

Reference	FFlab 3458	Calibration date	October 04 2020
Ref P/N	A9	Ambient Temperature	24.68 °C
Serial	XFER	Relative Humidity	50.79 %
ID Number	Calibration test, as received;	Pressure	1020.88 hPa
Notes	---	Test type	---

Reference standard	Mfg	Model	Options	Serial / Unc	CEID	Calibration date	Due date
DC REFERENCE	Fluke	732A	10.0001333	47346	None	None	None
DMM	HP	3458A		FF-4		None	None

REDACTED. 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.

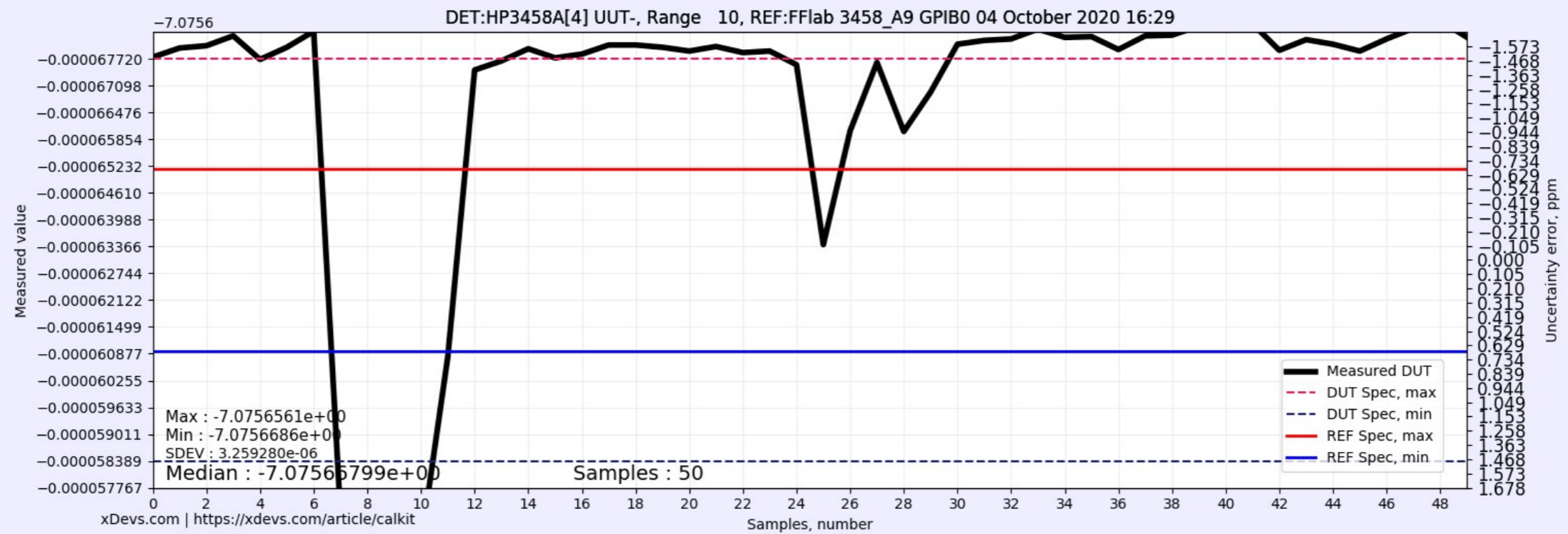
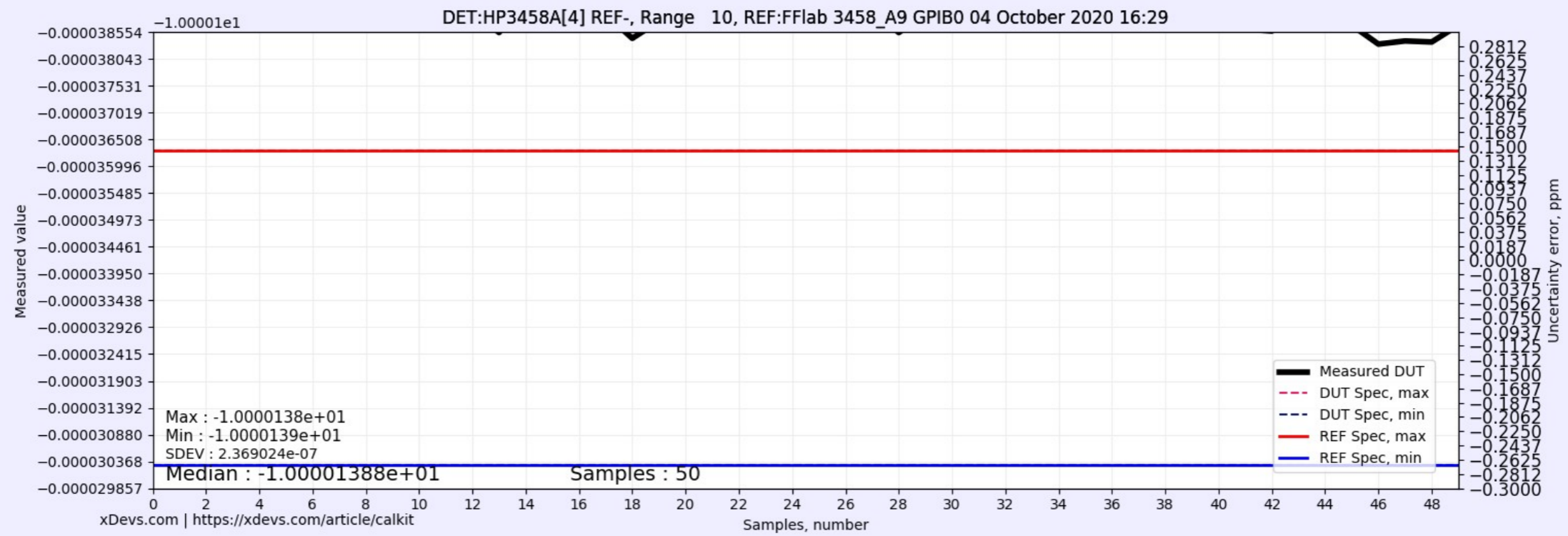
UUT output transferred by manual ratiometric measurement with reference standard.

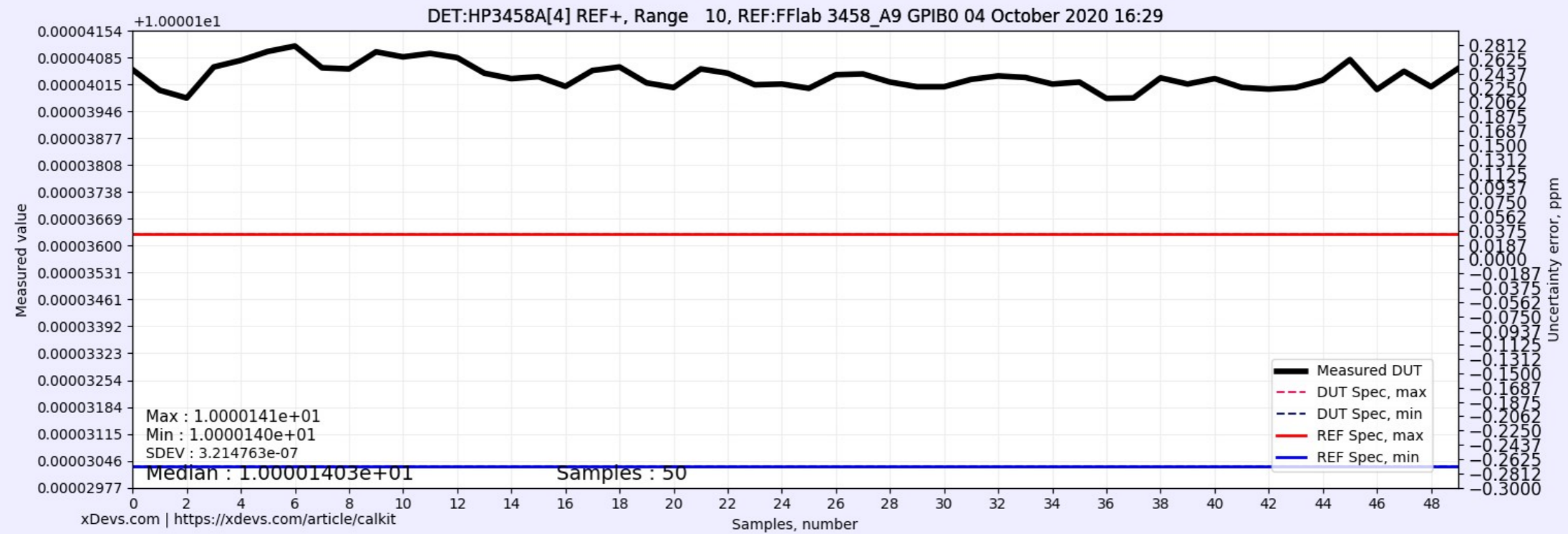
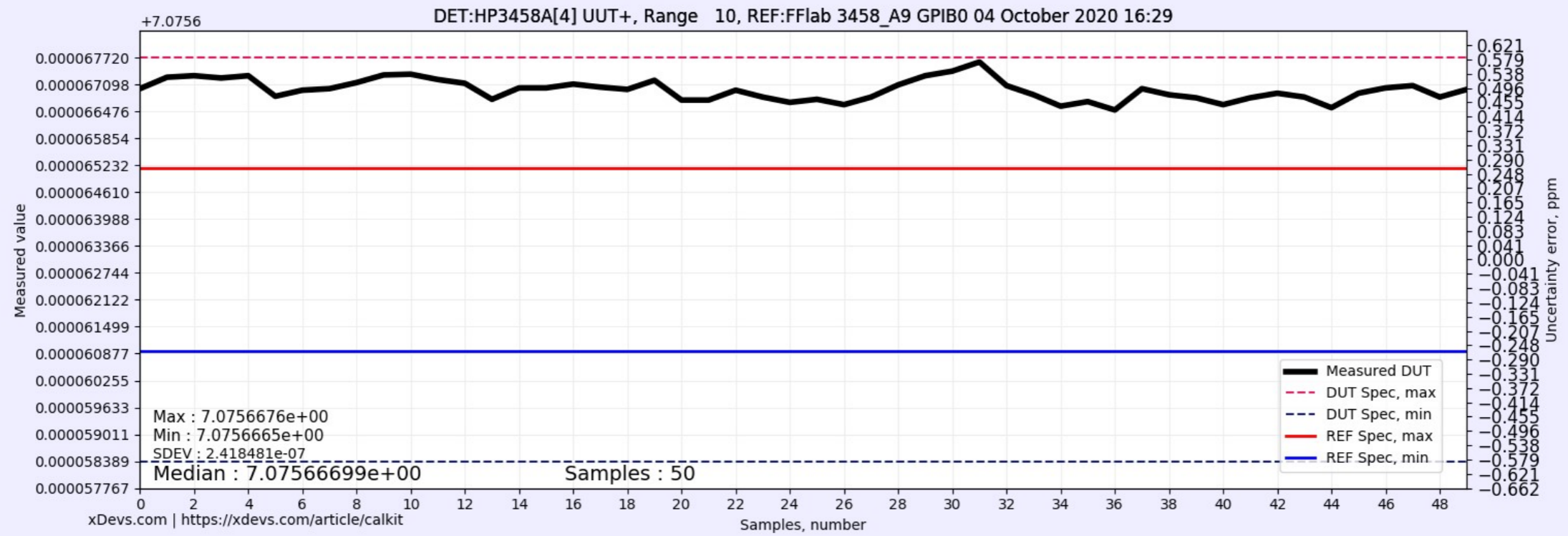
Fixed 1.000e+01 range is used on the Keysight 3458A/X02 detector. The following test use 10 minute transfer specification with FFlab 3458 A9 output source as reference. Gain verified for stability ±0.10 ppm over the test period. Detector zero offset is DUT is nulled prior to the measurement.

Configuration : Battery power STD, NPLC100, NDIG8, Guard is open.

	Measurement	Unit	Uncertainty	Standard Deviation	DUT Spec / Δ	Degree of freedom / Notes
Transfer reference output	10.0001333	VDC	±0.000 ppm			
Reference measured output (+)	10.0001403	VDC	±0.100 ppm	$\sigma = 3.151739e-07$ VDC	$\Delta = 0.701$ ppm	50
Reference measured output (-)	-10.0001388	VDC	±0.100 ppm	$\sigma = 2.464540e-07$ VDC	$\Delta = 0.551$ ppm	50
Reference calculated +/-	10.0001396	VDC	±0.100 ppm		$\Delta = 0.626$ ppm	
Detector zero offset	-0.0000001	VDC		$\sigma = 0.000000e+00$ VDC		
UUT measured output (+)	7.0756670	VDC	±0.121 ppm	$\sigma = 2.360195e-07$ VDC		50
UUT measured output (-)	-7.0756680	VDC	±0.121 ppm	$\sigma = 3.411530e-06$ VDC		50
Ratio positive polarity	0.70755677		±0.221 ppm			Inf
Ratio negative polarity	0.70755698		±0.221 ppm			Inf
UUT calculated output (+)	7.0756620	VDC	±0.221 ppm		$\Delta = -0.147$ ppm	
UUT calculated output (-)	-7.0756641	VDC	±0.221 ppm		$\Delta = 0.147$ ppm	
Temperature Δ	-0.383	°C	±1.00 %		±1.0 °C	
UUT previous data	7.0756652	VDC	±0.000 ppm			Report
Deviation from previous	-0.307 ppm	VDC	±0.221 ppm			
UUT transfer result (Linear)	7.0756631	VDC	±0.221 ppm		0.1%	In spec
UUT transfer result (RSS)	7.0756631	VDC	±0.221 ppm		0.1%	In spec

[Statistics image data](#)





Test procedure : \$Id\$

Lab temperature maintained +23°C ±1°C

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RAW data	Result
Array Ref P	[10.00014054, 10.00014001, 10.00013981, 10.00014061, 10.00014078, 10.00014101, 10.00014115, 10.00014059, 10.00014056, 10.000141, 10.00014087, 10.00014096, 10.00014085, 10.00014045, 10.00014031, 10.00014036, 10.00014011, 10.00014052, 10.00014061, 10.0001402, 10.00014008, 10.00014056, 10.00014045, 10.00014015, 10.00014017, 10.00014006, 10.00014041, 10.00014043, 10.00014022, 10.0001401, 10.0001401, 10.00014029, 10.00014038, 10.00014034, 10.00014017, 10.00014022, 10.0001398, 10.00013981, 10.00014033, 10.00014017, 10.00014031, 10.00014008, 10.00014004, 10.00014008, 10.00014027, 10.0001408, 10.00014003, 10.0001405, 10.0001401, 10.00014057]
Array Ref N	[-10.0001387, -10.00013867, -10.00013899, -10.0001389, -10.00013883, -10.000139, -10.00013883, -10.00013895, -10.00013907, -10.00013916, -10.00013906, -10.00013934, -10.000139, -10.00013855, -10.00013934, -10.00013918, -10.00013902, -10.0001389, -10.00013844, -10.00013877, -10.00013865, -10.00013881, -10.0001392, -10.00013915, -10.00013863, -10.00013883, -10.00013863, -10.00013902, -10.00013855, -10.00013892, -10.00013876, -10.00013877, -10.00013913, -10.00013876, -10.00013879, -10.00013879, -10.00013897, -10.00013897, -10.00013881, -10.00013865, -10.00013863, -10.00013862, -10.00013858, -10.00013893, -10.00013869, -10.00013869, -10.00013833, -10.00013839, -10.00013837, -10.00013869]
Array UUT P	[7.075667008, 7.075667273, 7.075667308, 7.075667255, 7.075667308, 7.075666832, 7.075666973, 7.075667008, 7.075667149, 7.075667326, 7.075667343, 7.07566722, 7.075667132, 7.075666762, 7.075667026, 7.075667026, 7.075667114, 7.075667044, 7.075666991, 7.075667202, 7.075666744, 7.075666744, 7.075666973, 7.075666814, 7.075666691, 7.075666762, 7.075666638, 7.075666814, 7.075667096, 7.075667308, 7.075667414, 7.075667625, 7.075667079, 7.075666867, 7.075666603, 7.075666709, 7.075666515, 7.075667008, 7.075666867, 7.075666797, 7.075666638, 7.075666797, 7.075666903, 7.075666814, 7.075666568, 7.075666903, 7.075667026, 7.075667079, 7.075666814, 7.075666991]
Array UUT N	[-7.075667766, -7.075667978, -7.075668031, -7.07566826, -7.075667713, -7.075667995, -7.075668366, -7.075657155, -7.075656115, -7.075656802, -7.075656467, -7.075660804, -7.075667467, -7.075667678, -7.07566796, -7.075667749, -7.075667837, -7.075668048, -7.075668048, -7.075667995, -7.075667907, -7.075668013, -7.075667872, -7.075667907, -7.07566759, -7.075663412, -7.075666056, -7.075667643, -7.075666039, -7.075666955, -7.075668066, -7.075668154, -7.075668189, -7.075668418, -7.075668225, -7.075668242, -7.075667943, -7.07566826, -7.075668277, -7.075668489, -7.075668524, -7.075668542, -7.075667925, -7.075668172, -7.075668066, -7.075667907, -7.075668189, -7.075668436, -7.075668612, -7.075668225]

Histogramm

