



**SUMMARY TEST DATA  
ON  
HADA-D2001**

PL44189/2409

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>PL44189/2409</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	PMI QA3
2	TSS:	-44 dBm Min @ -40°C to +85°	-45.5 dBm See Plot	
3	Frequency Flatness:	±0.75 dB Max	±0.3 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)	+1.16 / 0.08 dB +1.18 / -0.52 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	+0.39 / -0.30 dB +0.56 / -0.30 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%)	26 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	313 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+94 mV @ +25°C +86 mV @ -40°C +110 mV @ +85°C	
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.31:0 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: K. Lutman

Date: 2-27-24



## SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ +25°C

DC Offset= 0.094 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2379
	SLOPE (mV/dB)	50.3

1 GHz	INTERCEPT (mV)	2390
	SLOPE (mV/dB)	50.1

2 GHz	INTERCEPT (mV)	2396
	SLOPE (mV/dB)	50.4

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	354	627	874	1116	1379	1641	1861	2116	2387
	-12	9	4	-5	6	17	-15	-12	8
	-0.24	0.18	0.09	-0.10	0.12	0.33	-0.30	-0.23	0.15
	0.08	0.54	0.48	0.32	0.58	0.82	0.22	0.32	0.74
	372	643	893	1135	1396	1658	1875	2130	2391
	-15	6	6	-3	8	19	-14	-9	1
	-0.29	0.12	0.11	-0.05	0.16	0.39	-0.28	-0.19	0.03
	0.44	0.86	0.86	0.70	0.92	1.16	0.50	0.60	0.82
	369	640	889	1130	1395	1656	1879	2136	2400
	-11	8	5	-6	7	16	-13	-8	4
	-0.23	0.15	0.09	-0.12	0.13	0.31	-0.26	-0.16	0.08
	0.38	0.60	0.78	0.80	0.90	1.12	0.58	0.72	1.00
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10
	0.37	0.64	0.89	1.14	1.40	1.66	1.88	2.14	2.40
	0.35	0.63	0.87	1.12	1.38	1.64	1.86	2.12	2.39

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.33	-0.30
LOGGING ACCURACY (dB)	0.82	0.08

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.39	-0.29
LOGGING ACCURACY (dB)	1.16	0.44

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.31	-0.26
LOGGING ACCURACY (dB)	1.12	0.38

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.39	-0.30

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	1.16	0.08

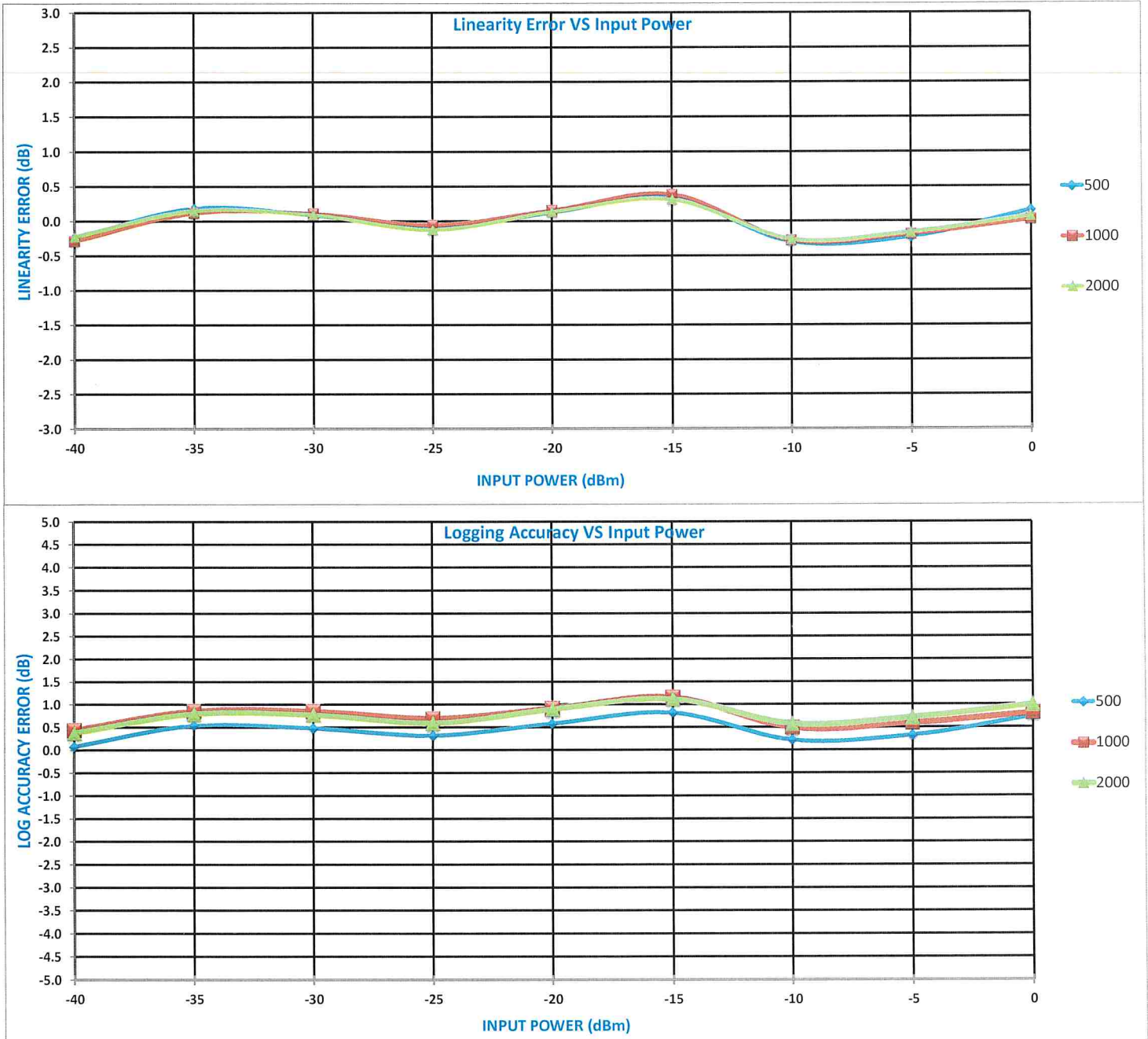
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# SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ +25°C



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## SUMMARY TEST DATA ON HADA-D2001

PL44189/2409

Log Linearity and Log Accuracy @ -40°C

DC Offset= 0.086 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2360
	SLOPE (mV/dB)	49.7

1 GHz	INTERCEPT (mV)	2371
	SLOPE (mV/dB)	49.3

2 GHz	INTERCEPT (mV)	2377
	SLOPE (mV/dB)	49.7

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	370	621	869	1111	1375	1639	1855	2102	2359
	-4	-1	-1	-7	8	24	-8	-10	-1
	-0.07	-0.02	-0.02	-0.15	0.17	0.48	-0.17	-0.20	-0.02
	0.40	0.42	0.38	0.22	0.50	0.78	0.10	0.04	0.18
	391	639	891	1135	1396	1659	1872	2117	2361
	-7	-6	0	-3	11	28	-6	-8	-10
	-0.14	-0.11	0.00	-0.06	0.23	0.56	-0.12	-0.15	-0.21
	0.82	0.78	0.82	0.70	0.92	1.18	0.44	0.34	0.22
	386	634	886	1129	1393	1656	1875	2122	2370
	-4	-4	-1	-8	10	24	-5	-7	-7
	-0.08	-0.08	-0.01	-0.12	0.19	0.49	-0.11	-0.13	-0.14
	0.72	0.68	0.72	0.58	0.86	1.12	0.50	0.44	0.40
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10
	0.39	0.64	0.89	1.14	1.40	1.66	1.88	2.12	2.37
	0.37	0.62	0.87	1.11	1.38	1.64	1.86	2.10	2.36

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.48	-0.20
LOGGING ACCURACY (dB)	0.78	0.04

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.56	-0.21
LOGGING ACCURACY (dB)	1.18	0.22

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.49	-0.14
LOGGING ACCURACY (dB)	1.12	0.40

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.56	-0.21

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	1.18	0.04

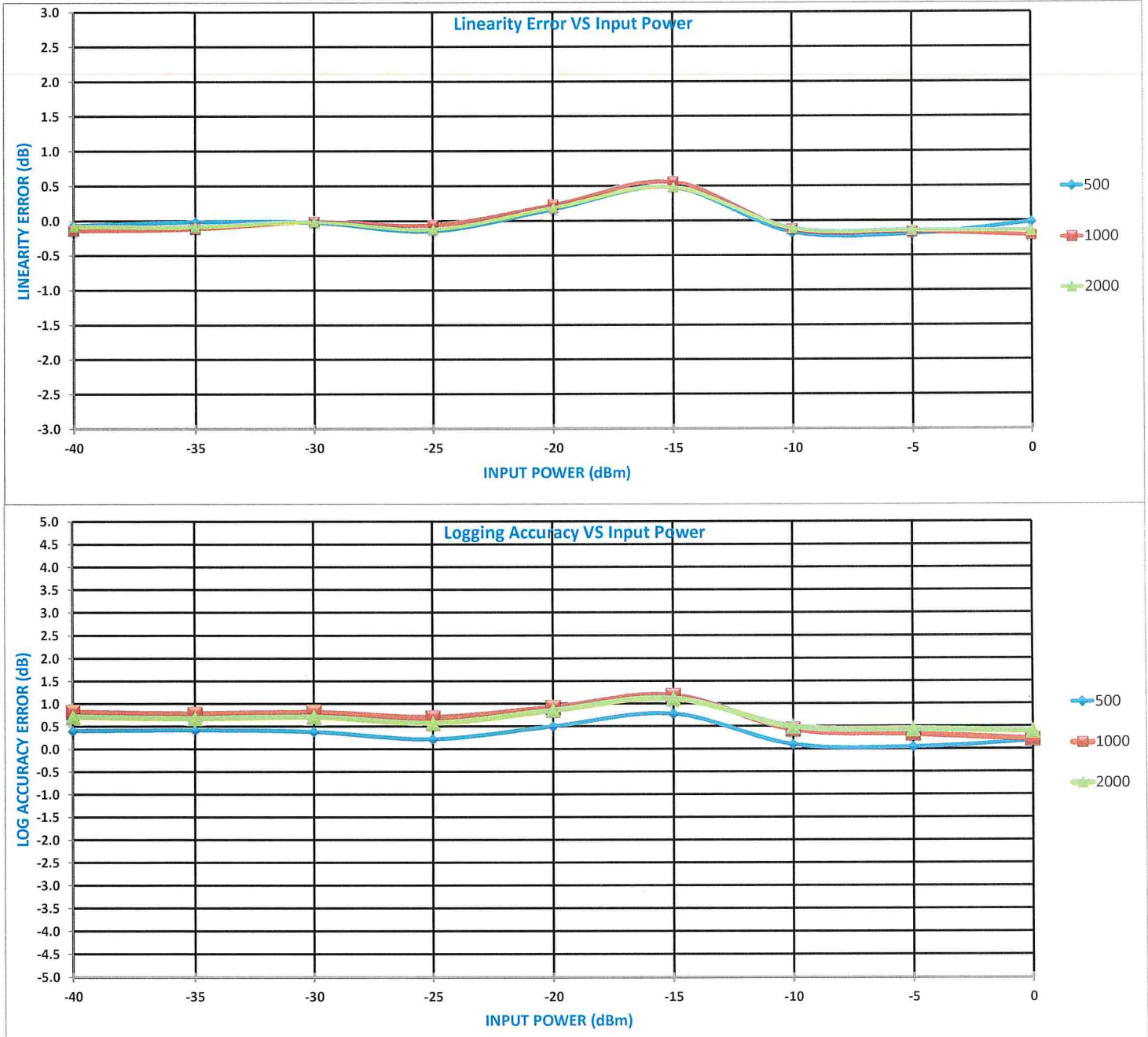
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# SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ -40°C



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## SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ +85°C

DC Offset= 0.110 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2334
	SLOPE (mV/dB)	49.8

1 GHz	INTERCEPT (mV)	2348
	SLOPE (mV/dB)	49.6

2 GHz	INTERCEPT (mV)	2352
	SLOPE (mV/dB)	49.9

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	335	602	841	1080	1341	1596	1824	2076	2344
	-7	11	1	-9	3	9	-12	-9	10
	-0.13	0.23	0.03	-0.17	0.07	0.19	-0.23	-0.17	0.21
	-0.30	0.04	-0.18	-0.40	-0.18	-0.08	-0.52	-0.48	-0.12
	354	621	862	1100	1361	1617	1841	2096	2351
	-9	10	2	-8	5	13	-11	-4	3
	-0.19	0.19	0.05	-0.16	0.10	0.26	-0.22	-0.09	0.05
	0.08	0.42	0.24	0.00	0.22	0.34	-0.18	-0.08	0.02
	349	617	858	1095	1358	1614	1843	2101	2355
	-8	11	2	-10	4	10	-10	-2	3
	-0.16	0.22	0.05	-0.20	0.07	0.20	-0.21	-0.03	0.06
	-0.02	0.34	0.16	-0.10	0.16	0.28	-0.14	0.02	0.10
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.30	0.10
	0.35	0.62	0.86	1.10	1.36	1.62	1.84	2.10	2.36
	0.34	0.60	0.84	1.08	1.34	1.60	1.82	2.08	2.34

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.23	-0.23
LOGGING ACCURACY (dB)	0.04	-0.52

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.26	-0.22
LOGGING ACCURACY (dB)	0.42	-0.18

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.22	-0.21
LOGGING ACCURACY (dB)	0.34	-0.14

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.26	-0.23

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.42	-0.52

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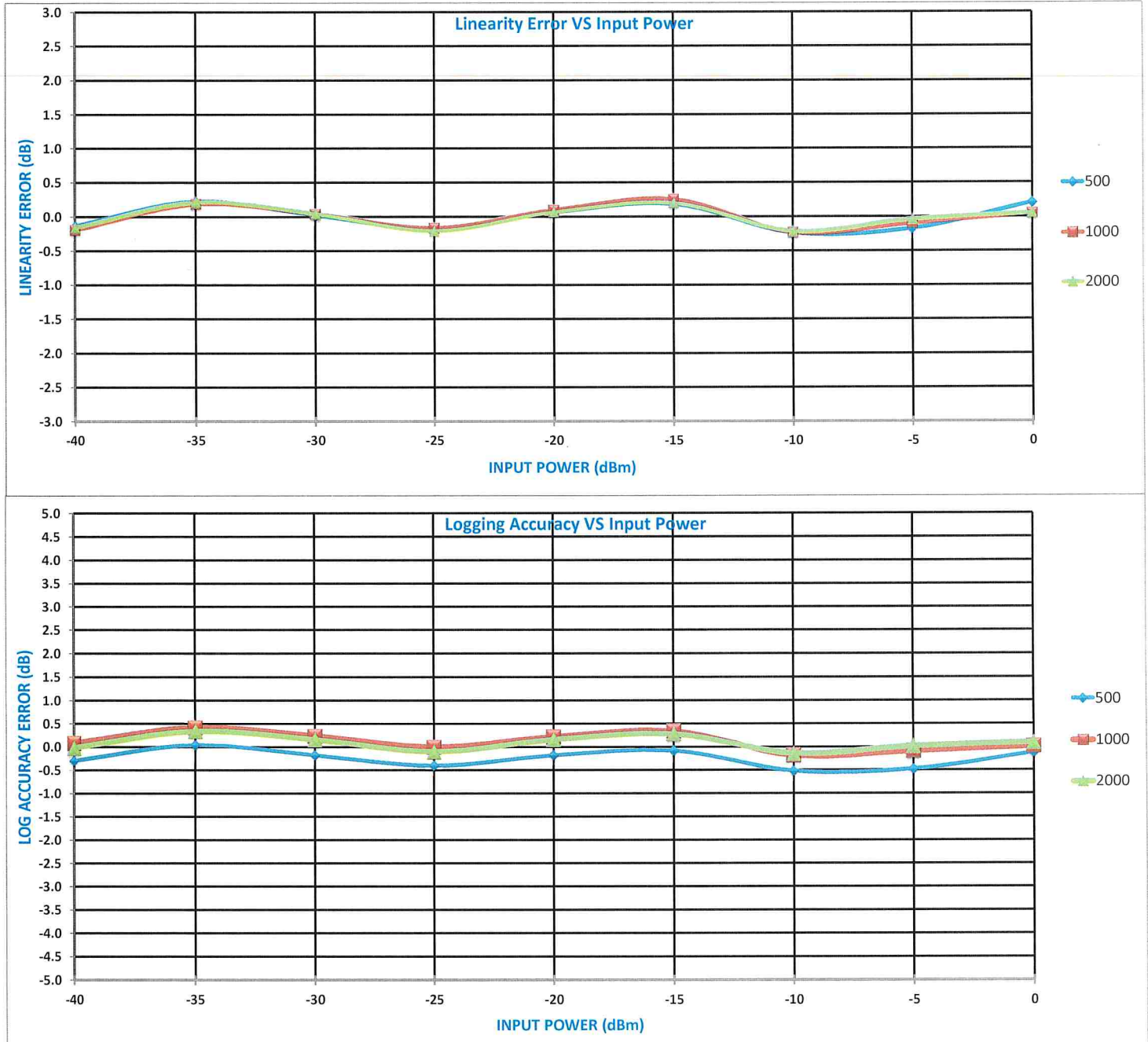




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PL44189/2409

Log Linearity and Log Accuracy @ +85°C



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**SUMMARY TEST DATA  
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PL44189/2409

TSS -45.5 dBm

DSO-X 3024A, MY54490369: Fri Feb 23 14:11:55 2024



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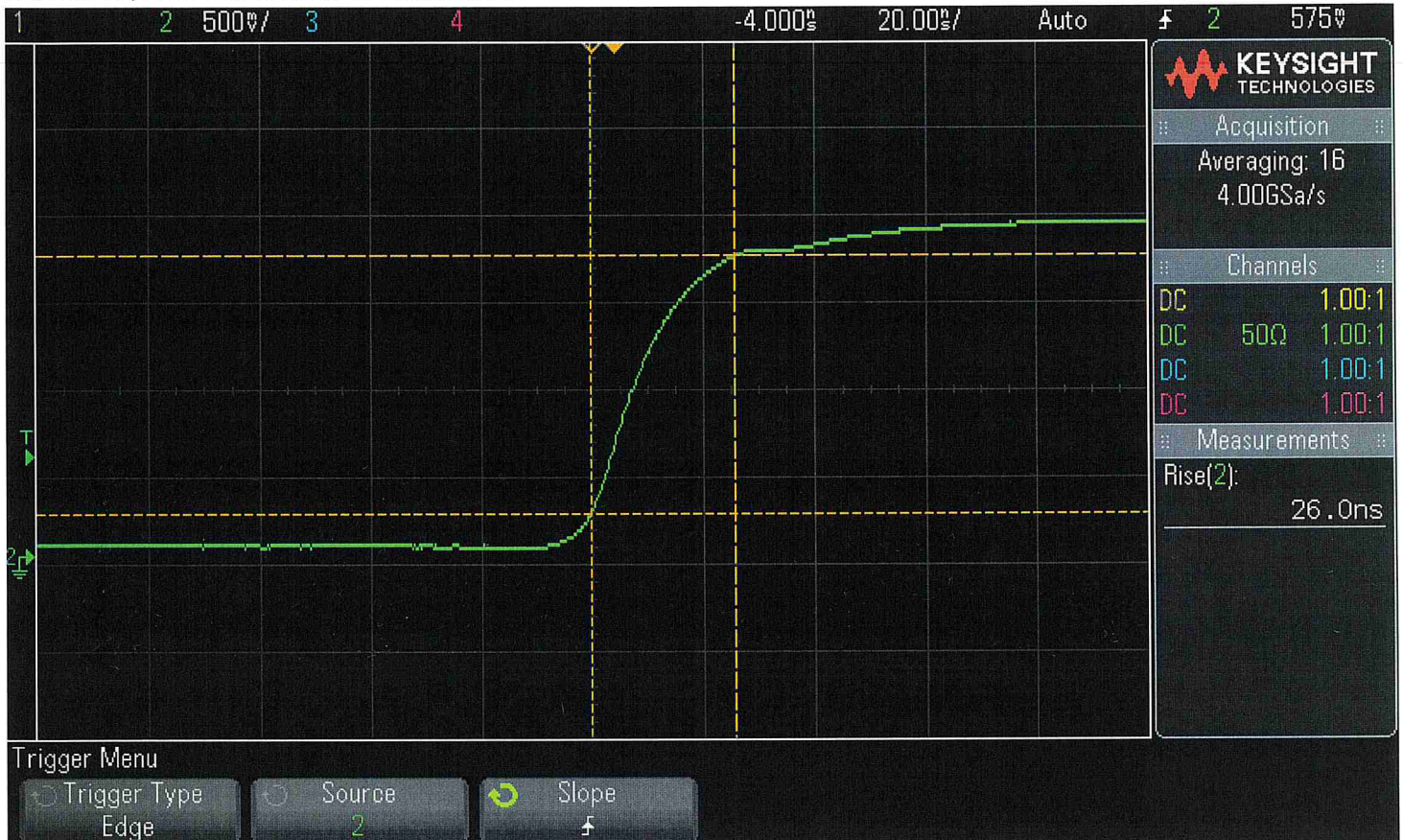


SUMMARY TEST DATA  
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PL44189/2409

Rise Time 26 ns

DSO-X 3024A, MY54490369, Fri Feb 23 13:38:06 2024



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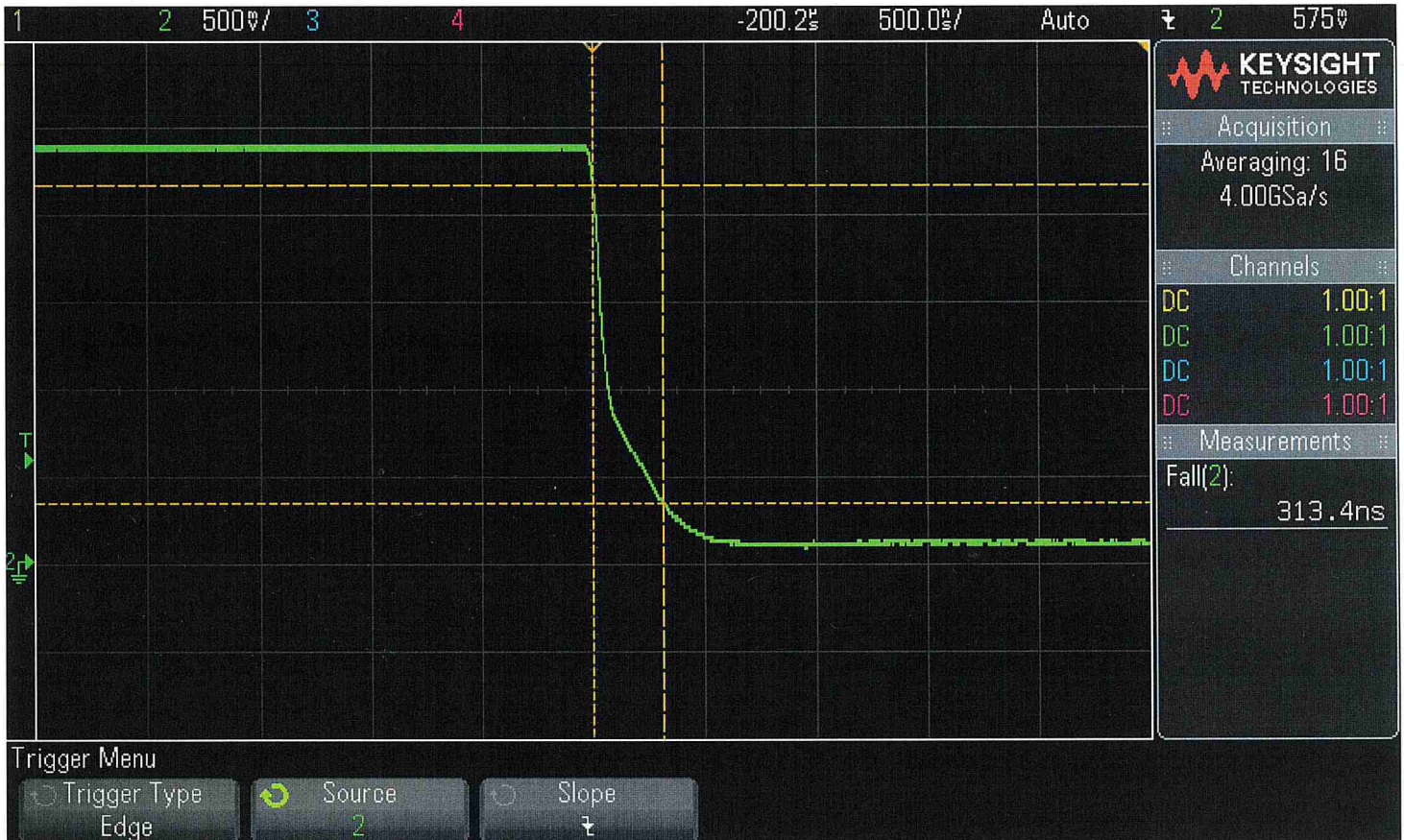


SUMMARY TEST DATA  
ON  
HADA-D2001

PL44189/2409

Fall Time 313 ns

DSO-X 3024A, MY54490369: Fri Feb 23 14:23:13 2024



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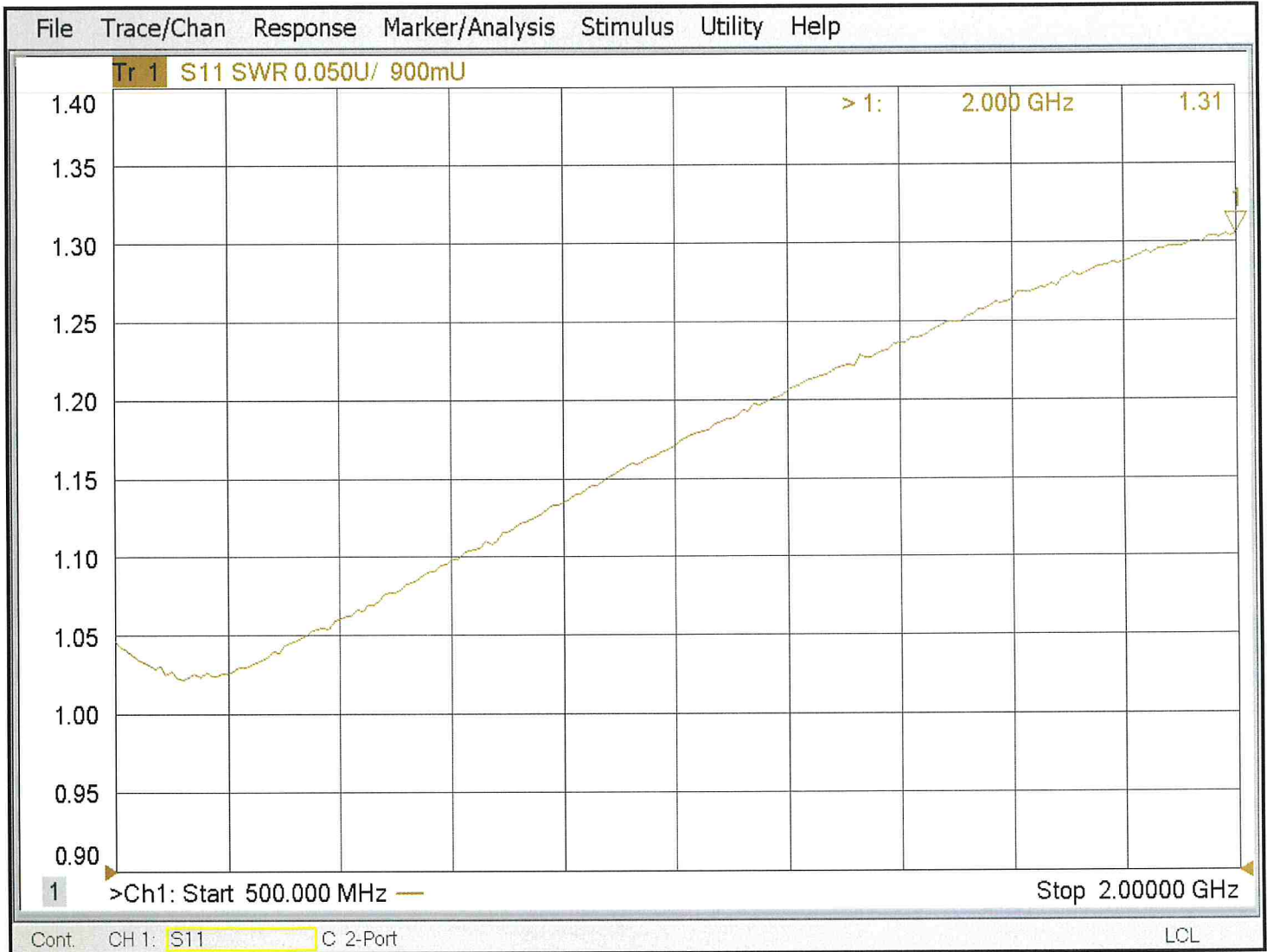




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VSWR 1.31:1



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