

DUT	Datron-Wavetek	Calibration date	November 03 2020
Ref P/N	4910	Ambient Temperature	23.32 °C
Serial	22065-7	Relative Humidity	24.30 %
ID Number	Final transfer	Pressure	1016.11 hPa
Notes	Both REF and DUT battery operated	Test type	Front 5440A-7003 cable terminals, nulled DMM

Reference standard	Mfg	Model	Options	Serial / Unc	CEID	Calibration date	Due date
DC ZENER STANDARD	Fluke/xDevs.com	792X FX	9.99998382 VDC ±0.03 ppm	X102	CMS PJVS CAL, Report E190504A	08/08/2019	08/08/2020
DC ZENER STANDARD	Fluke/xDevs.com	792X FX	9.9999728 VDC ±0.44 ppm	X102	TMI CAL, Report A3525075	03/03/2020	03/03/2021
DC ZENER STANDARD	Fluke/xDevs.com	792X FX	9.9999718 V ±0.64 ppm	X102	Process CAL	10/13/2020	04/13/2021
DMM	Keysight	3458A	001,X02,Low noise option	2823A13345	XD2	10/13/2020	04/13/2021

Uncertainty was calculated using the expanded method and is expressed in values at approximately the 95% confidence level using a coverage factor of K=2.

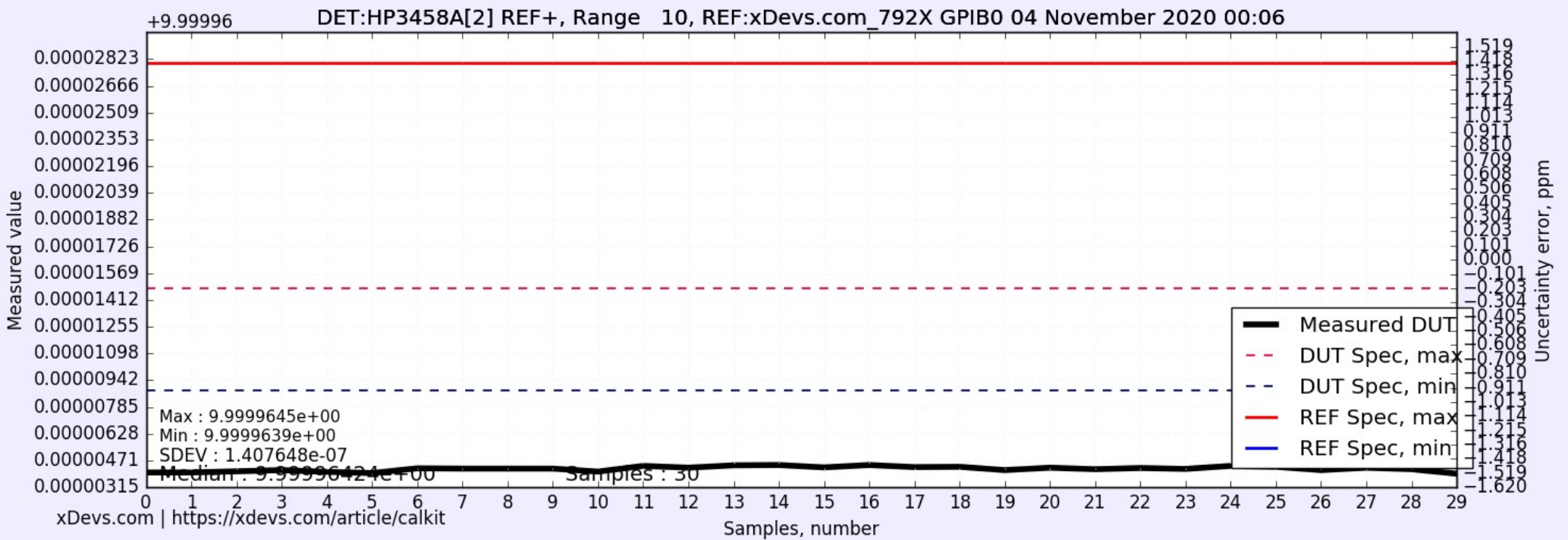
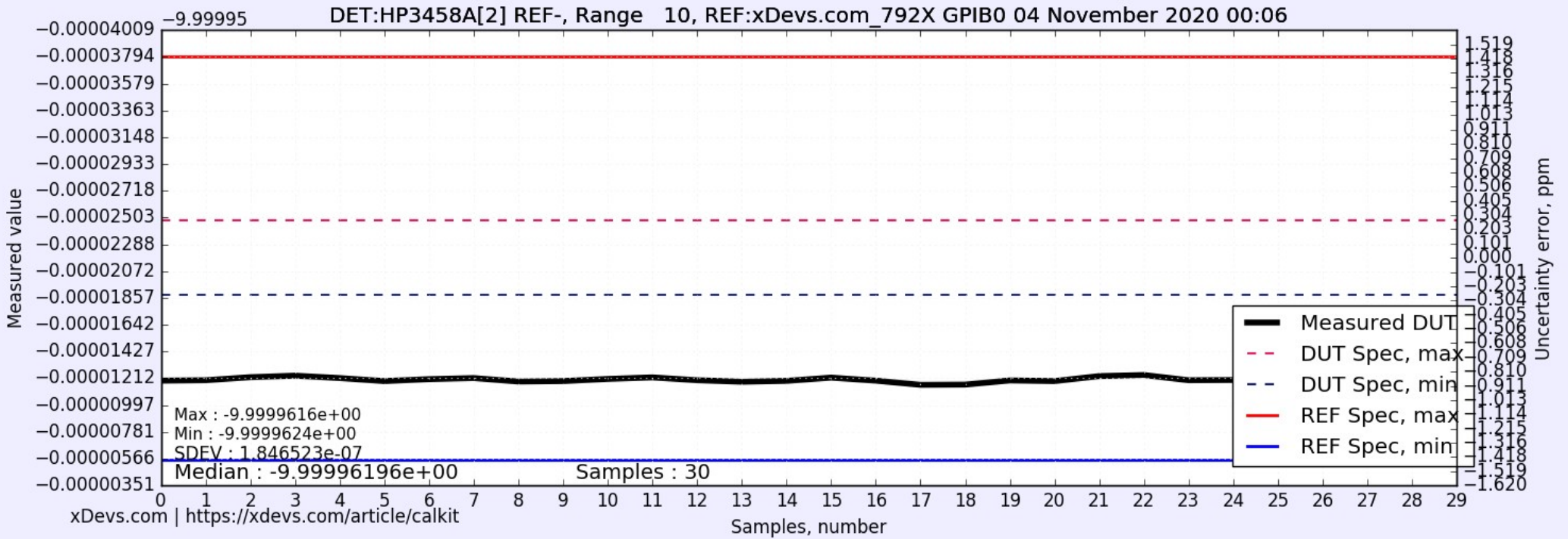
The test and measurement data here relate only to the item tested and/or measured.

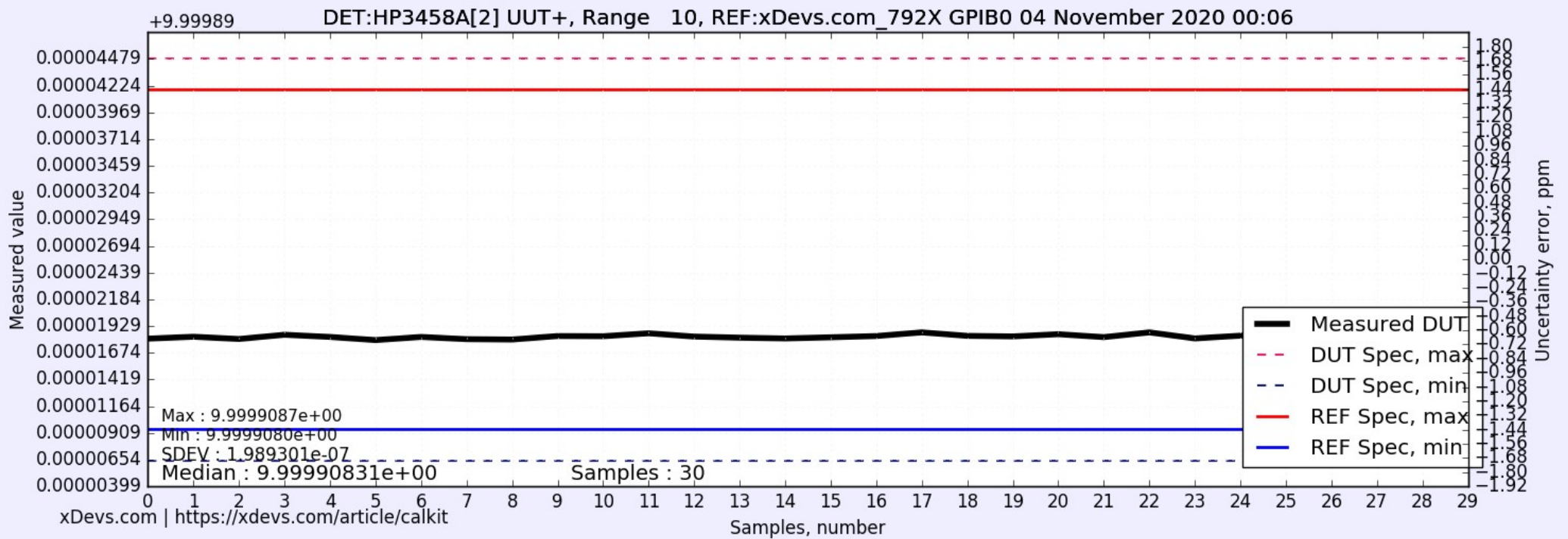
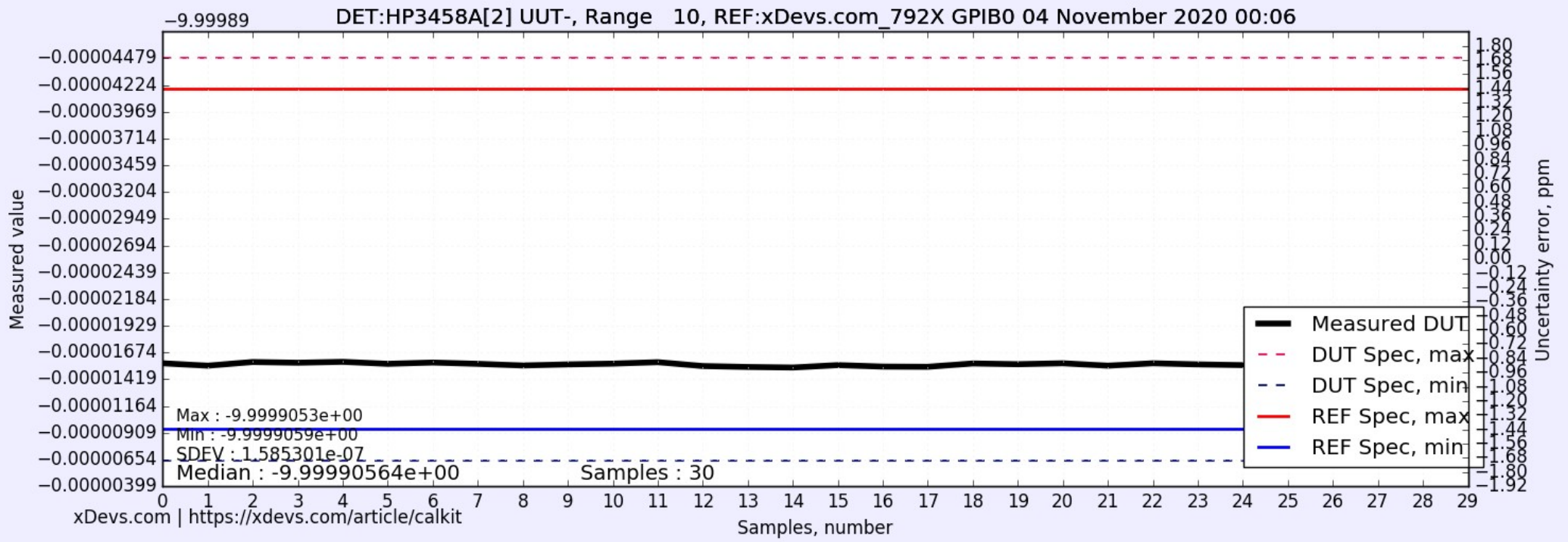
UUT output transferred by manual substitution measurement with known reference standard.

Fixed 12 VDC range is used on the Keysight 3458A/X02 comparator. The following test use 10 minute transfer specification with xDevs.com 792X output source as reference. DVM Gain and INL are verified for stability <±0.10 ppm over the test period. Detector zero offset is DUT is nulled prior to the measurement at the far end of test leads.

Configuration : Battery power STD, NPLC100, NDIG8, Guard is open. DUT Reference powered on internal battery.

	Measurement	Unit	Uncertainty	Standard Deviation	DUT Spec / Δ	Degree of freedom / Notes
Transfer reference output	9.9999718	VDC	±0.440 ppm			
Reference measured output (+)	9.9999643	VDC	±0.100 ppm	σ = 1.289524e-07 VDC	Δ = -0.752 ppm	30
Reference measured output (-)	-9.9999619	VDC	±0.100 ppm	σ = 1.804264e-07 VDC	Δ = -0.987 ppm	30
Reference calculated +/-	9.9999631	VDC	±0.100 ppm		Δ = -0.869 ppm	
Detector zero offset	0.0000006	VDC		σ = 6.632276e-08 VDC		
UUT measured output (+)	9.9999083	VDC	±0.100 ppm	σ = 2.043568e-07 VDC		30
UUT measured output (-)	-9.9999056	VDC	±0.100 ppm	σ = 1.546601e-07 VDC		30
Ratio positive polarity	0.99999441		±0.200 ppm			Inf
Ratio negative polarity	0.99999437		±0.200 ppm			Inf
UUT calculated output (+)	9.9999159	VDC	±0.640 ppm		Δ = 0.018 ppm	
UUT calculated output (-)	-9.9999155	VDC	±0.640 ppm		Δ = -0.018 ppm	
Temperature Δ	-0.037	°C	±0.60 °C		±1.0 °C	
UUT previous data	10.0000000	VDC	±0.000 ppm			Report
Deviation from previous measurement	-8.433 ppm	VDC				
UUT Expanded measurement (Linear) k=2	9.9999157	VDC	±0.640 ppm		0.1%	In spec
UUT Expanded measurement (RSS) k=2	9.9999157	VDC	±0.483 ppm		0.1%	In spec



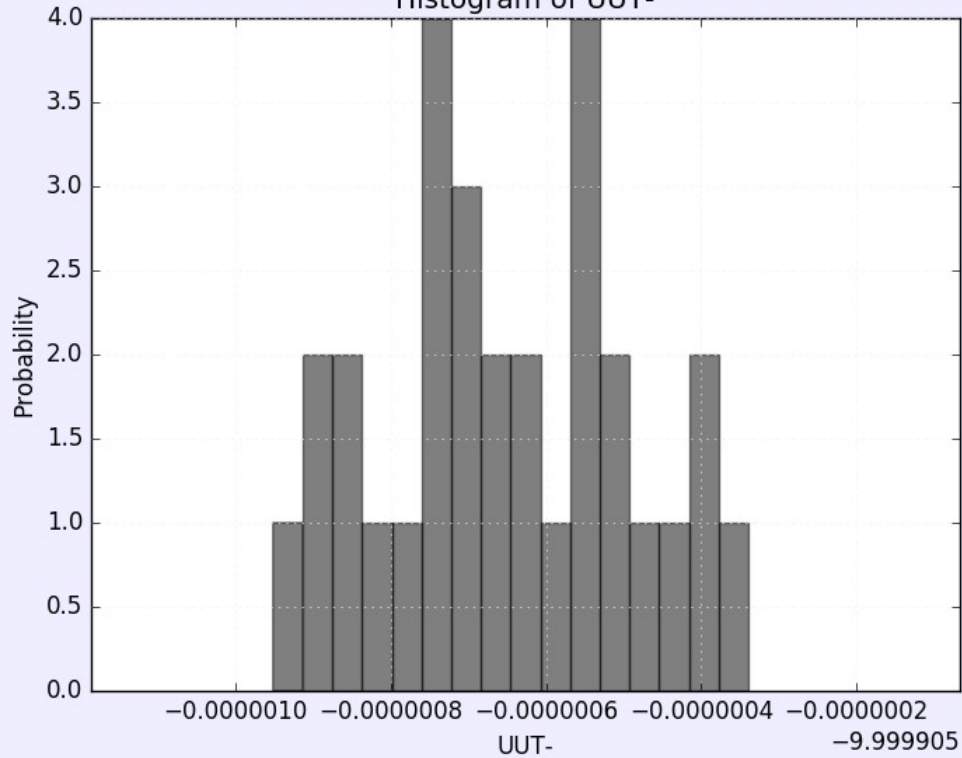


Internal data, do not expose

RAW data	Result
Array Ref P	[9.999964016, 9.999964016, 9.999964086, 9.999964156, 9.999964051, 9.999963981, 9.999964261, 9.999964244, 9.999964244, 9.999964244, 9.999964068, 9.999964401, 9.999964296, 9.999964436, 9.999964454, 9.999964314, 9.999964454, 9.999964331, 9.999964349, 9.999964156, 9.999964296, 9.999964209, 9.999963946]
Array Ref N	[-9.999961932, -9.999961967, -9.999962212, -9.999962335, -9.999962142, -9.999961897, -9.999962055, -9.999962142, -9.999961862, -9.999961897, -9.999962072, -9.999962195, -9.999961967, -9.999961845, -9.999961915, -9.999962177, -9.999961932, -9.999961599, -9.999961617, -9.99996195, -9.999961897, -9.9999623, -9.999962387, -9.999961967, -9.999961985, -9.99996181, -9.999961792, -9.999961915, -9.99996209, -9.999961897]
Array UUT P	[9.999908104, 9.999908279, 9.999908069, 9.999908472, 9.999908262, 9.999907964, 9.999908262, 9.999908052, 9.999908017, 9.999908349, 9.999908332, 9.999908612, 9.999908297, 9.999908192, 9.999908122, 9.999908227, 9.999908349, 9.999908, 9.999908367, 9.999908314, 9.999908525, 9.999908244, 9.9999087, 9.999908122, 9.999908384, 9.9999087, 9.999908419, 9.999908472, 9.999908472, 9.999908174]
Array UUT N	[-9.999905723, -9.999905495, -9.999905845, -9.999905775, -9.999905863, -9.99990567, -9.999905793, -9.99990567, -9.999905513, -9.999905618, -9.999905688, -9.999905828, -9.99990546, -9.999905373, -9.99990532, -9.999905548, -9.999905408, -9.99990539, -9.999905705, -9.999905635, -9.999905723, -9.999905495, -9.999905723, -9.999905618, -9.999905548, -9.999905653, -9.99990588, -9.999905933, -9.99990553, -9.999905583]

Histogramm

Histogram of UUT-



Histogram of UUT+

