7.79E-02	7.76E-02	7.77E-02	7.76E-02	7.82E-02	7.82E-02	7.80E-02
872	7.71E-02	7.77E-02	7.79E-02	7.77E-02	7.81E-02	7.81E-02	7.81E-02
873	7.68E-02	7.73E-02	7.72E-02	7.73E-02	7.77E-02	7.74E-02	7.74E-02
874	7.74E-02	7.79E-02	7.75E-02	7.79E-02	7.82E-02	7.85E-02	7.78E-02
876	7.75E-02	7.77E-02	7.74E-02	7.77E-02	7.80E-02	7.81E-02	7.77E-02
877	7.72E-02	7.72E-02	7.70E-02	7.72E-02	7.72E-02	7.72E-02	7.70E-02
Biased Statistics							
Average Biased	7.74E-02	7.77E-02	7.79E-02	7.77E-02	7.59E-02	7.61E-02	7.83E-02
Std Dev Biased	5.04E-04	7.46E-04	4.18E-04	7.46E-04	5.24E-04	4.45E-04	5.19E-04
Ps90%/90% (+KTL) Biased	7.88E-02	7.97E-02	7.90E-02	7.97E-02	7.73E-02	7.73E-02	7.98E-02
Ps90%/90% (-KTL) Biased	7.60E-02	7.56E-02	7.67E-02	7.56E-02	7.45E-02	7.49E-02	7.69E-02
Un-Biased Statistics							
Average Un-Biased	7.73E-02	7.76E-02	7.75E-02	7.76E-02	7.80E-02	7.81E-02	7.78E-02
Std Dev Un-Biased	4.17E-04	2.52E-04	2.54E-04	2.52E-04	2.05E-04	3.94E-04	2.92E-04
Ps90%/90% (+KTL) Un-Biased	7.84E-02	7.83E-02	7.82E-02	7.83E-02	7.86E-02	7.91E-02	7.86E-02
Ps90%/90% (-KTL) Un-Biased	7.62E-02	7.70E-02	7.68E-02	7.70E-02	7.75E-02	7.70E-02	7.70E-02
Specification MAX	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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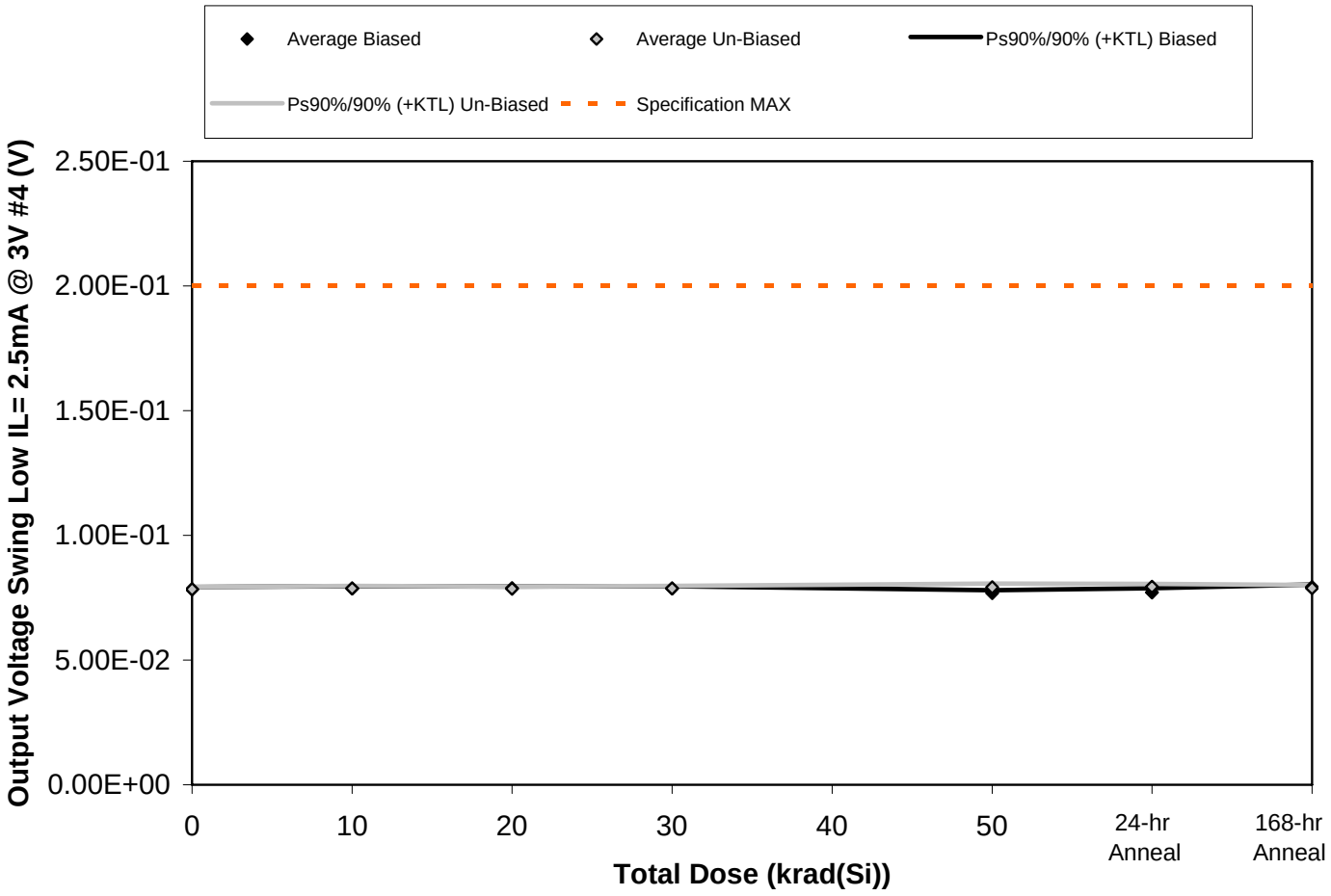

Figure 5.174. Plot of Output Voltage Swing Low IL= 2.5mA @ 3V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.174. Raw data for Output Voltage Swing Low IL= 2.5mA @ 3V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 2.5mA @ 3V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.85E-02	7.91E-02	7.89E-02	7.91E-02	7.69E-02	7.76E-02	7.92E-02
867	7.84E-02	7.88E-02	7.87E-02	7.88E-02	7.71E-02	7.75E-02	7.94E-02
868	7.86E-02	7.88E-02	7.92E-02	7.88E-02	7.75E-02	7.77E-02	7.98E-02
869	7.85E-02	7.86E-02	7.86E-02	7.86E-02	7.67E-02	7.66E-02	7.89E-02
870	7.78E-02	7.83E-02	7.87E-02	7.83E-02	7.63E-02	7.65E-02	7.89E-02
871	7.83E-02	7.88E-02	7.85E-02	7.88E-02	7.91E-02	7.95E-02	7.86E-02
872	7.79E-02	7.83E-02	7.81E-02	7.83E-02	7.83E-02	7.87E-02	7.81E-02
873	7.84E-02	7.84E-02	7.83E-02	7.84E-02	7.90E-02	7.92E-02	7.86E-02
874	7.83E-02	7.88E-02	7.89E-02	7.88E-02	7.95E-02	7.97E-02	7.92E-02
876	7.89E-02	7.92E-02	7.89E-02	7.92E-02	7.98E-02	7.98E-02	7.93E-02
877	7.77E-02	7.76E-02	7.78E-02	7.76E-02	7.79E-02	7.78E-02	7.74E-02
Biased Statistics							
Average Biased	7.83E-02	7.87E-02	7.88E-02	7.87E-02	7.69E-02	7.72E-02	7.92E-02
Std Dev Biased	3.44E-04	3.10E-04	2.45E-04	3.10E-04	4.27E-04	5.94E-04	3.94E-04
Ps90%/90% (+KTL) Biased	7.93E-02	7.96E-02	7.95E-02	7.96E-02	7.81E-02	7.88E-02	8.03E-02
Ps90%/90% (-KTL) Biased	7.74E-02	7.79E-02	7.82E-02	7.79E-02	7.57E-02	7.55E-02	7.81E-02
Un-Biased Statistics							
Average Un-Biased	7.84E-02	7.87E-02	7.85E-02	7.87E-02	7.91E-02	7.94E-02	7.88E-02
Std Dev Un-Biased	3.41E-04	3.64E-04	3.51E-04	3.64E-04	5.41E-04	4.41E-04	4.75E-04
Ps90%/90% (+KTL) Un-Biased	7.93E-02	7.97E-02	7.95E-02	7.97E-02	8.06E-02	8.06E-02	8.01E-02
Ps90%/90% (-KTL) Un-Biased	7.74E-02	7.77E-02	7.76E-02	7.77E-02	7.76E-02	7.82E-02	7.75E-02
Specification MAX	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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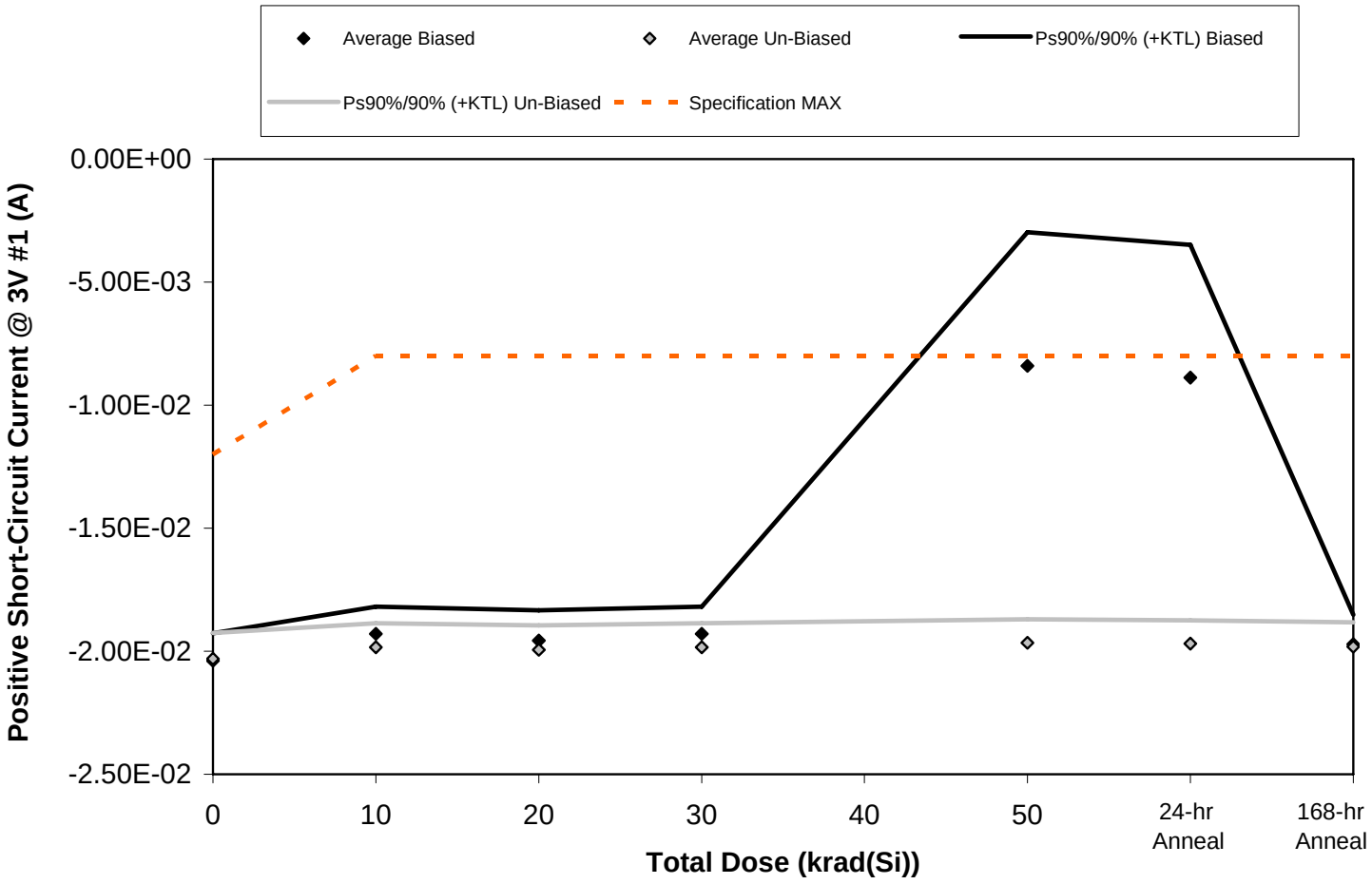

Figure 5.175. Plot of Positive Short-Circuit Current @ 3V #1 (A) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.175. Raw data for Positive Short-Circuit Current @ 3V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ 3V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-1.97E-02	-1.86E-02	-1.88E-02	-1.86E-02	-8.05E-03	-8.49E-03	-1.90E-02
867	-2.06E-02	-1.96E-02	-1.98E-02	-1.96E-02	-1.12E-02	-1.17E-02	-2.00E-02
868	-2.04E-02	-1.94E-02	-1.97E-02	-1.94E-02	-9.48E-03	-1.00E-02	-1.98E-02
869	-2.07E-02	-1.96E-02	-1.99E-02	-1.96E-02	-6.36E-03	-6.87E-03	-2.01E-02
870	-2.05E-02	-1.93E-02	-1.97E-02	-1.93E-02	-6.91E-03	-7.38E-03	-1.98E-02
871	-1.98E-02	-1.93E-02	-1.94E-02	-1.93E-02	-1.91E-02	-1.92E-02	-1.93E-02
872	-2.06E-02	-2.01E-02	-2.03E-02	-2.01E-02	-2.00E-02	-2.00E-02	-2.01E-02
873	-2.04E-02	-2.00E-02	-2.01E-02	-2.00E-02	-1.98E-02	-1.98E-02	-1.99E-02
874	-2.07E-02	-2.01E-02	-2.03E-02	-2.01E-02	-1.99E-02	-2.00E-02	-2.01E-02
876	-2.00E-02	-1.96E-02	-1.97E-02	-1.96E-02	-1.95E-02	-1.95E-02	-1.96E-02
877	-2.01E-02	-2.01E-02	-2.01E-02	-2.01E-02	-2.01E-02	-2.01E-02	-2.01E-02
Biased Statistics							
Average Biased	-2.04E-02	-1.93E-02	-1.96E-02	-1.93E-02	-8.41E-03	-8.88E-03	-1.97E-02
Std Dev Biased	4.07E-04	4.04E-04	4.48E-04	4.04E-04	1.98E-03	1.97E-03	4.36E-04
Ps90%/90% (+KTL) Biased	-1.93E-02	-1.82E-02	-1.83E-02	-1.82E-02	-2.97E-03	-3.49E-03	-1.85E-02
Ps90%/90% (-KTL) Biased	-2.15E-02	-2.04E-02	-2.08E-02	-2.04E-02	-1.38E-02	-1.43E-02	-2.09E-02
Un-Biased Statistics							
Average Un-Biased	-2.03E-02	-1.98E-02	-1.99E-02	-1.98E-02	-1.97E-02	-1.97E-02	-1.98E-02
Std Dev Un-Biased	3.82E-04	3.55E-04	3.60E-04	3.55E-04	3.47E-04	3.43E-04	3.60E-04
Ps90%/90% (+KTL) Un-Biased	-1.93E-02	-1.89E-02	-1.90E-02	-1.89E-02	-1.87E-02	-1.88E-02	-1.88E-02
Ps90%/90% (-KTL) Un-Biased	-2.14E-02	-2.08E-02	-2.09E-02	-2.08E-02	-2.06E-02	-2.06E-02	-2.08E-02
Specification MAX	-1.20E-02	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03
Status	PASS	PASS	PASS	PASS	FAIL	FAIL	PASS

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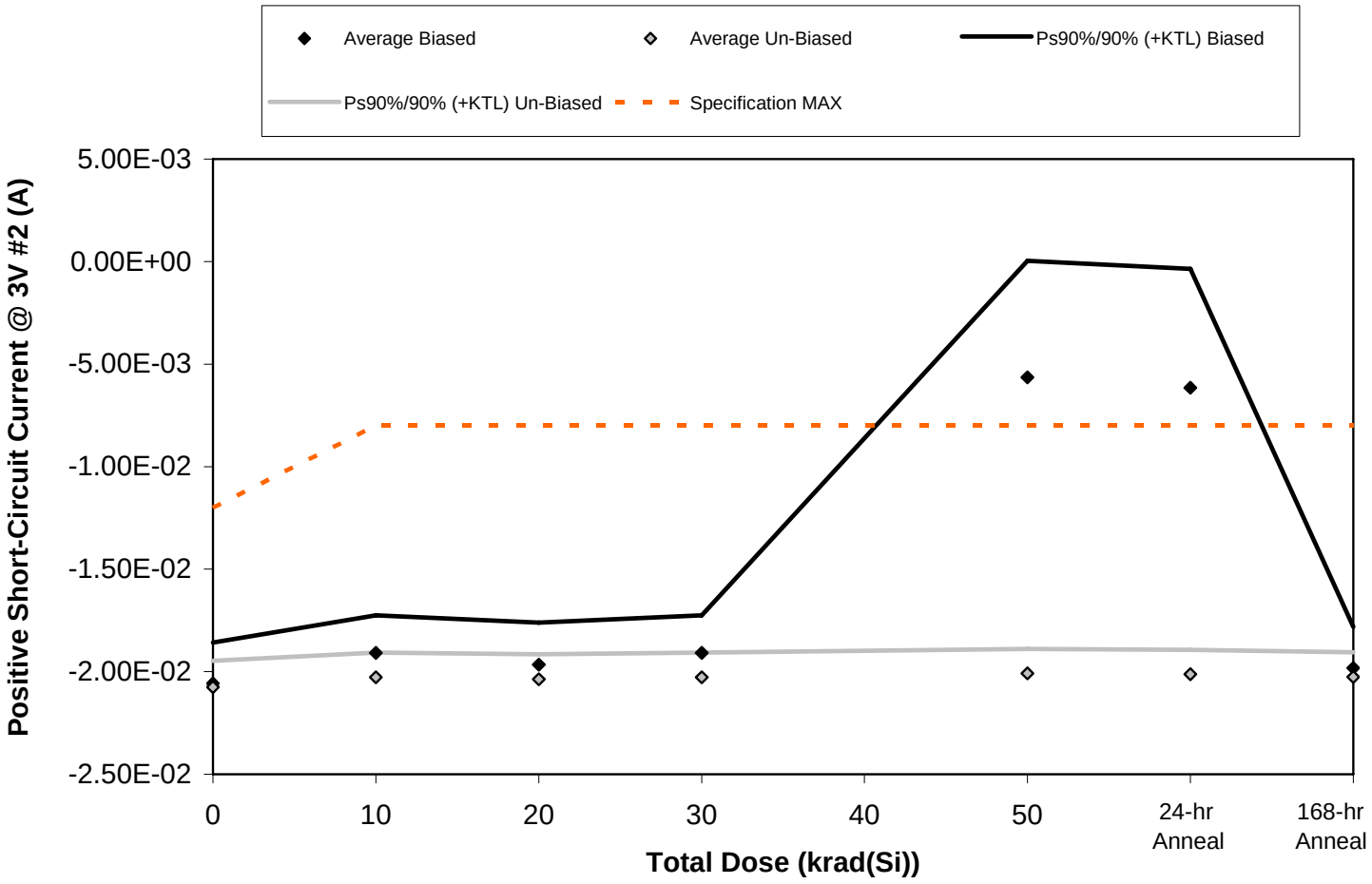

Figure 5.176. Plot of Positive Short-Circuit Current @ 3V #2 (A) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.176. Raw data for Positive Short-Circuit Current @ 3V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ 3V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.03E-02	-1.90E-02	-1.93E-02	-1.90E-02	-4.74E-03	-5.19E-03	-1.95E-02
867	-2.00E-02	-1.85E-02	-1.92E-02	-1.85E-02	-8.12E-03	-8.63E-03	-1.93E-02
868	-2.15E-02	-1.97E-02	-2.07E-02	-1.97E-02	-6.85E-03	-7.47E-03	-2.08E-02
869	-1.99E-02	-1.84E-02	-1.90E-02	-1.84E-02	-2.69E-03	-3.14E-03	-1.91E-02
870	-2.12E-02	-1.98E-02	-2.02E-02	-1.98E-02	-5.83E-03	-6.36E-03	-2.03E-02
871	-2.05E-02	-2.01E-02	-2.02E-02	-2.01E-02	-2.00E-02	-2.00E-02	-2.01E-02
872	-2.04E-02	-1.99E-02	-2.00E-02	-1.99E-02	-1.97E-02	-1.98E-02	-1.99E-02
873	-2.15E-02	-2.10E-02	-2.11E-02	-2.10E-02	-2.08E-02	-2.08E-02	-2.10E-02
874	-2.09E-02	-2.04E-02	-2.05E-02	-2.04E-02	-2.02E-02	-2.02E-02	-2.04E-02
876	-2.04E-02	-2.00E-02	-2.01E-02	-2.00E-02	-1.98E-02	-1.98E-02	-1.99E-02
877	-2.05E-02	-2.05E-02	-2.05E-02	-2.05E-02	-2.05E-02	-2.05E-02	-2.05E-02
Biased Statistics							
Average Biased	-2.06E-02	-1.91E-02	-1.97E-02	-1.91E-02	-5.65E-03	-6.16E-03	-1.98E-02
Std Dev Biased	7.27E-04	6.70E-04	7.48E-04	6.70E-04	2.07E-03	2.12E-03	7.34E-04
Ps90%/90% (+KTL) Biased	-1.86E-02	-1.73E-02	-1.76E-02	-1.73E-02	3.38E-05	-3.55E-04	-1.78E-02
Ps90%/90% (-KTL) Biased	-2.26E-02	-2.09E-02	-2.17E-02	-2.09E-02	-1.13E-02	-1.20E-02	-2.18E-02
Un-Biased Statistics							
Average Un-Biased	-2.07E-02	-2.03E-02	-2.04E-02	-2.03E-02	-2.01E-02	-2.01E-02	-2.03E-02
Std Dev Un-Biased	4.69E-04	4.37E-04	4.45E-04	4.37E-04	4.32E-04	4.35E-04	4.38E-04
Ps90%/90% (+KTL) Un-Biased	-1.95E-02	-1.91E-02	-1.91E-02	-1.91E-02	-1.89E-02	-1.89E-02	-1.91E-02
Ps90%/90% (-KTL) Un-Biased	-2.20E-02	-2.15E-02	-2.16E-02	-2.15E-02	-2.13E-02	-2.13E-02	-2.15E-02
Specification MAX	-1.20E-02	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03
Status	PASS	PASS	PASS	PASS	FAIL	FAIL	PASS

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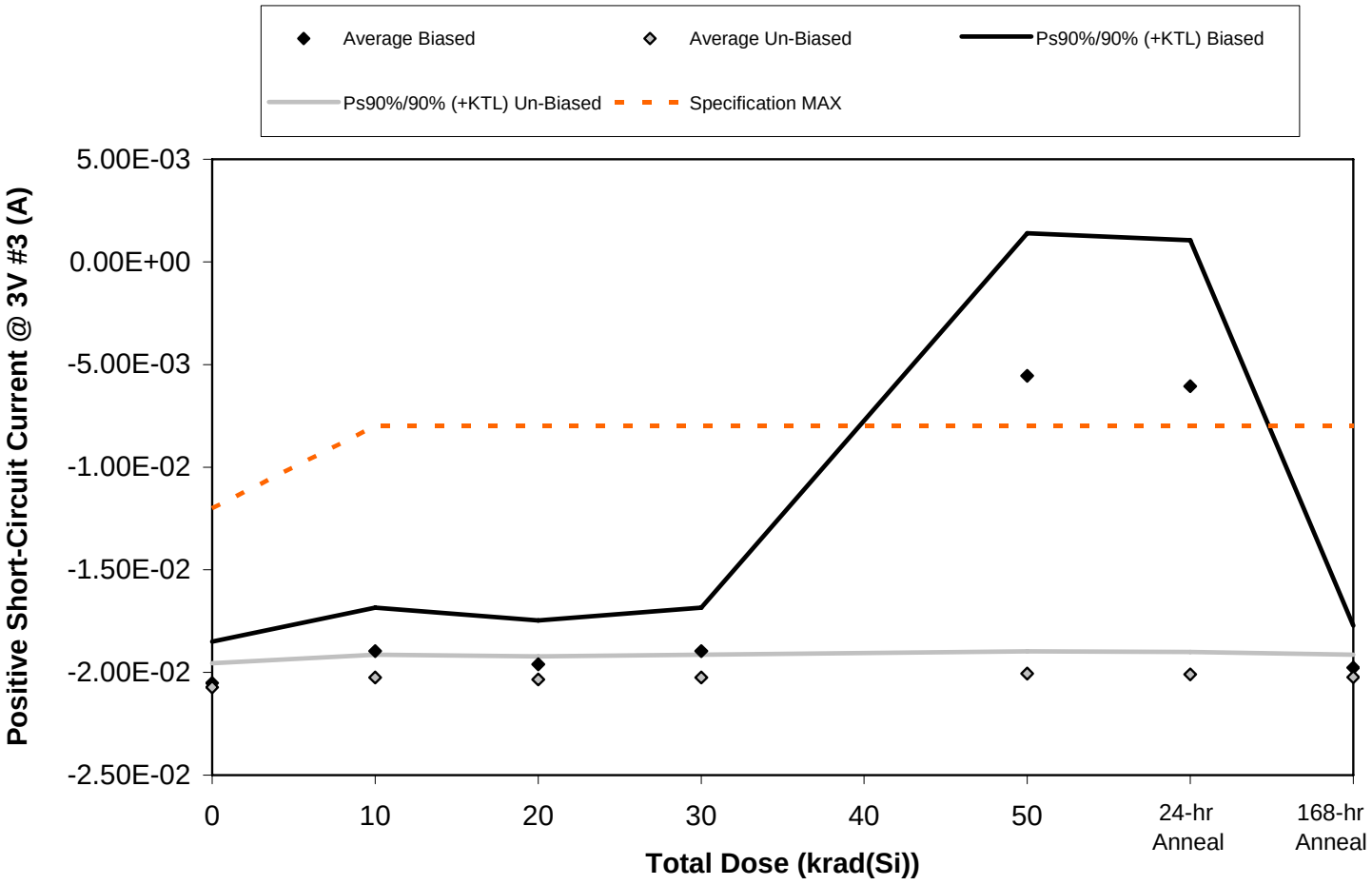

Figure 5.177. Plot of Positive Short-Circuit Current @ 3V #3 (A) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.177. Raw data for Positive Short-Circuit Current @ 3V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ 3V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.03E-02	-1.90E-02	-1.93E-02	-1.90E-02	-4.71E-03	-5.13E-03	-1.95E-02
867	-1.99E-02	-1.84E-02	-1.90E-02	-1.84E-02	-8.35E-03	-8.87E-03	-1.92E-02
868	-2.16E-02	-2.03E-02	-2.08E-02	-2.03E-02	-8.09E-03	-8.73E-03	-2.09E-02
869	-1.99E-02	-1.85E-02	-1.90E-02	-1.85E-02	-2.79E-03	-3.23E-03	-1.91E-02
870	-2.09E-02	-1.87E-02	-1.99E-02	-1.87E-02	-3.82E-03	-4.34E-03	-2.01E-02
871	-2.05E-02	-2.01E-02	-2.02E-02	-2.01E-02	-1.99E-02	-1.99E-02	-2.01E-02
872	-2.05E-02	-2.01E-02	-2.02E-02	-2.01E-02	-1.99E-02	-1.99E-02	-2.01E-02
873	-2.14E-02	-2.09E-02	-2.10E-02	-2.09E-02	-2.07E-02	-2.08E-02	-2.09E-02
874	-2.08E-02	-2.02E-02	-2.03E-02	-2.02E-02	-2.00E-02	-2.01E-02	-2.02E-02
876	-2.04E-02	-1.99E-02	-2.00E-02	-1.99E-02	-1.97E-02	-1.98E-02	-1.99E-02
877	-2.05E-02	-2.05E-02	-2.05E-02	-2.05E-02	-2.05E-02	-2.05E-02	-2.05E-02
Biased Statistics							
Average Biased	-2.05E-02	-1.90E-02	-1.96E-02	-1.90E-02	-5.55E-03	-6.06E-03	-1.98E-02
Std Dev Biased	7.40E-04	7.71E-04	7.73E-04	7.71E-04	2.53E-03	2.59E-03	7.50E-04
Ps90%/90% (+KTL) Biased	-1.85E-02	-1.68E-02	-1.75E-02	-1.68E-02	1.39E-03	1.05E-03	-1.77E-02
Ps90%/90% (-KTL) Biased	-2.25E-02	-2.11E-02	-2.17E-02	-2.11E-02	-1.25E-02	-1.32E-02	-2.18E-02
Un-Biased Statistics							
Average Un-Biased	-2.07E-02	-2.02E-02	-2.03E-02	-2.02E-02	-2.00E-02	-2.01E-02	-2.02E-02
Std Dev Un-Biased	4.27E-04	4.02E-04	4.08E-04	4.02E-04	3.91E-04	3.99E-04	3.99E-04
Ps90%/90% (+KTL) Un-Biased	-1.95E-02	-1.91E-02	-1.92E-02	-1.91E-02	-1.90E-02	-1.90E-02	-1.91E-02
Ps90%/90% (-KTL) Un-Biased	-2.19E-02	-2.13E-02	-2.15E-02	-2.13E-02	-2.11E-02	-2.12E-02	-2.13E-02
Specification MAX	-1.20E-02	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03
Status	PASS	PASS	PASS	PASS	FAIL	FAIL	PASS

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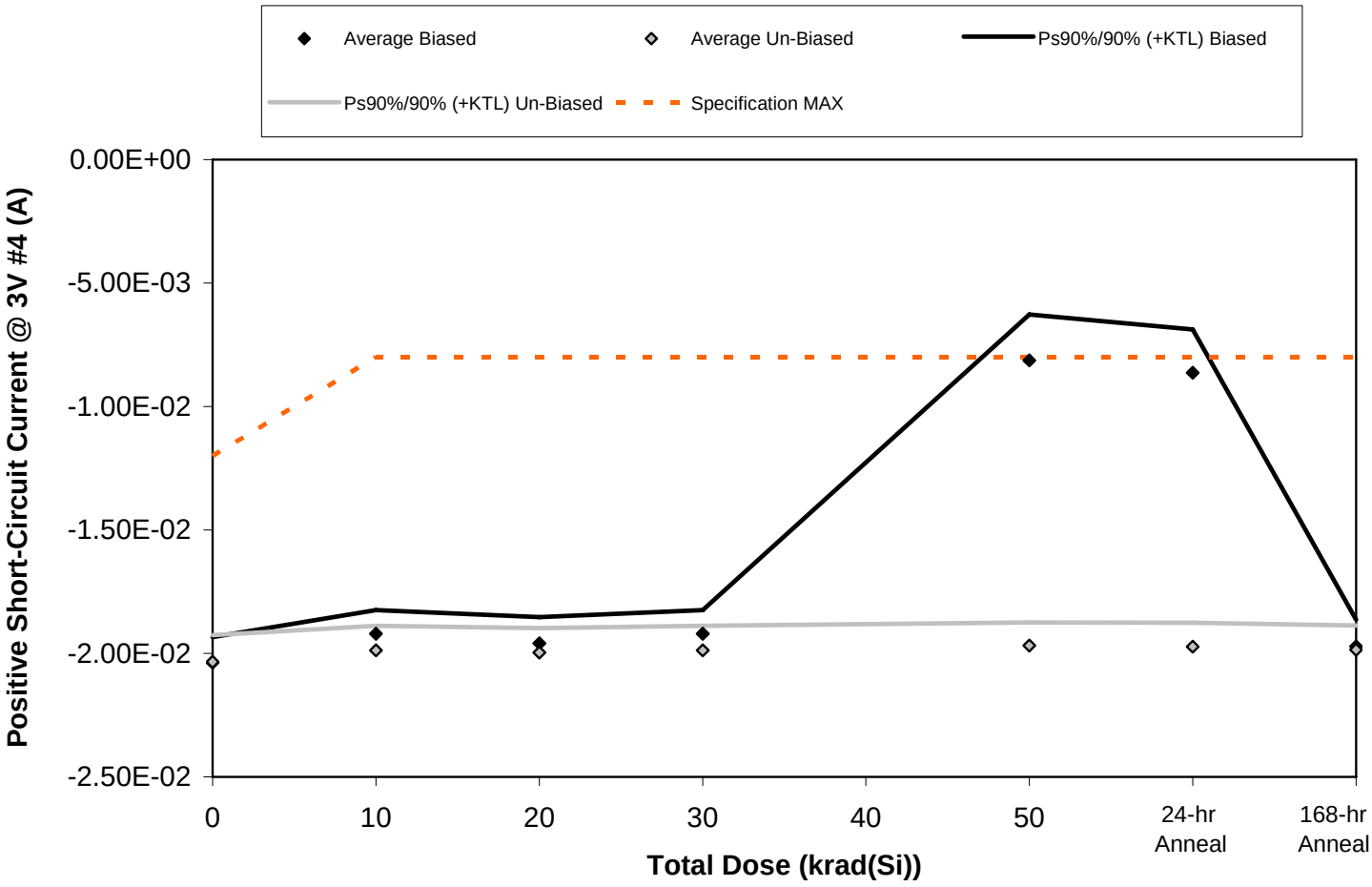

Figure 5.178. Plot of Positive Short-Circuit Current @ 3V #4 (A) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.178. Raw data for Positive Short-Circuit Current @ 3V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ 3V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-1.99E-02	-1.89E-02	-1.91E-02	-1.89E-02	-9.15E-03	-9.60E-03	-1.92E-02
867	-2.07E-02	-1.93E-02	-2.00E-02	-1.93E-02	-8.33E-03	-8.84E-03	-2.01E-02
868	-2.02E-02	-1.89E-02	-1.94E-02	-1.89E-02	-7.65E-03	-8.20E-03	-1.96E-02
869	-2.08E-02	-1.97E-02	-2.00E-02	-1.97E-02	-8.10E-03	-8.59E-03	-2.01E-02
870	-2.04E-02	-1.92E-02	-1.96E-02	-1.92E-02	-7.41E-03	-7.94E-03	-1.97E-02
871	-1.99E-02	-1.94E-02	-1.95E-02	-1.94E-02	-1.92E-02	-1.93E-02	-1.94E-02
872	-2.06E-02	-2.02E-02	-2.03E-02	-2.02E-02	-2.00E-02	-2.00E-02	-2.02E-02
873	-2.03E-02	-1.98E-02	-1.99E-02	-1.98E-02	-1.97E-02	-1.97E-02	-1.98E-02
874	-2.08E-02	-2.03E-02	-2.04E-02	-2.03E-02	-2.01E-02	-2.01E-02	-2.03E-02
876	-2.01E-02	-1.97E-02	-1.98E-02	-1.97E-02	-1.95E-02	-1.95E-02	-1.97E-02
877	-2.01E-02	-2.01E-02	-2.01E-02	-2.01E-02	-2.01E-02	-2.01E-02	-2.01E-02
Biased Statistics							
Average Biased	-2.04E-02	-1.92E-02	-1.96E-02	-1.92E-02	-8.13E-03	-8.63E-03	-1.97E-02
Std Dev Biased	3.80E-04	3.48E-04	3.85E-04	3.48E-04	6.76E-04	6.42E-04	3.95E-04
Ps90%/90% (+KTL) Biased	-1.93E-02	-1.82E-02	-1.85E-02	-1.82E-02	-6.27E-03	-6.87E-03	-1.86E-02
Ps90%/90% (-KTL) Biased	-2.14E-02	-2.02E-02	-2.06E-02	-2.02E-02	-9.98E-03	-1.04E-02	-2.08E-02
Un-Biased Statistics							
Average Un-Biased	-2.03E-02	-1.99E-02	-2.00E-02	-1.99E-02	-1.97E-02	-1.97E-02	-1.99E-02
Std Dev Un-Biased	3.94E-04	3.58E-04	3.62E-04	3.58E-04	3.41E-04	3.52E-04	3.60E-04
Ps90%/90% (+KTL) Un-Biased	-1.93E-02	-1.89E-02	-1.90E-02	-1.89E-02	-1.87E-02	-1.88E-02	-1.89E-02
Ps90%/90% (-KTL) Un-Biased	-2.14E-02	-2.09E-02	-2.10E-02	-2.09E-02	-2.06E-02	-2.07E-02	-2.08E-02
Specification MAX	-1.20E-02	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03
Status	PASS	PASS	PASS	PASS	FAIL	FAIL	PASS

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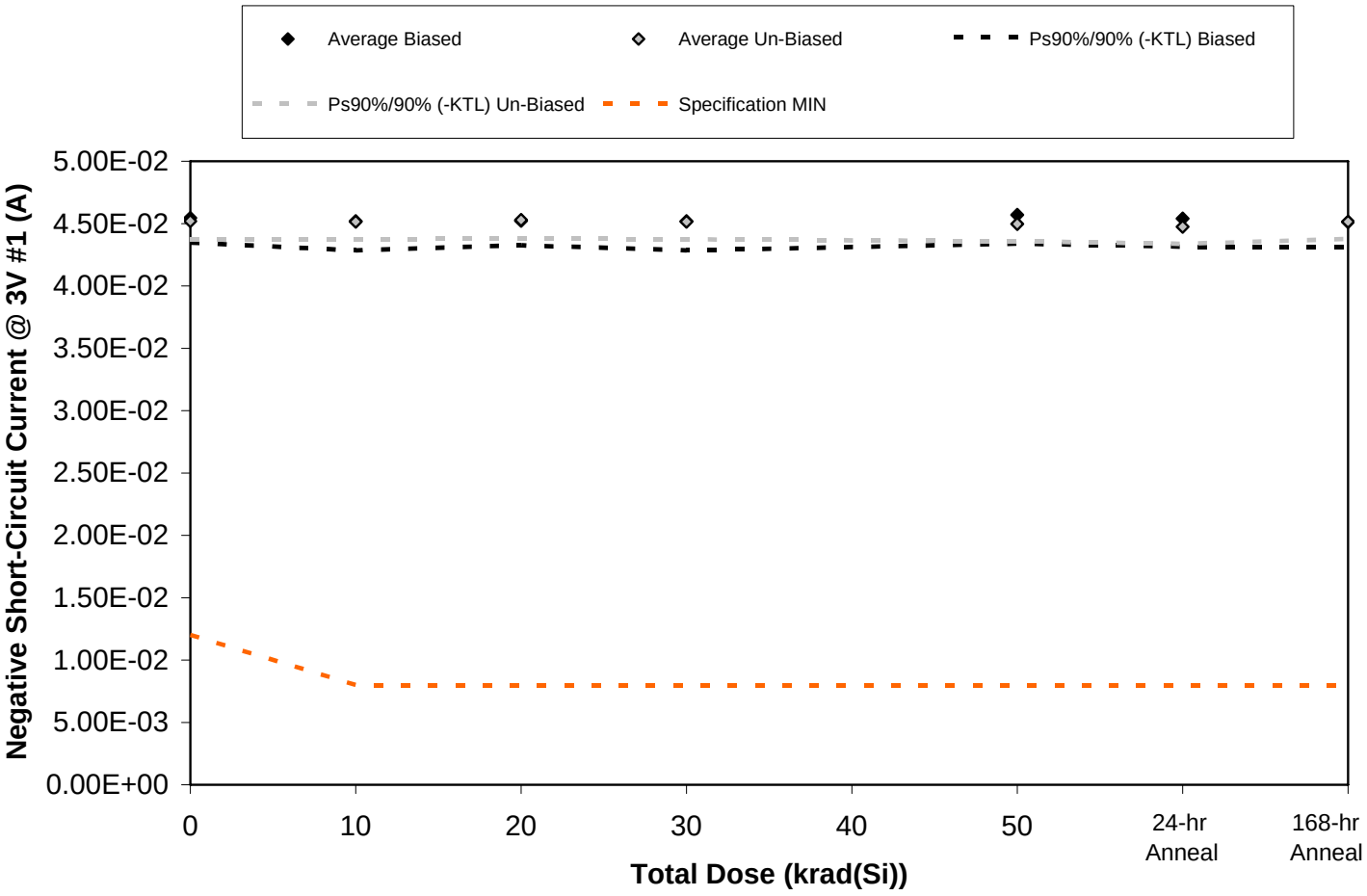

Figure 5.179. Plot of Negative Short-Circuit Current @ 3V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.179. Raw data for Negative Short-Circuit Current @ 3V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ 3V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.43E-02	4.38E-02	4.41E-02	4.38E-02	4.44E-02	4.41E-02	4.40E-02
867	4.55E-02	4.52E-02	4.53E-02	4.52E-02	4.57E-02	4.54E-02	4.52E-02
868	4.55E-02	4.53E-02	4.53E-02	4.53E-02	4.57E-02	4.54E-02	4.52E-02
869	4.63E-02	4.61E-02	4.60E-02	4.61E-02	4.67E-02	4.64E-02	4.60E-02
870	4.57E-02	4.55E-02	4.55E-02	4.55E-02	4.60E-02	4.57E-02	4.54E-02
871	4.45E-02	4.45E-02	4.46E-02	4.45E-02	4.43E-02	4.41E-02	4.45E-02
872	4.57E-02	4.56E-02	4.57E-02	4.56E-02	4.54E-02	4.52E-02	4.56E-02
873	4.51E-02	4.51E-02	4.52E-02	4.51E-02	4.49E-02	4.47E-02	4.51E-02
874	4.58E-02	4.57E-02	4.59E-02	4.57E-02	4.55E-02	4.53E-02	4.57E-02
876	4.49E-02	4.49E-02	4.51E-02	4.49E-02	4.47E-02	4.45E-02	4.49E-02
877	4.48E-02	4.50E-02	4.51E-02	4.50E-02	4.49E-02	4.48E-02	4.51E-02
Biased Statistics							
Average Biased	4.54E-02	4.52E-02	4.52E-02	4.52E-02	4.57E-02	4.54E-02	4.51E-02
Std Dev Biased	7.19E-04	8.54E-04	7.18E-04	8.54E-04	8.39E-04	8.18E-04	7.28E-04
Ps90%/90% (+KTL) Biased	4.74E-02	4.75E-02	4.72E-02	4.75E-02	4.80E-02	4.76E-02	4.71E-02
Ps90%/90% (-KTL) Biased	4.35E-02	4.28E-02	4.33E-02	4.28E-02	4.34E-02	4.31E-02	4.31E-02
Un-Biased Statistics							
Average Un-Biased	4.52E-02	4.51E-02	4.53E-02	4.51E-02	4.50E-02	4.47E-02	4.51E-02
Std Dev Un-Biased	5.32E-04	5.14E-04	5.25E-04	5.14E-04	5.04E-04	4.98E-04	5.04E-04
Ps90%/90% (+KTL) Un-Biased	4.66E-02	4.66E-02	4.67E-02	4.66E-02	4.63E-02	4.61E-02	4.65E-02
Ps90%/90% (-KTL) Un-Biased	4.37E-02	4.37E-02	4.38E-02	4.37E-02	4.36E-02	4.34E-02	4.38E-02
Specification MIN	1.20E-02	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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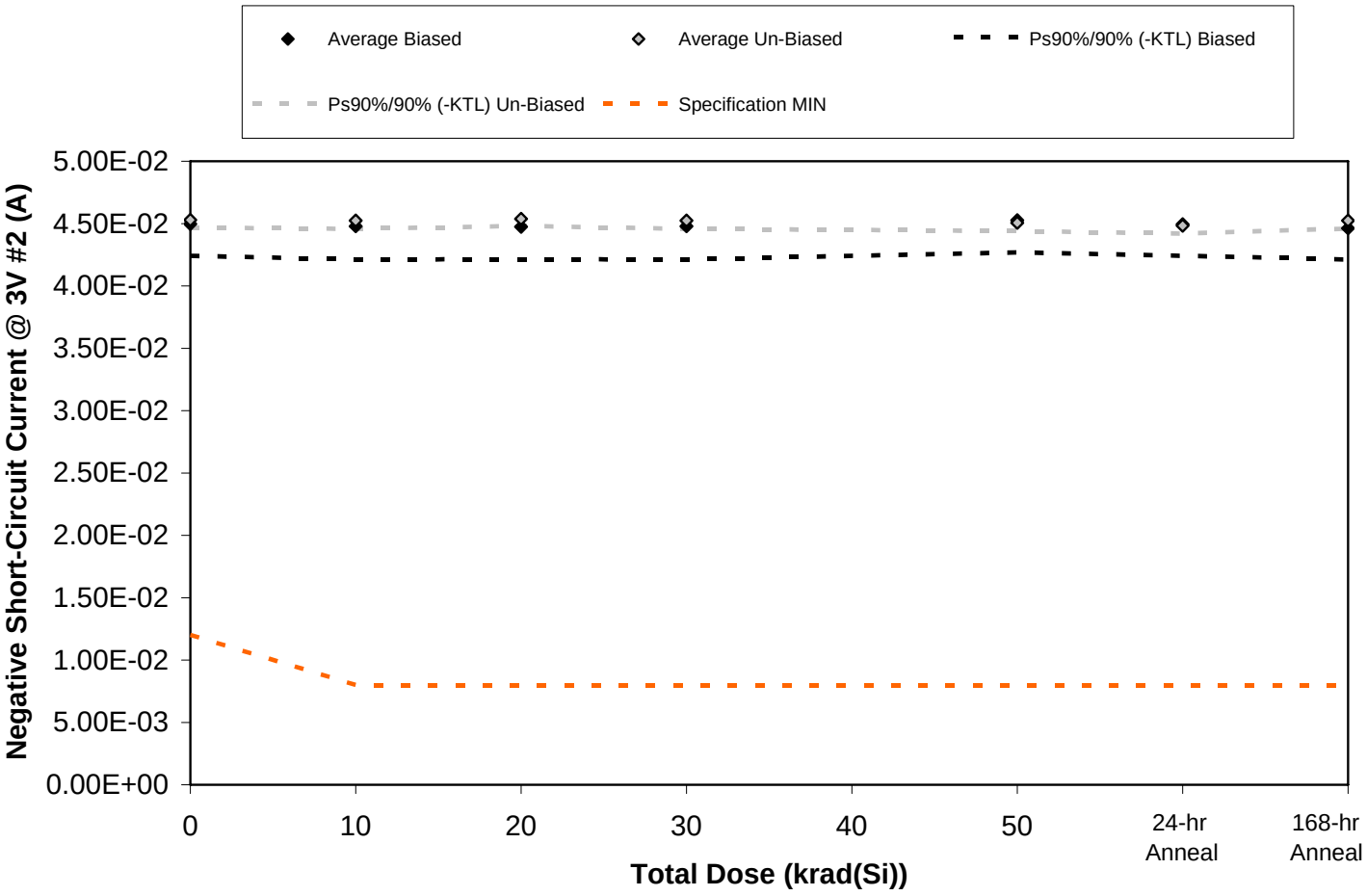

Figure 5.180. Plot of Negative Short-Circuit Current @ 3V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.180. Raw data for Negative Short-Circuit Current @ 3V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ 3V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.48E-02	4.45E-02	4.46E-02	4.45E-02	4.50E-02	4.47E-02	4.45E-02
867	4.43E-02	4.42E-02	4.41E-02	4.42E-02	4.45E-02	4.42E-02	4.40E-02
868	4.65E-02	4.65E-02	4.63E-02	4.65E-02	4.68E-02	4.65E-02	4.62E-02
869	4.42E-02	4.41E-02	4.39E-02	4.41E-02	4.47E-02	4.43E-02	4.39E-02
870	4.49E-02	4.48E-02	4.47E-02	4.48E-02	4.53E-02	4.50E-02	4.46E-02
871	4.55E-02	4.55E-02	4.56E-02	4.55E-02	4.53E-02	4.51E-02	4.55E-02
872	4.53E-02	4.52E-02	4.53E-02	4.52E-02	4.50E-02	4.48E-02	4.52E-02
873	4.54E-02	4.54E-02	4.55E-02	4.54E-02	4.52E-02	4.50E-02	4.54E-02
874	4.53E-02	4.53E-02	4.54E-02	4.53E-02	4.51E-02	4.48E-02	4.53E-02
876	4.49E-02	4.49E-02	4.51E-02	4.49E-02	4.47E-02	4.45E-02	4.49E-02
877	4.52E-02	4.54E-02	4.55E-02	4.54E-02	4.53E-02	4.51E-02	4.54E-02
Biased Statistics							
Average Biased	4.50E-02	4.48E-02	4.47E-02	4.48E-02	4.53E-02	4.50E-02	4.46E-02
Std Dev Biased	9.27E-04	9.72E-04	9.47E-04	9.72E-04	9.37E-04	9.27E-04	9.18E-04
Ps90%/90% (+KTL) Biased	4.75E-02	4.75E-02	4.73E-02	4.75E-02	4.78E-02	4.75E-02	4.71E-02
Ps90%/90% (-KTL) Biased	4.24E-02	4.21E-02	4.21E-02	4.21E-02	4.27E-02	4.24E-02	4.21E-02
Un-Biased Statistics							
Average Un-Biased	4.53E-02	4.52E-02	4.54E-02	4.52E-02	4.51E-02	4.48E-02	4.53E-02
Std Dev Un-Biased	2.23E-04	2.45E-04	2.09E-04	2.45E-04	2.40E-04	2.32E-04	2.34E-04
Ps90%/90% (+KTL) Un-Biased	4.59E-02	4.59E-02	4.60E-02	4.59E-02	4.57E-02	4.55E-02	4.59E-02
Ps90%/90% (-KTL) Un-Biased	4.47E-02	4.46E-02	4.48E-02	4.46E-02	4.44E-02	4.42E-02	4.46E-02
Specification MIN	1.20E-02	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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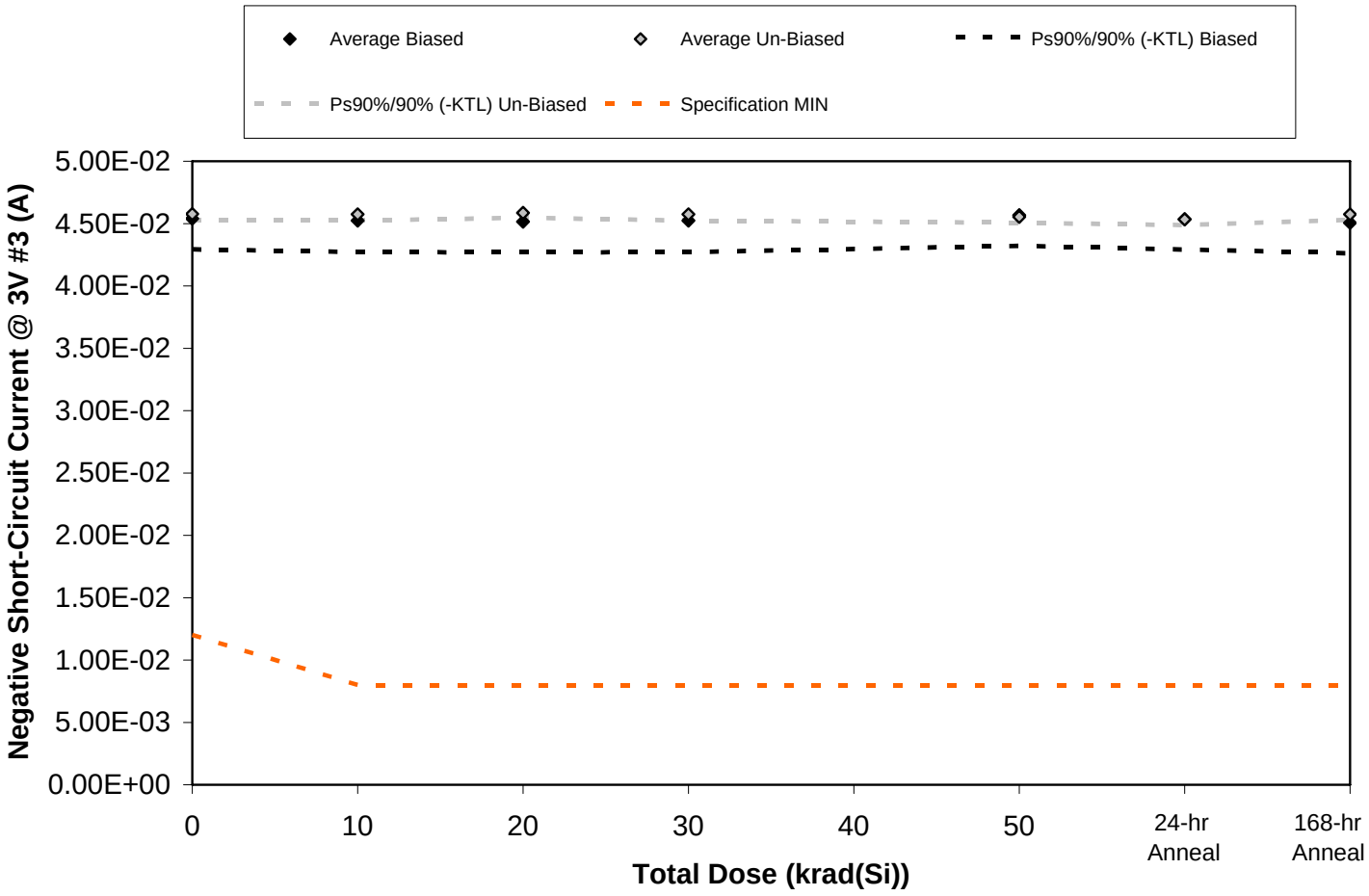

Figure 5.181. Plot of Negative Short-Circuit Current @ 3V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.181. Raw data for Negative Short-Circuit Current @ 3V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ 3V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.53E-02	4.49E-02	4.51E-02	4.49E-02	4.55E-02	4.52E-02	4.50E-02
867	4.47E-02	4.45E-02	4.44E-02	4.45E-02	4.48E-02	4.45E-02	4.44E-02
868	4.69E-02	4.68E-02	4.66E-02	4.68E-02	4.71E-02	4.68E-02	4.65E-02
869	4.47E-02	4.46E-02	4.45E-02	4.46E-02	4.52E-02	4.48E-02	4.44E-02
870	4.54E-02	4.53E-02	4.52E-02	4.53E-02	4.58E-02	4.55E-02	4.51E-02
871	4.58E-02	4.58E-02	4.59E-02	4.58E-02	4.57E-02	4.54E-02	4.59E-02
872	4.59E-02	4.58E-02	4.59E-02	4.58E-02	4.56E-02	4.54E-02	4.58E-02
873	4.59E-02	4.58E-02	4.59E-02	4.58E-02	4.56E-02	4.54E-02	4.58E-02
874	4.58E-02	4.58E-02	4.59E-02	4.58E-02	4.55E-02	4.53E-02	4.57E-02
876	4.55E-02	4.54E-02	4.56E-02	4.54E-02	4.52E-02	4.50E-02	4.55E-02
877	4.57E-02	4.59E-02	4.60E-02	4.59E-02	4.58E-02	4.56E-02	4.59E-02
Biased Statistics							
Average Biased	4.54E-02	4.52E-02	4.52E-02	4.52E-02	4.57E-02	4.54E-02	4.51E-02
Std Dev Biased	8.91E-04	9.15E-04	9.00E-04	9.15E-04	8.96E-04	8.90E-04	8.84E-04
Ps90%/90% (+KTL) Biased	4.78E-02	4.77E-02	4.76E-02	4.77E-02	4.81E-02	4.78E-02	4.75E-02
Ps90%/90% (-KTL) Biased	4.29E-02	4.27E-02	4.27E-02	4.27E-02	4.32E-02	4.29E-02	4.26E-02
Un-Biased Statistics							
Average Un-Biased	4.58E-02	4.57E-02	4.59E-02	4.57E-02	4.55E-02	4.53E-02	4.57E-02
Std Dev Un-Biased	1.74E-04	1.78E-04	1.45E-04	1.78E-04	1.72E-04	1.65E-04	1.58E-04
Ps90%/90% (+KTL) Un-Biased	4.62E-02	4.62E-02	4.63E-02	4.62E-02	4.60E-02	4.58E-02	4.62E-02
Ps90%/90% (-KTL) Un-Biased	4.53E-02	4.52E-02	4.55E-02	4.52E-02	4.51E-02	4.49E-02	4.53E-02
Specification MIN	1.20E-02	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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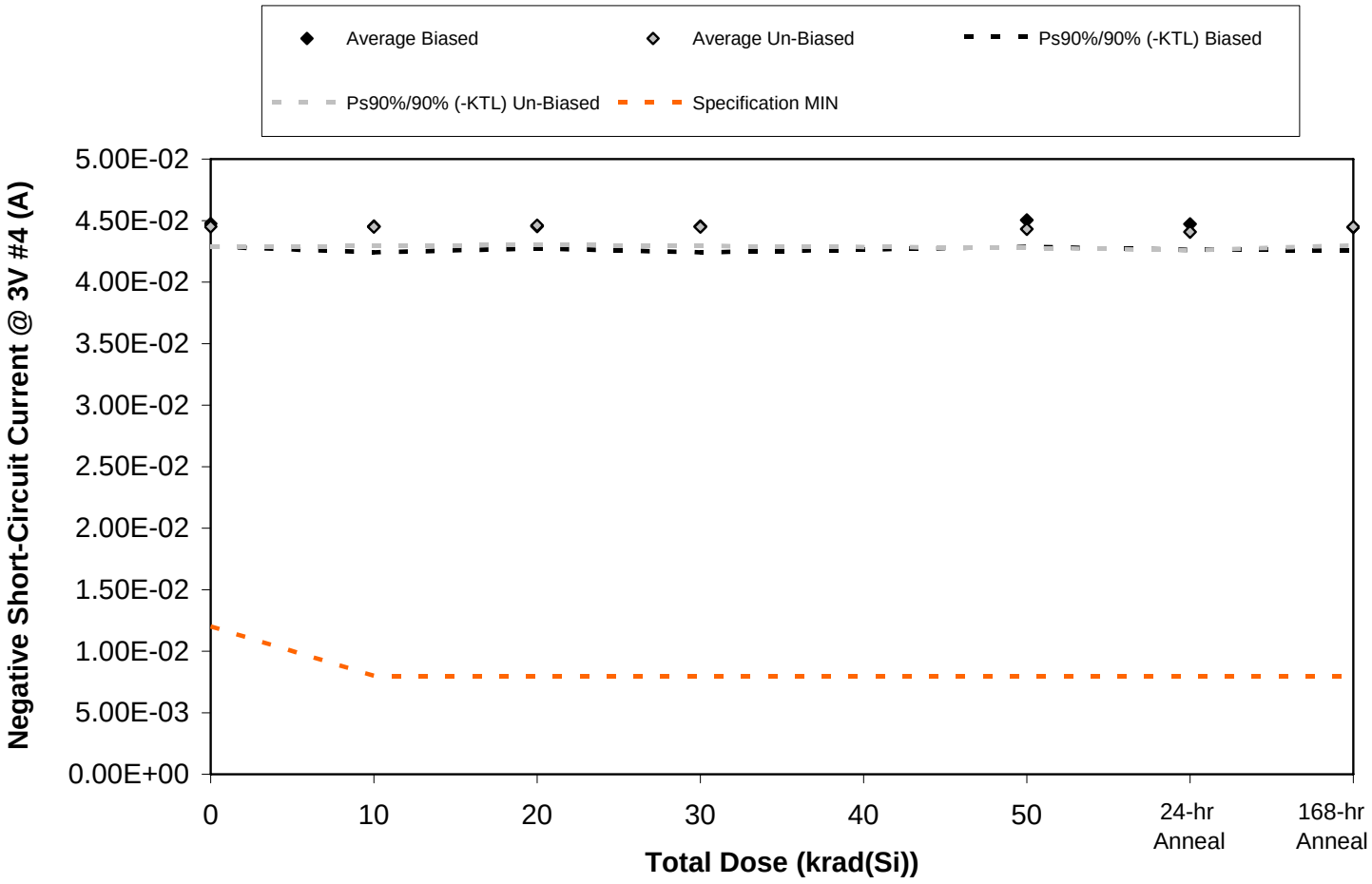

Figure 5.182. Plot of Negative Short-Circuit Current @ 3V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.182. Raw data for Negative Short-Circuit Current @ 3V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ 3V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.36E-02	4.32E-02	4.34E-02	4.32E-02	4.37E-02	4.34E-02	4.33E-02
867	4.49E-02	4.48E-02	4.47E-02	4.48E-02	4.52E-02	4.48E-02	4.46E-02
868	4.49E-02	4.48E-02	4.47E-02	4.48E-02	4.52E-02	4.49E-02	4.46E-02
869	4.54E-02	4.51E-02	4.51E-02	4.51E-02	4.58E-02	4.54E-02	4.51E-02
870	4.49E-02	4.48E-02	4.48E-02	4.48E-02	4.53E-02	4.50E-02	4.47E-02
871	4.39E-02	4.39E-02	4.39E-02	4.39E-02	4.36E-02	4.35E-02	4.39E-02
872	4.50E-02	4.50E-02	4.51E-02	4.50E-02	4.48E-02	4.46E-02	4.50E-02
873	4.44E-02	4.44E-02	4.45E-02	4.44E-02	4.43E-02	4.40E-02	4.44E-02
874	4.52E-02	4.51E-02	4.53E-02	4.51E-02	4.49E-02	4.47E-02	4.51E-02
876	4.41E-02	4.40E-02	4.42E-02	4.40E-02	4.39E-02	4.37E-02	4.41E-02
877	4.41E-02	4.43E-02	4.45E-02	4.43E-02	4.42E-02	4.41E-02	4.44E-02
Biased Statistics							
Average Biased	4.47E-02	4.45E-02	4.45E-02	4.45E-02	4.50E-02	4.47E-02	4.44E-02
Std Dev Biased	6.71E-04	7.71E-04	6.60E-04	7.71E-04	7.85E-04	7.60E-04	6.78E-04
Ps90%/90% (+KTL) Biased	4.66E-02	4.66E-02	4.63E-02	4.66E-02	4.72E-02	4.68E-02	4.63E-02
Ps90%/90% (-KTL) Biased	4.29E-02	4.24E-02	4.27E-02	4.24E-02	4.29E-02	4.26E-02	4.26E-02
Un-Biased Statistics							
Average Un-Biased	4.45E-02	4.45E-02	4.46E-02	4.45E-02	4.43E-02	4.41E-02	4.45E-02
Std Dev Un-Biased	5.87E-04	5.61E-04	5.74E-04	5.61E-04	5.50E-04	5.50E-04	5.46E-04
Ps90%/90% (+KTL) Un-Biased	4.61E-02	4.60E-02	4.62E-02	4.60E-02	4.58E-02	4.56E-02	4.60E-02
Ps90%/90% (-KTL) Un-Biased	4.29E-02	4.29E-02	4.30E-02	4.29E-02	4.28E-02	4.26E-02	4.30E-02
Specification MIN	1.20E-02	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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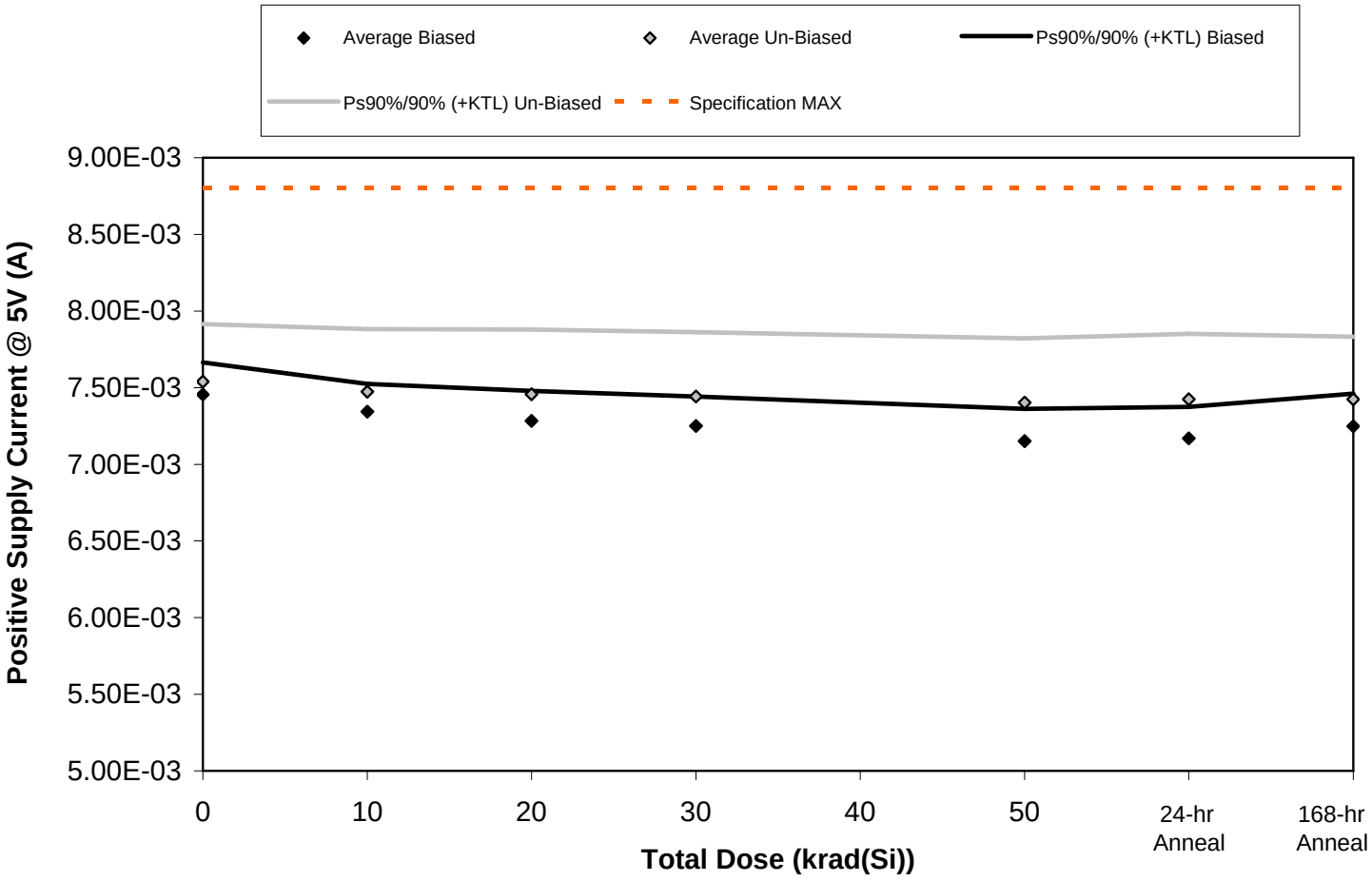

Figure 5.183. Plot of Positive Supply Current @ 5V (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.183. Raw data for Positive Supply Current @ 5V (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Supply Current @ 5V (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.40E-03	7.31E-03	7.24E-03	7.20E-03	7.09E-03	7.11E-03	7.19E-03
867	7.55E-03	7.42E-03	7.37E-03	7.33E-03	7.24E-03	7.26E-03	7.34E-03
868	7.49E-03	7.38E-03	7.33E-03	7.30E-03	7.21E-03	7.22E-03	7.30E-03
869	7.36E-03	7.25E-03	7.19E-03	7.16E-03	7.06E-03	7.08E-03	7.15E-03
870	7.48E-03	7.36E-03	7.29E-03	7.26E-03	7.16E-03	7.18E-03	7.26E-03
871	7.49E-03	7.45E-03	7.43E-03	7.42E-03	7.38E-03	7.40E-03	7.40E-03
872	7.57E-03	7.48E-03	7.46E-03	7.45E-03	7.41E-03	7.43E-03	7.43E-03
873	7.68E-03	7.63E-03	7.62E-03	7.60E-03	7.56E-03	7.59E-03	7.58E-03
874	7.33E-03	7.24E-03	7.22E-03	7.20E-03	7.16E-03	7.18E-03	7.19E-03
876	7.63E-03	7.57E-03	7.56E-03	7.54E-03	7.50E-03	7.52E-03	7.52E-03
877	7.62E-03	7.60E-03	7.60E-03	7.61E-03	7.61E-03	7.61E-03	7.61E-03
Biased Statistics							
Average Biased	7.46E-03	7.34E-03	7.28E-03	7.25E-03	7.15E-03	7.17E-03	7.25E-03
Std Dev Biased	7.57E-05	6.58E-05	7.13E-05	7.00E-05	7.66E-05	7.48E-05	7.79E-05
Ps90%/90% (+KTL) Biased	7.66E-03	7.52E-03	7.48E-03	7.44E-03	7.36E-03	7.38E-03	7.46E-03
Ps90%/90% (-KTL) Biased	7.25E-03	7.16E-03	7.09E-03	7.06E-03	6.94E-03	6.96E-03	7.03E-03
Un-Biased Statistics							
Average Un-Biased	7.54E-03	7.47E-03	7.46E-03	7.44E-03	7.40E-03	7.42E-03	7.42E-03
Std Dev Un-Biased	1.37E-04	1.49E-04	1.53E-04	1.53E-04	1.53E-04	1.56E-04	1.49E-04
Ps90%/90% (+KTL) Un-Biased	7.92E-03	7.88E-03	7.88E-03	7.86E-03	7.82E-03	7.85E-03	7.83E-03
Ps90%/90% (-KTL) Un-Biased	7.16E-03	7.07E-03	7.04E-03	7.02E-03	6.98E-03	7.00E-03	7.02E-03
Specification MAX	8.80E-03	8.80E-03	8.80E-03	8.80E-03	8.80E-03	8.80E-03	8.80E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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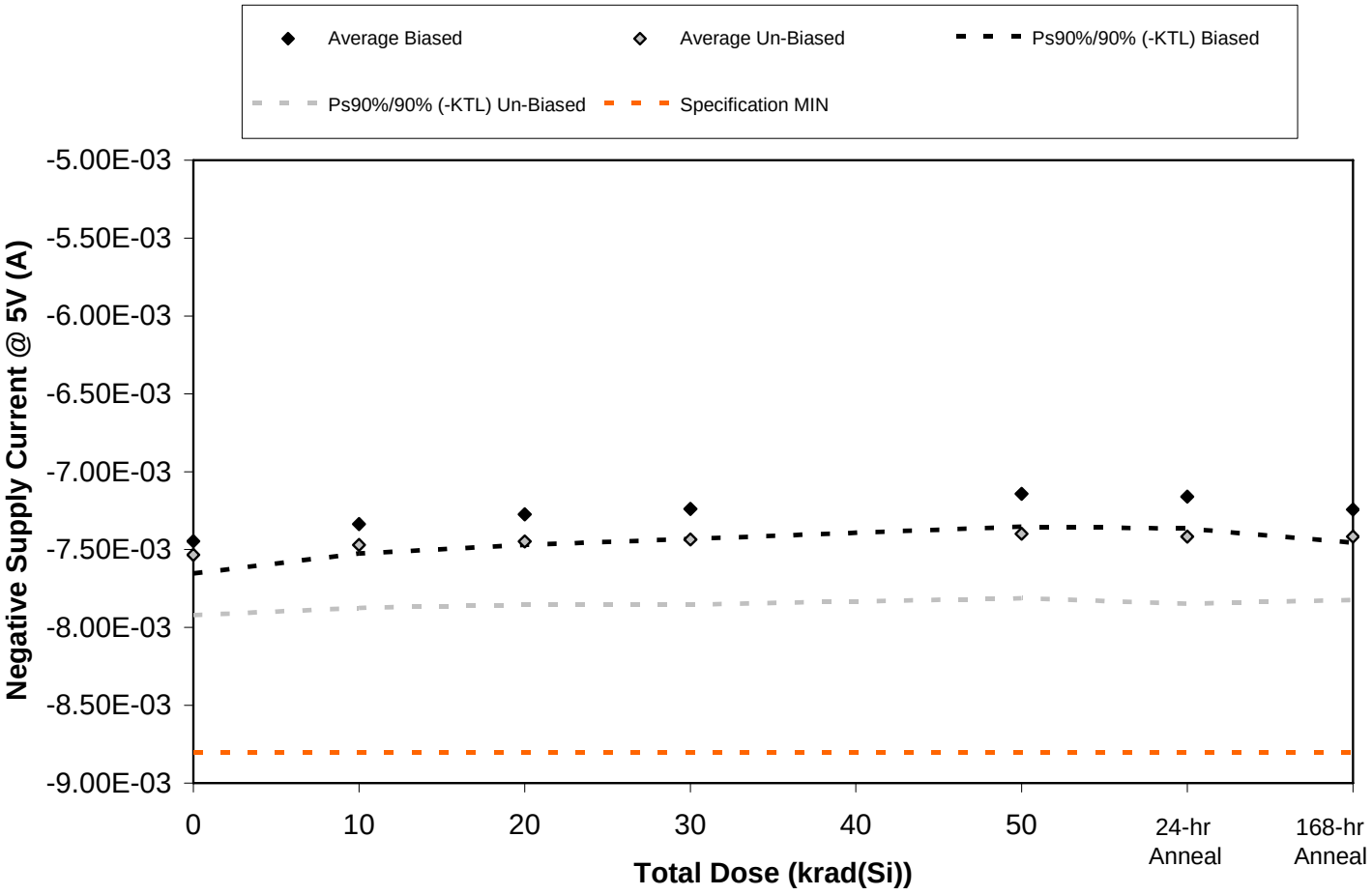

Figure 5.184. Plot of Negative Supply Current @ 5V (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.184. Raw data for Negative Supply Current @ 5V (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Supply Current @ 5V (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-7.39E-03	-7.30E-03	-7.23E-03	-7.19E-03	-7.08E-03	-7.10E-03	-7.18E-03
867	-7.54E-03	-7.42E-03	-7.36E-03	-7.32E-03	-7.23E-03	-7.25E-03	-7.34E-03
868	-7.48E-03	-7.37E-03	-7.32E-03	-7.29E-03	-7.20E-03	-7.21E-03	-7.29E-03
869	-7.35E-03	-7.24E-03	-7.18E-03	-7.15E-03	-7.05E-03	-7.07E-03	-7.15E-03
870	-7.47E-03	-7.35E-03	-7.28E-03	-7.25E-03	-7.15E-03	-7.17E-03	-7.25E-03
871	-7.48E-03	-7.45E-03	-7.42E-03	-7.41E-03	-7.38E-03	-7.39E-03	-7.40E-03
872	-7.56E-03	-7.47E-03	-7.45E-03	-7.44E-03	-7.40E-03	-7.42E-03	-7.42E-03
873	-7.68E-03	-7.63E-03	-7.61E-03	-7.60E-03	-7.56E-03	-7.58E-03	-7.57E-03
874	-7.32E-03	-7.24E-03	-7.22E-03	-7.20E-03	-7.16E-03	-7.17E-03	-7.18E-03
876	-7.63E-03	-7.56E-03	-7.54E-03	-7.53E-03	-7.49E-03	-7.52E-03	-7.51E-03
877	-7.61E-03	-7.59E-03	-7.59E-03	-7.60E-03	-7.61E-03	-7.60E-03	-7.60E-03
Biased Statistics							
Average Biased	-7.45E-03	-7.34E-03	-7.27E-03	-7.24E-03	-7.14E-03	-7.16E-03	-7.24E-03
Std Dev Biased	7.57E-05	6.88E-05	7.13E-05	7.00E-05	7.66E-05	7.48E-05	7.79E-05
Ps90%/90% (+KTL) Biased	-7.24E-03	-7.15E-03	-7.08E-03	-7.05E-03	-6.93E-03	-6.95E-03	-7.03E-03
Ps90%/90% (-KTL) Biased	-7.65E-03	-7.52E-03	-7.47E-03	-7.43E-03	-7.35E-03	-7.37E-03	-7.46E-03
Un-Biased Statistics							
Average Un-Biased	-7.53E-03	-7.47E-03	-7.45E-03	-7.44E-03	-7.40E-03	-7.42E-03	-7.42E-03
Std Dev Un-Biased	1.41E-04	1.47E-04	1.48E-04	1.52E-04	1.51E-04	1.57E-04	1.49E-04
Ps90%/90% (+KTL) Un-Biased	-7.15E-03	-7.07E-03	-7.04E-03	-7.02E-03	-6.98E-03	-6.98E-03	-7.01E-03
Ps90%/90% (-KTL) Un-Biased	-7.92E-03	-7.87E-03	-7.85E-03	-7.85E-03	-7.81E-03	-7.85E-03	-7.82E-03
Specification MIN	-8.80E-03	-8.80E-03	-8.80E-03	-8.80E-03	-8.80E-03	-8.80E-03	-8.80E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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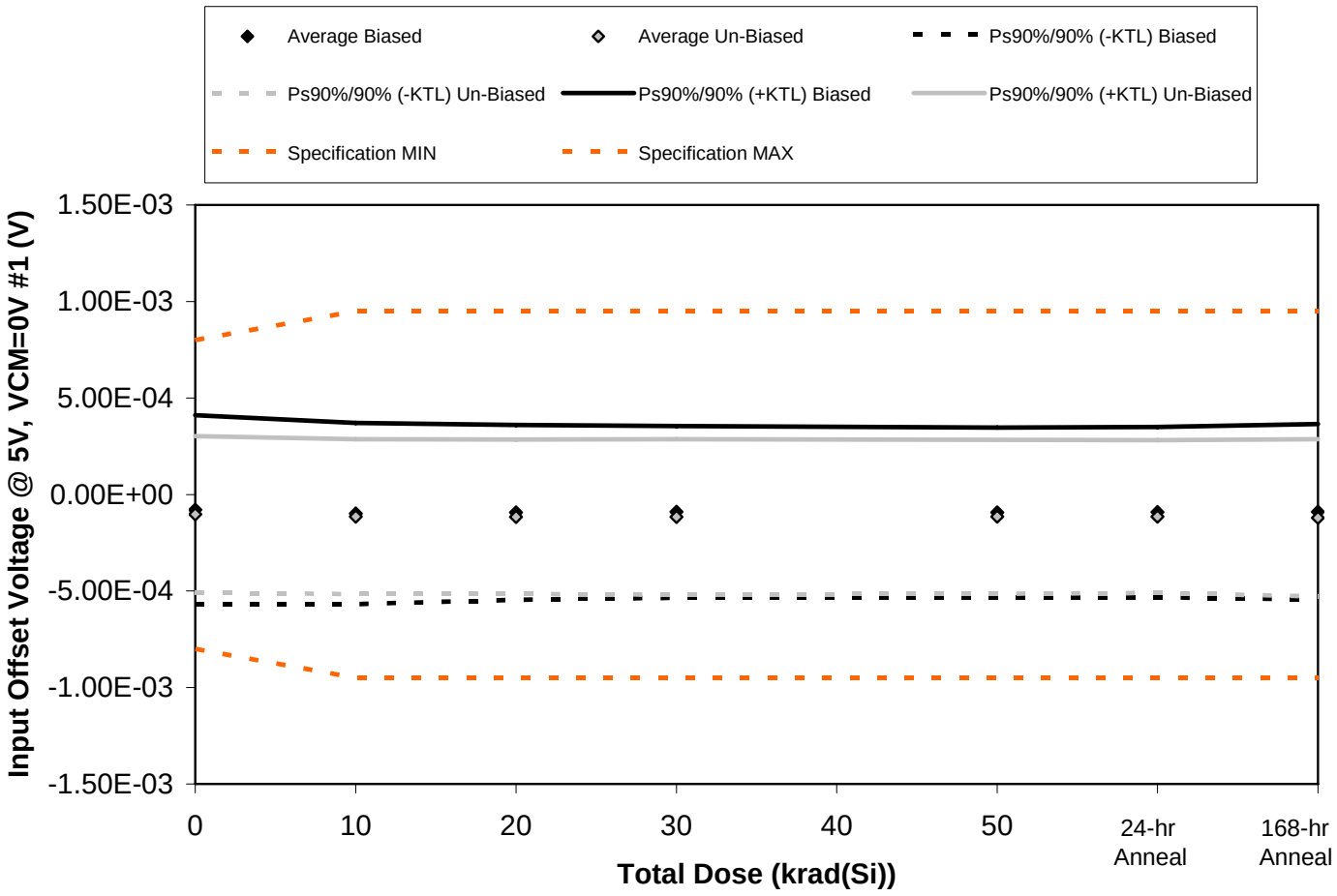

Figure 5.185. Plot of Input Offset Voltage @ 5V, VCM=0V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.185. Raw data for Input Offset Voltage @ 5V, VCM=0V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 5V, VCM=0V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.28E-04	-3.28E-04	-3.12E-04	-3.05E-04	-3.04E-04	-3.04E-04	-3.10E-04
867	1.27E-04	9.69E-05	8.97E-05	8.65E-05	7.76E-05	7.88E-05	8.39E-05
868	-1.43E-04	-1.68E-04	-1.64E-04	-1.66E-04	-1.70E-04	-1.71E-04	-1.72E-04
869	5.65E-05	4.35E-05	5.27E-05	5.50E-05	5.66E-05	5.90E-05	6.36E-05
870	-1.11E-04	-1.36E-04	-1.31E-04	-1.21E-04	-1.21E-04	-1.18E-04	-1.12E-04
871	-1.16E-04	-1.25E-04	-1.24E-04	-1.26E-04	-1.25E-04	-1.26E-04	-1.29E-04
872	-3.39E-04	-3.49E-04	-3.51E-04	-3.52E-04	-3.49E-04	-3.46E-04	-3.57E-04
873	6.21E-05	4.86E-05	4.41E-05	4.58E-05	4.47E-05	4.57E-05	4.64E-05
874	-3.96E-05	-5.38E-05	-5.31E-05	-5.52E-05	-5.54E-05	-5.43E-05	-6.10E-05
876	-8.45E-05	-9.66E-05	-9.48E-05	-9.30E-05	-9.18E-05	-9.06E-05	-1.02E-04
877	-3.01E-04	-3.04E-04	-3.05E-04	-3.03E-04	-3.04E-04	-3.04E-04	-3.05E-04
Biased Statistics							
Average Biased	-7.95E-05	-9.84E-05	-9.30E-05	-9.02E-05	-9.22E-05	-9.10E-05	-8.95E-05
Std Dev Biased	1.79E-04	1.71E-04	1.65E-04	1.62E-04	1.60E-04	1.61E-04	1.66E-04
Ps90%/90% (+KTL) Biased	4.11E-04	3.71E-04	3.60E-04	3.54E-04	3.47E-04	3.51E-04	3.65E-04
Ps90%/90% (-KTL) Biased	-5.70E-04	-5.68E-04	-5.46E-04	-5.35E-04	-5.32E-04	-5.33E-04	-5.44E-04
Un-Biased Statistics							
Average Un-Biased	-1.03E-04	-1.15E-04	-1.16E-04	-1.16E-04	-1.15E-04	-1.14E-04	-1.21E-04
Std Dev Un-Biased	1.48E-04	1.46E-04	1.46E-04	1.47E-04	1.45E-04	1.45E-04	1.48E-04
Ps90%/90% (+KTL) Un-Biased	3.02E-04	2.86E-04	2.84E-04	2.86E-04	2.83E-04	2.82E-04	2.86E-04
Ps90%/90% (-KTL) Un-Biased	-5.09E-04	-5.16E-04	-5.16E-04	-5.18E-04	-5.14E-04	-5.11E-04	-5.27E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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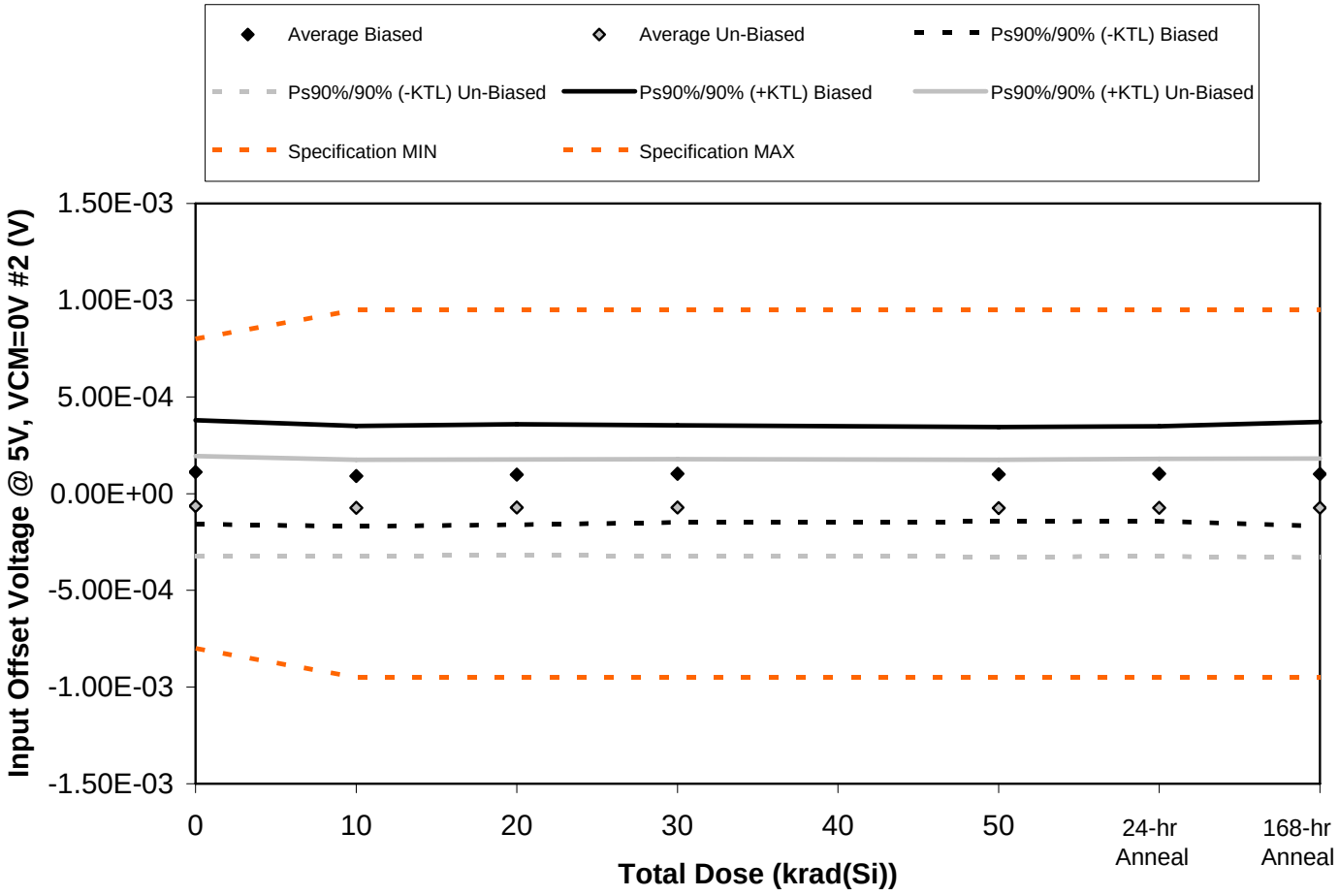

Figure 5.186. Plot of Input Offset Voltage @ 5V, VCM=0V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.186. Raw data for Input Offset Voltage @ 5V, VCM=0V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 5V, VCM=0V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.41E-04	2.23E-04	2.38E-04	2.36E-04	2.33E-04	2.35E-04	2.41E-04
867	3.27E-05	1.27E-05	2.06E-05	2.21E-05	2.28E-05	2.41E-05	4.07E-05
868	1.04E-04	8.91E-05	9.29E-05	9.65E-05	9.57E-05	9.71E-05	6.58E-05
869	5.11E-06	-9.51E-06	5.59E-06	1.51E-05	1.68E-05	1.88E-05	-1.90E-06
870	1.73E-04	1.39E-04	1.37E-04	1.43E-04	1.34E-04	1.41E-04	1.61E-04
871	4.88E-05	3.52E-05	3.64E-05	3.68E-05	3.40E-05	3.74E-05	3.83E-05
872	4.27E-06	-2.87E-06	4.00E-08	-8.10E-07	-2.50E-06	-5.70E-07	-7.57E-06
873	-1.19E-04	-1.28E-04	-1.27E-04	-1.26E-04	-1.29E-04	-1.27E-04	-1.23E-04
874	-1.87E-04	-1.88E-04	-1.86E-04	-1.87E-04	-1.90E-04	-1.89E-04	-1.98E-04
876	-6.64E-05	-8.50E-05	-8.33E-05	-8.41E-05	-8.86E-05	-8.38E-05	-7.84E-05
877	-1.88E-04	-1.91E-04	-1.90E-04	-1.90E-04	-1.89E-04	-1.92E-04	-1.89E-04
Biased Statistics							
Average Biased	1.11E-04	9.08E-05	9.90E-05	1.03E-04	1.00E-04	1.03E-04	1.01E-04
Std Dev Biased	9.78E-05	9.47E-05	9.47E-05	9.16E-05	8.90E-05	8.96E-05	9.82E-05
Ps90%/90% (+KTL) Biased	3.80E-04	3.50E-04	3.59E-04	3.54E-04	3.45E-04	3.49E-04	3.70E-04
Ps90%/90% (-KTL) Biased	-1.57E-04	-1.69E-04	-1.61E-04	-1.49E-04	-1.44E-04	-1.43E-04	-1.68E-04
Un-Biased Statistics							
Average Un-Biased	-6.39E-05	-7.36E-05	-7.19E-05	-7.23E-05	-7.53E-05	-7.27E-05	-7.36E-05
Std Dev Un-Biased	9.43E-05	9.07E-05	9.09E-05	9.12E-05	9.15E-05	9.22E-05	9.32E-05
Ps90%/90% (+KTL) Un-Biased	1.95E-04	1.75E-04	1.77E-04	1.78E-04	1.76E-04	1.80E-04	1.82E-04
Ps90%/90% (-KTL) Un-Biased	-3.22E-04	-3.22E-04	-3.21E-04	-3.22E-04	-3.26E-04	-3.25E-04	-3.29E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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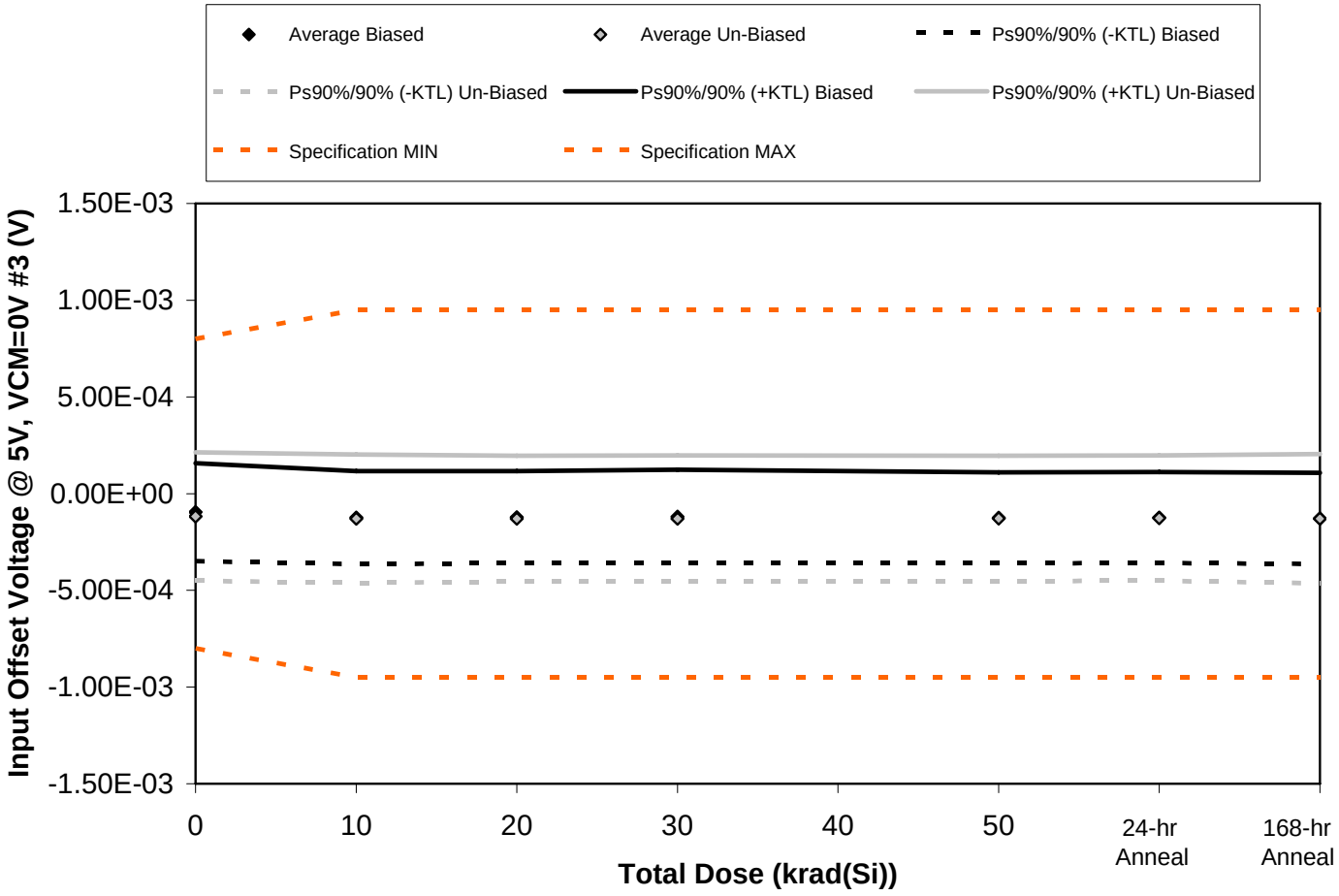

Figure 5.187. Plot of Input Offset Voltage @ 5V, VCM=0V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.187. Raw data for Input Offset Voltage @ 5V, VCM=0V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 5V, VCM=0V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-5.07E-05	-7.78E-05	-7.80E-05	-8.10E-05	-9.36E-05	-9.19E-05	-1.06E-04
867	-1.97E-04	-2.32E-04	-2.35E-04	-2.36E-04	-2.48E-04	-2.47E-04	-2.31E-04
868	-1.92E-04	-2.05E-04	-1.94E-04	-1.87E-04	-1.78E-04	-1.75E-04	-2.05E-04
869	-5.39E-06	-4.88E-05	-4.73E-05	-4.42E-05	-5.19E-05	-5.12E-05	-4.56E-05
870	-3.05E-05	-5.59E-05	-5.50E-05	-4.37E-05	-5.19E-05	-5.07E-05	-5.25E-05
871	-2.16E-05	-3.44E-05	-3.78E-05	-3.89E-05	-4.03E-05	-3.85E-05	-2.00E-05
872	-2.48E-05	-3.54E-05	-3.84E-05	-3.72E-05	-3.66E-05	-3.55E-05	-4.92E-05
873	-1.77E-04	-1.88E-04	-1.86E-04	-1.84E-04	-1.83E-04	-1.83E-04	-1.86E-04
874	-3.04E-04	-3.15E-04	-3.13E-04	-3.12E-04	-3.11E-04	-3.09E-04	-3.17E-04
876	-6.39E-05	-7.49E-05	-7.29E-05	-7.15E-05	-6.88E-05	-6.76E-05	-7.61E-05
877	-2.30E-04	-2.31E-04	-2.30E-04	-2.31E-04	-2.27E-04	-2.32E-04	-2.32E-04
Biased Statistics							
Average Biased	-9.52E-05	-1.24E-04	-1.22E-04	-1.18E-04	-1.25E-04	-1.23E-04	-1.28E-04
Std Dev Biased	9.22E-05	8.77E-05	8.66E-05	8.82E-05	8.59E-05	8.57E-05	8.59E-05
Ps90%/90% (+KTL) Biased	1.58E-04	1.17E-04	1.15E-04	1.23E-04	1.11E-04	1.12E-04	1.08E-04
Ps90%/90% (-KTL) Biased	-3.48E-04	-3.65E-04	-3.59E-04	-3.60E-04	-3.60E-04	-3.58E-04	-3.63E-04
Un-Biased Statistics							
Average Un-Biased	-1.18E-04	-1.29E-04	-1.30E-04	-1.29E-04	-1.28E-04	-1.27E-04	-1.30E-04
Std Dev Un-Biased	1.21E-04	1.21E-04	1.19E-04	1.19E-04	1.18E-04	1.18E-04	1.22E-04
Ps90%/90% (+KTL) Un-Biased	2.14E-04	2.02E-04	1.97E-04	1.97E-04	1.97E-04	1.98E-04	2.05E-04
Ps90%/90% (-KTL) Un-Biased	-4.51E-04	-4.61E-04	-4.56E-04	-4.55E-04	-4.52E-04	-4.51E-04	-4.65E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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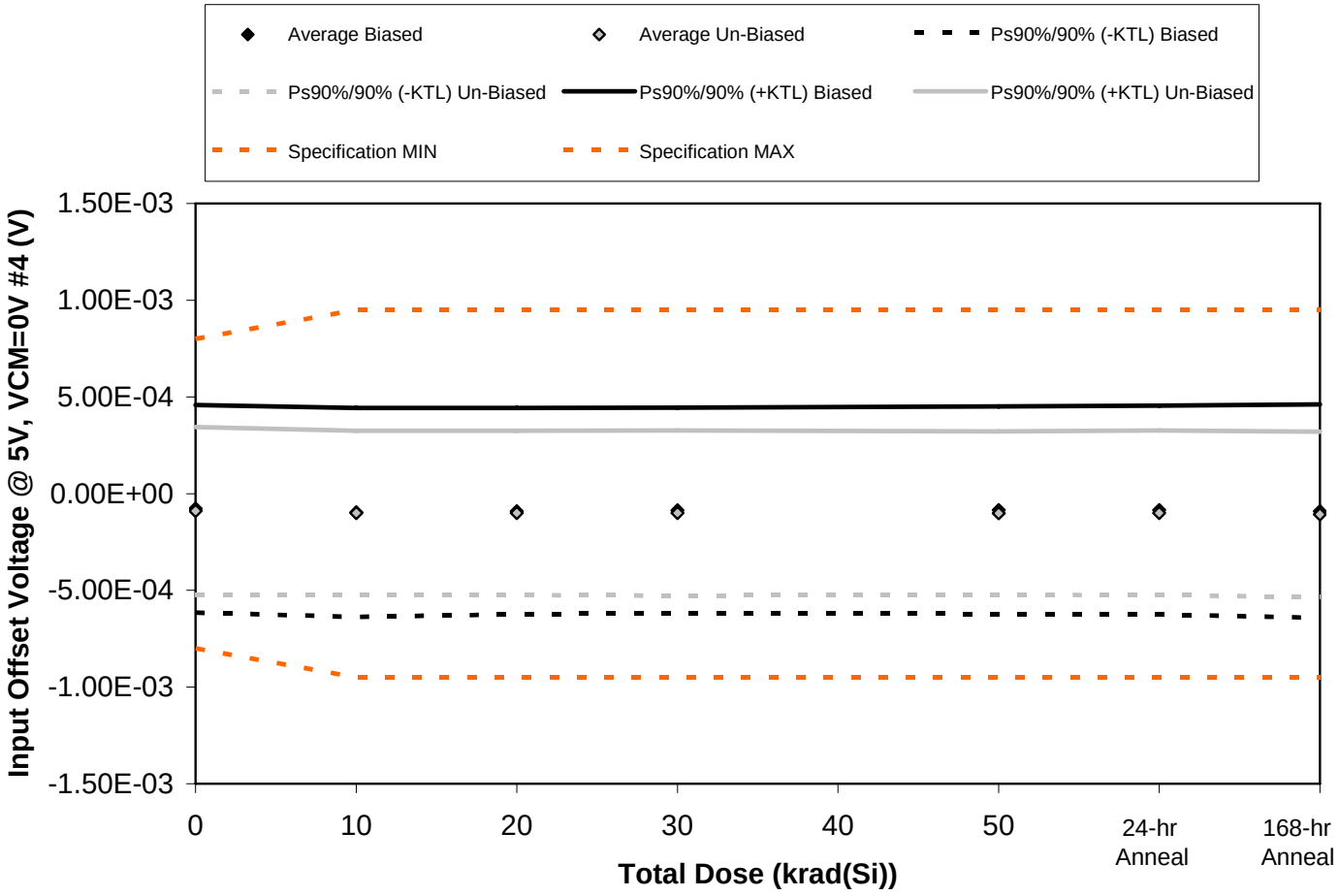

Figure 5.188. Plot of Input Offset Voltage @ 5V, VCM=0V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.188. Raw data for Input Offset Voltage @ 5V, VCM=0V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 5V, VCM=0V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-8.33E-05	-9.61E-05	-8.49E-05	-7.97E-05	-7.15E-05	-7.08E-05	-7.99E-05
867	1.85E-04	1.67E-04	1.67E-04	1.68E-04	1.68E-04	1.71E-04	1.67E-04
868	-3.42E-04	-3.64E-04	-3.57E-04	-3.55E-04	-3.60E-04	-3.61E-04	-3.74E-04
869	8.98E-06	-1.16E-05	-5.88E-06	-2.26E-06	4.00E-08	6.40E-07	4.75E-06
870	-1.59E-04	-1.80E-04	-1.73E-04	-1.65E-04	-1.65E-04	-1.64E-04	-1.69E-04
871	-2.53E-05	-3.39E-05	-3.45E-05	-3.50E-05	-3.70E-05	-3.57E-05	-3.43E-05
872	-1.94E-04	-1.98E-04	-1.96E-04	-1.96E-04	-1.96E-04	-1.95E-04	-2.14E-04
873	-2.92E-04	-3.02E-04	-3.02E-04	-3.04E-04	-3.01E-04	-3.02E-04	-3.09E-04
874	1.19E-04	1.01E-04	1.02E-04	1.02E-04	1.01E-04	1.04E-04	8.83E-05
876	-5.65E-05	-6.69E-05	-6.71E-05	-6.91E-05	-7.09E-05	-6.98E-05	-6.68E-05
877	-5.50E-05	-5.69E-05	-5.85E-05	-5.60E-05	-5.63E-05	-5.72E-05	-5.79E-05
Biased Statistics							
Average Biased	-7.82E-05	-9.70E-05	-9.07E-05	-8.69E-05	-8.57E-05	-8.47E-05	-9.03E-05
Std Dev Biased	1.96E-04	1.97E-04	1.94E-04	1.94E-04	1.96E-04	1.97E-04	2.01E-04
Ps90%/90% (+KTL) Biased	4.58E-04	4.44E-04	4.43E-04	4.44E-04	4.51E-04	4.56E-04	4.61E-04
Ps90%/90% (-KTL) Biased	-6.15E-04	-6.38E-04	-6.24E-04	-6.18E-04	-6.22E-04	-6.25E-04	-6.42E-04
Un-Biased Statistics							
Average Un-Biased	-8.98E-05	-1.00E-04	-9.96E-05	-1.00E-04	-1.01E-04	-9.96E-05	-1.07E-04
Std Dev Un-Biased	1.58E-04	1.55E-04	1.55E-04	1.56E-04	1.54E-04	1.55E-04	1.56E-04
Ps90%/90% (+KTL) Un-Biased	3.45E-04	3.25E-04	3.25E-04	3.26E-04	3.22E-04	3.26E-04	3.21E-04
Ps90%/90% (-KTL) Un-Biased	-5.24E-04	-5.26E-04	-5.25E-04	-5.27E-04	-5.23E-04	-5.25E-04	-5.35E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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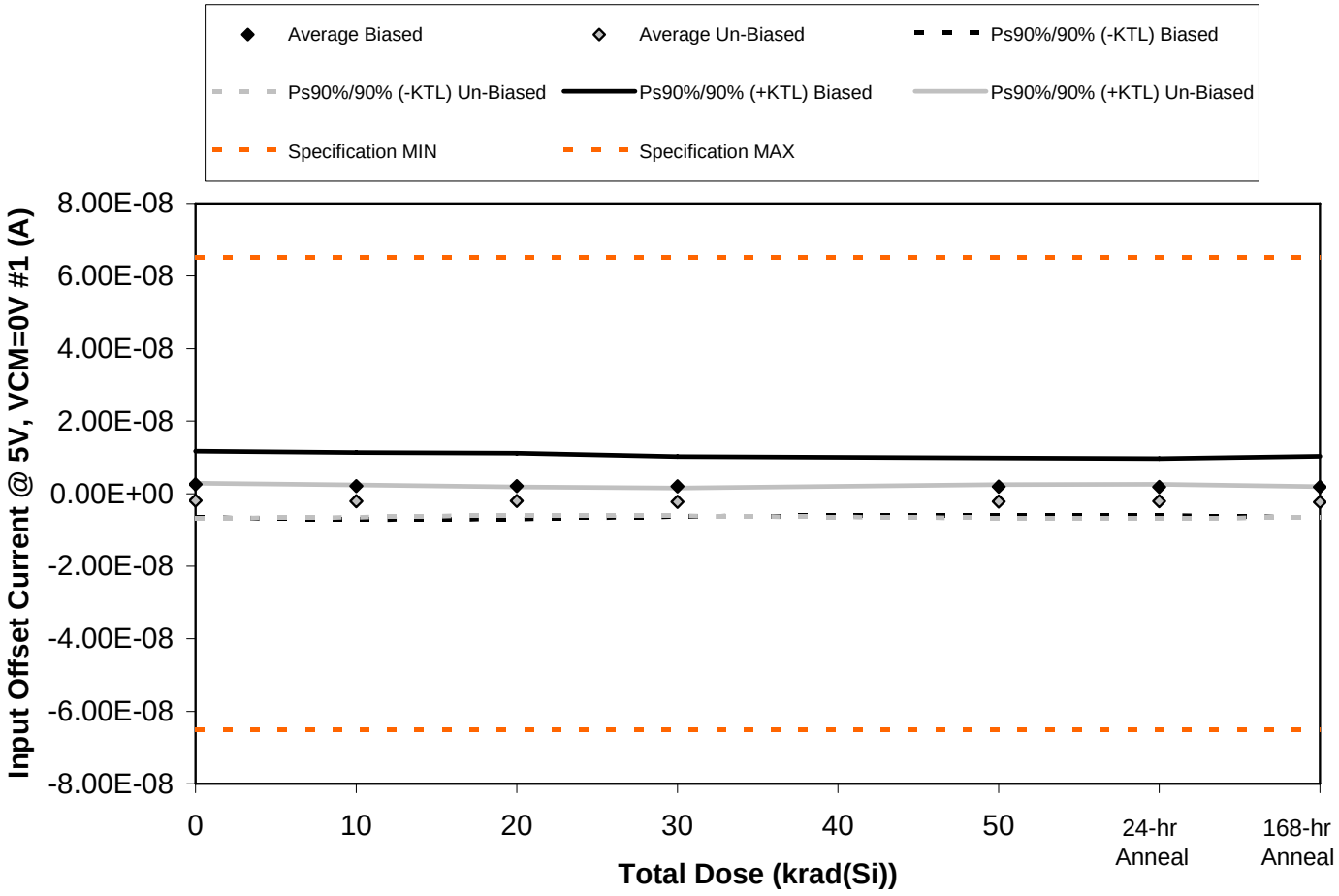

Figure 5.189. Plot of Input Offset Current @ 5V, VCM=0V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.189. Raw data for Input Offset Current @ 5V, VCM=0V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 5V, VCM=0V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.95E-10	1.65E-10	1.68E-10	2.79E-10	7.37E-10	7.61E-10	1.70E-11
867	7.42E-09	7.00E-09	6.95E-09	6.36E-09	6.03E-09	5.90E-09	5.94E-09
868	5.80E-11	-6.53E-10	-6.29E-10	-4.05E-10	-8.14E-10	-7.69E-10	-1.12E-09
869	4.74E-09	4.30E-09	4.08E-09	3.94E-09	3.77E-09	3.74E-09	4.29E-09
870	1.57E-10	-1.80E-10	-1.09E-10	-1.85E-10	-8.60E-11	-2.95E-10	1.07E-10
871	-3.50E-09	-3.51E-09	-3.42E-09	-3.41E-09	-3.73E-09	-3.80E-09	-4.10E-09
872	4.45E-10	3.18E-10	-6.20E-11	-6.52E-10	1.59E-10	5.30E-11	-5.17E-10
873	-6.79E-10	-1.10E-09	-1.04E-09	-8.67E-10	-8.83E-10	-6.50E-10	-8.88E-10
874	-3.53E-09	-3.09E-09	-2.82E-09	-3.24E-09	-3.27E-09	-2.67E-09	-3.03E-09
876	-2.56E-09	-2.96E-09	-2.72E-09	-3.26E-09	-3.01E-09	-3.38E-09	-3.26E-09
877	-7.15E-10	-6.95E-10	-6.76E-10	-7.32E-10	-7.09E-10	-7.26E-10	-7.08E-10
Biased Statistics							
Average Biased	2.57E-09	2.13E-09	2.09E-09	2.00E-09	1.93E-09	1.87E-09	1.85E-09
Std Dev Biased	3.34E-09	3.37E-09	3.30E-09	3.01E-09	2.88E-09	2.86E-09	3.08E-09
Ps90%/90% (+KTL) Biased	1.17E-08	1.14E-08	1.11E-08	1.03E-08	9.82E-09	9.70E-09	1.03E-08
Ps90%/90% (-KTL) Biased	-6.59E-09	-7.11E-09	-6.95E-09	-6.26E-09	-5.97E-09	-5.96E-09	-6.59E-09
Un-Biased Statistics							
Average Un-Biased	-1.96E-09	-2.07E-09	-2.01E-09	-2.29E-09	-2.15E-09	-2.09E-09	-2.36E-09
Std Dev Un-Biased	1.78E-09	1.62E-09	1.40E-09	1.40E-09	1.69E-09	1.70E-09	1.57E-09
Ps90%/90% (+KTL) Un-Biased	2.91E-09	2.38E-09	1.84E-09	1.54E-09	2.49E-09	2.58E-09	1.94E-09
Ps90%/90% (-KTL) Un-Biased	-6.84E-09	-6.52E-09	-5.86E-09	-6.11E-09	-6.78E-09	-6.76E-09	-6.66E-09
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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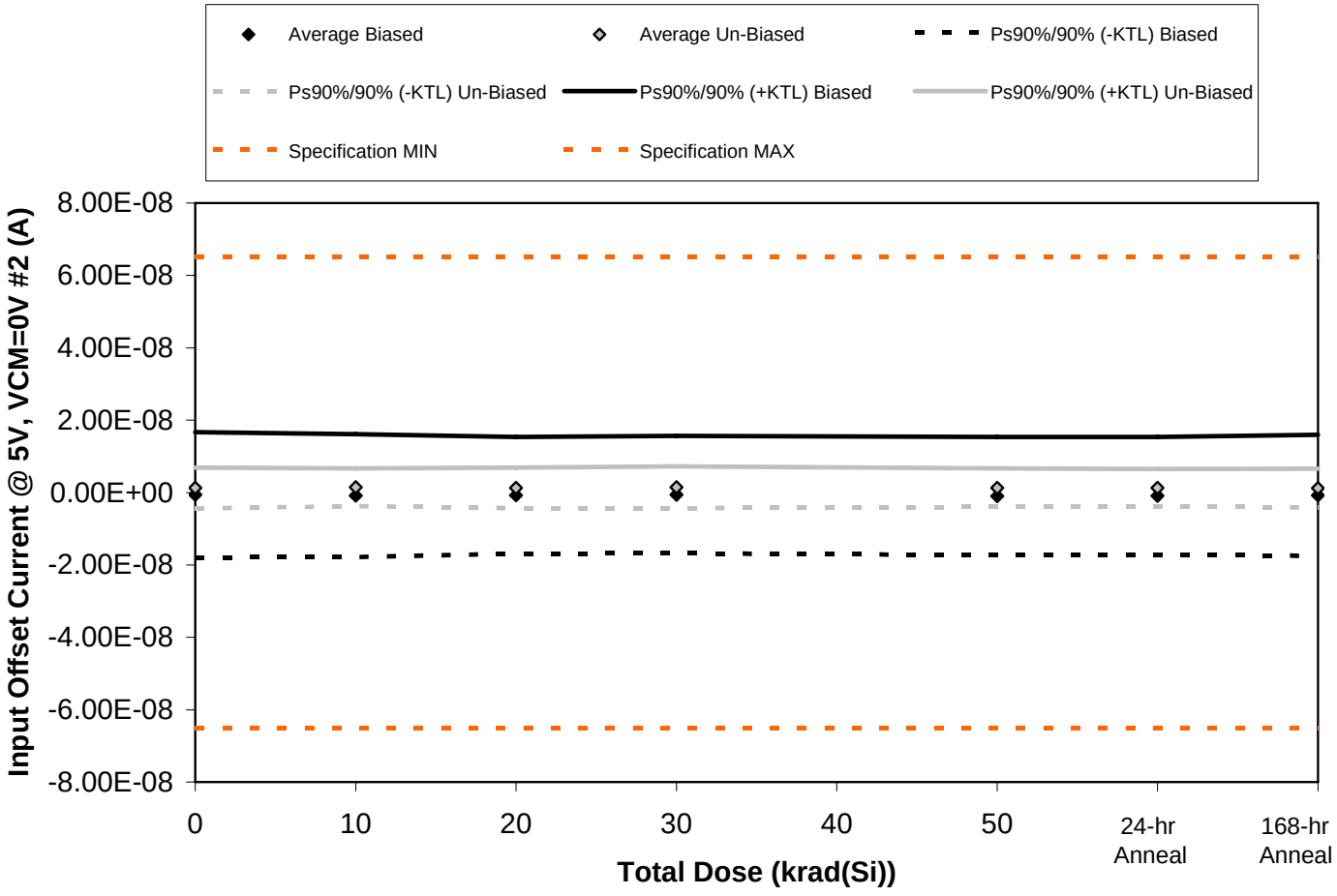

Figure 5.190. Plot of Input Offset Current @ 5V, VCM=0V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.190. Raw data for Input Offset Current @ 5V, VCM=0V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 5V, VCM=0V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-1.13E-08	-1.11E-08	-1.06E-08	-1.05E-08	-1.10E-08	-1.09E-08	-1.09E-08
867	1.41E-10	-3.00E-11	1.26E-10	2.42E-10	-3.20E-10	-5.10E-11	1.74E-10
868	1.16E-09	8.14E-10	7.21E-10	6.18E-10	1.95E-10	1.89E-10	2.98E-10
869	5.51E-09	5.58E-09	5.21E-09	5.37E-09	4.92E-09	4.96E-09	5.53E-09
870	1.43E-09	7.56E-10	9.32E-10	1.45E-09	1.27E-09	1.36E-09	1.21E-09
871	1.14E-09	1.54E-09	1.62E-09	1.58E-09	1.16E-09	1.37E-09	1.27E-09
872	2.01E-09	2.01E-09	1.87E-09	1.90E-09	9.68E-10	1.14E-09	1.69E-09
873	3.98E-09	3.92E-09	3.78E-09	4.17E-09	4.29E-09	4.09E-09	3.77E-09
874	-1.74E-09	-1.39E-09	-1.87E-09	-1.72E-09	-1.14E-09	-1.24E-09	-1.70E-09
876	9.64E-10	1.22E-09	1.10E-09	1.27E-09	1.31E-09	1.32E-09	1.06E-09
877	-5.28E-09	-5.18E-09	-5.28E-09	-5.31E-09	-5.27E-09	-5.25E-09	-5.30E-09
Biased Statistics							
Average Biased	-6.17E-10	-8.02E-10	-7.20E-10	-5.65E-10	-9.87E-10	-8.83E-10	-7.46E-10
Std Dev Biased	6.32E-09	6.19E-09	5.87E-09	5.92E-09	5.96E-09	5.93E-09	6.10E-09
Ps90%/90% (+KTL) Biased	1.67E-08	1.62E-08	1.54E-08	1.57E-08	1.54E-08	1.54E-08	1.60E-08
Ps90%/90% (-KTL) Biased	-1.80E-08	-1.78E-08	-1.68E-08	-1.68E-08	-1.73E-08	-1.72E-08	-1.75E-08
Un-Biased Statistics							
Average Un-Biased	1.27E-09	1.46E-09	1.30E-09	1.44E-09	1.32E-09	1.34E-09	1.22E-09
Std Dev Un-Biased	2.07E-09	1.90E-09	2.04E-09	2.10E-09	1.94E-09	1.89E-09	1.96E-09
Ps90%/90% (+KTL) Un-Biased	6.93E-09	6.68E-09	6.90E-09	7.21E-09	6.63E-09	6.52E-09	6.58E-09
Ps90%/90% (-KTL) Un-Biased	-4.40E-09	-3.76E-09	-4.30E-09	-4.33E-09	-4.00E-09	-3.84E-09	-4.15E-09
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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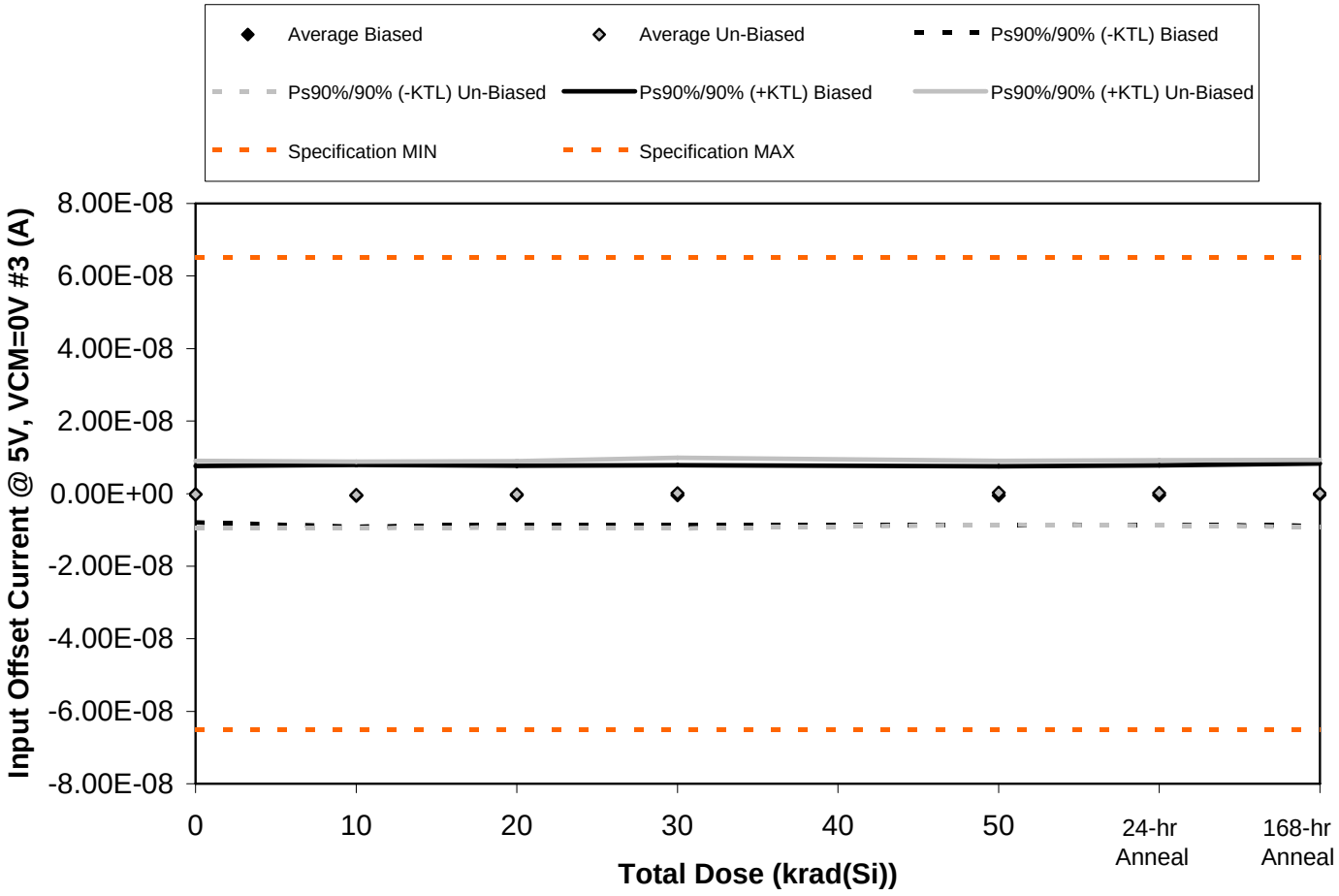

Figure 5.191. Plot of Input Offset Current @ 5V, VCM=0V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.191. Raw data for Input Offset Current @ 5V, VCM=0V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 5V, VCM=0V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-4.61E-10	-8.65E-10	-1.05E-09	-9.60E-10	-8.20E-10	-8.70E-10	-4.24E-10
867	-1.01E-09	-1.21E-09	-1.11E-09	-8.68E-10	-1.44E-09	-1.18E-09	-8.89E-10
868	4.59E-09	4.74E-09	4.72E-09	4.77E-09	4.62E-09	4.77E-09	5.02E-09
869	-1.13E-09	-2.71E-09	-2.21E-09	-2.62E-09	-2.42E-09	-2.49E-09	-1.86E-09
870	-2.95E-09	-2.91E-09	-2.54E-09	-2.41E-09	-2.40E-09	-2.37E-09	-3.16E-09
871	-4.15E-09	-4.28E-09	-4.00E-09	-3.94E-09	-3.11E-09	-3.33E-09	-3.77E-09
872	-3.23E-09	-3.27E-09	-3.32E-09	-3.14E-09	-3.12E-09	-3.19E-09	-3.25E-09
873	2.88E-09	3.00E-09	2.97E-09	3.83E-09	3.78E-09	3.58E-09	3.09E-09
874	2.53E-10	4.00E-12	3.35E-10	7.64E-10	1.05E-09	9.47E-10	7.69E-10
876	3.15E-09	2.73E-09	2.95E-09	3.17E-09	2.64E-09	2.88E-09	3.26E-09
877	2.39E-09	2.34E-09	2.39E-09	2.42E-09	2.42E-09	2.42E-09	2.40E-09
Biased Statistics							
Average Biased	-1.93E-10	-5.90E-10	-4.36E-10	-4.19E-10	-4.93E-10	-4.26E-10	-2.63E-10
Std Dev Biased	2.84E-09	3.11E-09	2.96E-09	3.01E-09	2.93E-09	2.99E-09	3.13E-09
Ps90%/90% (+KTL) Biased	7.58E-09	7.93E-09	7.68E-09	7.83E-09	7.55E-09	7.77E-09	8.32E-09
Ps90%/90% (-KTL) Biased	-7.97E-09	-9.11E-09	-8.55E-09	-8.67E-09	-8.54E-09	-8.63E-09	-8.85E-09
Un-Biased Statistics							
Average Un-Biased	-2.21E-10	-3.63E-10	-2.12E-10	1.37E-10	2.47E-10	1.78E-10	1.96E-11
Std Dev Un-Biased	3.38E-09	3.35E-09	3.33E-09	3.56E-09	3.22E-09	3.28E-09	3.37E-09
Ps90%/90% (+KTL) Un-Biased	9.04E-09	8.82E-09	8.92E-09	9.89E-09	9.07E-09	9.17E-09	9.27E-09
Ps90%/90% (-KTL) Un-Biased	-9.49E-09	-9.54E-09	-9.35E-09	-9.61E-09	-8.57E-09	-8.82E-09	-9.23E-09
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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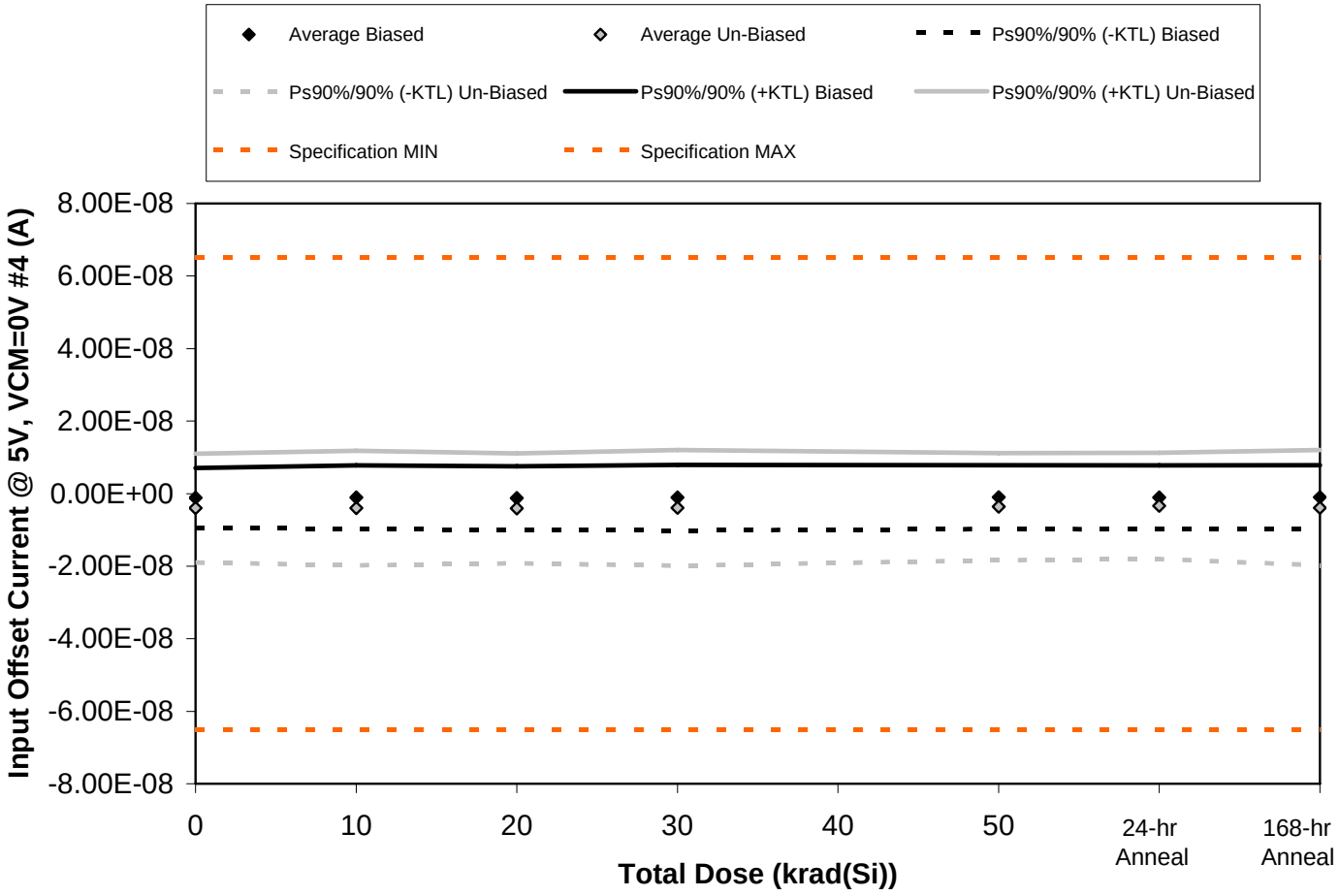

Figure 5.192. Plot of Input Offset Current @ 5V, VCM=0V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.192. Raw data for Input Offset Current @ 5V, VCM=0V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 5V, VCM=0V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.06E-09	-2.37E-09	-2.37E-09	-2.25E-09	-2.22E-09	-2.44E-09	-2.79E-09
867	3.76E-09	4.31E-09	4.07E-09	4.36E-09	4.30E-09	4.19E-09	4.53E-09
868	-4.40E-09	-4.33E-09	-4.48E-09	-4.56E-09	-4.16E-09	-4.25E-09	-3.66E-09
869	-1.63E-09	-1.30E-09	-1.33E-09	-1.29E-09	-5.93E-10	-5.99E-10	-1.26E-09
870	-1.45E-09	-1.50E-09	-1.97E-09	-1.70E-09	-2.18E-09	-2.13E-09	-1.84E-09
871	-1.56E-09	-2.03E-09	-1.57E-09	-1.44E-09	-1.64E-09	-1.60E-09	-2.03E-09
872	2.47E-09	2.85E-09	2.09E-09	2.47E-09	3.10E-09	3.11E-09	3.12E-09
873	-1.24E-08	-1.31E-08	-1.29E-08	-1.32E-08	-1.18E-08	-1.17E-08	-1.29E-08
874	-3.93E-09	-3.65E-09	-3.62E-09	-2.82E-09	-3.39E-09	-2.86E-09	-3.23E-09
876	-4.48E-09	-4.08E-09	-4.19E-09	-4.55E-09	-4.28E-09	-3.93E-09	-4.32E-09
877	-2.92E-10	-2.99E-10	-2.63E-10	-2.90E-10	-3.84E-10	-3.39E-10	-2.89E-10
Biased Statistics							
Average Biased	-1.15E-09	-1.04E-09	-1.21E-09	-1.09E-09	-9.72E-10	-1.04E-09	-1.00E-09
Std Dev Biased	2.99E-09	3.22E-09	3.18E-09	3.30E-09	3.21E-09	3.20E-09	3.23E-09
Ps90%/90% (+KTL) Biased	7.05E-09	7.79E-09	7.51E-09	7.95E-09	7.82E-09	7.74E-09	7.84E-09
Ps90%/90% (-KTL) Biased	-9.36E-09	-9.86E-09	-9.94E-09	-1.01E-08	-9.76E-09	-9.82E-09	-9.85E-09
Un-Biased Statistics							
Average Un-Biased	-3.99E-09	-3.99E-09	-4.04E-09	-3.92E-09	-3.60E-09	-3.39E-09	-3.87E-09
Std Dev Un-Biased	5.46E-09	5.77E-09	5.52E-09	5.81E-09	5.39E-09	5.35E-09	5.79E-09
Ps90%/90% (+KTL) Un-Biased	1.10E-08	1.18E-08	1.11E-08	1.20E-08	1.12E-08	1.13E-08	1.20E-08
Ps90%/90% (-KTL) Un-Biased	-1.90E-08	-1.98E-08	-1.92E-08	-1.99E-08	-1.84E-08	-1.81E-08	-1.98E-08
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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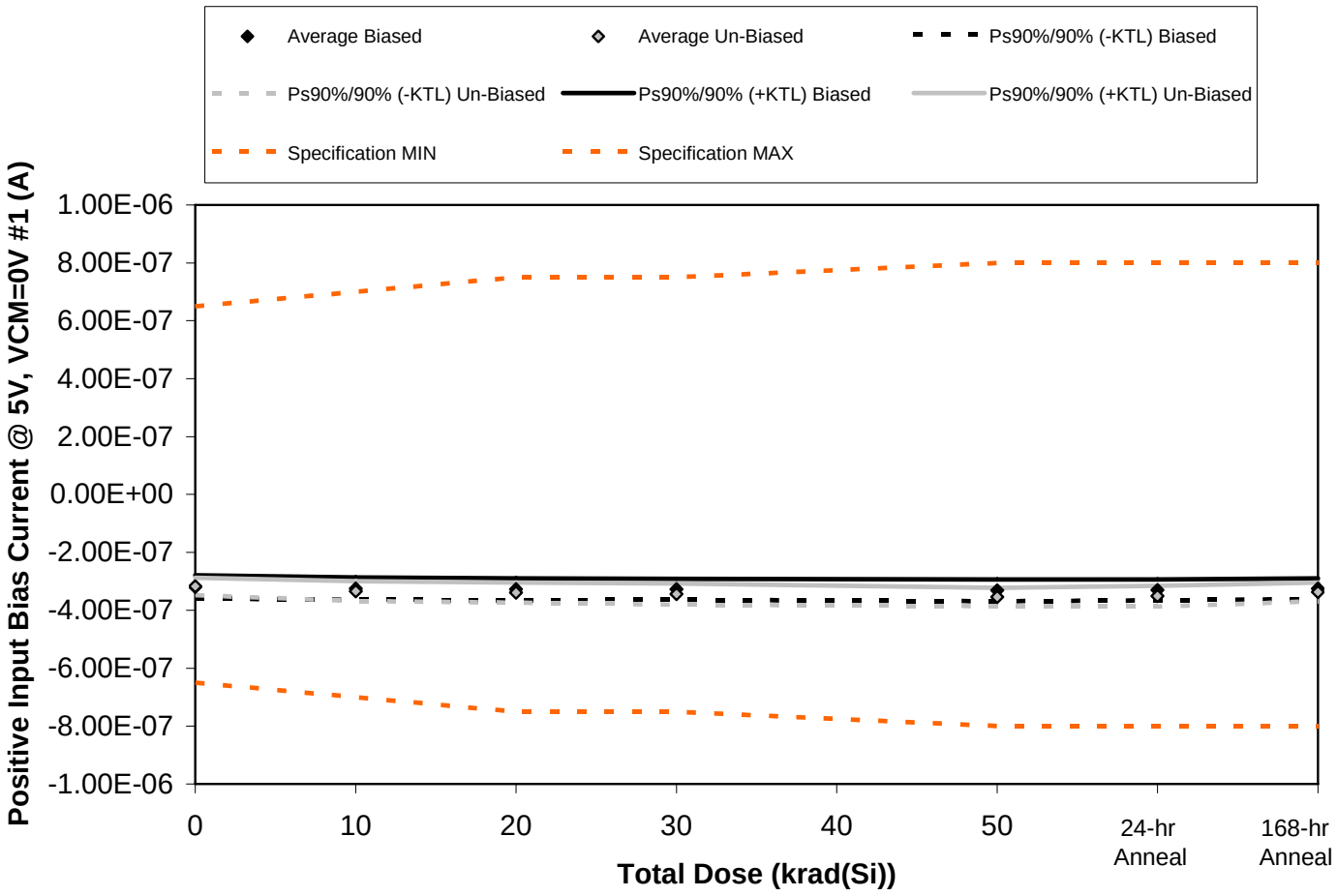

Figure 5.193. Plot of Positive Input Bias Current @ 5V, VCM=0V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.193. Raw data for Positive Input Bias Current @ 5V, VCM=0V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 5V, VCM=0V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.35E-07	-3.40E-07	-3.41E-07	-3.41E-07	-3.44E-07	-3.44E-07	-3.38E-07
867	-3.06E-07	-3.13E-07	-3.16E-07	-3.18E-07	-3.21E-07	-3.20E-07	-3.15E-07
868	-3.02E-07	-3.08E-07	-3.11E-07	-3.12E-07	-3.15E-07	-3.14E-07	-3.09E-07
869	-3.21E-07	-3.26E-07	-3.28E-07	-3.28E-07	-3.30E-07	-3.29E-07	-3.26E-07
870	-3.32E-07	-3.37E-07	-3.39E-07	-3.39E-07	-3.46E-07	-3.41E-07	-3.37E-07
871	-3.33E-07	-3.47E-07	-3.53E-07	-3.59E-07	-3.66E-07	-3.65E-07	-3.50E-07
872	-3.25E-07	-3.46E-07	-3.52E-07	-3.58E-07	-3.65E-07	-3.65E-07	-3.48E-07
873	-3.14E-07	-3.28E-07	-3.34E-07	-3.38E-07	-3.50E-07	-3.49E-07	-3.32E-07
874	-3.07E-07	-3.22E-07	-3.27E-07	-3.32E-07	-3.39E-07	-3.38E-07	-3.25E-07
876	-3.09E-07	-3.24E-07	-3.29E-07	-3.34E-07	-3.48E-07	-3.40E-07	-3.28E-07
877	-3.29E-07	-3.30E-07	-3.30E-07	-3.29E-07	-3.29E-07	-3.29E-07	-3.29E-07
Biased Statistics							
Average Biased	-3.19E-07	-3.25E-07	-3.27E-07	-3.28E-07	-3.31E-07	-3.30E-07	-3.25E-07
Std Dev Biased	1.48E-08	1.40E-08	1.36E-08	1.30E-08	1.36E-08	1.30E-08	1.29E-08
Ps90%/90% (+KTL) Biased	-2.79E-07	-2.86E-07	-2.90E-07	-2.92E-07	-2.94E-07	-2.94E-07	-2.90E-07
Ps90%/90% (-KTL) Biased	-3.60E-07	-3.63E-07	-3.64E-07	-3.63E-07	-3.69E-07	-3.65E-07	-3.60E-07
Un-Biased Statistics							
Average Un-Biased	-3.18E-07	-3.34E-07	-3.39E-07	-3.44E-07	-3.54E-07	-3.51E-07	-3.37E-07
Std Dev Un-Biased	1.09E-08	1.23E-08	1.25E-08	1.32E-08	1.16E-08	1.32E-08	1.17E-08
Ps90%/90% (+KTL) Un-Biased	-2.88E-07	-3.00E-07	-3.05E-07	-3.08E-07	-3.22E-07	-3.15E-07	-3.05E-07
Ps90%/90% (-KTL) Un-Biased	-3.48E-07	-3.67E-07	-3.74E-07	-3.80E-07	-3.85E-07	-3.87E-07	-3.69E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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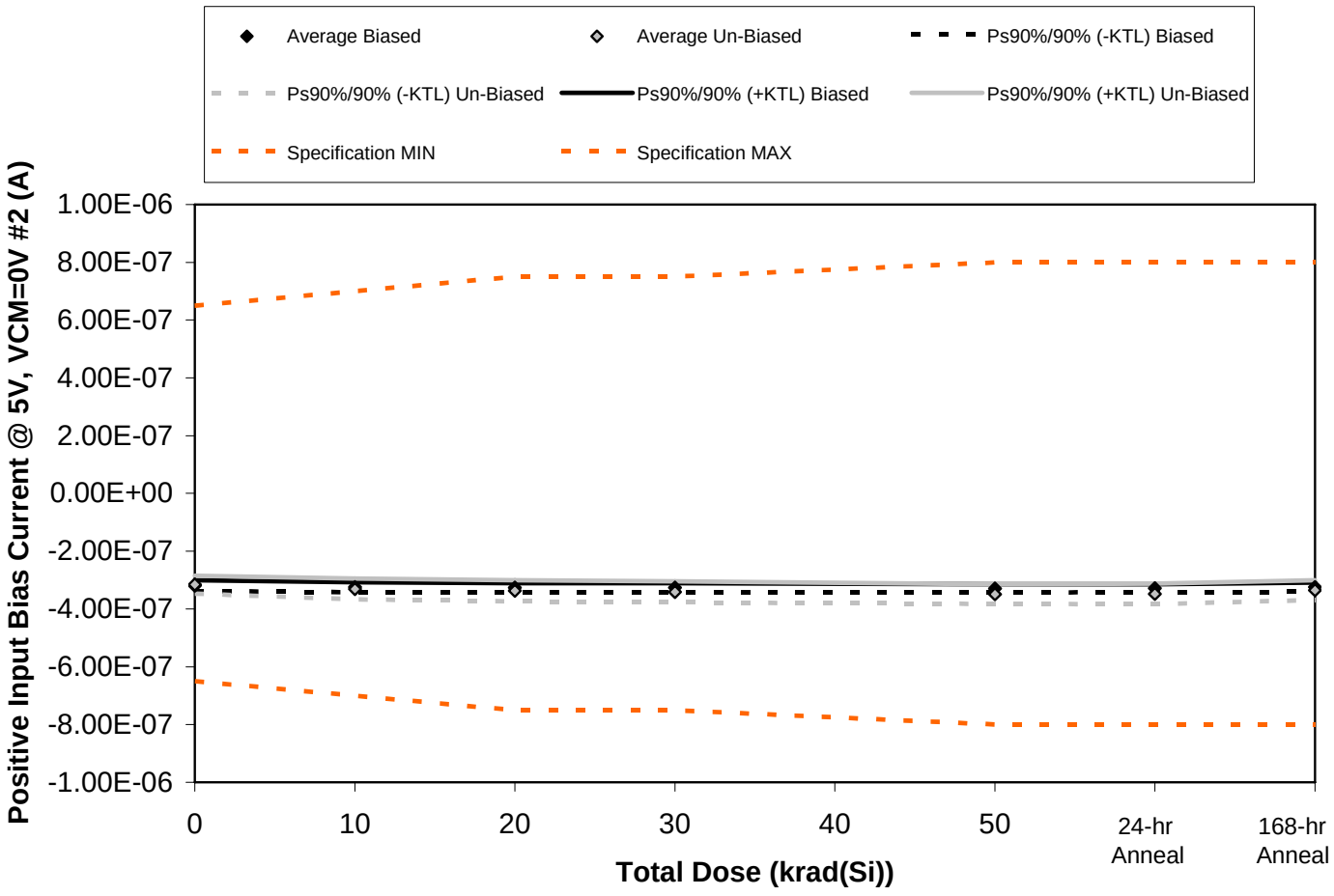

Figure 5.194. Plot of Positive Input Bias Current @ 5V, VCM=0V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.194. Raw data for Positive Input Bias Current @ 5V, VCM=0V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 5V, VCM=0V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.30E-07	-3.34E-07	-3.35E-07	-3.34E-07	-3.36E-07	-3.35E-07	-3.32E-07
867	-3.17E-07	-3.23E-07	-3.26E-07	-3.26E-07	-3.29E-07	-3.28E-07	-3.23E-07
868	-3.14E-07	-3.19E-07	-3.22E-07	-3.22E-07	-3.25E-07	-3.24E-07	-3.20E-07
869	-3.14E-07	-3.19E-07	-3.20E-07	-3.20E-07	-3.23E-07	-3.21E-07	-3.18E-07
870	-3.21E-07	-3.27E-07	-3.29E-07	-3.29E-07	-3.31E-07	-3.30E-07	-3.26E-07
871	-3.02E-07	-3.15E-07	-3.21E-07	-3.24E-07	-3.32E-07	-3.31E-07	-3.19E-07
872	-3.27E-07	-3.47E-07	-3.50E-07	-3.53E-07	-3.59E-07	-3.59E-07	-3.46E-07
873	-3.27E-07	-3.41E-07	-3.51E-07	-3.55E-07	-3.62E-07	-3.60E-07	-3.49E-07
874	-3.09E-07	-3.24E-07	-3.30E-07	-3.34E-07	-3.41E-07	-3.40E-07	-3.28E-07
876	-3.12E-07	-3.27E-07	-3.33E-07	-3.37E-07	-3.48E-07	-3.51E-07	-3.32E-07
877	-3.10E-07	-3.11E-07	-3.11E-07	-3.10E-07	-3.10E-07	-3.10E-07	-3.10E-07
Biased Statistics							
Average Biased	-3.19E-07	-3.25E-07	-3.26E-07	-3.26E-07	-3.29E-07	-3.28E-07	-3.24E-07
Std Dev Biased	6.76E-09	6.36E-09	5.86E-09	5.66E-09	5.12E-09	5.05E-09	5.73E-09
Ps90%/90% (+KTL) Biased	-3.01E-07	-3.07E-07	-3.10E-07	-3.11E-07	-3.15E-07	-3.14E-07	-3.08E-07
Ps90%/90% (-KTL) Biased	-3.38E-07	-3.42E-07	-3.42E-07	-3.42E-07	-3.43E-07	-3.41E-07	-3.40E-07
Un-Biased Statistics							
Average Un-Biased	-3.16E-07	-3.31E-07	-3.37E-07	-3.41E-07	-3.49E-07	-3.48E-07	-3.35E-07
Std Dev Un-Biased	1.12E-08	1.30E-08	1.35E-08	1.32E-08	1.23E-08	1.29E-08	1.24E-08
Ps90%/90% (+KTL) Un-Biased	-2.85E-07	-2.95E-07	-3.00E-07	-3.05E-07	-3.15E-07	-3.13E-07	-3.00E-07
Ps90%/90% (-KTL) Un-Biased	-3.46E-07	-3.67E-07	-3.74E-07	-3.77E-07	-3.82E-07	-3.84E-07	-3.69E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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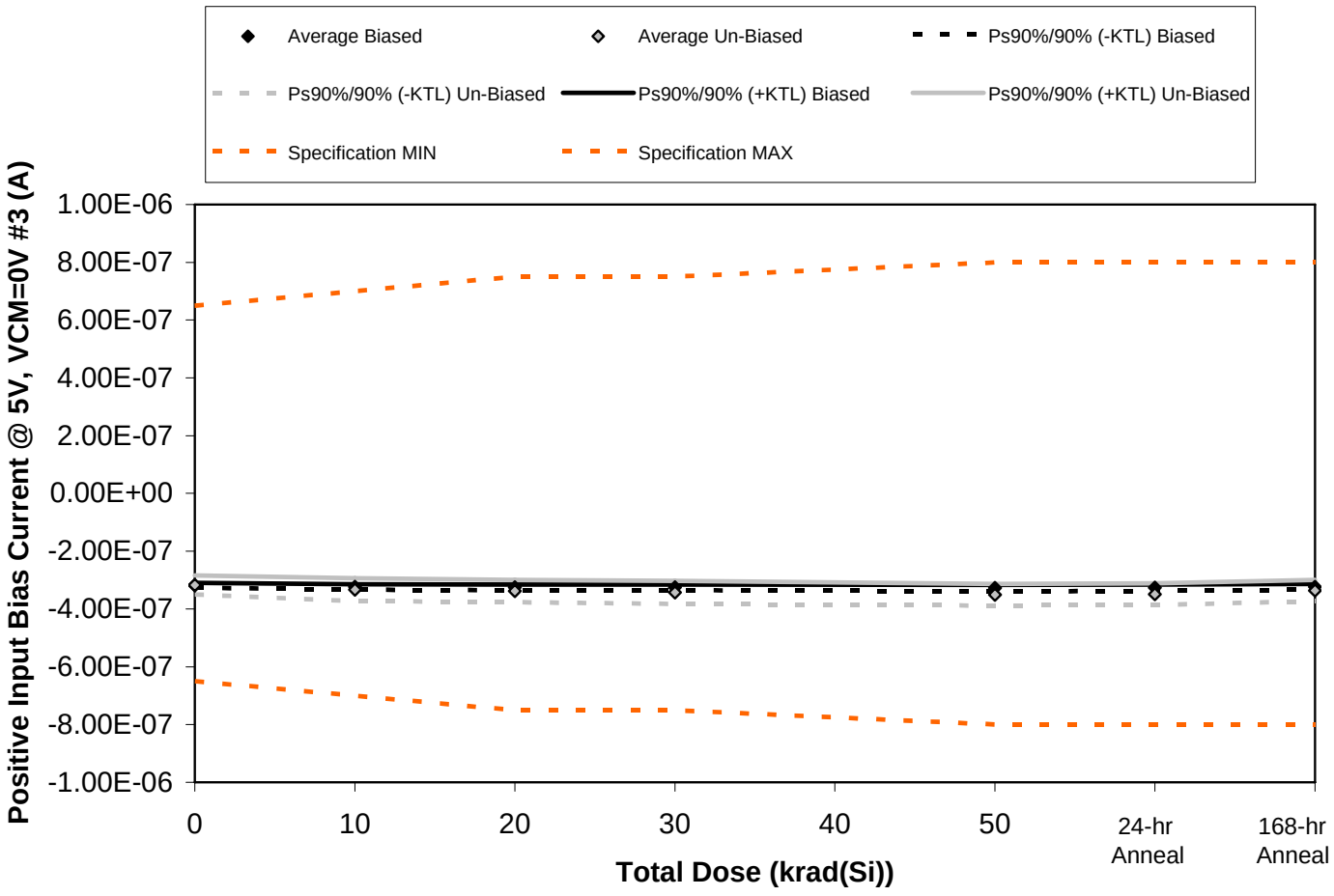

Figure 5.195. Plot of Positive Input Bias Current @ 5V, VCM=0V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.195. Raw data for Positive Input Bias Current @ 5V, VCM=0V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 5V, VCM=0V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.13E-07	-3.18E-07	-3.19E-07	-3.19E-07	-3.20E-07	-3.20E-07	-3.17E-07
867	-3.18E-07	-3.24E-07	-3.27E-07	-3.28E-07	-3.31E-07	-3.30E-07	-3.25E-07
868	-3.16E-07	-3.22E-07	-3.24E-07	-3.25E-07	-3.27E-07	-3.26E-07	-3.22E-07
869	-3.21E-07	-3.26E-07	-3.28E-07	-3.27E-07	-3.29E-07	-3.28E-07	-3.25E-07
870	-3.20E-07	-3.26E-07	-3.28E-07	-3.27E-07	-3.29E-07	-3.28E-07	-3.25E-07
871	-3.05E-07	-3.17E-07	-3.22E-07	-3.27E-07	-3.34E-07	-3.32E-07	-3.21E-07
872	-3.30E-07	-3.48E-07	-3.52E-07	-3.59E-07	-3.63E-07	-3.62E-07	-3.49E-07
873	-3.30E-07	-3.48E-07	-3.54E-07	-3.57E-07	-3.65E-07	-3.63E-07	-3.51E-07
874	-3.08E-07	-3.23E-07	-3.29E-07	-3.33E-07	-3.41E-07	-3.39E-07	-3.27E-07
876	-3.12E-07	-3.27E-07	-3.33E-07	-3.38E-07	-3.51E-07	-3.49E-07	-3.31E-07
877	-3.08E-07	-3.09E-07	-3.09E-07	-3.09E-07	-3.08E-07	-3.08E-07	-3.08E-07
Biased Statistics							
Average Biased	-3.18E-07	-3.23E-07	-3.25E-07	-3.25E-07	-3.27E-07	-3.26E-07	-3.23E-07
Std Dev Biased	3.02E-09	3.39E-09	3.61E-09	3.66E-09	4.18E-09	4.10E-09	3.42E-09
Ps90%/90% (+KTL) Biased	-3.09E-07	-3.14E-07	-3.15E-07	-3.15E-07	-3.16E-07	-3.15E-07	-3.13E-07
Ps90%/90% (-KTL) Biased	-3.26E-07	-3.33E-07	-3.35E-07	-3.35E-07	-3.39E-07	-3.38E-07	-3.32E-07
Un-Biased Statistics							
Average Un-Biased	-3.17E-07	-3.33E-07	-3.38E-07	-3.43E-07	-3.51E-07	-3.49E-07	-3.36E-07
Std Dev Un-Biased	1.20E-08	1.44E-08	1.41E-08	1.45E-08	1.38E-08	1.36E-08	1.33E-08
Ps90%/90% (+KTL) Un-Biased	-2.84E-07	-2.93E-07	-3.00E-07	-3.03E-07	-3.13E-07	-3.12E-07	-2.99E-07
Ps90%/90% (-KTL) Un-Biased	-3.50E-07	-3.72E-07	-3.77E-07	-3.82E-07	-3.89E-07	-3.86E-07	-3.72E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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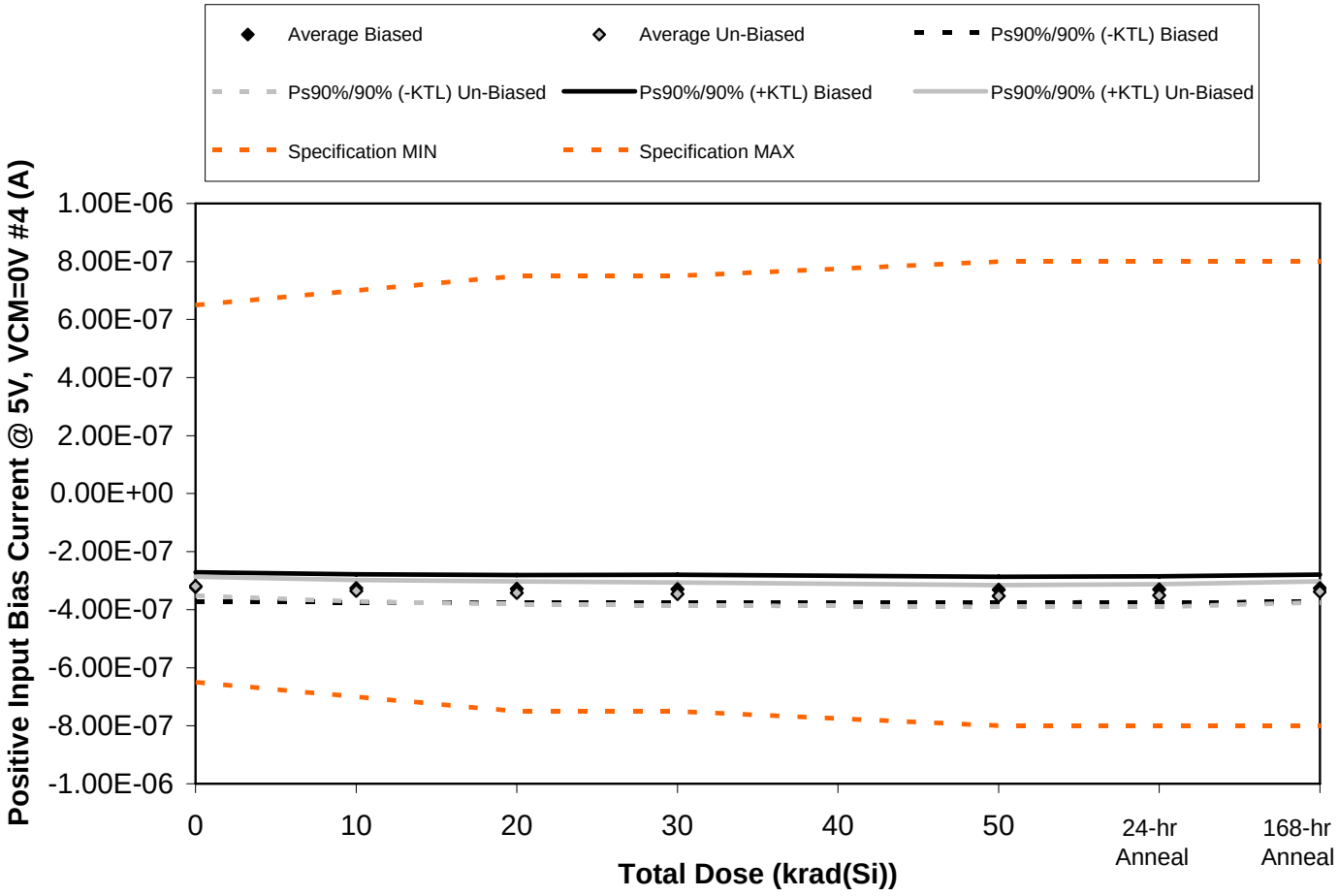

Figure 5.196. Plot of Positive Input Bias Current @ 5V, VCM=0V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.196. Raw data for Positive Input Bias Current @ 5V, VCM=0V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 5V, VCM=0V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.47E-07	-3.51E-07	-3.53E-07	-3.55E-07	-3.54E-07	-3.54E-07	-3.51E-07
867	-3.03E-07	-3.10E-07	-3.12E-07	-3.13E-07	-3.16E-07	-3.16E-07	-3.10E-07
868	-3.05E-07	-3.11E-07	-3.13E-07	-3.14E-07	-3.16E-07	-3.16E-07	-3.11E-07
869	-3.19E-07	-3.23E-07	-3.25E-07	-3.25E-07	-3.27E-07	-3.25E-07	-3.23E-07
870	-3.31E-07	-3.36E-07	-3.38E-07	-3.38E-07	-3.40E-07	-3.39E-07	-3.36E-07
871	-3.29E-07	-3.45E-07	-3.52E-07	-3.55E-07	-3.61E-07	-3.59E-07	-3.46E-07
872	-3.29E-07	-3.49E-07	-3.56E-07	-3.60E-07	-3.67E-07	-3.67E-07	-3.52E-07
873	-3.24E-07	-3.38E-07	-3.48E-07	-3.53E-07	-3.59E-07	-3.58E-07	-3.45E-07
874	-3.04E-07	-3.18E-07	-3.24E-07	-3.28E-07	-3.36E-07	-3.34E-07	-3.21E-07
876	-3.09E-07	-3.23E-07	-3.28E-07	-3.33E-07	-3.41E-07	-3.39E-07	-3.27E-07
877	-3.27E-07	-3.29E-07	-3.29E-07	-3.28E-07	-3.27E-07	-3.27E-07	-3.27E-07
Biased Statistics							
Average Biased	-3.21E-07	-3.26E-07	-3.28E-07	-3.29E-07	-3.31E-07	-3.30E-07	-3.26E-07
Std Dev Biased	1.84E-08	1.77E-08	1.75E-08	1.78E-08	1.62E-08	1.63E-08	1.73E-08
Ps90%/90% (+KTL) Biased	-2.70E-07	-2.78E-07	-2.80E-07	-2.80E-07	-2.86E-07	-2.85E-07	-2.79E-07
Ps90%/90% (-KTL) Biased	-3.71E-07	-3.75E-07	-3.76E-07	-3.78E-07	-3.75E-07	-3.75E-07	-3.74E-07
Un-Biased Statistics							
Average Un-Biased	-3.19E-07	-3.35E-07	-3.42E-07	-3.46E-07	-3.53E-07	-3.51E-07	-3.38E-07
Std Dev Un-Biased	1.18E-08	1.34E-08	1.45E-08	1.44E-08	1.37E-08	1.41E-08	1.33E-08
Ps90%/90% (+KTL) Un-Biased	-2.87E-07	-2.98E-07	-3.02E-07	-3.06E-07	-3.15E-07	-3.12E-07	-3.02E-07
Ps90%/90% (-KTL) Un-Biased	-3.52E-07	-3.71E-07	-3.82E-07	-3.85E-07	-3.90E-07	-3.90E-07	-3.75E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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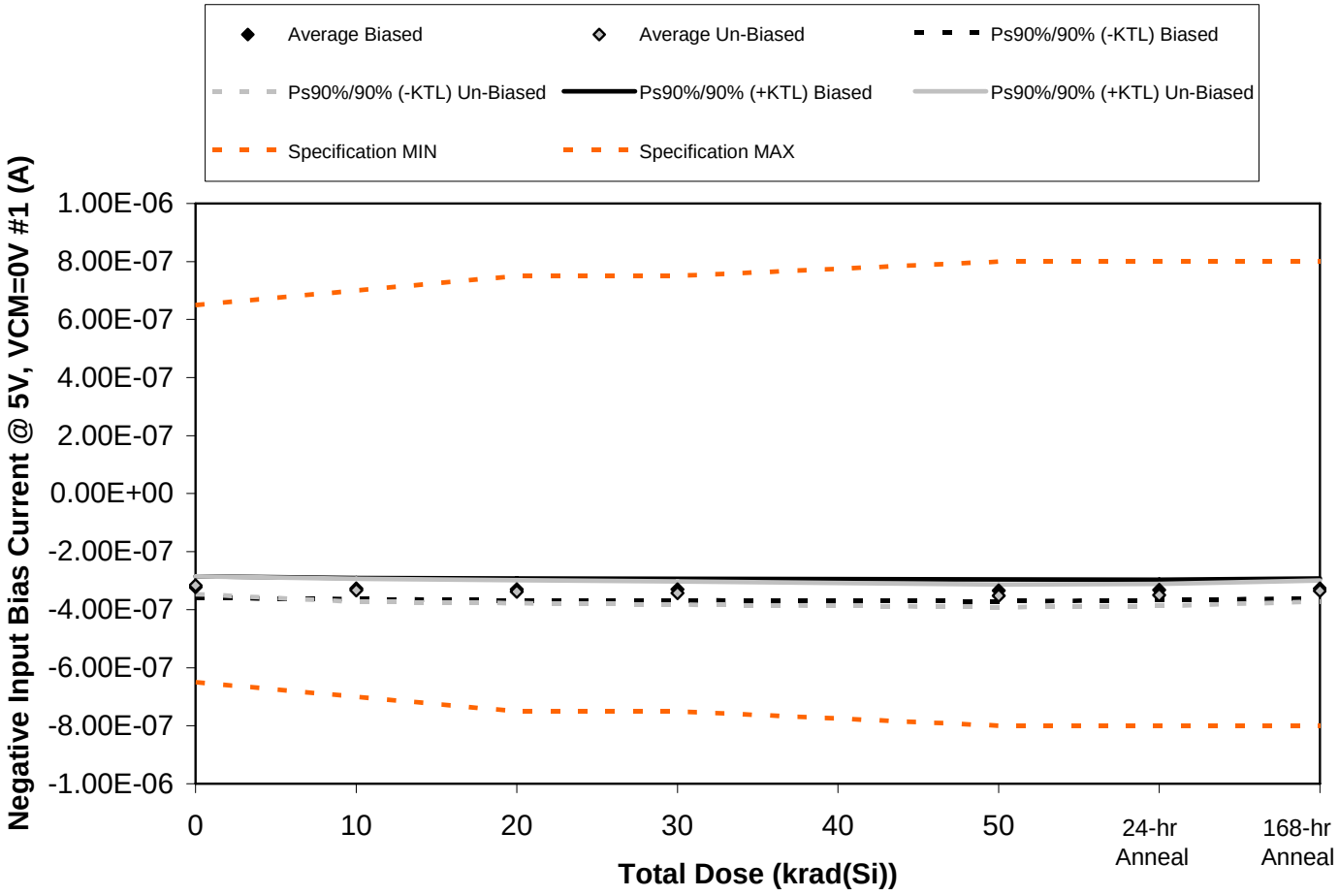

Figure 5.197. Plot of Negative Input Bias Current @ 5V, VCM=0V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.197. Raw data for Negative Input Bias Current @ 5V, VCM=0V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 5V, VCM=0V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.36E-07	-3.40E-07	-3.45E-07	-3.46E-07	-3.46E-07	-3.46E-07	-3.39E-07
867	-3.14E-07	-3.21E-07	-3.23E-07	-3.24E-07	-3.28E-07	-3.26E-07	-3.21E-07
868	-3.03E-07	-3.08E-07	-3.10E-07	-3.11E-07	-3.14E-07	-3.13E-07	-3.08E-07
869	-3.25E-07	-3.31E-07	-3.32E-07	-3.32E-07	-3.34E-07	-3.33E-07	-3.30E-07
870	-3.32E-07	-3.37E-07	-3.39E-07	-3.39E-07	-3.48E-07	-3.41E-07	-3.37E-07
871	-3.29E-07	-3.48E-07	-3.53E-07	-3.57E-07	-3.63E-07	-3.62E-07	-3.48E-07
872	-3.26E-07	-3.48E-07	-3.54E-07	-3.60E-07	-3.69E-07	-3.65E-07	-3.51E-07
873	-3.13E-07	-3.27E-07	-3.33E-07	-3.37E-07	-3.52E-07	-3.48E-07	-3.31E-07
874	-3.04E-07	-3.19E-07	-3.25E-07	-3.29E-07	-3.36E-07	-3.35E-07	-3.22E-07
876	-3.07E-07	-3.21E-07	-3.27E-07	-3.31E-07	-3.39E-07	-3.37E-07	-3.25E-07
877	-3.28E-07	-3.30E-07	-3.30E-07	-3.29E-07	-3.28E-07	-3.28E-07	-3.29E-07
Biased Statistics							
Average Biased	-3.22E-07	-3.27E-07	-3.30E-07	-3.31E-07	-3.34E-07	-3.32E-07	-3.27E-07
Std Dev Biased	1.37E-08	1.32E-08	1.36E-08	1.33E-08	1.38E-08	1.28E-08	1.25E-08
Ps90%/90% (+KTL) Biased	-2.84E-07	-2.91E-07	-2.93E-07	-2.94E-07	-2.96E-07	-2.97E-07	-2.93E-07
Ps90%/90% (-KTL) Biased	-3.59E-07	-3.63E-07	-3.67E-07	-3.67E-07	-3.72E-07	-3.67E-07	-3.61E-07
Un-Biased Statistics							
Average Un-Biased	-3.16E-07	-3.33E-07	-3.38E-07	-3.43E-07	-3.52E-07	-3.49E-07	-3.35E-07
Std Dev Un-Biased	1.13E-08	1.44E-08	1.44E-08	1.46E-08	1.42E-08	1.39E-08	1.30E-08
Ps90%/90% (+KTL) Un-Biased	-2.85E-07	-2.93E-07	-2.99E-07	-3.03E-07	-3.13E-07	-3.11E-07	-3.00E-07
Ps90%/90% (-KTL) Un-Biased	-3.47E-07	-3.72E-07	-3.78E-07	-3.83E-07	-3.91E-07	-3.88E-07	-3.71E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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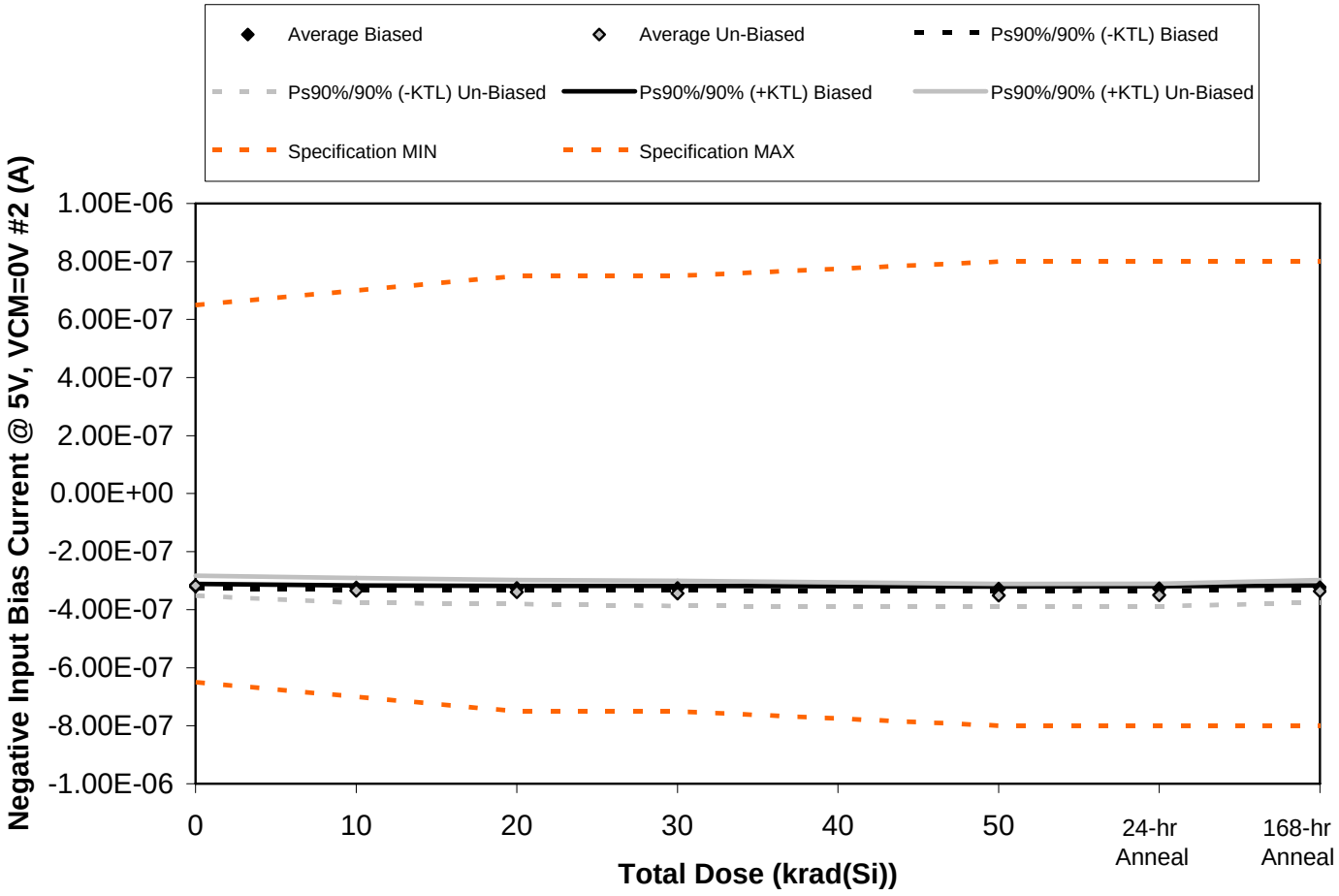

Figure 5.198. Plot of Negative Input Bias Current @ 5V, VCM=0V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.198. Raw data for Negative Input Bias Current @ 5V, VCM=0V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 5V, VCM=0V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.19E-07	-3.23E-07	-3.25E-07	-3.24E-07	-3.25E-07	-3.24E-07	-3.22E-07
867	-3.18E-07	-3.24E-07	-3.26E-07	-3.27E-07	-3.29E-07	-3.28E-07	-3.24E-07
868	-3.15E-07	-3.20E-07	-3.22E-07	-3.23E-07	-3.25E-07	-3.25E-07	-3.21E-07
869	-3.20E-07	-3.25E-07	-3.26E-07	-3.26E-07	-3.28E-07	-3.27E-07	-3.23E-07
870	-3.23E-07	-3.28E-07	-3.30E-07	-3.30E-07	-3.32E-07	-3.31E-07	-3.27E-07
871	-3.04E-07	-3.17E-07	-3.22E-07	-3.26E-07	-3.33E-07	-3.32E-07	-3.20E-07
872	-3.30E-07	-3.50E-07	-3.53E-07	-3.58E-07	-3.61E-07	-3.61E-07	-3.49E-07
873	-3.31E-07	-3.51E-07	-3.56E-07	-3.62E-07	-3.68E-07	-3.65E-07	-3.53E-07
874	-3.08E-07	-3.23E-07	-3.28E-07	-3.32E-07	-3.40E-07	-3.38E-07	-3.26E-07
876	-3.14E-07	-3.29E-07	-3.34E-07	-3.39E-07	-3.52E-07	-3.50E-07	-3.33E-07
877	-3.05E-07	-3.06E-07	-3.06E-07	-3.05E-07	-3.05E-07	-3.05E-07	-3.05E-07
Biased Statistics							
Average Biased	-3.19E-07	-3.24E-07	-3.26E-07	-3.26E-07	-3.28E-07	-3.27E-07	-3.23E-07
Std Dev Biased	2.78E-09	2.78E-09	2.72E-09	2.74E-09	2.94E-09	2.90E-09	2.58E-09
Ps90%/90% (+KTL) Biased	-3.11E-07	-3.16E-07	-3.18E-07	-3.18E-07	-3.20E-07	-3.19E-07	-3.16E-07
Ps90%/90% (-KTL) Biased	-3.27E-07	-3.32E-07	-3.33E-07	-3.33E-07	-3.36E-07	-3.35E-07	-3.30E-07
Un-Biased Statistics							
Average Un-Biased	-3.17E-07	-3.34E-07	-3.39E-07	-3.43E-07	-3.51E-07	-3.49E-07	-3.36E-07
Std Dev Un-Biased	1.27E-08	1.57E-08	1.51E-08	1.59E-08	1.44E-08	1.43E-08	1.43E-08
Ps90%/90% (+KTL) Un-Biased	-2.83E-07	-2.91E-07	-2.97E-07	-3.00E-07	-3.12E-07	-3.10E-07	-2.97E-07
Ps90%/90% (-KTL) Un-Biased	-3.52E-07	-3.77E-07	-3.80E-07	-3.87E-07	-3.90E-07	-3.89E-07	-3.75E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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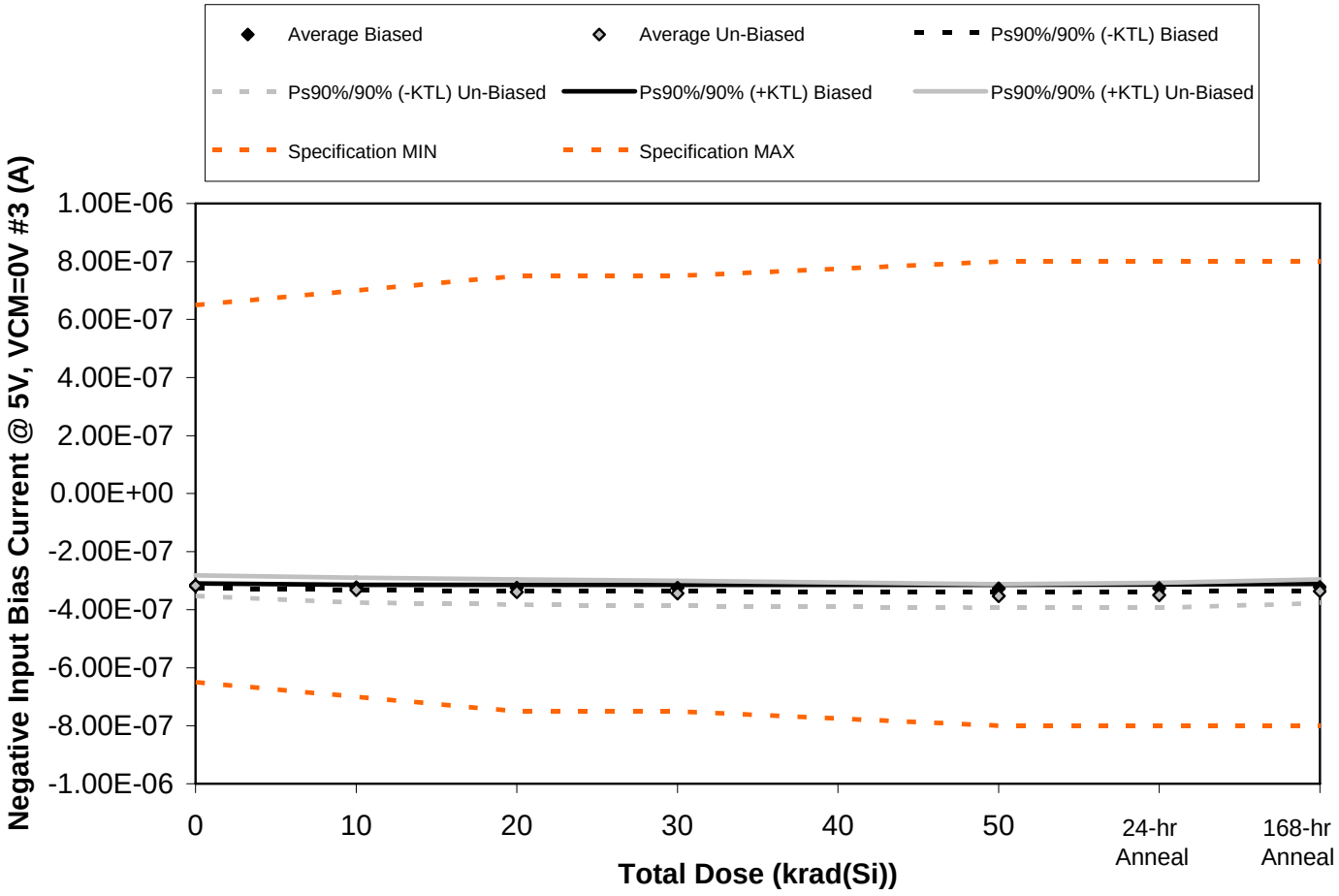

Figure 5.199. Plot of Negative Input Bias Current @ 5V, VCM=0V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.199. Raw data for Negative Input Bias Current @ 5V, VCM=0V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 5V, VCM=0V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.13E-07	-3.18E-07	-3.19E-07	-3.18E-07	-3.20E-07	-3.19E-07	-3.17E-07
867	-3.17E-07	-3.23E-07	-3.26E-07	-3.27E-07	-3.30E-07	-3.29E-07	-3.24E-07
868	-3.21E-07	-3.27E-07	-3.29E-07	-3.30E-07	-3.32E-07	-3.31E-07	-3.27E-07
869	-3.20E-07	-3.24E-07	-3.25E-07	-3.26E-07	-3.27E-07	-3.26E-07	-3.23E-07
870	-3.17E-07	-3.23E-07	-3.25E-07	-3.25E-07	-3.27E-07	-3.26E-07	-3.22E-07
871	-3.01E-07	-3.13E-07	-3.19E-07	-3.23E-07	-3.31E-07	-3.29E-07	-3.18E-07
872	-3.27E-07	-3.41E-07	-3.50E-07	-3.54E-07	-3.61E-07	-3.59E-07	-3.47E-07
873	-3.33E-07	-3.54E-07	-3.58E-07	-3.62E-07	-3.69E-07	-3.69E-07	-3.55E-07
874	-3.09E-07	-3.24E-07	-3.30E-07	-3.34E-07	-3.47E-07	-3.41E-07	-3.28E-07
876	-3.16E-07	-3.30E-07	-3.36E-07	-3.47E-07	-3.54E-07	-3.53E-07	-3.35E-07
877	-3.11E-07	-3.12E-07	-3.12E-07	-3.11E-07	-3.11E-07	-3.11E-07	-3.11E-07
Biased Statistics							
Average Biased	-3.18E-07	-3.23E-07	-3.25E-07	-3.25E-07	-3.27E-07	-3.26E-07	-3.22E-07
Std Dev Biased	3.00E-09	3.34E-09	3.73E-09	4.15E-09	4.69E-09	4.72E-09	3.96E-09
Ps90%/90% (+KTL) Biased	-3.09E-07	-3.14E-07	-3.15E-07	-3.14E-07	-3.14E-07	-3.13E-07	-3.12E-07
Ps90%/90% (-KTL) Biased	-3.26E-07	-3.32E-07	-3.35E-07	-3.37E-07	-3.40E-07	-3.39E-07	-3.33E-07
Un-Biased Statistics							
Average Un-Biased	-3.17E-07	-3.32E-07	-3.39E-07	-3.44E-07	-3.53E-07	-3.50E-07	-3.36E-07
Std Dev Un-Biased	1.31E-08	1.57E-08	1.58E-08	1.58E-08	1.47E-08	1.56E-08	1.49E-08
Ps90%/90% (+KTL) Un-Biased	-2.81E-07	-2.89E-07	-2.95E-07	-3.01E-07	-3.12E-07	-3.07E-07	-2.95E-07
Ps90%/90% (-KTL) Un-Biased	-3.53E-07	-3.75E-07	-3.82E-07	-3.87E-07	-3.93E-07	-3.93E-07	-3.77E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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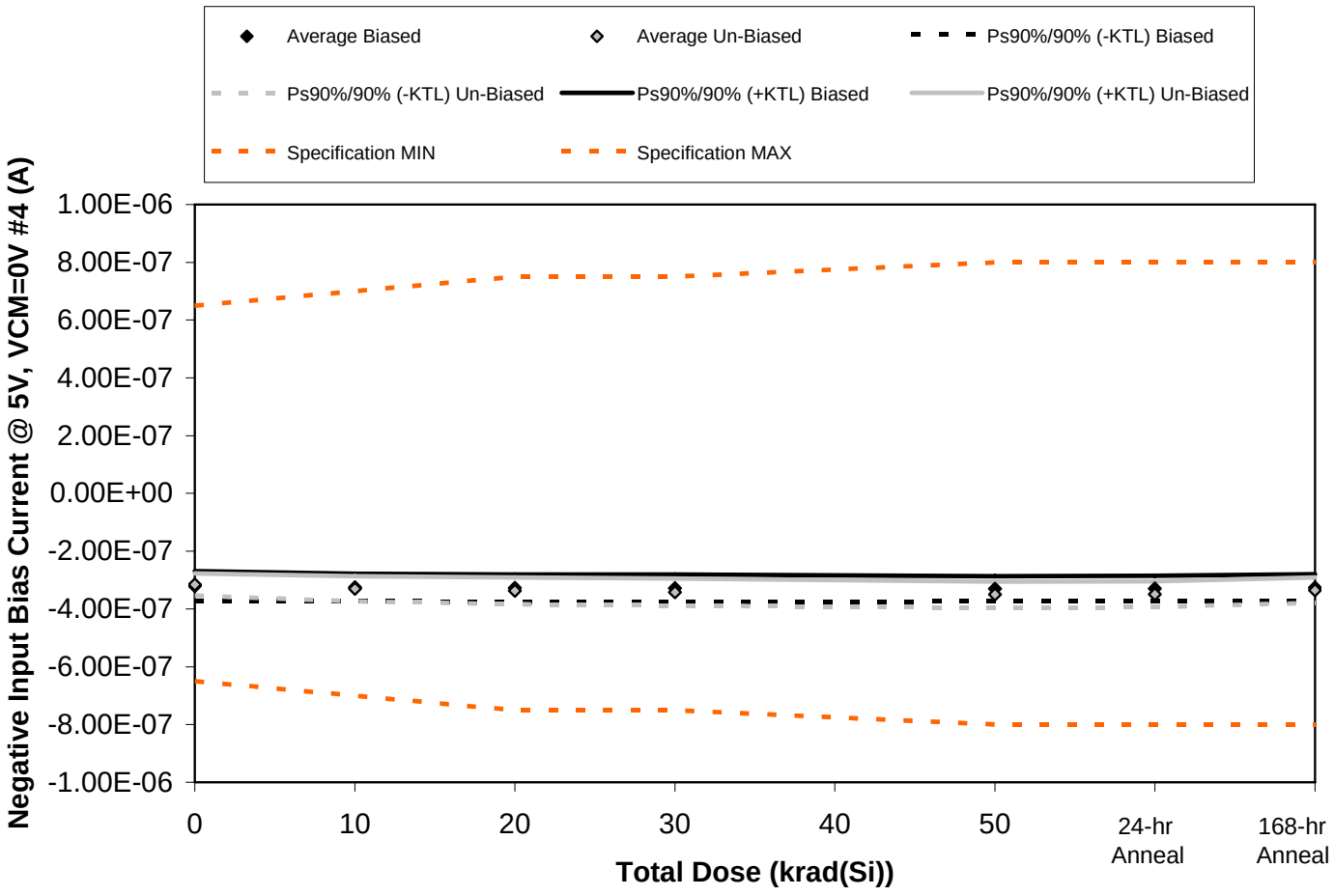

Figure 5.200. Plot of Negative Input Bias Current @ 5V, VCM=0V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.200. Raw data for Negative Input Bias Current @ 5V, VCM=0V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 5V, VCM=0V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-3.47E-07	-3.50E-07	-3.52E-07	-3.53E-07	-3.53E-07	-3.53E-07	-3.50E-07
867	-3.07E-07	-3.14E-07	-3.17E-07	-3.18E-07	-3.21E-07	-3.20E-07	-3.15E-07
868	-3.01E-07	-3.07E-07	-3.08E-07	-3.09E-07	-3.12E-07	-3.12E-07	-3.08E-07
869	-3.17E-07	-3.22E-07	-3.24E-07	-3.24E-07	-3.26E-07	-3.25E-07	-3.22E-07
870	-3.30E-07	-3.35E-07	-3.36E-07	-3.36E-07	-3.38E-07	-3.37E-07	-3.34E-07
871	-3.28E-07	-3.40E-07	-3.51E-07	-3.55E-07	-3.61E-07	-3.58E-07	-3.45E-07
872	-3.32E-07	-3.53E-07	-3.59E-07	-3.64E-07	-3.71E-07	-3.70E-07	-3.57E-07
873	-3.12E-07	-3.25E-07	-3.31E-07	-3.35E-07	-3.48E-07	-3.48E-07	-3.30E-07
874	-3.00E-07	-3.15E-07	-3.21E-07	-3.25E-07	-3.32E-07	-3.31E-07	-3.18E-07
876	-3.05E-07	-3.19E-07	-3.24E-07	-3.28E-07	-3.37E-07	-3.35E-07	-3.23E-07
877	-3.27E-07	-3.29E-07	-3.28E-07	-3.28E-07	-3.27E-07	-3.27E-07	-3.27E-07
Biased Statistics							
Average Biased	-3.20E-07	-3.26E-07	-3.27E-07	-3.28E-07	-3.30E-07	-3.29E-07	-3.26E-07
Std Dev Biased	1.87E-08	1.74E-08	1.71E-08	1.71E-08	1.59E-08	1.61E-08	1.67E-08
Ps90%/90% (+KTL) Biased	-2.69E-07	-2.78E-07	-2.81E-07	-2.81E-07	-2.87E-07	-2.85E-07	-2.80E-07
Ps90%/90% (-KTL) Biased	-3.72E-07	-3.73E-07	-3.74E-07	-3.75E-07	-3.74E-07	-3.73E-07	-3.72E-07
Un-Biased Statistics							
Average Un-Biased	-3.15E-07	-3.30E-07	-3.37E-07	-3.42E-07	-3.50E-07	-3.48E-07	-3.35E-07
Std Dev Un-Biased	1.39E-08	1.58E-08	1.69E-08	1.70E-08	1.64E-08	1.62E-08	1.60E-08
Ps90%/90% (+KTL) Un-Biased	-2.77E-07	-2.87E-07	-2.91E-07	-2.95E-07	-3.05E-07	-3.04E-07	-2.91E-07
Ps90%/90% (-KTL) Un-Biased	-3.54E-07	-3.74E-07	-3.83E-07	-3.88E-07	-3.95E-07	-3.93E-07	-3.79E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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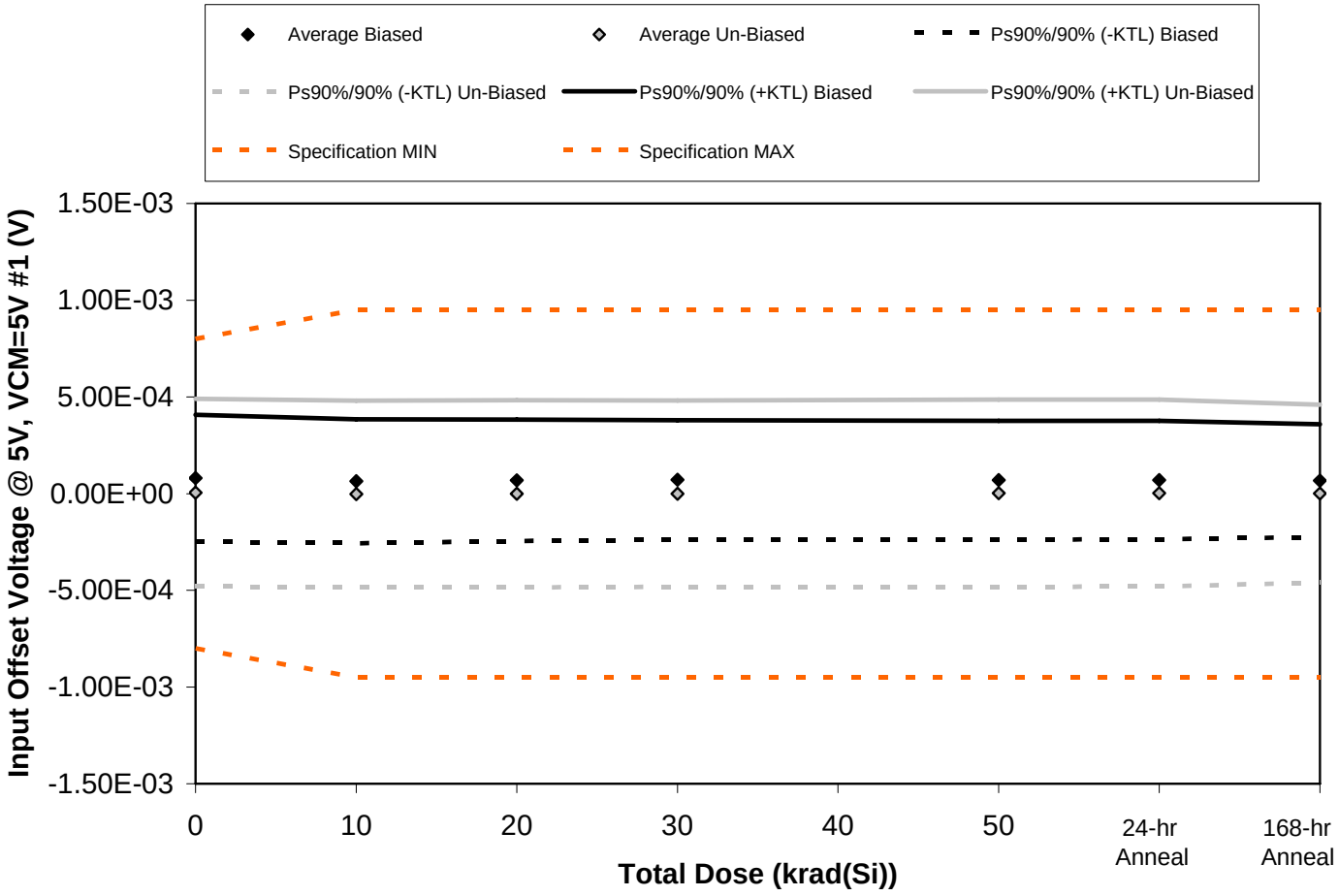

Figure 5.201. Plot of Input Offset Voltage @ 5V, VCM=5V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.201. Raw data for Input Offset Voltage @ 5V, VCM=5V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 5V, VCM=5V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.30E-05	4.74E-06	1.78E-05	2.21E-05	2.07E-05	2.12E-05	4.00E-08
867	1.55E-04	1.29E-04	1.23E-04	1.20E-04	1.13E-04	1.13E-04	1.15E-04
868	1.22E-04	1.01E-04	1.05E-04	1.08E-04	1.06E-04	1.04E-04	1.01E-04
869	2.04E-04	1.92E-04	2.00E-04	2.01E-04	2.03E-04	2.06E-04	1.98E-04
870	-9.36E-05	-1.07E-04	-9.94E-05	-9.51E-05	-9.36E-05	-9.21E-05	-7.59E-05
871	9.81E-05	9.27E-05	9.28E-05	9.26E-05	9.76E-05	9.69E-05	7.54E-05
872	-1.23E-04	-1.32E-04	-1.34E-04	-1.34E-04	-1.32E-04	-1.30E-04	-1.36E-04
873	-3.78E-05	-4.61E-05	-4.62E-05	-4.54E-05	-4.37E-05	-4.44E-05	-4.01E-05
874	2.63E-04	2.53E-04	2.57E-04	2.57E-04	2.59E-04	2.60E-04	2.52E-04
876	-1.75E-04	-1.76E-04	-1.73E-04	-1.71E-04	-1.68E-04	-1.68E-04	-1.51E-04
877	-2.47E-04	-2.50E-04	-2.50E-04	-2.49E-04	-2.50E-04	-2.50E-04	-2.51E-04
Biased Statistics							
Average Biased	8.01E-05	6.40E-05	6.93E-05	7.13E-05	6.97E-05	7.04E-05	6.75E-05
Std Dev Biased	1.20E-04	1.17E-04	1.14E-04	1.13E-04	1.12E-04	1.12E-04	1.07E-04
Ps90%/90% (+KTL) Biased	4.08E-04	3.85E-04	3.83E-04	3.80E-04	3.76E-04	3.77E-04	3.60E-04
Ps90%/90% (-KTL) Biased	-2.48E-04	-2.57E-04	-2.44E-04	-2.38E-04	-2.37E-04	-2.37E-04	-2.25E-04
Un-Biased Statistics							
Average Un-Biased	5.04E-06	-1.78E-06	-7.10E-07	-8.60E-08	2.40E-06	2.78E-06	6.20E-08
Std Dev Un-Biased	1.77E-04	1.76E-04	1.77E-04	1.76E-04	1.76E-04	1.76E-04	1.68E-04
Ps90%/90% (+KTL) Un-Biased	4.91E-04	4.80E-04	4.84E-04	4.82E-04	4.86E-04	4.86E-04	4.60E-04
Ps90%/90% (-KTL) Un-Biased	-4.81E-04	-4.83E-04	-4.85E-04	-4.82E-04	-4.81E-04	-4.80E-04	-4.59E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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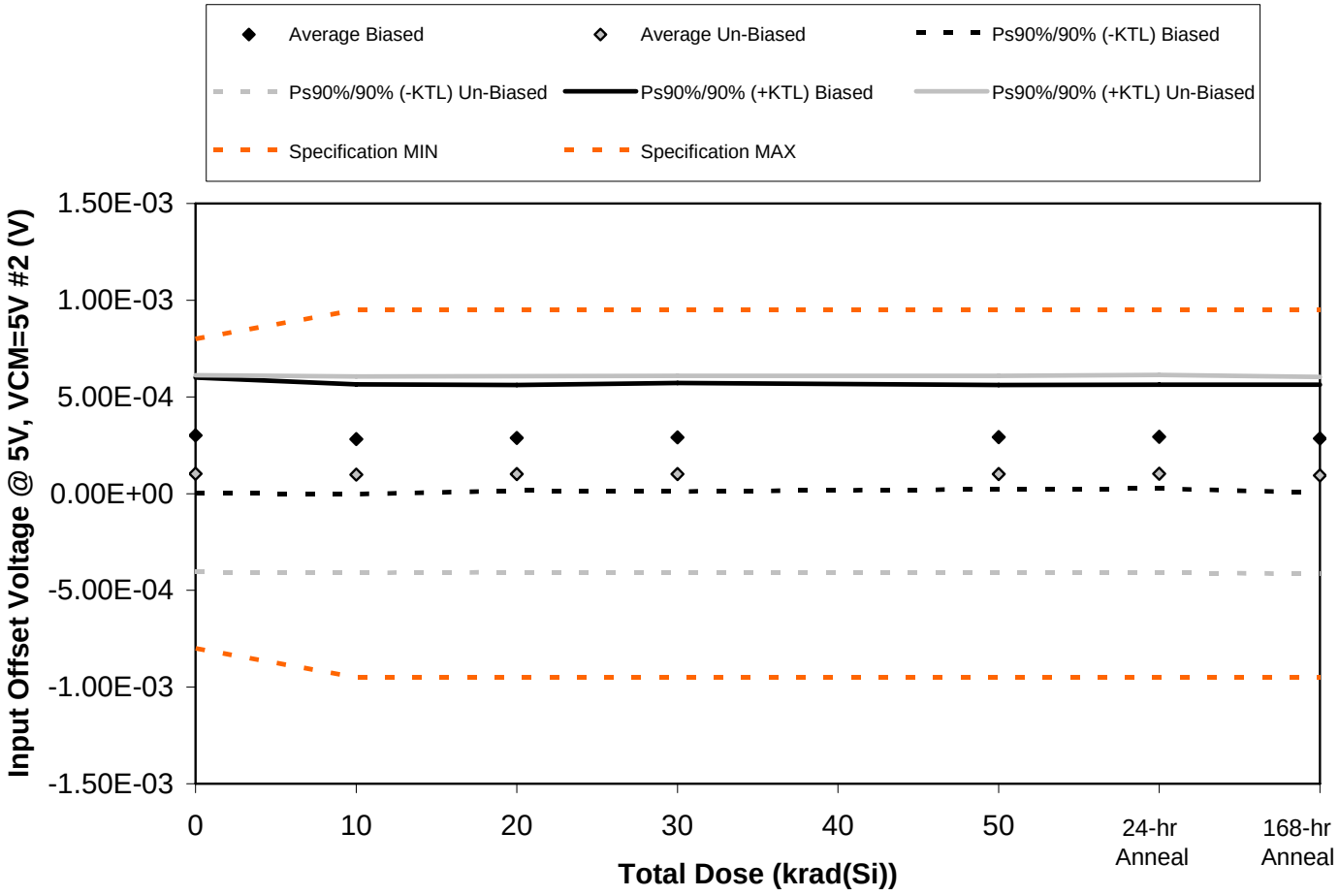

Figure 5.202. Plot of Input Offset Voltage @ 5V, VCM=5V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.202. Raw data for Input Offset Voltage @ 5V, VCM=5V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 5V, VCM=5V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.92E-04	1.79E-04	1.94E-04	1.92E-04	1.96E-04	2.00E-04	1.86E-04
867	2.11E-04	1.94E-04	2.02E-04	2.03E-04	2.11E-04	2.12E-04	2.06E-04
868	2.72E-04	2.55E-04	2.58E-04	2.62E-04	2.63E-04	2.62E-04	2.42E-04
869	4.06E-04	3.85E-04	3.95E-04	4.03E-04	4.03E-04	4.04E-04	3.87E-04
870	4.26E-04	3.96E-04	3.92E-04	3.96E-04	3.90E-04	3.92E-04	3.99E-04
871	3.70E-04	3.64E-04	3.65E-04	3.66E-04	3.65E-04	3.67E-04	3.60E-04
872	1.80E-04	1.80E-04	1.85E-04	1.87E-04	1.87E-04	1.90E-04	1.77E-04
873	-1.16E-04	-1.20E-04	-1.18E-04	-1.17E-04	-1.18E-04	-1.18E-04	-1.24E-04
874	-6.85E-06	-8.42E-06	-6.24E-06	-9.51E-06	-8.66E-06	-8.54E-06	-1.74E-05
876	9.04E-05	7.73E-05	7.99E-05	8.14E-05	7.99E-05	8.34E-05	7.35E-05
877	-1.08E-04	-1.12E-04	-1.08E-04	-1.11E-04	-1.12E-04	-1.12E-04	-1.09E-04
Biased Statistics							
Average Biased	3.01E-04	2.82E-04	2.88E-04	2.91E-04	2.92E-04	2.94E-04	2.84E-04
Std Dev Biased	1.09E-04	1.03E-04	9.95E-05	1.02E-04	9.82E-05	9.80E-05	1.02E-04
Ps90%/90% (+KTL) Biased	6.00E-04	5.65E-04	5.61E-04	5.72E-04	5.62E-04	5.63E-04	5.63E-04
Ps90%/90% (-KTL) Biased	2.84E-06	-1.59E-06	1.52E-05	1.07E-05	2.31E-05	2.52E-05	5.50E-06
Un-Biased Statistics							
Average Un-Biased	1.04E-04	9.85E-05	1.01E-04	1.02E-04	1.01E-04	1.03E-04	9.40E-05
Std Dev Un-Biased	1.85E-04	1.85E-04	1.85E-04	1.85E-04	1.85E-04	1.86E-04	1.86E-04
Ps90%/90% (+KTL) Un-Biased	6.12E-04	6.06E-04	6.08E-04	6.10E-04	6.09E-04	6.14E-04	6.03E-04
Ps90%/90% (-KTL) Un-Biased	-4.05E-04	-4.09E-04	-4.06E-04	-4.06E-04	-4.08E-04	-4.08E-04	-4.15E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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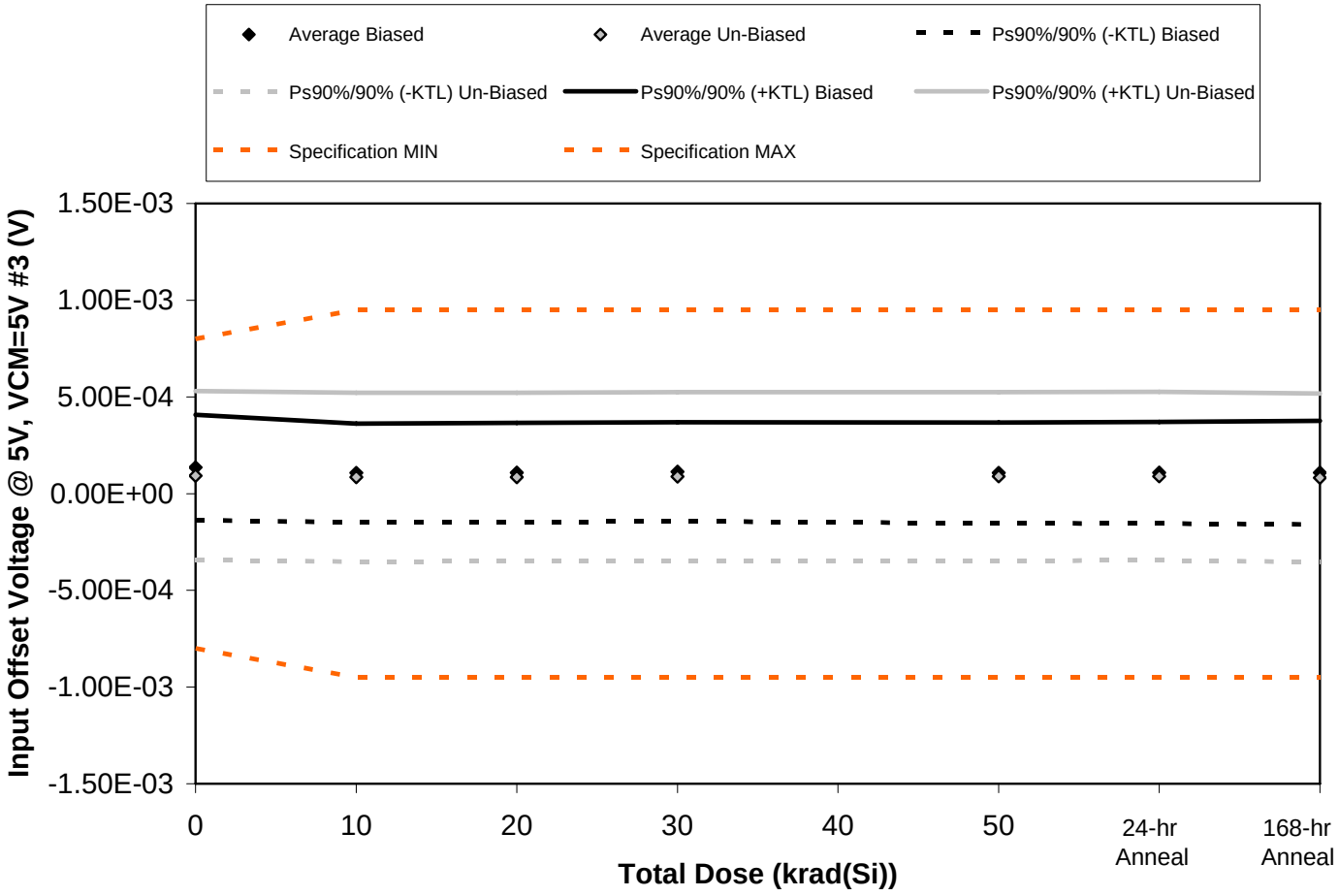

Figure 5.203. Plot of Input Offset Voltage @ 5V, VCM=5V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.203. Raw data for Input Offset Voltage @ 5V, VCM=5V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 5V, VCM=5V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.58E-05	5.69E-05	6.20E-05	6.15E-05	5.56E-05	5.67E-05	4.39E-05
867	1.17E-04	7.55E-05	7.00E-05	6.84E-05	5.33E-05	5.38E-05	6.68E-05
868	1.67E-04	1.52E-04	1.58E-04	1.62E-04	1.62E-04	1.64E-04	1.47E-04
869	2.88E-04	2.45E-04	2.47E-04	2.52E-04	2.47E-04	2.49E-04	2.62E-04
870	2.93E-05	6.19E-06	9.22E-06	2.06E-05	1.88E-05	1.86E-05	2.32E-05
871	1.14E-04	1.05E-04	1.05E-04	1.05E-04	1.07E-04	1.09E-04	1.10E-04
872	5.22E-05	4.47E-05	4.38E-05	4.70E-05	4.90E-05	4.80E-05	3.43E-05
873	2.38E-04	2.30E-04	2.31E-04	2.34E-04	2.34E-04	2.35E-04	2.28E-04
874	-1.58E-04	-1.66E-04	-1.63E-04	-1.63E-04	-1.60E-04	-1.58E-04	-1.66E-04
876	2.19E-04	2.10E-04	2.12E-04	2.13E-04	2.16E-04	2.17E-04	2.05E-04
877	1.31E-04	1.30E-04	1.30E-04	1.30E-04	1.30E-04	1.29E-04	1.28E-04
Biased Statistics							
Average Biased	1.36E-04	1.07E-04	1.09E-04	1.13E-04	1.07E-04	1.09E-04	1.09E-04
Std Dev Biased	9.94E-05	9.31E-05	9.36E-05	9.35E-05	9.48E-05	9.57E-05	9.79E-05
Ps90%/90% (+KTL) Biased	4.08E-04	3.62E-04	3.66E-04	3.69E-04	3.67E-04	3.71E-04	3.77E-04
Ps90%/90% (-KTL) Biased	-1.37E-04	-1.48E-04	-1.47E-04	-1.43E-04	-1.53E-04	-1.54E-04	-1.60E-04
Un-Biased Statistics							
Average Un-Biased	9.31E-05	8.47E-05	8.57E-05	8.75E-05	8.91E-05	9.02E-05	8.22E-05
Std Dev Un-Biased	1.60E-04	1.59E-04	1.59E-04	1.60E-04	1.59E-04	1.59E-04	1.59E-04
Ps90%/90% (+KTL) Un-Biased	5.31E-04	5.22E-04	5.21E-04	5.25E-04	5.25E-04	5.26E-04	5.17E-04
Ps90%/90% (-KTL) Un-Biased	-3.44E-04	-3.52E-04	-3.50E-04	-3.50E-04	-3.47E-04	-3.45E-04	-3.53E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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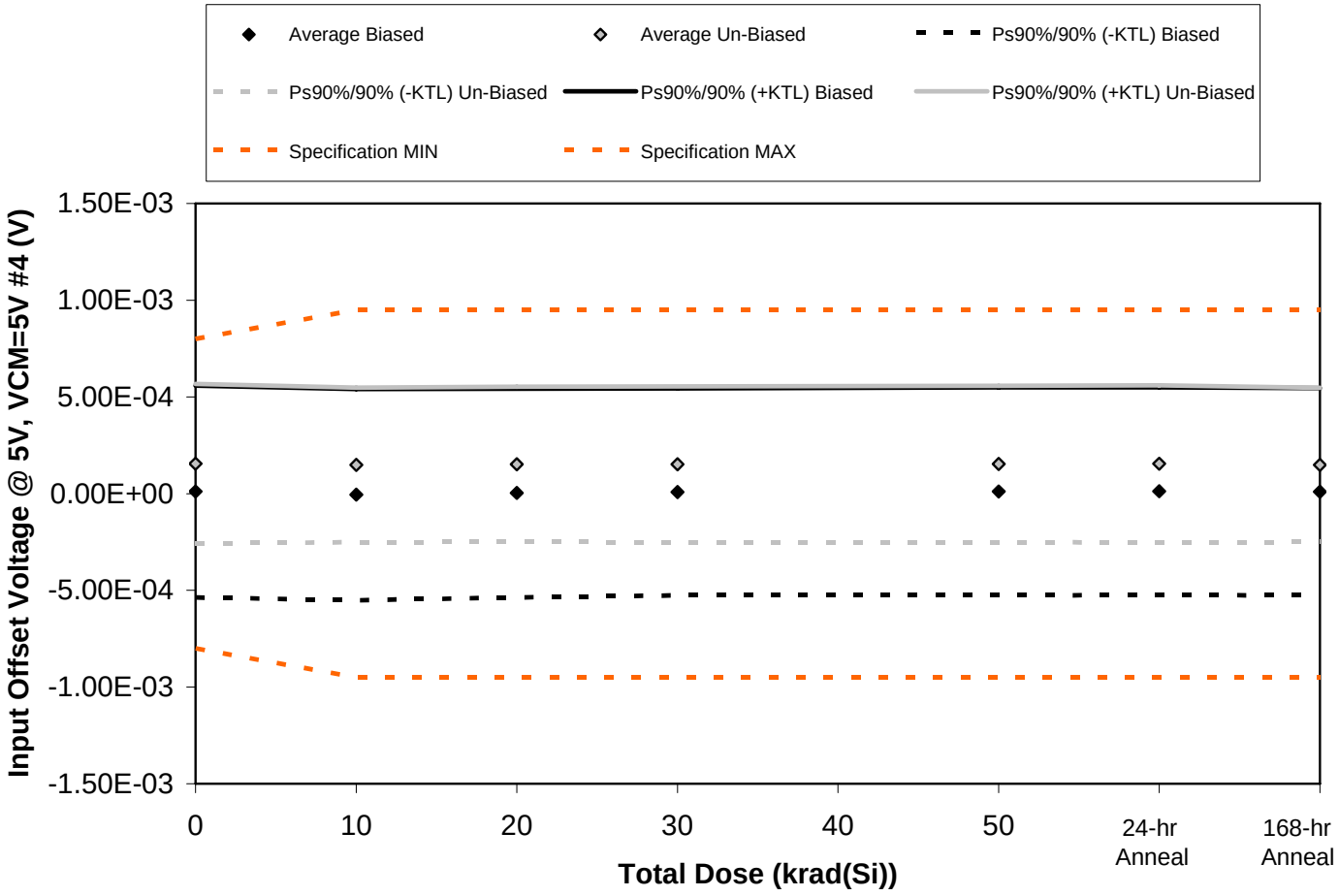

Figure 5.204. Plot of Input Offset Voltage @ 5V, VCM=5V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.204. Raw data for Input Offset Voltage @ 5V, VCM=5V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Voltage @ 5V, VCM=5V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-4.39E-05	-5.14E-05	-3.74E-05	-2.96E-05	-1.82E-05	-1.78E-05	-2.70E-05
867	3.01E-04	2.82E-04	2.84E-04	2.85E-04	2.85E-04	2.87E-04	2.85E-04
868	-1.54E-04	-1.76E-04	-1.69E-04	-1.67E-04	-1.73E-04	-1.71E-04	-1.68E-04
869	1.24E-04	1.07E-04	1.15E-04	1.21E-04	1.28E-04	1.27E-04	1.24E-04
870	-1.70E-04	-1.85E-04	-1.76E-04	-1.68E-04	-1.64E-04	-1.62E-04	-1.67E-04
871	1.55E-04	1.49E-04	1.51E-04	1.50E-04	1.51E-04	1.52E-04	1.50E-04
872	7.86E-05	7.26E-05	7.48E-05	7.60E-05	7.55E-05	7.72E-05	7.38E-05
873	5.95E-05	5.66E-05	6.06E-05	6.16E-05	6.71E-05	6.65E-05	6.29E-05
874	4.16E-04	4.01E-04	4.05E-04	4.06E-04	4.08E-04	4.12E-04	4.01E-04
876	6.59E-05	6.49E-05	6.56E-05	6.49E-05	6.35E-05	6.56E-05	5.97E-05
877	3.87E-05	3.71E-05	3.66E-05	3.66E-05	3.66E-05	3.63E-05	3.52E-05
Biased Statistics							
Average Biased	1.13E-05	-4.68E-06	3.35E-06	8.34E-06	1.15E-05	1.25E-05	9.38E-06
Std Dev Biased	2.00E-04	1.99E-04	1.97E-04	1.95E-04	1.96E-04	1.96E-04	1.96E-04
Ps90%/90% (+KTL) Biased	5.59E-04	5.42E-04	5.43E-04	5.43E-04	5.49E-04	5.50E-04	5.46E-04
Ps90%/90% (-KTL) Biased	-5.37E-04	-5.51E-04	-5.36E-04	-5.27E-04	-5.26E-04	-5.25E-04	-5.27E-04
Un-Biased Statistics							
Average Un-Biased	1.55E-04	1.49E-04	1.51E-04	1.52E-04	1.53E-04	1.55E-04	1.49E-04
Std Dev Un-Biased	1.51E-04	1.46E-04	1.46E-04	1.47E-04	1.47E-04	1.48E-04	1.45E-04
Ps90%/90% (+KTL) Un-Biased	5.68E-04	5.49E-04	5.52E-04	5.55E-04	5.57E-04	5.61E-04	5.48E-04
Ps90%/90% (-KTL) Un-Biased	-2.58E-04	-2.51E-04	-2.50E-04	-2.51E-04	-2.51E-04	-2.52E-04	-2.49E-04
Specification MIN	-8.00E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04	-9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	8.00E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04	9.50E-04
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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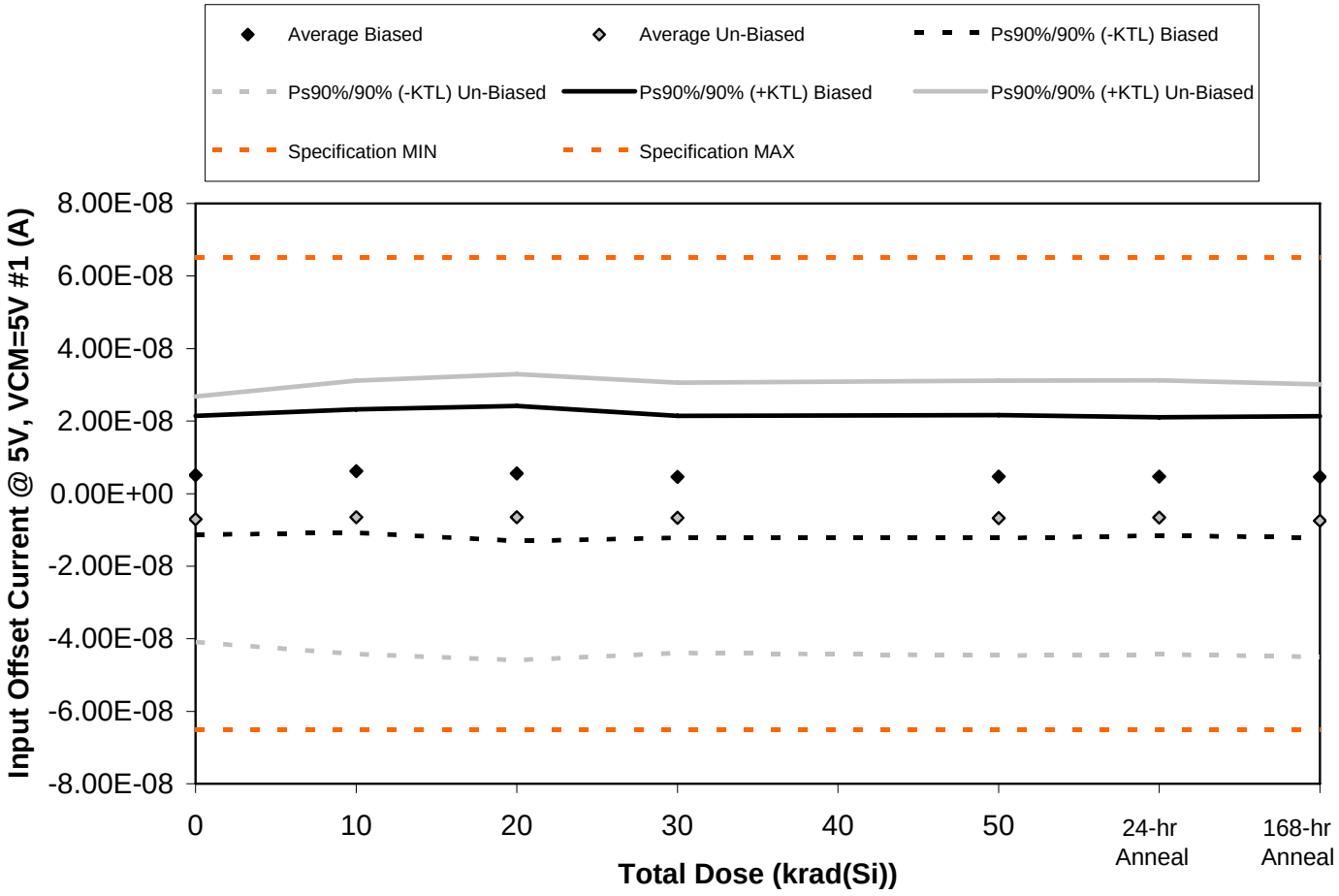

Figure 5.205. Plot of Input Offset Current @ 5V, VCM=5V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.205. Raw data for Input Offset Current @ 5V, VCM=5V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 5V, VCM=5V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.10E-09	5.96E-09	4.59E-09	4.98E-09	6.07E-09	5.93E-09	4.12E-09
867	9.89E-09	1.03E-08	8.75E-09	7.68E-09	7.44E-09	7.25E-09	9.07E-09
868	7.85E-09	8.01E-09	6.82E-09	6.77E-09	7.06E-09	6.84E-09	7.38E-09
869	-5.33E-09	-4.26E-09	-5.27E-09	-5.93E-09	-6.18E-09	-5.66E-09	-5.77E-09
870	6.77E-09	1.11E-08	1.29E-08	9.64E-09	9.14E-09	9.30E-09	8.33E-09
871	-1.09E-08	-9.68E-09	-1.06E-08	-9.59E-09	-9.11E-09	-8.53E-09	-1.08E-08
872	-2.57E-08	-2.78E-08	-2.84E-08	-2.77E-08	-2.81E-08	-2.79E-08	-2.85E-08
873	-2.68E-09	-9.81E-10	-1.83E-09	-2.36E-09	-2.88E-09	-2.97E-09	-2.21E-09
874	-3.80E-09	-3.64E-09	-2.19E-09	-2.97E-09	-3.60E-09	-3.35E-09	-4.30E-09
876	7.72E-09	9.39E-09	1.06E-08	9.26E-09	9.91E-09	1.00E-08	8.62E-09
877	-6.26E-09	-6.25E-09	-6.25E-09	-6.21E-09	-6.04E-09	-6.05E-09	-6.17E-09
Biased Statistics							
Average Biased	5.05E-09	6.22E-09	5.56E-09	4.63E-09	4.71E-09	4.73E-09	4.63E-09
Std Dev Biased	5.98E-09	6.20E-09	6.79E-09	6.13E-09	6.19E-09	5.94E-09	6.11E-09
Ps90%/90% (+KTL) Biased	2.15E-08	2.32E-08	2.42E-08	2.14E-08	2.17E-08	2.10E-08	2.14E-08
Ps90%/90% (-KTL) Biased	-1.13E-08	-1.08E-08	-1.31E-08	-1.22E-08	-1.23E-08	-1.15E-08	-1.21E-08
Un-Biased Statistics							
Average Un-Biased	-7.07E-09	-6.55E-09	-6.48E-09	-6.68E-09	-6.75E-09	-6.56E-09	-7.44E-09
Std Dev Un-Biased	1.24E-08	1.38E-08	1.44E-08	1.36E-08	1.38E-08	1.38E-08	1.37E-08
Ps90%/90% (+KTL) Un-Biased	2.68E-08	3.12E-08	3.30E-08	3.06E-08	3.11E-08	3.12E-08	3.01E-08
Ps90%/90% (-KTL) Un-Biased	-4.09E-08	-4.43E-08	-4.59E-08	-4.39E-08	-4.46E-08	-4.43E-08	-4.50E-08
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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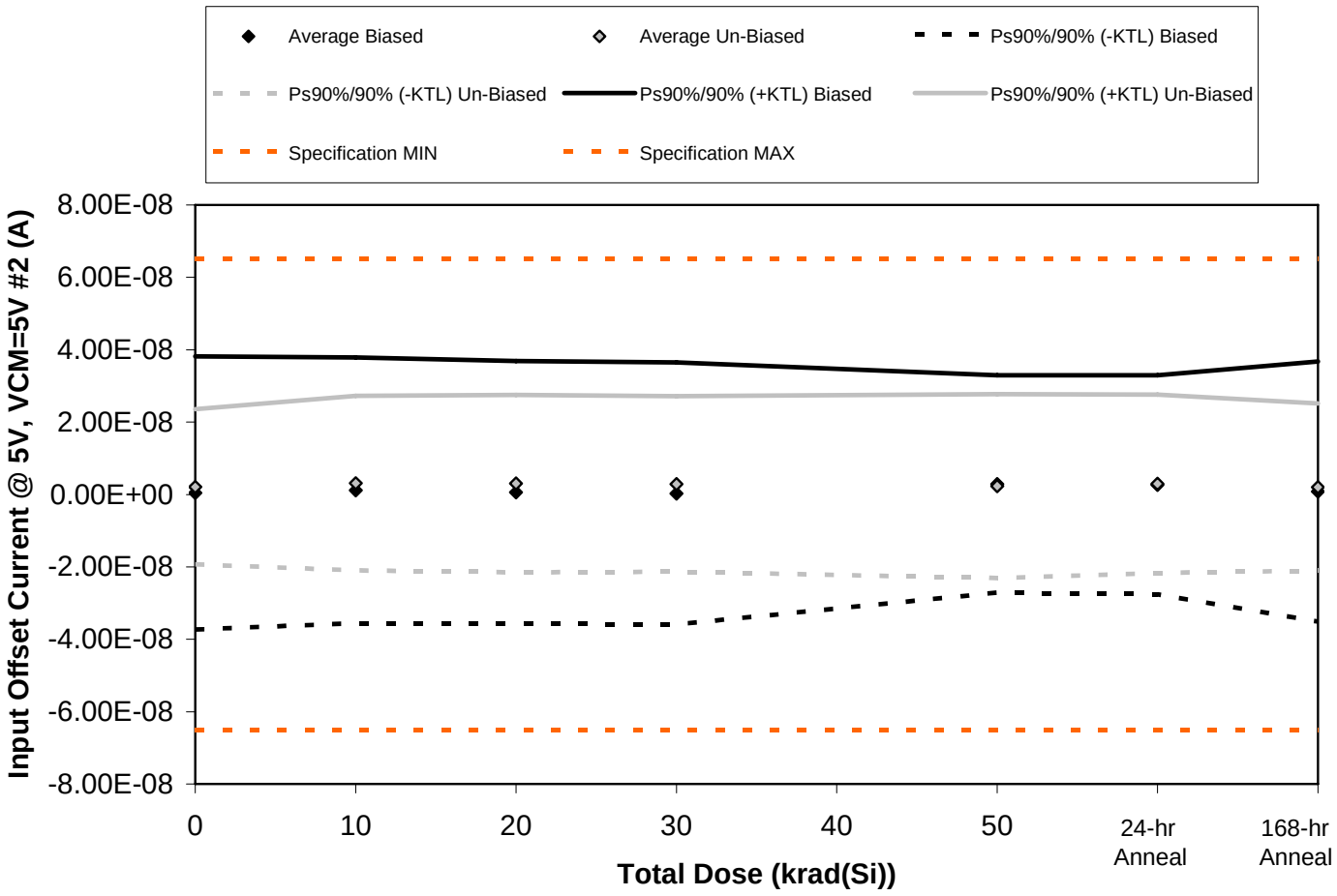

Figure 5.206. Plot of Input Offset Current @ 5V, VCM=5V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.206. Raw data for Input Offset Current @ 5V, VCM=5V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 5V, VCM=5V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.29E-08	1.31E-08	1.29E-08	1.21E-08	1.61E-08	1.65E-08	1.37E-08
867	-2.24E-08	-2.11E-08	-2.14E-08	-2.20E-08	-1.39E-08	-1.39E-08	-2.09E-08
868	-1.49E-09	-6.41E-10	-1.15E-09	1.80E-11	3.20E-10	4.00E-12	-1.37E-10
869	7.02E-09	7.45E-09	6.86E-09	6.09E-09	5.97E-09	5.60E-09	5.83E-09
870	6.15E-09	6.99E-09	5.77E-09	5.30E-09	6.01E-09	5.15E-09	5.57E-09
871	5.23E-09	9.92E-09	9.51E-09	8.98E-09	8.89E-09	8.72E-09	7.56E-09
872	1.38E-08	1.48E-08	1.53E-08	1.55E-08	1.54E-08	1.60E-08	1.41E-08
873	-4.28E-09	-3.20E-09	-3.73E-09	-2.64E-09	-4.81E-09	-3.87E-09	-3.60E-09
874	1.25E-09	-3.92E-10	-8.22E-10	-3.03E-09	-3.40E-09	-2.76E-09	-2.21E-09
876	-5.47E-09	-5.45E-09	-5.15E-09	-4.28E-09	-4.50E-09	-3.41E-09	-5.58E-09
877	-4.01E-10	-3.93E-10	-4.98E-10	-4.09E-10	-4.05E-10	-3.85E-10	-4.75E-10
Biased Statistics							
Average Biased	4.28E-10	1.17E-09	5.88E-10	3.01E-10	2.90E-09	2.68E-09	8.14E-10
Std Dev Biased	1.38E-08	1.34E-08	1.33E-08	1.32E-08	1.09E-08	1.10E-08	1.31E-08
Ps90%/90% (+KTL) Biased	3.82E-08	3.79E-08	3.69E-08	3.65E-08	3.29E-08	3.29E-08	3.67E-08
Ps90%/90% (-KTL) Biased	-3.73E-08	-3.55E-08	-3.58E-08	-3.59E-08	-2.71E-08	-2.76E-08	-3.51E-08
Un-Biased Statistics							
Average Un-Biased	2.10E-09	3.14E-09	3.02E-09	2.91E-09	2.32E-09	2.93E-09	2.05E-09
Std Dev Un-Biased	7.82E-09	8.80E-09	8.93E-09	8.86E-09	9.28E-09	8.98E-09	8.42E-09
Ps90%/90% (+KTL) Un-Biased	2.35E-08	2.73E-08	2.75E-08	2.72E-08	2.78E-08	2.76E-08	2.51E-08
Ps90%/90% (-KTL) Un-Biased	-1.93E-08	-2.10E-08	-2.15E-08	-2.14E-08	-2.31E-08	-2.17E-08	-2.10E-08
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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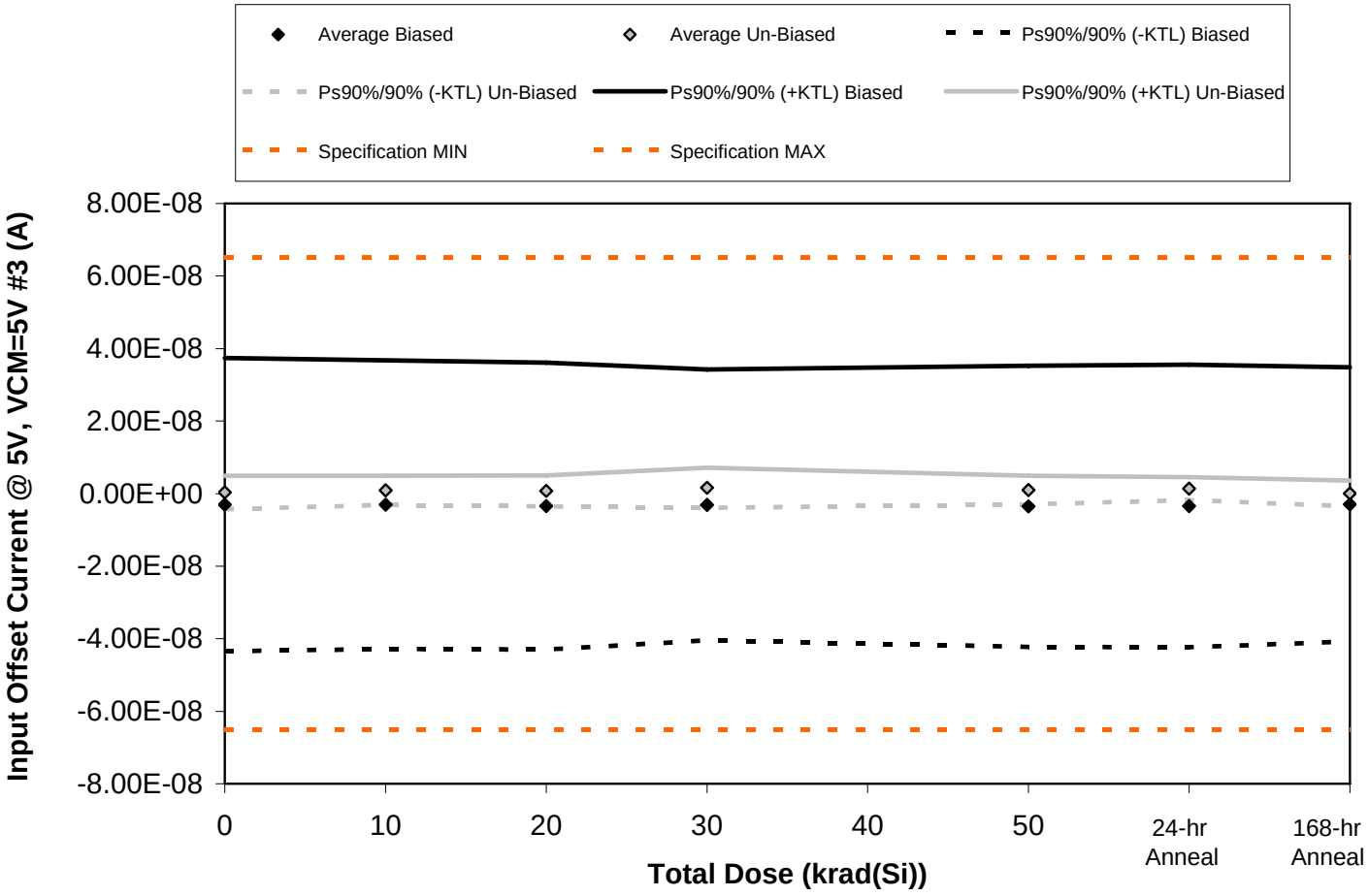

Figure 5.207. Plot of Input Offset Current @ 5V, VCM=5V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.207. Raw data for Input Offset Current @ 5V, VCM=5V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 5V, VCM=5V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.07E-08	1.18E-08	1.21E-08	1.06E-08	1.07E-08	1.10E-08	1.04E-08
867	-1.85E-08	-1.85E-08	-1.87E-08	-1.74E-08	-1.82E-08	-1.80E-08	-1.75E-08
868	-1.67E-08	-1.58E-08	-1.60E-08	-1.55E-08	-1.66E-08	-1.65E-08	-1.54E-08
869	1.30E-08	1.18E-08	1.07E-08	1.09E-08	1.09E-08	1.12E-08	1.16E-08
870	-3.62E-09	-4.51E-09	-5.39E-09	-4.18E-09	-4.50E-09	-4.75E-09	-4.06E-09
871	-5.12E-10	-4.88E-10	-3.28E-10	-1.14E-10	2.81E-10	1.00E-09	-3.43E-10
872	3.16E-09	3.27E-09	3.46E-09	4.81E-09	3.43E-09	3.30E-09	2.14E-09
873	-8.83E-10	1.08E-09	-5.60E-11	2.30E-09	1.05E-09	1.07E-09	1.91E-10
874	-7.03E-10	-8.80E-11	4.65E-10	8.03E-10	4.43E-10	1.43E-09	-4.70E-10
876	6.58E-10	8.22E-10	1.70E-10	2.30E-10	-2.42E-10	2.01E-10	-1.36E-09
877	-2.42E-09	-2.39E-09	-2.36E-09	-2.47E-09	-2.34E-09	-2.41E-09	-2.39E-09
Biased Statistics							
Average Biased	-3.03E-09	-3.04E-09	-3.45E-09	-3.10E-09	-3.53E-09	-3.42E-09	-2.98E-09
Std Dev Biased	1.47E-08	1.45E-08	1.44E-08	1.36E-08	1.41E-08	1.42E-08	1.38E-08
Ps90%/90% (+KTL) Biased	3.74E-08	3.67E-08	3.61E-08	3.42E-08	3.52E-08	3.55E-08	3.48E-08
Ps90%/90% (-KTL) Biased	-4.34E-08	-4.28E-08	-4.30E-08	-4.04E-08	-4.23E-08	-4.24E-08	-4.08E-08
Un-Biased Statistics							
Average Un-Biased	3.44E-10	9.20E-10	7.41E-10	1.61E-09	9.92E-10	1.40E-09	3.06E-11
Std Dev Un-Biased	1.69E-09	1.46E-09	1.55E-09	2.02E-09	1.44E-09	1.15E-09	1.30E-09
Ps90%/90% (+KTL) Un-Biased	4.97E-09	4.93E-09	4.98E-09	7.14E-09	4.93E-09	4.56E-09	3.60E-09
Ps90%/90% (-KTL) Un-Biased	-4.28E-09	-3.09E-09	-3.50E-09	-3.92E-09	-2.95E-09	-1.76E-09	-3.54E-09
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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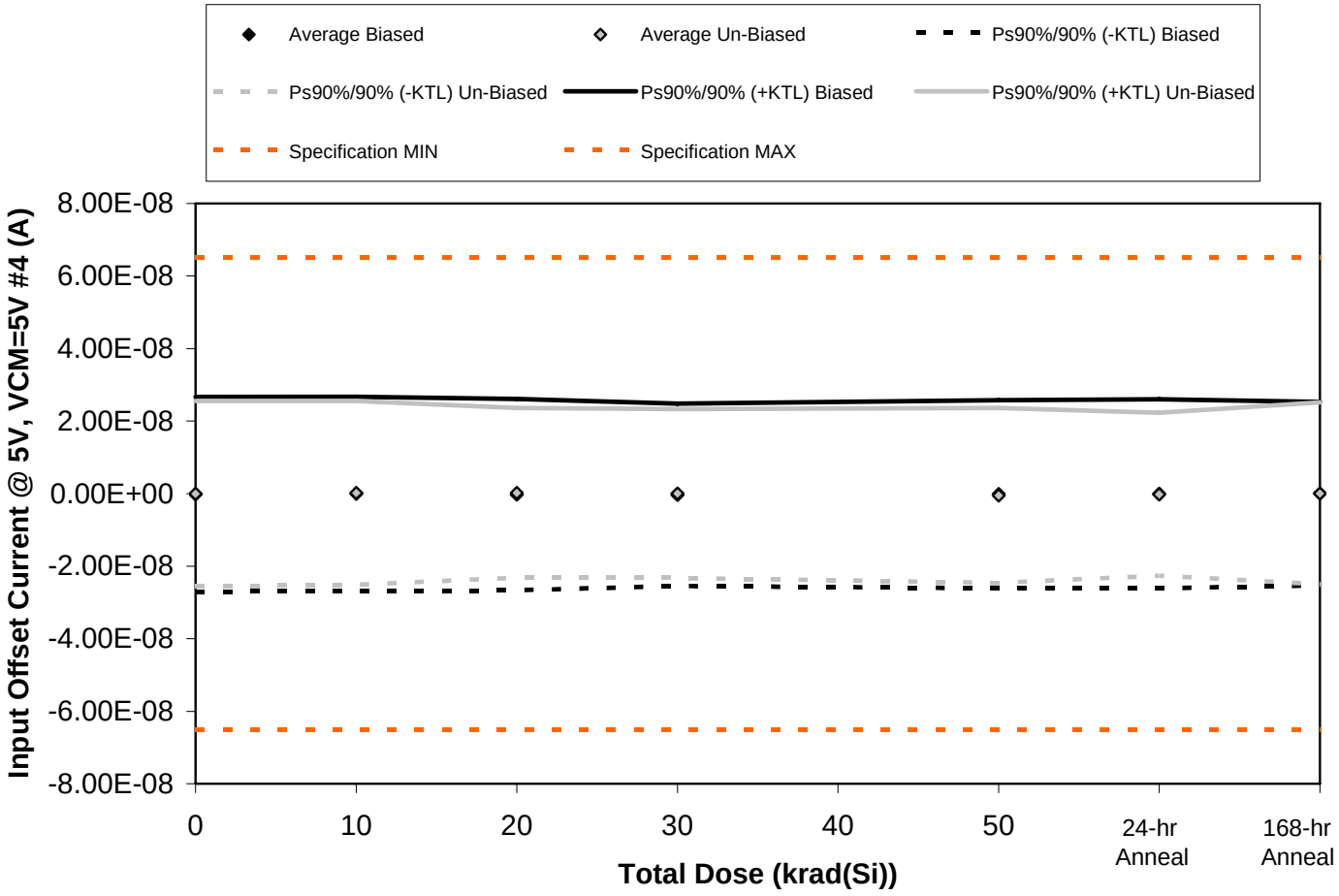

Figure 5.208. Plot of Input Offset Current @ 5V, VCM=5V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.208. Raw data for Input Offset Current @ 5V, VCM=5V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Input Offset Current @ 5V, VCM=5V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.22E-08	1.18E-08	1.15E-08	1.10E-08	1.15E-08	1.15E-08	1.14E-08
867	-1.49E-09	-4.68E-10	-4.67E-10	-9.39E-10	-1.32E-09	-1.04E-09	-7.69E-10
868	-6.38E-09	-5.95E-09	-6.44E-09	-5.70E-09	-5.81E-09	-5.16E-09	-4.94E-09
869	-1.21E-08	-1.26E-08	-1.24E-08	-1.21E-08	-1.20E-08	-1.24E-08	-1.20E-08
870	6.83E-09	6.88E-09	6.47E-09	6.13E-09	6.82E-09	6.91E-09	6.37E-09
871	-8.71E-09	-8.39E-09	-7.52E-09	-7.90E-09	-8.44E-09	-7.55E-09	-8.26E-09
872	2.39E-09	2.13E-09	1.82E-09	2.17E-09	1.32E-09	1.52E-09	1.58E-09
873	1.36E-08	1.44E-08	1.32E-08	1.28E-08	1.21E-08	1.17E-08	1.37E-08
874	1.64E-09	5.13E-10	1.17E-09	5.75E-10	1.89E-09	1.73E-09	1.85E-09
876	-8.92E-09	-7.64E-09	-7.47E-09	-7.57E-09	-9.34E-09	-8.29E-09	-8.48E-09
877	-5.64E-09	-5.52E-09	-5.41E-09	-5.50E-09	-5.32E-09	-5.39E-09	-5.42E-09
Biased Statistics							
Average Biased	-1.91E-10	-7.14E-11	-2.70E-10	-3.19E-10	-1.55E-10	-3.60E-11	4.80E-12
Std Dev Biased	9.79E-09	9.78E-09	9.63E-09	9.17E-09	9.46E-09	9.50E-09	9.23E-09
Ps90%/90% (+KTL) Biased	2.66E-08	2.68E-08	2.61E-08	2.48E-08	2.58E-08	2.60E-08	2.53E-08
Ps90%/90% (-KTL) Biased	-2.70E-08	-2.69E-08	-2.67E-08	-2.55E-08	-2.61E-08	-2.61E-08	-2.53E-08
Un-Biased Statistics							
Average Un-Biased	-5.80E-12	2.11E-10	2.37E-10	1.46E-11	-4.92E-10	-1.70E-10	7.72E-11
Std Dev Un-Biased	9.33E-09	9.24E-09	8.53E-09	8.49E-09	8.80E-09	8.20E-09	9.13E-09
Ps90%/90% (+KTL) Un-Biased	2.56E-08	2.56E-08	2.36E-08	2.33E-08	2.36E-08	2.23E-08	2.51E-08
Ps90%/90% (-KTL) Un-Biased	-2.56E-08	-2.51E-08	-2.31E-08	-2.33E-08	-2.46E-08	-2.27E-08	-2.50E-08
Specification MIN	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08	-6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08	6.50E-08
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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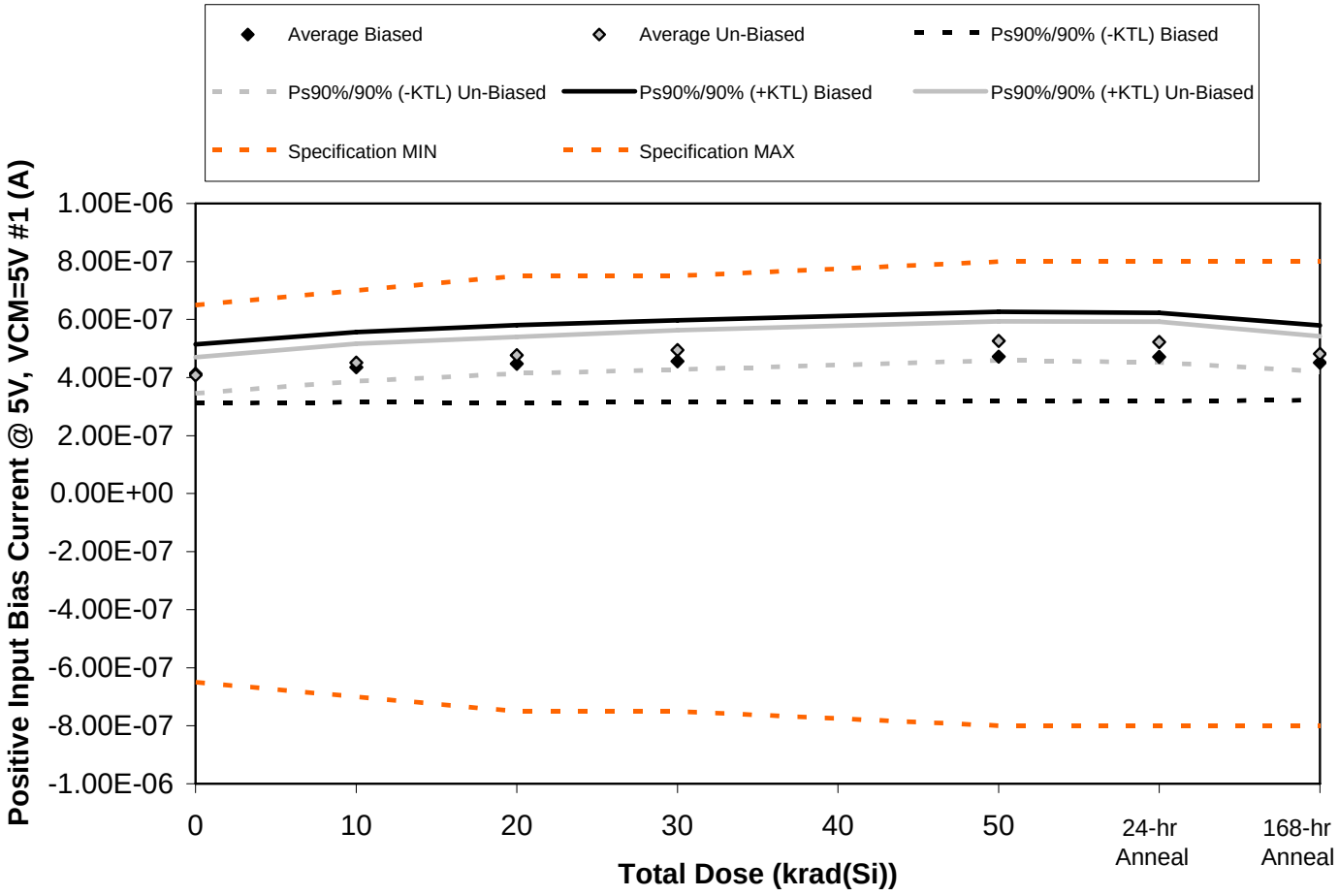

Figure 5.209. Plot of Positive Input Bias Current @ 5V, VCM=5V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.209. Raw data for Positive Input Bias Current @ 5V, VCM=5V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 5V, VCM=5V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.73E-07	5.08E-07	5.27E-07	5.43E-07	5.69E-07	5.67E-07	5.30E-07
867	3.86E-07	4.06E-07	4.15E-07	4.24E-07	4.41E-07	4.37E-07	4.21E-07
868	3.82E-07	3.99E-07	4.08E-07	4.17E-07	4.31E-07	4.32E-07	4.15E-07
869	4.03E-07	4.21E-07	4.29E-07	4.36E-07	4.48E-07	4.48E-07	4.35E-07
870	4.21E-07	4.45E-07	4.57E-07	4.61E-07	4.73E-07	4.73E-07	4.56E-07
871	4.43E-07	4.86E-07	5.09E-07	5.28E-07	5.59E-07	5.56E-07	5.13E-07
872	4.04E-07	4.53E-07	4.78E-07	4.98E-07	5.30E-07	5.26E-07	4.82E-07
873	3.85E-07	4.25E-07	4.51E-07	4.67E-07	4.98E-07	4.93E-07	4.57E-07
874	4.15E-07	4.60E-07	4.88E-07	5.07E-07	5.38E-07	5.37E-07	4.90E-07
876	3.94E-07	4.34E-07	4.60E-07	4.76E-07	5.07E-07	5.02E-07	4.65E-07
877	4.43E-07	4.45E-07	4.44E-07	4.43E-07	4.44E-07	4.44E-07	4.45E-07
Biased Statistics							
Average Biased	4.13E-07	4.36E-07	4.47E-07	4.56E-07	4.72E-07	4.71E-07	4.51E-07
Std Dev Biased	3.71E-08	4.41E-08	4.85E-08	5.14E-08	5.62E-08	5.54E-08	4.69E-08
Ps90%/90% (+KTL) Biased	5.15E-07	5.57E-07	5.80E-07	5.97E-07	6.27E-07	6.23E-07	5.80E-07
Ps90%/90% (-KTL) Biased	3.11E-07	3.15E-07	3.14E-07	3.15E-07	3.18E-07	3.19E-07	3.23E-07
Un-Biased Statistics							
Average Un-Biased	4.08E-07	4.52E-07	4.77E-07	4.95E-07	5.27E-07	5.23E-07	4.82E-07
Std Dev Un-Biased	2.25E-08	2.37E-08	2.30E-08	2.45E-08	2.45E-08	2.56E-08	2.21E-08
Ps90%/90% (+KTL) Un-Biased	4.70E-07	5.17E-07	5.40E-07	5.63E-07	5.94E-07	5.93E-07	5.42E-07
Ps90%/90% (-KTL) Un-Biased	3.46E-07	3.87E-07	4.14E-07	4.28E-07	4.59E-07	4.52E-07	4.21E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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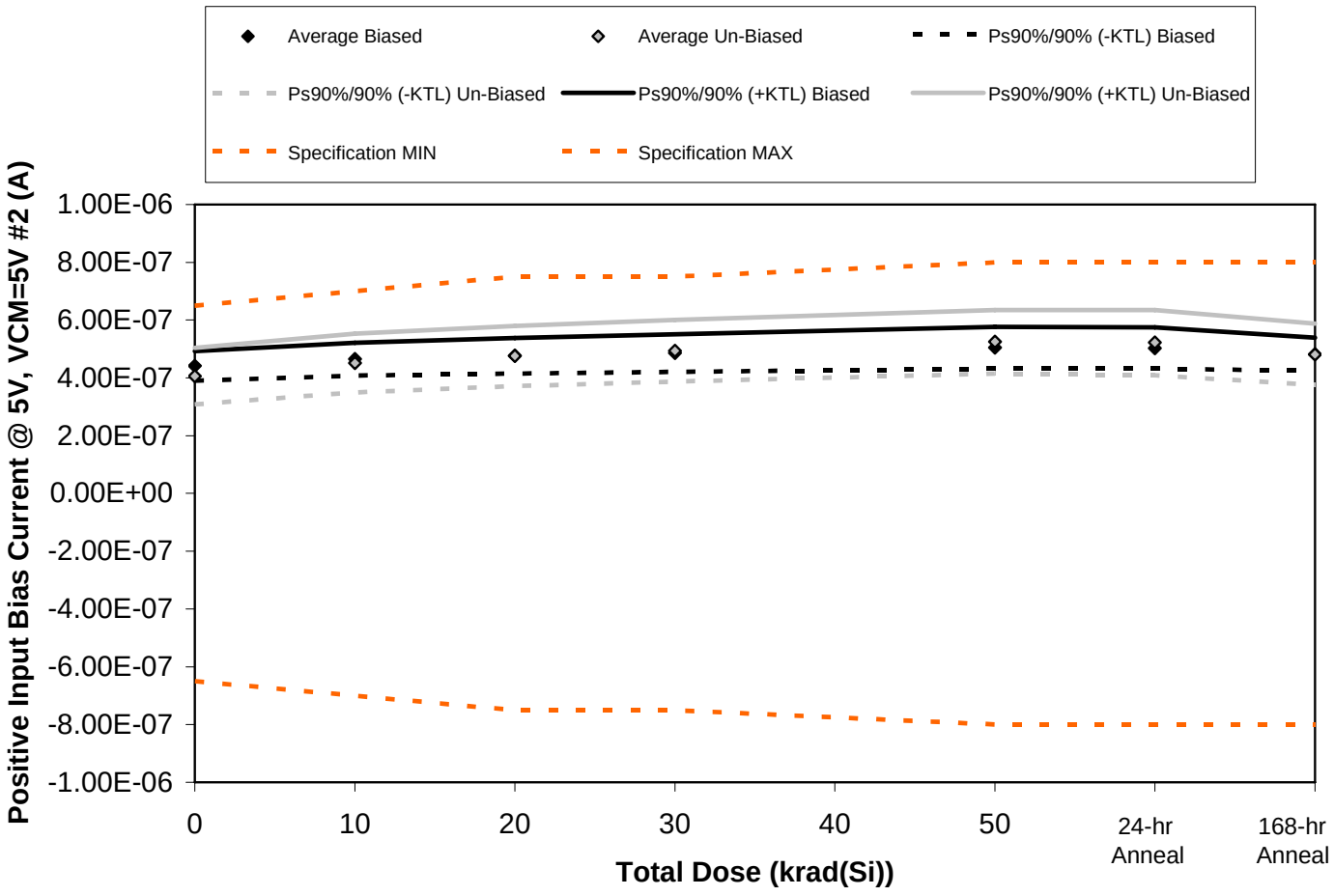

Figure 5.210. Plot of Positive Input Bias Current @ 5V, VCM=5V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.210. Raw data for Positive Input Bias Current @ 5V, VCM=5V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 5V, VCM=5V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.49E-07	4.81E-07	5.00E-07	5.14E-07	5.38E-07	5.36E-07	5.02E-07
867	4.38E-07	4.58E-07	4.70E-07	4.81E-07	4.98E-07	4.97E-07	4.77E-07
868	4.14E-07	4.35E-07	4.45E-07	4.53E-07	4.69E-07	4.67E-07	4.52E-07
869	4.42E-07	4.63E-07	4.72E-07	4.80E-07	4.96E-07	4.95E-07	4.76E-07
870	4.66E-07	4.87E-07	4.97E-07	5.04E-07	5.20E-07	5.20E-07	5.02E-07
871	3.53E-07	3.94E-07	4.17E-07	4.32E-07	4.61E-07	4.57E-07	4.22E-07
872	4.29E-07	4.71E-07	4.94E-07	5.11E-07	5.42E-07	5.39E-07	4.96E-07
873	4.43E-07	4.88E-07	5.13E-07	5.33E-07	5.64E-07	5.61E-07	5.22E-07
874	4.16E-07	4.69E-07	4.95E-07	5.10E-07	5.45E-07	5.46E-07	5.00E-07
876	3.90E-07	4.35E-07	4.60E-07	4.83E-07	5.13E-07	5.09E-07	4.67E-07
877	3.90E-07	3.93E-07	3.90E-07	3.91E-07	3.86E-07	3.92E-07	3.94E-07
Biased Statistics							
Average Biased	4.42E-07	4.65E-07	4.77E-07	4.86E-07	5.04E-07	5.03E-07	4.82E-07
Std Dev Biased	1.88E-08	2.06E-08	2.26E-08	2.37E-08	2.64E-08	2.60E-08	2.09E-08
Ps90%/90% (+KTL) Biased	4.93E-07	5.21E-07	5.39E-07	5.51E-07	5.77E-07	5.75E-07	5.39E-07
Ps90%/90% (-KTL) Biased	3.90E-07	4.08E-07	4.15E-07	4.21E-07	4.32E-07	4.32E-07	4.24E-07
Un-Biased Statistics							
Average Un-Biased	4.06E-07	4.51E-07	4.76E-07	4.94E-07	5.25E-07	5.22E-07	4.81E-07
Std Dev Un-Biased	3.55E-08	3.72E-08	3.79E-08	3.89E-08	4.01E-08	4.13E-08	3.87E-08
Ps90%/90% (+KTL) Un-Biased	5.04E-07	5.53E-07	5.80E-07	6.00E-07	6.35E-07	6.35E-07	5.87E-07
Ps90%/90% (-KTL) Un-Biased	3.09E-07	3.49E-07	3.72E-07	3.87E-07	4.15E-07	4.09E-07	3.75E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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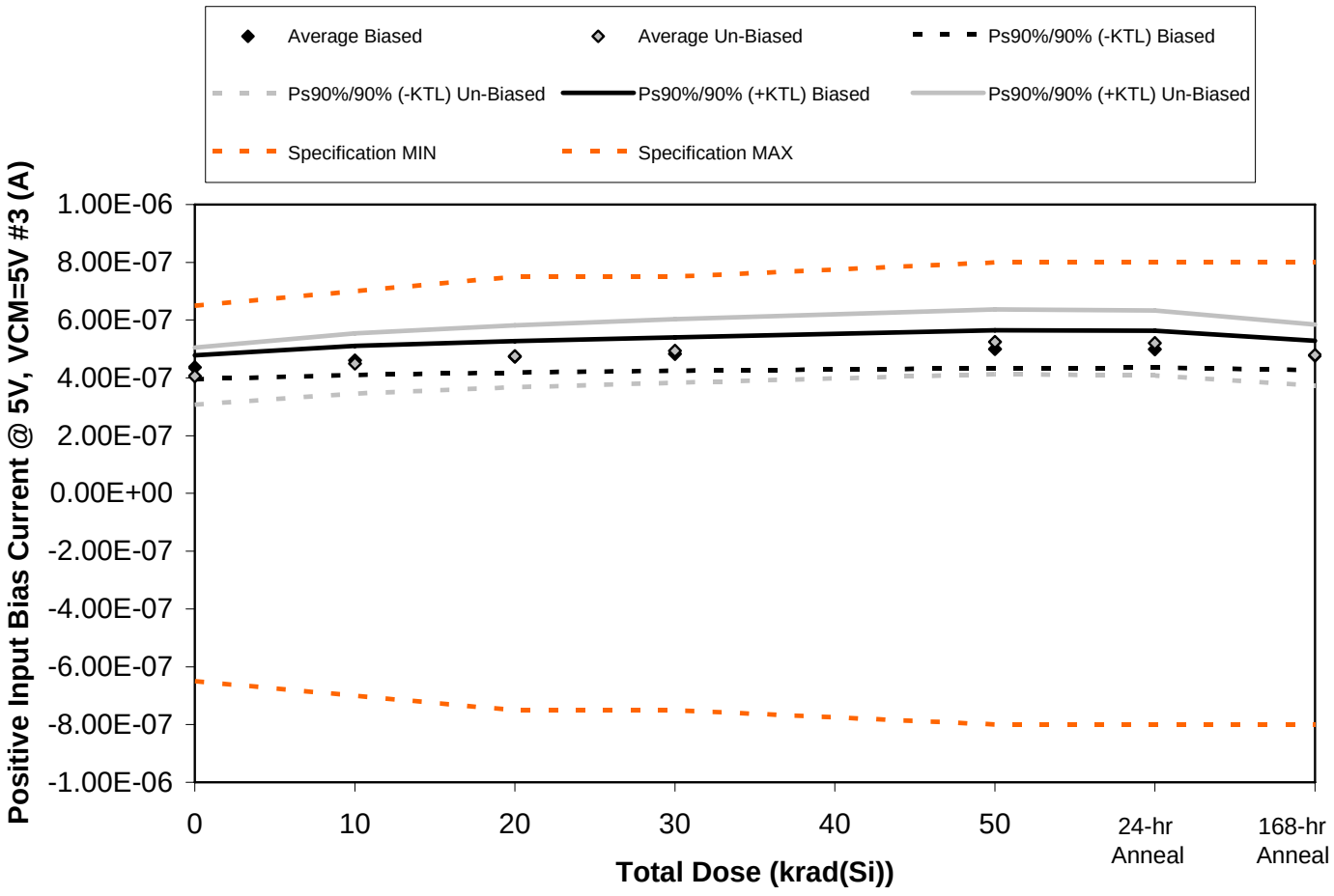

Figure 5.211. Plot of Positive Input Bias Current @ 5V, VCM=5V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.211. Raw data for Positive Input Bias Current @ 5V, VCM=5V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 5V, VCM=5V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.42E-07	4.73E-07	4.91E-07	5.04E-07	5.26E-07	5.24E-07	4.92E-07
867	4.39E-07	4.62E-07	4.75E-07	4.84E-07	5.00E-07	4.99E-07	4.79E-07
868	4.11E-07	4.28E-07	4.39E-07	4.47E-07	4.61E-07	4.61E-07	4.45E-07
869	4.47E-07	4.70E-07	4.82E-07	4.88E-07	5.05E-07	5.07E-07	4.84E-07
870	4.46E-07	4.68E-07	4.80E-07	4.89E-07	5.04E-07	5.03E-07	4.86E-07
871	3.55E-07	3.95E-07	4.18E-07	4.35E-07	4.64E-07	4.60E-07	4.24E-07
872	4.18E-07	4.55E-07	4.78E-07	4.98E-07	5.28E-07	5.24E-07	4.81E-07
873	4.51E-07	4.97E-07	5.23E-07	5.43E-07	5.74E-07	5.70E-07	5.29E-07
874	4.17E-07	4.65E-07	4.93E-07	5.12E-07	5.45E-07	5.41E-07	4.96E-07
876	3.90E-07	4.35E-07	4.62E-07	4.80E-07	5.13E-07	5.09E-07	4.66E-07
877	3.86E-07	3.86E-07	3.87E-07	3.85E-07	3.85E-07	3.86E-07	3.88E-07
Biased Statistics							
Average Biased	4.37E-07	4.60E-07	4.73E-07	4.83E-07	4.99E-07	4.99E-07	4.77E-07
Std Dev Biased	1.50E-08	1.83E-08	1.98E-08	2.11E-08	2.39E-08	2.33E-08	1.86E-08
Ps90%/90% (+KTL) Biased	4.78E-07	5.11E-07	5.28E-07	5.41E-07	5.65E-07	5.63E-07	5.28E-07
Ps90%/90% (-KTL) Biased	3.96E-07	4.10E-07	4.19E-07	4.25E-07	4.34E-07	4.35E-07	4.26E-07
Un-Biased Statistics							
Average Un-Biased	4.06E-07	4.50E-07	4.75E-07	4.93E-07	5.25E-07	5.21E-07	4.79E-07
Std Dev Un-Biased	3.59E-08	3.80E-08	3.90E-08	4.00E-08	4.07E-08	4.10E-08	3.86E-08
Ps90%/90% (+KTL) Un-Biased	5.05E-07	5.54E-07	5.82E-07	6.03E-07	6.37E-07	6.33E-07	5.85E-07
Ps90%/90% (-KTL) Un-Biased	3.08E-07	3.45E-07	3.68E-07	3.84E-07	4.13E-07	4.08E-07	3.73E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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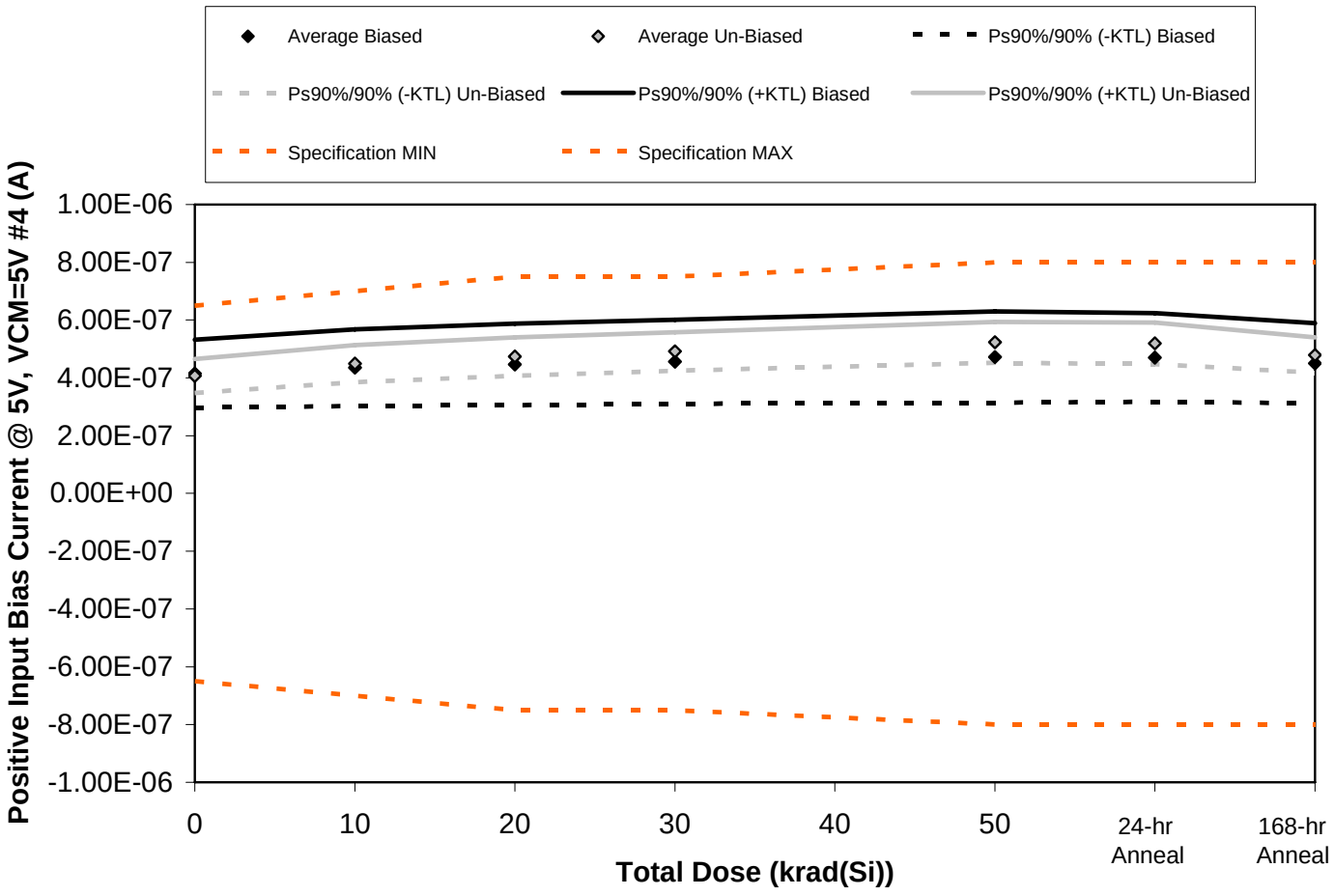

Figure 5.212. Plot of Positive Input Bias Current @ 5V, VCM=5V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.212. Raw data for Positive Input Bias Current @ 5V, VCM=5V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Input Bias Current @ 5V, VCM=5V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.80E-07	5.12E-07	5.30E-07	5.44E-07	5.69E-07	5.65E-07	5.33E-07
867	3.79E-07	3.99E-07	4.13E-07	4.21E-07	4.38E-07	4.37E-07	4.16E-07
868	3.75E-07	3.91E-07	4.00E-07	4.12E-07	4.24E-07	4.23E-07	4.06E-07
869	4.10E-07	4.25E-07	4.35E-07	4.41E-07	4.54E-07	4.53E-07	4.39E-07
870	4.30E-07	4.47E-07	4.55E-07	4.61E-07	4.75E-07	4.74E-07	4.59E-07
871	4.36E-07	4.79E-07	5.04E-07	5.20E-07	5.51E-07	5.49E-07	5.06E-07
872	4.12E-07	4.57E-07	4.83E-07	5.01E-07	5.35E-07	5.31E-07	4.86E-07
873	3.96E-07	4.39E-07	4.62E-07	4.80E-07	5.10E-07	5.06E-07	4.70E-07
874	4.12E-07	4.55E-07	4.81E-07	5.01E-07	5.34E-07	5.28E-07	4.87E-07
876	3.79E-07	4.17E-07	4.40E-07	4.56E-07	4.85E-07	4.81E-07	4.47E-07
877	4.43E-07	4.43E-07	4.45E-07	4.43E-07	4.43E-07	4.42E-07	4.45E-07
Biased Statistics							
Average Biased	4.15E-07	4.35E-07	4.46E-07	4.56E-07	4.72E-07	4.70E-07	4.51E-07
Std Dev Biased	4.29E-08	4.85E-08	5.14E-08	5.30E-08	5.76E-08	5.60E-08	5.06E-08
Ps90%/90% (+KTL) Biased	5.32E-07	5.68E-07	5.87E-07	6.01E-07	6.30E-07	6.24E-07	5.90E-07
Ps90%/90% (-KTL) Biased	2.97E-07	3.02E-07	3.05E-07	3.10E-07	3.14E-07	3.17E-07	3.12E-07
Un-Biased Statistics							
Average Un-Biased	4.07E-07	4.50E-07	4.74E-07	4.92E-07	5.23E-07	5.19E-07	4.79E-07
Std Dev Un-Biased	2.14E-08	2.33E-08	2.42E-08	2.43E-08	2.57E-08	2.62E-08	2.21E-08
Ps90%/90% (+KTL) Un-Biased	4.66E-07	5.13E-07	5.40E-07	5.58E-07	5.94E-07	5.91E-07	5.40E-07
Ps90%/90% (-KTL) Un-Biased	3.48E-07	3.86E-07	4.07E-07	4.25E-07	4.53E-07	4.47E-07	4.18E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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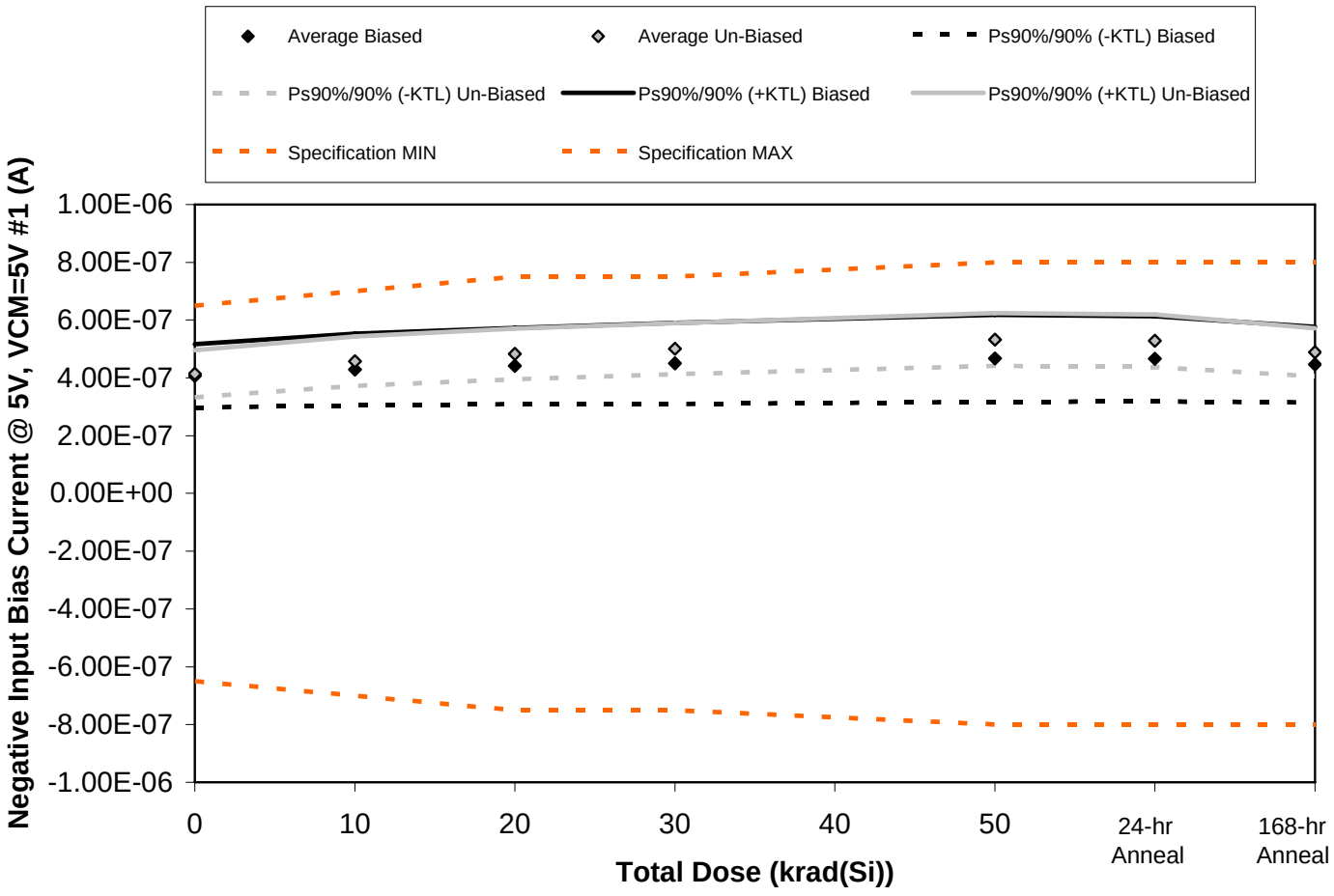

Figure 5.213. Plot of Negative Input Bias Current @ 5V, VCM=5V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.213. Raw data for Negative Input Bias Current @ 5V, VCM=5V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 5V, VCM=5V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.69E-07	5.02E-07	5.21E-07	5.36E-07	5.62E-07	5.58E-07	5.25E-07
867	3.73E-07	3.94E-07	4.06E-07	4.15E-07	4.33E-07	4.31E-07	4.11E-07
868	3.71E-07	3.89E-07	4.02E-07	4.08E-07	4.25E-07	4.25E-07	4.07E-07
869	4.09E-07	4.25E-07	4.34E-07	4.40E-07	4.54E-07	4.53E-07	4.40E-07
870	4.14E-07	4.33E-07	4.43E-07	4.51E-07	4.64E-07	4.62E-07	4.47E-07
871	4.53E-07	4.94E-07	5.19E-07	5.35E-07	5.68E-07	5.64E-07	5.24E-07
872	4.31E-07	4.80E-07	5.06E-07	5.25E-07	5.57E-07	5.54E-07	5.11E-07
873	3.85E-07	4.26E-07	4.51E-07	4.68E-07	4.99E-07	4.95E-07	4.59E-07
874	4.16E-07	4.63E-07	4.90E-07	5.10E-07	5.43E-07	5.38E-07	4.93E-07
876	3.84E-07	4.25E-07	4.47E-07	4.66E-07	4.96E-07	4.92E-07	4.56E-07
877	4.48E-07	4.49E-07	4.50E-07	4.47E-07	4.48E-07	4.48E-07	4.51E-07
Biased Statistics							
Average Biased	4.07E-07	4.29E-07	4.41E-07	4.50E-07	4.68E-07	4.66E-07	4.46E-07
Std Dev Biased	3.99E-08	4.53E-08	4.79E-08	5.13E-08	5.50E-08	5.38E-08	4.76E-08
Ps90%/90% (+KTL) Biased	5.17E-07	5.53E-07	5.73E-07	5.91E-07	6.18E-07	6.13E-07	5.77E-07
Ps90%/90% (-KTL) Biased	2.98E-07	3.04E-07	3.10E-07	3.10E-07	3.17E-07	3.18E-07	3.16E-07
Un-Biased Statistics							
Average Un-Biased	4.14E-07	4.58E-07	4.83E-07	5.01E-07	5.33E-07	5.29E-07	4.89E-07
Std Dev Un-Biased	2.97E-08	3.12E-08	3.20E-08	3.22E-08	3.32E-08	3.32E-08	3.03E-08
Ps90%/90% (+KTL) Un-Biased	4.95E-07	5.43E-07	5.71E-07	5.89E-07	6.24E-07	6.20E-07	5.72E-07
Ps90%/90% (-KTL) Un-Biased	3.33E-07	3.72E-07	3.95E-07	4.13E-07	4.42E-07	4.38E-07	4.05E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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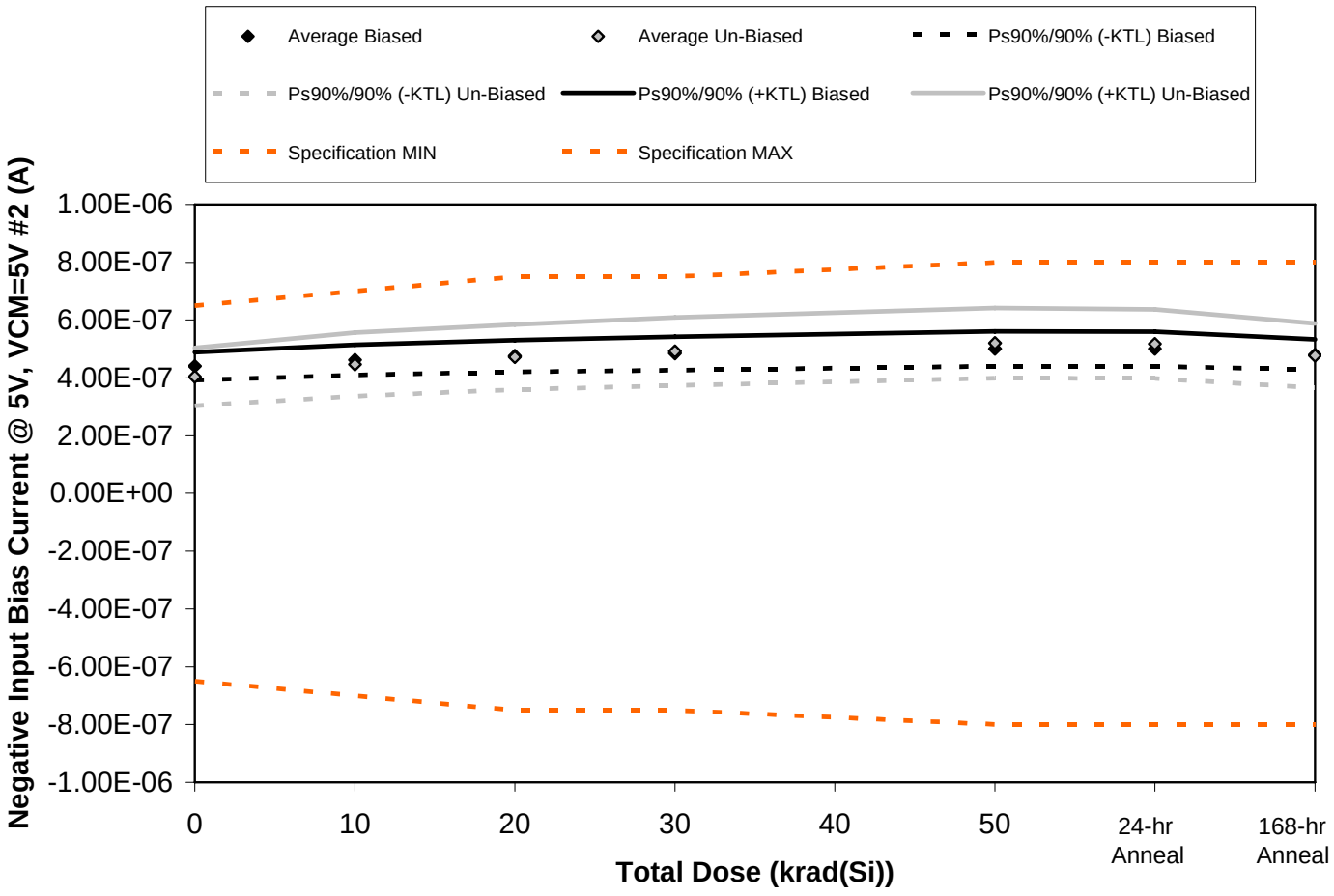

Figure 5.214. Plot of Negative Input Bias Current @ 5V, VCM=5V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.214. Raw data for Negative Input Bias Current @ 5V, VCM=5V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 5V, VCM=5V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.35E-07	4.66E-07	4.86E-07	4.97E-07	5.22E-07	5.19E-07	4.88E-07
867	4.57E-07	4.80E-07	4.91E-07	5.02E-07	5.13E-07	5.12E-07	4.96E-07
868	4.16E-07	4.34E-07	4.45E-07	4.53E-07	4.69E-07	4.68E-07	4.51E-07
869	4.35E-07	4.54E-07	4.66E-07	4.73E-07	4.89E-07	4.88E-07	4.70E-07
870	4.58E-07	4.79E-07	4.90E-07	4.97E-07	5.13E-07	5.15E-07	4.96E-07
871	3.46E-07	3.84E-07	4.07E-07	4.23E-07	4.51E-07	4.49E-07	4.14E-07
872	4.15E-07	4.55E-07	4.77E-07	4.96E-07	5.24E-07	5.22E-07	4.81E-07
873	4.46E-07	4.91E-07	5.16E-07	5.35E-07	5.70E-07	5.65E-07	5.25E-07
874	4.13E-07	4.68E-07	4.96E-07	5.20E-07	5.44E-07	5.40E-07	4.96E-07
876	3.98E-07	4.38E-07	4.66E-07	4.84E-07	5.15E-07	5.11E-07	4.70E-07
877	3.86E-07	3.88E-07	3.92E-07	3.89E-07	3.89E-07	3.92E-07	3.92E-07
Biased Statistics							
Average Biased	4.40E-07	4.63E-07	4.76E-07	4.84E-07	5.01E-07	5.00E-07	4.80E-07
Std Dev Biased	1.77E-08	1.91E-08	2.00E-08	2.10E-08	2.20E-08	2.17E-08	1.92E-08
Ps90%/90% (+KTL) Biased	4.89E-07	5.15E-07	5.31E-07	5.42E-07	5.61E-07	5.60E-07	5.33E-07
Ps90%/90% (-KTL) Biased	3.92E-07	4.10E-07	4.21E-07	4.27E-07	4.41E-07	4.41E-07	4.27E-07
Un-Biased Statistics							
Average Un-Biased	4.04E-07	4.47E-07	4.72E-07	4.91E-07	5.21E-07	5.17E-07	4.77E-07
Std Dev Un-Biased	3.65E-08	4.02E-08	4.10E-08	4.32E-08	4.43E-08	4.36E-08	4.08E-08
Ps90%/90% (+KTL) Un-Biased	5.04E-07	5.57E-07	5.85E-07	6.10E-07	6.42E-07	6.37E-07	5.89E-07
Ps90%/90% (-KTL) Un-Biased	3.04E-07	3.37E-07	3.60E-07	3.73E-07	3.99E-07	3.98E-07	3.66E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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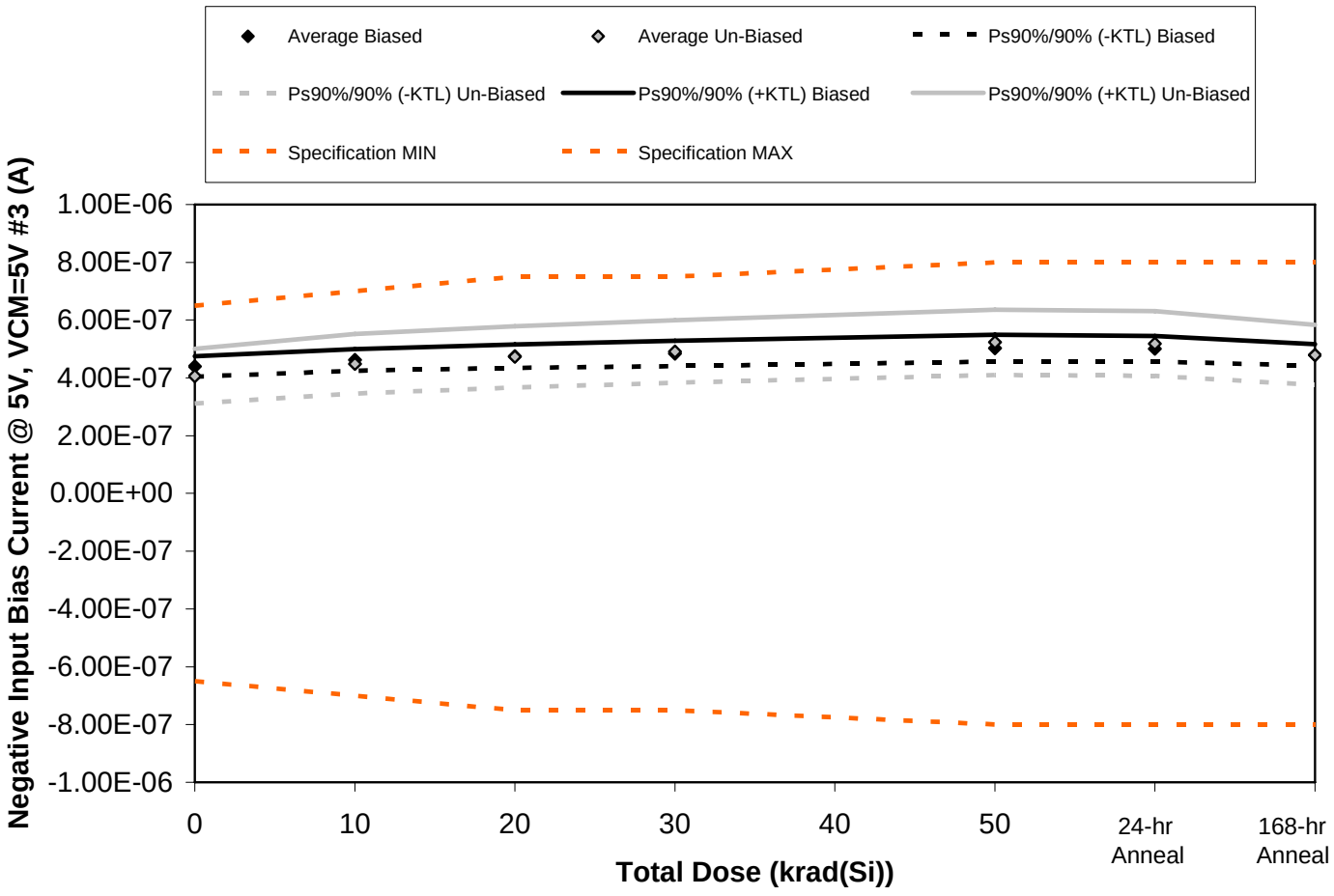

Figure 5.215. Plot of Negative Input Bias Current @ 5V, VCM=5V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.215. Raw data for Negative Input Bias Current @ 5V, VCM=5V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 5V, VCM=5V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.30E-07	4.60E-07	4.77E-07	4.92E-07	5.16E-07	5.12E-07	4.82E-07
867	4.57E-07	4.80E-07	4.92E-07	5.01E-07	5.18E-07	5.16E-07	4.95E-07
868	4.27E-07	4.44E-07	4.54E-07	4.61E-07	4.78E-07	4.77E-07	4.61E-07
869	4.35E-07	4.58E-07	4.68E-07	4.76E-07	4.94E-07	4.93E-07	4.72E-07
870	4.49E-07	4.71E-07	4.84E-07	4.91E-07	5.08E-07	5.07E-07	4.88E-07
871	3.57E-07	3.95E-07	4.17E-07	4.34E-07	4.61E-07	4.58E-07	4.24E-07
872	4.11E-07	4.52E-07	4.74E-07	4.91E-07	5.25E-07	5.21E-07	4.80E-07
873	4.51E-07	4.96E-07	5.22E-07	5.40E-07	5.73E-07	5.69E-07	5.28E-07
874	4.19E-07	4.65E-07	4.91E-07	5.11E-07	5.43E-07	5.38E-07	4.96E-07
876	3.91E-07	4.35E-07	4.61E-07	4.80E-07	5.12E-07	5.07E-07	4.69E-07
877	3.88E-07	3.88E-07	3.89E-07	3.87E-07	3.89E-07	3.87E-07	3.90E-07
Biased Statistics							
Average Biased	4.40E-07	4.63E-07	4.75E-07	4.84E-07	5.03E-07	5.01E-07	4.79E-07
Std Dev Biased	1.29E-08	1.37E-08	1.47E-08	1.60E-08	1.69E-08	1.62E-08	1.35E-08
Ps90%/90% (+KTL) Biased	4.75E-07	5.00E-07	5.16E-07	5.28E-07	5.49E-07	5.45E-07	5.16E-07
Ps90%/90% (-KTL) Biased	4.04E-07	4.25E-07	4.35E-07	4.40E-07	4.57E-07	4.57E-07	4.42E-07
Un-Biased Statistics							
Average Un-Biased	4.06E-07	4.49E-07	4.73E-07	4.91E-07	5.23E-07	5.19E-07	4.79E-07
Std Dev Un-Biased	3.46E-08	3.76E-08	3.87E-08	3.95E-08	4.13E-08	4.09E-08	3.80E-08
Ps90%/90% (+KTL) Un-Biased	5.00E-07	5.52E-07	5.79E-07	5.99E-07	6.36E-07	6.31E-07	5.84E-07
Ps90%/90% (-KTL) Un-Biased	3.11E-07	3.45E-07	3.67E-07	3.83E-07	4.10E-07	4.07E-07	3.75E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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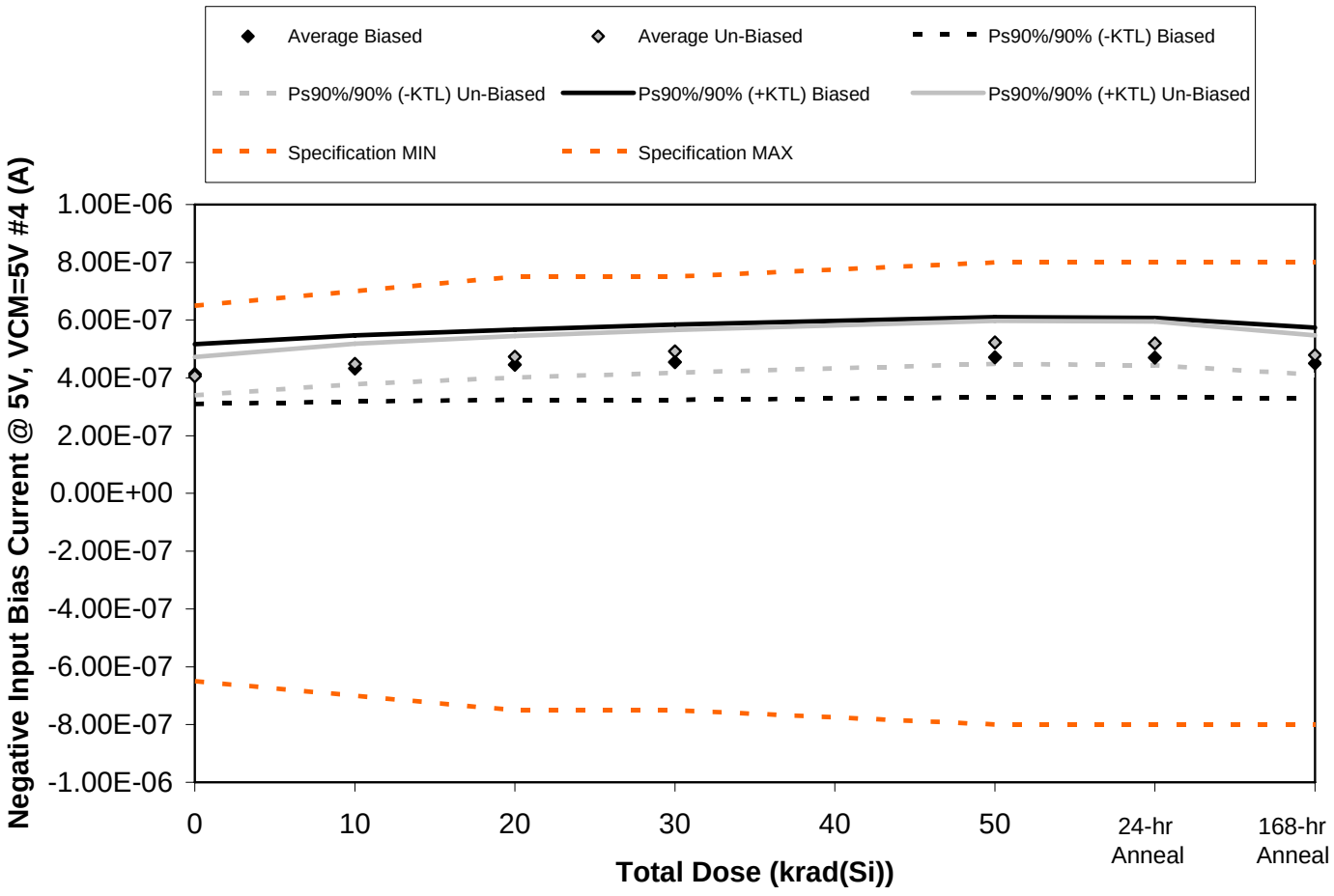

Figure 5.216. Plot of Negative Input Bias Current @ 5V, VCM=5V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.216. Raw data for Negative Input Bias Current @ 5V, VCM=5V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Input Bias Current @ 5V, VCM=5V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.68E-07	4.99E-07	5.17E-07	5.32E-07	5.56E-07	5.54E-07	5.24E-07
867	3.77E-07	3.99E-07	4.12E-07	4.21E-07	4.38E-07	4.36E-07	4.16E-07
868	3.77E-07	3.95E-07	4.06E-07	4.12E-07	4.28E-07	4.27E-07	4.11E-07
869	4.20E-07	4.34E-07	4.46E-07	4.52E-07	4.65E-07	4.65E-07	4.50E-07
870	4.22E-07	4.40E-07	4.48E-07	4.54E-07	4.68E-07	4.66E-07	4.53E-07
871	4.43E-07	4.85E-07	5.10E-07	5.29E-07	5.60E-07	5.57E-07	5.15E-07
872	4.08E-07	4.56E-07	4.81E-07	5.00E-07	5.31E-07	5.29E-07	4.85E-07
873	3.84E-07	4.23E-07	4.49E-07	4.66E-07	4.98E-07	4.94E-07	4.56E-07
874	4.09E-07	4.54E-07	4.81E-07	5.00E-07	5.32E-07	5.28E-07	4.85E-07
876	3.85E-07	4.24E-07	4.47E-07	4.65E-07	4.94E-07	4.90E-07	4.55E-07
877	4.46E-07	4.48E-07	4.47E-07	4.46E-07	4.48E-07	4.47E-07	4.48E-07
Biased Statistics							
Average Biased	4.13E-07	4.33E-07	4.46E-07	4.54E-07	4.71E-07	4.70E-07	4.51E-07
Std Dev Biased	3.78E-08	4.17E-08	4.42E-08	4.74E-08	5.07E-08	5.00E-08	4.50E-08
Ps90%/90% (+KTL) Biased	5.16E-07	5.48E-07	5.67E-07	5.84E-07	6.10E-07	6.07E-07	5.74E-07
Ps90%/90% (-KTL) Biased	3.09E-07	3.19E-07	3.24E-07	3.24E-07	3.32E-07	3.33E-07	3.27E-07
Un-Biased Statistics							
Average Un-Biased	4.06E-07	4.48E-07	4.73E-07	4.92E-07	5.23E-07	5.20E-07	4.79E-07
Std Dev Un-Biased	2.41E-08	2.55E-08	2.62E-08	2.69E-08	2.71E-08	2.76E-08	2.49E-08
Ps90%/90% (+KTL) Un-Biased	4.72E-07	5.18E-07	5.45E-07	5.66E-07	5.97E-07	5.96E-07	5.47E-07
Ps90%/90% (-KTL) Un-Biased	3.40E-07	3.78E-07	4.02E-07	4.18E-07	4.49E-07	4.44E-07	4.11E-07
Specification MIN	-6.50E-07	-7.00E-07	-7.50E-07	-7.50E-07	-8.00E-07	-8.00E-07	-8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS
Specification MAX	6.50E-07	7.00E-07	7.50E-07	7.50E-07	8.00E-07	8.00E-07	8.00E-07
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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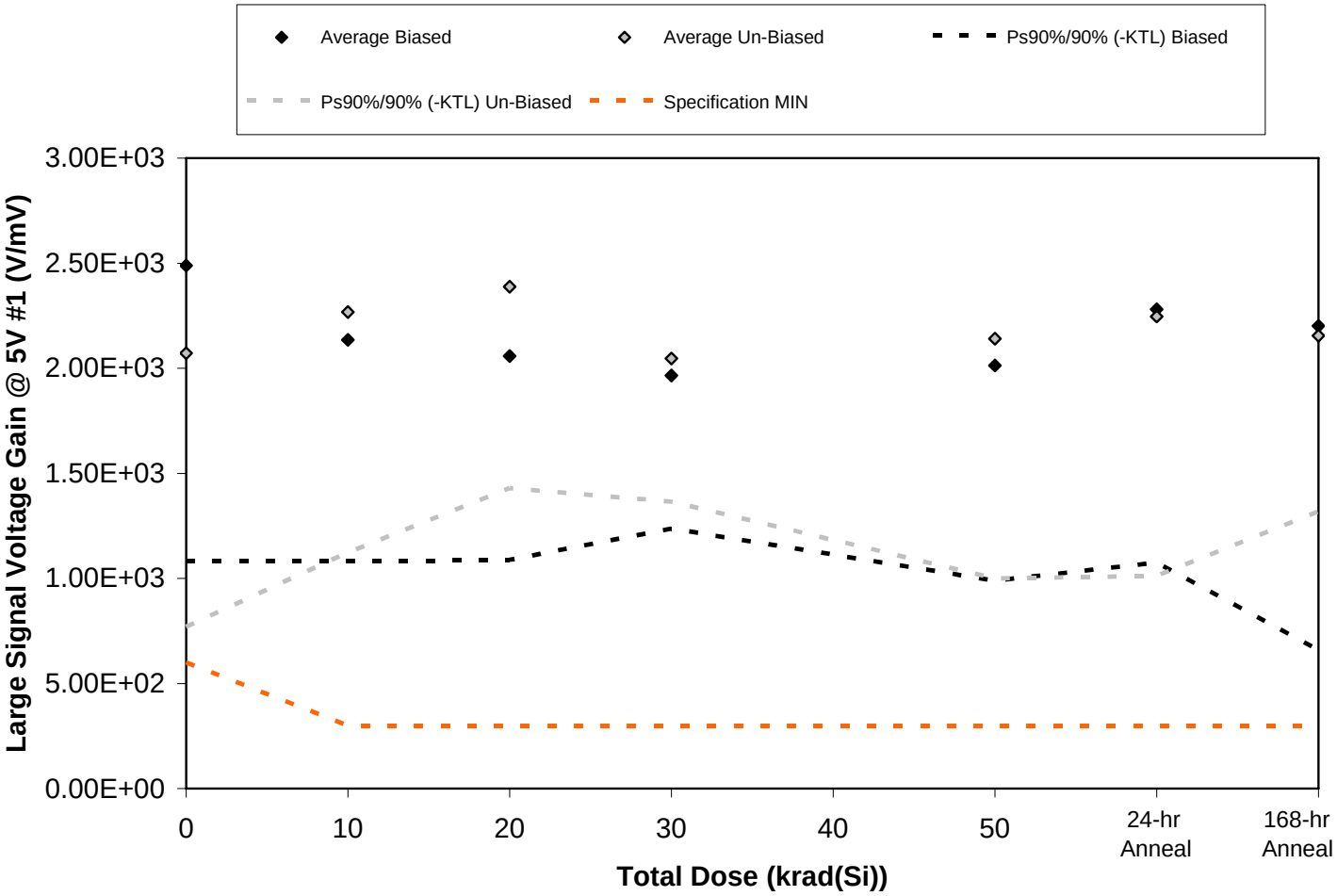

Figure 5.217. Plot of Large Signal Voltage Gain @ 5V #1 (V/mV) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.217. Raw data for Large Signal Voltage Gain @ 5V #1 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 5V #1 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.93E+03	1.78E+03	1.73E+03	1.69E+03	1.48E+03	1.84E+03	1.63E+03
867	2.54E+03	1.88E+03	1.86E+03	1.91E+03	1.86E+03	2.22E+03	2.47E+03
868	3.13E+03	2.68E+03	2.57E+03	2.27E+03	1.98E+03	2.89E+03	2.80E+03
869	2.03E+03	1.95E+03	1.85E+03	1.74E+03	2.35E+03	1.92E+03	1.57E+03
870	2.82E+03	2.40E+03	2.28E+03	2.21E+03	2.38E+03	2.54E+03	2.53E+03
871	1.43E+03	2.27E+03	2.81E+03	2.17E+03	2.47E+03	2.21E+03	2.34E+03
872	1.92E+03	1.74E+03	2.06E+03	1.79E+03	1.65E+03	1.74E+03	1.83E+03
873	2.58E+03	2.35E+03	2.44E+03	2.22E+03	2.54E+03	2.36E+03	2.23E+03
874	1.93E+03	2.09E+03	2.01E+03	1.77E+03	1.74E+03	1.98E+03	1.86E+03
876	2.50E+03	2.89E+03	2.63E+03	2.29E+03	2.29E+03	2.94E+03	2.52E+03
877	2.45E+03	2.73E+03	2.45E+03	2.63E+03	2.72E+03	2.74E+03	2.62E+03
Biased Statistics							
Average Biased	2.49E+03	2.13E+03	2.06E+03	1.97E+03	2.01E+03	2.28E+03	2.20E+03
Std Dev Biased	5.13E+02	3.84E+02	3.54E+02	2.65E+02	3.73E+02	4.40E+02	5.62E+02
Ps90%/90% (+KTL) Biased	3.89E+03	3.19E+03	3.03E+03	2.69E+03	3.04E+03	3.49E+03	3.74E+03
Ps90%/90% (-KTL) Biased	1.08E+03	1.08E+03	1.09E+03	1.24E+03	9.90E+02	1.08E+03	6.60E+02
Un-Biased Statistics							
Average Un-Biased	2.07E+03	2.27E+03	2.39E+03	2.05E+03	2.14E+03	2.25E+03	2.15E+03
Std Dev Un-Biased	4.75E+02	4.17E+02	3.50E+02	2.48E+02	4.16E+02	4.50E+02	3.05E+02
Ps90%/90% (+KTL) Un-Biased	3.37E+03	3.41E+03	3.35E+03	2.73E+03	3.28E+03	3.48E+03	2.99E+03
Ps90%/90% (-KTL) Un-Biased	7.69E+02	1.12E+03	1.43E+03	1.37E+03	1.00E+03	1.01E+03	1.32E+03
Specification MIN	6.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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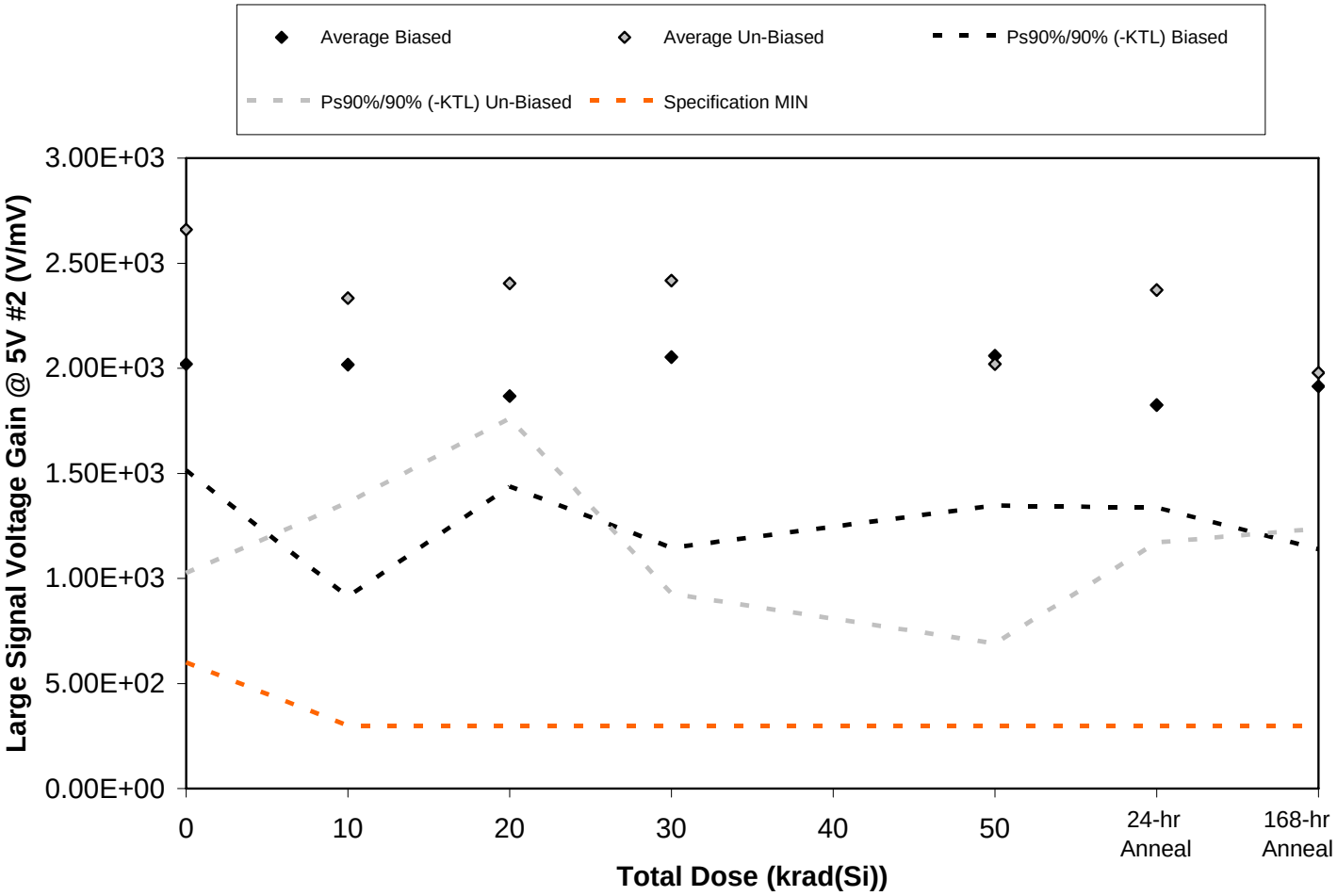

Figure 5.218. Plot of Large Signal Voltage Gain @ 5V #2 (V/mV) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.218. Raw data for Large Signal Voltage Gain @ 5V #2 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 5V #2 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.24E+03	1.95E+03	1.69E+03	1.97E+03	1.91E+03	1.68E+03	2.42E+03
867	1.88E+03	1.76E+03	1.88E+03	1.96E+03	1.94E+03	1.71E+03	1.81E+03
868	2.19E+03	1.79E+03	1.77E+03	1.97E+03	1.94E+03	1.72E+03	1.75E+03
869	1.83E+03	2.73E+03	1.88E+03	2.62E+03	1.99E+03	1.91E+03	1.80E+03
870	1.97E+03	1.86E+03	2.11E+03	1.74E+03	2.52E+03	2.10E+03	1.80E+03
871	2.37E+03	1.80E+03	2.20E+03	2.22E+03	2.00E+03	1.97E+03	1.57E+03
872	3.67E+03	2.36E+03	2.57E+03	2.00E+03	1.90E+03	3.10E+03	2.29E+03
873	2.44E+03	2.55E+03	2.48E+03	3.31E+03	2.69E+03	2.33E+03	1.89E+03
874	2.69E+03	2.73E+03	2.65E+03	2.54E+03	2.18E+03	2.37E+03	2.08E+03
876	2.14E+03	2.23E+03	2.12E+03	2.02E+03	1.34E+03	2.09E+03	2.07E+03
877	3.23E+03	2.52E+03	2.31E+03	2.87E+03	2.95E+03	2.80E+03	2.68E+03
Biased Statistics							
Average Biased	2.02E+03	2.02E+03	1.87E+03	2.05E+03	2.06E+03	1.82E+03	1.91E+03
Std Dev Biased	1.84E+02	4.03E+02	1.57E+02	3.31E+02	2.60E+02	1.78E+02	2.82E+02
Ps90%/90% (+KTL) Biased	2.52E+03	3.12E+03	2.30E+03	2.96E+03	2.77E+03	2.31E+03	2.69E+03
Ps90%/90% (-KTL) Biased	1.52E+03	9.13E+02	1.44E+03	1.15E+03	1.35E+03	1.34E+03	1.14E+03
Un-Biased Statistics							
Average Un-Biased	2.66E+03	2.33E+03	2.40E+03	2.42E+03	2.02E+03	2.37E+03	1.98E+03
Std Dev Un-Biased	5.96E+02	3.55E+02	2.34E+02	5.43E+02	4.85E+02	4.38E+02	2.71E+02
Ps90%/90% (+KTL) Un-Biased	4.30E+03	3.31E+03	3.05E+03	3.91E+03	3.35E+03	3.57E+03	2.72E+03
Ps90%/90% (-KTL) Un-Biased	1.03E+03	1.36E+03	1.76E+03	9.28E+02	6.89E+02	1.17E+03	1.24E+03
Specification MIN	6.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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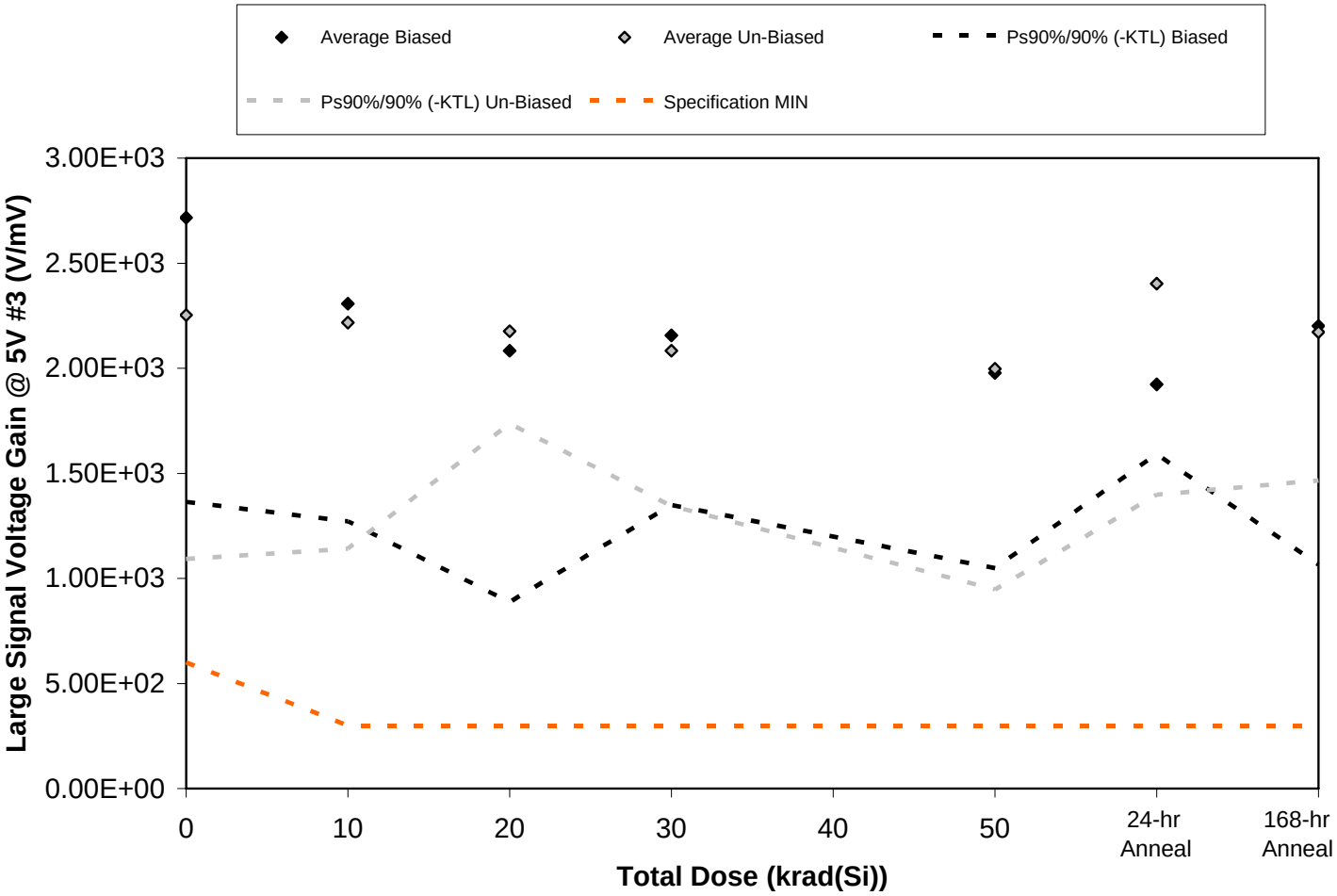

Figure 5.219. Plot of Large Signal Voltage Gain @ 5V #3 (V/mV) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.219. Raw data for Large Signal Voltage Gain @ 5V #3 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 5V #3 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.85E+03	2.49E+03	2.29E+03	2.49E+03	2.21E+03	2.10E+03	2.52E+03
867	2.61E+03	2.72E+03	2.03E+03	2.25E+03	2.12E+03	1.98E+03	2.67E+03
868	2.35E+03	1.72E+03	1.75E+03	1.71E+03	1.84E+03	1.86E+03	1.71E+03
869	3.50E+03	2.19E+03	1.63E+03	2.04E+03	1.45E+03	1.88E+03	1.86E+03
870	2.27E+03	2.42E+03	2.72E+03	2.30E+03	2.27E+03	1.79E+03	2.26E+03
871	2.99E+03	2.87E+03	2.40E+03	2.28E+03	2.64E+03	2.61E+03	2.50E+03
872	2.12E+03	2.28E+03	2.30E+03	1.97E+03	1.93E+03	2.95E+03	2.31E+03
873	2.06E+03	2.07E+03	2.08E+03	2.43E+03	1.96E+03	2.17E+03	1.83E+03
874	2.16E+03	1.88E+03	2.05E+03	1.98E+03	1.86E+03	2.19E+03	2.17E+03
876	1.93E+03	1.99E+03	2.06E+03	1.76E+03	1.60E+03	2.10E+03	2.05E+03
877	2.14E+03	2.08E+03	1.94E+03	2.01E+03	2.01E+03	2.23E+03	1.94E+03
Biased Statistics							
Average Biased	2.72E+03	2.31E+03	2.08E+03	2.16E+03	1.98E+03	1.92E+03	2.20E+03
Std Dev Biased	4.93E+02	3.78E+02	4.36E+02	2.94E+02	3.39E+02	1.21E+02	4.14E+02
Ps90%/90% (+KTL) Biased	4.07E+03	3.34E+03	3.28E+03	2.96E+03	2.91E+03	2.26E+03	3.34E+03
Ps90%/90% (-KTL) Biased	1.36E+03	1.27E+03	8.88E+02	1.35E+03	1.05E+03	1.59E+03	1.07E+03
Un-Biased Statistics							
Average Un-Biased	2.25E+03	2.22E+03	2.18E+03	2.08E+03	2.00E+03	2.40E+03	2.17E+03
Std Dev Un-Biased	4.23E+02	3.92E+02	1.60E+02	2.69E+02	3.83E+02	3.66E+02	2.57E+02
Ps90%/90% (+KTL) Un-Biased	3.41E+03	3.29E+03	2.62E+03	2.82E+03	3.05E+03	3.41E+03	2.88E+03
Ps90%/90% (-KTL) Un-Biased	1.09E+03	1.14E+03	1.74E+03	1.34E+03	9.46E+02	1.40E+03	1.47E+03
Specification MIN	6.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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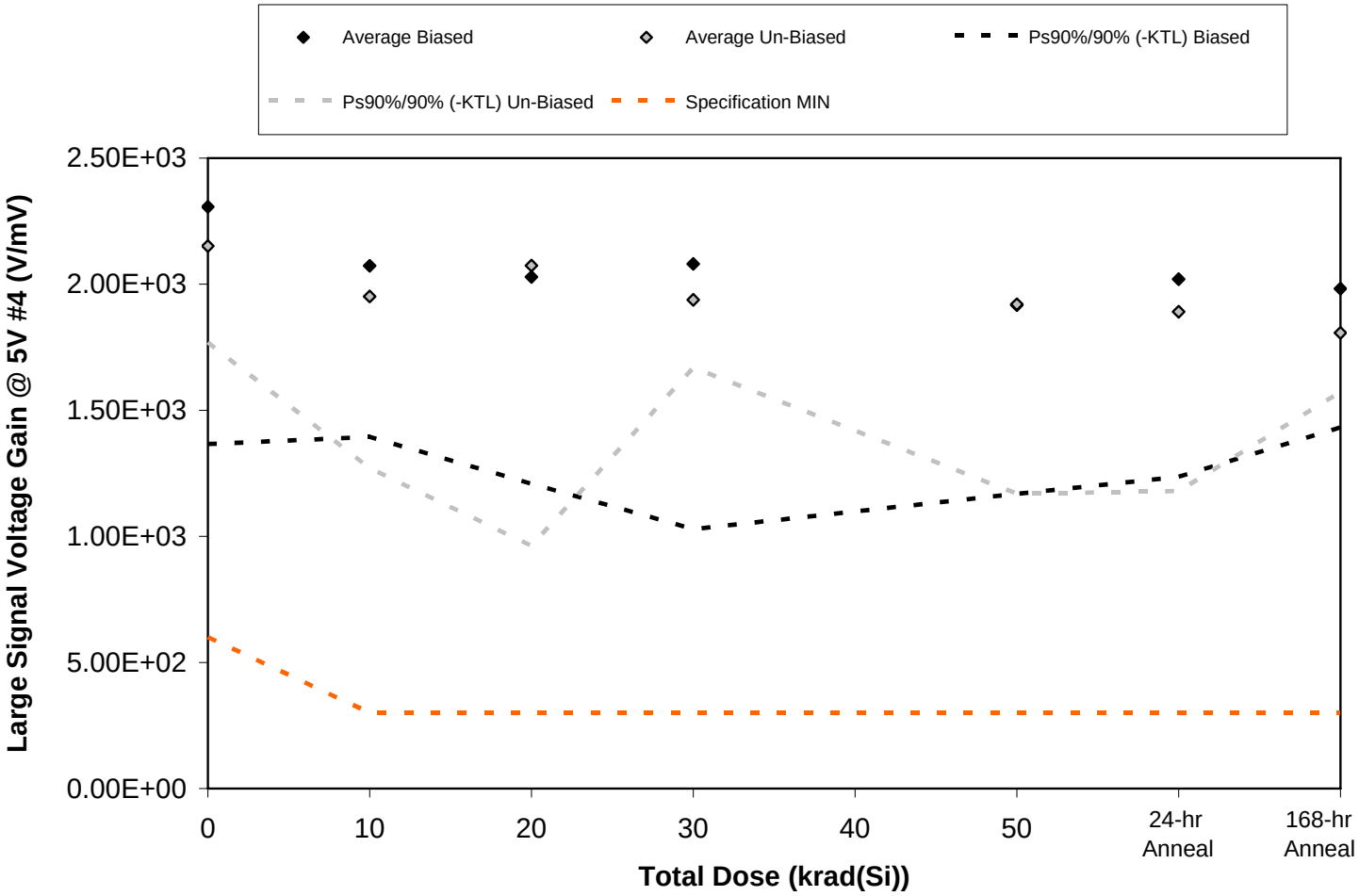

Figure 5.220. Plot of Large Signal Voltage Gain @ 5V #4 (V/mV) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.220. Raw data for Large Signal Voltage Gain @ 5V #4 (V/mV) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 5V #4 (V/mV)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	2.36E+03	1.91E+03	1.96E+03	1.99E+03	1.97E+03	2.20E+03	1.92E+03
867	1.88E+03	1.96E+03	1.91E+03	1.75E+03	1.61E+03	1.76E+03	1.81E+03
868	2.83E+03	2.48E+03	2.45E+03	2.54E+03	2.33E+03	2.37E+03	2.26E+03
869	2.27E+03	2.13E+03	2.18E+03	2.42E+03	1.93E+03	2.06E+03	2.13E+03
870	2.21E+03	1.89E+03	1.65E+03	1.71E+03	1.74E+03	1.70E+03	1.81E+03
871	2.19E+03	1.89E+03	2.78E+03	1.87E+03	2.30E+03	1.55E+03	1.78E+03
872	2.05E+03	1.56E+03	1.74E+03	1.87E+03	1.86E+03	2.20E+03	1.75E+03
873	2.38E+03	2.13E+03	2.00E+03	2.08E+03	1.96E+03	2.05E+03	1.79E+03
874	2.06E+03	2.19E+03	1.94E+03	1.87E+03	1.53E+03	1.94E+03	1.96E+03
876	2.07E+03	1.99E+03	1.92E+03	2.00E+03	1.96E+03	1.71E+03	1.76E+03
877	2.80E+03	2.43E+03	2.77E+03	3.39E+03	2.46E+03	2.05E+03	2.67E+03
Biased Statistics							
Average Biased	2.31E+03	2.07E+03	2.03E+03	2.08E+03	1.92E+03	2.02E+03	1.98E+03
Std Dev Biased	3.43E+02	2.48E+02	2.99E+02	3.84E+02	2.73E+02	2.86E+02	2.01E+02
Ps90%/90% (+KTL) Biased	3.25E+03	2.75E+03	2.85E+03	3.13E+03	2.67E+03	2.80E+03	2.53E+03
Ps90%/90% (-KTL) Biased	1.37E+03	1.39E+03	1.21E+03	1.03E+03	1.17E+03	1.24E+03	1.43E+03
Un-Biased Statistics							
Average Un-Biased	2.15E+03	1.95E+03	2.07E+03	1.94E+03	1.92E+03	1.89E+03	1.81E+03
Std Dev Un-Biased	1.39E+02	2.48E+02	4.05E+02	9.80E+01	2.74E+02	2.59E+02	8.50E+01
Ps90%/90% (+KTL) Un-Biased	2.53E+03	2.63E+03	3.18E+03	2.21E+03	2.67E+03	2.60E+03	2.04E+03
Ps90%/90% (-KTL) Un-Biased	1.77E+03	1.27E+03	9.63E+02	1.67E+03	1.17E+03	1.18E+03	1.57E+03
Specification MIN	6.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02	3.00E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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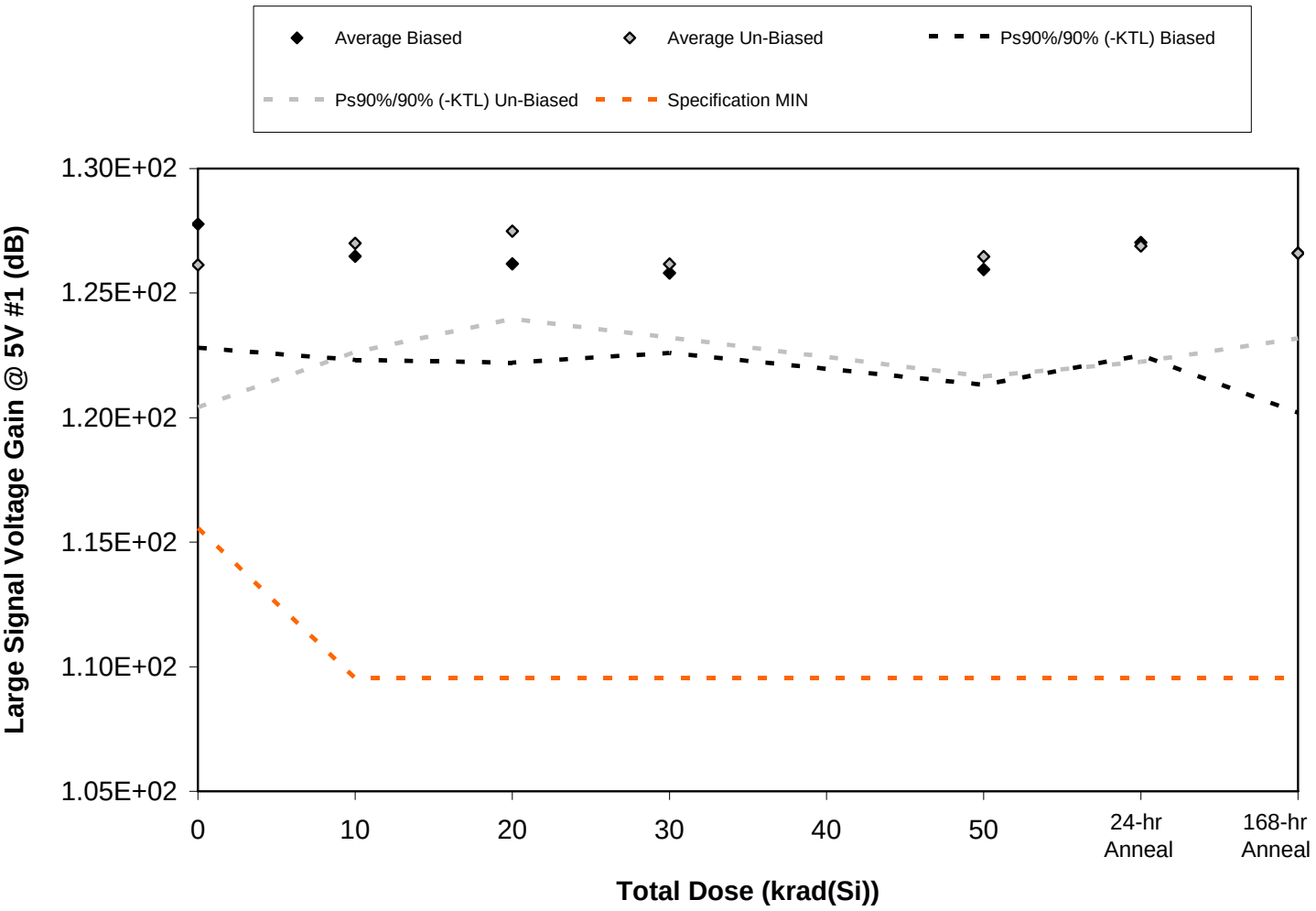

Figure 5.221. Plot of Large Signal Voltage Gain @ 5V #1 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.221. Raw data for Large Signal Voltage Gain @ 5V #1 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 5V #1 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.26E+02	1.25E+02	1.25E+02	1.25E+02	1.23E+02	1.25E+02	1.24E+02
867	1.28E+02	1.25E+02	1.25E+02	1.26E+02	1.25E+02	1.27E+02	1.28E+02
868	1.30E+02	1.29E+02	1.28E+02	1.27E+02	1.26E+02	1.29E+02	1.29E+02
869	1.26E+02	1.26E+02	1.25E+02	1.25E+02	1.27E+02	1.26E+02	1.24E+02
870	1.29E+02	1.28E+02	1.27E+02	1.27E+02	1.28E+02	1.28E+02	1.28E+02
871	1.23E+02	1.27E+02	1.29E+02	1.27E+02	1.28E+02	1.27E+02	1.27E+02
872	1.26E+02	1.25E+02	1.26E+02	1.25E+02	1.24E+02	1.25E+02	1.25E+02
873	1.28E+02	1.27E+02	1.28E+02	1.27E+02	1.28E+02	1.27E+02	1.27E+02
874	1.26E+02	1.26E+02	1.26E+02	1.25E+02	1.25E+02	1.26E+02	1.25E+02
876	1.28E+02	1.29E+02	1.28E+02	1.27E+02	1.27E+02	1.29E+02	1.28E+02
877	1.28E+02	1.29E+02	1.28E+02	1.28E+02	1.29E+02	1.29E+02	1.28E+02
Biased Statistics							
Average Biased	1.28E+02	1.26E+02	1.26E+02	1.26E+02	1.26E+02	1.27E+02	1.27E+02
Std Dev Biased	1.81E+00	1.52E+00	1.44E+00	1.17E+00	1.69E+00	1.65E+00	2.34E+00
Ps90%/90% (+KTL) Biased	1.33E+02	1.31E+02	1.30E+02	1.29E+02	1.31E+02	1.32E+02	1.33E+02
Ps90%/90% (-KTL) Biased	1.23E+02	1.22E+02	1.22E+02	1.23E+02	1.21E+02	1.23E+02	1.20E+02
Un-Biased Statistics							
Average Un-Biased	1.26E+02	1.27E+02	1.27E+02	1.26E+02	1.26E+02	1.27E+02	1.27E+02
Std Dev Un-Biased	2.09E+00	1.59E+00	1.29E+00	1.08E+00	1.75E+00	1.70E+00	1.24E+00
Ps90%/90% (+KTL) Un-Biased	1.32E+02	1.31E+02	1.31E+02	1.29E+02	1.31E+02	1.32E+02	1.30E+02
Ps90%/90% (-KTL) Un-Biased	1.20E+02	1.23E+02	1.24E+02	1.23E+02	1.22E+02	1.22E+02	1.23E+02
Specification MIN	1.16E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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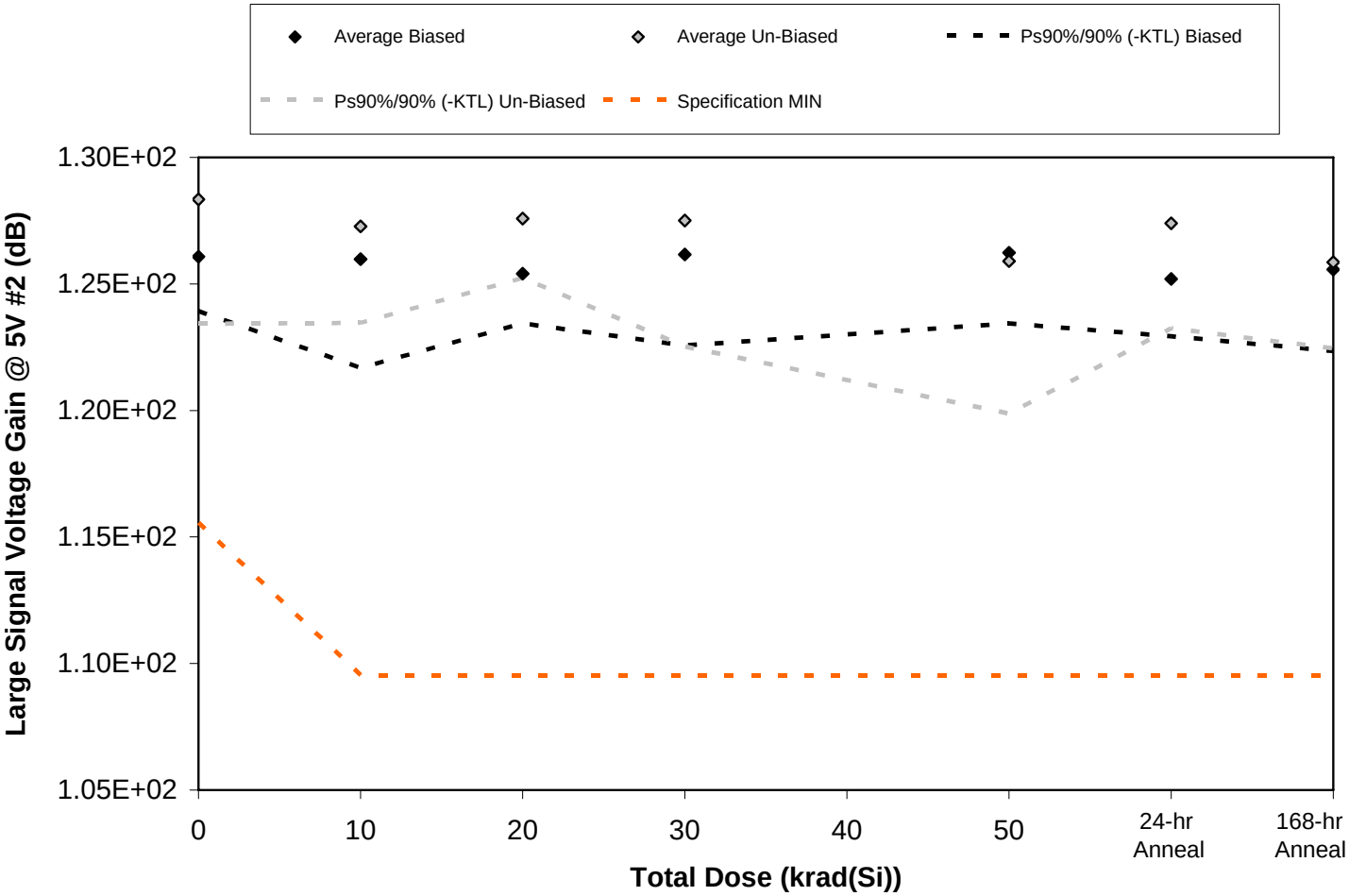

Figure 5.222. Plot of Large Signal Voltage Gain @ 5V #2 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.222. Raw data for Large Signal Voltage Gain @ 5V #2 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 5V #2 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.27E+02	1.26E+02	1.25E+02	1.26E+02	1.26E+02	1.25E+02	1.28E+02
867	1.25E+02	1.25E+02	1.25E+02	1.26E+02	1.26E+02	1.25E+02	1.25E+02
868	1.27E+02	1.25E+02	1.25E+02	1.26E+02	1.26E+02	1.25E+02	1.25E+02
869	1.25E+02	1.29E+02	1.25E+02	1.28E+02	1.26E+02	1.26E+02	1.25E+02
870	1.26E+02	1.25E+02	1.26E+02	1.25E+02	1.28E+02	1.26E+02	1.25E+02
871	1.27E+02	1.25E+02	1.27E+02	1.27E+02	1.26E+02	1.26E+02	1.24E+02
872	1.31E+02	1.27E+02	1.28E+02	1.26E+02	1.26E+02	1.30E+02	1.27E+02
873	1.28E+02	1.28E+02	1.28E+02	1.30E+02	1.29E+02	1.27E+02	1.26E+02
874	1.29E+02	1.29E+02	1.28E+02	1.28E+02	1.27E+02	1.27E+02	1.26E+02
876	1.27E+02	1.27E+02	1.27E+02	1.26E+02	1.23E+02	1.26E+02	1.26E+02
877	1.30E+02	1.28E+02	1.27E+02	1.29E+02	1.29E+02	1.29E+02	1.29E+02
Biased Statistics							
Average Biased	1.26E+02	1.26E+02	1.25E+02	1.26E+02	1.26E+02	1.25E+02	1.26E+02
Std Dev Biased	7.86E-01	1.57E+00	7.18E-01	1.31E+00	1.02E+00	8.22E-01	1.18E+00
Ps90%/90% (+KTL) Biased	1.28E+02	1.30E+02	1.27E+02	1.30E+02	1.29E+02	1.27E+02	1.29E+02
Ps90%/90% (-KTL) Biased	1.24E+02	1.22E+02	1.23E+02	1.23E+02	1.23E+02	1.23E+02	1.22E+02
Un-Biased Statistics							
Average Un-Biased	1.28E+02	1.27E+02	1.28E+02	1.28E+02	1.26E+02	1.27E+02	1.26E+02
Std Dev Un-Biased	1.79E+00	1.39E+00	8.59E-01	1.82E+00	2.19E+00	1.51E+00	1.24E+00
Ps90%/90% (+KTL) Un-Biased	1.33E+02	1.31E+02	1.30E+02	1.32E+02	1.32E+02	1.32E+02	1.29E+02
Ps90%/90% (-KTL) Un-Biased	1.23E+02	1.23E+02	1.25E+02	1.23E+02	1.20E+02	1.23E+02	1.22E+02
Specification MIN	1.16E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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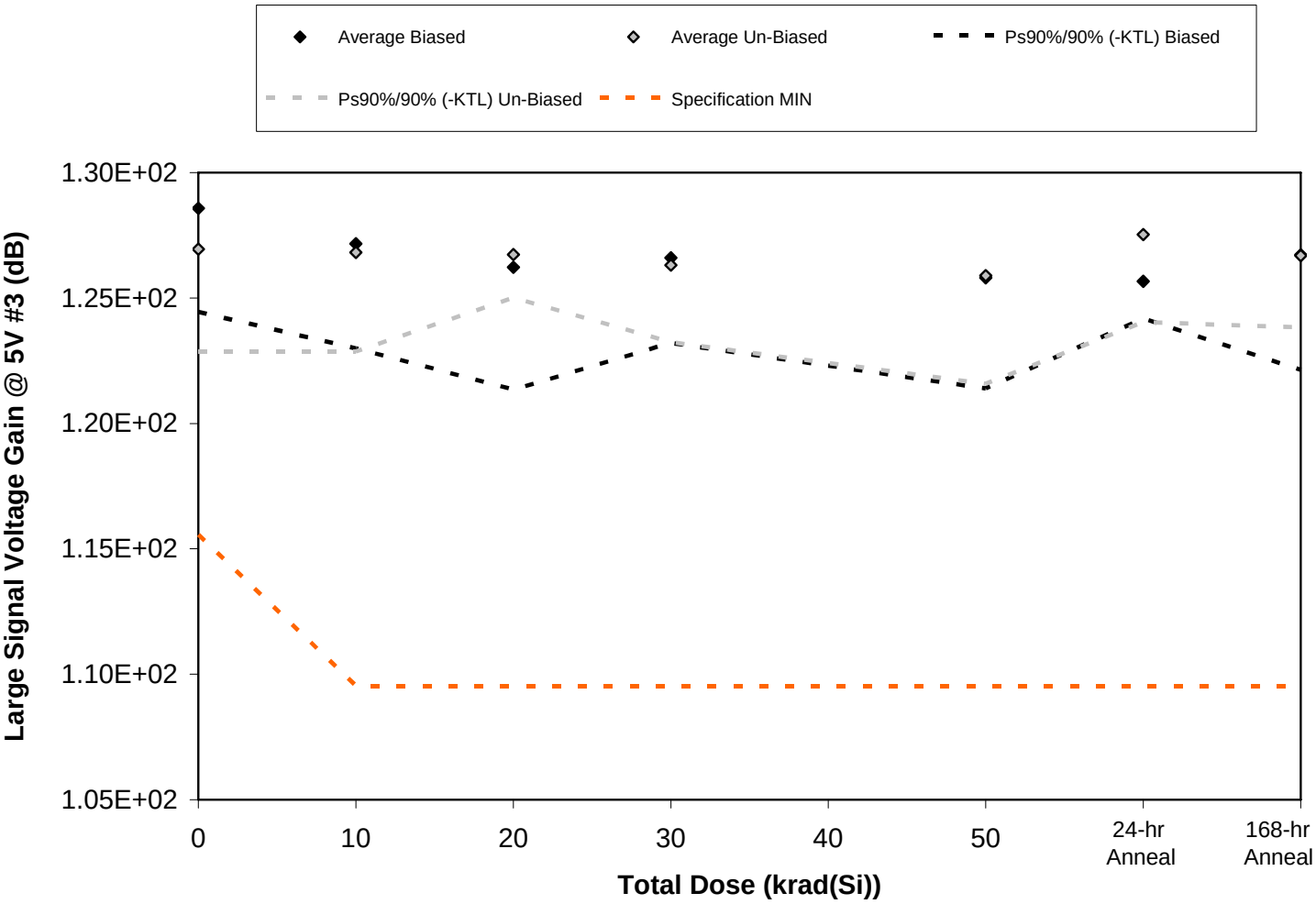

Figure 5.223. Plot of Large Signal Voltage Gain @ 5V #3 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.223. Raw data for Large Signal Voltage Gain @ 5V #3 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 5V #3 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.29E+02	1.28E+02	1.27E+02	1.28E+02	1.27E+02	1.26E+02	1.28E+02
867	1.28E+02	1.29E+02	1.26E+02	1.27E+02	1.27E+02	1.26E+02	1.29E+02
868	1.27E+02	1.25E+02	1.25E+02	1.25E+02	1.25E+02	1.25E+02	1.25E+02
869	1.31E+02	1.27E+02	1.24E+02	1.26E+02	1.23E+02	1.25E+02	1.25E+02
870	1.27E+02	1.28E+02	1.29E+02	1.27E+02	1.27E+02	1.25E+02	1.27E+02
871	1.30E+02	1.29E+02	1.28E+02	1.27E+02	1.28E+02	1.28E+02	1.28E+02
872	1.27E+02	1.27E+02	1.27E+02	1.26E+02	1.26E+02	1.29E+02	1.27E+02
873	1.26E+02	1.26E+02	1.26E+02	1.28E+02	1.26E+02	1.27E+02	1.25E+02
874	1.27E+02	1.26E+02	1.26E+02	1.26E+02	1.25E+02	1.27E+02	1.27E+02
876	1.26E+02	1.26E+02	1.26E+02	1.25E+02	1.24E+02	1.26E+02	1.26E+02
877	1.27E+02	1.26E+02	1.26E+02	1.26E+02	1.26E+02	1.27E+02	1.26E+02
Biased Statistics							
Average Biased	1.29E+02	1.27E+02	1.26E+02	1.27E+02	1.26E+02	1.26E+02	1.27E+02
Std Dev Biased	1.50E+00	1.52E+00	1.78E+00	1.24E+00	1.61E+00	5.41E-01	1.67E+00
Ps90%/90% (+KTL) Biased	1.33E+02	1.31E+02	1.31E+02	1.30E+02	1.30E+02	1.27E+02	1.31E+02
Ps90%/90% (-KTL) Biased	1.24E+02	1.23E+02	1.21E+02	1.23E+02	1.21E+02	1.24E+02	1.22E+02
Un-Biased Statistics							
Average Un-Biased	1.27E+02	1.27E+02	1.27E+02	1.26E+02	1.26E+02	1.28E+02	1.27E+02
Std Dev Un-Biased	1.49E+00	1.44E+00	6.30E-01	1.12E+00	1.57E+00	1.28E+00	1.04E+00
Ps90%/90% (+KTL) Un-Biased	1.31E+02	1.31E+02	1.28E+02	1.29E+02	1.30E+02	1.31E+02	1.30E+02
Ps90%/90% (-KTL) Un-Biased	1.23E+02	1.23E+02	1.25E+02	1.23E+02	1.22E+02	1.24E+02	1.24E+02
Specification MIN	1.16E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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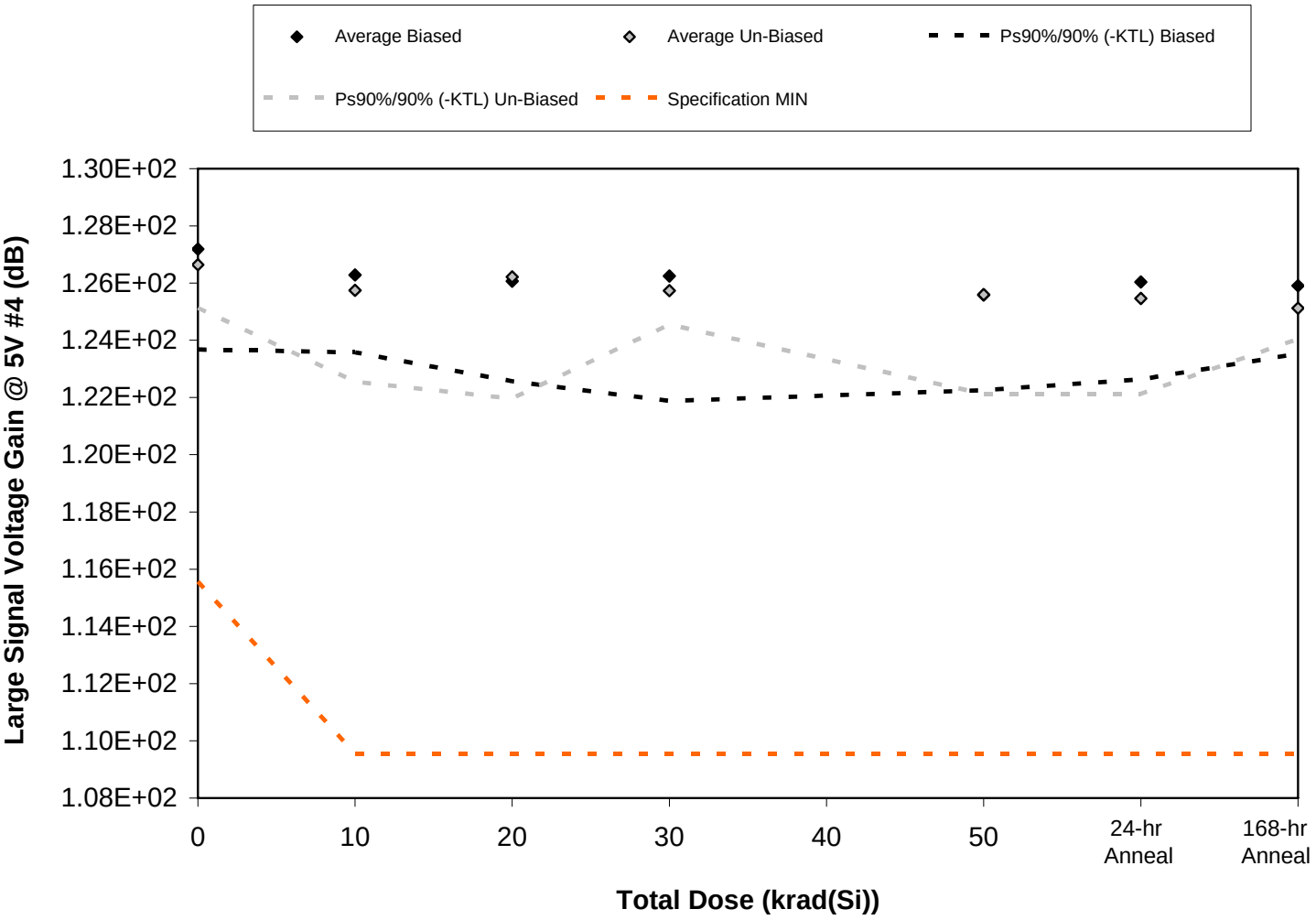

Figure 5.224. Plot of Large Signal Voltage Gain @ 5V #4 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.224. Raw data for Large Signal Voltage Gain @ 5V #4 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Large Signal Voltage Gain @ 5V #4 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.27E+02	1.26E+02	1.26E+02	1.26E+02	1.26E+02	1.27E+02	1.26E+02
867	1.25E+02	1.26E+02	1.26E+02	1.25E+02	1.24E+02	1.25E+02	1.25E+02
868	1.29E+02	1.28E+02	1.28E+02	1.28E+02	1.27E+02	1.27E+02	1.27E+02
869	1.27E+02	1.27E+02	1.27E+02	1.28E+02	1.26E+02	1.26E+02	1.27E+02
870	1.27E+02	1.26E+02	1.24E+02	1.25E+02	1.25E+02	1.25E+02	1.25E+02
871	1.27E+02	1.26E+02	1.29E+02	1.25E+02	1.27E+02	1.24E+02	1.25E+02
872	1.26E+02	1.24E+02	1.25E+02	1.25E+02	1.25E+02	1.27E+02	1.25E+02
873	1.28E+02	1.27E+02	1.26E+02	1.26E+02	1.26E+02	1.26E+02	1.25E+02
874	1.26E+02	1.27E+02	1.26E+02	1.25E+02	1.24E+02	1.26E+02	1.26E+02
876	1.26E+02	1.26E+02	1.26E+02	1.26E+02	1.26E+02	1.25E+02	1.25E+02
877	1.29E+02	1.28E+02	1.29E+02	1.31E+02	1.28E+02	1.26E+02	1.29E+02
Biased Statistics							
Average Biased	1.27E+02	1.26E+02	1.26E+02	1.26E+02	1.26E+02	1.26E+02	1.26E+02
Std Dev Biased	1.28E+00	9.88E-01	1.28E+00	1.59E+00	1.21E+00	1.24E+00	8.67E-01
Ps90%/90% (+KTL) Biased	1.31E+02	1.29E+02	1.30E+02	1.31E+02	1.29E+02	1.29E+02	1.28E+02
Ps90%/90% (-KTL) Biased	1.24E+02	1.24E+02	1.23E+02	1.22E+02	1.22E+02	1.23E+02	1.24E+02
Un-Biased Statistics							
Average Un-Biased	1.27E+02	1.26E+02	1.26E+02	1.26E+02	1.26E+02	1.25E+02	1.25E+02
Std Dev Un-Biased	5.48E-01	1.17E+00	1.55E+00	4.34E-01	1.26E+00	1.22E+00	3.98E-01
Ps90%/90% (+KTL) Un-Biased	1.28E+02	1.29E+02	1.30E+02	1.27E+02	1.29E+02	1.29E+02	1.26E+02
Ps90%/90% (-KTL) Un-Biased	1.25E+02	1.23E+02	1.22E+02	1.25E+02	1.22E+02	1.22E+02	1.24E+02
Specification MIN	1.16E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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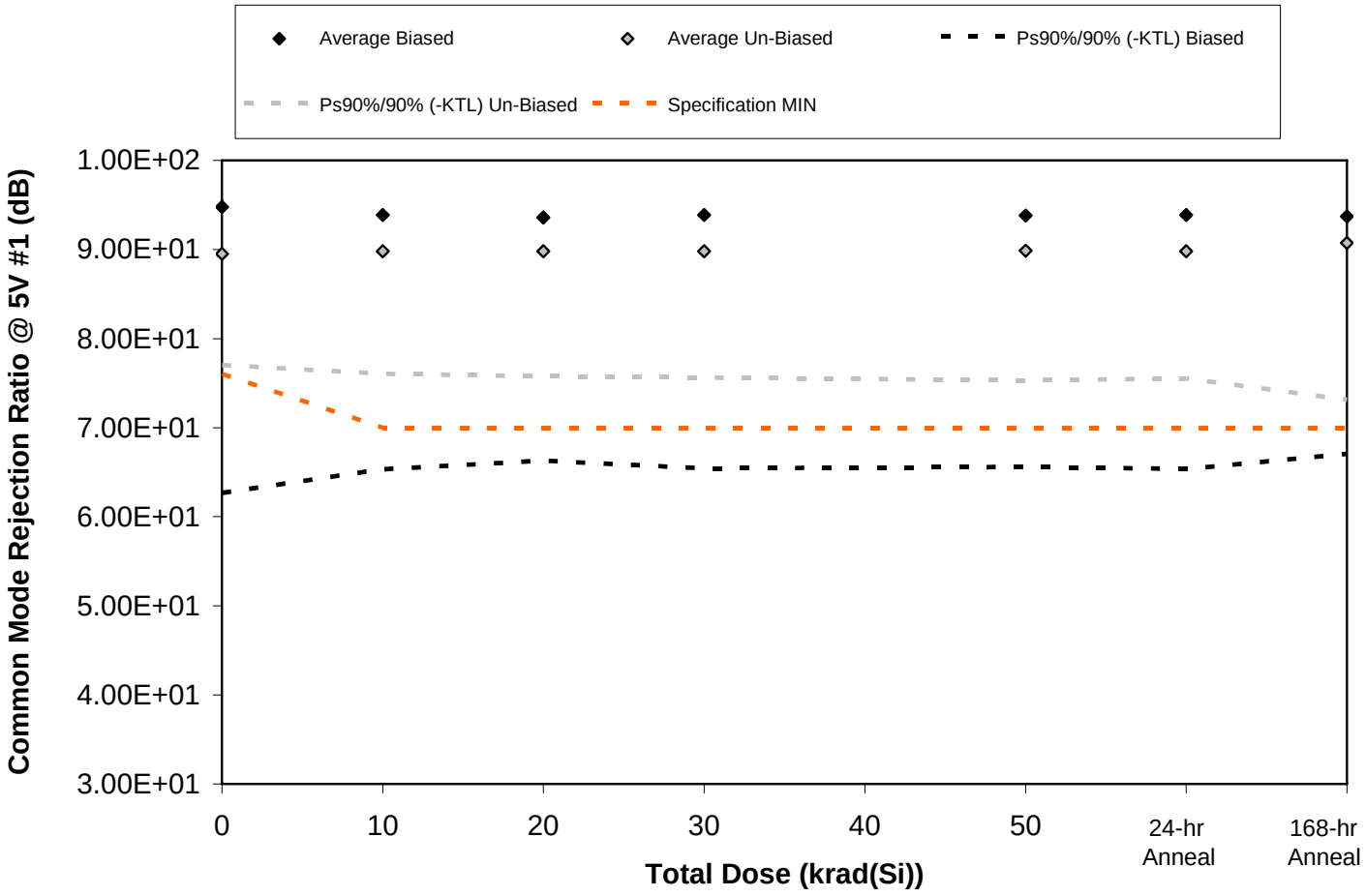

Figure 5.225. Plot of Common Mode Rejection Ratio @ 5V #1 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.225. Raw data for Common Mode Rejection Ratio @ 5V #1 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ 5V #1 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	8.33E+01	8.35E+01	8.36E+01	8.37E+01	8.37E+01	8.37E+01	8.41E+01
867	1.06E+02	1.05E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.05E+02
868	8.54E+01	8.54E+01	8.54E+01	8.53E+01	8.52E+01	8.52E+01	8.53E+01
869	9.07E+01	9.07E+01	9.07E+01	9.08E+01	9.08E+01	9.07E+01	9.15E+01
870	1.08E+02	1.05E+02	1.04E+02	1.05E+02	1.06E+02	1.06E+02	1.03E+02
871	8.74E+01	8.73E+01	8.72E+01	8.72E+01	8.71E+01	8.71E+01	8.79E+01
872	8.73E+01	8.73E+01	8.72E+01	8.72E+01	8.72E+01	8.73E+01	8.71E+01
873	9.38E+01	9.44E+01	9.46E+01	9.46E+01	9.48E+01	9.46E+01	9.50E+01
874	8.43E+01	8.42E+01	8.41E+01	8.41E+01	8.40E+01	8.41E+01	8.41E+01
876	9.48E+01	9.57E+01	9.59E+01	9.59E+01	9.61E+01	9.60E+01	9.97E+01
877	9.97E+01	9.93E+01	9.94E+01	9.95E+01	9.96E+01	9.96E+01	9.96E+01
Biased Statistics							
Average Biased	9.48E+01	9.39E+01	9.36E+01	9.39E+01	9.38E+01	9.39E+01	9.37E+01
Std Dev Biased	1.17E+01	1.04E+01	9.95E+00	1.04E+01	1.03E+01	1.04E+01	9.72E+00
Ps90%/90% (+KTL) Biased	1.27E+02	1.22E+02	1.21E+02	1.22E+02	1.22E+02	1.22E+02	1.20E+02
Ps90%/90% (-KTL) Biased	6.27E+01	6.53E+01	6.63E+01	6.54E+01	6.56E+01	6.54E+01	6.71E+01
Un-Biased Statistics							
Average Un-Biased	8.95E+01	8.98E+01	8.98E+01	8.98E+01	8.99E+01	8.98E+01	9.07E+01
Std Dev Un-Biased	4.55E+00	5.01E+00	5.13E+00	5.16E+00	5.30E+00	5.20E+00	6.42E+00
Ps90%/90% (+KTL) Un-Biased	1.02E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.08E+02
Ps90%/90% (-KTL) Un-Biased	7.70E+01	7.61E+01	7.57E+01	7.56E+01	7.53E+01	7.55E+01	7.31E+01
Specification MIN	7.60E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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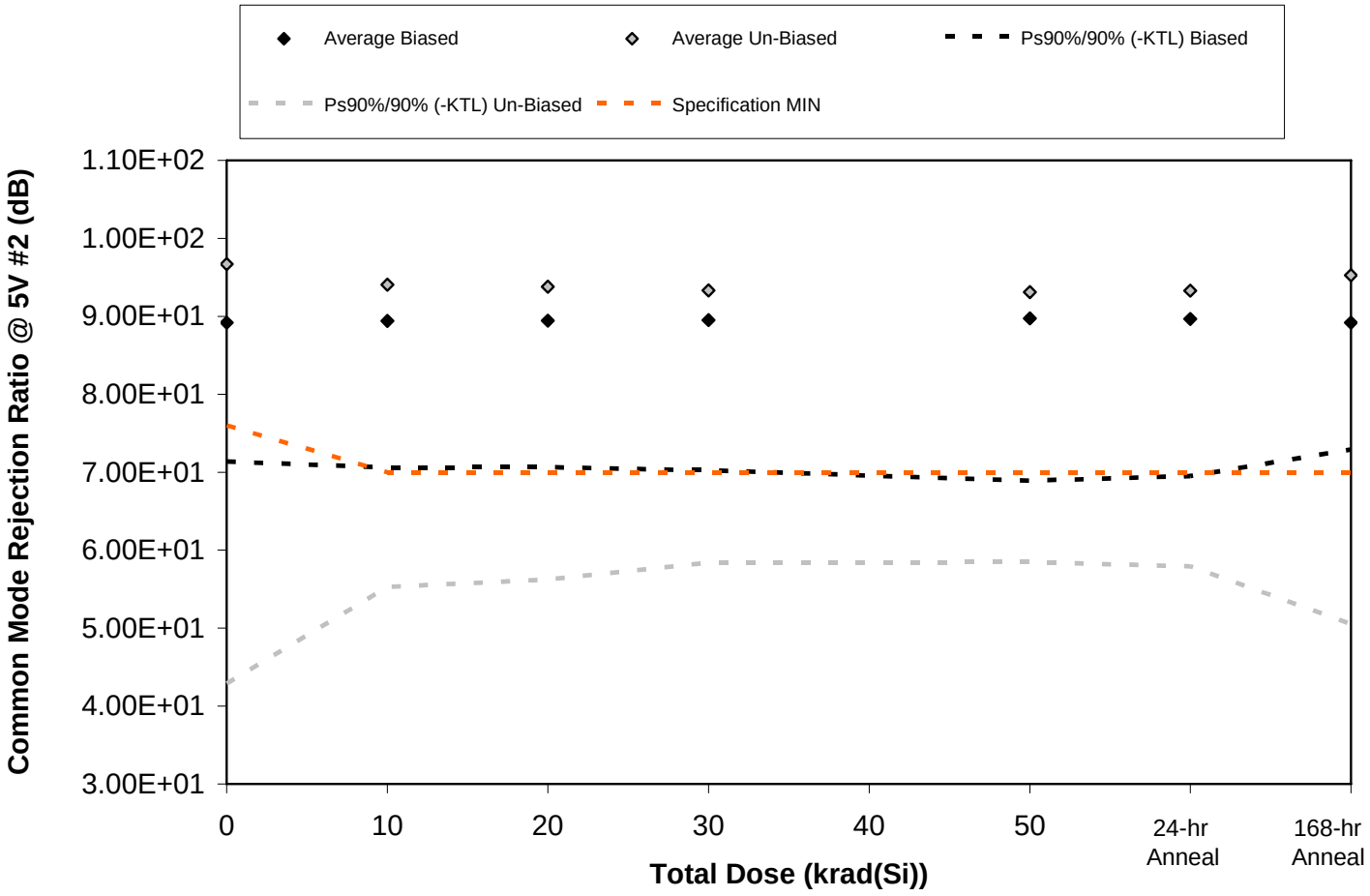

Figure 5.226. Plot of Common Mode Rejection Ratio @ 5V #2 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.226. Raw data for Common Mode Rejection Ratio @ 5V #2 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ 5V #2 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	9.95E+01	1.00E+02	1.00E+02	1.01E+02	1.02E+02	1.02E+02	9.84E+01
867	8.89E+01	8.88E+01	8.89E+01	8.88E+01	8.85E+01	8.85E+01	8.96E+01
868	8.96E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.97E+01	8.91E+01
869	8.19E+01	8.21E+01	8.22E+01	8.22E+01	8.23E+01	8.23E+01	8.22E+01
870	8.60E+01	8.60E+01	8.59E+01	8.59E+01	8.59E+01	8.60E+01	8.66E+01
871	8.39E+01	8.37E+01	8.37E+01	8.37E+01	8.36E+01	8.37E+01	8.39E+01
872	8.91E+01	8.88E+01	8.87E+01	8.86E+01	8.84E+01	8.84E+01	8.86E+01
873	1.32E+02	1.19E+02	1.18E+02	1.16E+02	1.15E+02	1.16E+02	1.24E+02
874	8.89E+01	8.90E+01	8.89E+01	8.89E+01	8.86E+01	8.86E+01	8.90E+01
876	9.00E+01	8.99E+01	8.99E+01	8.98E+01	8.96E+01	8.97E+01	9.07E+01
877	9.63E+01	9.57E+01	9.64E+01	9.59E+01	9.59E+01	9.63E+01	9.64E+01
Biased Statistics							
Average Biased	8.92E+01	8.94E+01	8.94E+01	8.95E+01	8.97E+01	8.97E+01	8.92E+01
Std Dev Biased	6.49E+00	6.85E+00	6.85E+00	7.03E+00	7.60E+00	7.36E+00	5.93E+00
Ps90%/90% (+KTL) Biased	1.07E+02	1.08E+02	1.08E+02	1.09E+02	1.11E+02	1.10E+02	1.05E+02
Ps90%/90% (-KTL) Biased	7.14E+01	7.06E+01	7.06E+01	7.02E+01	6.89E+01	6.95E+01	7.29E+01
Un-Biased Statistics							
Average Un-Biased	9.67E+01	9.41E+01	9.38E+01	9.33E+01	9.31E+01	9.33E+01	9.53E+01
Std Dev Un-Biased	1.96E+01	1.41E+01	1.37E+01	1.27E+01	1.26E+01	1.29E+01	1.63E+01
Ps90%/90% (+KTL) Un-Biased	1.50E+02	1.33E+02	1.31E+02	1.28E+02	1.28E+02	1.29E+02	1.40E+02
Ps90%/90% (-KTL) Un-Biased	4.29E+01	5.53E+01	5.63E+01	5.84E+01	5.85E+01	5.79E+01	5.05E+01
Specification MIN	7.60E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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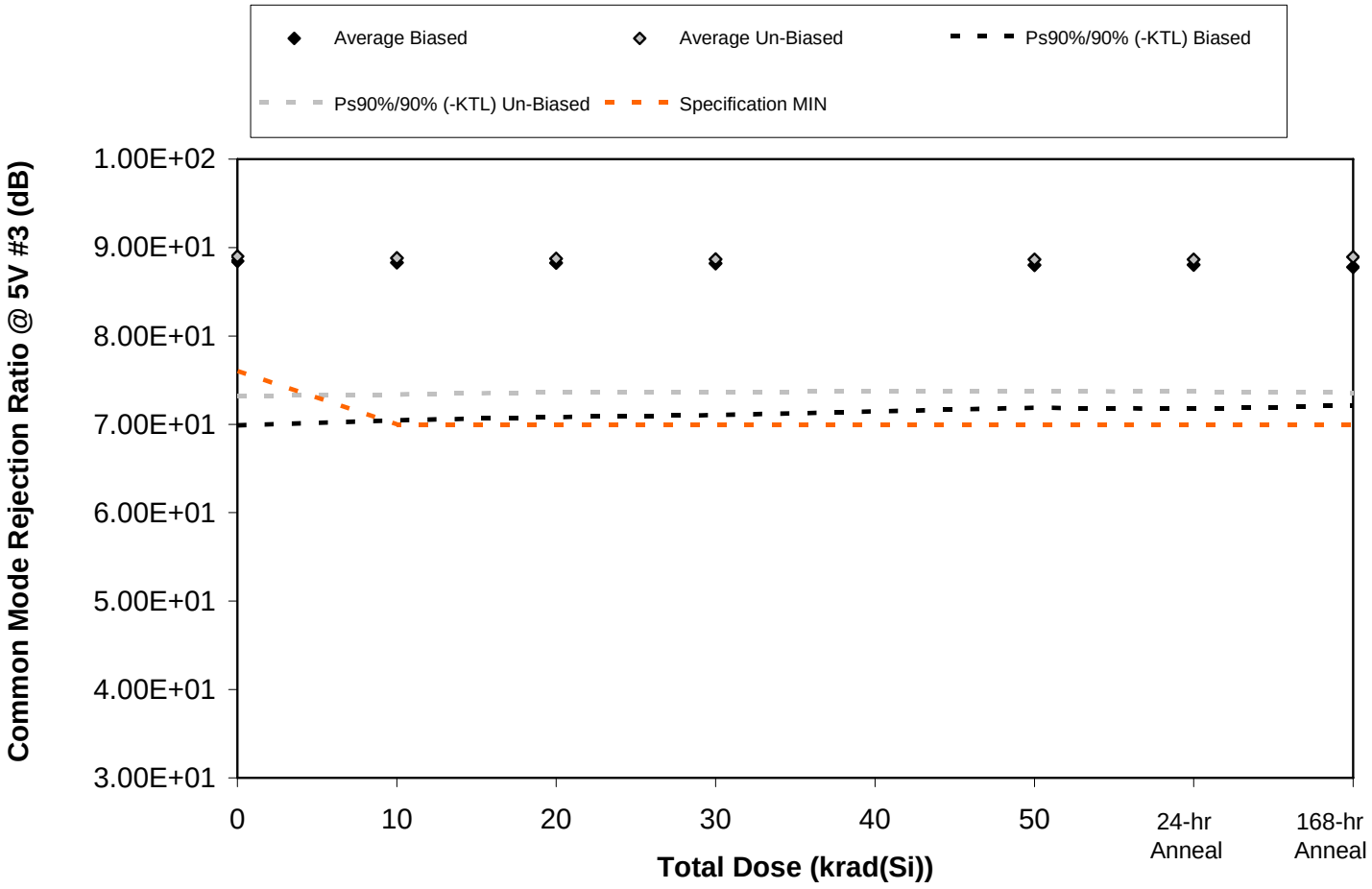

Figure 5.227. Plot of Common Mode Rejection Ratio @ 5V #3 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.227. Raw data for Common Mode Rejection Ratio @ 5V #3 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ 5V #3 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	9.21E+01	9.14E+01	9.12E+01	9.10E+01	9.06E+01	9.06E+01	9.06E+01
867	8.40E+01	8.42E+01	8.43E+01	8.43E+01	8.44E+01	8.45E+01	8.45E+01
868	8.28E+01	8.29E+01	8.31E+01	8.31E+01	8.34E+01	8.33E+01	8.31E+01
869	8.47E+01	8.46E+01	8.46E+01	8.46E+01	8.44E+01	8.45E+01	8.43E+01
870	9.87E+01	9.83E+01	9.81E+01	9.79E+01	9.72E+01	9.74E+01	9.66E+01
871	9.15E+01	9.12E+01	9.10E+01	9.09E+01	9.07E+01	9.08E+01	9.18E+01
872	9.63E+01	9.59E+01	9.56E+01	9.55E+01	9.55E+01	9.55E+01	9.57E+01
873	8.16E+01	8.15E+01	8.16E+01	8.15E+01	8.16E+01	8.16E+01	8.16E+01
874	9.07E+01	9.06E+01	9.05E+01	9.05E+01	9.05E+01	9.04E+01	9.05E+01
876	8.49E+01	8.49E+01	8.50E+01	8.49E+01	8.49E+01	8.49E+01	8.51E+01
877	8.28E+01	8.29E+01	8.28E+01	8.28E+01	8.29E+01	8.28E+01	8.28E+01
Biased Statistics							
Average Biased	8.85E+01	8.83E+01	8.83E+01	8.82E+01	8.80E+01	8.81E+01	8.78E+01
Std Dev Biased	6.77E+00	6.51E+00	6.35E+00	6.25E+00	5.89E+00	5.95E+00	5.71E+00
Ps90%/90% (+KTL) Biased	1.07E+02	1.06E+02	1.06E+02	1.05E+02	1.04E+02	1.04E+02	1.03E+02
Ps90%/90% (-KTL) Biased	6.99E+01	7.05E+01	7.08E+01	7.11E+01	7.19E+01	7.17E+01	7.21E+01
Un-Biased Statistics							
Average Un-Biased	8.90E+01	8.88E+01	8.87E+01	8.87E+01	8.87E+01	8.87E+01	8.89E+01
Std Dev Un-Biased	5.76E+00	5.63E+00	5.51E+00	5.47E+00	5.44E+00	5.45E+00	5.60E+00
Ps90%/90% (+KTL) Un-Biased	1.05E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
Ps90%/90% (-KTL) Un-Biased	7.32E+01	7.34E+01	7.36E+01	7.37E+01	7.37E+01	7.37E+01	7.36E+01
Specification MIN	7.60E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	PASS	PASS	PASS	PASS	PASS	PASS

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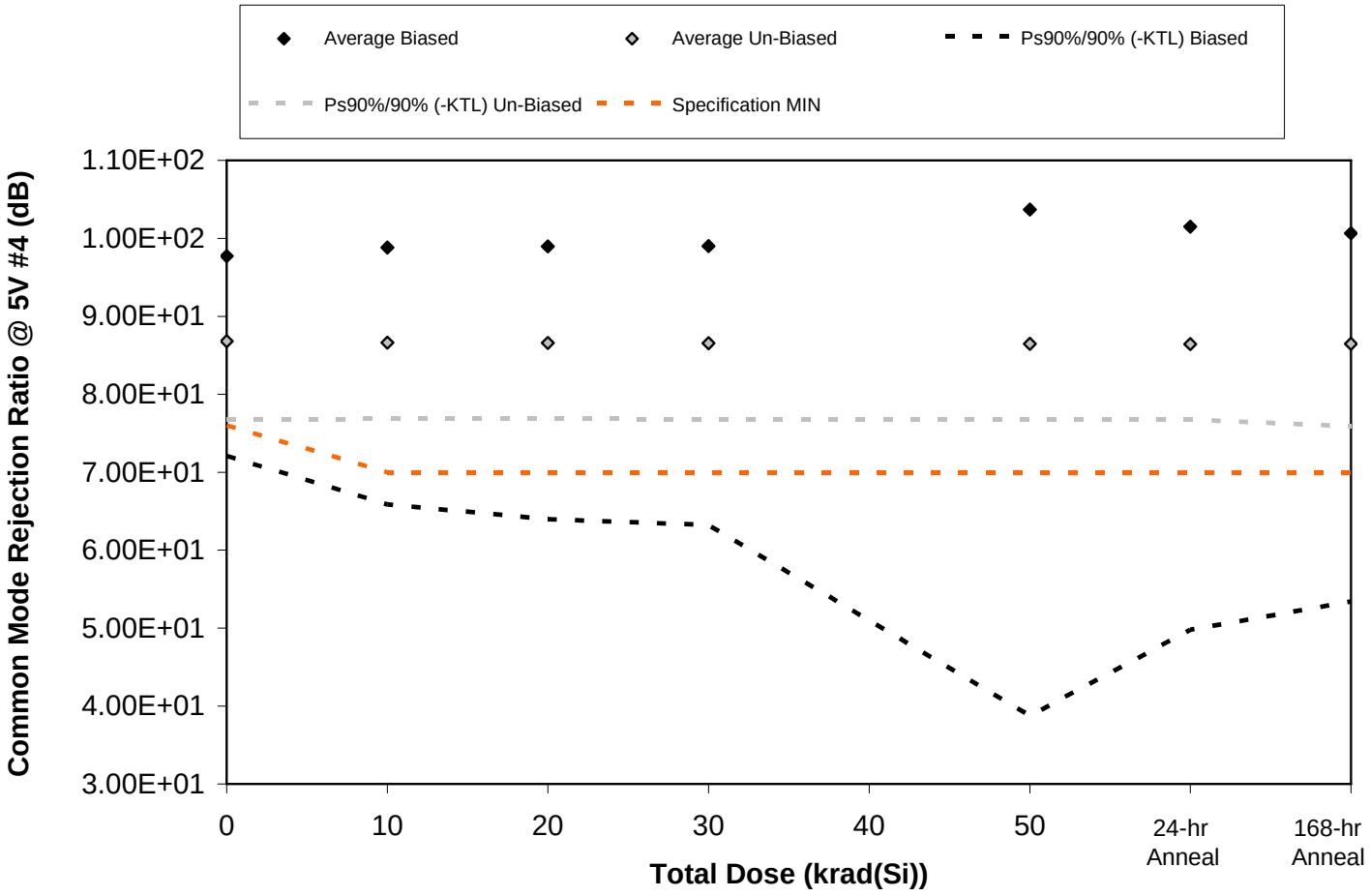

Figure 5.228. Plot of Common Mode Rejection Ratio @ 5V #4 (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.228. Raw data for Common Mode Rejection Ratio @ 5V #4 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio @ 5V #4 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.03E+02	1.02E+02	1.01E+02	1.00E+02	9.99E+01	9.99E+01	1.00E+02
867	9.30E+01	9.30E+01	9.28E+01	9.28E+01	9.28E+01	9.28E+01	9.27E+01
868	8.85E+01	8.85E+01	8.86E+01	8.85E+01	8.85E+01	8.85E+01	8.77E+01
869	9.27E+01	9.24E+01	9.23E+01	9.21E+01	9.19E+01	9.19E+01	9.25E+01
870	1.12E+02	1.19E+02	1.20E+02	1.21E+02	1.45E+02	1.34E+02	1.30E+02
871	8.89E+01	8.88E+01	8.87E+01	8.87E+01	8.85E+01	8.85E+01	8.87E+01
872	8.53E+01	8.53E+01	8.53E+01	8.53E+01	8.53E+01	8.53E+01	8.48E+01
873	8.31E+01	8.29E+01	8.28E+01	8.28E+01	8.27E+01	8.27E+01	8.26E+01
874	8.45E+01	8.45E+01	8.44E+01	8.44E+01	8.43E+01	8.43E+01	8.42E+01
876	9.21E+01	9.17E+01	9.16E+01	9.16E+01	9.15E+01	9.15E+01	9.21E+01
877	9.48E+01	9.47E+01	9.47E+01	9.49E+01	9.49E+01	9.49E+01	9.49E+01
Biased Statistics							
Average Biased	9.77E+01	9.88E+01	9.90E+01	9.90E+01	1.04E+02	1.02E+02	1.01E+02
Std Dev Biased	9.36E+00	1.20E+01	1.28E+01	1.30E+01	2.37E+01	1.89E+01	1.72E+01
Ps90%/90% (+KTL) Biased	1.23E+02	1.32E+02	1.34E+02	1.35E+02	1.69E+02	1.53E+02	1.48E+02
Ps90%/90% (-KTL) Biased	7.21E+01	6.59E+01	6.40E+01	6.32E+01	3.88E+01	4.98E+01	5.34E+01
Un-Biased Statistics							
Average Un-Biased	8.68E+01	8.66E+01	8.66E+01	8.65E+01	8.65E+01	8.65E+01	8.65E+01
Std Dev Un-Biased	3.65E+00	3.57E+00	3.55E+00	3.55E+00	3.54E+00	3.53E+00	3.87E+00
Ps90%/90% (+KTL) Un-Biased	9.68E+01	9.64E+01	9.63E+01	9.63E+01	9.62E+01	9.61E+01	9.71E+01
Ps90%/90% (-KTL) Un-Biased	7.68E+01	7.69E+01	7.68E+01	7.68E+01	7.68E+01	7.68E+01	7.59E+01
Specification MIN	7.60E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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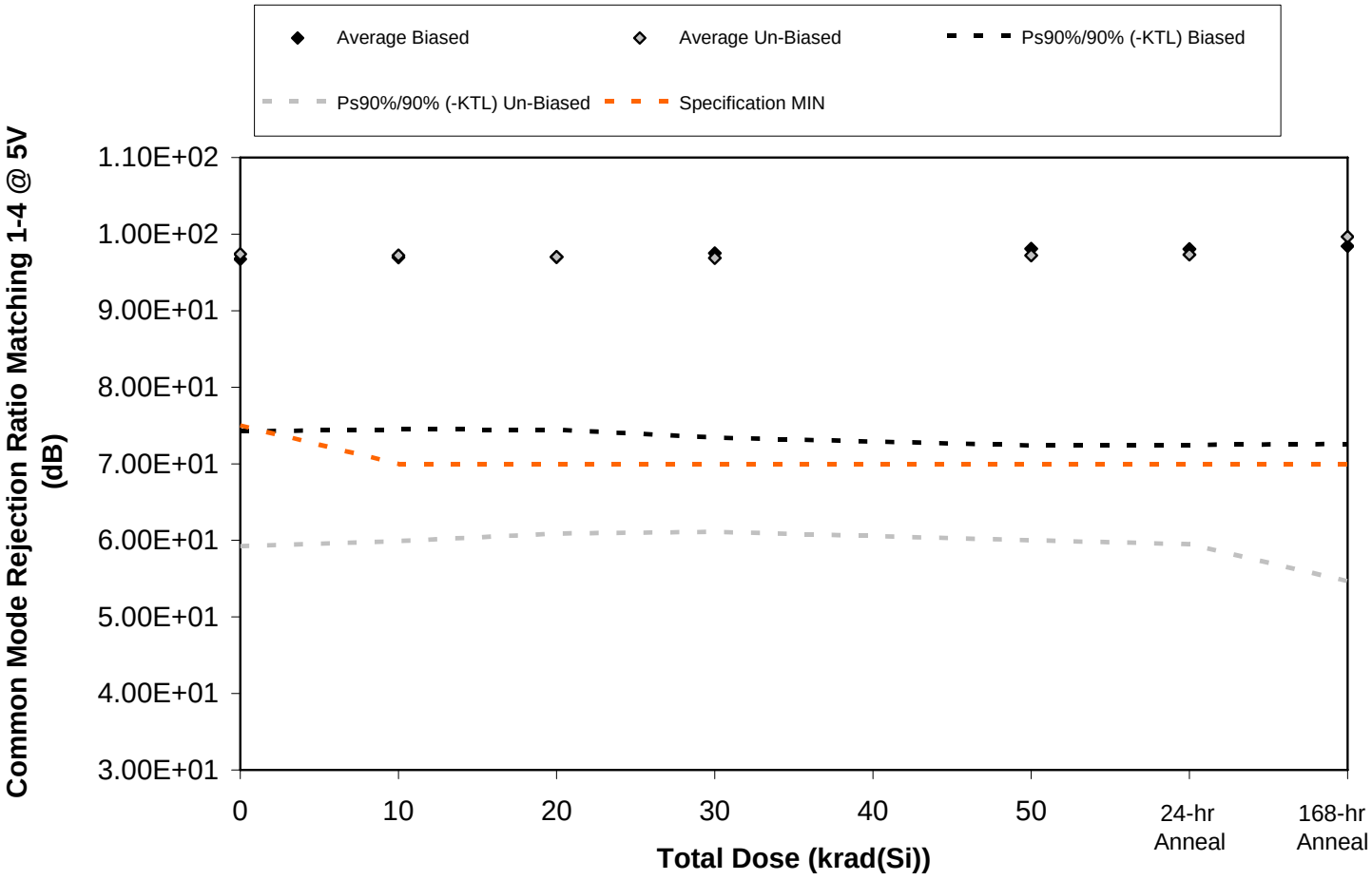

Figure 5.229. Plot of Common Mode Rejection Ratio Matching 1-4 @ 5V (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.229. Raw data for Common Mode Rejection Ratio Matching 1-4 @ 5V (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio Matching 1-4 @ 5V (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	8.42E+01	8.47E+01	8.49E+01	8.50E+01	8.52E+01	8.52E+01	8.56E+01
867	9.52E+01	9.56E+01	9.55E+01	9.55E+01	9.57E+01	9.56E+01	9.51E+01
868	9.59E+01	9.56E+01	9.56E+01	9.53E+01	9.51E+01	9.52E+01	9.74E+01
869	1.04E+02	1.05E+02	1.06E+02	1.08E+02	1.09E+02	1.09E+02	1.11E+02
870	1.04E+02	1.04E+02	1.03E+02	1.04E+02	1.06E+02	1.05E+02	1.03E+02
871	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.04E+02	1.08E+02
872	9.89E+01	9.89E+01	9.93E+01	9.92E+01	9.91E+01	9.89E+01	9.75E+01
873	8.09E+01	8.09E+01	8.09E+01	8.08E+01	8.08E+01	8.07E+01	8.08E+01
874	1.16E+02	1.16E+02	1.14E+02	1.14E+02	1.15E+02	1.16E+02	1.23E+02
876	8.73E+01	8.75E+01	8.75E+01	8.75E+01	8.75E+01	8.74E+01	8.91E+01
877	1.02E+02	1.03E+02	1.02E+02	1.03E+02	1.03E+02	1.03E+02	1.02E+02
Biased Statistics							
Average Biased	9.67E+01	9.70E+01	9.70E+01	9.75E+01	9.81E+01	9.81E+01	9.84E+01
Std Dev Biased	8.20E+00	8.19E+00	8.21E+00	8.79E+00	9.37E+00	9.33E+00	9.43E+00
Ps90%/90% (+KTL) Biased	1.19E+02	1.19E+02	1.19E+02	1.22E+02	1.24E+02	1.24E+02	1.24E+02
Ps90%/90% (-KTL) Biased	7.42E+01	7.45E+01	7.45E+01	7.34E+01	7.24E+01	7.25E+01	7.26E+01
Un-Biased Statistics							
Average Un-Biased	9.74E+01	9.72E+01	9.70E+01	9.69E+01	9.72E+01	9.73E+01	9.97E+01
Std Dev Un-Biased	1.39E+01	1.36E+01	1.32E+01	1.31E+01	1.36E+01	1.38E+01	1.64E+01
Ps90%/90% (+KTL) Un-Biased	1.36E+02	1.35E+02	1.33E+02	1.33E+02	1.34E+02	1.35E+02	1.45E+02
Ps90%/90% (-KTL) Un-Biased	5.93E+01	5.99E+01	6.09E+01	6.11E+01	6.00E+01	5.95E+01	5.47E+01
Specification MIN	7.50E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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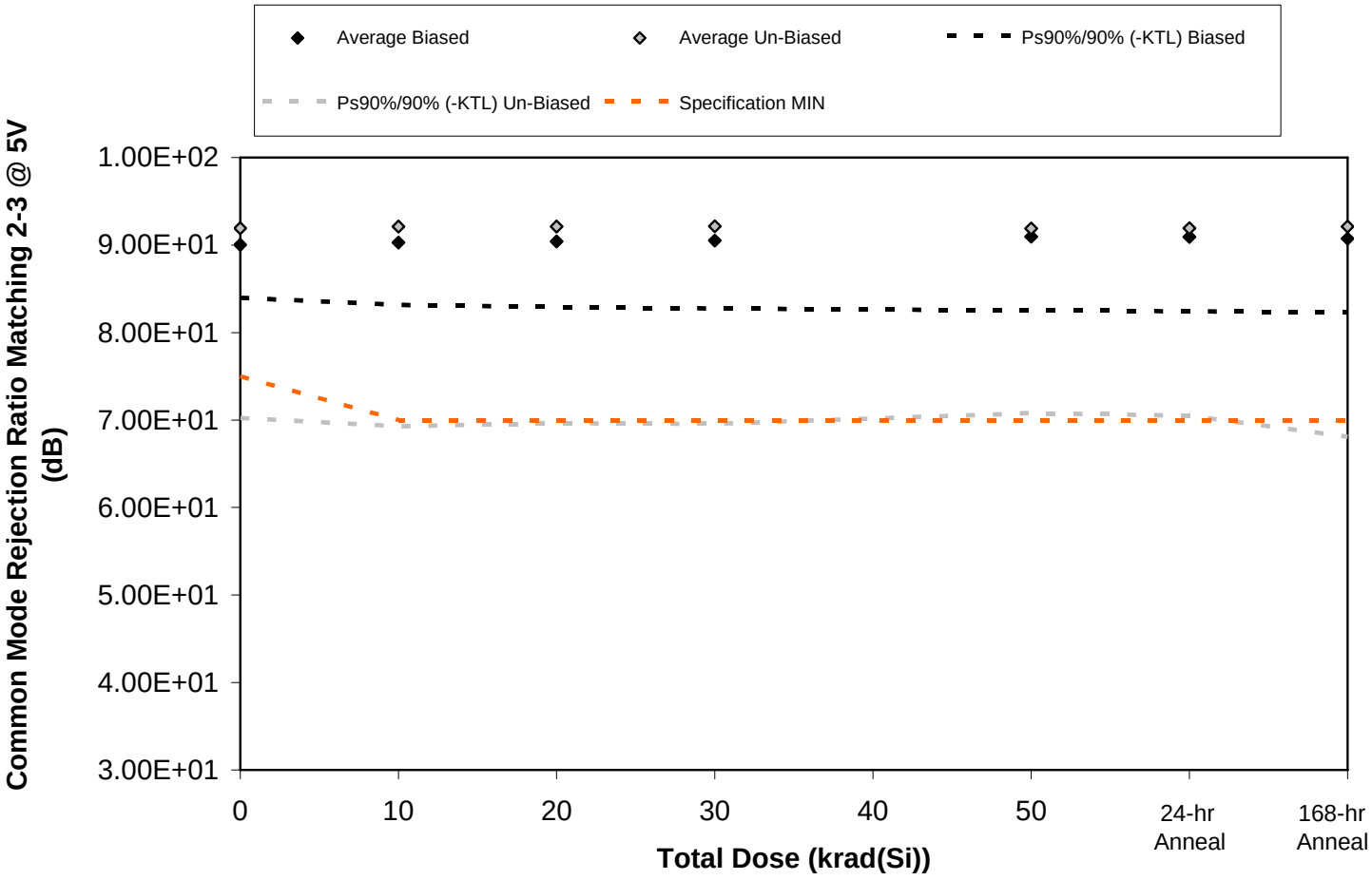

Figure 5.230. Plot of Common Mode Rejection Ratio Matching 2-3 @ 5V (dB) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.230. Raw data for Common Mode Rejection Ratio Matching 2-3 @ 5V (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Common Mode Rejection Ratio Matching 2-3 @ 5V (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	8.90E+01	8.88E+01	8.86E+01	8.86E+01	8.86E+01	8.85E+01	8.76E+01
867	9.14E+01	9.19E+01	9.21E+01	9.22E+01	9.29E+01	9.30E+01	9.15E+01
868	8.81E+01	8.83E+01	8.85E+01	8.86E+01	8.91E+01	8.90E+01	8.90E+01
869	9.32E+01	9.41E+01	9.44E+01	9.47E+01	9.54E+01	9.54E+01	9.56E+01
870	8.83E+01	8.83E+01	8.84E+01	8.84E+01	8.87E+01	8.87E+01	8.99E+01
871	8.86E+01	8.85E+01	8.86E+01	8.86E+01	8.87E+01	8.87E+01	8.84E+01
872	9.41E+01	9.39E+01	9.38E+01	9.38E+01	9.34E+01	9.34E+01	9.37E+01
873	8.17E+01	8.17E+01	8.17E+01	8.17E+01	8.18E+01	8.17E+01	8.15E+01
874	1.03E+02	1.04E+02	1.04E+02	1.04E+02	1.03E+02	1.03E+02	1.05E+02
876	9.20E+01	9.22E+01	9.23E+01	9.23E+01	9.26E+01	9.24E+01	9.15E+01
877	8.48E+01	8.51E+01	8.49E+01	8.50E+01	8.50E+01	8.49E+01	8.49E+01
Biased Statistics							
Average Biased	9.00E+01	9.03E+01	9.04E+01	9.05E+01	9.10E+01	9.09E+01	9.07E+01
Std Dev Biased	2.20E+00	2.60E+00	2.73E+00	2.83E+00	3.07E+00	3.10E+00	3.07E+00
Ps90%/90% (+KTL) Biased	9.61E+01	9.74E+01	9.79E+01	9.83E+01	9.94E+01	9.94E+01	9.92E+01
Ps90%/90% (-KTL) Biased	8.40E+01	8.32E+01	8.29E+01	8.28E+01	8.25E+01	8.24E+01	8.23E+01
Un-Biased Statistics							
Average Un-Biased	9.19E+01	9.21E+01	9.21E+01	9.21E+01	9.19E+01	9.19E+01	9.21E+01
Std Dev Un-Biased	7.91E+00	8.33E+00	8.20E+00	8.23E+00	7.70E+00	7.81E+00	8.76E+00
Ps90%/90% (+KTL) Un-Biased	1.14E+02	1.15E+02	1.15E+02	1.15E+02	1.13E+02	1.13E+02	1.16E+02
Ps90%/90% (-KTL) Un-Biased	7.02E+01	6.93E+01	6.96E+01	6.96E+01	7.08E+01	7.05E+01	6.81E+01
Specification MIN	7.50E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01	7.00E+01
Status	FAIL	FAIL	FAIL	FAIL	PASS	PASS	FAIL

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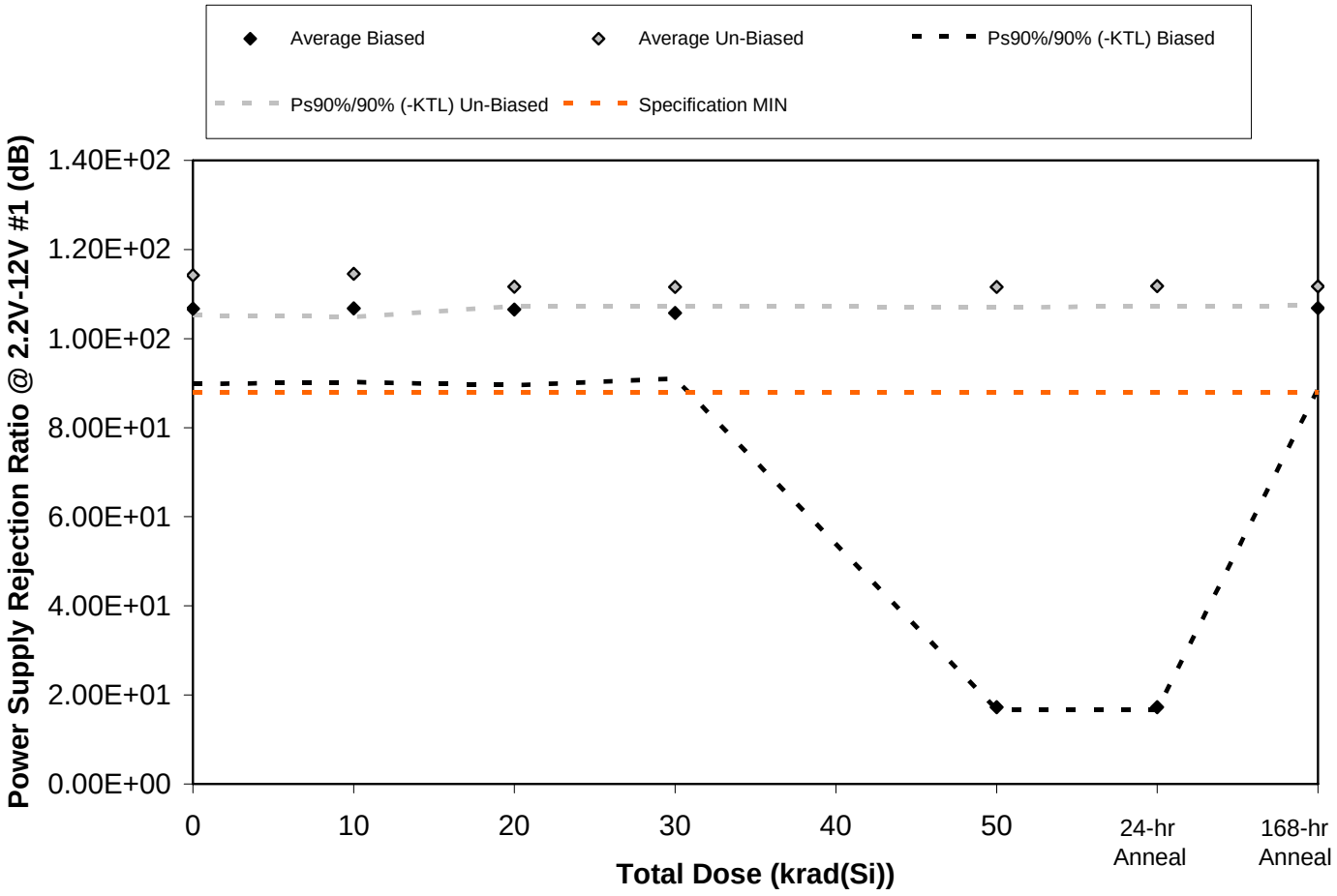

Figure 5.231. Plot of Power Supply Rejection Ratio @ 2.2V-12V #1 (dB) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.231. Raw data for Power Supply Rejection Ratio @ 2.2V-12V #1 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio @ 2.2V-12V #1 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.15E+02	1.15E+02	1.15E+02	1.13E+02	1.74E+01	1.75E+01	1.16E+02
867	1.00E+02	1.01E+02	1.01E+02	1.01E+02	1.72E+01	1.73E+01	1.01E+02
868	1.02E+02	1.03E+02	1.02E+02	1.02E+02	1.74E+01	1.74E+01	1.02E+02
869	1.11E+02	1.11E+02	1.11E+02	1.09E+02	1.69E+01	1.69E+01	1.12E+02
870	1.05E+02	1.05E+02	1.04E+02	1.04E+02	1.73E+01	1.72E+01	1.04E+02
871	1.12E+02	1.12E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02
872	1.13E+02	1.13E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02	1.11E+02
873	1.15E+02	1.15E+02	1.12E+02	1.12E+02	1.11E+02	1.12E+02	1.12E+02
874	1.12E+02	1.12E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02	1.13E+02
876	1.20E+02	1.21E+02	1.14E+02	1.13E+02	1.13E+02	1.14E+02	1.14E+02
877	1.11E+02	1.11E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02
Biased Statistics							
Average Biased	1.07E+02	1.07E+02	1.07E+02	1.06E+02	1.72E+01	1.73E+01	1.07E+02
Std Dev Biased	6.18E+00	6.04E+00	6.20E+00	5.39E+00	1.80E-01	2.19E-01	6.66E+00
Ps90%/90% (+KTL) Biased	1.24E+02	1.23E+02	1.24E+02	1.21E+02	1.77E+01	1.79E+01	1.25E+02
Ps90%/90% (-KTL) Biased	8.98E+01	9.02E+01	8.95E+01	9.10E+01	1.68E+01	1.67E+01	8.86E+01
Un-Biased Statistics							
Average Un-Biased	1.14E+02	1.15E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02	1.12E+02
Std Dev Un-Biased	3.26E+00	3.52E+00	1.59E+00	1.55E+00	1.67E+00	1.65E+00	1.56E+00
Ps90%/90% (+KTL) Un-Biased	1.23E+02	1.24E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02	1.16E+02
Ps90%/90% (-KTL) Un-Biased	1.05E+02	1.05E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02
Specification MIN	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01
Status	PASS	PASS	PASS	PASS	FAIL	FAIL	PASS

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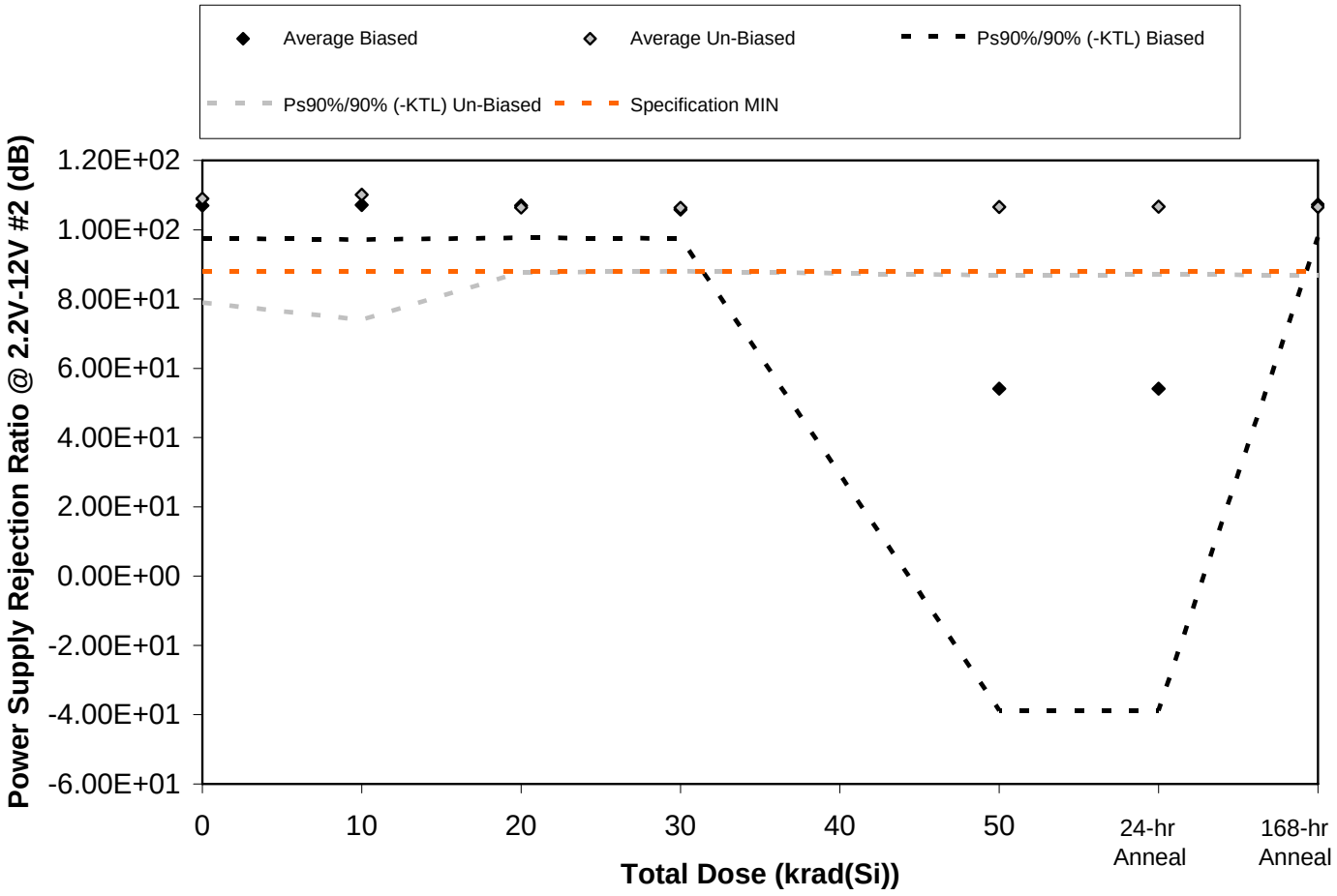

Figure 5.232. Plot of Power Supply Rejection Ratio @ 2.2V-12V #2 (dB) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.232. Raw data for Power Supply Rejection Ratio @ 2.2V-12V #2 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio @ 2.2V-12V #2 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.09E+02	1.09E+02	1.10E+02	1.08E+02	7.95E+01	7.95E+01	1.10E+02
867	1.08E+02	1.08E+02	1.07E+02	1.06E+02	1.70E+01	1.71E+01	1.08E+02
868	1.11E+02	1.12E+02	1.11E+02	1.09E+02	7.85E+01	7.85E+01	1.11E+02
869	1.04E+02	1.04E+02	1.04E+02	1.03E+02	1.70E+01	1.69E+01	1.04E+02
870	1.03E+02	1.03E+02	1.03E+02	1.03E+02	7.86E+01	7.86E+01	1.04E+02
871	9.96E+01	9.97E+01	9.97E+01	9.97E+01	9.96E+01	9.96E+01	9.96E+01
872	1.28E+02	1.33E+02	1.18E+02	1.17E+02	1.19E+02	1.18E+02	1.18E+02
873	1.08E+02	1.08E+02	1.06E+02	1.06E+02	1.07E+02	1.06E+02	1.06E+02
874	1.07E+02	1.07E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
876	1.02E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
877	1.06E+02	1.06E+02	1.05E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
Biased Statistics							
Average Biased	1.07E+02	1.07E+02	1.07E+02	1.06E+02	5.41E+01	5.41E+01	1.07E+02
Std Dev Biased	3.48E+00	3.63E+00	3.40E+00	3.04E+00	3.39E+01	3.39E+01	3.41E+00
Ps90%/90% (+KTL) Biased	1.17E+02	1.17E+02	1.16E+02	1.14E+02	1.47E+02	1.47E+02	1.17E+02
Ps90%/90% (-KTL) Biased	9.75E+01	9.72E+01	9.77E+01	9.75E+01	-3.88E+01	-3.88E+01	9.78E+01
Un-Biased Statistics							
Average Un-Biased	1.09E+02	1.10E+02	1.06E+02	1.06E+02	1.07E+02	1.07E+02	1.07E+02
Std Dev Un-Biased	1.10E+01	1.32E+01	6.81E+00	6.66E+00	7.20E+00	7.14E+00	7.14E+00
Ps90%/90% (+KTL) Un-Biased	1.39E+02	1.46E+02	1.25E+02	1.25E+02	1.26E+02	1.26E+02	1.26E+02
Ps90%/90% (-KTL) Un-Biased	7.89E+01	7.40E+01	8.77E+01	8.80E+01	8.68E+01	8.70E+01	8.70E+01
Specification MIN	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01
Status	FAIL	FAIL	FAIL	PASS	FAIL	FAIL	FAIL

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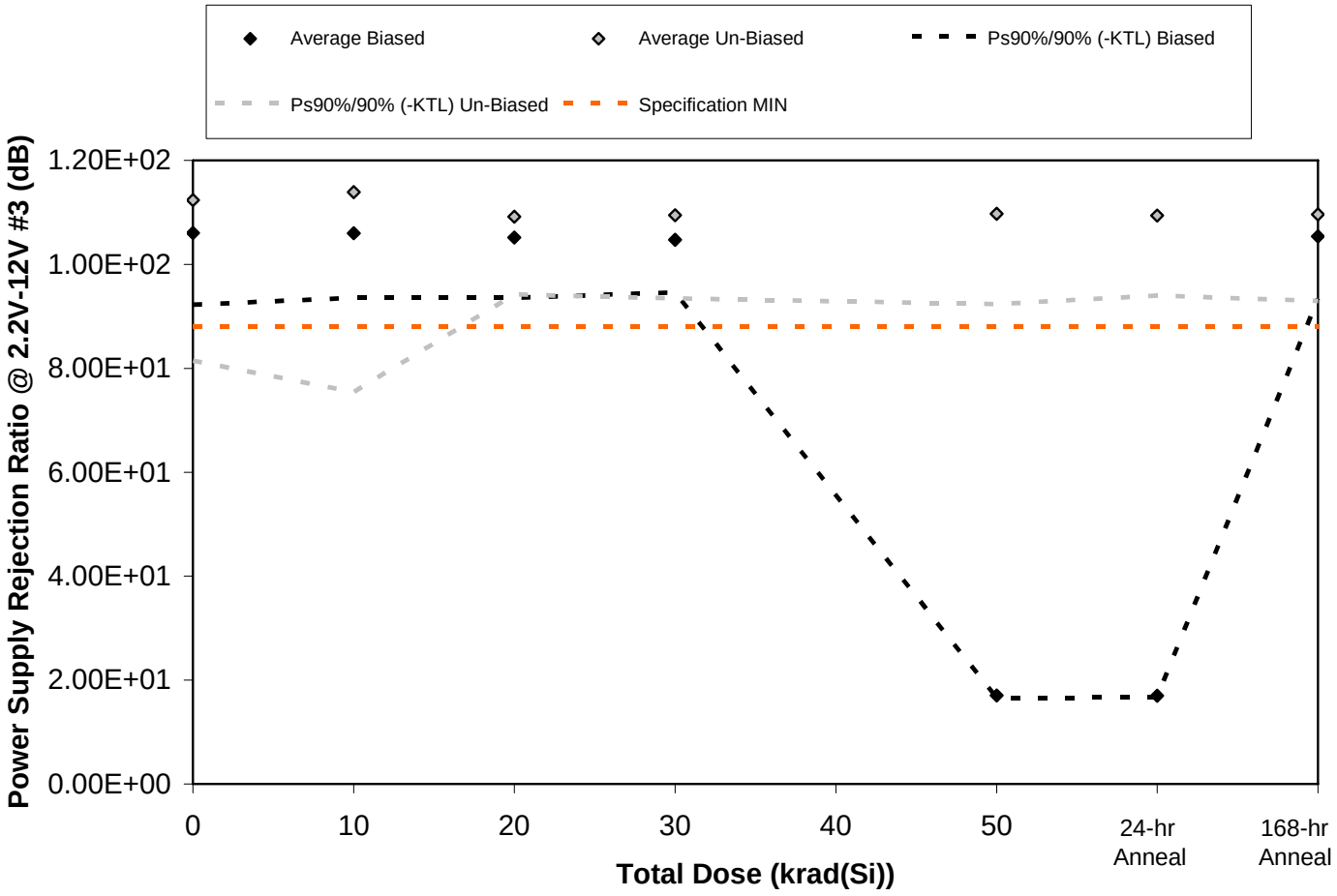

Figure 5.233. Plot of Power Supply Rejection Ratio @ 2.2V-12V #3 (dB) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.233. Raw data for Power Supply Rejection Ratio @ 2.2V-12V #3 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio @ 2.2V-12V #3 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.04E+02	1.04E+02	1.03E+02	1.03E+02	1.69E+01	1.69E+01	1.03E+02
867	1.02E+02	1.02E+02	1.01E+02	1.01E+02	1.72E+01	1.72E+01	1.01E+02
868	1.14E+02	1.13E+02	1.12E+02	1.11E+02	1.71E+01	1.70E+01	1.13E+02
869	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.70E+01	1.70E+01	1.04E+02
870	1.07E+02	1.07E+02	1.06E+02	1.06E+02	1.69E+01	1.68E+01	1.06E+02
871	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02
872	1.32E+02	1.39E+02	1.18E+02	1.19E+02	1.21E+02	1.19E+02	1.20E+02
873	1.06E+02	1.06E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
874	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
876	1.11E+02	1.11E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
877	1.06E+02	1.07E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02	1.06E+02
Biased Statistics							
Average Biased	1.06E+02	1.06E+02	1.05E+02	1.05E+02	1.70E+01	1.70E+01	1.05E+02
Std Dev Biased	5.03E+00	4.54E+00	4.24E+00	3.70E+00	1.47E-01	1.23E-01	4.37E+00
Ps90%/90% (+KTL) Biased	1.20E+02	1.18E+02	1.17E+02	1.15E+02	1.74E+01	1.73E+01	1.17E+02
Ps90%/90% (-KTL) Biased	9.23E+01	9.35E+01	9.36E+01	9.46E+01	1.66E+01	1.66E+01	9.34E+01
Un-Biased Statistics							
Average Un-Biased	1.12E+02	1.14E+02	1.09E+02	1.09E+02	1.10E+02	1.09E+02	1.10E+02
Std Dev Un-Biased	1.13E+01	1.40E+01	5.46E+00	5.83E+00	6.34E+00	5.62E+00	6.08E+00
Ps90%/90% (+KTL) Un-Biased	1.43E+02	1.52E+02	1.24E+02	1.25E+02	1.27E+02	1.25E+02	1.26E+02
Ps90%/90% (-KTL) Un-Biased	8.15E+01	7.54E+01	9.42E+01	9.35E+01	9.24E+01	9.40E+01	9.30E+01
Specification MIN	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01
Status	FAIL	FAIL	PASS	PASS	FAIL	FAIL	PASS

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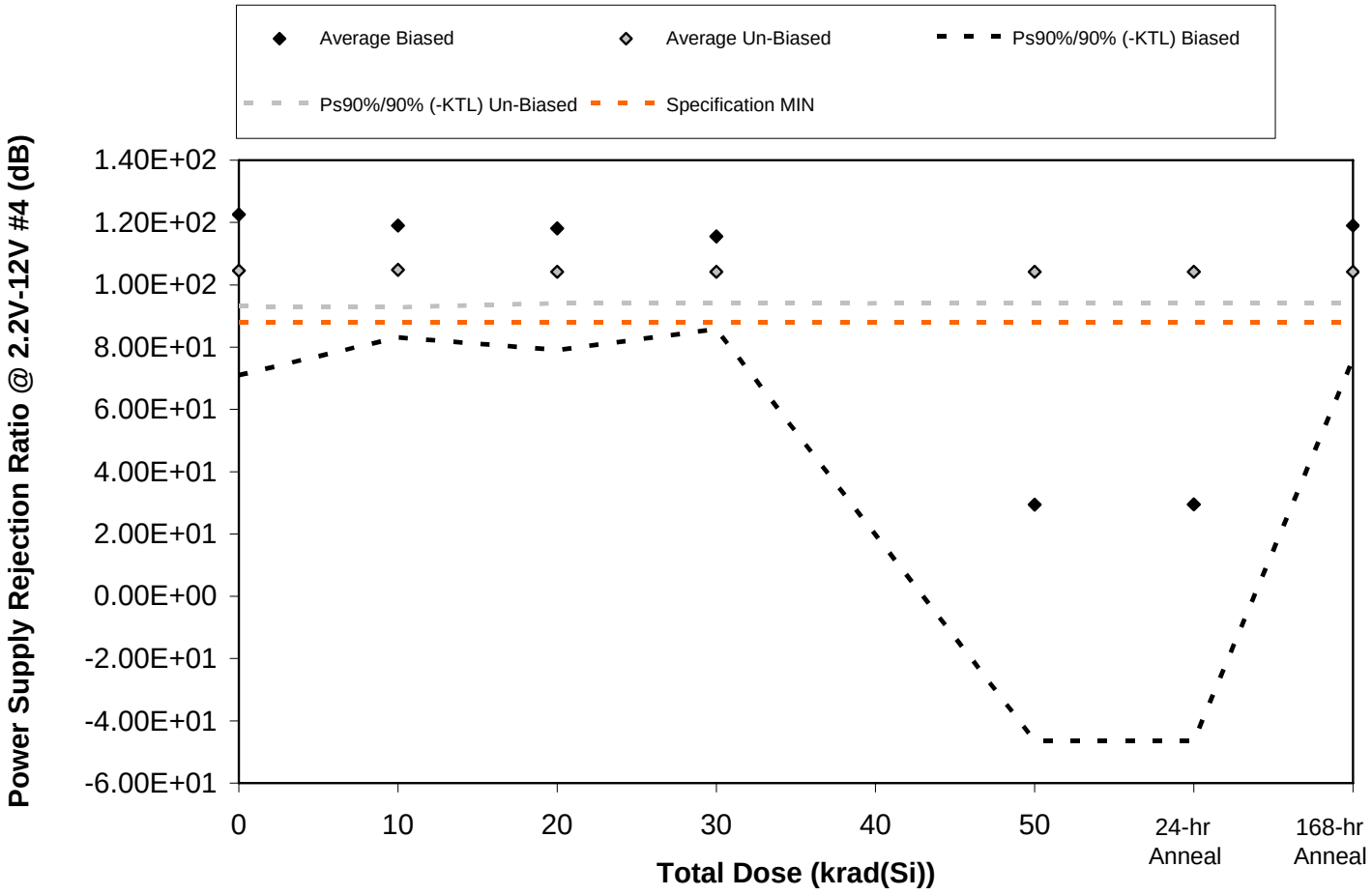

Figure 5.234. Plot of Power Supply Rejection Ratio @ 2.2V-12V #4 (dB) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.234. Raw data for Power Supply Rejection Ratio @ 2.2V-12V #4 (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio @ 2.2V-12V #4 (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.49E+02	1.33E+02	1.39E+02	1.28E+02	1.74E+01	1.75E+01	1.42E+02
867	1.06E+02	1.06E+02	1.06E+02	1.05E+02	7.89E+01	7.90E+01	1.06E+02
868	1.06E+02	1.06E+02	1.05E+02	1.05E+02	1.70E+01	1.71E+01	1.05E+02
869	1.34E+02	1.31E+02	1.26E+02	1.26E+02	1.68E+01	1.68E+01	1.27E+02
870	1.18E+02	1.18E+02	1.15E+02	1.14E+02	1.71E+01	1.71E+01	1.16E+02
871	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02	1.02E+02
872	1.05E+02	1.05E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
873	1.12E+02	1.12E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02	1.10E+02
874	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
876	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02	1.01E+02
877	1.11E+02	1.11E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02
Biased Statistics							
Average Biased	1.23E+02	1.19E+02	1.18E+02	1.16E+02	2.95E+01	2.95E+01	1.19E+02
Std Dev Biased	1.88E+01	1.31E+01	1.43E+01	1.09E+01	2.77E+01	2.77E+01	1.57E+01
Ps90%/90% (+KTL) Biased	1.74E+02	1.55E+02	1.57E+02	1.45E+02	1.05E+02	1.05E+02	1.62E+02
Ps90%/90% (-KTL) Biased	7.10E+01	8.31E+01	7.91E+01	8.58E+01	-4.64E+01	-4.64E+01	7.61E+01
Un-Biased Statistics							
Average Un-Biased	1.05E+02	1.05E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02	1.04E+02
Std Dev Un-Biased	4.19E+00	4.35E+00	3.66E+00	3.71E+00	3.68E+00	3.66E+00	3.71E+00
Ps90%/90% (+KTL) Un-Biased	1.16E+02	1.17E+02	1.14E+02	1.14E+02	1.14E+02	1.14E+02	1.14E+02
Ps90%/90% (-KTL) Un-Biased	9.31E+01	9.29E+01	9.41E+01	9.40E+01	9.41E+01	9.41E+01	9.40E+01
Specification MIN	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01	8.80E+01
Status	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL	FAIL

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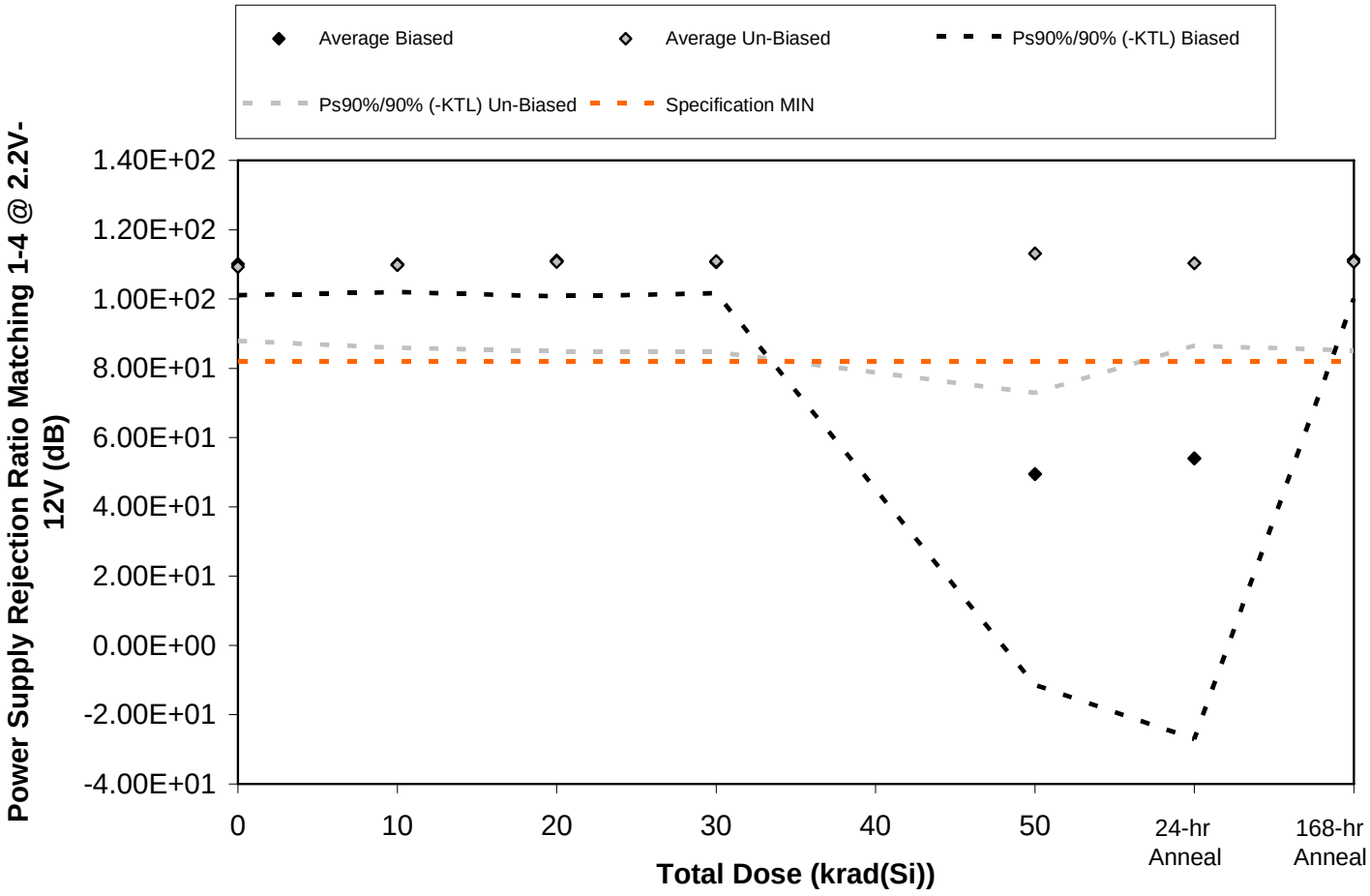

Figure 5.235. Plot of Power Supply Rejection Ratio Matching 1-4 @ 2.2V-12V (dB) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.235. Raw data for Power Supply Rejection Ratio Matching 1-4 @ 2.2V-12V (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio Matching 1-4 @ 2.2V-12V (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.15E+02	1.14E+02	1.16E+02	1.15E+02	7.95E+01	9.94E+01	1.16E+02
867	1.07E+02	1.07E+02	1.08E+02	1.08E+02	1.73E+01	1.73E+01	1.08E+02
868	1.11E+02	1.11E+02	1.12E+02	1.12E+02	4.60E+01	4.54E+01	1.12E+02
869	1.10E+02	1.10E+02	1.13E+02	1.10E+02	5.42E+01	5.64E+01	1.14E+02
870	1.07E+02	1.07E+02	1.06E+02	1.07E+02	5.02E+01	5.15E+01	1.06E+02
871	1.05E+02	1.05E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02	1.07E+02
872	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02	1.09E+02
873	1.22E+02	1.25E+02	1.27E+02	1.28E+02	1.39E+02	1.25E+02	1.27E+02
874	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02
876	1.02E+02	1.02E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02	1.03E+02
877	1.46E+02	1.50E+02	1.60E+02	1.79E+02	1.54E+02	1.46E+02	1.62E+02
Biased Statistics							
Average Biased	1.10E+02	1.10E+02	1.11E+02	1.11E+02	4.94E+01	5.40E+01	1.11E+02
Std Dev Biased	3.28E+00	2.91E+00	3.76E+00	3.25E+00	2.22E+01	2.96E+01	4.11E+00
Ps90%/90% (+KTL) Biased	1.19E+02	1.18E+02	1.21E+02	1.20E+02	1.10E+02	1.35E+02	1.23E+02
Ps90%/90% (-KTL) Biased	1.01E+02	1.02E+02	1.01E+02	1.02E+02	-1.15E+01	-2.70E+01	1.00E+02
Un-Biased Statistics							
Average Un-Biased	1.09E+02	1.10E+02	1.11E+02	1.11E+02	1.13E+02	1.10E+02	1.11E+02
Std Dev Un-Biased	7.79E+00	8.70E+00	9.41E+00	9.54E+00	1.47E+01	8.69E+00	9.32E+00
Ps90%/90% (+KTL) Un-Biased	1.31E+02	1.34E+02	1.37E+02	1.37E+02	1.53E+02	1.34E+02	1.36E+02
Ps90%/90% (-KTL) Un-Biased	8.79E+01	8.59E+01	8.49E+01	8.47E+01	7.29E+01	8.65E+01	8.51E+01
Specification MIN	8.20E+01	8.20E+01	8.20E+01	8.20E+01	8.20E+01	8.20E+01	8.20E+01
Status	PASS	PASS	PASS	PASS	FAIL	FAIL	PASS

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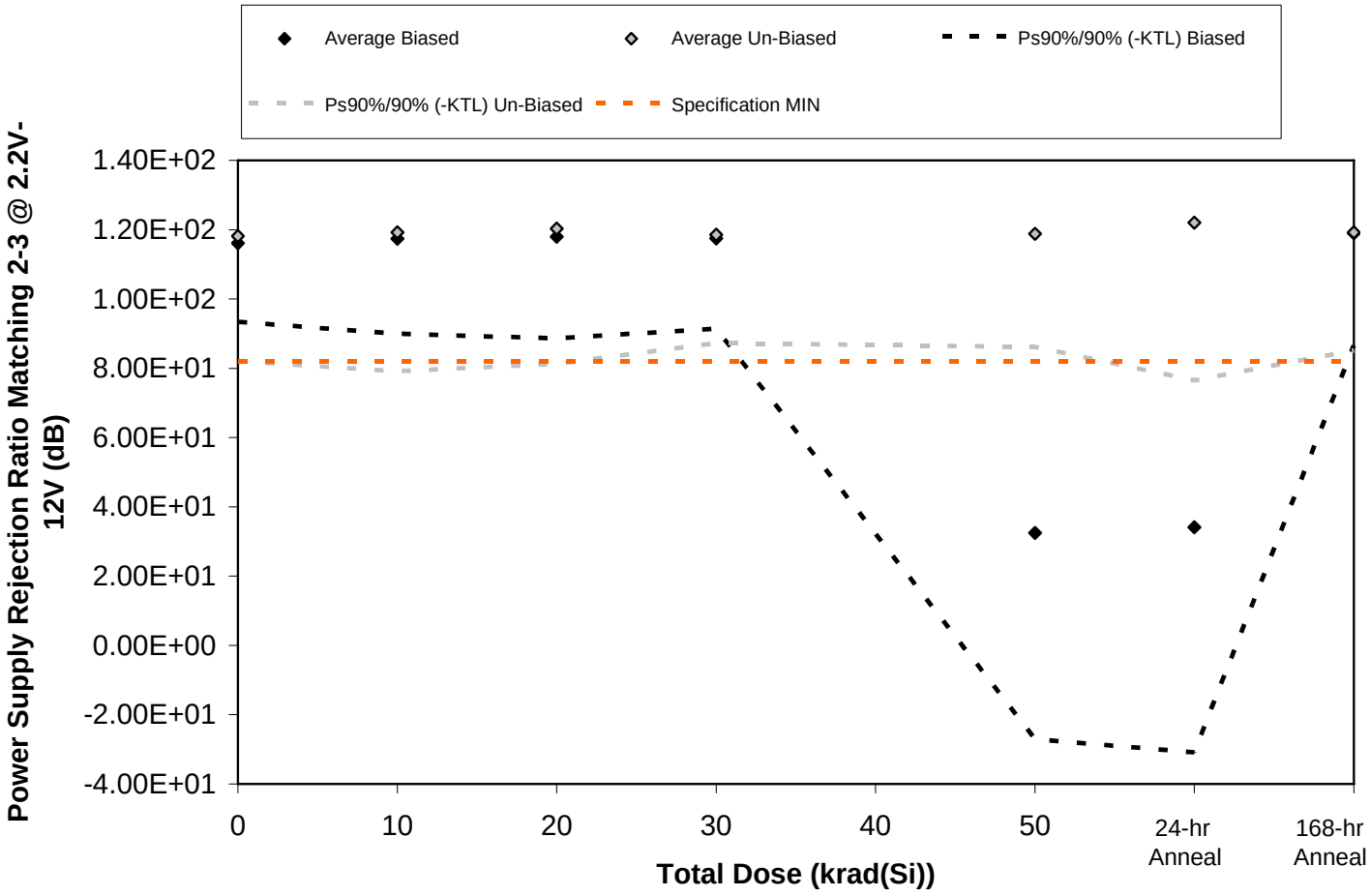

Figure 5.236. Plot of Power Supply Rejection Ratio Matching 2-3 @ 2.2V-12V (dB) versus total dose. The data show a significant change with radiation causing a failure at the 50krad(Si) dose level. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.236. Raw data for Power Supply Rejection Ratio Matching 2-3 @ 2.2V-12V (dB) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Power Supply Rejection Ratio Matching 2-3 @ 2.2V-12V (dB)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.11E+02	1.11E+02	1.09E+02	1.11E+02	1.69E+01	1.69E+01	1.09E+02
867	1.08E+02	1.08E+02	1.07E+02	1.09E+02	4.96E+01	5.67E+01	1.07E+02
868	1.22E+02	1.27E+02	1.27E+02	1.26E+02	1.71E+01	1.70E+01	1.27E+02
869	1.27E+02	1.30E+02	1.31E+02	1.29E+02	6.20E+01	6.33E+01	1.35E+02
870	1.12E+02	1.12E+02	1.15E+02	1.13E+02	1.69E+01	1.68E+01	1.17E+02
871	1.04E+02	1.04E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02	1.05E+02
872	1.35E+02	1.39E+02	1.40E+02	1.31E+02	1.32E+02	1.46E+02	1.34E+02
873	1.17E+02	1.18E+02	1.22E+02	1.24E+02	1.23E+02	1.23E+02	1.23E+02
874	1.27E+02	1.28E+02	1.27E+02	1.25E+02	1.26E+02	1.28E+02	1.26E+02
876	1.06E+02	1.06E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02	1.08E+02
877	1.35E+02	1.26E+02	1.22E+02	1.22E+02	1.18E+02	1.18E+02	1.21E+02
Biased Statistics							
Average Biased	1.16E+02	1.17E+02	1.18E+02	1.18E+02	3.25E+01	3.42E+01	1.19E+02
Std Dev Biased	8.27E+00	1.00E+01	1.07E+01	9.52E+00	2.17E+01	2.37E+01	1.18E+01
Ps90%/90% (+KTL) Biased	1.39E+02	1.45E+02	1.47E+02	1.44E+02	9.21E+01	9.92E+01	1.51E+02
Ps90%/90% (-KTL) Biased	9.34E+01	8.99E+01	8.86E+01	9.14E+01	-2.71E+01	-3.09E+01	8.65E+01
Un-Biased Statistics							
Average Un-Biased	1.18E+02	1.19E+02	1.20E+02	1.19E+02	1.19E+02	1.22E+02	1.19E+02
Std Dev Un-Biased	1.32E+01	1.46E+01	1.42E+01	1.14E+01	1.19E+01	1.66E+01	1.24E+01
Ps90%/90% (+KTL) Un-Biased	1.54E+02	1.59E+02	1.59E+02	1.50E+02	1.51E+02	1.68E+02	1.53E+02
Ps90%/90% (-KTL) Un-Biased	8.21E+01	7.91E+01	8.13E+01	8.73E+01	8.62E+01	7.65E+01	8.52E+01
Specification MIN	8.20E+01	8.20E+01	8.20E+01	8.20E+01	8.20E+01	8.20E+01	8.20E+01
Status	PASS	FAIL	FAIL	PASS	FAIL	FAIL	PASS

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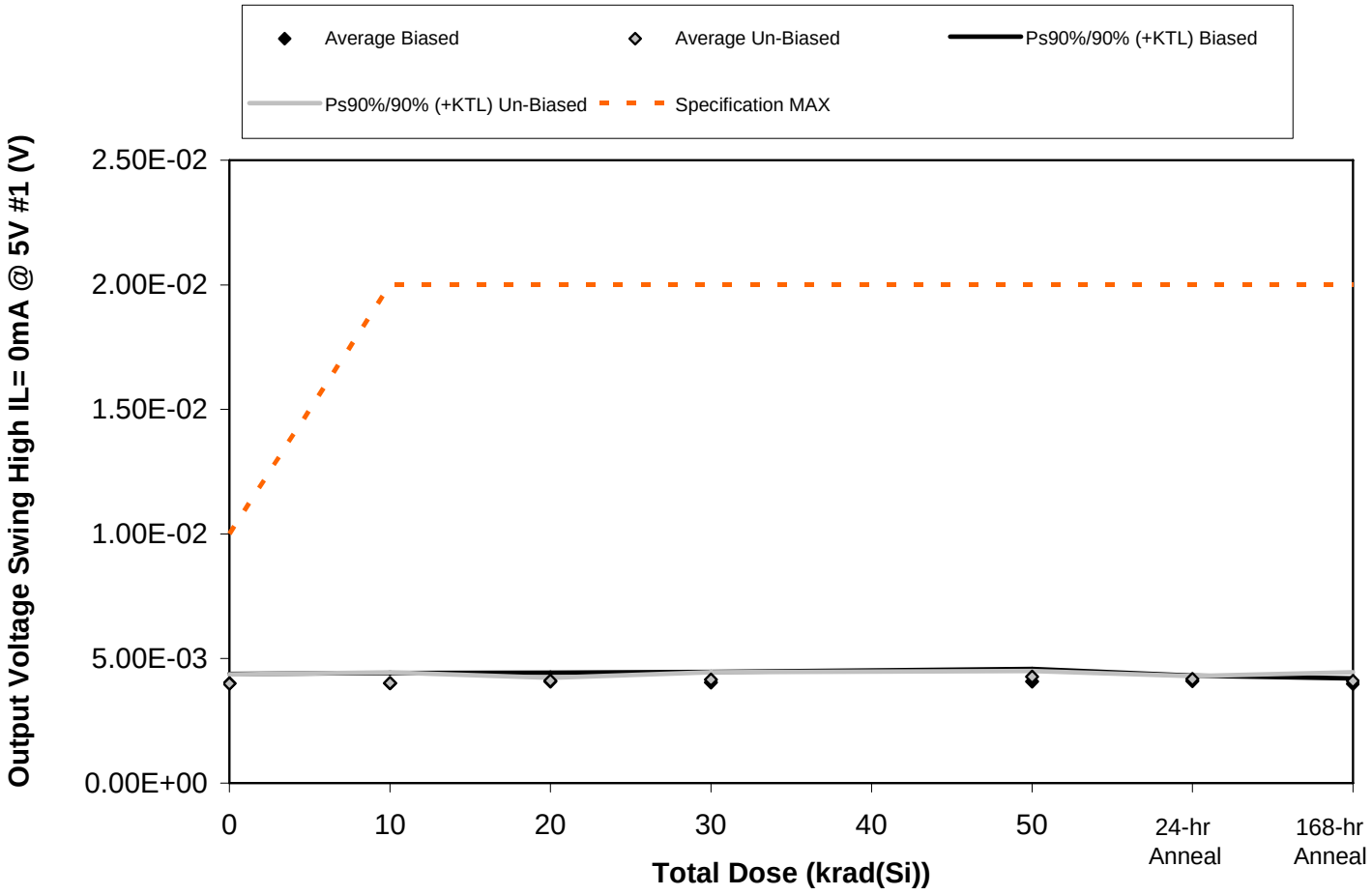

Figure 5.237. Plot of Output Voltage Swing High IL= 0mA @ 5V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.237. Raw data for Output Voltage Swing High IL= 0mA @ 5V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0mA @ 5V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.25E-03	4.25E-03	4.27E-03	4.29E-03	4.37E-03	4.19E-03	4.07E-03
867	3.98E-03	3.95E-03	4.00E-03	4.09E-03	4.12E-03	4.16E-03	4.02E-03
868	3.91E-03	3.85E-03	3.93E-03	4.02E-03	3.88E-03	4.02E-03	3.92E-03
869	3.91E-03	3.95E-03	4.05E-03	3.90E-03	3.99E-03	4.01E-03	3.88E-03
870	3.97E-03	4.03E-03	4.13E-03	3.94E-03	4.05E-03	4.11E-03	4.03E-03
871	4.17E-03	4.24E-03	4.08E-03	4.21E-03	4.32E-03	4.16E-03	4.05E-03
872	3.93E-03	4.04E-03	4.15E-03	4.26E-03	4.36E-03	4.22E-03	4.29E-03
873	4.08E-03	4.09E-03	4.15E-03	4.14E-03	4.27E-03	4.19E-03	4.08E-03
874	3.83E-03	3.87E-03	4.11E-03	3.97E-03	4.14E-03	4.21E-03	3.93E-03
876	3.96E-03	3.88E-03	4.06E-03	4.19E-03	4.24E-03	4.12E-03	4.13E-03
877	4.10E-03	4.17E-03	4.22E-03	4.11E-03	4.14E-03	4.19E-03	4.18E-03
Biased Statistics							
Average Biased	4.00E-03	4.01E-03	4.08E-03	4.05E-03	4.08E-03	4.10E-03	3.98E-03
Std Dev Biased	1.41E-04	1.51E-04	1.31E-04	1.54E-04	1.83E-04	8.11E-05	8.02E-05
Ps90%/90% (+KTL) Biased	4.39E-03	4.42E-03	4.43E-03	4.47E-03	4.59E-03	4.32E-03	4.20E-03
Ps90%/90% (-KTL) Biased	3.62E-03	3.59E-03	3.72E-03	3.63E-03	3.58E-03	3.88E-03	3.76E-03
Un-Biased Statistics							
Average Un-Biased	3.99E-03	4.02E-03	4.11E-03	4.15E-03	4.27E-03	4.18E-03	4.10E-03
Std Dev Un-Biased	1.33E-04	1.55E-04	4.06E-05	1.11E-04	8.41E-05	4.06E-05	1.31E-04
Ps90%/90% (+KTL) Un-Biased	4.36E-03	4.45E-03	4.22E-03	4.46E-03	4.50E-03	4.29E-03	4.46E-03
Ps90%/90% (-KTL) Un-Biased	3.63E-03	3.60E-03	4.00E-03	3.85E-03	4.04E-03	4.07E-03	3.74E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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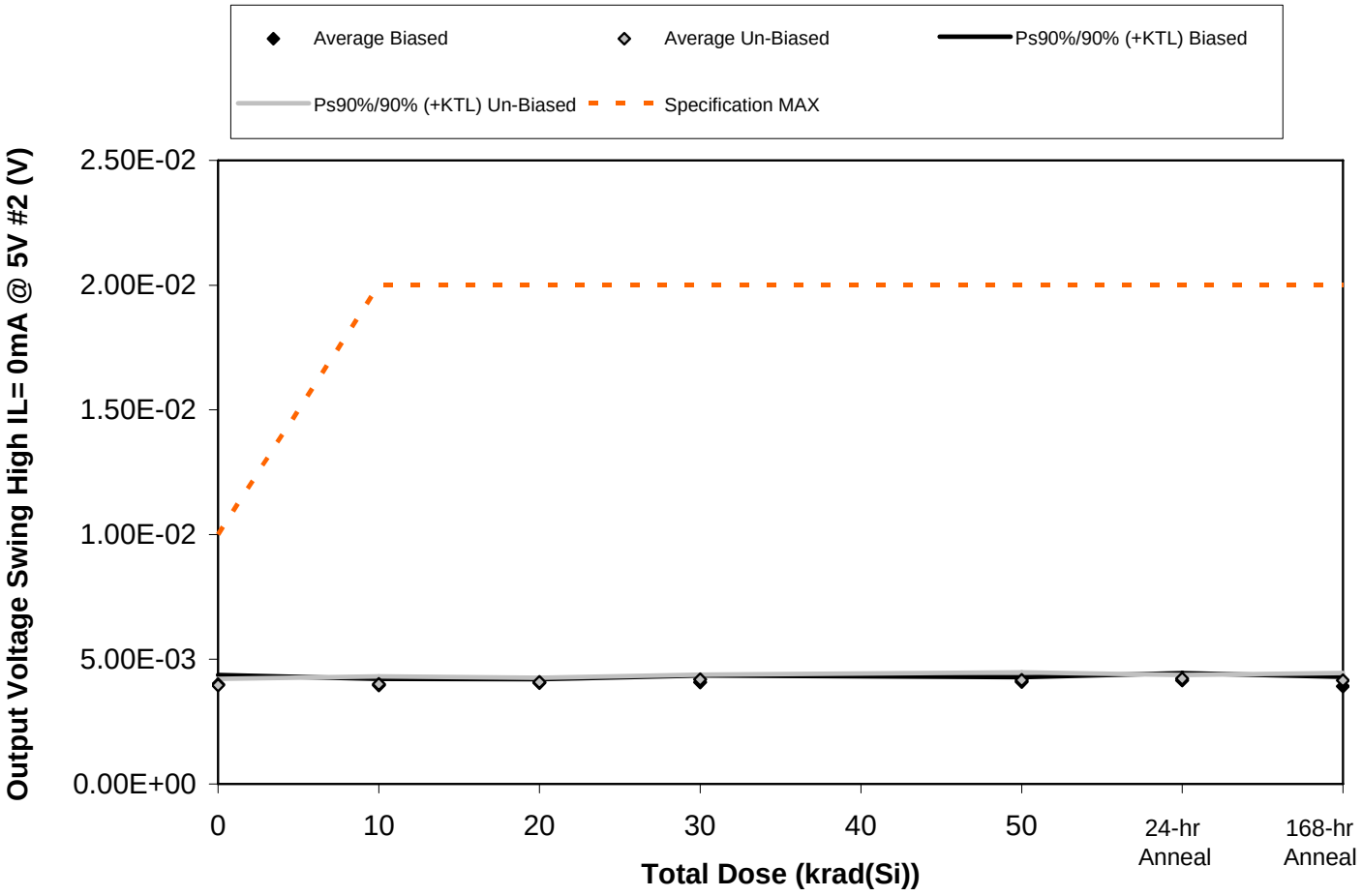

Figure 5.238. Plot of Output Voltage Swing High IL= 0mA @ 5V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.238. Raw data for Output Voltage Swing High IL= 0mA @ 5V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0mA @ 5V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.03E-03	3.95E-03	4.11E-03	4.02E-03	4.02E-03	4.31E-03	3.98E-03
867	4.22E-03	4.10E-03	4.05E-03	4.16E-03	4.19E-03	4.19E-03	4.08E-03
868	3.91E-03	3.85E-03	4.00E-03	3.95E-03	4.12E-03	4.07E-03	3.73E-03
869	3.97E-03	3.93E-03	4.01E-03	4.19E-03	4.07E-03	4.17E-03	3.97E-03
870	3.88E-03	4.00E-03	4.11E-03	4.04E-03	4.12E-03	4.06E-03	3.85E-03
871	4.02E-03	3.95E-03	4.10E-03	4.12E-03	3.97E-03	4.16E-03	4.07E-03
872	3.91E-03	4.04E-03	4.18E-03	4.27E-03	4.24E-03	4.27E-03	4.24E-03
873	4.00E-03	4.12E-03	4.08E-03	4.24E-03	4.17E-03	4.26E-03	4.22E-03
874	3.83E-03	3.85E-03	4.00E-03	4.11E-03	4.20E-03	4.16E-03	4.02E-03
876	4.05E-03	4.10E-03	4.06E-03	4.22E-03	4.24E-03	4.26E-03	4.25E-03
877	3.91E-03	4.09E-03	3.93E-03	3.99E-03	4.04E-03	4.09E-03	4.03E-03
Biased Statistics							
Average Biased	4.00E-03	3.97E-03	4.06E-03	4.07E-03	4.10E-03	4.16E-03	3.92E-03
Std Dev Biased	1.35E-04	9.24E-05	5.27E-05	1.00E-04	6.35E-05	1.02E-04	1.35E-04
Ps90%/90% (+KTL) Biased	4.37E-03	4.22E-03	4.20E-03	4.35E-03	4.28E-03	4.44E-03	4.29E-03
Ps90%/90% (-KTL) Biased	3.63E-03	3.71E-03	3.91E-03	3.80E-03	3.93E-03	3.88E-03	3.55E-03
Un-Biased Statistics							
Average Un-Biased	3.96E-03	4.01E-03	4.08E-03	4.19E-03	4.16E-03	4.22E-03	4.16E-03
Std Dev Un-Biased	9.04E-05	1.12E-04	6.54E-05	7.26E-05	1.12E-04	5.67E-05	1.07E-04
Ps90%/90% (+KTL) Un-Biased	4.21E-03	4.32E-03	4.26E-03	4.39E-03	4.47E-03	4.38E-03	4.45E-03
Ps90%/90% (-KTL) Un-Biased	3.71E-03	3.70E-03	3.90E-03	3.99E-03	3.86E-03	4.07E-03	3.87E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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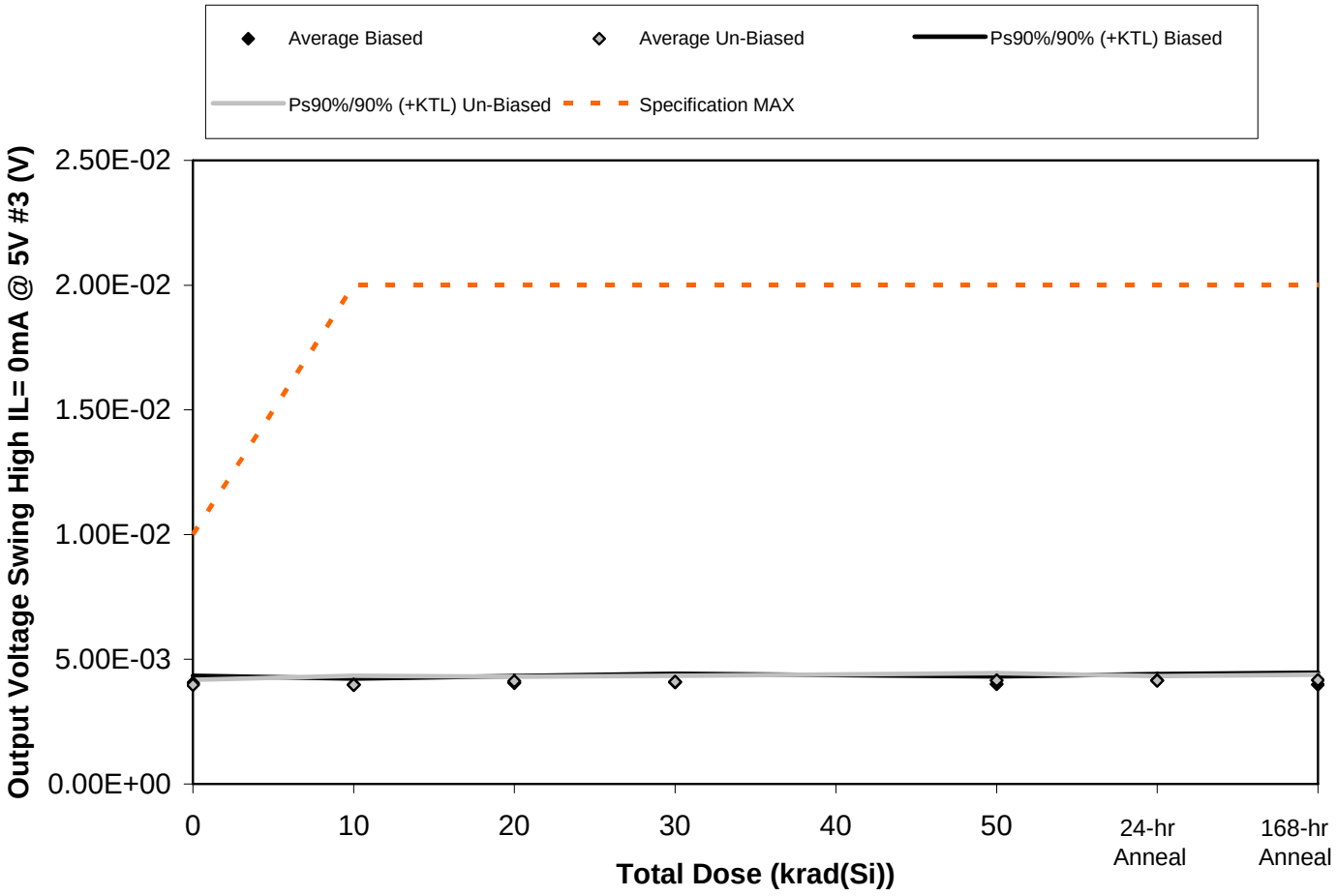

Figure 5.239. Plot of Output Voltage Swing High IL= 0mA @ 5V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.239. Raw data for Output Voltage Swing High IL= 0mA @ 5V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0mA @ 5V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.97E-03	3.98E-03	4.08E-03	4.14E-03	4.07E-03	4.17E-03	3.93E-03
867	4.20E-03	4.05E-03	4.15E-03	4.26E-03	4.17E-03	4.27E-03	4.24E-03
868	3.93E-03	3.85E-03	3.93E-03	3.95E-03	3.88E-03	4.01E-03	3.81E-03
869	4.10E-03	4.08E-03	4.13E-03	4.05E-03	3.99E-03	4.16E-03	4.08E-03
870	4.02E-03	3.95E-03	3.96E-03	3.99E-03	3.95E-03	4.16E-03	3.85E-03
871	3.90E-03	3.90E-03	4.05E-03	4.07E-03	4.22E-03	4.12E-03	4.29E-03
872	4.03E-03	4.05E-03	4.20E-03	4.17E-03	4.00E-03	4.14E-03	4.17E-03
873	3.93E-03	4.05E-03	4.18E-03	4.05E-03	4.22E-03	4.22E-03	4.19E-03
874	3.93E-03	3.78E-03	4.05E-03	4.00E-03	4.09E-03	4.06E-03	4.12E-03
876	4.08E-03	4.10E-03	4.11E-03	4.21E-03	4.24E-03	4.21E-03	4.08E-03
877	3.98E-03	3.95E-03	4.05E-03	4.04E-03	4.00E-03	4.09E-03	4.06E-03
Biased Statistics							
Average Biased	4.04E-03	3.98E-03	4.05E-03	4.08E-03	4.01E-03	4.15E-03	3.98E-03
Std Dev Biased	1.08E-04	9.04E-05	9.97E-05	1.24E-04	1.12E-04	9.29E-05	1.77E-04
Ps90%/90% (+KTL) Biased	4.34E-03	4.23E-03	4.32E-03	4.42E-03	4.32E-03	4.41E-03	4.47E-03
Ps90%/90% (-KTL) Biased	3.75E-03	3.73E-03	3.78E-03	3.74E-03	3.71E-03	3.90E-03	3.50E-03
Un-Biased Statistics							
Average Un-Biased	3.97E-03	3.98E-03	4.12E-03	4.10E-03	4.15E-03	4.15E-03	4.17E-03
Std Dev Un-Biased	7.70E-05	1.33E-04	7.05E-05	8.72E-05	1.05E-04	6.63E-05	7.97E-05
Ps90%/90% (+KTL) Un-Biased	4.19E-03	4.34E-03	4.31E-03	4.34E-03	4.44E-03	4.33E-03	4.39E-03
Ps90%/90% (-KTL) Un-Biased	3.76E-03	3.61E-03	3.92E-03	3.86E-03	3.87E-03	3.97E-03	3.95E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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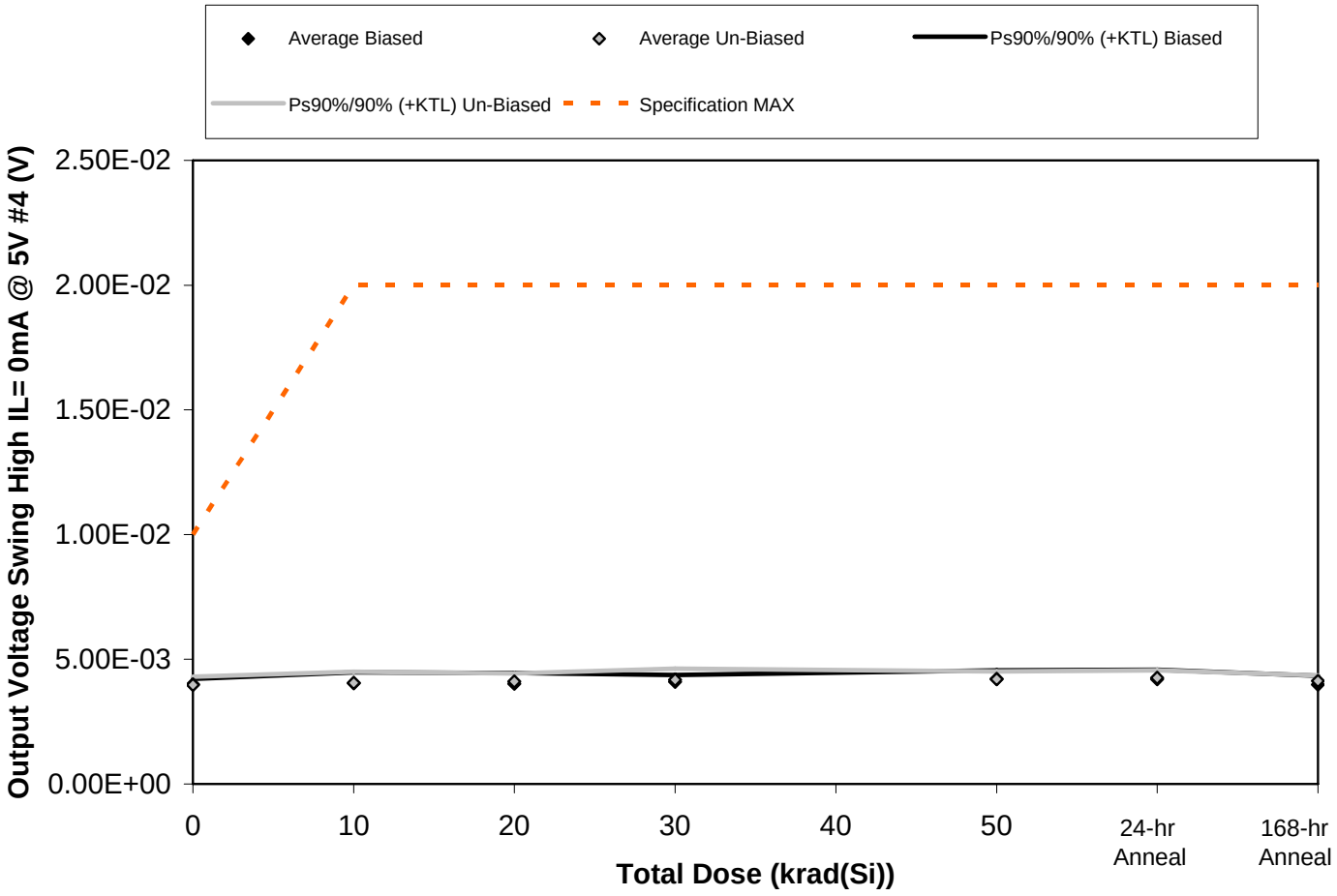

Figure 5.240. Plot of Output Voltage Swing High IL= 0mA @ 5V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.240. Raw data for Output Voltage Swing High IL= 0mA @ 5V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 0mA @ 5V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.07E-03	4.24E-03	4.27E-03	4.24E-03	4.37E-03	4.36E-03	4.17E-03
867	4.03E-03	4.15E-03	3.88E-03	4.11E-03	4.32E-03	4.16E-03	3.95E-03
868	3.86E-03	3.88E-03	3.91E-03	4.02E-03	4.12E-03	3.99E-03	3.98E-03
869	3.98E-03	3.88E-03	3.98E-03	3.99E-03	4.09E-03	4.24E-03	3.81E-03
870	4.02E-03	4.05E-03	4.08E-03	4.14E-03	4.19E-03	4.26E-03	4.00E-03
871	4.03E-03	4.18E-03	4.22E-03	4.27E-03	4.36E-03	4.27E-03	4.20E-03
872	4.07E-03	4.09E-03	3.95E-03	4.09E-03	4.20E-03	4.21E-03	4.13E-03
873	4.00E-03	4.14E-03	4.20E-03	4.32E-03	4.20E-03	4.36E-03	4.19E-03
874	3.76E-03	3.77E-03	4.03E-03	3.94E-03	4.04E-03	4.11E-03	4.00E-03
876	4.01E-03	4.07E-03	4.17E-03	4.29E-03	4.20E-03	4.36E-03	4.15E-03
877	4.20E-03	4.07E-03	4.17E-03	4.24E-03	4.22E-03	4.17E-03	4.25E-03
Biased Statistics							
Average Biased	3.99E-03	4.04E-03	4.02E-03	4.10E-03	4.22E-03	4.20E-03	3.98E-03
Std Dev Biased	8.04E-05	1.61E-04	1.58E-04	9.97E-05	1.23E-04	1.38E-04	1.29E-04
Ps90%/90% (+KTL) Biased	4.21E-03	4.48E-03	4.46E-03	4.37E-03	4.55E-03	4.58E-03	4.33E-03
Ps90%/90% (-KTL) Biased	3.77E-03	3.60E-03	3.59E-03	3.83E-03	3.88E-03	3.82E-03	3.63E-03
Un-Biased Statistics							
Average Un-Biased	3.97E-03	4.05E-03	4.11E-03	4.18E-03	4.20E-03	4.26E-03	4.13E-03
Std Dev Un-Biased	1.23E-04	1.62E-04	1.18E-04	1.62E-04	1.13E-04	1.06E-04	8.02E-05
Ps90%/90% (+KTL) Un-Biased	4.31E-03	4.50E-03	4.44E-03	4.63E-03	4.51E-03	4.55E-03	4.35E-03
Ps90%/90% (-KTL) Un-Biased	3.64E-03	3.60E-03	3.79E-03	3.74E-03	3.89E-03	3.97E-03	3.91E-03
Specification MAX	1.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02	2.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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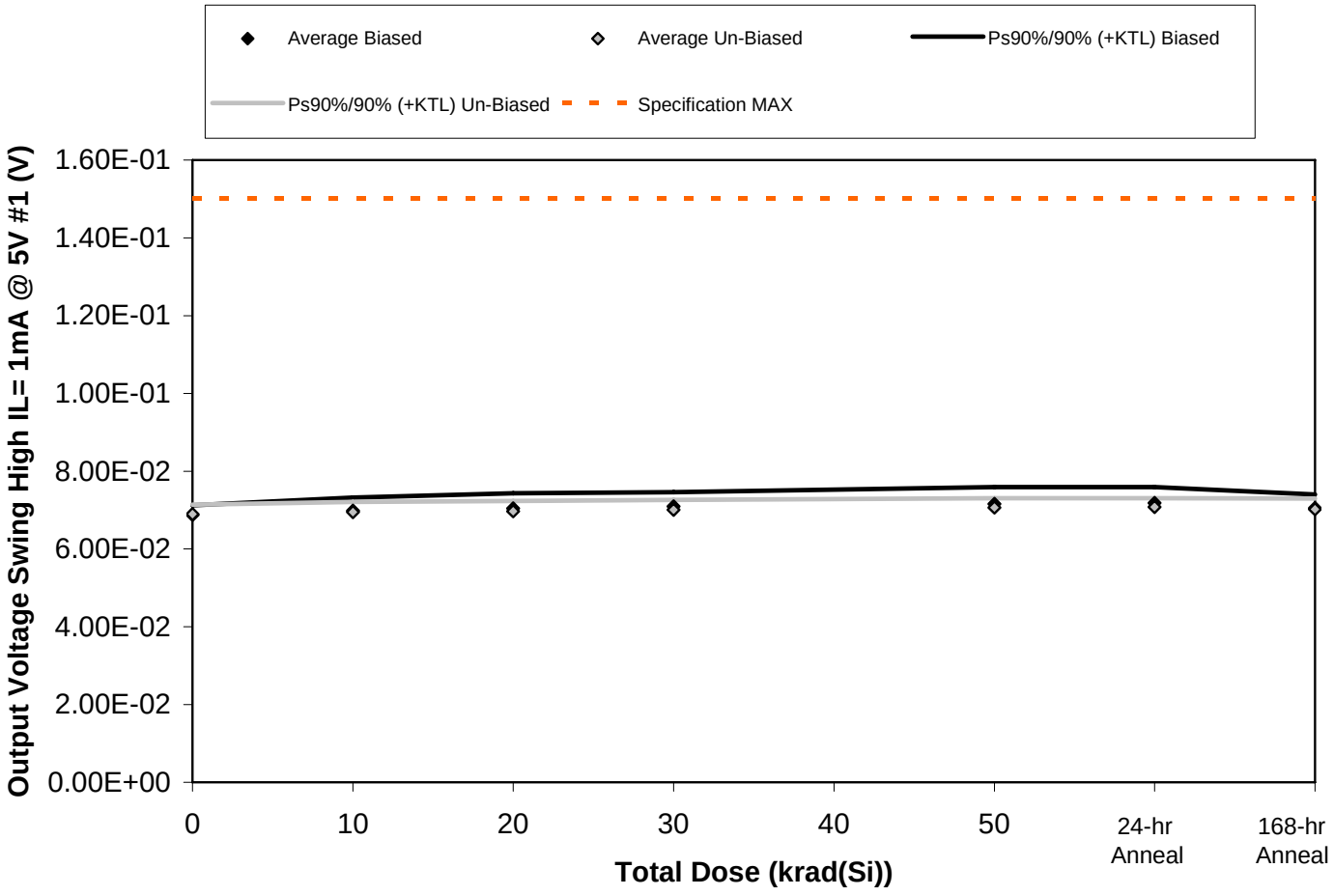

Figure 5.241. Plot of Output Voltage Swing High IL= 1mA @ 5V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.241. Raw data for Output Voltage Swing High IL= 1mA @ 5V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1mA @ 5V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.03E-02	7.20E-02	7.29E-02	7.33E-02	7.44E-02	7.44E-02	7.27E-02
867	6.85E-02	6.93E-02	6.98E-02	7.03E-02	7.11E-02	7.11E-02	6.99E-02
868	6.85E-02	6.95E-02	7.03E-02	7.07E-02	7.10E-02	7.13E-02	7.02E-02
869	6.79E-02	6.88E-02	6.93E-02	6.99E-02	7.04E-02	7.07E-02	6.94E-02
870	6.85E-02	6.95E-02	7.01E-02	7.06E-02	7.12E-02	7.15E-02	7.03E-02
871	7.02E-02	7.06E-02	7.09E-02	7.13E-02	7.19E-02	7.19E-02	7.14E-02
872	6.85E-02	6.87E-02	6.92E-02	6.94E-02	6.98E-02	7.03E-02	6.96E-02
873	6.87E-02	6.94E-02	6.95E-02	6.99E-02	7.06E-02	7.07E-02	7.00E-02
874	6.80E-02	6.83E-02	6.86E-02	6.90E-02	6.98E-02	6.98E-02	6.90E-02
876	6.96E-02	7.03E-02	7.05E-02	7.08E-02	7.10E-02	7.13E-02	7.10E-02
877	6.95E-02	6.92E-02	6.93E-02	6.95E-02	6.96E-02	6.96E-02	6.94E-02
Biased Statistics							
Average Biased	6.87E-02	6.98E-02	7.05E-02	7.10E-02	7.16E-02	7.18E-02	7.05E-02
Std Dev Biased	9.27E-04	1.25E-03	1.40E-03	1.34E-03	1.56E-03	1.51E-03	1.28E-03
Ps90%/90% (+KTL) Biased	7.13E-02	7.32E-02	7.43E-02	7.46E-02	7.59E-02	7.59E-02	7.40E-02
Ps90%/90% (-KTL) Biased	6.62E-02	6.64E-02	6.66E-02	6.73E-02	6.73E-02	6.77E-02	6.70E-02
Un-Biased Statistics							
Average Un-Biased	6.90E-02	6.95E-02	6.97E-02	7.01E-02	7.06E-02	7.08E-02	7.02E-02
Std Dev Un-Biased	8.74E-04	9.83E-04	9.49E-04	9.26E-04	8.81E-04	8.34E-04	1.02E-03
Ps90%/90% (+KTL) Un-Biased	7.14E-02	7.22E-02	7.23E-02	7.26E-02	7.31E-02	7.31E-02	7.30E-02
Ps90%/90% (-KTL) Un-Biased	6.66E-02	6.68E-02	6.71E-02	6.75E-02	6.82E-02	6.85E-02	6.74E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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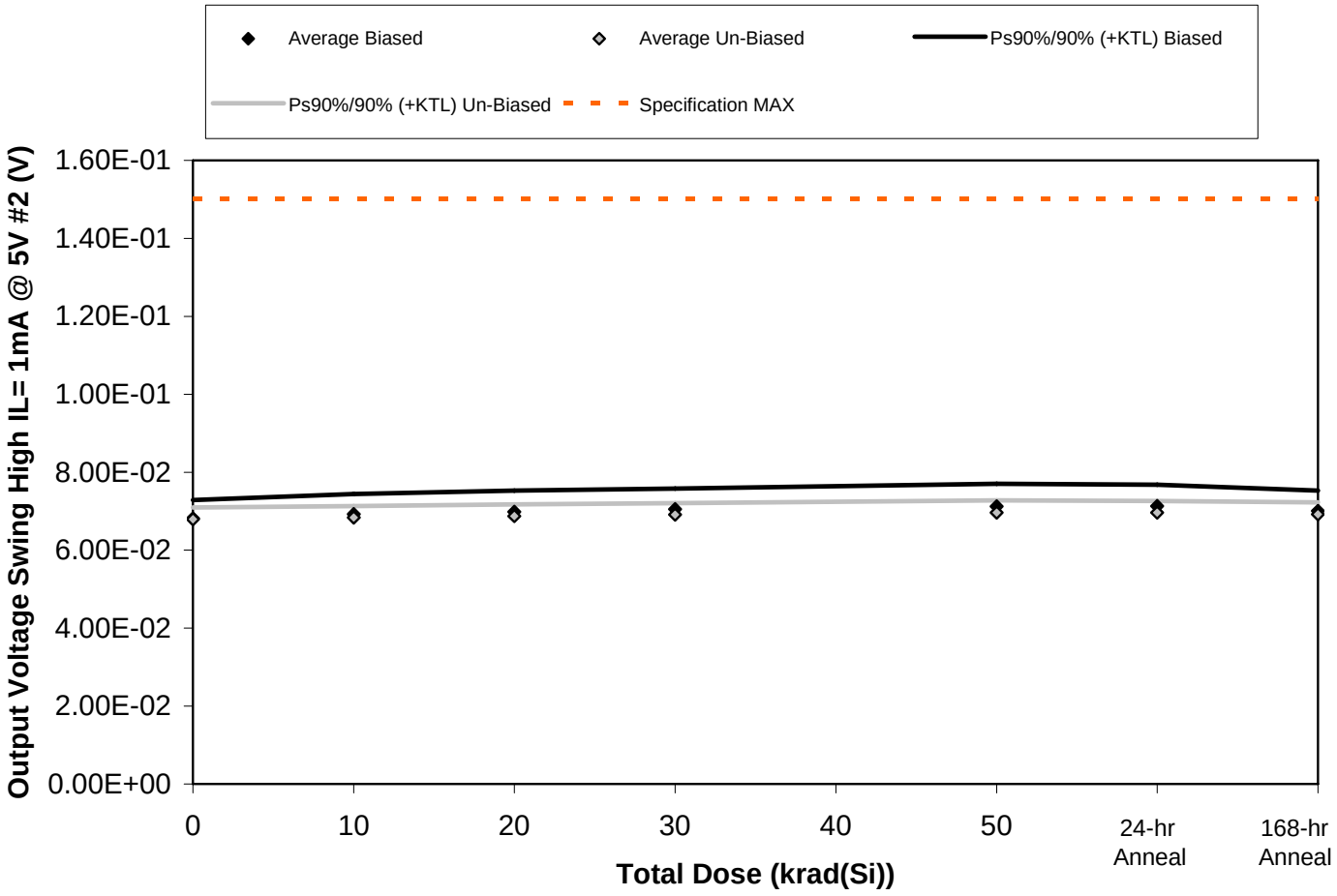

Figure 5.242. Plot of Output Voltage Swing High IL= 1mA @ 5V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.242. Raw data for Output Voltage Swing High IL= 1mA @ 5V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1mA @ 5V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.86E-02	7.02E-02	7.08E-02	7.15E-02	7.25E-02	7.26E-02	7.08E-02
867	6.95E-02	7.08E-02	7.14E-02	7.19E-02	7.26E-02	7.28E-02	7.14E-02
868	6.59E-02	6.69E-02	6.72E-02	6.80E-02	6.84E-02	6.88E-02	6.75E-02
869	6.99E-02	7.09E-02	7.17E-02	7.22E-02	7.31E-02	7.30E-02	7.20E-02
870	6.69E-02	6.77E-02	6.84E-02	6.89E-02	6.95E-02	6.97E-02	6.88E-02
871	6.83E-02	6.86E-02	6.89E-02	6.94E-02	7.00E-02	7.03E-02	6.93E-02
872	6.88E-02	6.93E-02	6.96E-02	7.01E-02	7.06E-02	7.04E-02	7.01E-02
873	6.62E-02	6.68E-02	6.71E-02	6.75E-02	6.79E-02	6.80E-02	6.75E-02
874	6.75E-02	6.80E-02	6.83E-02	6.86E-02	6.91E-02	6.92E-02	6.87E-02
876	6.89E-02	6.93E-02	6.98E-02	7.00E-02	7.06E-02	7.05E-02	7.03E-02
877	6.85E-02	6.83E-02	6.83E-02	6.84E-02	6.85E-02	6.84E-02	6.85E-02
Biased Statistics							
Average Biased	6.82E-02	6.93E-02	6.99E-02	7.05E-02	7.12E-02	7.13E-02	7.01E-02
Std Dev Biased	1.71E-03	1.85E-03	1.97E-03	1.91E-03	2.10E-03	1.99E-03	1.89E-03
Ps90%/90% (+KTL) Biased	7.28E-02	7.44E-02	7.53E-02	7.57E-02	7.70E-02	7.68E-02	7.53E-02
Ps90%/90% (-KTL) Biased	6.35E-02	6.42E-02	6.45E-02	6.53E-02	6.55E-02	6.59E-02	6.49E-02
Un-Biased Statistics							
Average Un-Biased	6.80E-02	6.84E-02	6.87E-02	6.91E-02	6.96E-02	6.97E-02	6.92E-02
Std Dev Un-Biased	1.10E-03	1.07E-03	1.11E-03	1.07E-03	1.16E-03	1.09E-03	1.13E-03
Ps90%/90% (+KTL) Un-Biased	7.10E-02	7.13E-02	7.18E-02	7.21E-02	7.28E-02	7.27E-02	7.23E-02
Ps90%/90% (-KTL) Un-Biased	6.49E-02	6.55E-02	6.57E-02	6.62E-02	6.65E-02	6.67E-02	6.61E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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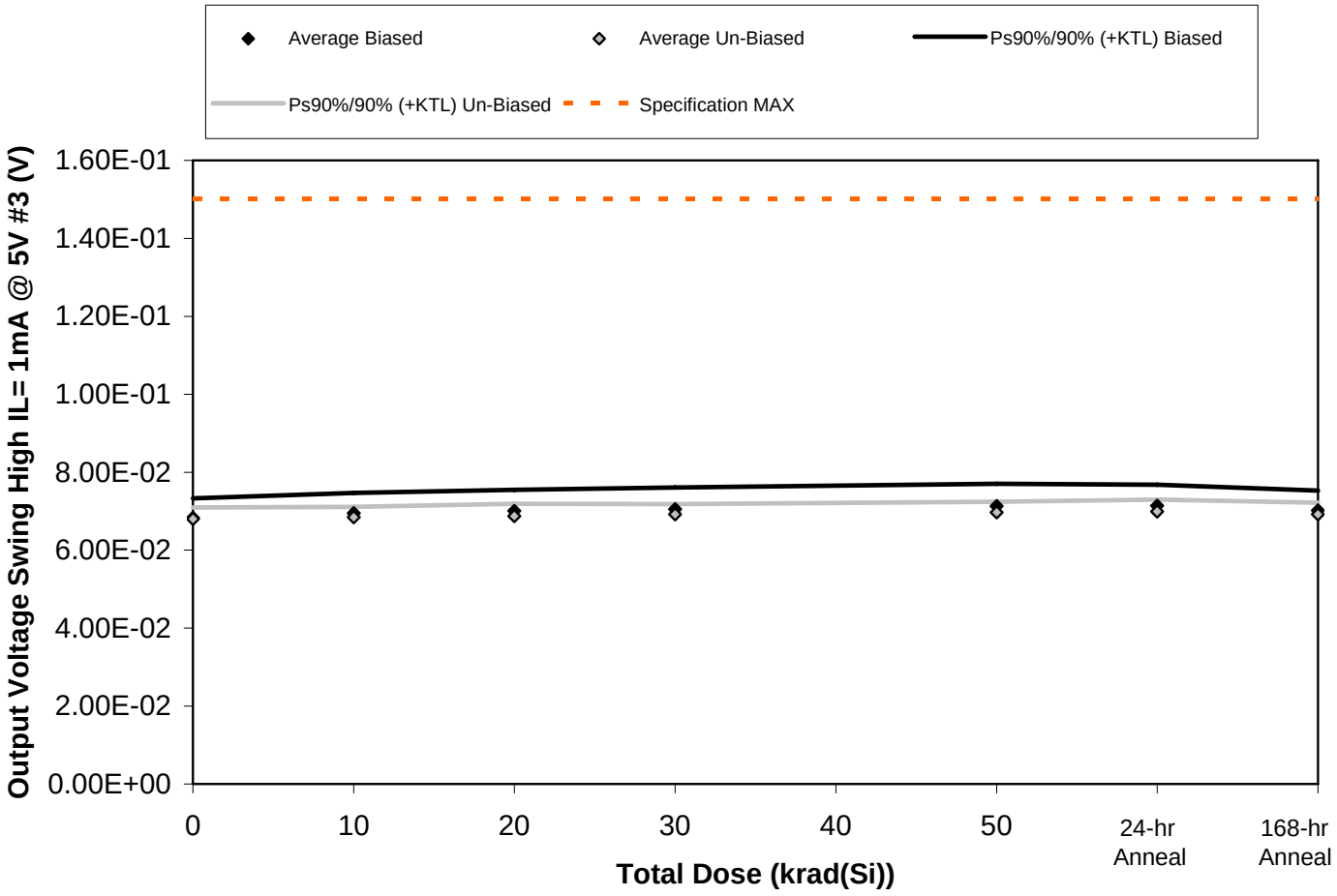

Figure 5.243. Plot of Output Voltage Swing High IL= 1mA @ 5V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.243. Raw data for Output Voltage Swing High IL= 1mA @ 5V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1mA @ 5V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	6.84E-02	7.03E-02	7.10E-02	7.16E-02	7.25E-02	7.23E-02	7.10E-02
867	7.00E-02	7.11E-02	7.16E-02	7.22E-02	7.30E-02	7.29E-02	7.18E-02
868	6.58E-02	6.66E-02	6.71E-02	6.75E-02	6.82E-02	6.84E-02	6.75E-02
869	7.01E-02	7.08E-02	7.17E-02	7.20E-02	7.28E-02	7.30E-02	7.16E-02
870	6.72E-02	6.83E-02	6.90E-02	6.94E-02	7.03E-02	7.03E-02	6.92E-02
871	6.85E-02	6.88E-02	6.92E-02	6.95E-02	7.00E-02	7.03E-02	6.94E-02
872	6.84E-02	6.88E-02	6.92E-02	6.95E-02	7.03E-02	7.05E-02	6.96E-02
873	6.62E-02	6.68E-02	6.70E-02	6.76E-02	6.81E-02	6.81E-02	6.74E-02
874	6.80E-02	6.84E-02	6.85E-02	6.90E-02	6.96E-02	6.97E-02	6.91E-02
876	6.89E-02	6.94E-02	7.00E-02	7.02E-02	7.06E-02	7.09E-02	7.04E-02
877	6.85E-02	6.84E-02	6.84E-02	6.84E-02	6.87E-02	6.87E-02	6.86E-02
Biased Statistics							
Average Biased	6.83E-02	6.94E-02	7.01E-02	7.05E-02	7.13E-02	7.14E-02	7.02E-02
Std Dev Biased	1.83E-03	1.91E-03	1.98E-03	2.03E-03	2.07E-03	2.00E-03	1.85E-03
Ps90%/90% (+KTL) Biased	7.33E-02	7.47E-02	7.55E-02	7.61E-02	7.70E-02	7.68E-02	7.53E-02
Ps90%/90% (-KTL) Biased	6.33E-02	6.42E-02	6.46E-02	6.50E-02	6.57E-02	6.59E-02	6.51E-02
Un-Biased Statistics							
Average Un-Biased	6.80E-02	6.84E-02	6.88E-02	6.92E-02	6.97E-02	6.99E-02	6.92E-02
Std Dev Un-Biased	1.06E-03	9.83E-04	1.14E-03	9.75E-04	9.98E-04	1.12E-03	1.11E-03
Ps90%/90% (+KTL) Un-Biased	7.09E-02	7.11E-02	7.19E-02	7.18E-02	7.24E-02	7.30E-02	7.22E-02
Ps90%/90% (-KTL) Un-Biased	6.51E-02	6.57E-02	6.57E-02	6.65E-02	6.70E-02	6.68E-02	6.61E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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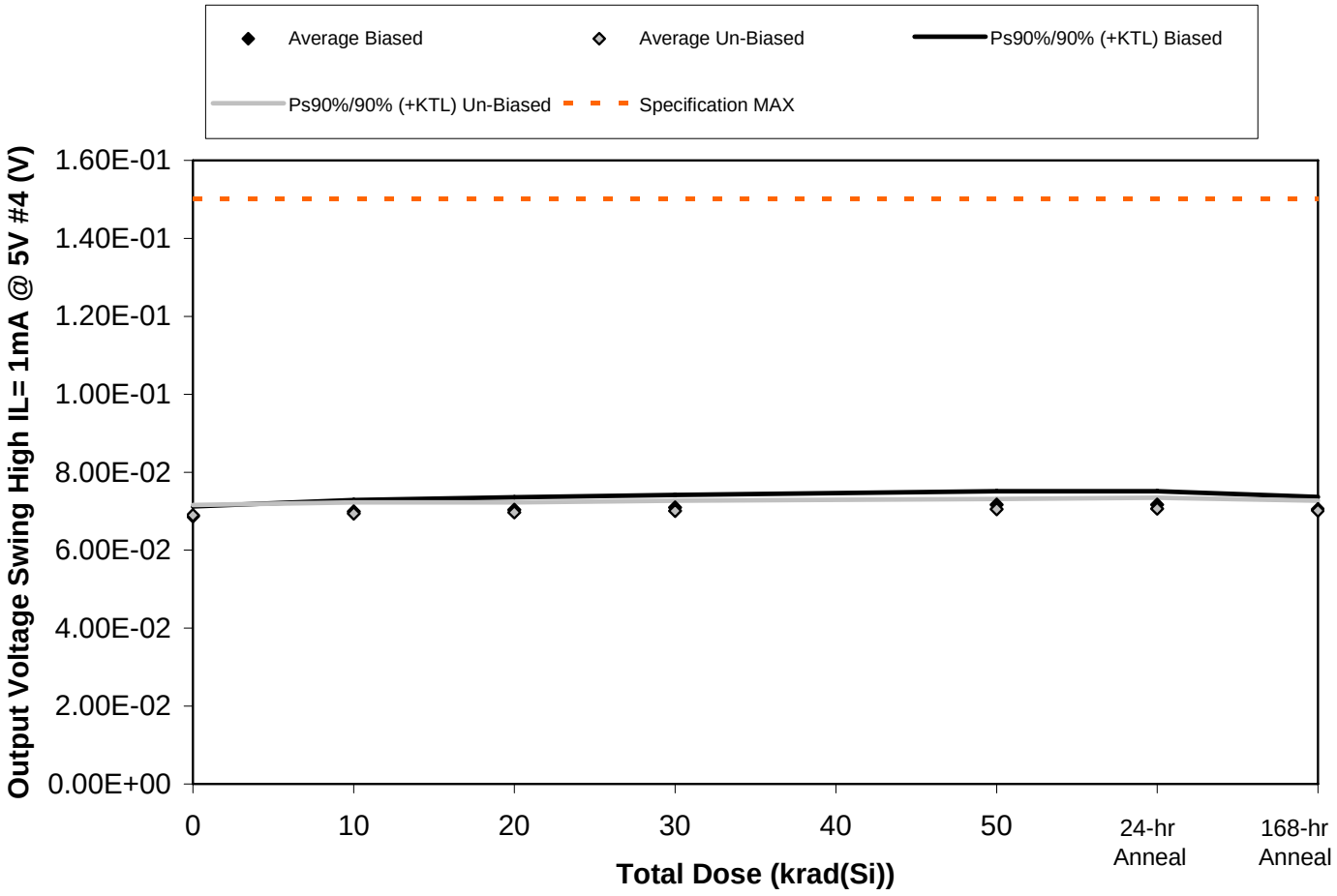

Figure 5.244. Plot of Output Voltage Swing High IL= 1mA @ 5V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.244. Raw data for Output Voltage Swing High IL= 1mA @ 5V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 1mA @ 5V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.01E-02	7.17E-02	7.23E-02	7.29E-02	7.37E-02	7.37E-02	7.23E-02
867	6.79E-02	6.90E-02	6.96E-02	7.01E-02	7.07E-02	7.08E-02	6.96E-02
868	6.91E-02	7.00E-02	7.06E-02	7.11E-02	7.19E-02	7.17E-02	7.07E-02
869	6.78E-02	6.90E-02	6.93E-02	6.98E-02	7.06E-02	7.06E-02	6.94E-02
870	6.86E-02	6.99E-02	7.02E-02	7.08E-02	7.15E-02	7.17E-02	7.06E-02
871	7.01E-02	7.06E-02	7.09E-02	7.11E-02	7.17E-02	7.19E-02	7.13E-02
872	6.84E-02	6.88E-02	6.89E-02	6.94E-02	6.99E-02	7.00E-02	6.94E-02
873	6.90E-02	6.97E-02	6.98E-02	7.01E-02	7.06E-02	7.08E-02	7.03E-02
874	6.77E-02	6.80E-02	6.87E-02	6.88E-02	6.93E-02	6.94E-02	6.90E-02
876	6.96E-02	7.00E-02	7.03E-02	7.08E-02	7.11E-02	7.13E-02	7.06E-02
877	6.97E-02	6.95E-02	6.95E-02	6.96E-02	6.96E-02	6.95E-02	6.97E-02
Biased Statistics							
Average Biased	6.87E-02	6.99E-02	7.04E-02	7.09E-02	7.17E-02	7.17E-02	7.05E-02
Std Dev Biased	9.30E-04	1.08E-03	1.17E-03	1.18E-03	1.25E-03	1.24E-03	1.16E-03
Ps90%/90% (+KTL) Biased	7.12E-02	7.29E-02	7.36E-02	7.42E-02	7.51E-02	7.51E-02	7.37E-02
Ps90%/90% (-KTL) Biased	6.61E-02	6.70E-02	6.72E-02	6.77E-02	6.82E-02	6.83E-02	6.73E-02
Un-Biased Statistics							
Average Un-Biased	6.90E-02	6.94E-02	6.97E-02	7.00E-02	7.05E-02	7.07E-02	7.01E-02
Std Dev Un-Biased	9.66E-04	1.05E-03	9.15E-04	9.73E-04	9.63E-04	1.01E-03	9.38E-04
Ps90%/90% (+KTL) Un-Biased	7.16E-02	7.23E-02	7.22E-02	7.27E-02	7.32E-02	7.35E-02	7.27E-02
Ps90%/90% (-KTL) Un-Biased	6.63E-02	6.66E-02	6.72E-02	6.74E-02	6.79E-02	6.79E-02	6.75E-02
Specification MAX	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01	1.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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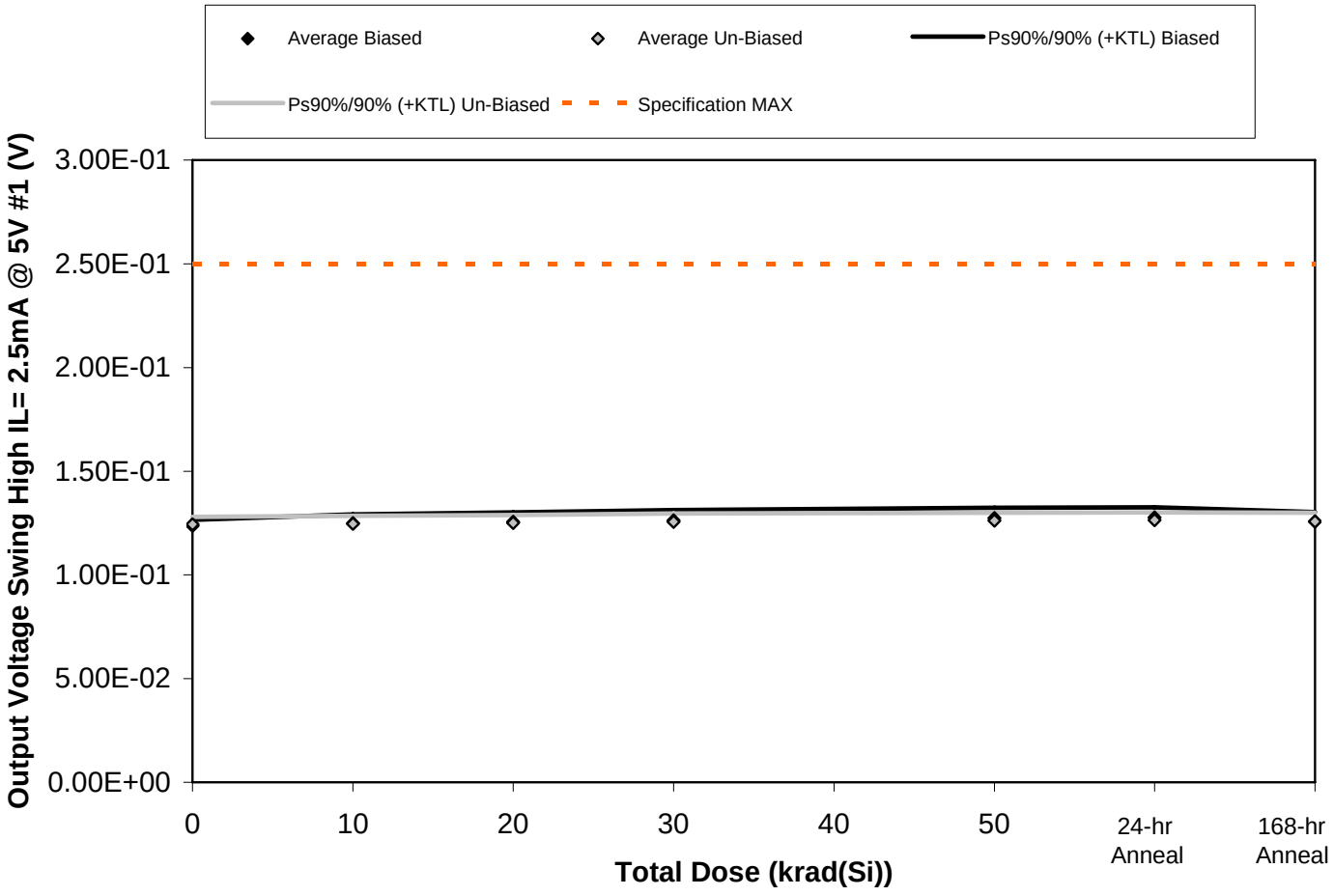

Figure 5.245. Plot of Output Voltage Swing High IL= 2.5mA @ 5V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.245. Raw data for Output Voltage Swing High IL= 2.5mA @ 5V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 2.5mA @ 5V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.25E-01	1.28E-01	1.28E-01	1.29E-01	1.30E-01	1.31E-01	1.28E-01
867	1.23E-01	1.24E-01	1.25E-01	1.26E-01	1.27E-01	1.27E-01	1.25E-01
868	1.24E-01	1.25E-01	1.26E-01	1.27E-01	1.28E-01	1.28E-01	1.26E-01
869	1.22E-01	1.23E-01	1.24E-01	1.24E-01	1.26E-01	1.26E-01	1.24E-01
870	1.23E-01	1.25E-01	1.25E-01	1.26E-01	1.27E-01	1.27E-01	1.25E-01
871	1.26E-01	1.26E-01	1.27E-01	1.27E-01	1.28E-01	1.28E-01	1.28E-01
872	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.25E-01	1.25E-01
873	1.25E-01	1.25E-01	1.25E-01	1.26E-01	1.26E-01	1.27E-01	1.26E-01
874	1.23E-01	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.24E-01
876	1.26E-01	1.26E-01	1.26E-01	1.27E-01	1.27E-01	1.28E-01	1.27E-01
877	1.25E-01	1.25E-01	1.24E-01	1.25E-01	1.25E-01	1.25E-01	1.24E-01
Biased Statistics							
Average Biased	1.24E-01	1.25E-01	1.26E-01	1.26E-01	1.27E-01	1.28E-01	1.26E-01
Std Dev Biased	1.08E-03	1.57E-03	1.66E-03	1.77E-03	1.81E-03	1.80E-03	1.64E-03
Ps90%/90% (+KTL) Biased	1.27E-01	1.29E-01	1.30E-01	1.31E-01	1.32E-01	1.33E-01	1.30E-01
Ps90%/90% (-KTL) Biased	1.21E-01	1.21E-01	1.21E-01	1.21E-01	1.22E-01	1.23E-01	1.21E-01
Un-Biased Statistics							
Average Un-Biased	1.24E-01	1.25E-01	1.25E-01	1.26E-01	1.26E-01	1.26E-01	1.26E-01
Std Dev Un-Biased	1.29E-03	1.38E-03	1.39E-03	1.44E-03	1.39E-03	1.37E-03	1.51E-03
Ps90%/90% (+KTL) Un-Biased	1.28E-01	1.28E-01	1.29E-01	1.30E-01	1.30E-01	1.30E-01	1.30E-01
Ps90%/90% (-KTL) Un-Biased	1.21E-01	1.21E-01	1.21E-01	1.22E-01	1.22E-01	1.23E-01	1.22E-01
Specification MAX	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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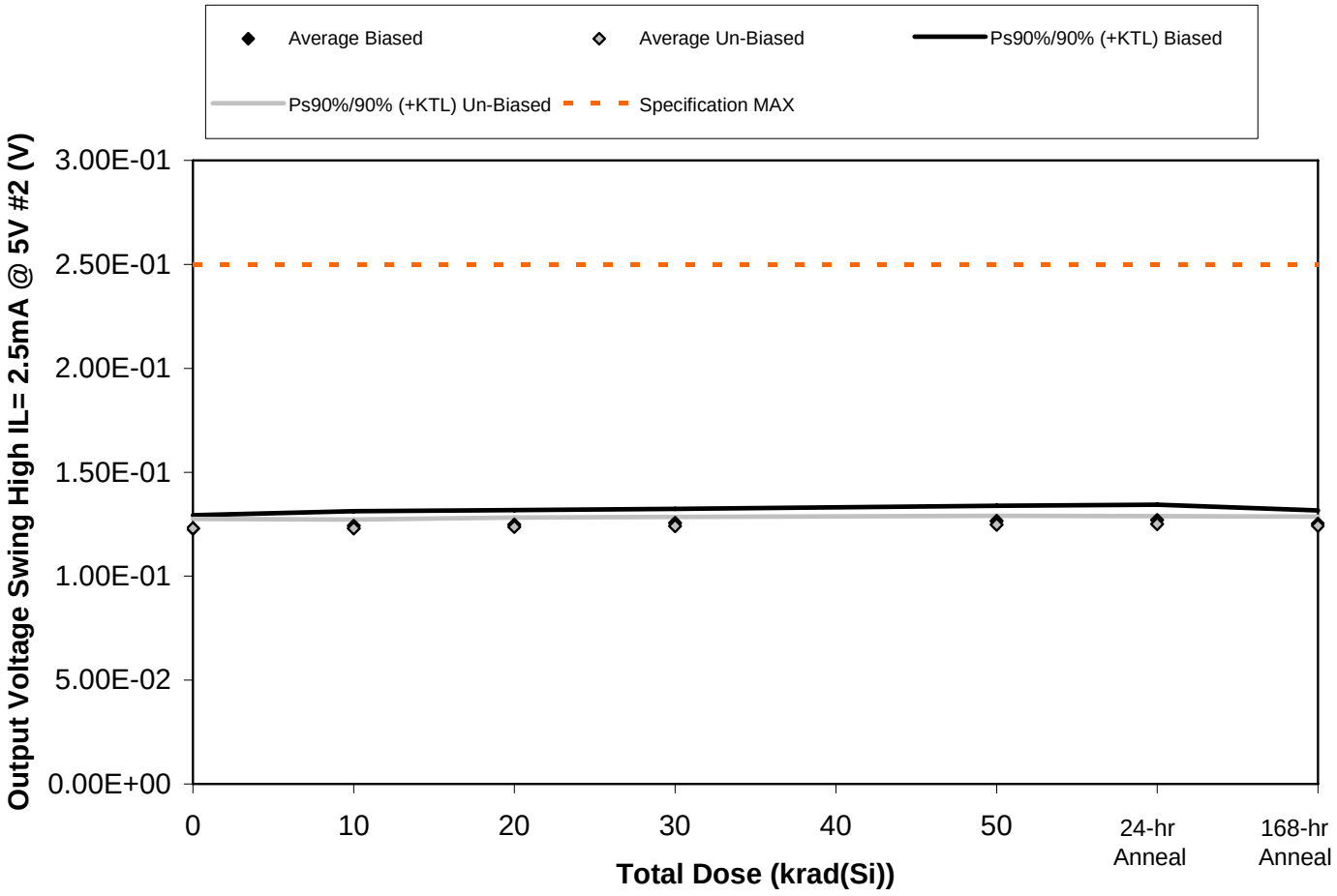

Figure 5.246. Plot of Output Voltage Swing High IL= 2.5mA @ 5V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.246. Raw data for Output Voltage Swing High IL= 2.5mA @ 5V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 2.5mA @ 5V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.23E-01	1.25E-01	1.25E-01	1.26E-01	1.28E-01	1.28E-01	1.26E-01
867	1.25E-01	1.27E-01	1.27E-01	1.28E-01	1.29E-01	1.29E-01	1.27E-01
868	1.20E-01	1.21E-01	1.22E-01	1.23E-01	1.23E-01	1.23E-01	1.22E-01
869	1.25E-01	1.27E-01	1.27E-01	1.28E-01	1.29E-01	1.29E-01	1.27E-01
870	1.21E-01	1.22E-01	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.23E-01
871	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.26E-01	1.25E-01	1.25E-01
872	1.24E-01	1.24E-01	1.25E-01	1.25E-01	1.25E-01	1.26E-01	1.25E-01
873	1.21E-01	1.21E-01	1.21E-01	1.22E-01	1.22E-01	1.23E-01	1.22E-01
874	1.23E-01	1.23E-01	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.24E-01
876	1.25E-01	1.25E-01	1.25E-01	1.26E-01	1.26E-01	1.27E-01	1.26E-01
877	1.24E-01	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.24E-01	1.23E-01
Biased Statistics							
Average Biased	1.23E-01	1.24E-01	1.25E-01	1.26E-01	1.27E-01	1.27E-01	1.25E-01
Std Dev Biased	2.36E-03	2.55E-03	2.58E-03	2.45E-03	2.64E-03	2.72E-03	2.37E-03
Ps90%/90% (+KTL) Biased	1.29E-01	1.31E-01	1.32E-01	1.32E-01	1.34E-01	1.34E-01	1.32E-01
Ps90%/90% (-KTL) Biased	1.16E-01	1.17E-01	1.18E-01	1.19E-01	1.19E-01	1.19E-01	1.19E-01
Un-Biased Statistics							
Average Un-Biased	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.25E-01	1.24E-01
Std Dev Un-Biased	1.62E-03	1.55E-03	1.66E-03	1.61E-03	1.58E-03	1.38E-03	1.58E-03
Ps90%/90% (+KTL) Un-Biased	1.27E-01	1.27E-01	1.28E-01	1.29E-01	1.29E-01	1.29E-01	1.29E-01
Ps90%/90% (-KTL) Un-Biased	1.19E-01	1.19E-01	1.19E-01	1.20E-01	1.20E-01	1.21E-01	1.20E-01
Specification MAX	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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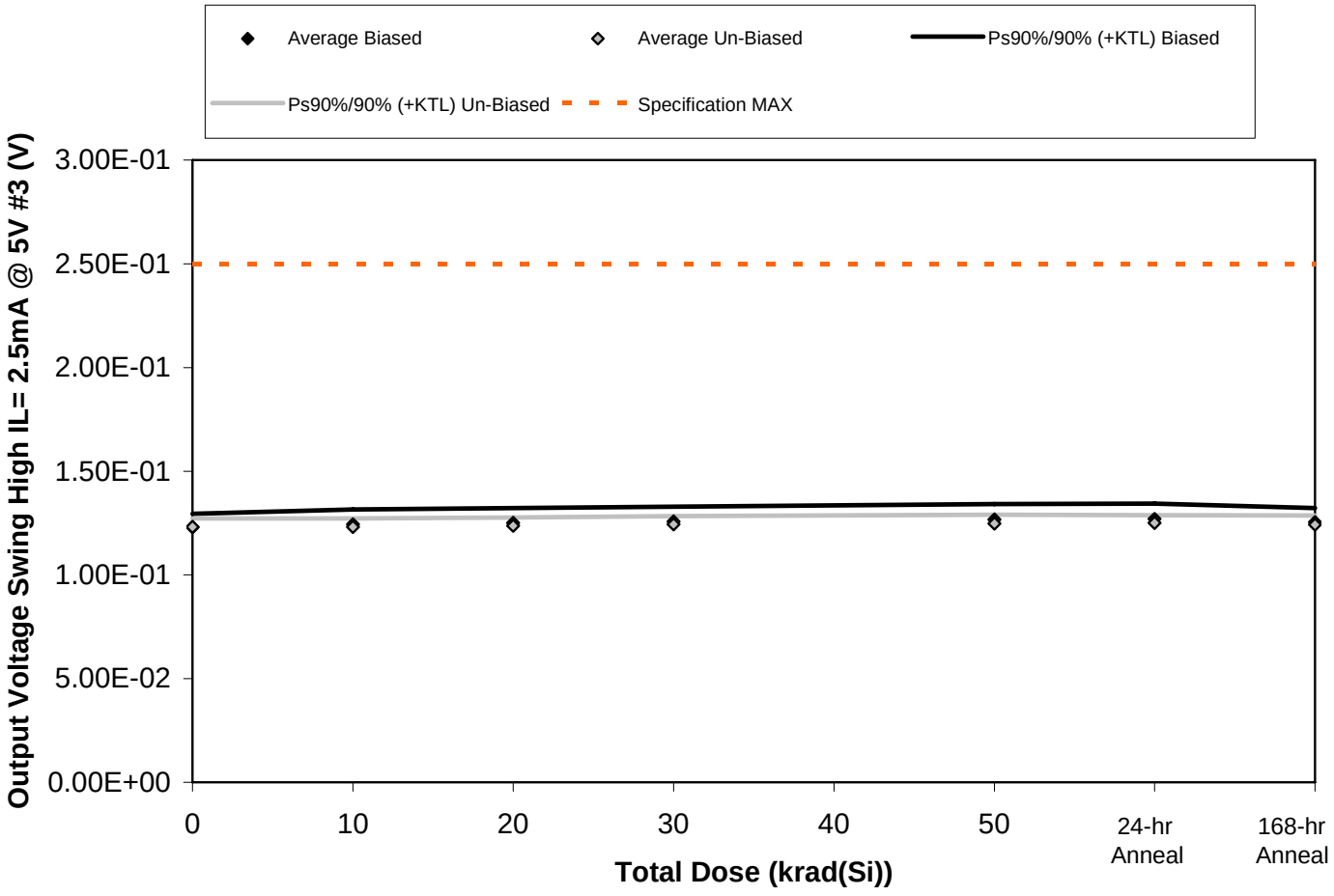

Figure 5.247. Plot of Output Voltage Swing High IL= 2.5mA @ 5V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.247. Raw data for Output Voltage Swing High IL= 2.5mA @ 5V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 2.5mA @ 5V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.23E-01	1.25E-01	1.26E-01	1.27E-01	1.28E-01	1.28E-01	1.26E-01
867	1.26E-01	1.27E-01	1.28E-01	1.28E-01	1.29E-01	1.29E-01	1.28E-01
868	1.20E-01	1.21E-01	1.21E-01	1.22E-01	1.23E-01	1.23E-01	1.22E-01
869	1.25E-01	1.26E-01	1.27E-01	1.28E-01	1.29E-01	1.29E-01	1.27E-01
870	1.22E-01	1.23E-01	1.23E-01	1.24E-01	1.25E-01	1.25E-01	1.24E-01
871	1.24E-01	1.24E-01	1.24E-01	1.25E-01	1.25E-01	1.25E-01	1.25E-01
872	1.24E-01	1.23E-01	1.24E-01	1.25E-01	1.25E-01	1.25E-01	1.25E-01
873	1.21E-01	1.21E-01	1.21E-01	1.22E-01	1.22E-01	1.23E-01	1.22E-01
874	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.25E-01	1.24E-01
876	1.25E-01	1.25E-01	1.25E-01	1.26E-01	1.26E-01	1.27E-01	1.26E-01
877	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01	1.24E-01
Biased Statistics							
Average Biased	1.23E-01	1.24E-01	1.25E-01	1.26E-01	1.27E-01	1.27E-01	1.25E-01
Std Dev Biased	2.35E-03	2.62E-03	2.60E-03	2.58E-03	2.69E-03	2.75E-03	2.45E-03
Ps90%/90% (+KTL) Biased	1.29E-01	1.32E-01	1.32E-01	1.33E-01	1.34E-01	1.34E-01	1.32E-01
Ps90%/90% (-KTL) Biased	1.17E-01	1.17E-01	1.18E-01	1.19E-01	1.19E-01	1.19E-01	1.19E-01
Un-Biased Statistics							
Average Un-Biased	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.25E-01	1.24E-01
Std Dev Un-Biased	1.50E-03	1.50E-03	1.44E-03	1.46E-03	1.56E-03	1.37E-03	1.60E-03
Ps90%/90% (+KTL) Un-Biased	1.27E-01	1.27E-01	1.28E-01	1.28E-01	1.29E-01	1.29E-01	1.29E-01
Ps90%/90% (-KTL) Un-Biased	1.19E-01	1.19E-01	1.20E-01	1.20E-01	1.20E-01	1.21E-01	1.20E-01
Specification MAX	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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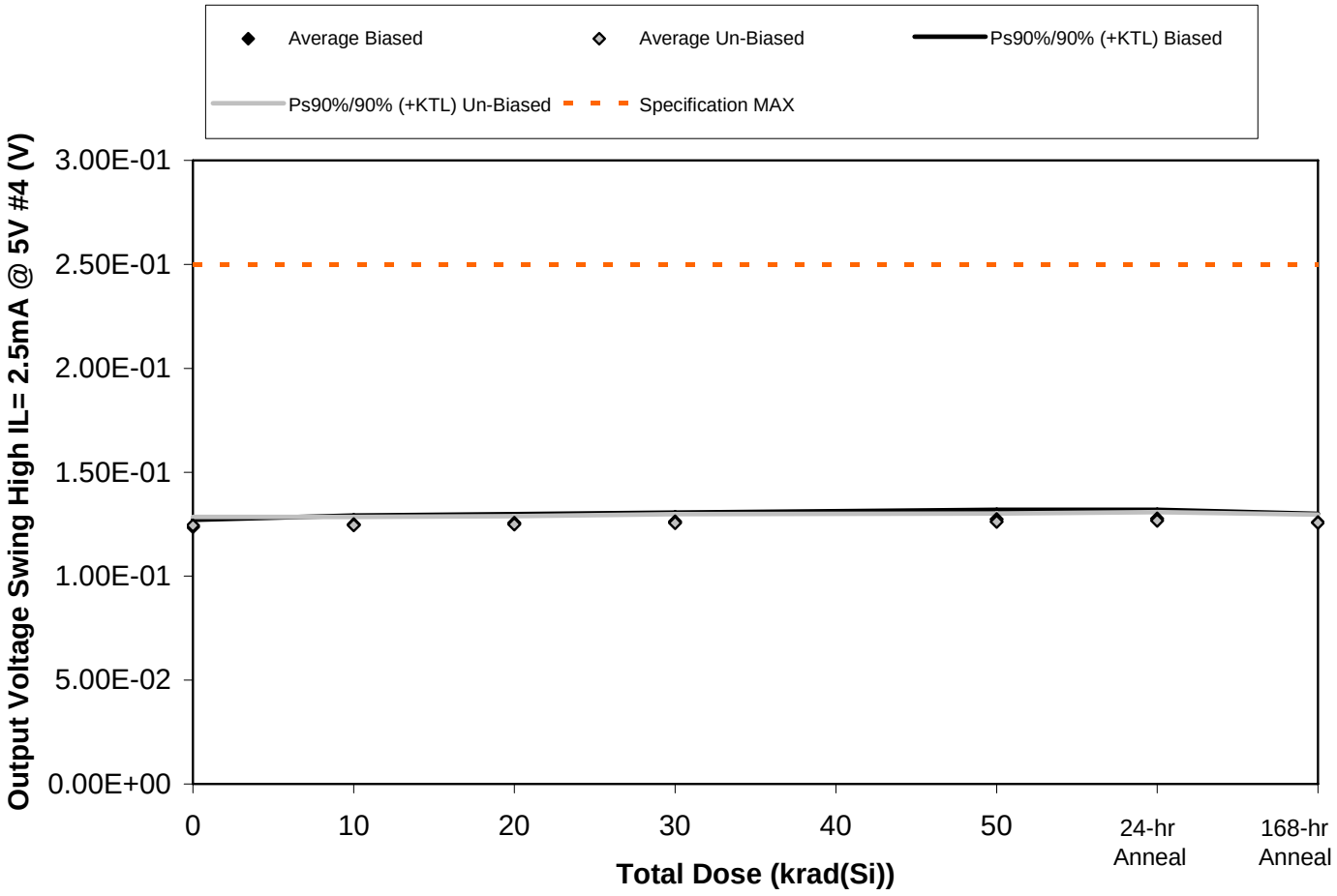

Figure 5.248. Plot of Output Voltage Swing High IL= 2.5mA @ 5V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.248. Raw data for Output Voltage Swing High IL= 2.5mA @ 5V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing High IL= 2.5mA @ 5V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.25E-01	1.27E-01	1.28E-01	1.29E-01	1.30E-01	1.30E-01	1.28E-01
867	1.23E-01	1.24E-01	1.25E-01	1.25E-01	1.27E-01	1.27E-01	1.25E-01
868	1.25E-01	1.26E-01	1.26E-01	1.27E-01	1.28E-01	1.28E-01	1.27E-01
869	1.22E-01	1.23E-01	1.24E-01	1.25E-01	1.26E-01	1.26E-01	1.24E-01
870	1.24E-01	1.25E-01	1.25E-01	1.26E-01	1.27E-01	1.27E-01	1.26E-01
871	1.26E-01	1.26E-01	1.26E-01	1.27E-01	1.28E-01	1.28E-01	1.27E-01
872	1.23E-01	1.24E-01	1.24E-01	1.24E-01	1.25E-01	1.26E-01	1.25E-01
873	1.25E-01	1.25E-01	1.25E-01	1.26E-01	1.27E-01	1.27E-01	1.26E-01
874	1.22E-01	1.23E-01	1.23E-01	1.24E-01	1.24E-01	1.25E-01	1.24E-01
876	1.26E-01	1.26E-01	1.26E-01	1.27E-01	1.27E-01	1.28E-01	1.27E-01
877	1.25E-01	1.25E-01	1.25E-01	1.25E-01	1.25E-01	1.25E-01	1.25E-01
Biased Statistics							
Average Biased	1.24E-01	1.25E-01	1.26E-01	1.26E-01	1.27E-01	1.28E-01	1.26E-01
Std Dev Biased	1.23E-03	1.56E-03	1.59E-03	1.57E-03	1.63E-03	1.58E-03	1.53E-03
Ps90%/90% (+KTL) Biased	1.27E-01	1.29E-01	1.30E-01	1.31E-01	1.32E-01	1.32E-01	1.30E-01
Ps90%/90% (-KTL) Biased	1.20E-01	1.21E-01	1.21E-01	1.22E-01	1.23E-01	1.23E-01	1.22E-01
Un-Biased Statistics							
Average Un-Biased	1.24E-01	1.25E-01	1.25E-01	1.26E-01	1.26E-01	1.27E-01	1.26E-01
Std Dev Un-Biased	1.49E-03	1.41E-03	1.44E-03	1.54E-03	1.42E-03	1.50E-03	1.38E-03
Ps90%/90% (+KTL) Un-Biased	1.28E-01	1.28E-01	1.29E-01	1.30E-01	1.30E-01	1.31E-01	1.30E-01
Ps90%/90% (-KTL) Un-Biased	1.20E-01	1.21E-01	1.21E-01	1.21E-01	1.22E-01	1.23E-01	1.22E-01
Specification MAX	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01	2.50E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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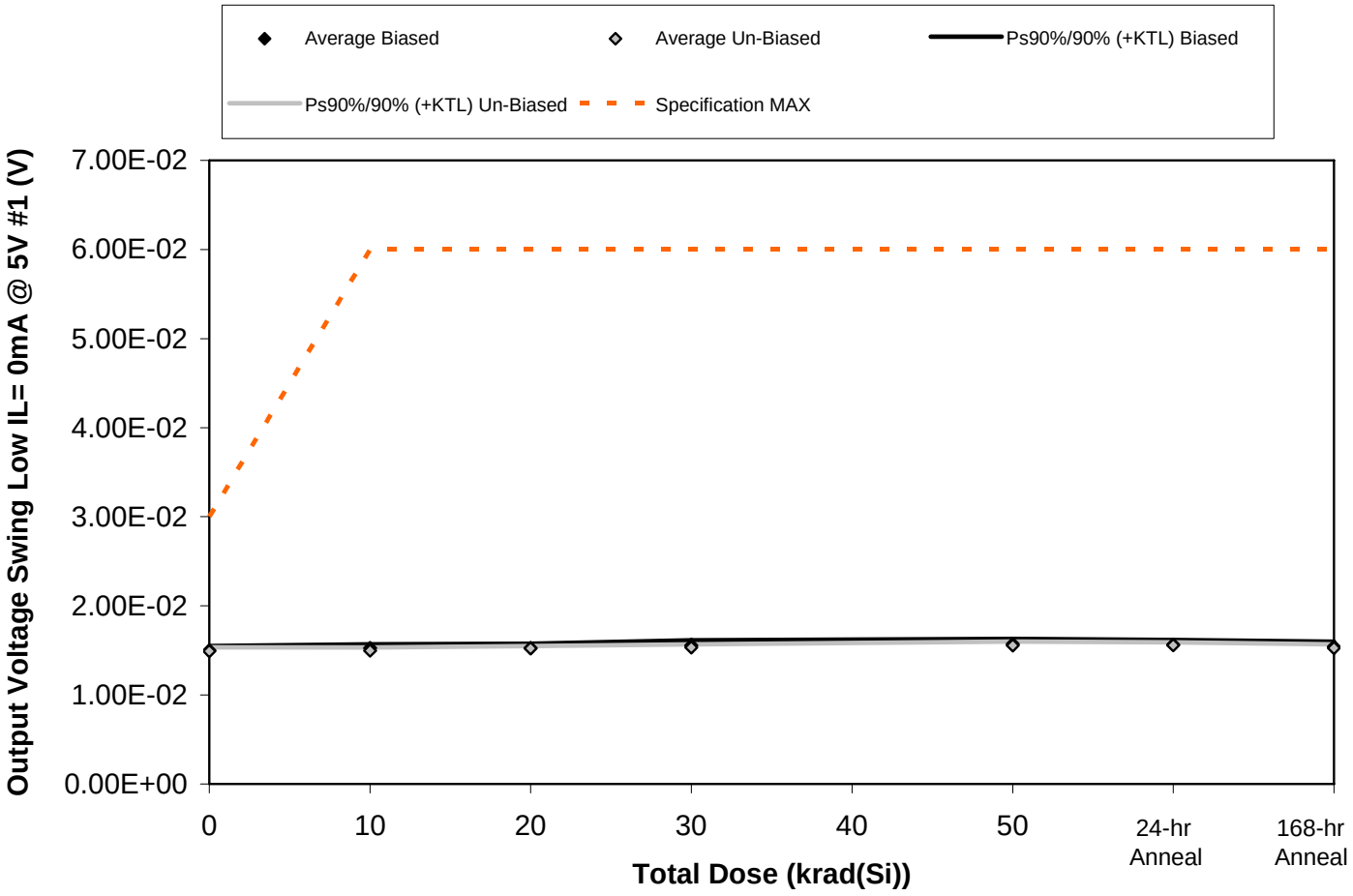

Figure 5.249. Plot of Output Voltage Swing Low IL= 0mA @ 5V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.249. Raw data for Output Voltage Swing Low IL= 0mA @ 5V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0mA @ 5V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.51E-02	1.53E-02	1.53E-02	1.56E-02	1.57E-02	1.57E-02	1.54E-02
867	1.50E-02	1.52E-02	1.53E-02	1.55E-02	1.57E-02	1.56E-02	1.55E-02
868	1.48E-02	1.50E-02	1.50E-02	1.53E-02	1.54E-02	1.54E-02	1.53E-02
869	1.53E-02	1.55E-02	1.55E-02	1.58E-02	1.60E-02	1.59E-02	1.57E-02
870	1.49E-02	1.53E-02	1.53E-02	1.56E-02	1.57E-02	1.56E-02	1.54E-02
871	1.51E-02	1.50E-02	1.53E-02	1.55E-02	1.57E-02	1.57E-02	1.54E-02
872	1.48E-02	1.49E-02	1.52E-02	1.53E-02	1.56E-02	1.56E-02	1.52E-02
873	1.47E-02	1.48E-02	1.51E-02	1.52E-02	1.53E-02	1.54E-02	1.51E-02
874	1.49E-02	1.50E-02	1.52E-02	1.54E-02	1.57E-02	1.56E-02	1.53E-02
876	1.50E-02	1.52E-02	1.53E-02	1.54E-02	1.55E-02	1.56E-02	1.54E-02
877	1.48E-02	1.48E-02	1.49E-02	1.48E-02	1.50E-02	1.49E-02	1.50E-02
Biased Statistics							
Average Biased	1.50E-02	1.53E-02	1.53E-02	1.55E-02	1.57E-02	1.57E-02	1.54E-02
Std Dev Biased	1.76E-04	1.57E-04	1.73E-04	2.12E-04	2.09E-04	1.86E-04	1.90E-04
Ps90%/90% (+KTL) Biased	1.55E-02	1.57E-02	1.58E-02	1.61E-02	1.63E-02	1.62E-02	1.60E-02
Ps90%/90% (-KTL) Biased	1.45E-02	1.48E-02	1.48E-02	1.50E-02	1.51E-02	1.51E-02	1.49E-02
Un-Biased Statistics							
Average Un-Biased	1.49E-02	1.50E-02	1.52E-02	1.53E-02	1.56E-02	1.56E-02	1.53E-02
Std Dev Un-Biased	1.66E-04	1.33E-04	1.03E-04	1.28E-04	1.67E-04	1.18E-04	1.50E-04
Ps90%/90% (+KTL) Un-Biased	1.54E-02	1.53E-02	1.55E-02	1.57E-02	1.60E-02	1.59E-02	1.57E-02
Ps90%/90% (-KTL) Un-Biased	1.45E-02	1.46E-02	1.49E-02	1.50E-02	1.51E-02	1.53E-02	1.49E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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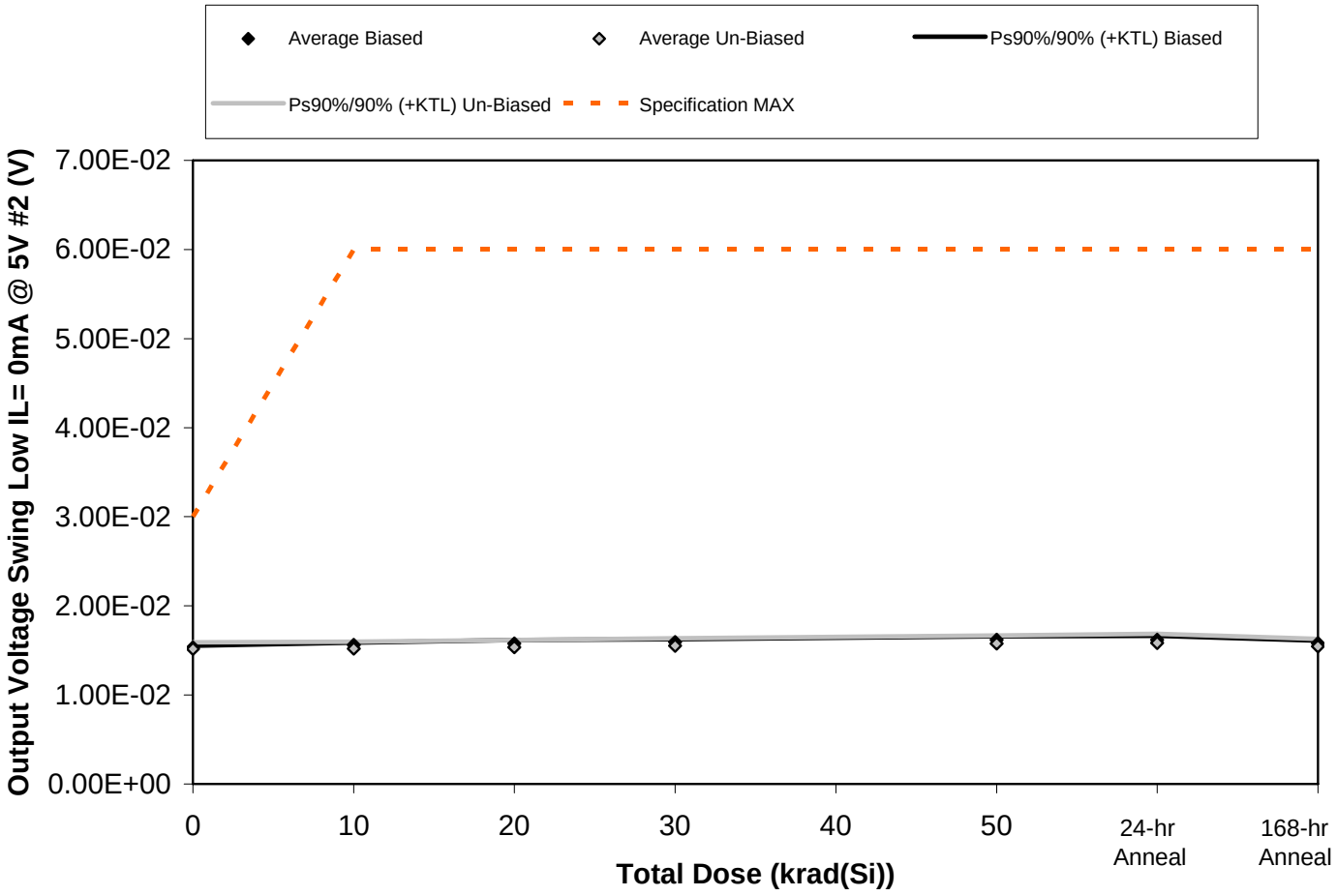

Figure 5.250. Plot of Output Voltage Swing Low IL= 0mA @ 5V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.250. Raw data for Output Voltage Swing Low IL= 0mA @ 5V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0mA @ 5V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.54E-02	1.56E-02	1.59E-02	1.60E-02	1.64E-02	1.63E-02	1.59E-02
867	1.54E-02	1.58E-02	1.59E-02	1.60E-02	1.63E-02	1.64E-02	1.59E-02
868	1.54E-02	1.55E-02	1.56E-02	1.57E-02	1.60E-02	1.60E-02	1.57E-02
869	1.52E-02	1.56E-02	1.57E-02	1.59E-02	1.61E-02	1.62E-02	1.58E-02
870	1.54E-02	1.56E-02	1.58E-02	1.59E-02	1.61E-02	1.62E-02	1.58E-02
871	1.51E-02	1.51E-02	1.53E-02	1.54E-02	1.56E-02	1.58E-02	1.53E-02
872	1.56E-02	1.55E-02	1.58E-02	1.59E-02	1.62E-02	1.62E-02	1.58E-02
873	1.52E-02	1.54E-02	1.55E-02	1.57E-02	1.58E-02	1.59E-02	1.56E-02
874	1.52E-02	1.52E-02	1.54E-02	1.56E-02	1.59E-02	1.61E-02	1.56E-02
876	1.49E-02	1.48E-02	1.50E-02	1.50E-02	1.53E-02	1.52E-02	1.50E-02
877	1.52E-02	1.51E-02	1.51E-02	1.52E-02	1.52E-02	1.51E-02	1.51E-02
Biased Statistics							
Average Biased	1.53E-02	1.56E-02	1.58E-02	1.59E-02	1.62E-02	1.62E-02	1.58E-02
Std Dev Biased	6.69E-05	1.03E-04	1.39E-04	1.18E-04	1.40E-04	1.56E-04	1.03E-04
Ps90%/90% (+KTL) Biased	1.55E-02	1.59E-02	1.62E-02	1.62E-02	1.66E-02	1.66E-02	1.61E-02
Ps90%/90% (-KTL) Biased	1.52E-02	1.53E-02	1.54E-02	1.56E-02	1.58E-02	1.58E-02	1.55E-02
Un-Biased Statistics							
Average Un-Biased	1.52E-02	1.52E-02	1.54E-02	1.55E-02	1.58E-02	1.58E-02	1.55E-02
Std Dev Un-Biased	2.68E-04	2.73E-04	2.94E-04	3.11E-04	3.23E-04	3.83E-04	2.99E-04
Ps90%/90% (+KTL) Un-Biased	1.59E-02	1.60E-02	1.62E-02	1.64E-02	1.67E-02	1.69E-02	1.63E-02
Ps90%/90% (-KTL) Un-Biased	1.44E-02	1.45E-02	1.46E-02	1.47E-02	1.49E-02	1.48E-02	1.46E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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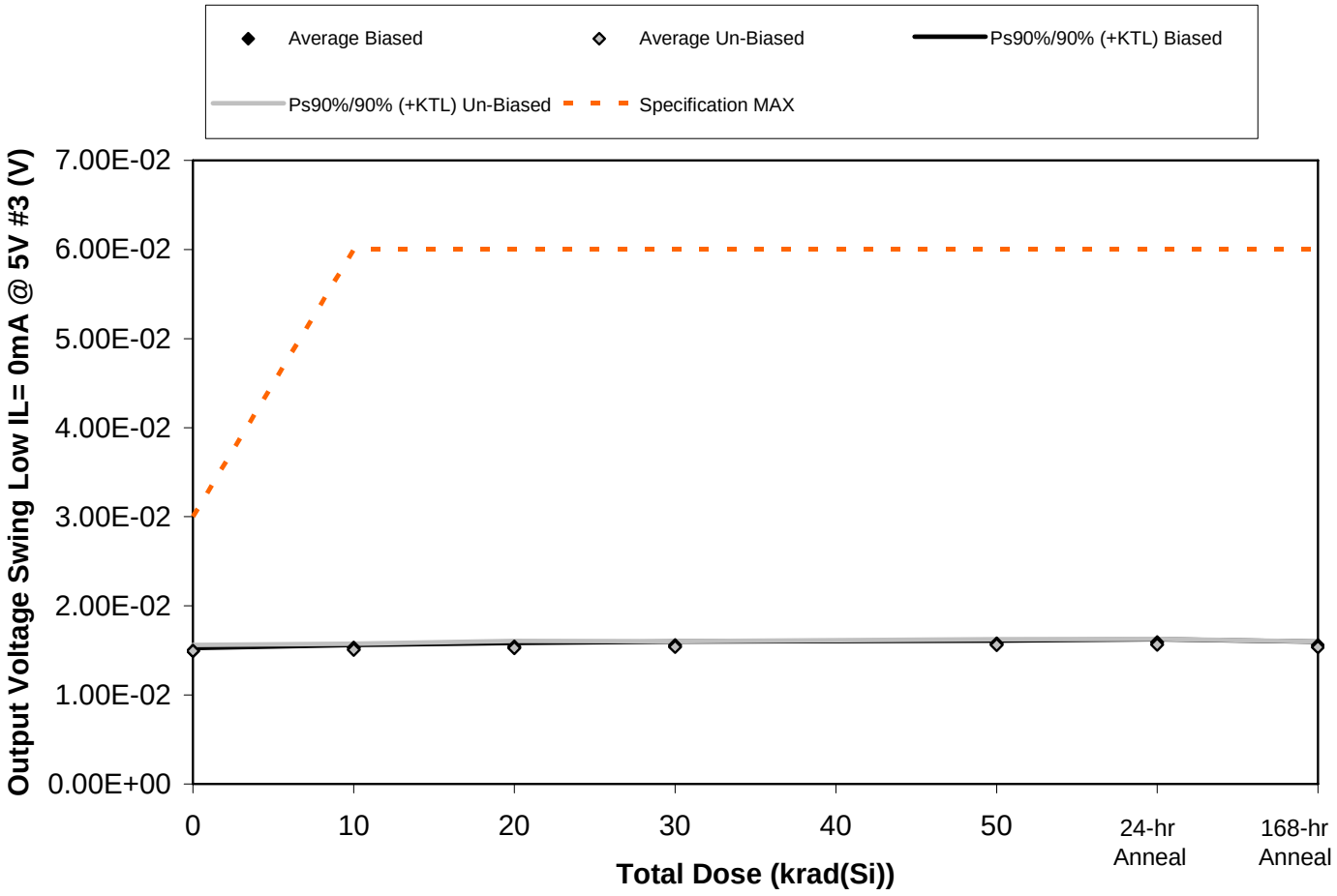

Figure 5.251. Plot of Output Voltage Swing Low IL= 0mA @ 5V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.251. Raw data for Output Voltage Swing Low IL= 0mA @ 5V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0mA @ 5V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.51E-02	1.53E-02	1.53E-02	1.57E-02	1.58E-02	1.59E-02	1.56E-02
867	1.48E-02	1.52E-02	1.54E-02	1.55E-02	1.56E-02	1.58E-02	1.54E-02
868	1.50E-02	1.52E-02	1.53E-02	1.56E-02	1.57E-02	1.58E-02	1.55E-02
869	1.50E-02	1.54E-02	1.55E-02	1.54E-02	1.58E-02	1.60E-02	1.56E-02
870	1.49E-02	1.55E-02	1.57E-02	1.58E-02	1.59E-02	1.60E-02	1.58E-02
871	1.47E-02	1.47E-02	1.49E-02	1.51E-02	1.53E-02	1.53E-02	1.51E-02
872	1.51E-02	1.52E-02	1.56E-02	1.57E-02	1.58E-02	1.59E-02	1.56E-02
873	1.52E-02	1.53E-02	1.54E-02	1.55E-02	1.57E-02	1.58E-02	1.55E-02
874	1.51E-02	1.52E-02	1.54E-02	1.54E-02	1.58E-02	1.58E-02	1.55E-02
876	1.47E-02	1.48E-02	1.50E-02	1.52E-02	1.54E-02	1.55E-02	1.51E-02
877	1.48E-02	1.46E-02	1.47E-02	1.46E-02	1.46E-02	1.47E-02	1.46E-02
Biased Statistics							
Average Biased	1.49E-02	1.53E-02	1.54E-02	1.56E-02	1.58E-02	1.59E-02	1.56E-02
Std Dev Biased	1.17E-04	1.14E-04	1.61E-04	1.55E-04	1.20E-04	1.23E-04	1.43E-04
Ps90%/90% (+KTL) Biased	1.53E-02	1.56E-02	1.59E-02	1.60E-02	1.61E-02	1.62E-02	1.60E-02
Ps90%/90% (-KTL) Biased	1.46E-02	1.50E-02	1.50E-02	1.52E-02	1.55E-02	1.56E-02	1.52E-02
Un-Biased Statistics							
Average Un-Biased	1.50E-02	1.51E-02	1.53E-02	1.54E-02	1.56E-02	1.56E-02	1.54E-02
Std Dev Un-Biased	2.40E-04	2.54E-04	2.94E-04	2.41E-04	2.35E-04	2.34E-04	2.28E-04
Ps90%/90% (+KTL) Un-Biased	1.56E-02	1.58E-02	1.61E-02	1.60E-02	1.63E-02	1.63E-02	1.60E-02
Ps90%/90% (-KTL) Un-Biased	1.43E-02	1.44E-02	1.44E-02	1.47E-02	1.50E-02	1.50E-02	1.47E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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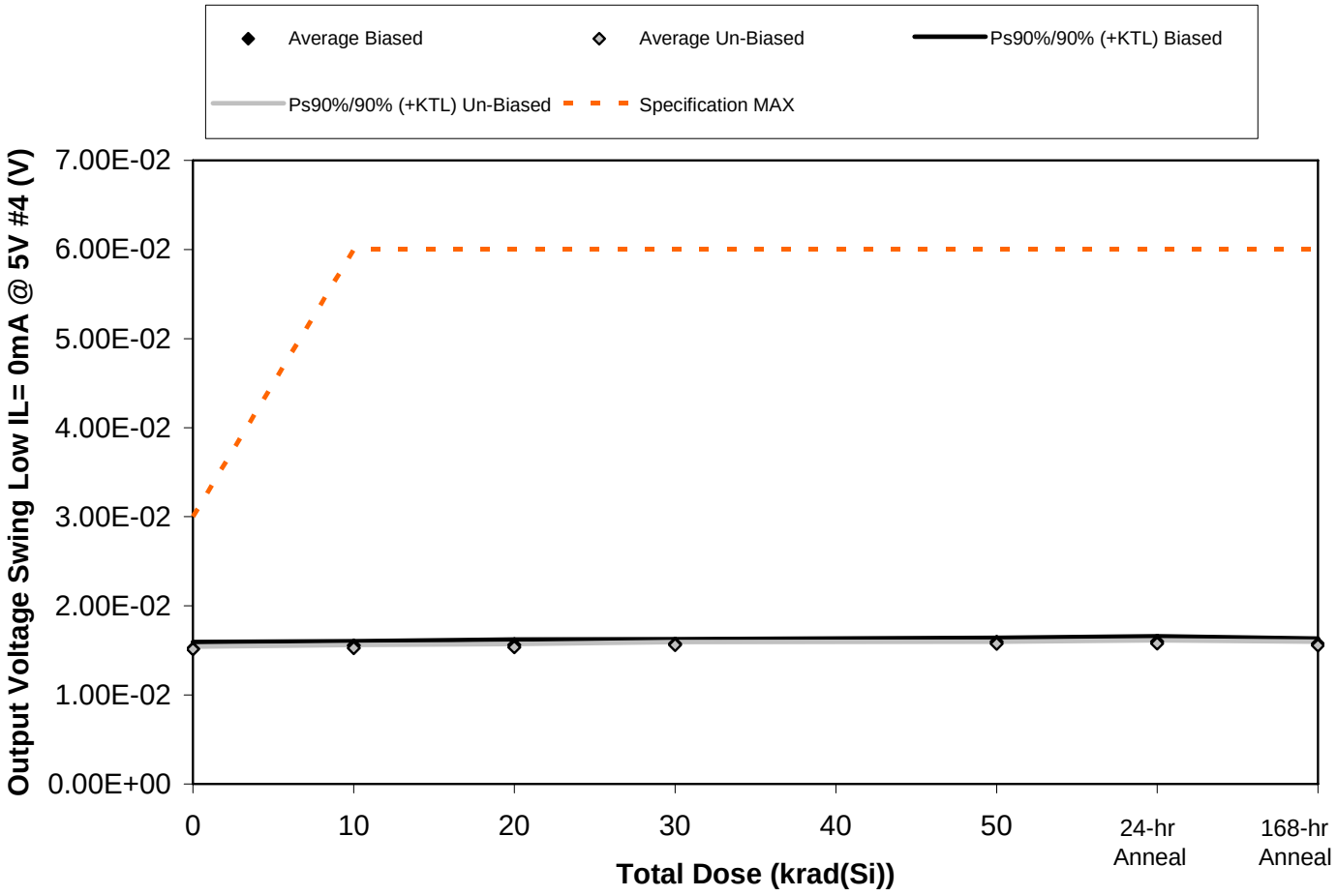

Figure 5.252. Plot of Output Voltage Swing Low IL= 0mA @ 5V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.252. Raw data for Output Voltage Swing Low IL= 0mA @ 5V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 0mA @ 5V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	1.52E-02	1.54E-02	1.54E-02	1.56E-02	1.58E-02	1.58E-02	1.56E-02
867	1.49E-02	1.54E-02	1.54E-02	1.56E-02	1.59E-02	1.59E-02	1.55E-02
868	1.51E-02	1.55E-02	1.56E-02	1.58E-02	1.59E-02	1.59E-02	1.57E-02
869	1.56E-02	1.58E-02	1.59E-02	1.60E-02	1.62E-02	1.64E-02	1.60E-02
870	1.52E-02	1.56E-02	1.57E-02	1.58E-02	1.60E-02	1.60E-02	1.58E-02
871	1.51E-02	1.52E-02	1.54E-02	1.56E-02	1.58E-02	1.58E-02	1.56E-02
872	1.52E-02	1.53E-02	1.52E-02	1.55E-02	1.56E-02	1.58E-02	1.54E-02
873	1.50E-02	1.51E-02	1.53E-02	1.55E-02	1.57E-02	1.55E-02	1.54E-02
874	1.52E-02	1.54E-02	1.55E-02	1.58E-02	1.58E-02	1.59E-02	1.58E-02
876	1.52E-02	1.54E-02	1.53E-02	1.57E-02	1.58E-02	1.58E-02	1.55E-02
877	1.53E-02	1.51E-02	1.52E-02	1.52E-02	1.52E-02	1.53E-02	1.52E-02
Biased Statistics							
Average Biased	1.52E-02	1.55E-02	1.56E-02	1.57E-02	1.60E-02	1.60E-02	1.57E-02
Std Dev Biased	2.67E-04	1.74E-04	2.20E-04	1.88E-04	1.58E-04	2.12E-04	2.08E-04
Ps90%/90% (+KTL) Biased	1.59E-02	1.60E-02	1.62E-02	1.62E-02	1.64E-02	1.66E-02	1.63E-02
Ps90%/90% (-KTL) Biased	1.45E-02	1.51E-02	1.50E-02	1.52E-02	1.56E-02	1.54E-02	1.52E-02
Un-Biased Statistics							
Average Un-Biased	1.52E-02	1.53E-02	1.54E-02	1.56E-02	1.57E-02	1.58E-02	1.56E-02
Std Dev Un-Biased	9.90E-05	1.28E-04	1.28E-04	1.26E-04	8.04E-05	1.33E-04	1.53E-04
Ps90%/90% (+KTL) Un-Biased	1.54E-02	1.56E-02	1.57E-02	1.60E-02	1.60E-02	1.61E-02	1.60E-02
Ps90%/90% (-KTL) Un-Biased	1.49E-02	1.49E-02	1.50E-02	1.53E-02	1.55E-02	1.54E-02	1.51E-02
Specification MAX	3.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02	6.00E-02
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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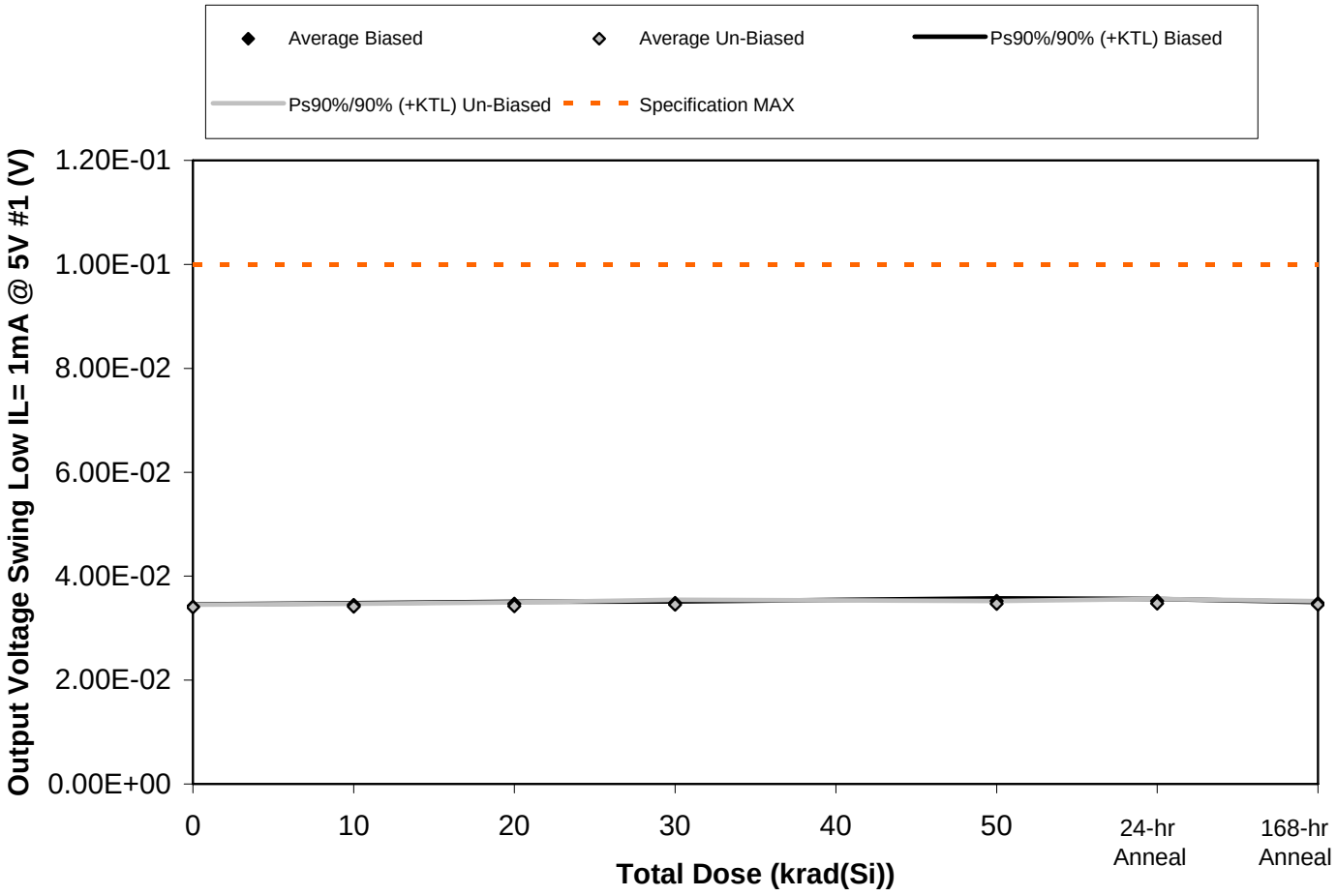

Figure 5.253. Plot of Output Voltage Swing Low IL= 1mA @ 5V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.253. Raw data for Output Voltage Swing Low IL= 1mA @ 5V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1mA @ 5V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.41E-02	3.43E-02	3.47E-02	3.48E-02	3.53E-02	3.53E-02	3.49E-02
867	3.43E-02	3.46E-02	3.47E-02	3.48E-02	3.54E-02	3.54E-02	3.49E-02
868	3.41E-02	3.44E-02	3.46E-02	3.48E-02	3.52E-02	3.51E-02	3.47E-02
869	3.43E-02	3.46E-02	3.49E-02	3.50E-02	3.53E-02	3.54E-02	3.49E-02
870	3.39E-02	3.44E-02	3.46E-02	3.48E-02	3.49E-02	3.51E-02	3.47E-02
871	3.40E-02	3.41E-02	3.43E-02	3.46E-02	3.47E-02	3.49E-02	3.46E-02
872	3.38E-02	3.39E-02	3.40E-02	3.42E-02	3.44E-02	3.44E-02	3.43E-02
873	3.40E-02	3.39E-02	3.40E-02	3.40E-02	3.46E-02	3.45E-02	3.42E-02
874	3.42E-02	3.43E-02	3.45E-02	3.48E-02	3.49E-02	3.50E-02	3.48E-02
876	3.42E-02	3.43E-02	3.45E-02	3.48E-02	3.48E-02	3.50E-02	3.46E-02
877	3.38E-02	3.36E-02	3.38E-02	3.37E-02	3.38E-02	3.38E-02	3.36E-02
Biased Statistics							
Average Biased	3.41E-02	3.45E-02	3.47E-02	3.48E-02	3.52E-02	3.53E-02	3.48E-02
Std Dev Biased	1.73E-04	1.16E-04	1.34E-04	9.88E-05	1.77E-04	1.39E-04	8.44E-05
Ps90%/90% (+KTL) Biased	3.46E-02	3.48E-02	3.51E-02	3.51E-02	3.57E-02	3.56E-02	3.50E-02
Ps90%/90% (-KTL) Biased	3.36E-02	3.41E-02	3.43E-02	3.46E-02	3.47E-02	3.49E-02	3.46E-02
Un-Biased Statistics							
Average Un-Biased	3.40E-02	3.41E-02	3.43E-02	3.45E-02	3.47E-02	3.48E-02	3.45E-02
Std Dev Un-Biased	1.81E-04	2.04E-04	2.49E-04	3.42E-04	2.02E-04	3.05E-04	2.58E-04
Ps90%/90% (+KTL) Un-Biased	3.45E-02	3.47E-02	3.49E-02	3.54E-02	3.53E-02	3.56E-02	3.52E-02
Ps90%/90% (-KTL) Un-Biased	3.35E-02	3.36E-02	3.36E-02	3.36E-02	3.41E-02	3.39E-02	3.38E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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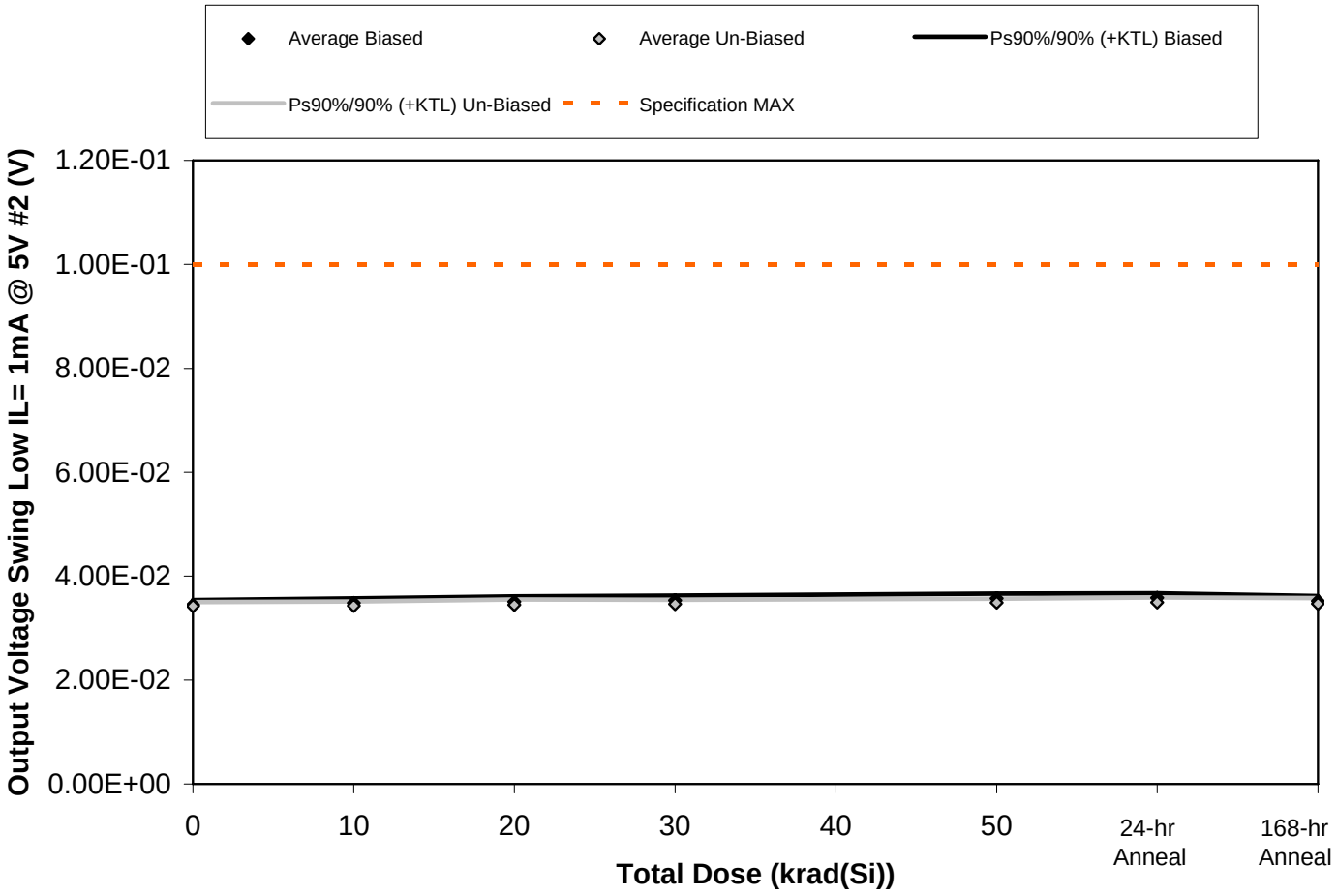

Figure 5.254. Plot of Output Voltage Swing Low IL= 1mA @ 5V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.254. Raw data for Output Voltage Swing Low IL= 1mA @ 5V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1mA @ 5V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.47E-02	3.51E-02	3.53E-02	3.57E-02	3.60E-02	3.63E-02	3.55E-02
867	3.46E-02	3.49E-02	3.53E-02	3.53E-02	3.57E-02	3.58E-02	3.53E-02
868	3.40E-02	3.44E-02	3.45E-02	3.48E-02	3.52E-02	3.53E-02	3.46E-02
869	3.48E-02	3.52E-02	3.53E-02	3.56E-02	3.60E-02	3.59E-02	3.55E-02
870	3.43E-02	3.48E-02	3.50E-02	3.54E-02	3.56E-02	3.58E-02	3.53E-02
871	3.43E-02	3.43E-02	3.45E-02	3.46E-02	3.48E-02	3.51E-02	3.48E-02
872	3.46E-02	3.47E-02	3.50E-02	3.50E-02	3.54E-02	3.53E-02	3.53E-02
873	3.40E-02	3.40E-02	3.41E-02	3.44E-02	3.47E-02	3.46E-02	3.44E-02
874	3.43E-02	3.44E-02	3.45E-02	3.48E-02	3.50E-02	3.52E-02	3.47E-02
876	3.39E-02	3.40E-02	3.41E-02	3.42E-02	3.48E-02	3.47E-02	3.43E-02
877	3.46E-02	3.44E-02	3.43E-02	3.44E-02	3.45E-02	3.45E-02	3.45E-02
Biased Statistics							
Average Biased	3.45E-02	3.49E-02	3.51E-02	3.53E-02	3.57E-02	3.58E-02	3.52E-02
Std Dev Biased	3.28E-04	3.04E-04	3.72E-04	3.41E-04	3.46E-04	3.37E-04	3.47E-04
Ps90%/90% (+KTL) Biased	3.54E-02	3.57E-02	3.61E-02	3.63E-02	3.67E-02	3.67E-02	3.62E-02
Ps90%/90% (-KTL) Biased	3.36E-02	3.40E-02	3.41E-02	3.44E-02	3.48E-02	3.49E-02	3.43E-02
Un-Biased Statistics							
Average Un-Biased	3.42E-02	3.43E-02	3.45E-02	3.46E-02	3.49E-02	3.50E-02	3.47E-02
Std Dev Un-Biased	2.78E-04	2.99E-04	3.87E-04	3.04E-04	2.75E-04	3.35E-04	4.02E-04
Ps90%/90% (+KTL) Un-Biased	3.50E-02	3.51E-02	3.55E-02	3.54E-02	3.57E-02	3.59E-02	3.58E-02
Ps90%/90% (-KTL) Un-Biased	3.35E-02	3.35E-02	3.34E-02	3.38E-02	3.42E-02	3.41E-02	3.36E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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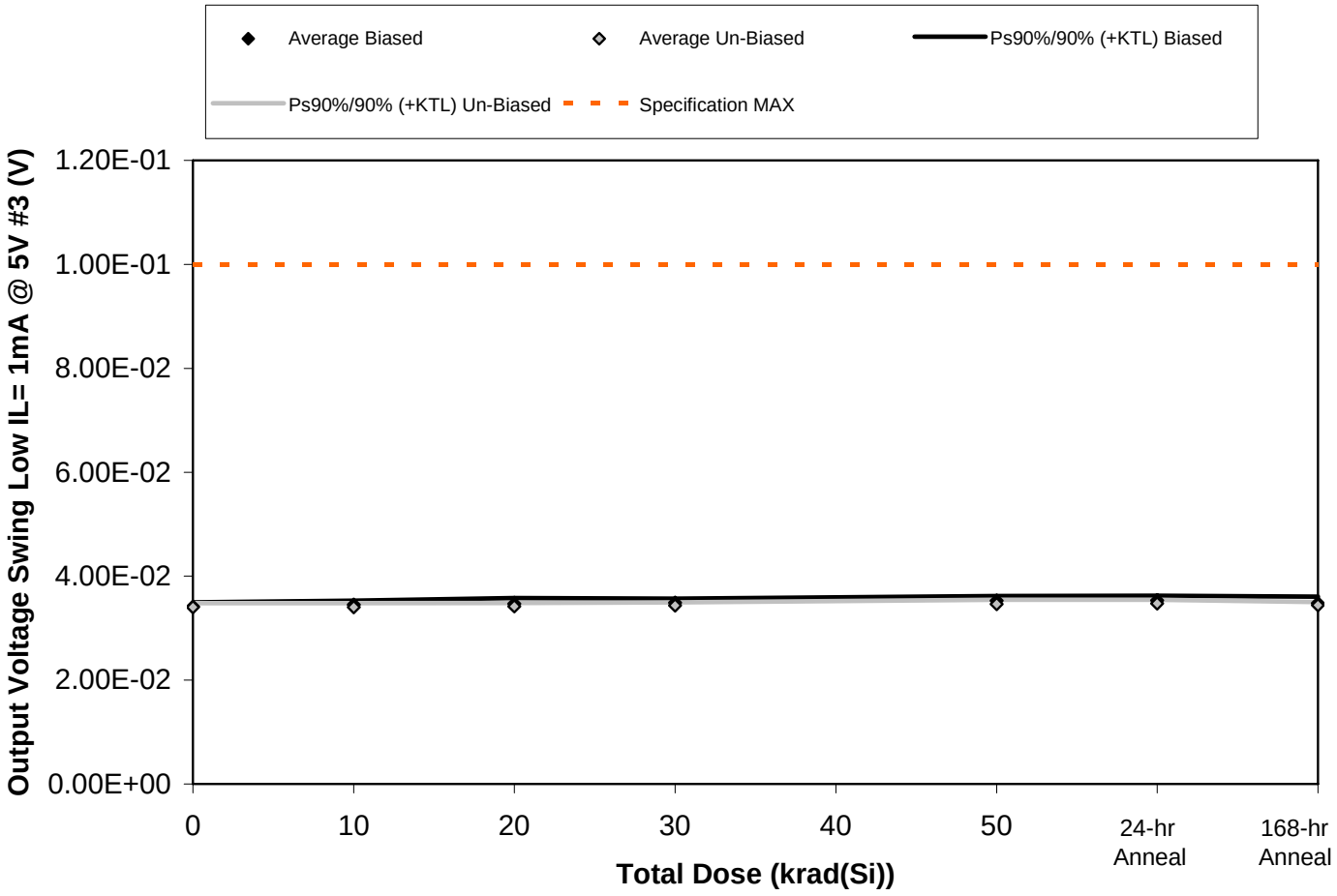

Figure 5.255. Plot of Output Voltage Swing Low IL= 1mA @ 5V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.255. Raw data for Output Voltage Swing Low IL= 1mA @ 5V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1mA @ 5V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.45E-02	3.48E-02	3.52E-02	3.51E-02	3.57E-02	3.57E-02	3.53E-02
867	3.40E-02	3.45E-02	3.47E-02	3.49E-02	3.52E-02	3.51E-02	3.47E-02
868	3.37E-02	3.40E-02	3.41E-02	3.45E-02	3.48E-02	3.49E-02	3.41E-02
869	3.44E-02	3.47E-02	3.49E-02	3.52E-02	3.55E-02	3.56E-02	3.51E-02
870	3.41E-02	3.46E-02	3.46E-02	3.48E-02	3.53E-02	3.55E-02	3.49E-02
871	3.40E-02	3.41E-02	3.41E-02	3.42E-02	3.45E-02	3.45E-02	3.44E-02
872	3.44E-02	3.43E-02	3.45E-02	3.46E-02	3.49E-02	3.50E-02	3.45E-02
873	3.37E-02	3.39E-02	3.41E-02	3.43E-02	3.44E-02	3.45E-02	3.43E-02
874	3.43E-02	3.43E-02	3.44E-02	3.46E-02	3.50E-02	3.50E-02	3.48E-02
876	3.37E-02	3.37E-02	3.40E-02	3.41E-02	3.44E-02	3.45E-02	3.42E-02
877	3.38E-02	3.38E-02	3.38E-02	3.37E-02	3.38E-02	3.39E-02	3.37E-02
Biased Statistics							
Average Biased	3.41E-02	3.45E-02	3.47E-02	3.49E-02	3.53E-02	3.54E-02	3.48E-02
Std Dev Biased	3.07E-04	2.88E-04	3.89E-04	2.74E-04	3.11E-04	3.26E-04	4.51E-04
Ps90%/90% (+KTL) Biased	3.50E-02	3.53E-02	3.58E-02	3.57E-02	3.62E-02	3.62E-02	3.60E-02
Ps90%/90% (-KTL) Biased	3.33E-02	3.37E-02	3.36E-02	3.41E-02	3.45E-02	3.45E-02	3.36E-02
Un-Biased Statistics							
Average Un-Biased	3.40E-02	3.41E-02	3.42E-02	3.44E-02	3.46E-02	3.47E-02	3.44E-02
Std Dev Un-Biased	2.91E-04	2.78E-04	2.34E-04	2.32E-04	3.01E-04	2.74E-04	2.19E-04
Ps90%/90% (+KTL) Un-Biased	3.48E-02	3.48E-02	3.49E-02	3.50E-02	3.55E-02	3.55E-02	3.50E-02
Ps90%/90% (-KTL) Un-Biased	3.32E-02	3.33E-02	3.36E-02	3.37E-02	3.38E-02	3.40E-02	3.38E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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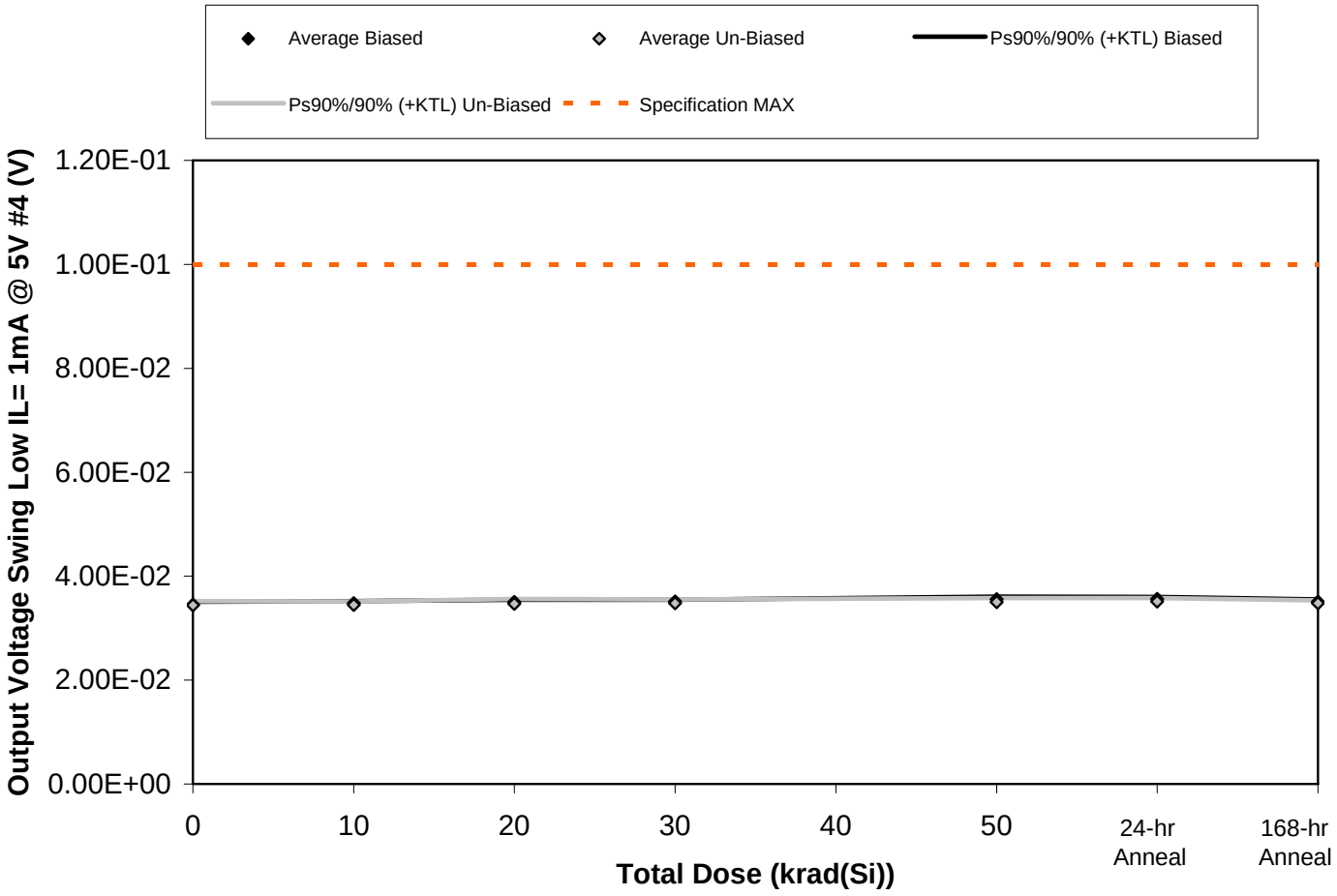

Figure 5.256. Plot of Output Voltage Swing Low IL= 1mA @ 5V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.256. Raw data for Output Voltage Swing Low IL= 1mA @ 5V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 1mA @ 5V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	3.44E-02	3.48E-02	3.50E-02	3.52E-02	3.57E-02	3.57E-02	3.53E-02
867	3.44E-02	3.47E-02	3.49E-02	3.51E-02	3.53E-02	3.55E-02	3.49E-02
868	3.47E-02	3.49E-02	3.51E-02	3.52E-02	3.57E-02	3.56E-02	3.50E-02
869	3.48E-02	3.50E-02	3.53E-02	3.53E-02	3.57E-02	3.58E-02	3.52E-02
870	3.43E-02	3.47E-02	3.49E-02	3.50E-02	3.54E-02	3.56E-02	3.50E-02
871	3.45E-02	3.46E-02	3.47E-02	3.48E-02	3.52E-02	3.53E-02	3.48E-02
872	3.40E-02	3.42E-02	3.44E-02	3.45E-02	3.48E-02	3.50E-02	3.47E-02
873	3.41E-02	3.43E-02	3.43E-02	3.45E-02	3.47E-02	3.48E-02	3.45E-02
874	3.47E-02	3.48E-02	3.52E-02	3.52E-02	3.53E-02	3.55E-02	3.51E-02
876	3.45E-02	3.45E-02	3.47E-02	3.49E-02	3.51E-02	3.51E-02	3.49E-02
877	3.42E-02	3.40E-02	3.41E-02	3.40E-02	3.41E-02	3.43E-02	3.42E-02
Biased Statistics							
Average Biased	3.45E-02	3.48E-02	3.50E-02	3.51E-02	3.55E-02	3.56E-02	3.51E-02
Std Dev Biased	1.95E-04	1.45E-04	1.44E-04	1.23E-04	1.79E-04	1.43E-04	1.64E-04
Ps90%/90% (+KTL) Biased	3.50E-02	3.52E-02	3.54E-02	3.55E-02	3.60E-02	3.60E-02	3.55E-02
Ps90%/90% (-KTL) Biased	3.40E-02	3.44E-02	3.46E-02	3.48E-02	3.51E-02	3.52E-02	3.46E-02
Un-Biased Statistics							
Average Un-Biased	3.44E-02	3.45E-02	3.47E-02	3.48E-02	3.50E-02	3.51E-02	3.48E-02
Std Dev Un-Biased	2.88E-04	2.35E-04	3.42E-04	2.64E-04	2.82E-04	2.35E-04	1.94E-04
Ps90%/90% (+KTL) Un-Biased	3.52E-02	3.51E-02	3.56E-02	3.55E-02	3.58E-02	3.58E-02	3.53E-02
Ps90%/90% (-KTL) Un-Biased	3.36E-02	3.38E-02	3.37E-02	3.40E-02	3.42E-02	3.45E-02	3.43E-02
Specification MAX	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01	1.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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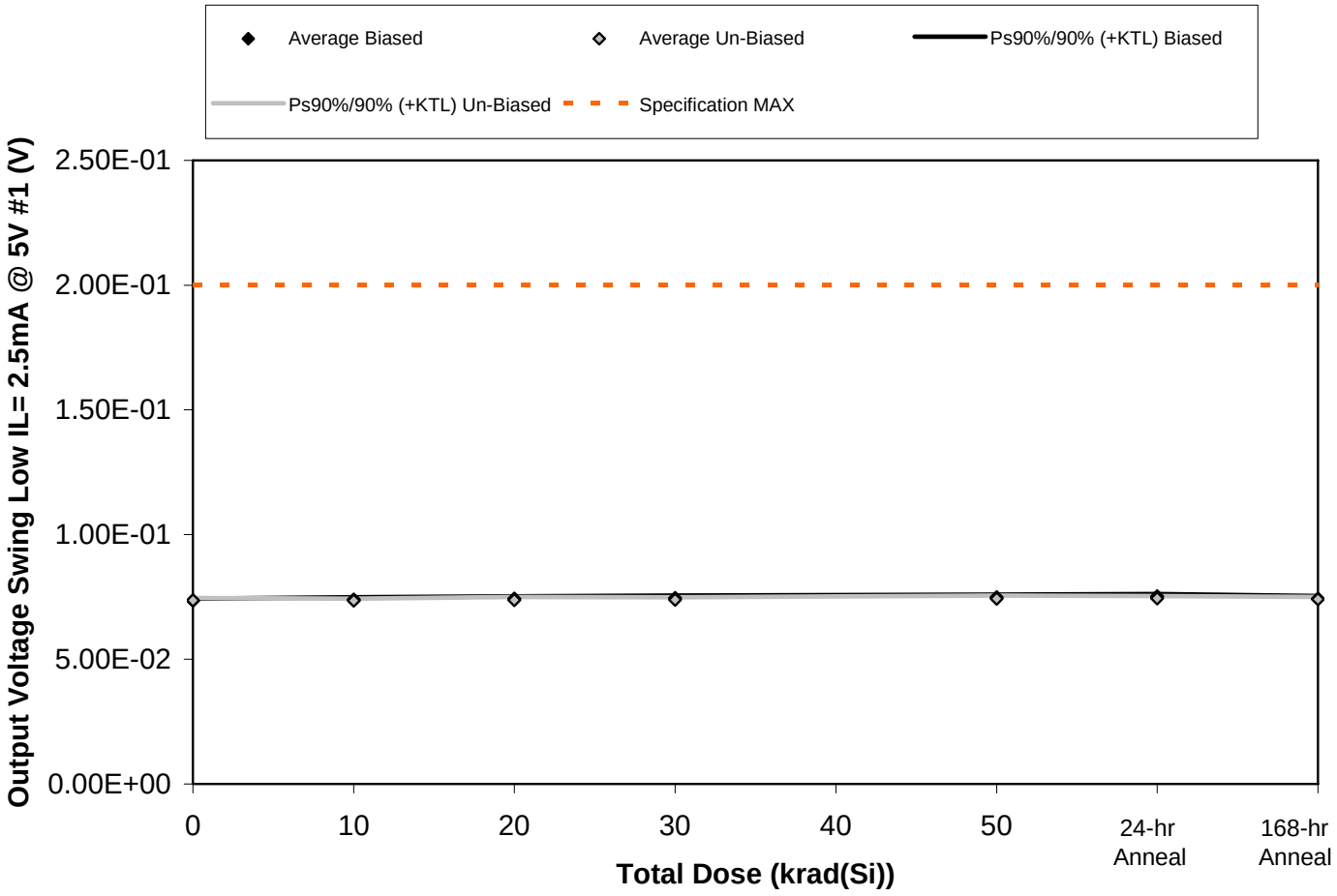

Figure 5.257. Plot of Output Voltage Swing Low IL= 2.5mA @ 5V #1 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.257. Raw data for Output Voltage Swing Low IL= 2.5mA @ 5V #1 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 2.5mA @ 5V #1 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.34E-02	7.39E-02	7.45E-02	7.46E-02	7.49E-02	7.50E-02	7.43E-02
867	7.40E-02	7.45E-02	7.46E-02	7.50E-02	7.52E-02	7.53E-02	7.46E-02
868	7.38E-02	7.41E-02	7.46E-02	7.45E-02	7.53E-02	7.58E-02	7.49E-02
869	7.33E-02	7.36E-02	7.42E-02	7.46E-02	7.48E-02	7.51E-02	7.41E-02
870	7.34E-02	7.36E-02	7.38E-02	7.40E-02	7.44E-02	7.51E-02	7.40E-02
871	7.34E-02	7.33E-02	7.35E-02	7.41E-02	7.42E-02	7.45E-02	7.42E-02
872	7.34E-02	7.32E-02	7.32E-02	7.35E-02	7.37E-02	7.38E-02	7.37E-02
873	7.33E-02	7.37E-02	7.37E-02	7.38E-02	7.43E-02	7.45E-02	7.40E-02
874	7.38E-02	7.36E-02	7.37E-02	7.36E-02	7.43E-02	7.43E-02	7.43E-02
876	7.41E-02	7.39E-02	7.44E-02	7.44E-02	7.50E-02	7.48E-02	7.46E-02
877	7.27E-02	7.26E-02	7.25E-02	7.27E-02	7.28E-02	7.26E-02	7.27E-02
Biased Statistics							
Average Biased	7.36E-02	7.40E-02	7.43E-02	7.45E-02	7.49E-02	7.52E-02	7.44E-02
Std Dev Biased	2.79E-04	3.61E-04	3.21E-04	3.82E-04	3.48E-04	3.43E-04	3.75E-04
Ps90%/90% (+KTL) Biased	7.43E-02	7.50E-02	7.52E-02	7.56E-02	7.59E-02	7.62E-02	7.54E-02
Ps90%/90% (-KTL) Biased	7.28E-02	7.30E-02	7.35E-02	7.35E-02	7.40E-02	7.43E-02	7.33E-02
Un-Biased Statistics							
Average Un-Biased	7.36E-02	7.35E-02	7.37E-02	7.39E-02	7.43E-02	7.44E-02	7.41E-02
Std Dev Un-Biased	3.60E-04	2.84E-04	4.59E-04	3.62E-04	4.56E-04	3.61E-04	3.15E-04
Ps90%/90% (+KTL) Un-Biased	7.46E-02	7.43E-02	7.50E-02	7.49E-02	7.55E-02	7.54E-02	7.50E-02
Ps90%/90% (-KTL) Un-Biased	7.26E-02	7.28E-02	7.24E-02	7.29E-02	7.30E-02	7.34E-02	7.33E-02
Specification MAX	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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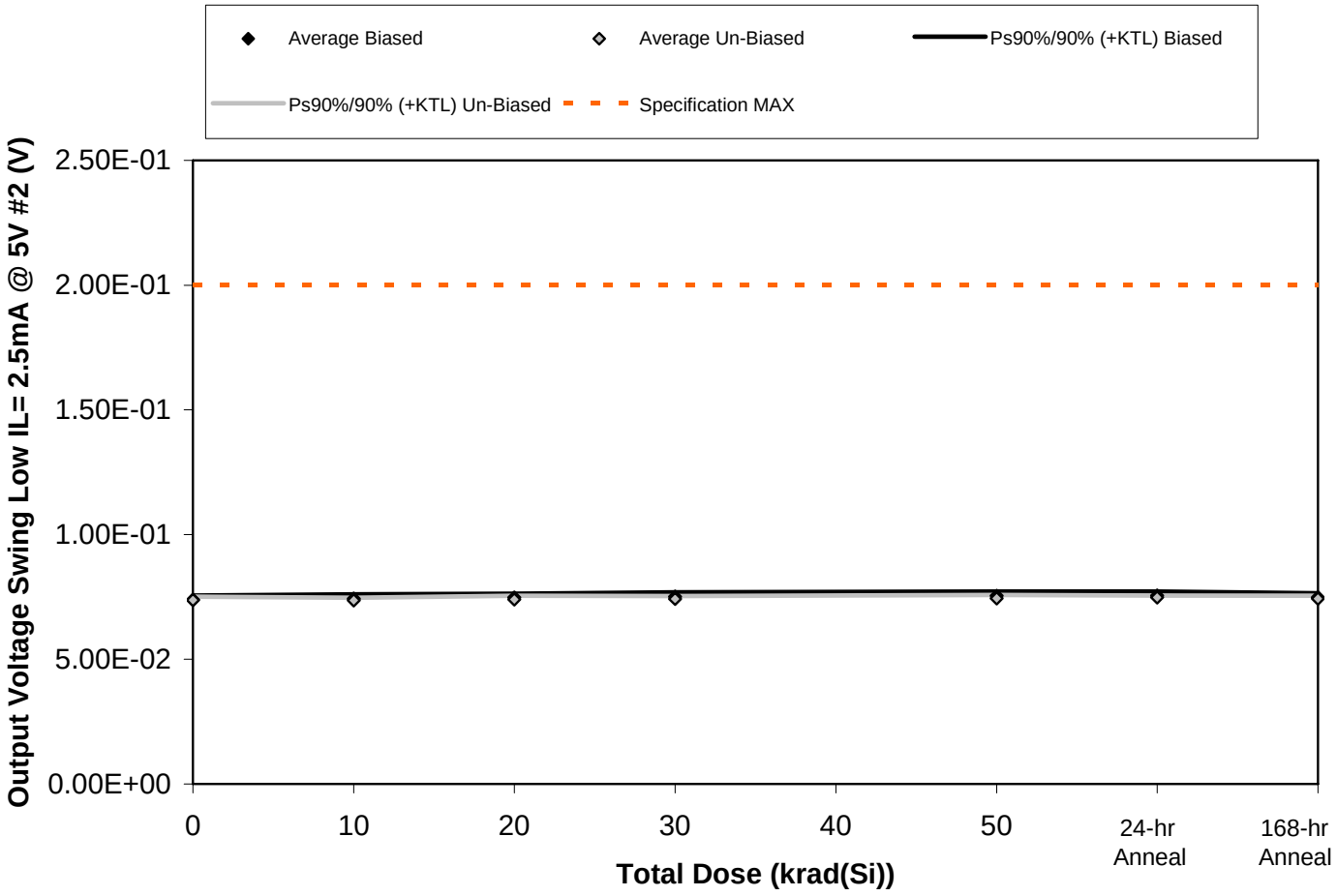

Figure 5.258. Plot of Output Voltage Swing Low IL= 2.5mA @ 5V #2 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.258. Raw data for Output Voltage Swing Low IL= 2.5mA @ 5V #2 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 2.5mA @ 5V #2 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.44E-02	7.48E-02	7.49E-02	7.56E-02	7.63E-02	7.60E-02	7.52E-02
867	7.40E-02	7.47E-02	7.52E-02	7.49E-02	7.54E-02	7.58E-02	7.50E-02
868	7.30E-02	7.33E-02	7.38E-02	7.41E-02	7.46E-02	7.46E-02	7.39E-02
869	7.44E-02	7.47E-02	7.53E-02	7.57E-02	7.58E-02	7.61E-02	7.54E-02
870	7.37E-02	7.41E-02	7.47E-02	7.51E-02	7.53E-02	7.54E-02	7.49E-02
871	7.43E-02	7.43E-02	7.46E-02	7.48E-02	7.49E-02	7.50E-02	7.49E-02
872	7.41E-02	7.37E-02	7.43E-02	7.44E-02	7.49E-02	7.49E-02	7.45E-02
873	7.30E-02	7.33E-02	7.33E-02	7.38E-02	7.37E-02	7.43E-02	7.37E-02
874	7.39E-02	7.36E-02	7.40E-02	7.41E-02	7.45E-02	7.50E-02	7.42E-02
876	7.37E-02	7.36E-02	7.36E-02	7.39E-02	7.42E-02	7.48E-02	7.41E-02
877	7.43E-02	7.37E-02	7.39E-02	7.41E-02	7.43E-02	7.40E-02	7.43E-02
Biased Statistics							
Average Biased	7.39E-02	7.43E-02	7.48E-02	7.51E-02	7.55E-02	7.56E-02	7.49E-02
Std Dev Biased	5.98E-04	6.41E-04	5.67E-04	6.27E-04	6.17E-04	6.07E-04	5.78E-04
Ps90%/90% (+KTL) Biased	7.55E-02	7.61E-02	7.63E-02	7.68E-02	7.72E-02	7.72E-02	7.65E-02
Ps90%/90% (-KTL) Biased	7.23E-02	7.26E-02	7.32E-02	7.34E-02	7.38E-02	7.39E-02	7.33E-02
Un-Biased Statistics							
Average Un-Biased	7.38E-02	7.37E-02	7.39E-02	7.42E-02	7.44E-02	7.48E-02	7.43E-02
Std Dev Un-Biased	5.01E-04	3.52E-04	5.44E-04	4.08E-04	4.99E-04	2.87E-04	4.39E-04
Ps90%/90% (+KTL) Un-Biased	7.52E-02	7.46E-02	7.54E-02	7.53E-02	7.58E-02	7.56E-02	7.55E-02
Ps90%/90% (-KTL) Un-Biased	7.24E-02	7.27E-02	7.24E-02	7.31E-02	7.31E-02	7.40E-02	7.31E-02
Specification MAX	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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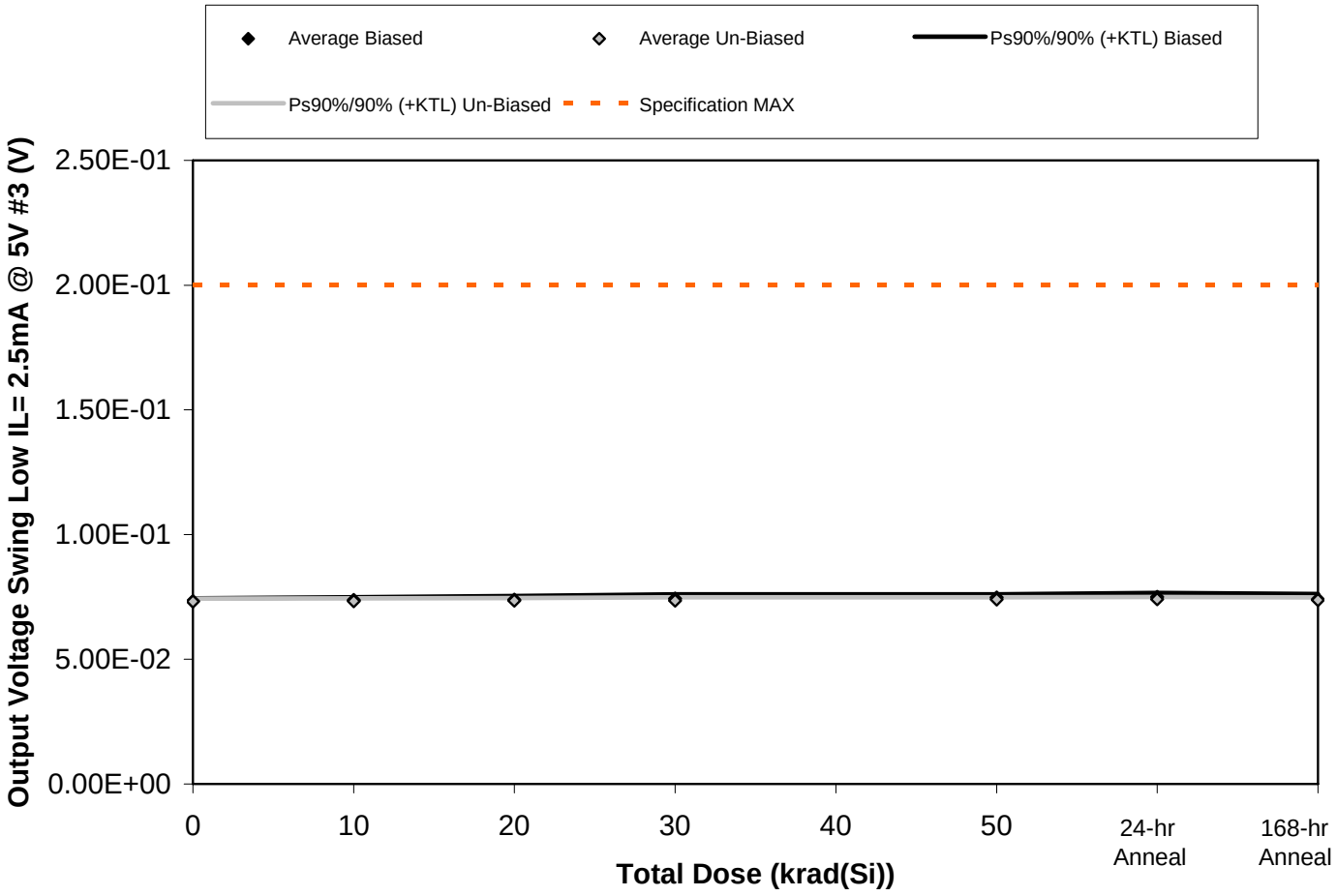

Figure 5.259. Plot of Output Voltage Swing Low IL= 2.5mA @ 5V #3 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.259. Raw data for Output Voltage Swing Low IL= 2.5mA @ 5V #3 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 2.5mA @ 5V #3 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.37E-02	7.41E-02	7.43E-02	7.48E-02	7.53E-02	7.56E-02	7.48E-02
867	7.33E-02	7.41E-02	7.40E-02	7.43E-02	7.50E-02	7.49E-02	7.43E-02
868	7.27E-02	7.30E-02	7.30E-02	7.33E-02	7.42E-02	7.41E-02	7.29E-02
869	7.36E-02	7.39E-02	7.43E-02	7.49E-02	7.50E-02	7.54E-02	7.47E-02
870	7.31E-02	7.35E-02	7.38E-02	7.42E-02	7.46E-02	7.51E-02	7.39E-02
871	7.36E-02	7.34E-02	7.39E-02	7.39E-02	7.42E-02	7.44E-02	7.44E-02
872	7.35E-02	7.34E-02	7.38E-02	7.37E-02	7.39E-02	7.43E-02	7.35E-02
873	7.27E-02	7.27E-02	7.29E-02	7.27E-02	7.34E-02	7.37E-02	7.34E-02
874	7.35E-02	7.38E-02	7.35E-02	7.39E-02	7.43E-02	7.44E-02	7.39E-02
876	7.28E-02	7.32E-02	7.33E-02	7.38E-02	7.39E-02	7.39E-02	7.34E-02
877	7.35E-02	7.33E-02	7.27E-02	7.29E-02	7.34E-02	7.32E-02	7.36E-02
Biased Statistics							
Average Biased	7.33E-02	7.37E-02	7.39E-02	7.43E-02	7.48E-02	7.50E-02	7.41E-02
Std Dev Biased	4.11E-04	4.48E-04	5.38E-04	6.50E-04	4.40E-04	5.99E-04	7.66E-04
Ps90%/90% (+KTL) Biased	7.44E-02	7.49E-02	7.53E-02	7.61E-02	7.60E-02	7.67E-02	7.62E-02
Ps90%/90% (-KTL) Biased	7.21E-02	7.25E-02	7.24E-02	7.25E-02	7.36E-02	7.34E-02	7.20E-02
Un-Biased Statistics							
Average Un-Biased	7.32E-02	7.33E-02	7.35E-02	7.36E-02	7.39E-02	7.41E-02	7.37E-02
Std Dev Un-Biased	4.15E-04	4.04E-04	3.98E-04	4.82E-04	3.40E-04	3.36E-04	4.01E-04
Ps90%/90% (+KTL) Un-Biased	7.44E-02	7.44E-02	7.46E-02	7.49E-02	7.49E-02	7.50E-02	7.48E-02
Ps90%/90% (-KTL) Un-Biased	7.21E-02	7.22E-02	7.24E-02	7.23E-02	7.30E-02	7.32E-02	7.26E-02
Specification MAX	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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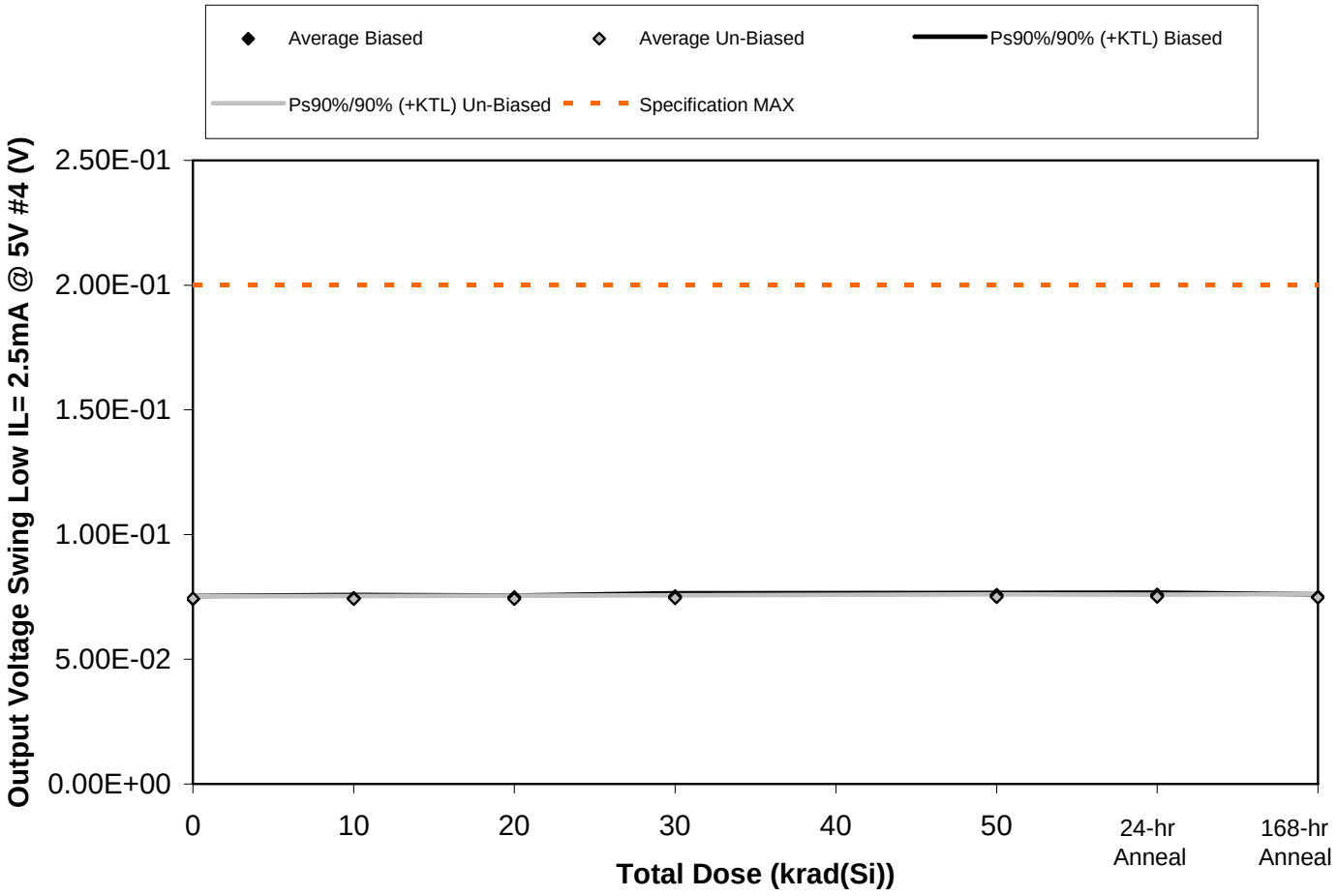

Figure 5.260. Plot of Output Voltage Swing Low IL= 2.5mA @ 5V #4 (V) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.260. Raw data for Output Voltage Swing Low IL= 2.5mA @ 5V #4 (V) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Output Voltage Swing Low IL= 2.5mA @ 5V #4 (V)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	7.39E-02	7.44E-02	7.50E-02	7.53E-02	7.58E-02	7.59E-02	7.51E-02
867	7.42E-02	7.47E-02	7.50E-02	7.54E-02	7.60E-02	7.61E-02	7.52E-02
868	7.47E-02	7.51E-02	7.52E-02	7.59E-02	7.61E-02	7.62E-02	7.53E-02
869	7.43E-02	7.46E-02	7.48E-02	7.51E-02	7.57E-02	7.59E-02	7.49E-02
870	7.37E-02	7.38E-02	7.45E-02	7.47E-02	7.53E-02	7.54E-02	7.43E-02
871	7.41E-02	7.43E-02	7.43E-02	7.43E-02	7.52E-02	7.51E-02	7.45E-02
872	7.40E-02	7.35E-02	7.36E-02	7.40E-02	7.44E-02	7.50E-02	7.40E-02
873	7.41E-02	7.43E-02	7.42E-02	7.44E-02	7.48E-02	7.48E-02	7.48E-02
874	7.43E-02	7.44E-02	7.47E-02	7.49E-02	7.53E-02	7.54E-02	7.51E-02
876	7.48E-02	7.46E-02	7.46E-02	7.51E-02	7.52E-02	7.55E-02	7.54E-02
877	7.35E-02	7.34E-02	7.31E-02	7.36E-02	7.35E-02	7.36E-02	7.41E-02
Biased Statistics							
Average Biased	7.42E-02	7.45E-02	7.49E-02	7.53E-02	7.58E-02	7.59E-02	7.50E-02
Std Dev Biased	4.13E-04	4.79E-04	2.63E-04	4.44E-04	2.98E-04	3.01E-04	3.86E-04
Ps90%/90% (+KTL) Biased	7.53E-02	7.58E-02	7.56E-02	7.65E-02	7.66E-02	7.67E-02	7.60E-02
Ps90%/90% (-KTL) Biased	7.30E-02	7.32E-02	7.42E-02	7.41E-02	7.49E-02	7.51E-02	7.39E-02
Un-Biased Statistics							
Average Un-Biased	7.43E-02	7.42E-02	7.42E-02	7.45E-02	7.50E-02	7.52E-02	7.47E-02
Std Dev Un-Biased	3.36E-04	4.19E-04	4.30E-04	4.36E-04	3.73E-04	2.84E-04	5.13E-04
Ps90%/90% (+KTL) Un-Biased	7.52E-02	7.53E-02	7.54E-02	7.57E-02	7.60E-02	7.59E-02	7.62E-02
Ps90%/90% (-KTL) Un-Biased	7.33E-02	7.30E-02	7.31E-02	7.33E-02	7.40E-02	7.44E-02	7.33E-02
Specification MAX	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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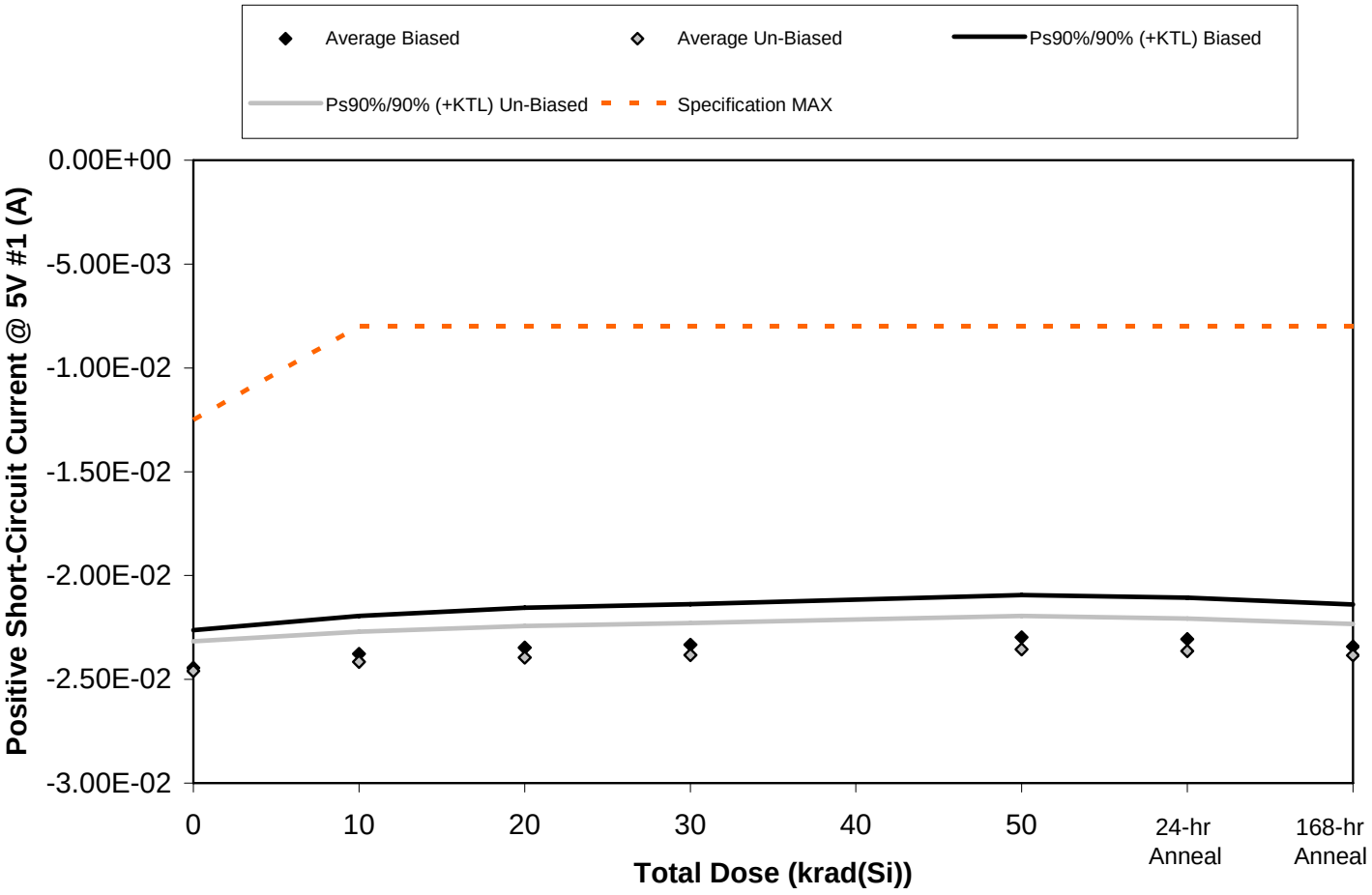

Figure 5.261. Plot of Positive Short-Circuit Current @ 5V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.261. Raw data for Positive Short-Circuit Current @ 5V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ 5V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.34E-02	-2.28E-02	-2.25E-02	-2.23E-02	-2.19E-02	-2.20E-02	-2.23E-02
867	-2.51E-02	-2.45E-02	-2.42E-02	-2.40E-02	-2.37E-02	-2.38E-02	-2.41E-02
868	-2.50E-02	-2.44E-02	-2.41E-02	-2.40E-02	-2.37E-02	-2.37E-02	-2.41E-02
869	-2.44E-02	-2.36E-02	-2.33E-02	-2.32E-02	-2.28E-02	-2.29E-02	-2.33E-02
870	-2.44E-02	-2.36E-02	-2.33E-02	-2.32E-02	-2.28E-02	-2.29E-02	-2.33E-02
871	-2.38E-02	-2.34E-02	-2.31E-02	-2.30E-02	-2.27E-02	-2.28E-02	-2.30E-02
872	-2.50E-02	-2.45E-02	-2.43E-02	-2.42E-02	-2.39E-02	-2.40E-02	-2.42E-02
873	-2.51E-02	-2.47E-02	-2.46E-02	-2.45E-02	-2.42E-02	-2.43E-02	-2.45E-02
874	-2.46E-02	-2.40E-02	-2.37E-02	-2.36E-02	-2.32E-02	-2.33E-02	-2.36E-02
876	-2.46E-02	-2.42E-02	-2.40E-02	-2.39E-02	-2.37E-02	-2.38E-02	-2.39E-02
877	-2.45E-02	-2.44E-02	-2.44E-02	-2.45E-02	-2.45E-02	-2.45E-02	-2.45E-02
Biased Statistics							
Average Biased	-2.44E-02	-2.38E-02	-2.35E-02	-2.33E-02	-2.30E-02	-2.31E-02	-2.34E-02
Std Dev Biased	6.61E-04	6.65E-04	7.01E-04	7.10E-04	7.42E-04	7.28E-04	7.32E-04
Ps90%/90% (+KTL) Biased	-2.26E-02	-2.20E-02	-2.16E-02	-2.14E-02	-2.09E-02	-2.11E-02	-2.14E-02
Ps90%/90% (-KTL) Biased	-2.63E-02	-2.56E-02	-2.54E-02	-2.53E-02	-2.50E-02	-2.51E-02	-2.54E-02
Un-Biased Statistics							
Average Un-Biased	-2.46E-02	-2.42E-02	-2.40E-02	-2.38E-02	-2.36E-02	-2.36E-02	-2.38E-02
Std Dev Un-Biased	5.21E-04	5.32E-04	5.56E-04	5.63E-04	5.83E-04	5.73E-04	5.51E-04
Ps90%/90% (+KTL) Un-Biased	-2.32E-02	-2.27E-02	-2.24E-02	-2.23E-02	-2.20E-02	-2.21E-02	-2.23E-02
Ps90%/90% (-KTL) Un-Biased	-2.60E-02	-2.56E-02	-2.55E-02	-2.54E-02	-2.51E-02	-2.52E-02	-2.54E-02
Specification MAX	-1.25E-02	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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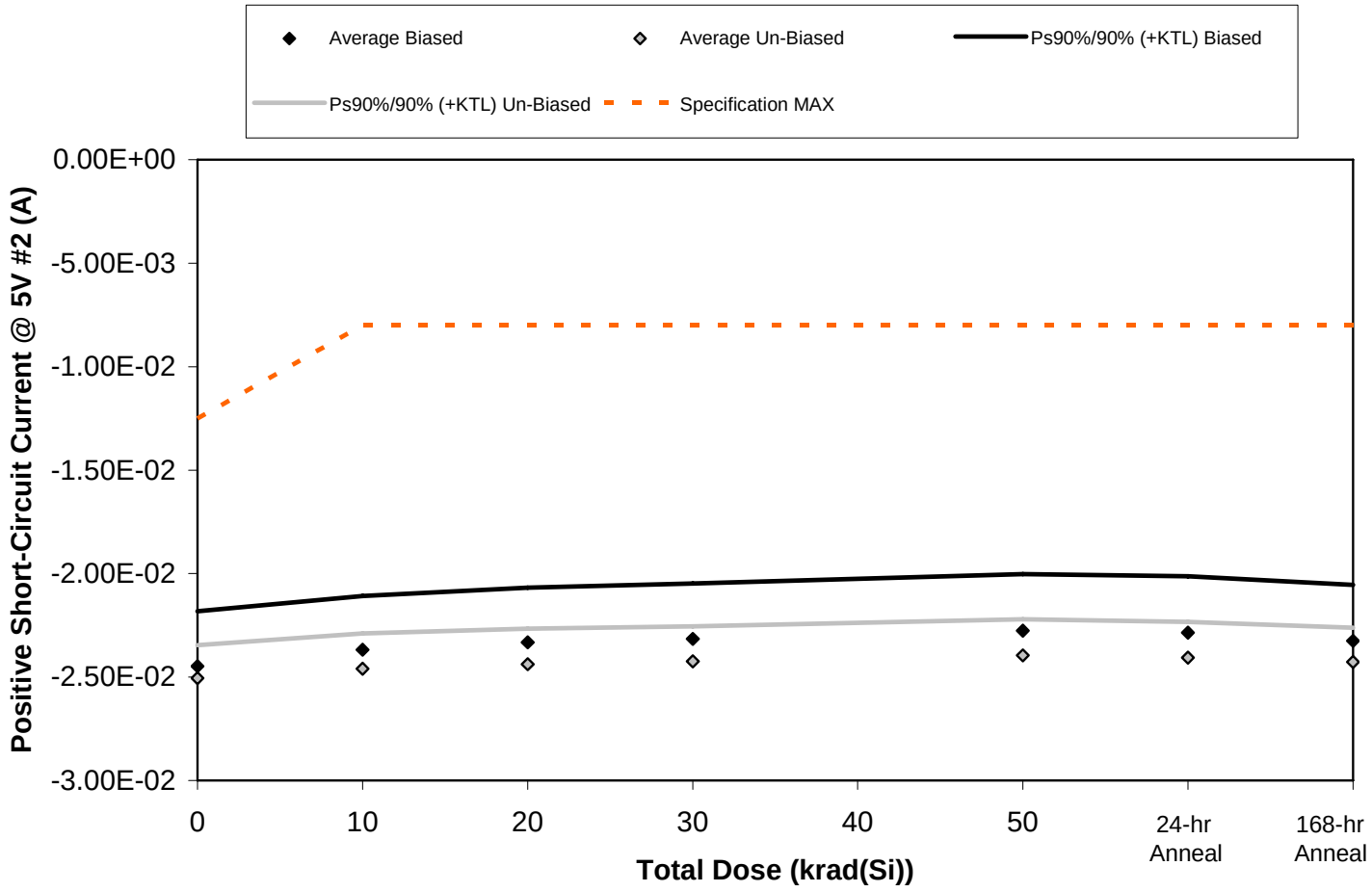

Figure 5.262. Plot of Positive Short-Circuit Current @ 5V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.262. Raw data for Positive Short-Circuit Current @ 5V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ 5V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.37E-02	-2.29E-02	-2.25E-02	-2.23E-02	-2.19E-02	-2.20E-02	-2.24E-02
867	-2.42E-02	-2.35E-02	-2.32E-02	-2.30E-02	-2.27E-02	-2.28E-02	-2.32E-02
868	-2.59E-02	-2.51E-02	-2.48E-02	-2.46E-02	-2.43E-02	-2.44E-02	-2.47E-02
869	-2.36E-02	-2.28E-02	-2.24E-02	-2.23E-02	-2.19E-02	-2.20E-02	-2.24E-02
870	-2.50E-02	-2.41E-02	-2.37E-02	-2.35E-02	-2.31E-02	-2.32E-02	-2.36E-02
871	-2.51E-02	-2.48E-02	-2.46E-02	-2.45E-02	-2.43E-02	-2.44E-02	-2.45E-02
872	-2.42E-02	-2.36E-02	-2.34E-02	-2.33E-02	-2.30E-02	-2.31E-02	-2.33E-02
873	-2.58E-02	-2.53E-02	-2.51E-02	-2.49E-02	-2.46E-02	-2.48E-02	-2.49E-02
874	-2.52E-02	-2.46E-02	-2.43E-02	-2.42E-02	-2.38E-02	-2.39E-02	-2.42E-02
876	-2.50E-02	-2.47E-02	-2.45E-02	-2.44E-02	-2.41E-02	-2.42E-02	-2.44E-02
877	-2.50E-02	-2.50E-02	-2.50E-02	-2.50E-02	-2.50E-02	-2.51E-02	-2.50E-02
Biased Statistics							
Average Biased	-2.45E-02	-2.37E-02	-2.33E-02	-2.32E-02	-2.28E-02	-2.28E-02	-2.33E-02
Std Dev Biased	9.64E-04	9.47E-04	9.63E-04	9.77E-04	9.99E-04	9.89E-04	9.89E-04
Ps90%/90% (+KTL) Biased	-2.18E-02	-2.11E-02	-2.07E-02	-2.05E-02	-2.00E-02	-2.01E-02	-2.05E-02
Ps90%/90% (-KTL) Biased	-2.71E-02	-2.63E-02	-2.60E-02	-2.58E-02	-2.55E-02	-2.56E-02	-2.60E-02
Un-Biased Statistics							
Average Un-Biased	-2.51E-02	-2.46E-02	-2.44E-02	-2.42E-02	-2.40E-02	-2.41E-02	-2.43E-02
Std Dev Un-Biased	5.82E-04	6.19E-04	6.24E-04	6.18E-04	6.34E-04	6.28E-04	6.00E-04
Ps90%/90% (+KTL) Un-Biased	-2.35E-02	-2.29E-02	-2.27E-02	-2.25E-02	-2.22E-02	-2.23E-02	-2.26E-02
Ps90%/90% (-KTL) Un-Biased	-2.66E-02	-2.63E-02	-2.61E-02	-2.59E-02	-2.57E-02	-2.58E-02	-2.59E-02
Specification MAX	-1.25E-02	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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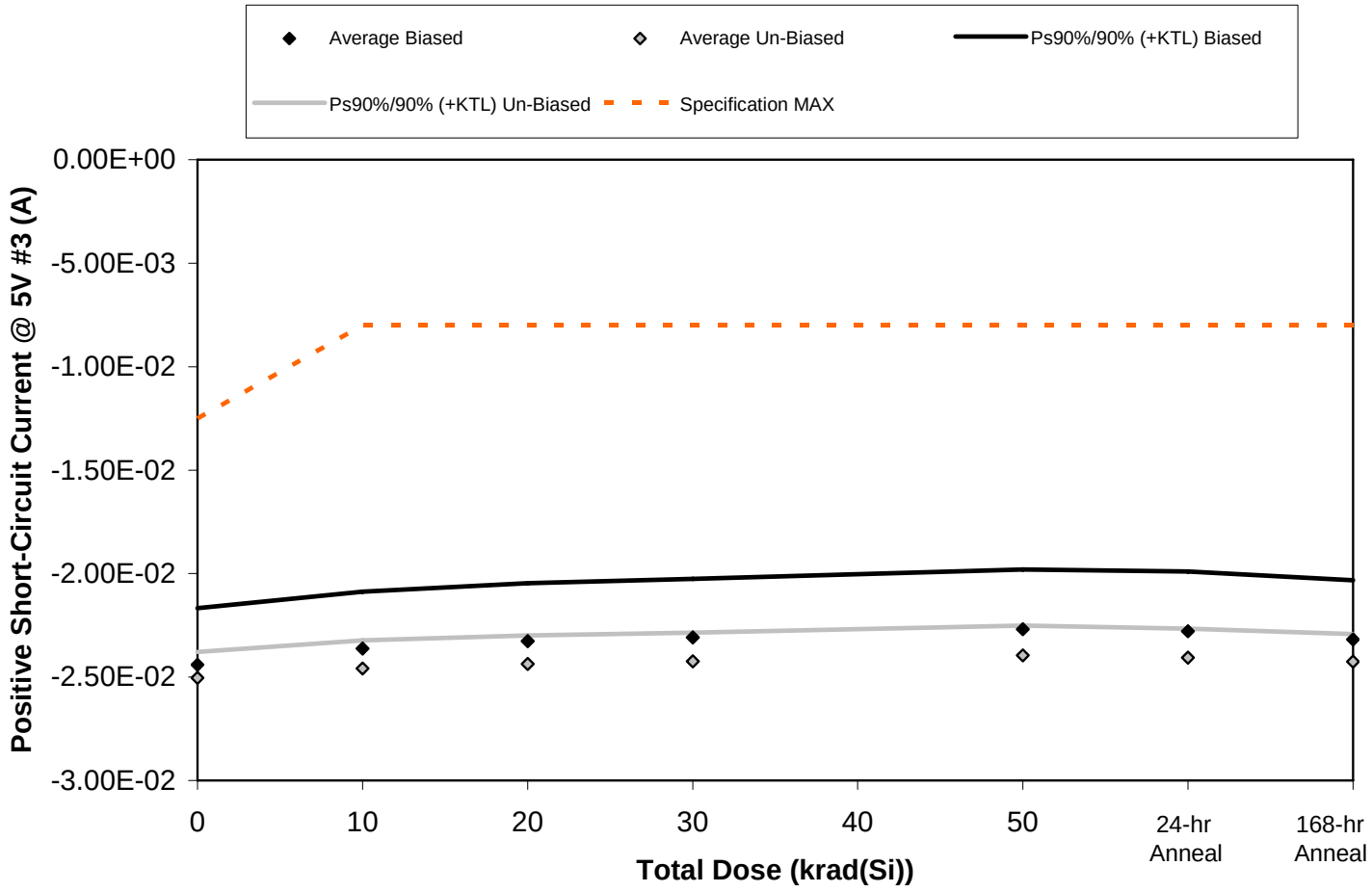

Figure 5.263. Plot of Positive Short-Circuit Current @ 5V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.263. Raw data for Positive Short-Circuit Current @ 5V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ 5V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.37E-02	-2.30E-02	-2.26E-02	-2.23E-02	-2.19E-02	-2.20E-02	-2.24E-02
867	-2.41E-02	-2.34E-02	-2.30E-02	-2.29E-02	-2.26E-02	-2.26E-02	-2.30E-02
868	-2.61E-02	-2.53E-02	-2.50E-02	-2.48E-02	-2.45E-02	-2.46E-02	-2.49E-02
869	-2.36E-02	-2.28E-02	-2.25E-02	-2.23E-02	-2.19E-02	-2.20E-02	-2.24E-02
870	-2.46E-02	-2.37E-02	-2.33E-02	-2.31E-02	-2.26E-02	-2.28E-02	-2.32E-02
871	-2.51E-02	-2.48E-02	-2.46E-02	-2.45E-02	-2.43E-02	-2.44E-02	-2.45E-02
872	-2.45E-02	-2.40E-02	-2.37E-02	-2.36E-02	-2.33E-02	-2.34E-02	-2.36E-02
873	-2.58E-02	-2.53E-02	-2.50E-02	-2.49E-02	-2.46E-02	-2.47E-02	-2.49E-02
874	-2.49E-02	-2.43E-02	-2.41E-02	-2.39E-02	-2.36E-02	-2.37E-02	-2.39E-02
876	-2.50E-02	-2.46E-02	-2.44E-02	-2.43E-02	-2.40E-02	-2.41E-02	-2.43E-02
877	-2.50E-02	-2.49E-02	-2.49E-02	-2.50E-02	-2.50E-02	-2.50E-02	-2.50E-02
Biased Statistics							
Average Biased	-2.44E-02	-2.36E-02	-2.33E-02	-2.31E-02	-2.27E-02	-2.28E-02	-2.32E-02
Std Dev Biased	9.97E-04	1.00E-03	1.02E-03	1.04E-03	1.05E-03	1.05E-03	1.04E-03
Ps90%/90% (+KTL) Biased	-2.17E-02	-2.09E-02	-2.05E-02	-2.03E-02	-1.98E-02	-1.99E-02	-2.03E-02
Ps90%/90% (-KTL) Biased	-2.71E-02	-2.64E-02	-2.61E-02	-2.59E-02	-2.56E-02	-2.57E-02	-2.60E-02
Un-Biased Statistics							
Average Un-Biased	-2.50E-02	-2.46E-02	-2.44E-02	-2.42E-02	-2.39E-02	-2.41E-02	-2.43E-02
Std Dev Un-Biased	4.58E-04	4.95E-04	5.05E-04	5.06E-04	5.22E-04	5.10E-04	4.86E-04
Ps90%/90% (+KTL) Un-Biased	-2.38E-02	-2.32E-02	-2.30E-02	-2.29E-02	-2.25E-02	-2.27E-02	-2.29E-02
Ps90%/90% (-KTL) Un-Biased	-2.63E-02	-2.59E-02	-2.58E-02	-2.56E-02	-2.54E-02	-2.55E-02	-2.56E-02
Specification MAX	-1.25E-02	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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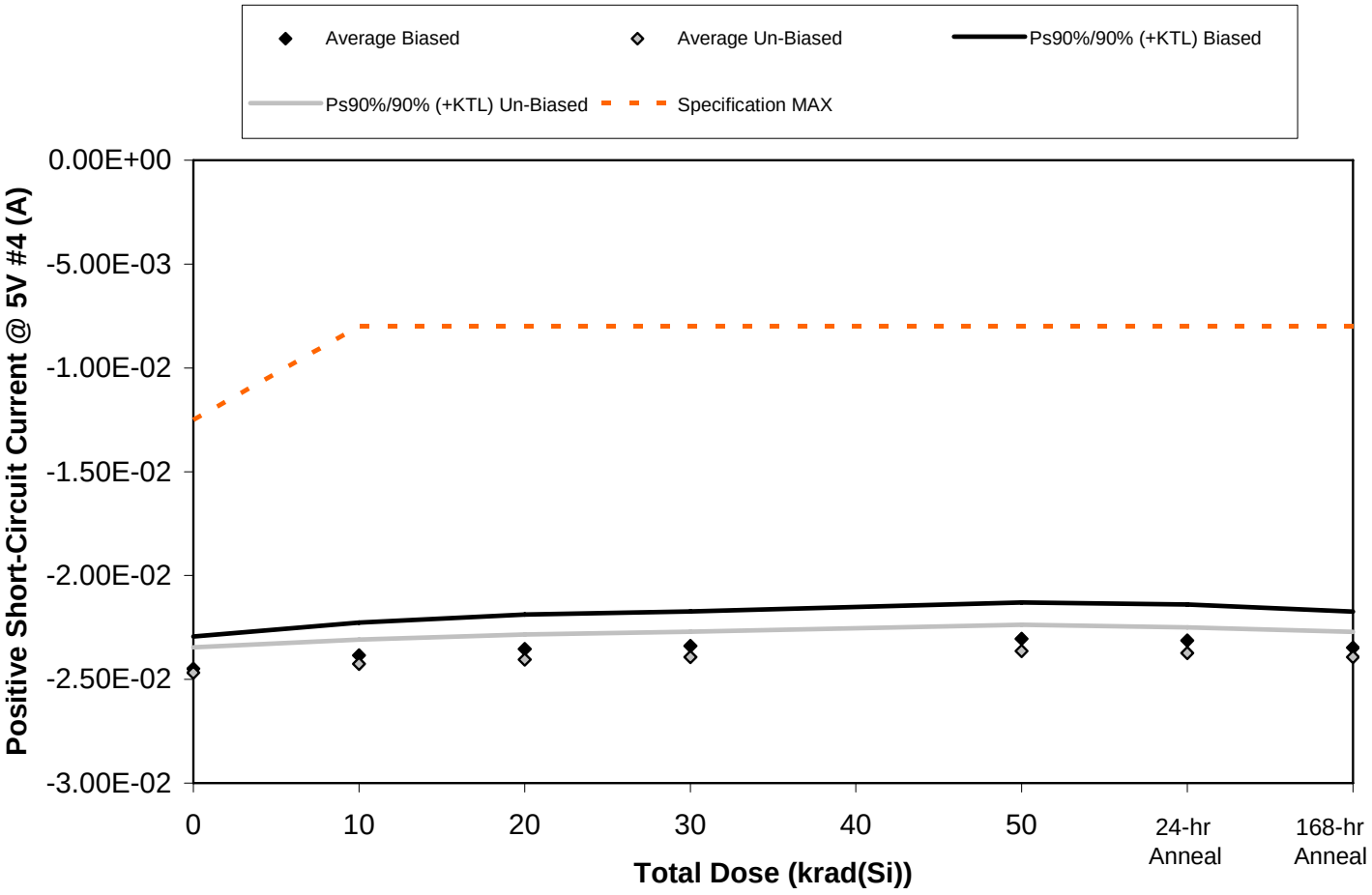

Figure 5.264. Plot of Positive Short-Circuit Current @ 5V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.264. Raw data for Positive Short-Circuit Current @ 5V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Positive Short-Circuit Current @ 5V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	-2.38E-02	-2.32E-02	-2.28E-02	-2.26E-02	-2.23E-02	-2.24E-02	-2.27E-02
867	-2.53E-02	-2.47E-02	-2.44E-02	-2.42E-02	-2.39E-02	-2.40E-02	-2.43E-02
868	-2.47E-02	-2.41E-02	-2.39E-02	-2.37E-02	-2.34E-02	-2.35E-02	-2.38E-02
869	-2.45E-02	-2.38E-02	-2.35E-02	-2.34E-02	-2.30E-02	-2.31E-02	-2.35E-02
870	-2.42E-02	-2.35E-02	-2.32E-02	-2.30E-02	-2.27E-02	-2.27E-02	-2.31E-02
871	-2.39E-02	-2.36E-02	-2.33E-02	-2.32E-02	-2.29E-02	-2.30E-02	-2.32E-02
872	-2.51E-02	-2.46E-02	-2.44E-02	-2.43E-02	-2.40E-02	-2.41E-02	-2.43E-02
873	-2.49E-02	-2.46E-02	-2.44E-02	-2.43E-02	-2.41E-02	-2.42E-02	-2.43E-02
874	-2.49E-02	-2.43E-02	-2.40E-02	-2.38E-02	-2.35E-02	-2.36E-02	-2.38E-02
876	-2.46E-02	-2.43E-02	-2.41E-02	-2.40E-02	-2.37E-02	-2.38E-02	-2.40E-02
877	-2.45E-02	-2.44E-02	-2.44E-02	-2.45E-02	-2.45E-02	-2.45E-02	-2.45E-02
Biased Statistics							
Average Biased	-2.45E-02	-2.38E-02	-2.35E-02	-2.34E-02	-2.30E-02	-2.31E-02	-2.35E-02
Std Dev Biased	5.70E-04	5.77E-04	6.08E-04	6.11E-04	6.38E-04	6.31E-04	6.30E-04
Ps90%/90% (+KTL) Biased	-2.29E-02	-2.23E-02	-2.19E-02	-2.17E-02	-2.13E-02	-2.14E-02	-2.17E-02
Ps90%/90% (-KTL) Biased	-2.61E-02	-2.54E-02	-2.52E-02	-2.51E-02	-2.48E-02	-2.49E-02	-2.52E-02
Un-Biased Statistics							
Average Un-Biased	-2.47E-02	-2.43E-02	-2.41E-02	-2.39E-02	-2.36E-02	-2.37E-02	-2.39E-02
Std Dev Un-Biased	4.45E-04	4.25E-04	4.39E-04	4.44E-04	4.60E-04	4.51E-04	4.43E-04
Ps90%/90% (+KTL) Un-Biased	-2.35E-02	-2.31E-02	-2.28E-02	-2.27E-02	-2.24E-02	-2.25E-02	-2.27E-02
Ps90%/90% (-KTL) Un-Biased	-2.59E-02	-2.54E-02	-2.53E-02	-2.51E-02	-2.49E-02	-2.50E-02	-2.51E-02
Specification MAX	-1.25E-02	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03	-8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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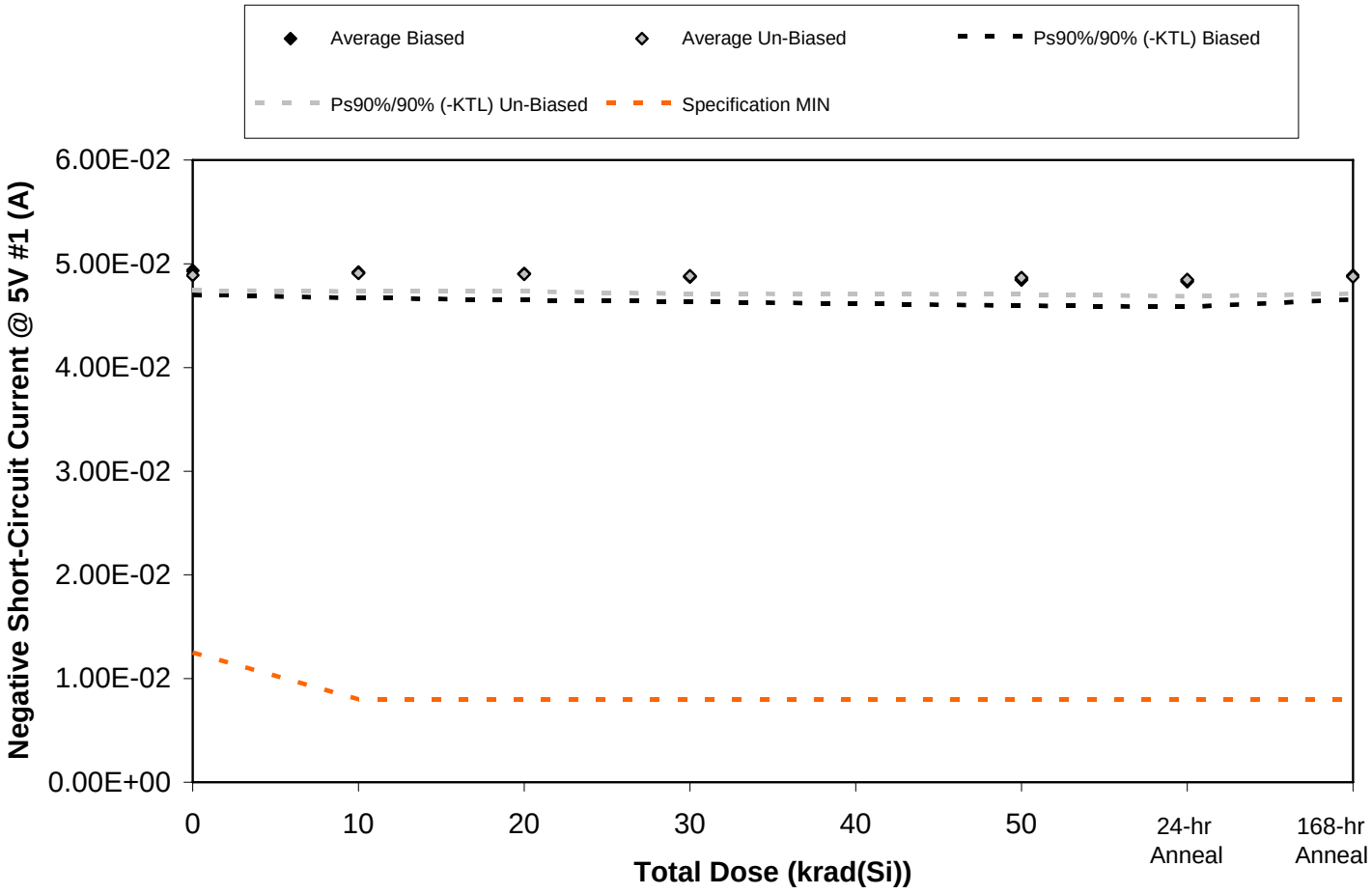

Figure 5.265. Plot of Negative Short-Circuit Current @ 5V #1 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.265. Raw data for Negative Short-Circuit Current @ 5V #1 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ 5V #1 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.79E-02	4.77E-02	4.75E-02	4.73E-02	4.69E-02	4.68E-02	4.75E-02
867	4.95E-02	4.93E-02	4.92E-02	4.89E-02	4.87E-02	4.84E-02	4.91E-02
868	4.94E-02	4.93E-02	4.92E-02	4.88E-02	4.86E-02	4.84E-02	4.90E-02
869	5.03E-02	5.01E-02	5.00E-02	4.96E-02	4.94E-02	4.92E-02	4.98E-02
870	4.95E-02	4.94E-02	4.93E-02	4.89E-02	4.87E-02	4.86E-02	4.90E-02
871	4.82E-02	4.82E-02	4.82E-02	4.80E-02	4.78E-02	4.77E-02	4.80E-02
872	4.94E-02	4.97E-02	4.95E-02	4.94E-02	4.92E-02	4.90E-02	4.93E-02
873	4.89E-02	4.90E-02	4.89E-02	4.88E-02	4.86E-02	4.84E-02	4.87E-02
874	4.94E-02	4.98E-02	4.97E-02	4.94E-02	4.93E-02	4.90E-02	4.94E-02
876	4.86E-02	4.88E-02	4.87E-02	4.86E-02	4.85E-02	4.82E-02	4.85E-02
877	4.84E-02	4.87E-02	4.87E-02	4.85E-02	4.84E-02	4.83E-02	4.84E-02
Biased Statistics							
Average Biased	4.93E-02	4.92E-02	4.90E-02	4.87E-02	4.85E-02	4.83E-02	4.89E-02
Std Dev Biased	8.45E-04	8.97E-04	9.18E-04	8.72E-04	9.11E-04	8.84E-04	8.47E-04
Ps90%/90% (+KTL) Biased	5.16E-02	5.16E-02	5.16E-02	5.11E-02	5.10E-02	5.07E-02	5.12E-02
Ps90%/90% (-KTL) Biased	4.70E-02	4.67E-02	4.65E-02	4.63E-02	4.60E-02	4.59E-02	4.66E-02
Un-Biased Statistics							
Average Un-Biased	4.89E-02	4.91E-02	4.90E-02	4.88E-02	4.87E-02	4.85E-02	4.88E-02
Std Dev Un-Biased	5.34E-04	6.46E-04	6.09E-04	6.21E-04	5.91E-04	5.81E-04	6.03E-04
Ps90%/90% (+KTL) Un-Biased	5.04E-02	5.09E-02	5.07E-02	5.05E-02	5.03E-02	5.01E-02	5.04E-02
Ps90%/90% (-KTL) Un-Biased	4.74E-02	4.73E-02	4.73E-02	4.71E-02	4.70E-02	4.69E-02	4.71E-02
Specification MIN	1.25E-02	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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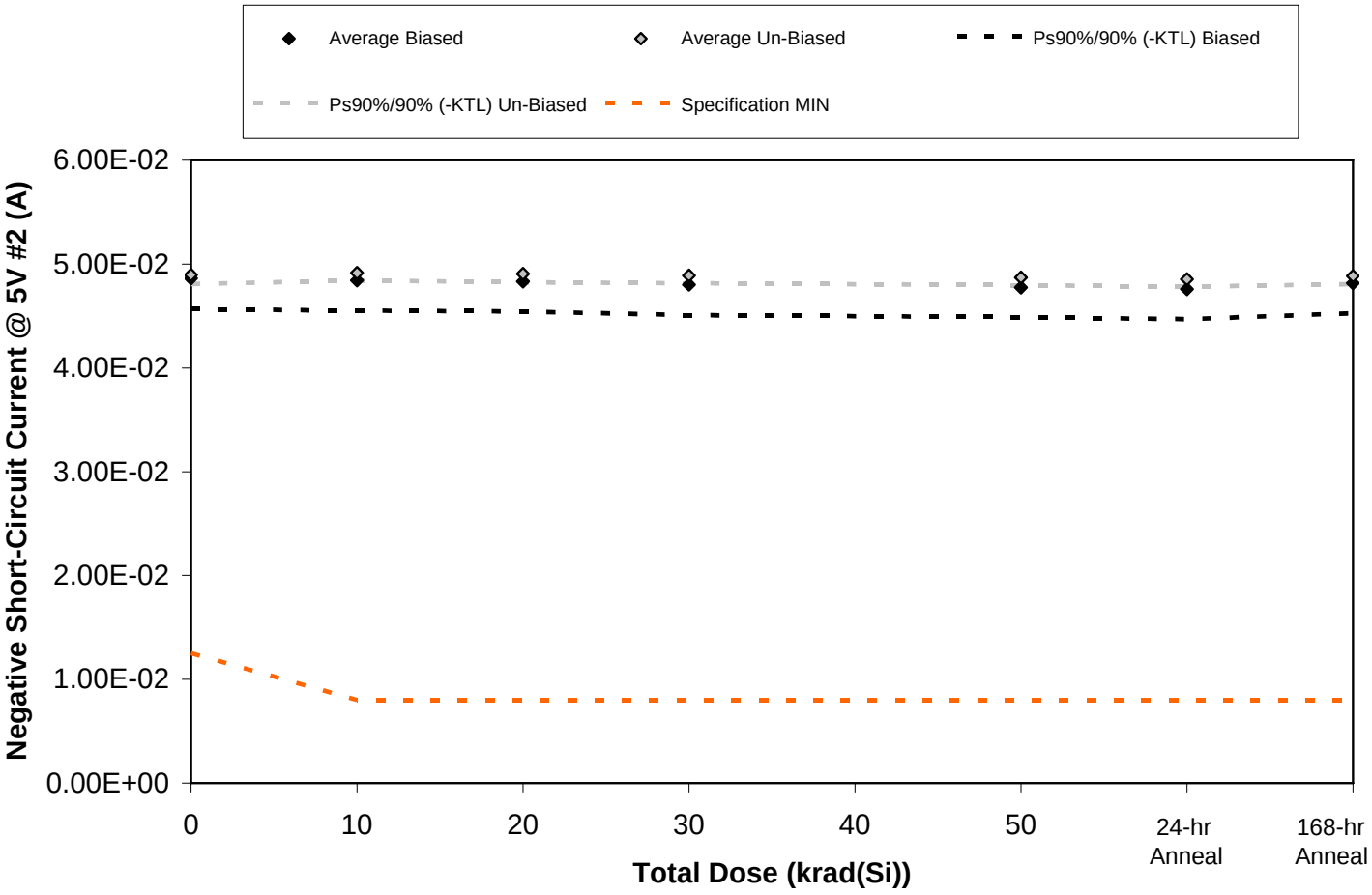

Figure 5.266. Plot of Negative Short-Circuit Current @ 5V #2 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.266. Raw data for Negative Short-Circuit Current @ 5V #2 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ 5V #2 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.84E-02	4.81E-02	4.80E-02	4.77E-02	4.74E-02	4.72E-02	4.80E-02
867	4.79E-02	4.77E-02	4.76E-02	4.74E-02	4.71E-02	4.69E-02	4.75E-02
868	5.05E-02	5.03E-02	5.01E-02	4.99E-02	4.95E-02	4.94E-02	5.00E-02
869	4.78E-02	4.77E-02	4.76E-02	4.73E-02	4.70E-02	4.69E-02	4.74E-02
870	4.84E-02	4.83E-02	4.82E-02	4.78E-02	4.77E-02	4.75E-02	4.80E-02
871	4.94E-02	4.95E-02	4.95E-02	4.93E-02	4.92E-02	4.89E-02	4.93E-02
872	4.88E-02	4.91E-02	4.89E-02	4.88E-02	4.86E-02	4.84E-02	4.87E-02
873	4.90E-02	4.92E-02	4.91E-02	4.89E-02	4.87E-02	4.86E-02	4.89E-02
874	4.89E-02	4.92E-02	4.91E-02	4.89E-02	4.87E-02	4.86E-02	4.88E-02
876	4.86E-02	4.88E-02	4.87E-02	4.86E-02	4.84E-02	4.82E-02	4.85E-02
877	4.89E-02	4.92E-02	4.93E-02	4.90E-02	4.90E-02	4.89E-02	4.91E-02
Biased Statistics							
Average Biased	4.86E-02	4.84E-02	4.83E-02	4.80E-02	4.77E-02	4.76E-02	4.82E-02
Std Dev Biased	1.08E-03	1.06E-03	1.05E-03	1.07E-03	1.04E-03	1.06E-03	1.06E-03
Ps90%/90% (+KTL) Biased	5.16E-02	5.13E-02	5.12E-02	5.09E-02	5.06E-02	5.05E-02	5.11E-02
Ps90%/90% (-KTL) Biased	4.57E-02	4.55E-02	4.54E-02	4.51E-02	4.49E-02	4.47E-02	4.53E-02
Un-Biased Statistics							
Average Un-Biased	4.89E-02	4.91E-02	4.91E-02	4.89E-02	4.87E-02	4.85E-02	4.88E-02
Std Dev Un-Biased	3.15E-04	2.63E-04	3.02E-04	2.66E-04	2.77E-04	2.63E-04	2.81E-04
Ps90%/90% (+KTL) Un-Biased	4.98E-02	4.99E-02	4.99E-02	4.96E-02	4.95E-02	4.93E-02	4.96E-02
Ps90%/90% (-KTL) Un-Biased	4.81E-02	4.84E-02	4.82E-02	4.82E-02	4.79E-02	4.78E-02	4.81E-02
Specification MIN	1.25E-02	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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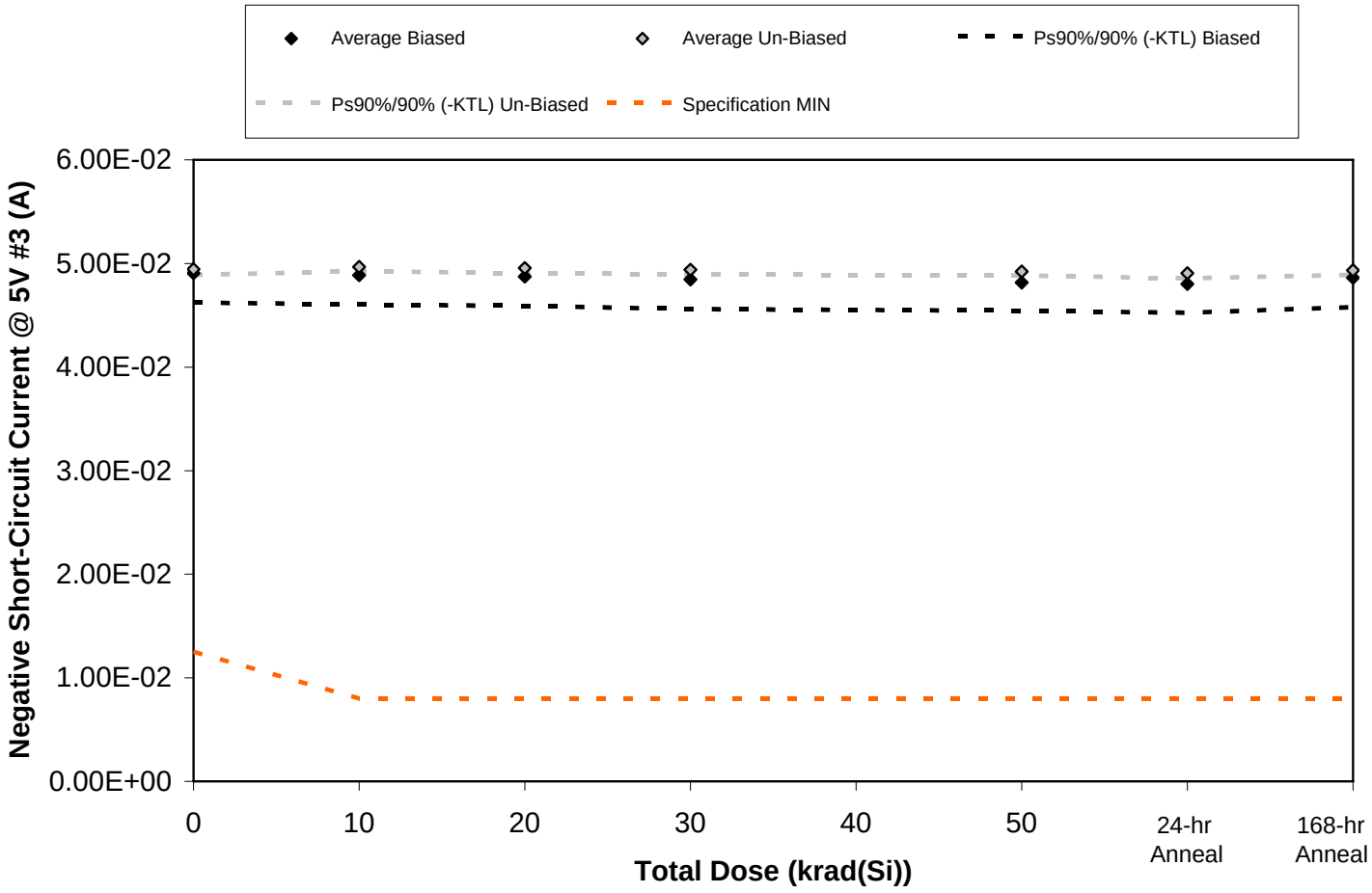

Figure 5.267. Plot of Negative Short-Circuit Current @ 5V #3 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.267. Raw data for Negative Short-Circuit Current @ 5V #3 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ 5V #3 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.90E-02	4.87E-02	4.85E-02	4.82E-02	4.78E-02	4.77E-02	4.84E-02
867	4.83E-02	4.81E-02	4.80E-02	4.77E-02	4.75E-02	4.73E-02	4.78E-02
868	5.09E-02	5.07E-02	5.05E-02	5.03E-02	4.99E-02	4.98E-02	5.04E-02
869	4.83E-02	4.82E-02	4.81E-02	4.78E-02	4.76E-02	4.74E-02	4.80E-02
870	4.89E-02	4.88E-02	4.87E-02	4.83E-02	4.81E-02	4.80E-02	4.84E-02
871	4.97E-02	4.98E-02	4.98E-02	4.96E-02	4.94E-02	4.93E-02	4.95E-02
872	4.95E-02	4.98E-02	4.97E-02	4.94E-02	4.93E-02	4.91E-02	4.94E-02
873	4.95E-02	4.97E-02	4.96E-02	4.94E-02	4.92E-02	4.90E-02	4.93E-02
874	4.94E-02	4.97E-02	4.95E-02	4.94E-02	4.92E-02	4.90E-02	4.94E-02
876	4.92E-02	4.94E-02	4.93E-02	4.92E-02	4.91E-02	4.88E-02	4.91E-02
877	4.95E-02	4.98E-02	4.98E-02	4.96E-02	4.96E-02	4.95E-02	4.97E-02
Biased Statistics							
Average Biased	4.91E-02	4.89E-02	4.87E-02	4.85E-02	4.82E-02	4.80E-02	4.86E-02
Std Dev Biased	1.04E-03	1.03E-03	1.03E-03	1.04E-03	9.97E-04	1.01E-03	1.03E-03
Ps90%/90% (+KTL) Biased	5.19E-02	5.17E-02	5.16E-02	5.13E-02	5.09E-02	5.08E-02	5.14E-02
Ps90%/90% (-KTL) Biased	4.62E-02	4.60E-02	4.59E-02	4.56E-02	4.54E-02	4.52E-02	4.58E-02
Un-Biased Statistics							
Average Un-Biased	4.95E-02	4.97E-02	4.96E-02	4.94E-02	4.92E-02	4.91E-02	4.93E-02
Std Dev Un-Biased	1.99E-04	1.49E-04	1.79E-04	1.67E-04	1.36E-04	1.79E-04	1.63E-04
Ps90%/90% (+KTL) Un-Biased	5.00E-02	5.01E-02	5.01E-02	4.99E-02	4.96E-02	4.96E-02	4.98E-02
Ps90%/90% (-KTL) Un-Biased	4.89E-02	4.92E-02	4.91E-02	4.89E-02	4.88E-02	4.86E-02	4.89E-02
Specification MIN	1.25E-02	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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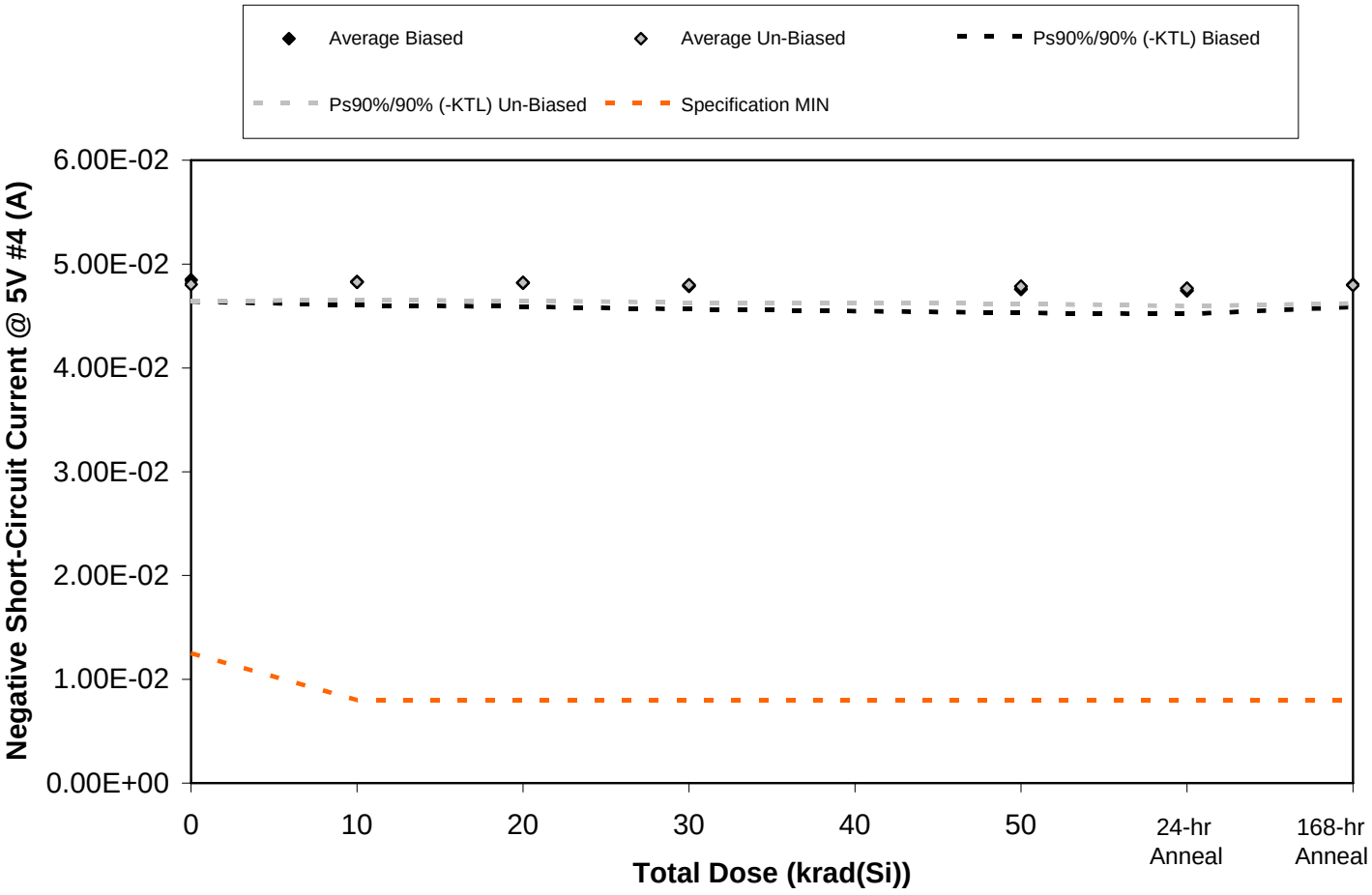

Figure 5.268. Plot of Negative Short-Circuit Current @ 5V #4 (A) versus total dose. The data show no significant change with radiation. The solid diamonds are the average of the measured data points for the sample irradiated under electrical bias while the shaded diamonds are the average of the measured data points for the units irradiated with all pins tied to ground. The black lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the sample irradiated under electrical bias while the gray lines (solid and/or dashed) are the average of the data points after application of the KTL statistics on the samples irradiated in the unbiased condition. The red dotted line(s) are the pre- and/or post-irradiation minimum and/or maximum specification value as defined in the datasheet and/or test plan.

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Table 5.268. Raw data for Negative Short-Circuit Current @ 5V #4 (A) versus total dose, including the statistical analysis, specification and the status of the testing (pass/fail).

Negative Short-Circuit Current @ 5V #4 (A)	Total Dose (krad(Si))					24 hr Anneal	168 hr Anneal
Device	0	10	20	30	50		
866	4.72E-02	4.69E-02	4.67E-02	4.65E-02	4.61E-02	4.60E-02	4.67E-02
867	4.87E-02	4.86E-02	4.84E-02	4.82E-02	4.78E-02	4.77E-02	4.83E-02
868	4.87E-02	4.86E-02	4.84E-02	4.81E-02	4.78E-02	4.77E-02	4.83E-02
869	4.92E-02	4.90E-02	4.89E-02	4.86E-02	4.83E-02	4.81E-02	4.87E-02
870	4.86E-02	4.84E-02	4.84E-02	4.81E-02	4.78E-02	4.77E-02	4.82E-02
871	4.74E-02	4.75E-02	4.74E-02	4.72E-02	4.70E-02	4.69E-02	4.72E-02
872	4.86E-02	4.89E-02	4.88E-02	4.86E-02	4.84E-02	4.82E-02	4.86E-02
873	4.81E-02	4.82E-02	4.82E-02	4.79E-02	4.78E-02	4.76E-02	4.80E-02
874	4.87E-02	4.89E-02	4.88E-02	4.87E-02	4.85E-02	4.83E-02	4.87E-02
876	4.76E-02	4.78E-02	4.77E-02	4.76E-02	4.75E-02	4.72E-02	4.75E-02
877	4.76E-02	4.78E-02	4.78E-02	4.77E-02	4.77E-02	4.76E-02	4.77E-02
Biased Statistics							
Average Biased	4.85E-02	4.83E-02	4.82E-02	4.79E-02	4.76E-02	4.74E-02	4.80E-02
Std Dev Biased	7.51E-04	8.24E-04	8.33E-04	8.10E-04	8.38E-04	8.21E-04	7.86E-04
Ps90%/90% (+KTL) Biased	5.05E-02	5.05E-02	5.05E-02	5.01E-02	4.99E-02	4.97E-02	5.02E-02
Ps90%/90% (-KTL) Biased	4.64E-02	4.60E-02	4.59E-02	4.57E-02	4.53E-02	4.52E-02	4.59E-02
Un-Biased Statistics							
Average Un-Biased	4.81E-02	4.83E-02	4.82E-02	4.80E-02	4.79E-02	4.77E-02	4.80E-02
Std Dev Un-Biased	5.72E-04	6.41E-04	6.32E-04	6.23E-04	6.15E-04	6.19E-04	6.48E-04
Ps90%/90% (+KTL) Un-Biased	4.96E-02	5.00E-02	4.99E-02	4.97E-02	4.95E-02	4.94E-02	4.97E-02
Ps90%/90% (-KTL) Un-Biased	4.65E-02	4.65E-02	4.65E-02	4.63E-02	4.62E-02	4.60E-02	4.62E-02
Specification MIN	1.25E-02	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03	8.00E-03
Status	PASS	PASS	PASS	PASS	PASS	PASS	PASS

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6.0. Summary / Conclusions

The low dose rate total ionizing dose testing described in this final report was performed using the facilities at Radiation Assured Devices' Longmire Laboratories in Colorado Springs, CO. For the low dose rate ELDRS testing described in this report, the devices were placed approximately 2-meters from the Co-60 rods to achieve the required 10mrad(Si)/s dose rate. Samples of the RH1499MW quad operational amplifier described in this report were irradiated biased with a split 15V supply and unbiased (all leads tied to ground). The devices were irradiated to a maximum total ionizing dose level of 50krad(Si) with a pre-rad baseline reading as well as incremental readings at 10, 20, and 30krad(Si). Electrical testing occurred within one hour following the end of each irradiation segment. For intermediate irradiations, the units were tested and returned to total dose exposure within two hours from the end of the previous radiation increment. In addition, all units-under-test received a 24hr room temperature and168hr 100°C anneal, using the same bias conditions as the radiation exposure.

The parametric data was obtained as "read and record" and all the raw data plus an attributes summary were presented in this report. The attributes data contains the average, standard deviation and the average with the KTL values applied. The KTL value used was 2.742 per MIL HDBK 814 using one-sided tolerance limits of 90/90 and a 5-piece sample size. Note that the following criteria was used to determine the outcome of the testing: following the radiation exposure each parameter had to pass the specification value and the average value for the ten-piece sample must pass the specification value when the KTL limits are applied. If these conditions were not both satisfied following the radiation exposure, then the lot would be logged as an RLAT failure.

Using the conditions stated above, the RH1499MW devices passed the ELDRS test to 30krad(Si) but failed at 50krad(Si) due to degradation of the output voltage swing and short circuit current for the single-sided 3V supply condition and power supply rejection ratio at the single-sided 2.2V to 12V supply range. Most measured parameters showed no significant degradation with radiation and all parameters passed to 50krad(Si) when tested using the 15V split supply condition.

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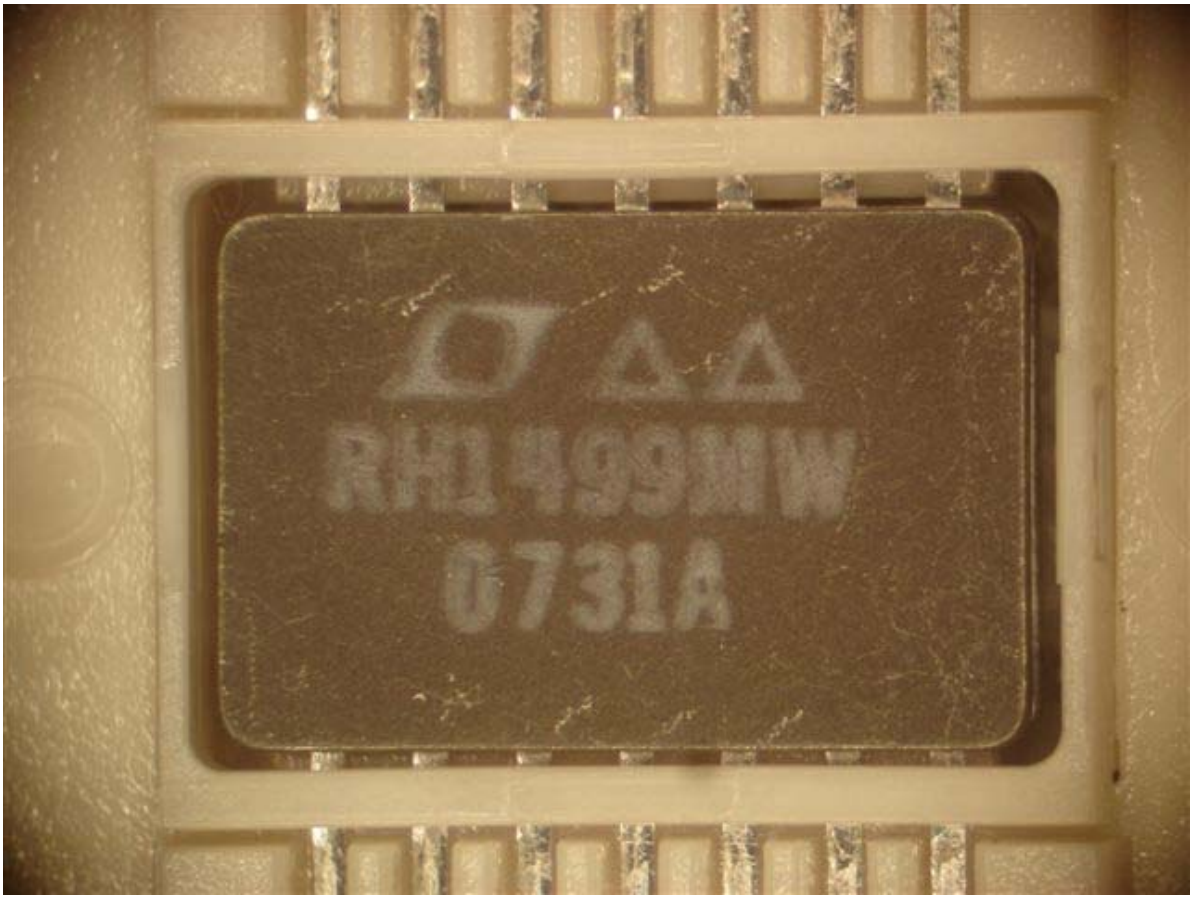
Appendix A: Photograph of device-under-test to show part markings



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Appendix B: TID Bias Connections

Biased Samples:

Pin	Function	Connection / Bias
1	OUT A	To Pin 2 via 5kΩ & 40pF, in Parallel
2	-INPUT A	To Pin 1 via 5kΩ & 40pF, in Parallel
3	+INPUT A	To 8V via 5kΩ Resistor
4	V+	To +15V using 0.1µF Decoupling
5	+INPUT B	To 8V via 5kΩ Resistor
6	-INPUT B	To Pin 7 via 5kΩ & 40pF, in Parallel
7	OUT B	To Pin 6 via 5kΩ & 40pF, in Parallel
8	OUT C	To Pin 9 via 5kΩ & 40pF, in Parallel
9	-INPUT C	To Pin 8 via 5kΩ & 40pF, in Parallel
10	+INPUT C	To 8V via 5kΩ Resistor
11	V-	To -15V using 0.1µF Decoupling
12	+INPUT D	To 8V via 10kΩ Resistor
13	-INPUT D	To Pin 14 via 5kΩ & 40pF, in Parallel
14	OUT D	To Pin 13 via 5kΩ & 40pF, in Parallel

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Unbiased Samples:

Pin	Function	Connection / Bias
1	OUT A	GND
2	-INPUT A	GND
3	+INPUT A	GND
4	V+	GND
5	+INPUT B	GND
6	-INPUT B	GND
7	OUT B	GND
8	OUT C	GND
9	-INPUT C	GND
10	+INPUT C	GND
11	V-	GND
12	+INPUT D	GND
13	-INPUT D	GND
14	OUT D	GND

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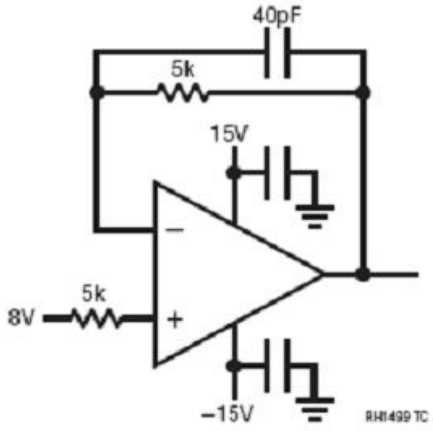

Figure B.1. Irradiation bias drawing for the units to be irradiated under electrical bias. This figure was extracted from LINEAR TECHNOLOGY CORPORATION, RH1499M Datasheet.

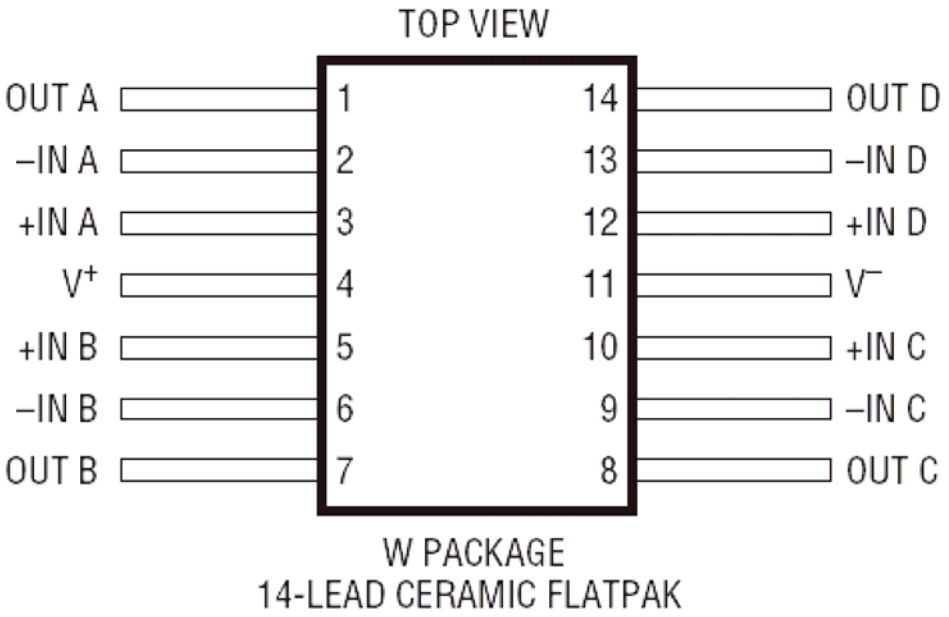

Figure B.2. W package drawing (for reference only). This figure was extracted from LINEAR TECHNOLOGY CORPORATION, RH1499M Datasheet.

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Appendix C: Electrical Test Parameters and Conditions

All electrical tests for this device are performed on one of Radiation Assured Device's LTS2020 Test Systems. The LTS2020 Test System is a programmable parametric tester that provides parameter measurements for a variety of digital, analog and mixed signal products including voltage regulators, voltage comparators, D to A and A to D converters. The LTS2020 Test System achieves accuracy and sensitivity through the use of software self-calibration and an internal relay matrix with separate family boards and custom personality adapter boards. The tester uses this relay matrix to connect the required test circuits, select the appropriate voltage / current sources and establish the needed measurement loops for all the tests performed. The tests will be conducted using the LTS-2101 Linear Family Board, LTS-0600 Socket Assembly and the RH1499 BGS-061114 DUT board. The measured parameters and test conditions are shown in Tables C.1 (V_S=±15V), C.2 (V_S=3V), and C.3 (V_S=5V).

A listing of the measurement precision/resolution for each parameter is shown in Tables C.4 (V_S=±15V), C.5 (V_S=3V), and C.6 (V_S=5V). The precision/resolution values were obtained either from test data or from the DAC resolution of the LTS-2020. To generate the precision/resolution shown in Table C.4 through C.6, one of the units-under-test was tested repetitively (a total of 10-times with re-insertion between tests) to obtain the average test value and standard deviation. Using this test data MIL-HDBK-814 90/90 KTL statistics were applied to the measured standard deviation to generate the final measurement range. This value encompasses the precision/resolution of all aspects of the test system, including the LTS2020 mainframe, family board, socket assembly and DUT board as well as insertion error. In some cases, the measurement resolution is limited by the internal DACs, which results in a measured standard deviation of zero. In these instances the precision/resolution will be reported back as the LSB of the DAC.

Note that the testing and statistics used in this document are based on an "analysis of variables" technique, which relies on small sample sizes to qualify much larger lot sizes (see MIL-HDBK-814, p. 91 for a discussion of statistical treatments). Not all measured parameters are well suited to this approach due to inherent large variations. One such parameter is pre-irradiation Open Loop Gain, where the device exhibits extreme sensitivity to input conditions, resulting in a very large standard deviation. If necessary, larger samples sizes could be used to qualify these parameters using an "attributes" approach.

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Table C.1. Measured parameters and test conditions for V_S=±15V.

TEST DESCRIPTION	TEST CONDITIONS
Positive Supply Current	V+=15V and V-=-15V
Negative Supply Current	V+=15V and V-=-15V
Input Offset Voltage (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=0V
Input Offset Current (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=0V
+ Input Bias Current (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=0V
- Input Bias Current (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=0V
Input Offset Voltage (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=15V
Input Offset Current (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=15V
+ Input Bias Current (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=15V
- Input Bias Current (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=15V
Input Offset Voltage (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=-15V
Input Offset Current (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=-15V
+ Input Bias Current (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=-15V
- Input Bias Current (Op Amp 1-4)	V+=15V, V-=-15V and V_{CM}=-15V
Large Signal Voltage Gain (Op Amp 1-4)	R_L = 10kΩ, V_O = ±14.5V
Large Signal Voltage Gain (Op Amp 1-4)	R_L = 2kΩ, V_O = ±10V
CMRR (Op Amp 1-4)	V_S=±15V, V_{CM}=±15V
CMRR Matching 1-4	V_S=±15V, V_{CM}=±15V
CMRR Matching 2-3	V_S=±15V, V_{CM}=±15V
PSRR (Op Amp 1-4)	V_S=±2V to V_S=±16V
PSRR Matching 1-4	V_S=±2V to V_S=±16V
PSRR Matching 2-3	V_S=±2V to V_S=±16V
Output Voltage Swing High (Op Amp 1-4)	V_S=±15V, No Load
Output Voltage Swing High (Op Amp 1-4)	V_S=±15V, I_{SOURCE}=1mA
Output Voltage Swing High (Op Amp 1-4)	V_S=±15V, I_{SOURCE} =10mA
Output Voltage Swing Low (Op Amp 1-4)	V_S=±15V, No Load
Output Voltage Swing Low (Op Amp 1-4)	V_S=±15V, I_{SINK}=1mA
Output Voltage Swing Low (Op Amp 1-4)	V_S=±15V, I_{SINK}=10mA
+V_S Short-Circuit Current (Op Amp 1-4)	V_S=±15V
-V_S Short-Circuit Current (Op Amp 1-4)	V_S=±15V

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Table C.2. Measured parameters and test conditions for V_S=3V.

TEST DESCRIPTION	TEST CONDITIONS
Positive Supply Current	V+=3V and V-=0V
Negative Supply Current	V+=3V and V-=0V
Input Offset Voltage (Op Amp 1-4)	V+=3V, V-=0V and V_{CM}=0V
Input Offset Current (Op Amp 1-4)	V+=3V, V-=0V and V_{CM}=0V
+ Input Bias Current (Op Amp 1-4)	V+=3V, V-=0V and V_{CM}=0V
- Input Bias Current (Op Amp 1-4)	V+=3V, V-=0V and V_{CM}=0V
Input Offset Voltage (Op Amp 1-4)	V+=3V, V-=0V and V_{CM}=3V
Input Offset Current (Op Amp 1-4)	V+=3V, V-=0V and V_{CM}=3V
+ Input Bias Current (Op Amp 1-4)	V+=3V, V-=0V and V_{CM}=3V
- Input Bias Current (Op Amp 1-4)	V+=3V, V-=0V and V_{CM}=3V
Large Signal Voltage Gain (Op Amp 1-4)	R_L = 10kΩ, V_O=75mV to 2.8V
CMRR (Op Amp 1-4)	V_S=3V, V_{CM}=0-3V
CMRR Matching 1-4	V_S=3V, V_{CM}=0-3V
CMRR Matching 2-3	V_S=3V, V_{CM}=0-3V
Output Voltage Swing High (Op Amp 1-4)	V_S=3V, No Load
Output Voltage Swing High (Op Amp 1-4)	V_S=3V, I_{SOURCE}=1mA
Output Voltage Swing High (Op Amp 1-4)	V_S=3V, I_{SOURCE}=2.5mA
Output Voltage Swing Low (Op Amp 1-4)	V_S=3V, No Load
Output Voltage Swing Low (Op Amp 1-4)	V_S=3V, I_{SINK}=1mA
Output Voltage Swing Low (Op Amp 1-4)	V_S=3V, I_{SINK}=2.5mA
+V_S Short-Circuit Current (Op Amp 1-4)	V_S=3V
-V_S Short-Circuit Current (Op Amp 1-4)	V_S=3V

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Table C.3. Measured parameters and test conditions for V_S=5V.

TEST DESCRIPTION	TEST CONDITIONS
Positive Supply Current	V+=5V and V-=0V
Negative Supply Current	V+=5V and V-=0V
Input Offset Voltage (Op Amp 1-4)	V+=5V, V-=0V and V_{CM}=0V
Input Offset Current (Op Amp 1-4)	V+=5V, V-=0V and V_{CM}=0V
+ Input Bias Current (Op Amp 1-4)	V+=5V, V-=0V and V_{CM}=0V
- Input Bias Current (Op Amp 1-4)	V+=5V, V-=0V and V_{CM}=0V
Input Offset Voltage (Op Amp 1-4)	V+=5V, V-=0V and V_{CM}=5V
Input Offset Current (Op Amp 1-4)	V+=5V, V-=0V and V_{CM}=5V
+ Input Bias Current (Op Amp 1-4)	V+=5V, V-=0V and V_{CM}=5V
- Input Bias Current (Op Amp 1-4)	V+=5V, V-=0V and V_{CM}=5V
Large Signal Voltage Gain (Op Amp 1-4)	R_L = 10kΩ, V_O=75mV to 4.8V
CMRR (Op Amp 1-4)	V_S=5V, V_{CM}=0-5V
CMRR Matching 1-4	V_S=5V, V_{CM}=0-5V
CMRR Matching 2-3	V_S=5V, V_{CM}=0-5V
PSRR (Op Amp 1-4)	V_S=2.2V to V_S=12V
PSRR Matching 1-4	V_S=2.2V to V_S=12V
PSRR Matching 2-3	V_S=2.2V to V_S=12V
Output Voltage Swing High (Op Amp 1-4)	V_S=5V, No Load
Output Voltage Swing High (Op Amp 1-4)	V_S=5V, I_{SOURCE}=1mA
Output Voltage Swing High (Op Amp 1-4)	V_S=5V, I_{SOURCE}=2.5mA
Output Voltage Swing Low (Op Amp 1-4)	V_S=5V, No Load
Output Voltage Swing Low (Op Amp 1-4)	V_S=5V, I_{SINK}=1mA
Output Voltage Swing Low (Op Amp 1-4)	V_S=5V, I_{SINK}=2.5mA
+V_S Short-Circuit Current (Op Amp 1-4)	V_S=5V
-V_S Short-Circuit Current (Op Amp 1-4)	V_S=5V

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Table C.4. Measured parameters, pre-irradiation specifications and measurement resolutions for V_S=±15V.

Measured Parameter	Pre-Irradiation Specification	Measurement Resolution/Precision
Positive Supply Current	10mA	± 1.08E-04A
Negative Supply Current	-10mA	± 1.05E-04A
Input Offset Voltage	±800µV	± 1.91E-05V
Input Offset Current	±70nA	± 8.92E-10A
+ Input Bias Current	±715nA	± 6.20E-09A
- Input Bias Current	±715nA	± 5.65E-09A
Large Signal Voltage Gain (10kΩ Load)	1000V/mV	± 7.10E+02V/mV
Large Signal Voltage Gain (2kΩ Load)	500V/mV	± 1.10E+02V/mV
Common Mode Rejection Ratio	90dB	± 3.84E+00dB
Common Mode Rejection Ratio Matching	84dB	± 1.83E-01dB
Power Supply Rejection Ratio	90dB	± 4.11E-01dB
Power Supply Rejection Ratio Matching	83dB	± 2.53E-00dB
Output Voltage Swing High (No Load)	10mV	± 1.82E-04V
Output Voltage Swing High (I_{SOURCE}=1mA)	150mV	± 6.24E-04V
Output Voltage Swing High (I_{SOURCE}=10mA)	800mV	± 3.00E-03V
Output Voltage Swing Low (No Load)	30mV	± 3.72E-04V
Output Voltage Swing Low (I_{SINK}=1mA)	100mV	± 4.74E-04V
Output Voltage Swing Low (I_{SINK}=10mA)	500mV	± 1.85E-03V
+V_S Short Circuit Current	±15mA	± 5.70E-04A
-V_S Short Circuit Current	±15mA	± 8.17E-04A

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Table C.5. Measured parameters, pre-irradiation specifications and measurement resolutions for V_S=3V.

Measured Parameter	Pre-Irradiation Specification	Measurement Resolution/Precision
Positive Supply Current	8.8mA	± 1.39E-05A
Negative Supply Current	-8.8mA	± 2.13E-05A
Input Offset Voltage	±800µV	± 4.53E-06V
Input Offset Current	±65nA	± 6.63E-10A
+ Input Bias Current	±650nA	± 4.87E-09A
- Input Bias Current	±650nA	± 5.59E-09A
Large Signal Voltage Gain (10kΩ Load)	500V/mV	± 2.16E+02V/mV
Common Mode Rejection Ratio	72dB	± 3.65E-01dB
Common Mode Rejection Ratio Matching	70dB	± 8.62E-02dB
Output Voltage Swing High (No Load)	10mV	± 1.59E-04V
Output Voltage Swing High (I_{SOURCE}=1mA)	150mV	± 1.95E-04V
Output Voltage Swing High (I_{SOURCE}=2.5mA)	250mV	± 4.07E-04V
Output Voltage Swing Low (No Load)	30mV	± 2.04E-04V
Output Voltage Swing Low (I_{SINK}=1mA)	100mV	± 1.91E-04V
Output Voltage Swing Low (I_{SINK}=2.5mA)	200mV	± 3.99E-04V
+V_S Short Circuit Current	±12mA	± 1.81E-05A
-V_S Short Circuit Current	±12mA	± 7.36E-05A

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Table C.6. Measured parameters, pre-irradiation specifications and measurement resolutions for V_S=5V.

Measured Parameter	Pre-Irradiation Specification	Measurement Resolution/Precision
Positive Supply Current	8.8mA	± 3.51E-05A
Negative Supply Current	-8.8mA	± 3.54E-05A
Input Offset Voltage	±800µV	± 7.82E-06V
Input Offset Current	±65nA	± 5.95E-10A
+ Input Bias Current	±650nA	± 6.87E-09A
- Input Bias Current	±650nA	± 7.29E-09A
Large Signal Voltage Gain (10kΩ Load)	600V/mV	± 7.14E+02V/mV
Common Mode Rejection Ratio	76dB	± 1.04E-00dB
Common Mode Rejection Ratio Matching	75dB	± 1.62E-01dB
Power Supply Rejection Ratio	88dB	± 4.84E-00dB
Power Supply Rejection Ratio Matching	82dB	± 1.76E-00dB
Output Voltage Swing High (No Load)	10mV	± 1.76E-04V
Output Voltage Swing High (I_{SOURCE}=1mA)	150mV	± 3.07E-04V
Output Voltage Swing High (I_{SOURCE}=2.5mA)	250mV	± 4.42E-04V
Output Voltage Swing Low (No Load)	30mV	± 1.75E-04V
Output Voltage Swing Low (I_{SINK}=1mA)	100mV	± 1.84E-04V
Output Voltage Swing Low (I_{SINK}=2.5mA)	200mV	± 4.18E-04V
+V_S Short Circuit Current	±12.5mA	± 4.44E-05A
-V_S Short Circuit Current	±12.5mA	±1.40E-04A

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Appendix D: List of Figures used in Section 5 (ELDRS Test Results)

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5.40 Input Offset Current @ +/- 15V, VCM= -15 V #2 (A)
5.41 Input Offset Current @ +/- 15V, VCM= -15 V #3 (A)
5.42 Input Offset Current @ +/- 15V, VCM= -15 V #4 (A)
5.43 Positive Input Bias Current @ +/- 15V, VCM= -15 V #1 (A)
5.44 Positive Input Bias Current @ +/- 15V, VCM= -15 V #2 (A)
5.45 Positive Input Bias Current @ +/- 15V, VCM= -15 V #3 (A)
5.46 Positive Input Bias Current @ +/- 15V, VCM= -15 V #4 (A)
5.47 Negative Input Bias Current @ +/- 15V, VCM= -15 V #1 (A)
5.48 Negative Input Bias Current @ +/- 15V, VCM= -15 V #2 (A)
5.49 Negative Input Bias Current @ +/- 15V, VCM= -15 V #3 (A)
5.50 Negative Input Bias Current @ +/- 15V, VCM= -15 V #4 (A)
5.51 Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #1 (V/mV)
5.52 Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #2 (V/mV)
5.53 Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #3 (V/mV)
5.54 Large Signal Voltage Gain RL= 10k, VO=+/- 14.5 V #4 (V/mV)
5.55 Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #1 (V/mV)
5.56 Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #2 (V/mV)
5.57 Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #3 (V/mV)
5.58 Large Signal Voltage Gain RL= 2k, VO=+/- 10 V #4 (V/mV)
5.59 Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #1 (dB)
5.60 Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #2 (dB)
5.61 Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #3 (dB)
5.62 Common Mode Rejection Ratio @ +/- 15 V, VCM=+/- 15 V #4 (dB)
5.63 Common Mode Rejection Ratio Matching 1-4 @ +/- 15 V, VCM=+/- 15 V (dB)
5.64 Common Mode Rejection Ratio Matching 2-3 @ +/- 15 V, VCM=+/- 15 V (dB)
5.65 Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #1 (dB)
5.66 Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #2 (dB)
5.67 Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #3 (dB)
5.68 Power Supply Rejection Ratio @ +/- 2 V to +/- 16 V #4 (dB)
5.69 Power Supply Rejection Ratio Matching 1-4 @ +/- 2 V to +/- 16 V (dB)
5.70 Power Supply Rejection Ratio Matching 2-3 @ +/- 2 V to +/- 16 V (dB)
5.71 Output Voltage Swing High IL= 0 mA @ +/- 15 V #1 (V)
5.72 Output Voltage Swing High IL= 0 mA @ +/- 15 V #2 (V)
5.73 Output Voltage Swing High IL= 0 mA @ +/- 15 V #3 (V)
5.74 Output Voltage Swing High IL= 0 mA @ +/- 15 V #4 (V)
5.75 Output Voltage Swing High IL= 1 mA @ +/- 15 V #1 (V)
5.76 Output Voltage Swing High IL= 1 mA @ +/- 15 V #2 (V)
5.77 Output Voltage Swing High IL= 1 mA @ +/- 15 V #3 (V)
5.78 Output Voltage Swing High IL= 1 mA @ +/- 15 V #4 (V)
5.79 Output Voltage Swing High IL= 10 mA @ +/- 15 V #1 (V)
5.80 Output Voltage Swing High IL= 10 mA @ +/- 15 V #2 (V)

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5.81 Output Voltage Swing High IL= 10 mA @ +/- 15 V #3 (V)
5.82 Output Voltage Swing High IL= 10 mA @ +/- 15 V #4 (V)
5.83 Output Voltage Swing Low IL= 0 mA @ +/- 15 V #1 (V)
5.84 Output Voltage Swing Low IL= 0 mA @ +/- 15 V #2 (V)
5.85 Output Voltage Swing Low IL= 0 mA @ +/- 15 V #3 (V)
5.86 Output Voltage Swing Low IL= 0 mA @ +/- 15 V #4 (V)
5.87 Output Voltage Swing Low IL= 1 mA @ +/- 15 V #1 (V)
5.88 Output Voltage Swing Low IL= 1 mA @ +/- 15 V #2 (V)
5.89 Output Voltage Swing Low IL= 1 mA @ +/- 15 V #3 (V)
5.90 Output Voltage Swing Low IL= 1 mA @ +/- 15 V #4 (V)
5.91 Output Voltage Swing Low IL= 10 mA @ +/- 15 V #1 (V)
5.92 Output Voltage Swing Low IL= 10 mA @ +/- 15 V #2 (V)
5.93 Output Voltage Swing Low IL= 10 mA @ +/- 15 V #3 (V)
5.94 Output Voltage Swing Low IL= 10 mA @ +/- 15 V #4 (V)
5.95 Positive Short-Circuit Current @ +/- 15 V #1 (A)
5.96 Positive Short-Circuit Current @ +/- 15 V #2 (A)
5.97 Positive Short-Circuit Current @ +/- 15 V #3 (A)
5.98 Positive Short-Circuit Current @ +/- 15 V #4 (A)
5.99 Negative Short-Circuit Current @ +/- 15 V #1 (A)
5.100 Negative Short-Circuit Current @ +/- 15 V #2 (A)
5.101 Negative Short-Circuit Current @ +/- 15 V #3 (A)
5.102 Negative Short-Circuit Current @ +/- 15 V #4 (A)
5.103 Positive Supply Current @ 3V (A)
5.104 Negative Supply Current @ 3V (A)
5.105 Input Offset Voltage @ 3V, VCM=0V #1 (V)
5.106 Input Offset Voltage @ 3V, VCM=0V #2 (V)
5.107 Input Offset Voltage @ 3V, VCM=0V #3 (V)
5.108 Input Offset Voltage @ 3V, VCM=0V #4 (V)
5.109 Input Offset Current @ 3V, VCM=0V #1 (A)
5.110 Input Offset Current @ 3V, VCM=0V #2 (A)
5.111 Input Offset Current @ 3V, VCM=0V #3 (A)
5.112 Input Offset Current @ 3V, VCM=0V #4 (A)
5.113 Positive Input Bias Current @ 3V, VCM=0V #1 (A)
5.114 Positive Input Bias Current @ 3V, VCM=0V #2 (A)
5.115 Positive Input Bias Current @ 3V, VCM=0V #3 (A)
5.116 Positive Input Bias Current @ 3V, VCM=0V #4 (A)
5.117 Negative Input Bias Current @ 3V, VCM=0V #1 (A)
5.118 Negative Input Bias Current @ 3V, VCM=0V #2 (A)
5.119 Negative Input Bias Current @ 3V, VCM=0V #3 (A)
5.120 Negative Input Bias Current @ 3V, VCM=0V #4 (A)
5.121 Input Offset Voltage @ 3V, VCM=3V #1 (V)

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5.122 Input Offset Voltage @ 3V, VCM=3V #2 (V)
5.123 Input Offset Voltage @ 3V, VCM=3V #3 (V)
5.124 Input Offset Voltage @ 3V, VCM=3V #4 (V)
5.125 Input Offset Current @ 3V, VCM=3V #1 (A)
5.126 Input Offset Current @ 3V, VCM=3V #2 (A)
5.127 Input Offset Current @ 3V, VCM=3V #3 (A)
5.128 Input Offset Current @ 3V, VCM=3V #4 (A)
5.129 Positive Input Bias Current @ 3V, VCM=3V #1 (A)
5.130 Positive Input Bias Current @ 3V, VCM=3V #2 (A)
5.131 Positive Input Bias Current @ 3V, VCM=3V #3 (A)
5.132 Positive Input Bias Current @ 3V, VCM=3V #4 (A)
5.133 Negative Input Bias Current @ 3V, VCM=3V #1 (A)
5.134 Negative Input Bias Current @ 3V, VCM=3V #2 (A)
5.135 Negative Input Bias Current @ 3V, VCM=3V #3 (A)
5.136 Negative Input Bias Current @ 3V, VCM=3V #4 (A)
5.137 Large Signal Voltage Gain @ 3V #1 (V/mV)
5.138 Large Signal Voltage Gain @ 3V #2 (V/mV)
5.139 Large Signal Voltage Gain @ 3V #3 (V/mV)
5.140 Large Signal Voltage Gain @ 3V #4 (V/mV)
5.141 Large Signal Voltage Gain @ 3V #1 (dB)
5.142 Large Signal Voltage Gain @ 3V #2 (dB)
5.143 Large Signal Voltage Gain @ 3V #3 (dB)
5.144 Large Signal Voltage Gain @ 3V #4 (dB)
5.145 Common Mode Rejection Ratio @ 3V #1 (dB)
5.146 Common Mode Rejection Ratio @ 3V #2 (dB)
5.147 Common Mode Rejection Ratio @ 3V #3 (dB)
5.148 Common Mode Rejection Ratio @ 3V #4 (dB)
5.149 Common Mode Rejection Ratio Matching 1-4 @ 3V (dB)
5.150 Common Mode Rejection Ratio Matching 2-3 @ 3V (dB)
5.151 Output Voltage Swing High IL= 0mA @ 3V #1 (V)
5.152 Output Voltage Swing High IL= 0mA @ 3V #2 (V)
5.153 Output Voltage Swing High IL= 0mA @ 3V #3 (V)
5.154 Output Voltage Swing High IL= 0mA @ 3V #4 (V)
5.155 Output Voltage Swing High IL= 1mA @ 3V #1 (V)
5.156 Output Voltage Swing High IL= 1mA @ 3V #2 (V)
5.157 Output Voltage Swing High IL= 1mA @ 3V #3 (V)
5.158 Output Voltage Swing High IL= 1mA @ 3V #4 (V)
5.159 Output Voltage Swing High IL= 2.5mA @ 3V #1 (V)
5.160 Output Voltage Swing High IL= 2.5mA @ 3V #2 (V)
5.161 Output Voltage Swing High IL= 2.5mA @ 3V #3 (V)
5.162 Output Voltage Swing High IL= 2.5mA @ 3V #4 (V)

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5.163 Output Voltage Swing Low IL= 0mA @ 3V #1 (V)
5.164 Output Voltage Swing Low IL= 0mA @ 3V #2 (V)
5.165 Output Voltage Swing Low IL= 0mA @ 3V #3 (V)
5.166 Output Voltage Swing Low IL= 0mA @ 3V #4 (V)
5.167 Output Voltage Swing Low IL= 1mA @ 3V #1 (V)
5.168 Output Voltage Swing Low IL= 1mA @ 3V #2 (V)
5.169 Output Voltage Swing Low IL= 1mA @ 3V #3 (V)
5.170 Output Voltage Swing Low IL= 1mA @ 3V #4 (V)
5.171 Output Voltage Swing Low IL= 2.5mA @ 3V #1 (V)
5.172 Output Voltage Swing Low IL= 2.5mA @ 3V #2 (V)
5.173 Output Voltage Swing Low IL= 2.5mA @ 3V #3 (V)
5.174 Output Voltage Swing Low IL= 2.5mA @ 3V #4 (V)
5.175 Positive Short-Circuit Current @ 3V #1 (A)
5.176 Positive Short-Circuit Current @ 3V #2 (A)
5.177 Positive Short-Circuit Current @ 3V #3 (A)
5.178 Positive Short-Circuit Current @ 3V #4 (A)
5.179 Negative Short-Circuit Current @ 3V #1 (A)
5.180 Negative Short-Circuit Current @ 3V #2 (A)
5.181 Negative Short-Circuit Current @ 3V #3 (A)
5.182 Negative Short-Circuit Current @ 3V #4 (A)
5.183 Positive Supply Current @ 5V (A)
5.184 Negative Supply Current @ 5V (A)
5.185 Input Offset Voltage @ 5V, VCM=0V #1 (V)
5.186 Input Offset Voltage @ 5V, VCM=0V #2 (V)
5.187 Input Offset Voltage @ 5V, VCM=0V #3 (V)
5.188 Input Offset Voltage @ 5V, VCM=0V #4 (V)
5.189 Input Offset Current @ 5V, VCM=0V #1 (A)
5.190 Input Offset Current @ 5V, VCM=0V #2 (A)
5.191 Input Offset Current @ 5V, VCM=0V #3 (A)
5.192 Input Offset Current @ 5V, VCM=0V #4 (A)
5.193 Positive Input Bias Current @ 5V, VCM=0V #1 (A)
5.194 Positive Input Bias Current @ 5V, VCM=0V #2 (A)
5.195 Positive Input Bias Current @ 5V, VCM=0V #3 (A)
5.196 Positive Input Bias Current @ 5V, VCM=0V #4 (A)
5.197 Negative Input Bias Current @ 5V, VCM=0V #1 (A)
5.198 Negative Input Bias Current @ 5V, VCM=0V #2 (A)
5.199 Negative Input Bias Current @ 5V, VCM=0V #3 (A)
5.200 Negative Input Bias Current @ 5V, VCM=0V #4 (A)
5.201 Input Offset Voltage @ 5V, VCM=5V #1 (V)
5.202 Input Offset Voltage @ 5V, VCM=5V #2 (V)
5.203 Input Offset Voltage @ 5V, VCM=5V #3 (V)

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5.204 Input Offset Voltage @ 5V, VCM=5V #4 (V)
5.205 Input Offset Current @ 5V, VCM=5V #1 (A)
5.206 Input Offset Current @ 5V, VCM=5V #2 (A)
5.207 Input Offset Current @ 5V, VCM=5V #3 (A)
5.208 Input Offset Current @ 5V, VCM=5V #4 (A)
5.209 Positive Input Bias Current @ 5V, VCM=5V #1 (A)
5.210 Positive Input Bias Current @ 5V, VCM=5V #2 (A)
5.211 Positive Input Bias Current @ 5V, VCM=5V #3 (A)
5.212 Positive Input Bias Current @ 5V, VCM=5V #4 (A)
5.213 Negative Input Bias Current @ 5V, VCM=5V #1 (A)
5.214 Negative Input Bias Current @ 5V, VCM=5V #2 (A)
5.215 Negative Input Bias Current @ 5V, VCM=5V #3 (A)
5.216 Negative Input Bias Current @ 5V, VCM=5V #4 (A)
5.217 Large Signal Voltage Gain @ 5V #1 (V/mV)
5.218 Large Signal Voltage Gain @ 5V #2 (V/mV)
5.219 Large Signal Voltage Gain @ 5V #3 (V/mV)
5.220 Large Signal Voltage Gain @ 5V #4 (V/mV)
5.221 Large Signal Voltage Gain @ 5V #1 (dB)
5.222 Large Signal Voltage Gain @ 5V #2 (dB)
5.223 Large Signal Voltage Gain @ 5V #3 (dB)
5.224 Large Signal Voltage Gain @ 5V #4 (dB)
5.225 Common Mode Rejection Ratio @ 5V #1 (dB)
5.226 Common Mode Rejection Ratio @ 5V #2 (dB)
5.227 Common Mode Rejection Ratio @ 5V #3 (dB)
5.228 Common Mode Rejection Ratio @ 5V #4 (dB)
5.229 Common Mode Rejection Ratio Matching 1-4 @ 5V (dB)
5.230 Common Mode Rejection Ratio Matching 2-3 @ 5V (dB)
5.231 Power Supply Rejection Ratio @ 2.2V-12V #1 (dB)
5.232 Power Supply Rejection Ratio @ 2.2V-12V #2 (dB)
5.233 Power Supply Rejection Ratio @ 2.2V-12V #3 (dB)
5.234 Power Supply Rejection Ratio @ 2.2V-12V #4 (dB)
5.235 Power Supply Rejection Ratio Matching 1-4 @ 2.2V-12V (dB)
5.236 Power Supply Rejection Ratio Matching 2-3 @ 2.2V-12V (dB)
5.237 Output Voltage Swing High IL= 0mA @ 5V #1 (V)
5.238 Output Voltage Swing High IL= 0mA @ 5V #2 (V)
5.239 Output Voltage Swing High IL= 0mA @ 5V #3 (V)
5.240 Output Voltage Swing High IL= 0mA @ 5V #4 (V)
5.241 Output Voltage Swing High IL= 1mA @ 5V #1 (V)
5.242 Output Voltage Swing High IL= 1mA @ 5V #2 (V)
5.243 Output Voltage Swing High IL= 1mA @ 5V #3 (V)
5.244 Output Voltage Swing High IL= 1mA @ 5V #4 (V)

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5.245 Output Voltage Swing High IL= 2.5mA @ 5V #1 (V)
5.246 Output Voltage Swing High IL= 2.5mA @ 5V #2 (V)
5.247 Output Voltage Swing High IL= 2.5mA @ 5V #3 (V)
5.248 Output Voltage Swing High IL= 2.5mA @ 5V #4 (V)
5.249 Output Voltage Swing Low IL= 0mA @ 5V #1 (V)
5.250 Output Voltage Swing Low IL= 0mA @ 5V #2 (V)
5.251 Output Voltage Swing Low IL= 0mA @ 5V #3 (V)
5.252 Output Voltage Swing Low IL= 0mA @ 5V #4 (V)
5.253 Output Voltage Swing Low IL= 1mA @ 5V #1 (V)
5.254 Output Voltage Swing Low IL= 1mA @ 5V #2 (V)
5.255 Output Voltage Swing Low IL= 1mA @ 5V #3 (V)
5.256 Output Voltage Swing Low IL= 1mA @ 5V #4 (V)
5.257 Output Voltage Swing Low IL= 2.5mA @ 5V #1 (V)
5.258 Output Voltage Swing Low IL= 2.5mA @ 5V #2 (V)
5.259 Output Voltage Swing Low IL= 2.5mA @ 5V #3 (V)
5.260 Output Voltage Swing Low IL= 2.5mA @ 5V #4 (V)
5.261 Positive Short-Circuit Current @ 5V #1 (A)
5.262 Positive Short-Circuit Current @ 5V #2 (A)
5.263 Positive Short-Circuit Current @ 5V #3 (A)
5.264 Positive Short-Circuit Current @ 5V #4 (A)
5.265 Negative Short-Circuit Current @ 5V #1 (A)
5.266 Negative Short-Circuit Current @ 5V #2 (A)
5.267 Negative Short-Circuit Current @ 5V #3 (A)
5.268 Negative Short-Circuit Current @ 5V #4 (A)