cal equipment

Datron 4910 - Cell 2

DUT	Datron-Wavetek	Calibration date	November 03 2020
Ref P/N	4910	Ambient Temperature	23.41 °C
Serial	22065-7	Relative Humidity	24.60 %
ID Number	Final transfer	Pressure	1016.05 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.

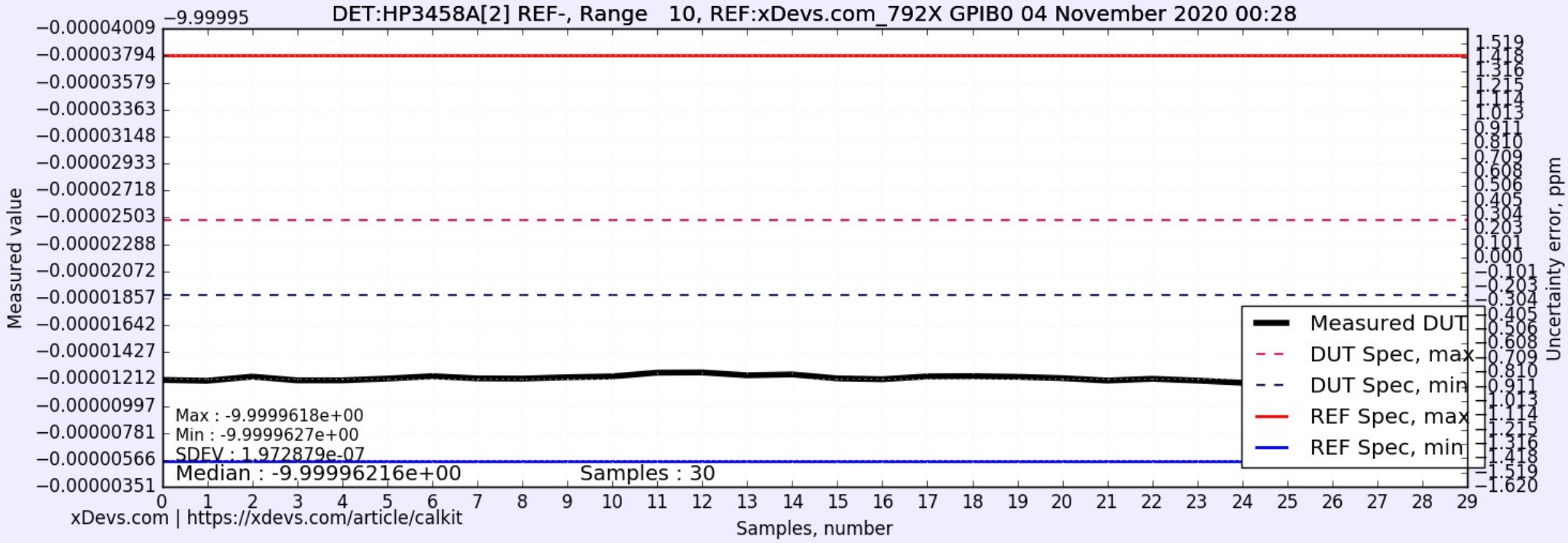
The test and measurement data here relate only to the item tested and/or measured.

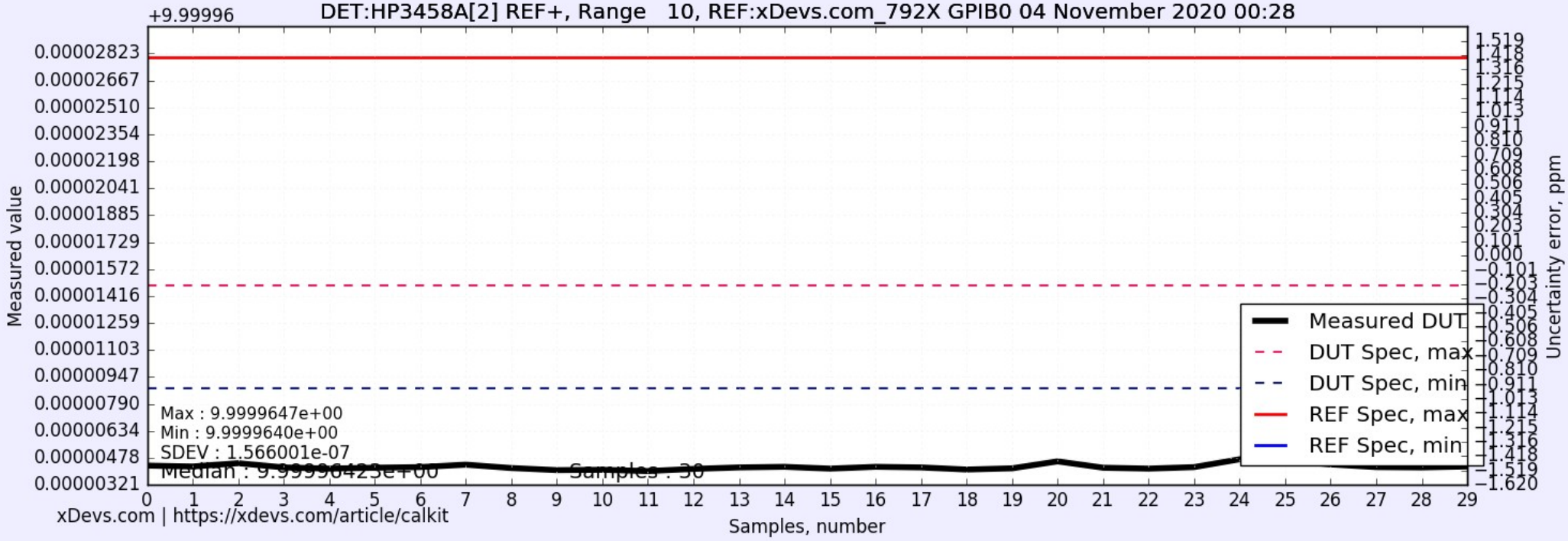
UUT output transferred by manual substitution measurement with known reference standard.
Fixed 12 VDC range is used on the Keysight 3458A/X02 comparator. The following test use 10 minute transfer specification with xDevs.com 792X output source as reference. DVM Gain and INL are verified for stability <±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.

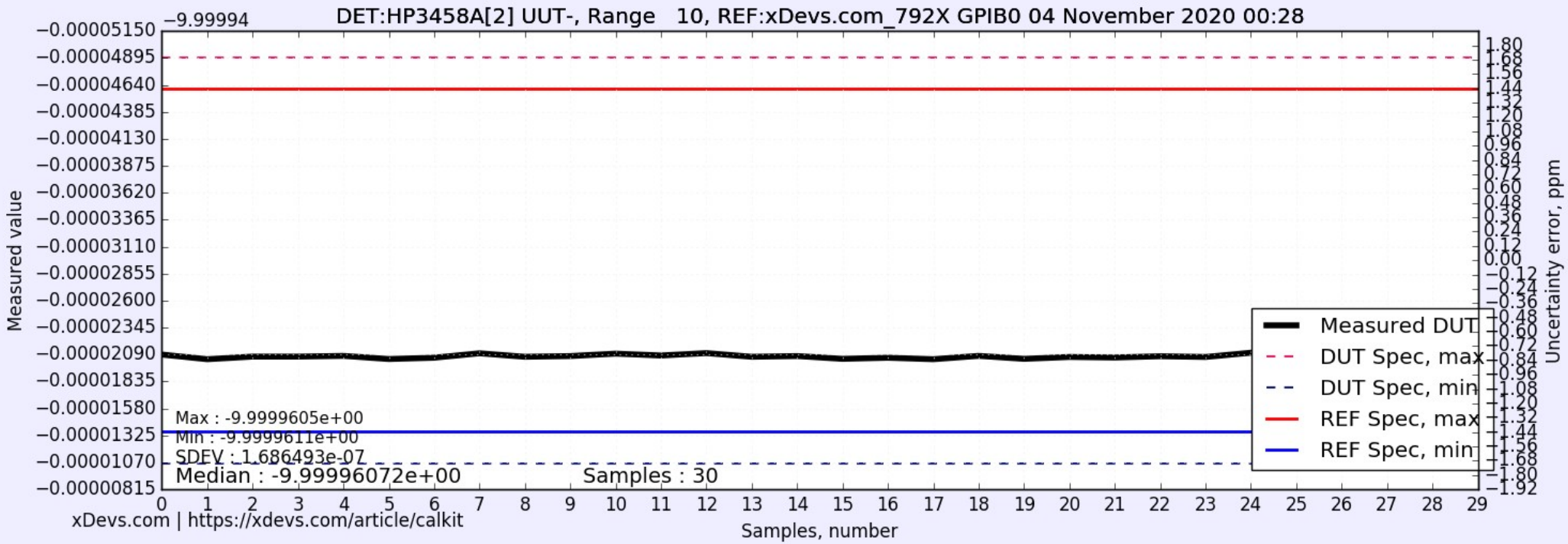
Configuration : Battery power STD, NPLC100, NDIG8, Guard is open. DUT Reference powered on internal battery.

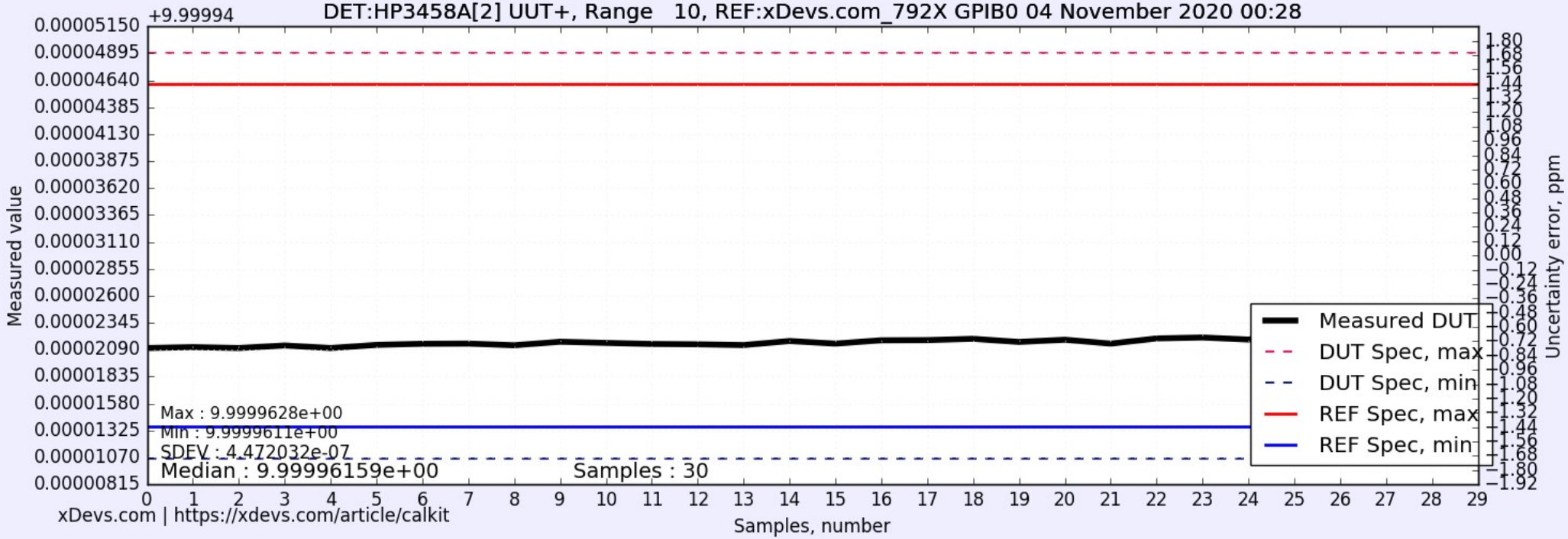
	Measurement	Unit	Uncertainty	Standard Deviation	DUT Spec / Δ	Degree of freedom / Notes
Transfer reference output	**9.9999718**	**VDC**	**±0.440 ppm**			
Reference measured output (+)	9.9999642	VDC	±0.100 ppm	σ = 1.641470e-07 VDC	Δ = -0.757 ppm	30
Reference measured output (-)	-9.9999622	VDC	±0.100 ppm	σ = 2.023280e-07 VDC	Δ = -0.962 ppm	30
Reference calculated +/-	9.9999632	VDC	±0.100 ppm		Δ = -0.860 ppm	
Detector zero offset	0.0000006	VDC		σ = 7.986103e-08 VDC		
UUT measured output (+)	9.9999617	VDC	±0.100 ppm	σ = 4.024078e-07 VDC		30
UUT measured output (-)	-9.9999607	VDC	±0.100 ppm	σ = 1.731641e-07 VDC		30
Ratio positive polarity	0.99999975		±0.200 ppm			Inf
Ratio negative polarity	0.99999985		±0.200 ppm			Inf
UUT calculated output (+)	9.9999693	VDC	±0.640 ppm		Δ = -0.053 ppm	
UUT calculated output (-)	-9.9999703	VDC	±0.640 ppm		Δ = 0.053 ppm	
Temperature Δ	-0.365	°C	±0.60 °C		±1.0 °C	
UUT previous data	10.0000000	VDC	±0.000 ppm			Report
Deviation from previous measurement	**-3.018 ppm**	VDC				
UUT Expanded measurement (Linear) k=2	**9.9999698**	**VDC**	**±0.640 ppm**		0.1%	In spec
UUT Expanded measurement (RSS) k=2	**9.9999698**	**VDC**	**±0.483 ppm**		0.1%	In spec

Statistics image data









Test procedure : $Id: xfer_dcv.py | Rev 1989 | 2020/11/04 00:28:02 tin_fpga $

Internal data, do not expose

RAW data	Result
Array Ref P	[9.999964331, 9.999964279, 9.999964471, 9.999964226, 9.999964156, 9.999964209, 9.999964244, 9.999964384, 9.999964191, 9.999964068, 9.999964086, 9.999964016, 9.999964138, 9.999964226, 9.999964261, 9.999964156, 9.999964261, 9.999964226, 9.999964103, 9.999964173, 9.999964576, 9.999964209, 9.999964156, 9.999964244, 9.999964699, 9.999964629, 9.999964401, 9.999964244, 9.999964226, 9.999964279]
Array Ref N	[-9.999962055, -9.999961985, -9.999962317, -9.99996202, -9.99996202, -9.99996216, -9.999962352, -9.999962177, -9.99996216, -9.999962265, -9.999962335, -9.999962633, -9.99996265, -9.999962422, -9.999962492, -9.999962177, -9.999962107, -9.999962335, -9.999962352, -9.9999623, -9.999962195, -9.999962002, -9.999962142, -9.999962002, -9.999961827, -9.999962055, -9.99996188, -9.999962037, -9.99996209, -9.999962107]
Array UUT P	[9.999961057, 9.999961144, 9.999961057, 9.999961302, 9.999961057, 9.999961354, 9.999961459, 9.999961477, 9.999961319, 9.999961652, 9.999961547, 9.999961442, 9.999961407, 9.999961337, 9.999961722, 9.999961477, 9.999961792, 9.99996181, 9.999961932, 9.999961634, 9.999961845, 9.999961477, 9.999961967, 9.999962055, 9.999961862, 9.999962405, 9.999962457, 9.999962492, 9.999962755, 9.999962317]
Array UUT N	[-9.999960899, -9.999960461, -9.999960706, -9.999960706, -9.999960776, -9.999960479, -9.999960601, -9.999961022, -9.999960689, -9.999960759, -9.999960987, -9.999960811, -9.999961039, -9.999960689, -9.999960759, -9.999960496, -9.999960601, -9.999960461, -9.999960776, -9.999960496, -9.999960671, -9.999960619, -9.999960741, -9.999960671, -9.999961074, -9.999960899, -9.999960724, -9.999960549, -9.999960776, -9.999960829]

Histogramm