

Reference	xDevs.com	Calibration date	October 18 2020
Ref P/N	FX	Ambient Temperature	23.63 °C
Serial	XFER2	Relative Humidity	52.40 %
ID Number	DCV Transfer, traceable	Pressure	1019.52 hPa
Notes		Test type	Front 5440A-7003 cable terminals, nulled DMM

Reference standard	Mfg	Model	Options	Serial / Unc	CEID	Calibration date	Due date
DC STD	Fluke	732B-3	9.9999229 ±0.39 ppm	5265014	#03	09/29/2020	09/29/2021
DMM	Keysight	3458A	02	Process unit	MDX5	10/12/2020	11/12/2020

xDevs.com certifies that this calibration used standards whose accuracies are traceable to the SI, through ISO 17025 Accredited Measurement Laboratory. Actual measurement uncertainty available upon request was calculated using the expanded method and is expressed in values at approximately the 95% confidence level using a coverage factor of K= 2.

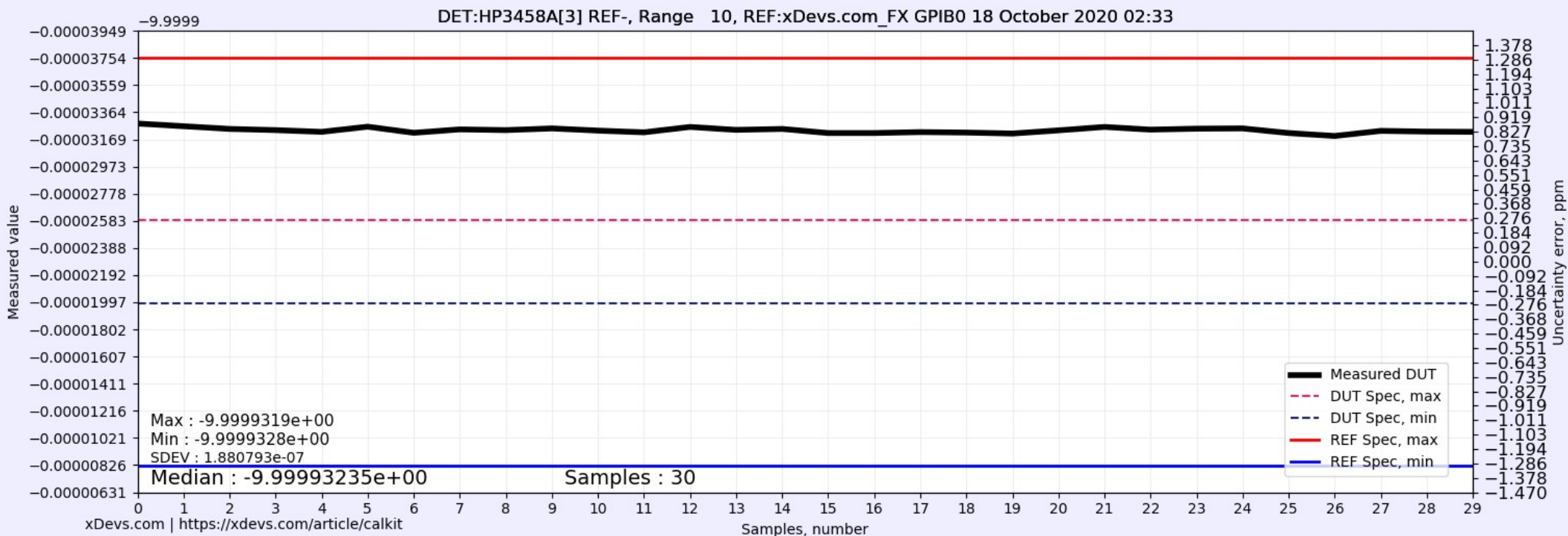
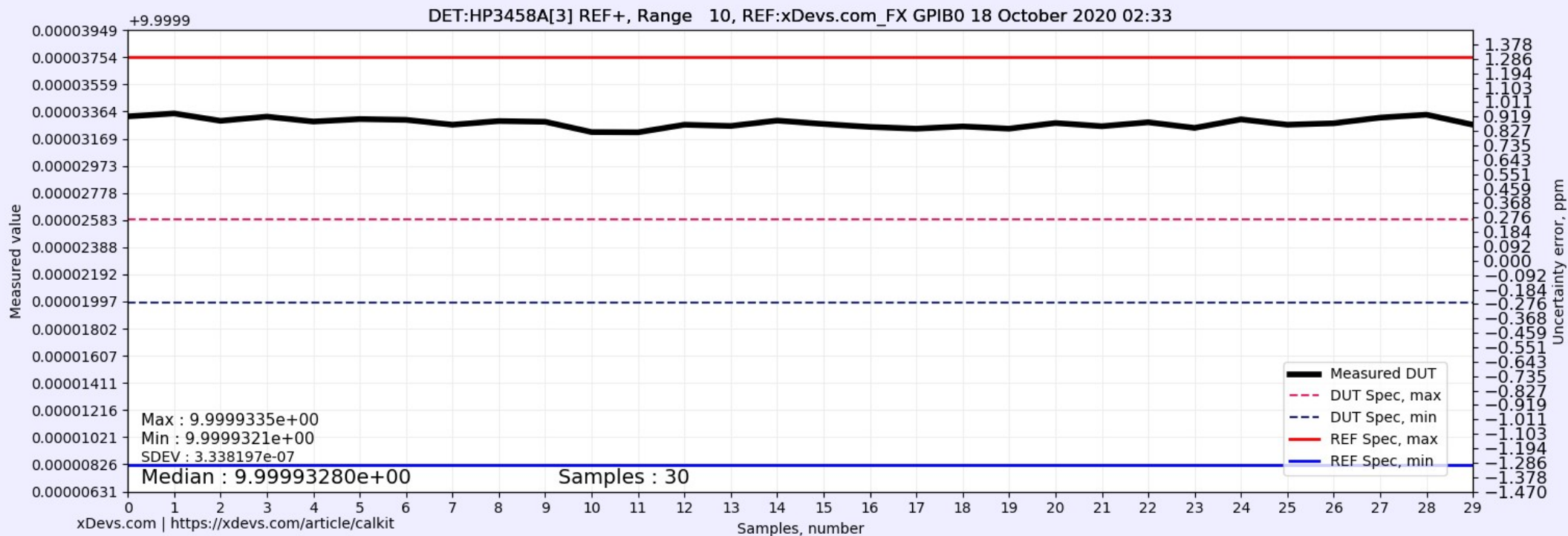
Certificate statements are based on test results within specified limits without reduction of the uncertainty of the test and/or measurement. The test and measurement data here relate only to the item tested and/or measured. Unit acceptance of failure includes uncertainty data compilation. Calibration due date that appears on the Certificate of Calibration and labels are determined by the customer and does not imply conformance to a standard.

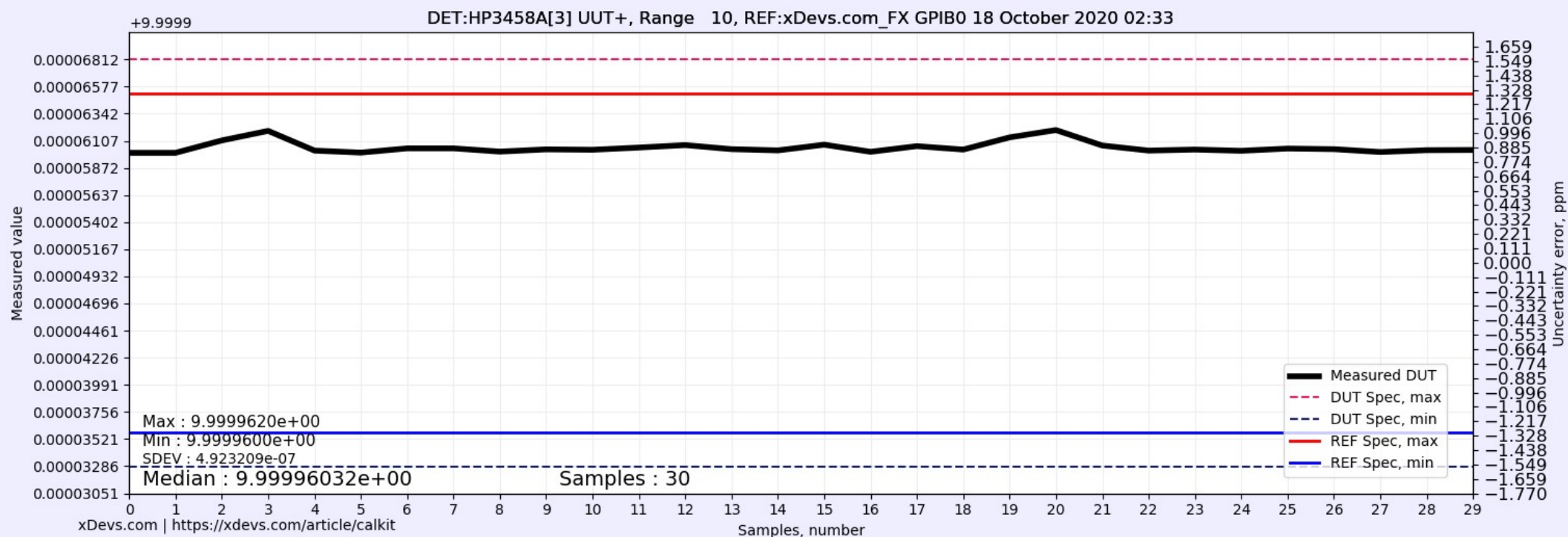
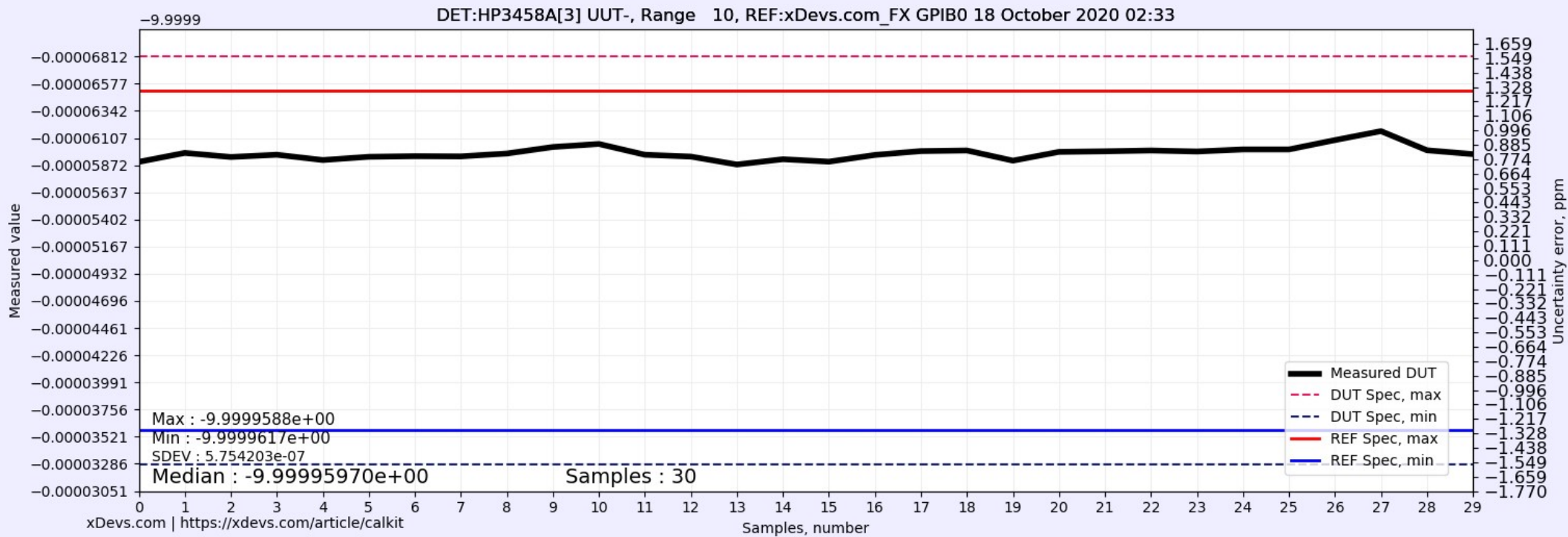
UUT output transferred by manual ratiometric measurement with reference standard.

Fixed 1.000e+01 range is used on the Keysight 3458A/X02 detector. The following test use 10 minute transfer specification with xDevs.com FX output source as reference. Gain verified for stability ±0.10 ppm over the test period. Detector zero offset is DUT is nulled prior to the measurement.

Configuration : Battery power STD, NPLC100, NDIG8, Guard is open. DUT Reference powered by Keysight E3632A +/-12 VDC.

	Measurement	Unit	Uncertainty	Standard Deviation	DUT Spec / Δ	Degree of freedom / Notes
Transfer reference output	9.9999229	VDC	±0.390 ppm			
Reference measured output (+)	9.9999327	VDC	±0.100 ppm	σ = 3.011670e-07 VDC	Δ = 0.979 ppm	30
Reference measured output (-)	-9.9999323	VDC	±0.100 ppm	σ = 1.663526e-07 VDC	Δ = 0.942 ppm	30
Reference calculated +/-	9.9999325	VDC	±0.100 ppm		Δ = 0.960 ppm	
Detector zero offset	0.0000005	VDC		σ = 6.176007e-07 VDC		
UUT measured output (+)	9.9999603	VDC	±0.100 ppm	σ = 4.141942e-07 VDC		30
UUT measured output (-)	-9.9999599	VDC	±0.100 ppm	σ = 5.913312e-07 VDC		30
Ratio positive polarity	1.00000276		±0.200 ppm			Inf
Ratio negative polarity	1.00000275		±0.200 ppm			Inf
UUT calculated output (+)	9.9999505	VDC	±0.590 ppm		Δ = 0.004 ppm	
UUT calculated output (-)	-9.9999504	VDC	±0.590 ppm		Δ = -0.004 ppm	
Temperature Δ	-0.350	°C	±0.60 °C		±1.0 °C	
UUT previous data	10.0000000	VDC	±1.000 ppm			Report
Deviation from previous measurement	-4.951 ppm	VDC				
UUT Expanded measurement (Linear) k=2	9.9999505	VDC	±0.590 ppm		0.1%	In spec
UUT Expanded measurement (RSS) k=2	9.9999505	VDC	±0.438 ppm		0.1%	In spec





RAW data	Result
Array Ref P	[9.999933288, 9.999933499, 9.999932971, 9.99993327, 9.999932918, 9.999933094, 9.999933041, 9.999932689, 9.999932953, 9.9999329, 9.999932161, 9.999932143, 9.999932689, 9.999932601, 9.999932988, 9.999932742, 9.99993253, 9.999932407, 9.999932566, 9.999932407, 9.999932812, 9.999932583, 9.999932865, 9.99993246, 9.999933076, 9.999932689, 9.999932795, 9.9999332, 9.999933411, 9.999932689]
Array Ref N	[-9.99993283, -9.999932636, -9.999932442, -9.999932354, -9.999932231, -9.999932601, -9.999932161, -9.999932407, -9.999932354, -9.999932478, -9.999932319, -9.999932196, -9.999932583, -9.999932372, -9.999932442, -9.999932143, -9.999932143, -9.999932213, -9.999932178, -9.999932108, -9.999932337, -9.999932583, -9.99993239, -9.99993246, -9.999932478, -9.999932143, -9.999931932, -9.999932301, -9.999932249, -9.999932231]
Array UUT P	[9.999960025, 9.999960025, 9.999961099, 9.999961927, 9.999960219, 9.999960043, 9.999960412, 9.999960412, 9.999960131, 9.999960324, 9.999960289, 9.999960483, 9.999960694, 9.999960342, 9.999960236, 9.99996073, 9.999960113, 9.999960606, 9.999960307, 9.999961364, 9.999961998, 9.999960659, 9.999960219, 9.999960307, 9.999960201, 9.999960395, 9.999960342, 9.999960095, 9.999960254, 9.999960272]
Array UUT N	[-9.999959003, -9.999959778, -9.999959426, -9.99995962, -9.999959162, -9.999959444, -9.999959497, -9.999959479, -9.999959726, -9.999960289, -9.999960553, -9.99995962, -9.999959461, -9.999958774, -9.999959232, -9.999959021, -9.999959602, -9.999959937, -9.99995999, -9.999959109, -9.999959866, -9.999959919, -9.99995999, -9.999959902, -9.999960078, -9.999960078, -9.999960888, -9.999961663, -9.999960007, -9.999959673]

Histogramm

