



**SUMMARY TEST DATA
ON
HADA-D2001**

PL44195/2409

Customer: _____	Tested By: <u>Anton L.</u>
SO No: _____	Temperature: <u>+25°C -40°C +85°C</u>
Model No: <u>HADA-D2001</u>	Date: <u>2/26/23</u>
Serial No: <u>PL44195/2409</u>	Drawing No: <u>27620201</u> Rev: <u>A1</u>

TEST ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range:	0.5 GHz – 2.0 GHz	0.5 GHz – 2.0 GHz See Plot	
2	TSS:	-44 dBm Min @ -40°C to +85°	-45.5 dBm See Plot	
3	Frequency Flatness:	±0.75 dB Max	±0.20 dB See Plot	
4	Input / Output Characteristics: (93 Ω)	Y = 2350 + 50X [X: Input (dBm), Y: Output (mv)]	Pass	
5	Logging Accuracy	±1.5 dB Max (@ +25°C, 1.0 GHz) [-40 dBm ≤ INPUT ≤ 0 dBm] ±2.2 dB Max (Note)	+0.48 / -0.68 dB +1.04 / -1.12 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	+0.41 / -0.34 dB +0.64 / -0.43 dB See Plot	
7	Maximum Input Power (CW):	+23 dBm	Pass	
8	Duty Cycle:	100%	Pass	
9	Rise Time:	30 ns Max (10% to 90%)	27 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	358 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+89 mV @ +25°C +108 mV @ -40°C +91 mV @ +85°C	
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.27:0 See Plot	
13	Propagation Delay:	60 ns Max	40 ns	

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14	Power Supply:	+12 ± 1VDC @ 125 mA Max -12 ± 1VDC @ 75 mA Max	120 mA 70 mA	PMI QA3
15	Warm Up Time:	2 Minutes Max	2 Minutes	

*Notes: Includes Frequency Flatness. Input Power, Temperature Deviation and Deviation for DC Offset. The test shall be performed using RG-316 (or equivalent), 20cm, 93±0.5 Ohms terminated.

QA/QC Approval: *G. Wilson* Date: 2-28-24



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Log Linearity and Log Accuracy @ +25°C

DC Offset= 0.089 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2329
	SLOPE (mV/dB)	49.3

1 GHz	INTERCEPT (mV)	2338
	SLOPE (mV/dB)	49.1

2 GHz	INTERCEPT (mV)	2340
	SLOPE (mV/dB)	49.4

Flatness +/- dB	
Max Video Output Volts	
Min Video Output Volts	

	-40	-35	-30	-25	-20	-15	-10	-5	0
	354	596	856	1104	1344	1606	1822	2066	2341
	-3	-8	6	7	1	16	-14	-17	12
	-0.06	-0.15	0.12	0.15	0.02	0.33	-0.29	-0.34	0.24
	0.08	-0.08	0.12	0.08	-0.12	0.12	-0.56	-0.68	-0.18
	368	610	874	1120	1359	1622	1834	2078	2342
	-7	-10	8	9	3	20	-13	-14	4
	-0.14	-0.21	0.17	0.18	0.05	0.41	-0.27	-0.29	0.09
	0.36	0.20	0.48	0.40	0.18	0.44	-0.32	-0.44	-0.16
	361	603	865	1112	1354	1616	1834	2079	2346
	-4	-9	6	7	2	17	-12	-14	9
	-0.08	-0.18	0.13	0.13	0.04	0.34	-0.24	-0.28	0.13
	0.22	0.06	0.30	0.24	0.08	0.32	-0.32	-0.42	-0.08
	0.10	0.10	0.20	0.20	0.20	0.20	0.10	0.10	0.10
	0.37	0.61	0.87	1.12	1.36	1.62	1.83	2.08	2.35
	0.35	0.60	0.86	1.10	1.34	1.61	1.82	2.07	2.34

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.33	-0.34
LOGGING ACCURACY (dB)	0.12	-0.68

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.41	-0.29
LOGGING ACCURACY (dB)	0.48	-0.44

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.34	-0.28
LOGGING ACCURACY (dB)	0.32	-0.42

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.41	-0.34

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.48	-0.68

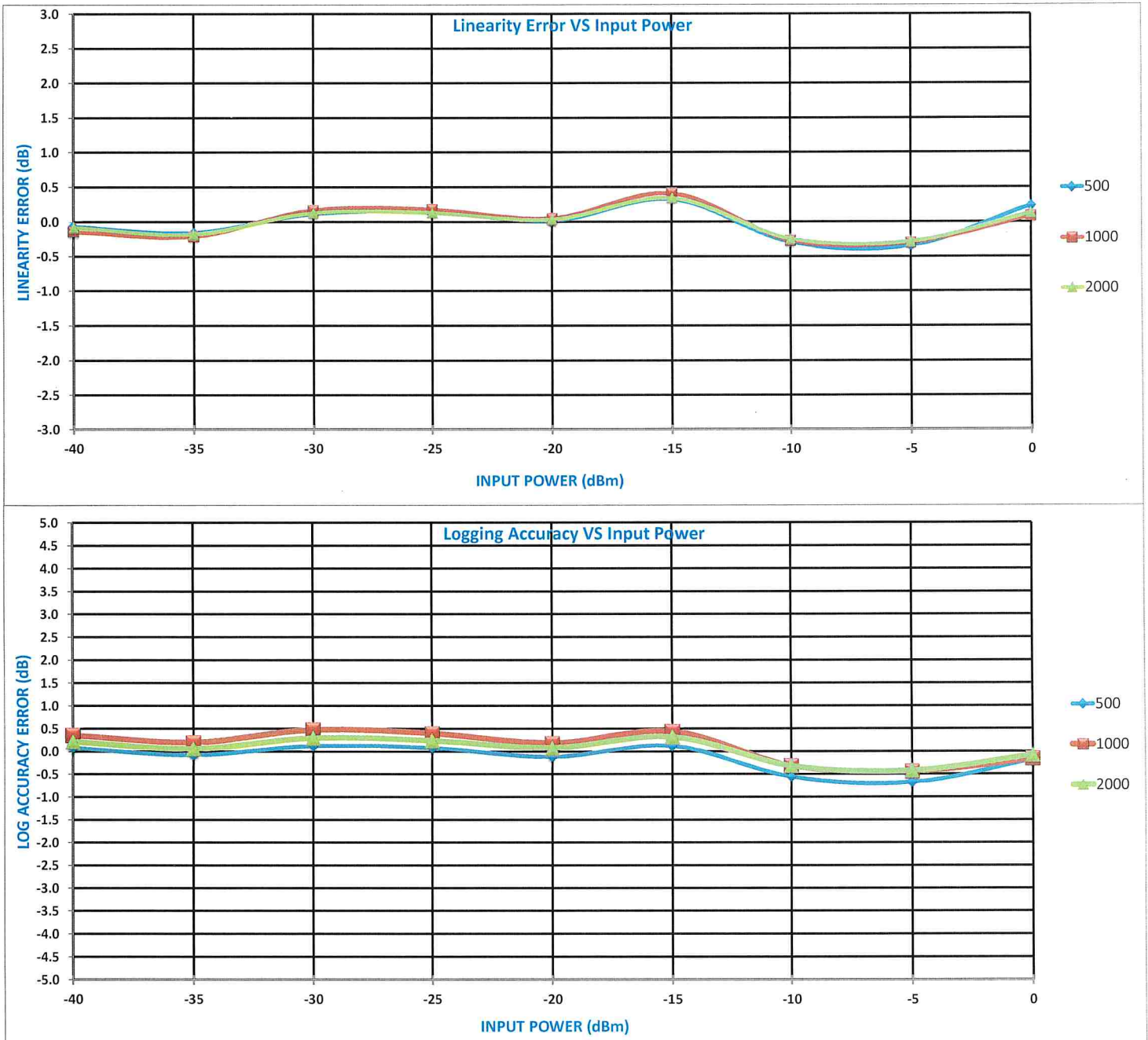
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SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ +25°C



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SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ -40°C

DC Offset= 0.108 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2325
	SLOPE (mV/dB)	48.5

1 GHz	INTERCEPT (mV)	2333
	SLOPE (mV/dB)	48.2

2 GHz	INTERCEPT (mV)	2340
	SLOPE (mV/dB)	48.5

Flatness +/- dB	
Max Video Output Volts	
Min Video Output Volts	

	-40	-35	-30	-25	-20	-15	-10	-5	0
	387	609	872	1117	1357	1622	1830	2066	2330
	3	-17	3	5	3	25	-10	-17	5
	0.07	-0.36	0.06	0.11	0.05	0.51	-0.20	-0.34	0.10
	0.74	0.18	0.44	0.34	0.14	0.44	-0.40	-0.68	-0.40
	402	626	892	1138	1377	1641	1846	2079	2323
	-4	-21	4	10	8	31	-5	-13	-10
	-0.08	-0.43	0.09	0.20	0.16	0.64	-0.11	-0.27	-0.21
	1.04	0.52	0.84	0.76	0.54	0.82	-0.08	-0.42	-0.54
	399	623	888	1134	1376	1640	1850	2084	2334
	-1	-19	3	7	5	28	-5	-13	-8
	-0.01	-0.39	0.07	0.14	0.13	0.57	-0.10	-0.28	-0.12
	0.98	0.48	0.76	0.68	0.52	0.90	0.00	-0.32	-0.32
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10
	0.40	0.63	0.89	1.14	1.38	1.64	1.85	2.08	2.33
	0.39	0.61	0.87	1.12	1.36	1.62	1.83	2.07	2.32

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.51	-0.36
LOGGING ACCURACY (dB)	0.74	-0.68

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.64	-0.43
LOGGING ACCURACY (dB)	1.04	-0.54

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.57	-0.39
LOGGING ACCURACY (dB)	0.98	-0.32

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.64	-0.43

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	1.04	-0.68

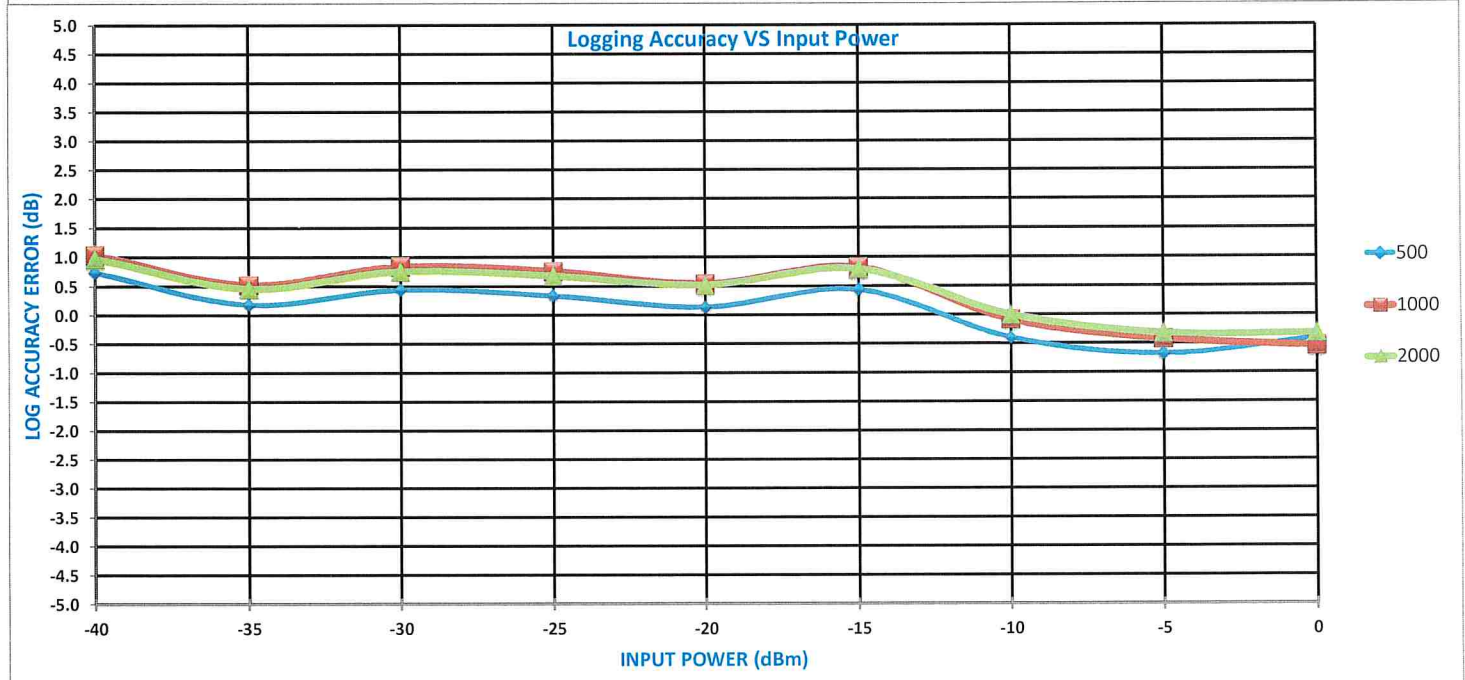
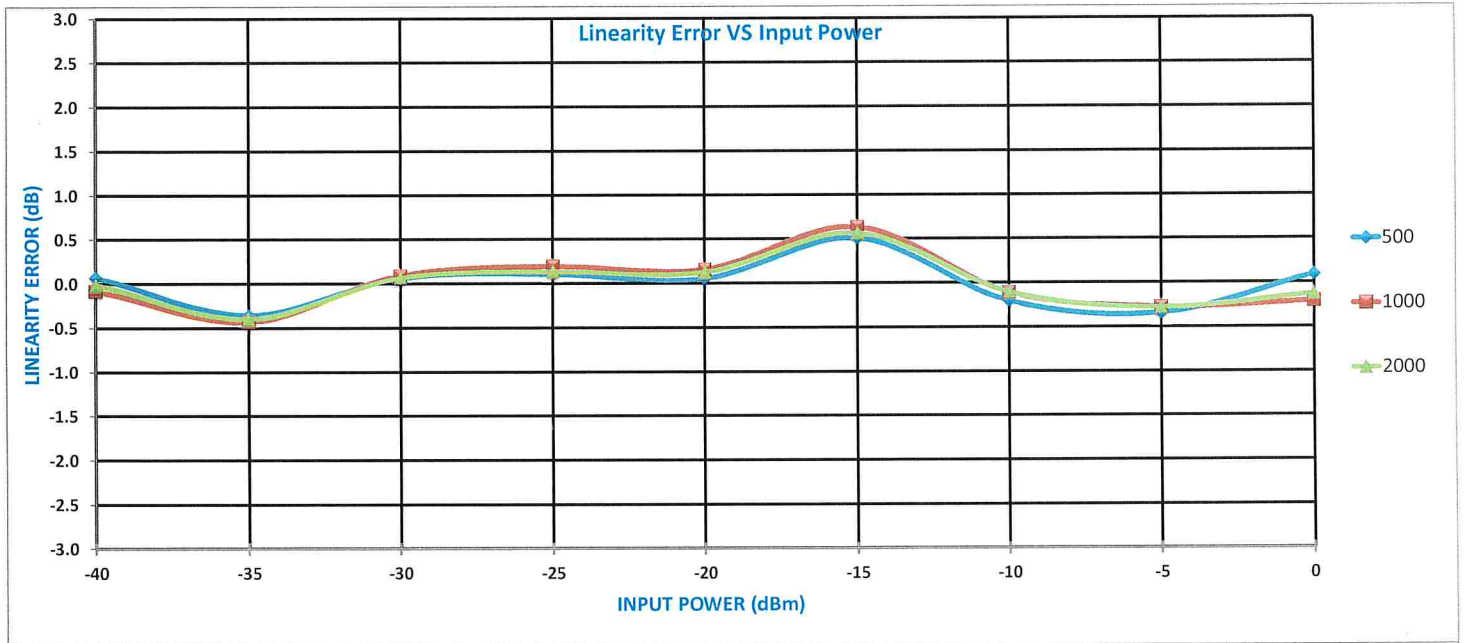
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Log Linearity and Log Accuracy @ -40°C



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SUMMARY TEST DATA ON HADA-D2001

PL44195/2409

Log Linearity and Log Accuracy @ +85°C

DC Offset= 0.091 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2300
	SLOPE (mV/dB)	49.1

1 GHz	INTERCEPT (mV)	2313
	SLOPE (mV/dB)	49

2 GHz	INTERCEPT (mV)	2319
	SLOPE (mV/dB)	49.2

Flatness +/- dB	
Max Video Output Volts	
Min Video Output Volts	

	-40	-35	-30	-25	-20	-15	-10	-5	0
	332	576	828	1077	1319	1573	1800	2044	2306
	-3	-4	2	5	2	10	-9	-10	6
	-0.05	-0.09	0.04	0.11	0.04	0.21	-0.17	-0.21	0.12
	-0.36	-0.48	-0.44	-0.46	-0.62	-0.54	-1.00	-1.12	-0.88
	349	593	850	1096	1336	1593	1815	2062	2312
	-6	-7	6	7	2	14	-9	-6	-1
	-0.12	-0.14	0.11	0.14	0.04	0.29	-0.17	-0.13	-0.02
	-0.02	-0.14	0.00	-0.08	-0.28	-0.14	-0.70	-0.76	-0.76
	346	591	847	1093	1336	1593	1820	2069	2316
	-5	-6	4	4	1	12	-7	-4	-3
	-0.09	-0.11	0.09	0.09	0.03	0.25	-0.13	-0.07	-0.05
	-0.06	-0.18	-0.06	-0.14	-0.28	-0.14	-0.80	-0.82	-0.68
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.30	0.10
	0.35	0.59	0.85	1.10	1.34	1.59	1.82	2.07	2.32
	0.33	0.58	0.83	1.08	1.32	1.57	1.80	2.04	2.31

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.21	-0.21
LOGGING ACCURACY (dB)	-0.36	-1.12

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.29	-0.17
LOGGING ACCURACY (dB)	0.00	-0.76

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.25	-0.13
LOGGING ACCURACY (dB)	-0.06	-0.68

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.29	-0.21

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.00	-1.12

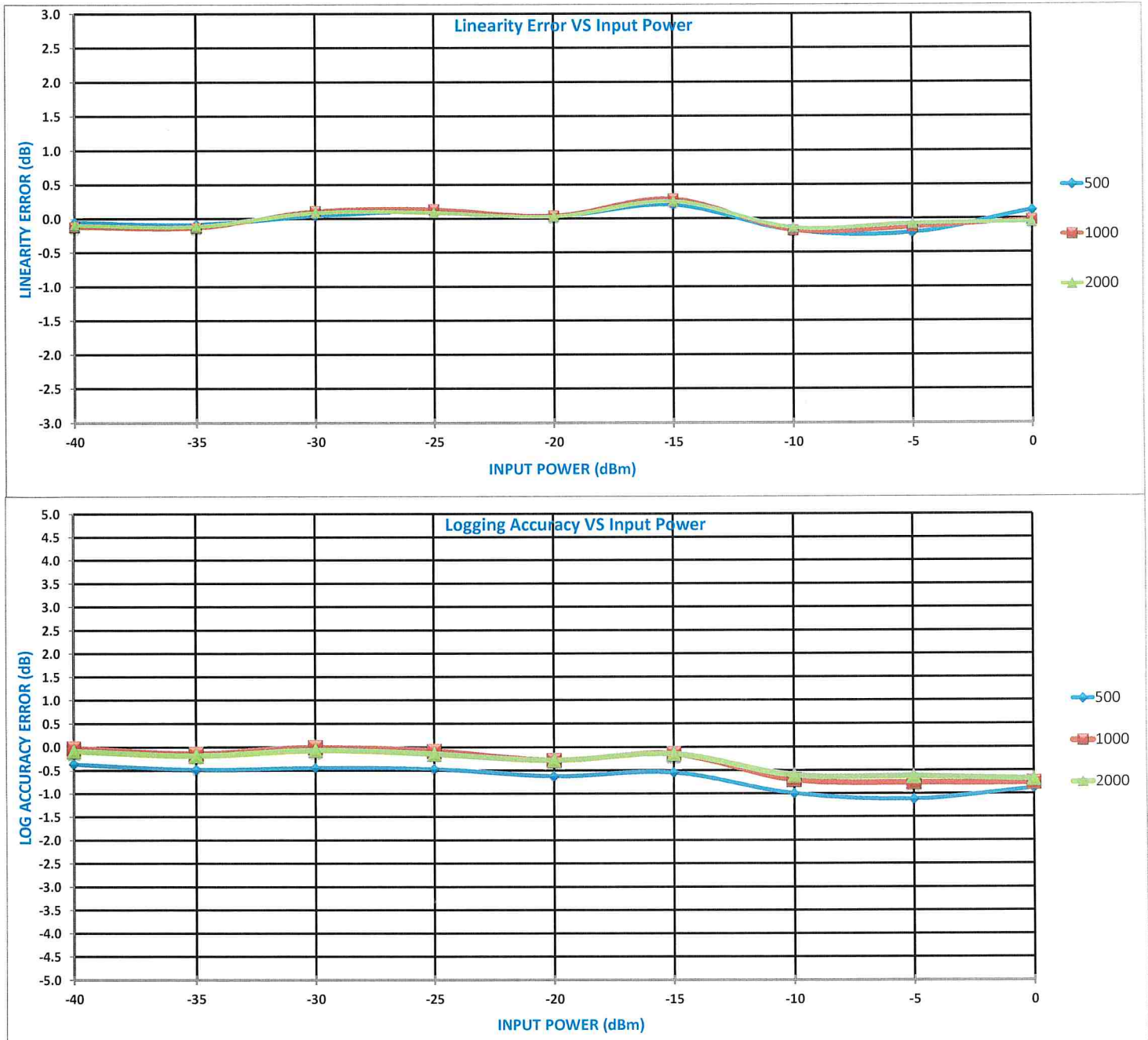
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Log Linearity and Log Accuracy @ +85°C



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SUMMARY TEST DATA
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TSS -45.5 dBm

DSO-X 3024A, MY54490369: Fri Feb 23 13:59:02 2024



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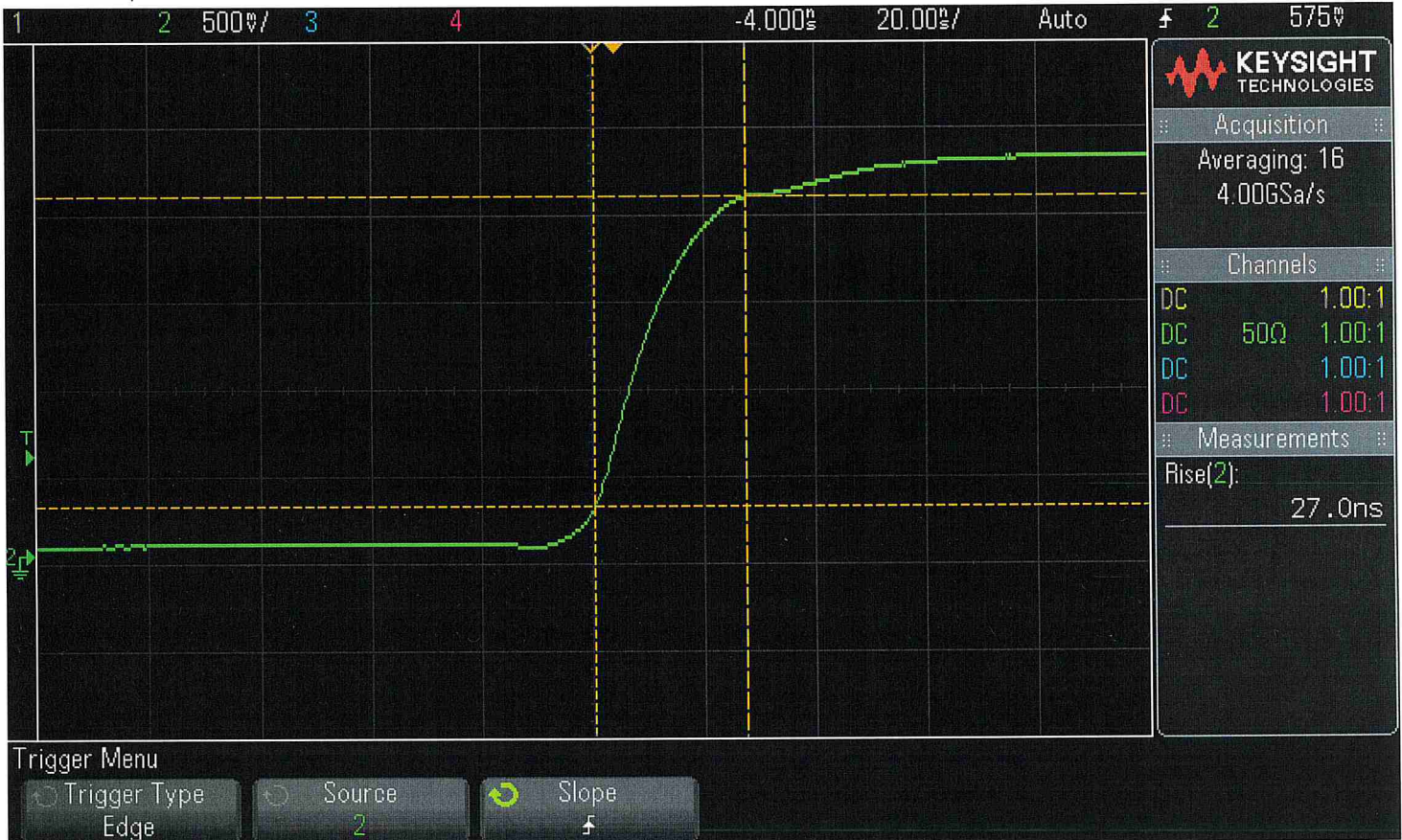


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Rise Time 27 ns

DSO-X 3024A, MY54490369: Fri Feb 23 13:47:49 2024



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SUMMARY TEST DATA
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PL44195/2409

Fall Time 358 ns

DSO-X 3024A, MY54490369, Fri Feb 23 14:40:30 2024



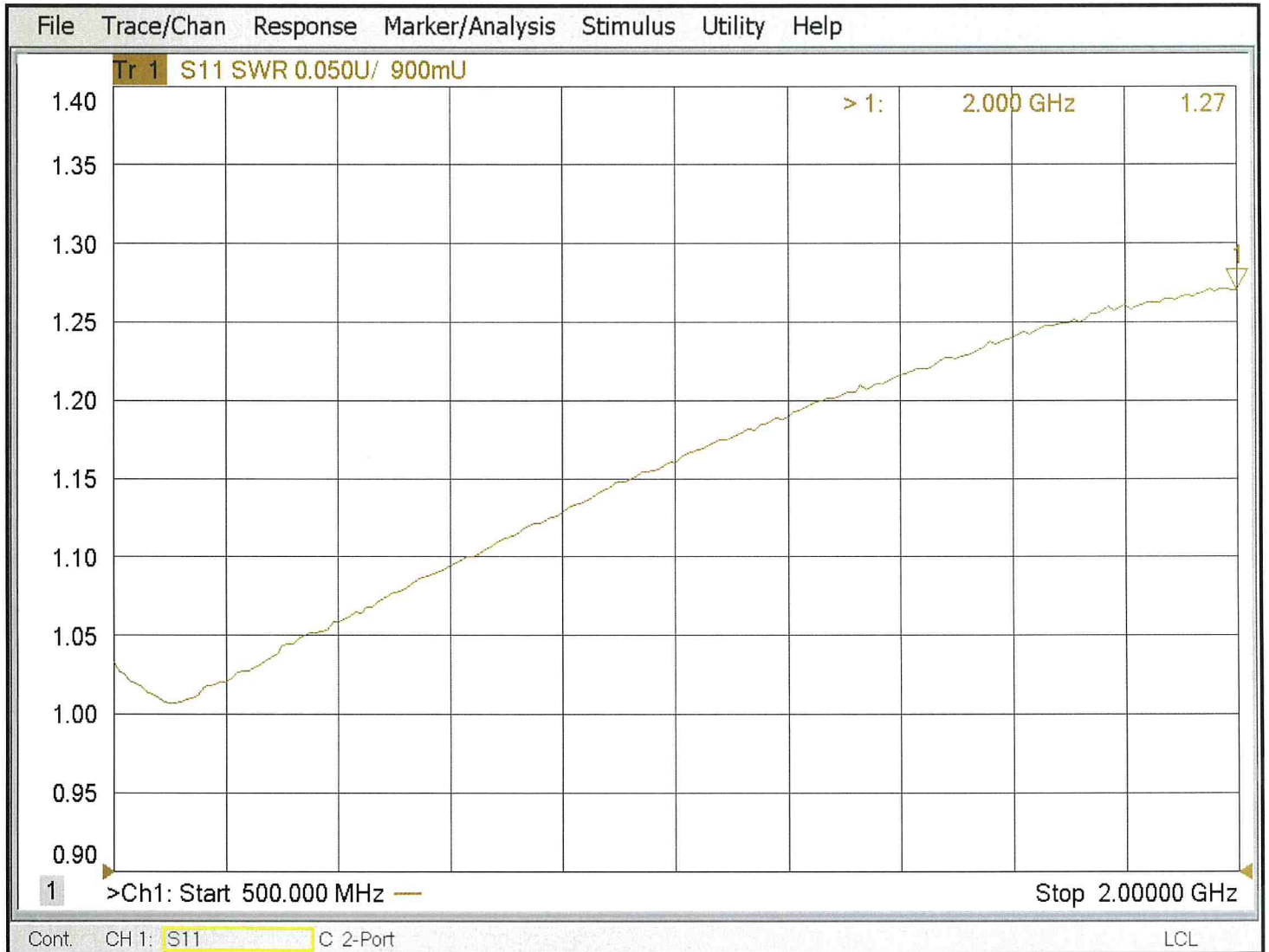
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VSWR 1.27:1



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