

HIGH DOSE RADIATION TEST REPORT AD9213S-CSH

September 2021

Radiation Test Report

Product:	AD9213S
Gamma:	0, 100k / 150k, 168hr
Gamma Source:	Co60/TM1019 Condition A
Dose Rate:	110 Rad/s
Facilities:	VPT RAD
Tested:	8/20/21

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Wafer	SN	Lkg_I_Hi_PwrDn		uA	Lkg_I_Hi_sclk		uA	Lkg_I_Lo_sclk		uA
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	26.437	26.397	26.690	26.789	26.807	27.130	0.020	-0.001	0.005
100k	1	27.380	27.888		27.648	28.163		-0.001	-0.001	
	6	27.844	28.375		28.051	28.643		0.004	-0.005	
	12	25.958	26.344		26.155	26.525		0.006	-0.017	
	74	27.152	27.698		27.313	27.927		0.009	-0.018	
	78	26.893	27.401		27.320	27.919		0.010	0.002	
	103	26.399	26.922		26.513	27.097		-0.008	-0.019	
	142	27.410	27.827		27.198	27.691		0.009	0.007	
	154	26.589	27.066		26.688	27.249		0.011	-0.003	
150k	128	27.821	28.207	27.110	27.868	28.354	27.200	0.002	0.002	0.006
	163	27.570	28.344	26.590	28.082	28.864	27.160	0.009	0.005	-0.004
	176	26.984	27.500	26.500	27.038	27.600	26.550	0.014	-0.006	0.002
	184	26.254	26.907	25.730	26.490	27.295	25.950	0.017	0.005	0.005
Summary	Min	25.9580	26.3440		26.1550	26.5250		-0.0080	-0.0190	
	Max	27.8440	28.3750		28.0510	28.6430		0.0110	0.0070	
	Mean	27.0496	27.5253		27.1949	27.7298		0.0047	-0.0057	
	Std. Dev	0.6449	0.6543		0.6348	0.6681		0.0062	0.0098	
	Mean - 3 Sigma	25.1148	25.5624		25.2904	25.7256		-0.0139	-0.0351	
	Mean + 3 Sigma	28.9843	29.4883		29.0994	29.7340		0.0233	0.0237	

Wafer	SN	Lkg_I_Lo_PwrDn		uA	avdd Pdwn		mA	dvdd Pdwn		mA
		PRE	Post	Anneal	PRE	100k	Anneal	PRE	Post	Anneal
CTRL	226	0.017	0.003	0.014	91.451	92.622	87.672	30.601	30.252	28.400
100k	1	-0.002	0.006		70.590	72.047		26.512	28.878	
	6	0.000	0.006		85.662	85.656		29.918	34.760	
	12	0.015	-0.010		111.963	122.933		30.824	36.551	
	74	0.012	-0.005		69.842	80.797		28.358	32.447	
	78	0.014	0.010		73.631	75.635		27.734	31.699	
	103	0.002	-0.014		85.825	94.849		28.368	32.269	
	142	0.008	0.003		87.570	93.463		32.948	39.260	
	154	0.015	0.001		96.264	103.255		31.555	35.781	
150k	128	0.008	-0.006	0.009	80.567	86.254	77.673	31.751	36.917	31.600
	163	0.012	0.006	0.001	83.917	89.987	86.532	33.299	41.453	36.700
	176	0.012	-0.001	0.004	87.661	85.581	87.668	30.522	35.218	30.700
	184	0.014	0.003	0.007	88.447	94.607	98.555	31.352	37.435	31.600
Summary	Min	-0.0020	-0.0140		69.8420	72.0470		26.5120	28.8780	
	Max	0.0150	0.0100		111.9630	122.9330		32.9480	39.2600	
	Mean	0.0080	-0.0010		84.6571	90.5432		29.7742	34.2847	
	Std. Dev	0.0066	0.0081		13.4484	15.5700		2.1524	3.2141	
	Mean - 3 Sigma	-0.0118	-0.0254		44.3121	43.8334		23.3171	24.6425	
	Mean + 3 Sigma	0.0278	0.0234		125.0022	137.2531		36.2314	43.9269	

Wafer	SN	jvdd Pdwn		mA	clkvddLf Pdwn		mA	tmuDvdd1 Pdwn		mA
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	30.276	29.812	28.200	0.879	0.898	0.810	0.199	0.202	0.192
100k	1	27.308	28.670		0.771	0.885		0.196	0.200	
	6	31.818	22.928		0.869	0.915		0.205	0.209	
	12	28.946	30.854		0.648	0.778		0.198	0.206	
	74	27.537	29.183		0.615	0.658		0.198	0.205	
	78	18.558	29.248		0.601	0.639		0.198	0.202	
	103	28.198	29.075		0.607	0.646		0.201	0.204	
	142	36.556	38.679		1.166	0.973		0.209	0.212	
	154	31.992	33.541		0.861	1.084		0.203	0.201	
150k	128	31.003	32.497	30.800	1.053	1.213	1.010	0.213	0.215	0.211
	163	34.528	35.686	33.800	0.641	0.711	0.660	0.214	0.218	0.217
	176	29.101	30.239	28.600	0.854	1.070	0.890	0.201	0.202	0.200
	184	30.486	32.255	29.500	0.676	0.747	0.680	0.194	0.200	0.196
Summary	Min	18.5580	22.9280		0.6010	0.6390		0.1960	0.2000	
	Max	36.5560	38.6790		1.1660	1.2130		0.2130	0.2150	
	Mean	29.1018	30.5194		0.7990	0.8657		0.2023	0.2060	
	Std. Dev	4.9065	4.2760		0.2066	0.2040		0.0057	0.0051	
	Mean - 3 Sigma	14.3823	17.6916		0.1792	0.2535		0.1851	0.1907	
	Mean + 3 Sigma	43.8213	43.3473		1.4188	1.4778		0.2196	0.2213	

Wafer	SN	vddNvg PdwN		mA	jvtt PdwN		mA	bvdd2 PdwN		mA
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	-0.225	-0.035	-0.263	8.766	8.231	7.900	0.031	0.250	0.300
100k	1	-0.223	-0.061		6.719	7.180		0.259	0.271	
	6	-0.098	-0.017		9.646	10.369		0.220	0.369	
	12	-0.116	0.125		15.792	16.755		0.299	0.247	
	74	-0.211	-0.061		6.893	7.225		0.306	0.274	
	78	-0.240	-0.091		7.502	7.823		0.241	0.334	
	103	-0.202	-0.080		7.918	8.267		0.271	0.236	
	142	-0.156	0.013		10.977	11.875		0.330	0.309	
150k	154	-0.131	0.021		9.829	10.302		0.281	0.208	
	128	-0.153	0.044	-0.194	9.142	9.780	9.200	0.341	0.338	0.300
	163	-0.174	0.030	-0.185	10.835	11.590	10.700	0.264	0.374	0.300
	176	-0.221	0.023	-0.291	7.530	7.998	7.500	0.212	0.296	0.300
	184	-0.167	0.101	-0.224	8.790	9.476	8.600	0.250	0.299	0.200
	Min	-0.2400	-0.0910		6.7190	7.1800		0.2200	0.2080	
	Max	-0.0980	0.1250		15.7920	16.7550		0.3410	0.3690	
	Mean	-0.1700	-0.0119		9.3798	9.9551		0.2831	0.2873	
	Std. Dev	0.0506	0.0701		2.8045	3.0152		0.0400	0.0535	
	Mean - 3 Sigma	-0.3219	-0.2222		0.9662	0.9096		0.1630	0.1269	
Mean + 3 Sigma	-0.0181	0.1984		17.7934	19.0006		0.4032	0.4478		

Wafer	SN	pllvdd PdwN		mA	rvdd2 PdwN		mA	svdd2 PdwN		mA
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	0.969	0.949	0.969	0.646	0.646	0.640	0.228	0.230	0.225
100k	1	0.980	0.956		0.660	0.635		0.231	0.229	
	6	0.991	0.971		0.651	0.630		0.233	0.234	
	12	0.956	0.934		0.644	0.627		0.235	0.236	
	74	0.985	0.965		0.656	0.628		0.243	0.233	
	78	0.972	0.957		0.638	0.625		0.230	0.233	
	103	0.966	0.945		0.646	0.625		0.234	0.239	
	142	0.977	0.959		0.662	0.638		0.244	0.237	
150k	154	0.962	0.947		0.642	0.626		0.234	0.231	
	128	0.998	0.975	1.000	0.652	0.629	0.650	0.233	0.232	0.239
	163	0.986	0.977	0.989	0.668	0.643	0.670	0.227	0.237	0.234
	176	0.969	0.949	0.970	0.653	0.619	0.650	0.234	0.234	0.221
	184	0.963	0.943	0.960	0.657	0.629	0.650	0.240	0.238	0.226
	Min	0.9560	0.9340		0.6380	0.6250		0.2300	0.2290	
	Max	0.9980	0.9750		0.6620	0.6380		0.2440	0.2390	
	Mean	0.9763	0.9566		0.6501	0.6292		0.2352	0.2338	
	Std. Dev	0.0138	0.0130		0.0083	0.0045		0.0049	0.0031	
	Mean - 3 Sigma	0.9350	0.9174		0.6254	0.6157		0.2204	0.2244	
Mean + 3 Sigma	1.0177	0.9957		0.6749	0.6428		0.2501	0.2431		

Wafer	SN	tmuAvdd2 PdwN		mA	jvdd2 PdwN		mA	avddfs8 PdwN		mA
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	1.656	1.650	1.644	0.218	0.247	0.180	1.493	1.411	1.310
100k	1	1.682	1.692		0.292	0.228		0.961	1.070	
	6	1.706	1.718		0.299	0.217		1.528	1.697	
	12	1.678	1.683		0.196	0.284		2.074	2.291	
	74	1.686	1.693		0.213	0.185		1.118	1.239	
	78	1.678	1.687		0.236	0.242		1.227	1.329	
	103	1.659	1.670		0.249	0.264		1.371	1.499	
	142	1.680	1.697		0.243	0.201		1.867	2.073	
150k	154	1.659	1.666		0.205	0.159		1.816	1.964	
	128	1.720	1.734	1.717	0.181	0.177	0.180	1.586	1.787	1.560
	163	1.687	1.705	1.685	0.201	0.228	0.190	1.703	1.925	1.670
	176	1.706	1.722	1.703	0.243	0.170	0.200	1.188	1.344	1.170
	184	1.657	1.668	1.653	0.138	0.185	0.210	1.529	1.728	1.480
	Min	1.659	1.666		0.181	0.159		0.961	1.070	
	Max	1.720	1.734		0.299	0.284		2.074	2.291	
	Mean	1.683	1.693		0.235	0.217		1.505	1.661	
	Std. Dev	0.020	0.022		0.041	0.041		0.371	0.409	
	Mean - 3 Sigma	1.624	1.629		0.112	0.093		0.393	0.433	
Mean + 3 Sigma	1.742	1.758		0.358	0.342		2.618	2.889		

Wafer	SN	fvdd Pdown		mA	avn1 Pdown		mA	bvnn1 Pdown		mA
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	0.598	0.576	0.540	-0.156	-0.156	-0.156	-12.097	-12.172	-12.300
100k	1	0.386	0.421		-0.162	-0.164		-11.928	-11.392	
	6	0.590	0.667		-0.164	-0.166		-11.822	-11.288	
	12	0.927	0.971		-0.148	-0.150		-12.128	-11.596	
	74	0.466	0.506		-0.161	-0.164		-11.828	-11.291	
	78	0.513	0.550		-0.160	-0.161		-11.859	-11.333	
	103	0.612	0.632		-0.151	-0.154		-12.057	-11.562	
	142	0.690	0.768		-0.158	-0.159		-12.178	-11.444	
150k	154	0.739	0.766		-0.157	-0.160		-11.967	-11.472	
	128	0.621	0.682	0.590	-0.159	-0.162	-0.157	-11.755	-11.069	-11.800
	163	0.657	0.727	0.660	-0.163	-0.167	-0.156	-11.796	-11.124	-11.900
	176	0.505	0.540	0.490	-0.156	-0.157	-0.155	-11.939	-11.292	-11.900
Summary	184	0.666	0.724	0.640	-0.150	-0.153	-0.150	-11.990	-11.313	-12.000
	Min	0.38600	0.42100		-0.16400	-0.16600		-12.178	-11.596	
	Max	0.92700	0.97100		-0.14800	-0.15000		-11.765	-11.069	
	Mean	0.61600	0.66256		-0.15778	-0.16000		-11.948	-11.383	
	Std. Dev	0.15971	0.16348		0.00519	0.00512		0.146	0.161	
	Mean - 3 Sigma	0.13688	0.17210		-0.17335	-0.17537		-12.385	-11.866	
Mean + 3 Sigma	1.09512	1.15301		-0.14221	-0.14463		-11.511	-10.900		

Wafer	SN	Total Power Pdown		mW	Offset		Codes	GainError		%
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	186.367	187.612	177.770	0.550	0.854	0.708	5.988	6.080	6.130
100k	1	156.720	162.518		0.860	1.046		3.322	2.411	
	6	184.200	180.446		1.030	0.911		2.395	0.669	
	12	215.393	237.538		0.890	1.097		4.492	3.234	
	74	157.548	177.259		1.000	1.004		4.136	3.510	
	78	152.419	169.725		1.260	1.288		3.289	1.639	
	103	177.106	192.642		0.930	0.954		5.748	4.435	
	142	195.269	210.232		0.900	4.204		3.031	1.730	
150k	154	196.383	210.778		0.820	1.117		5.114	4.047	
	128	178.259	192.555	174.580	0.520	0.889	0.833	1.950	0.533	1.650
	163	188.028	205.458	195.170	0.720	0.782	0.980	2.324	0.304	1.970
	176	179.885	185.266	180.900	0.820	0.623	0.894	7.303	5.679	7.060
Summary	184	184.049	200.030	197.170	0.830	0.954	0.261	5.072	2.936	7.580
	Min	152.419	162.518		0.520	0.889		1.950	0.533	
	Max	215.393	237.538		1.260	4.204		5.748	4.435	
	Mean	179.255	192.633		0.912	1.390		3.720	2.468	
	Std. Dev	21.169	23.643		0.196	1.062		1.252	1.425	
	Mean - 3 Sigma	115.748	121.703		0.323	-1.797		-0.035	-1.808	
Mean + 3 Sigma	242.762	263.562		1.501	4.577		7.475	6.743		

Wafer	SN	aVdd		A	dVdd		mA	jVddIOff		mA
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	2.193	2.178	2.173	643.58	632.09	640.60	591.38	580.05	574.60
100k	1	2.156	2.145		635.80	642.99		564.15	595.18	
	6	2.176	2.176		648.81	652.65		581.29	590.81	
	12	2.202	2.182		644.91	625.17		591.21	570.51	
	74	2.170	2.148		645.02	630.23		583.25	570.34	
	78	2.170	2.149		648.79	650.51		583.73	593.72	
	103	2.151	2.150		638.47	624.07		571.23	563.49	
	142	2.207	2.187		655.28	655.57		596.54	603.21	
150k	154	2.175	2.155		646.48	609.09		589.11	590.80	
	128	2.189	2.164	2.182	652.28	640.68	650.20	587.34	582.04	593.10
	163	2.197	2.171	2.191	656.70	660.92	640.10	601.41	600.14	588.90
	176	2.189	2.174	2.159	648.58	650.43	640.70	593.03	587.44	576.20
Summary	184	2.164	2.165	2.144	646.64	650.49	639.70	593.53	594.04	585.10
	Min	2.151	2.145		635.80	609.09		564.15	563.49	
	Max	2.207	2.187		655.28	655.57		596.54	603.21	
	Mean	2.177	2.162		646.21	636.77		583.09	584.46	
	Std. Dev	0.019	0.016		6.17	15.62		10.03	13.57	
	Mean - 3 Sigma	2.120	2.114		627.71	589.90		553.01	543.75	
Mean + 3 Sigma	2.234	2.210		664.70	683.65		613.18	625.16		

Wafer	SN	clkVddLf		mA	tmuDVdd1		mA	vddNvg		mA
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	30.71	30.72	30.60	0.339	0.330	0.327	154.53	152.29	153.02
100k	1	30.06	30.12		0.325	0.330		154.38	153.71	
	6	30.72	30.91		0.333	0.335		162.25	161.49	
	12	30.02	30.12		0.336	0.332		152.78	151.26	
	74	30.64	30.44		0.333	0.322		155.55	148.61	
	78	30.40	30.31		0.330	0.332		155.03	153.11	
	103	29.84	29.84		0.334	0.329		149.53	150.73	
	142	31.10	31.02		0.343	0.336		161.17	160.18	
	154	30.19	30.17		0.335	0.339		153.60	151.12	
150k	128	30.85	30.87	31.05	0.339	0.333	0.334	162.13	158.15	160.33
	163	31.04	30.91	31.09	0.344	0.345	0.341	165.14	162.45	163.31
	176	30.79	30.68	30.79	0.341	0.339	0.335	155.48	153.21	149.23
	184	30.77	30.72	30.55	0.335	0.337	0.337	154.87	152.94	144.76
Summary	Min	29.84	29.84		0.325	0.322		149.53	148.61	
	Max	31.10	31.02		0.343	0.339		162.25	161.49	
	Mean	30.42	30.42		0.334	0.332		156.27	154.26	
	Std. Dev	0.43	0.42		0.005	0.005		4.53	4.57	
	Mean - 3 Sigma	29.14	29.17		0.319	0.317		142.67	140.54	
	Mean + 3 Sigma	31.70	31.68		0.350	0.347		169.87	167.98	

Wafer	SN	jVtt		mA	bVdd2		mA	pllVdd		mA
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	165.9	164.4	164.7	100.8	100.7	100.7	1.246	1.240	1.258
100k	1	159.7	165.4		98.0	96.2		1.270	1.240	
	6	166.5	168.4		107.8	104.9		1.263	1.246	
	12	170.4	169.8		118.8	116.0		1.241	1.224	
	74	162.1	160.8		114.1	111.1		1.270	1.249	
	78	162.6	164.3		114.6	110.9		1.268	1.241	
	103	159.5	161.7		114.6	111.8		1.241	1.233	
	142	170.4	171.7		106.1	104.7		1.274	1.246	
	154	165.5	166.1		92.9	81.4		1.243	1.222	
150k	128	166.5	167.0	167.6	104.7	101.8	105.0	1.276	1.248	1.280
	163	170.3	171.1	170.5	97.9	93.9	97.9	1.274	1.257	1.299
	176	165.0	165.4	163.3	97.0	94.2	97.3	1.269	1.239	1.279
	184	165.1	165.4	163.7	105.0	101.9	105.9	1.255	1.237	1.267
Summary	Min	159.49	160.83		92.92	81.40		1.241	1.222	
	Max	170.41	171.69		118.77	115.99		1.276	1.249	
	Mean	164.78	166.12		107.96	104.30		1.261	1.239	
	Std. Dev	4.11	3.57		8.52	10.48		0.015	0.010	
	Mean - 3 Sigma	152.45	155.42		82.39	72.85		1.217	1.208	
	Mean + 3 Sigma	177.12	176.83		133.53	135.75		1.305	1.269	

Wafer	SN	rVdd2		mA	sVdd2		mA	tmuAVdd2		mA
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	33.844	34.008	34.070	0.237	0.228	0.228	1.675	1.670	1.660
100k	1	33.916	32.995		0.226	0.226		1.700	1.706	
	6	33.555	32.415		0.232	0.229		1.723	1.731	
	12	33.784	33.088		0.222	0.238		1.697	1.699	
	74	33.752	32.855		0.235	0.227		1.704	1.709	
	78	33.575	32.710		0.223	0.238		1.694	1.703	
	103	33.674	32.568		0.230	0.225		1.675	1.686	
	142	33.565	32.666		0.235	0.228		1.699	1.710	
	154	33.697	32.878		0.225	0.224		1.677	1.682	
150k	128	33.336	32.130	33.550	0.235	0.237	0.230	1.737	1.748	1.735
	163	34.109	32.764	34.450	0.233	0.233	0.226	1.703	1.721	1.701
	176	35.246	33.860	35.450	0.237	0.226	0.234	1.723	1.738	1.721
	184	33.208	31.632	33.710	0.229	0.227	0.222	1.672	1.684	1.669
Summary	Min	33.336	32.130		0.222	0.224		1.675	1.682	
	Max	33.916	33.088		0.235	0.238		1.737	1.748	
	Mean	33.650	32.701		0.229	0.230		1.701	1.708	
	Std. Dev	0.167	0.300		0.005	0.006		0.020	0.021	
	Mean - 3 Sigma	33.150	31.802		0.213	0.213		1.642	1.646	
	Mean + 3 Sigma	34.151	33.599		0.245	0.248		1.760	1.770	

Wafer	SN	jVdd2		mA		aVdfs8		mA		fVdd		mA	
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal			
CTRL	226	20.639	20.675	20.620	35.534	35.210	33.800	24.211	24.134	24.010			
100k	1	21.214	20.828		34.815	35.198		23.690	23.623				
	6	20.910	20.540		35.332	35.893		24.047	24.097				
	12	20.353	19.992		35.590	35.707		24.087	24.116				
	74	20.465	20.144		35.707	35.791		23.455	23.241				
	78	20.340	19.941		35.544	35.382		23.636	23.494				
	103	20.227	19.802		39.025	36.964		23.607	23.491				
	142	20.680	20.346		45.705	47.752		24.675	24.550				
154	20.541	20.215		35.625	35.722		23.722	23.639					
150k	128	20.887	20.448	20.840	35.166	35.288	35.170	24.359	24.228	24.360			
	163	21.068	20.581	21.320	36.692	36.803	36.370	24.197	24.037	24.090			
	176	21.250	20.811	21.280	35.159	35.044	34.860	24.342	24.134	24.270			
	184	20.324	19.884	20.410	35.143	35.279	34.780	23.828	23.738	23.520			
	Min	20.23	19.80		34.82	35.20		23.46	23.24				
	Max	21.21	20.83		45.71	47.75		24.68	24.55				
	Mean	20.62	20.25		36.95	37.08		23.92	23.83				
	Std. Dev	0.33	0.32		3.51	4.04		0.40	0.43				
	Mean - 3 Sigma	19.65	19.28		26.42	24.97		22.71	22.54				
	Mean + 3 Sigma	21.60	21.22		47.47	49.19		25.13	25.12				

Wafer	SN	aVnn1		mA		bVnn1		Total_Power		W	
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal	
CTRL	226	-1.835	-1.837	-1.839	-105.569	-105.520	-105.600	4.326	4.306	4.284	
100k	1	-1.821	-1.794		-102.923	-100.727		4.276	4.313		
	6	-1.819	-1.784		-112.353	-109.081		4.372	4.364		
	12	-1.793	-1.764		-123.876	-120.658		4.423	4.381		
	74	-1.781	-1.751		-119.037	-115.614		4.349	4.354		
	78	-1.789	-1.760		-119.571	-115.450		4.355	4.338		
	103	-1.738	-1.710		-119.535	-116.439		4.330	4.356		
	142	-1.852	-1.819		-110.800	-108.867		4.417	4.407		
154	-1.812	-1.784		-97.932	-86.096		4.306	4.224			
150k	128	-1.795	-1.755	-1.804	-109.117	-105.651	-109.600	4.358	4.342	4.350	
	163	-1.843	-1.800	-1.851	-102.476	-98.173	-102.400	4.378	4.343	4.395	
	176	-1.783	-1.749	-1.797	-101.846	-98.796	-102.300	4.333	4.318	4.300	
	184	-1.799	-1.757	-1.819	-109.860	-106.028	-110.900	4.303	4.317	4.358	
	Min	-1.85	-1.82		-123.88	-120.66		4.28	4.22		
	Max	-1.74	-1.71		-97.93	-86.10		4.42	4.41		
	Mean	-1.80	-1.77		-112.79	-108.73		4.35	4.34		
	Std. Dev	0.03	0.03		8.58	10.49		0.05	0.05		
	Mean - 3 Sigma	-1.90	-1.86		-138.54	-140.20		4.21	4.19		
	Mean + 3 Sigma	-1.70	-1.68		-87.05	-77.26		4.50	4.50		

Wafer	SN	SNR 170MHz		dBFS		SINAD 170MHz		dBFS		H2 170MHz		dBFS	
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal			
CTRL	226	55.837	55.740	55.823	54.602	54.495	54.544	-72.231	-72.276	-71.640			
100k	1	56.077	55.153		54.692	53.835		-69.621	-69.744				
	6	57.617	57.376		56.348	56.144		-73.892	-74.858				
	12	56.529	55.898		55.039	54.415		-69.136	-68.816				
	74	55.452	54.623		54.173	53.384		-71.229	-71.929				
	78	54.766	53.793		53.397	52.454		-68.622	-68.744				
	103	53.157	52.944		51.882	51.658		-69.225	-69.509				
	142	57.235	56.589		55.904	55.287		-71.623	-72.070				
154	54.506	54.121		53.281	52.920		-74.106	-79.850					
150k	128	57.071	56.390	57.158	55.836	55.160	55.823	-74.400	-74.895	-72.630			
	163	57.866	57.312	57.934	56.616	56.076	56.543	-72.729	-73.303	-70.990			
	176	55.365	54.838	55.028	54.176	53.654	53.770	-73.935	-74.502	-72.770			
	184	54.358	54.077	53.947	53.060	52.782	52.532	-71.299	-72.458	-68.870			
	Min	53.16	52.94		51.882	51.658		-74.400	-79.850				
	Max	57.62	57.38		56.348	56.144		-68.622	-68.744				
	Mean	55.82	55.21		54.506	53.917		-71.317	-72.268				
	Std. Dev	1.48	1.46		1.465	1.464		2.326	3.701				
	Mean - 3 Sigma	51.40	50.82		50.112	49.524		-78.296	-83.371				
	Mean + 3 Sigma	60.25	59.60		58.900	58.311		-64.339	-61.166				

Wafer	SN	H3 170MHz		dBFS	SFDR 170MHz		dBFS	SNR 2.6GHz		dBFS
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	-72.030	-71.521	-70.870	72.030	71.521	70.873	51.601	51.582	51.704
100k	1	-70.160	-69.744		69.621	69.744		51.514	50.312	
	6	-72.696	-72.736		72.696	72.736		52.814	52.484	
	12	-68.897	-68.454		68.897	68.454		52.066	51.442	
	74	-70.530	-69.934		70.530	69.934		51.379	50.710	
	78	-68.809	-67.840		68.622	67.840		50.781	50.013	
	103	-68.176	-67.435		68.176	67.435		49.864	49.638	
	142	-71.657	-70.911		71.623	70.911		52.041	51.522	
154	-69.475	-68.828		69.475	68.828		50.265	49.589		
150k	128	-72.502	-71.405	-70.410	72.502	71.405	70.417	52.448	51.742	52.364
	163	-75.251	-73.277	-72.150	72.729	73.277	70.992	52.453	51.832	52.250
	176	-71.854	-70.964	-69.630	71.854	70.964	69.631	51.043	50.542	50.743
	184	-68.374	-67.321	-66.210	68.374	67.321	66.218	50.485	50.130	50.173
	Min	-72.696	-72.736		68.176	67.435		49.864	49.589	
	Max	-68.176	-67.435		72.696	72.736		52.814	52.484	
	Mean	-70.322	-69.699		70.238	69.699		51.464	50.828	
	Std. Dev	1.654	1.752		1.688	1.752		0.997	1.021	
	Mean - 3 Sigma	-75.284	-74.954		65.174	64.443		48.471	47.766	
	Mean + 3 Sigma	-65.361	-64.443		75.302	74.954		54.456	53.890	

Wafer	SN	SINAD 2.6GHz		dBFS	H2 2.6GHz		dBFS	H3 2.6GHz		dBFS
		PRE	Post	Anneal	PRE	Post	Anneal	PRE	Post	Anneal
CTRL	226	50.304	50.315	50.446	-64.032	-64.373	-64.500	-78.789	-77.751	-78.740
100k	1	50.246	49.081		-64.299	-64.324		-76.236	-75.400	
	6	51.462	51.168		-64.274	-64.521		-80.278	-79.645	
	12	50.874	50.286		-66.920	-67.253		-75.438	-76.290	
	74	50.185	49.553		-65.850	-66.750		-75.598	-75.161	
	78	49.592	48.837		-66.125	-66.537		-73.661	-71.899	
	103	48.696	48.471		-66.188	-66.158		-73.205	-71.832	
	142	50.808	50.307		-65.451	-65.578		-78.037	-78.568	
154	49.079	48.336		-65.404	-62.927		-75.386	-73.631		
150k	128	51.147	50.465	51.043	-64.516	-64.526	-64.380	-78.069	-77.421	-74.360
	163	51.118	50.545	50.939	-64.102	-64.082	-64.370	-80.926	-80.520	-75.360
	176	49.811	49.316	49.515	-64.536	-64.477	-64.450	-77.146	-76.112	-74.140
	184	49.283	48.943	48.970	-65.085	-65.503	-65.330	-74.343	-72.155	-70.680
	Min	48.696	48.336		-66.920	-67.253		-80.278	-79.645	
	Max	51.462	51.168		-64.274	-62.927		-73.205	-71.832	
	Mean	50.232	49.612		-65.447	-65.397		-76.212	-75.539	
	Std. Dev	0.948	0.994		0.929	1.413		2.251	2.760	
	Mean - 3 Sigma	47.387	46.630		-68.234	-69.635		-82.964	-83.818	
	Mean + 3 Sigma	53.077	52.593		-62.661	-61.159		-69.460	-67.259	

Wafer	SN	SFDR 2.6GHz		dBFS
		PRE	Post	Anneal
CTRL	226	64.032	64.373	64.508
100k	1	64.299	64.324	
	6	64.274	64.521	
	12	66.920	67.253	
	74	65.850	66.750	
	78	66.125	66.537	
	103	66.188	66.158	
	142	65.451	65.578	
154	65.404	62.927		
150k	128	64.516	64.526	64.387
	163	64.102	64.082	64.373
	176	64.536	64.477	64.451
	184	65.085	65.503	65.337
	Min	64.274	62.927	
	Max	66.920	67.253	
	Mean	65.447	65.397	
	Std. Dev	0.929	1.413	
	Mean - 3 Sigma	62.661	61.159	
	Mean + 3 Sigma	68.234	69.635	













