



**SUMMARY TEST DATA
ON
HADA-D2001**

PL45300/2415

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>4/9/24</u>
Serial No: <u>PL45300/2415</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	Pass
2	TSS:	-44 dBm Min @ -40°C to +85°	-45 dBm See Plot	<div style="border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; height: 100%;"></div>
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)	+0.74 / +0.14 dB +0.76 / -1.06 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	+0.35 / -0.30 dB +0.49 / -0.31 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%)	20.7 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	225 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+104 mV @ +25°C +89 mV @ -40°C +120 mV @ +85°C	
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.32:1 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	115 mA 70 mA	PMI CAS
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. Water*

Date: *4-9-24*



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Log Linearity and Log Accuracy @ +25°C

DC Offset= 0.104 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2362
	SLOPE (mV/dB)	50.6

1 GHz	INTERCEPT (mV)	2374
	SLOPE (mV/dB)	50.3

2 GHz	INTERCEPT (mV)	2380
	SLOPE (mV/dB)	50.5

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	337	599	842	1086	1358	1616	1842	2099	2374
	-1	8	-2	-11	8	13	-14	-10	12
	-0.03	0.15	-0.05	-0.22	0.15	0.25	-0.28	-0.20	0.23
	-0.26	-0.02	-0.16	-0.28	0.16	0.32	-0.16	-0.02	0.48
	357	617	864	1107	1379	1637	1860	2112	2379
	-5	4	-1	-9	11	17	-11	-11	5
	-0.09	0.07	-0.02	-0.19	0.22	0.35	-0.22	-0.21	0.09
	0.14	0.34	0.28	0.14	0.58	0.74	0.20	0.24	0.58
	358	618	865	1108	1379	1637	1860	2120	2388
	-3	5	-1	-10	9	14	-15	-8	8
	-0.05	0.10	-0.01	-0.20	0.17	0.28	-0.30	-0.15	0.16
	0.16	0.38	0.30	0.18	0.58	0.74	0.20	0.40	0.76
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10
	0.36	0.62	0.87	1.11	1.38	1.64	1.86	2.12	2.39
	0.34	0.60	0.84	1.09	1.36	1.62	1.84	2.10	2.37

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.25	-0.28
LOGGING ACCURACY (dB)	0.48	-0.28

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.35	-0.22
LOGGING ACCURACY (dB)	0.74	0.14

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.28	-0.30
LOGGING ACCURACY (dB)	0.76	0.16

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.35	-0.30

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.76	-0.28

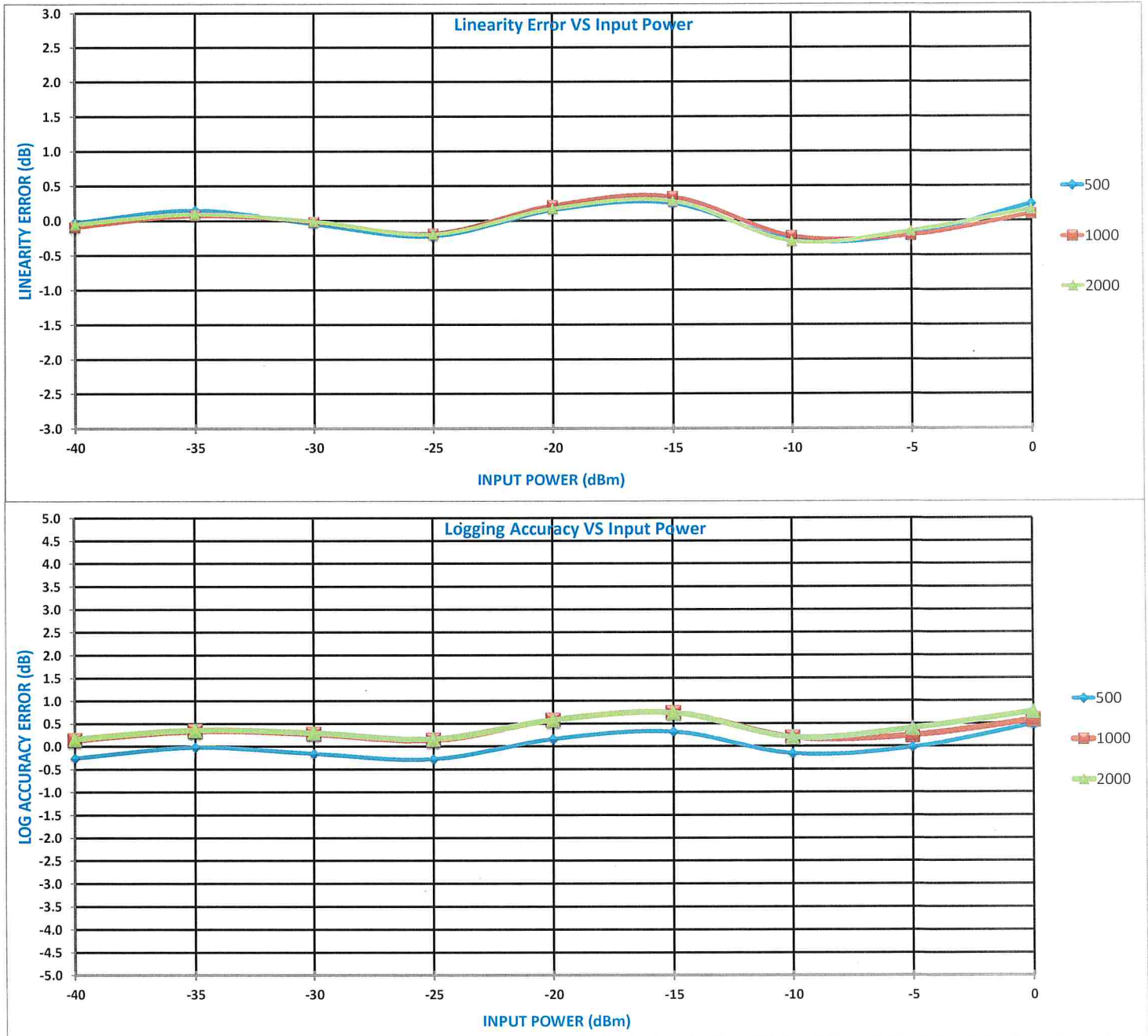
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SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ +25°C



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SUMMARY TEST DATA ON HADA-D2001

PL45300/2415

Log Linearity and Log Accuracy @ -40°C

DC Offset= 0.089 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2300
	SLOPE (mV/dB)	49.2

1 GHz	INTERCEPT (mV)	2318
	SLOPE (mV/dB)	49.1

2 GHz	INTERCEPT (mV)	2321
	SLOPE (mV/dB)	49.3

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	341	573	816	1055	1325	1586	1802	2049	2297
	9	-5	-8	-15	9	24	-6	-5	-3
	0.18	-0.11	-0.17	-0.31	0.18	0.49	-0.12	-0.10	-0.05
	-0.18	-0.54	-0.68	-0.90	-0.50	-0.28	-0.96	-1.02	-1.06
	361	592	840	1080	1346	1605	1824	2069	2311
	6	-8	-6	-11	10	23	-3	-4	-7
	0.13	-0.17	-0.12	-0.23	0.19	0.47	-0.07	-0.07	-0.14
	0.22	-0.16	-0.20	-0.40	-0.08	0.10	-0.52	-0.62	-0.78
	357	589	835	1075	1344	1604	1824	2071	2317
	8	-6	-7	-14	9	22	-4	-4	-4
	0.16	-0.13	-0.14	-0.28	0.18	0.45	-0.09	-0.08	-0.09
	0.14	-0.22	-0.30	-0.50	-0.12	0.08	-0.52	-0.58	-0.66
	0.20	0.20	0.20	0.30	0.20	0.20	0.20	0.20	0.20
	0.36	0.59	0.84	1.08	1.35	1.61	1.82	2.07	2.32
	0.34	0.57	0.82	1.06	1.33	1.59	1.80	2.05	2.30

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.49	-0.31
LOGGING ACCURACY (dB)	-0.18	-1.06

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.47	-0.23
LOGGING ACCURACY (dB)	0.22	-0.78

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.45	-0.28
LOGGING ACCURACY (dB)	0.14	-0.66

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.49	-0.31

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.22	-1.06

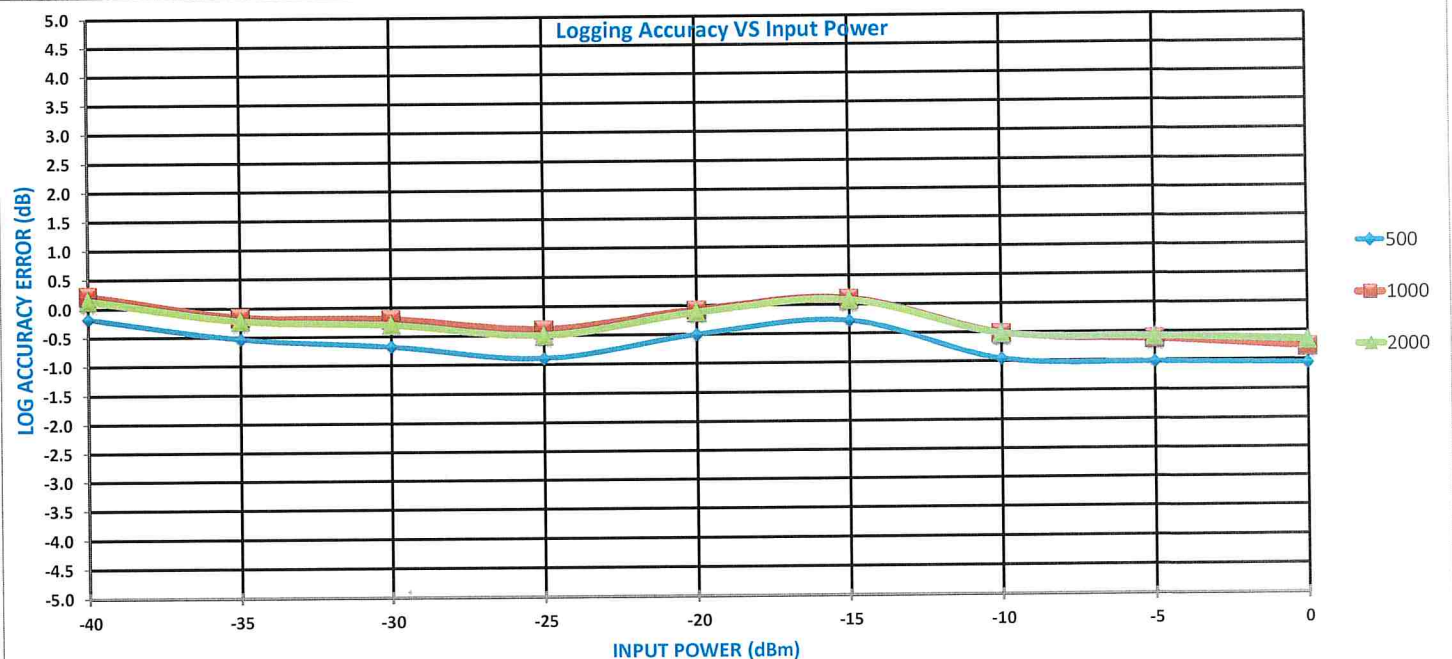
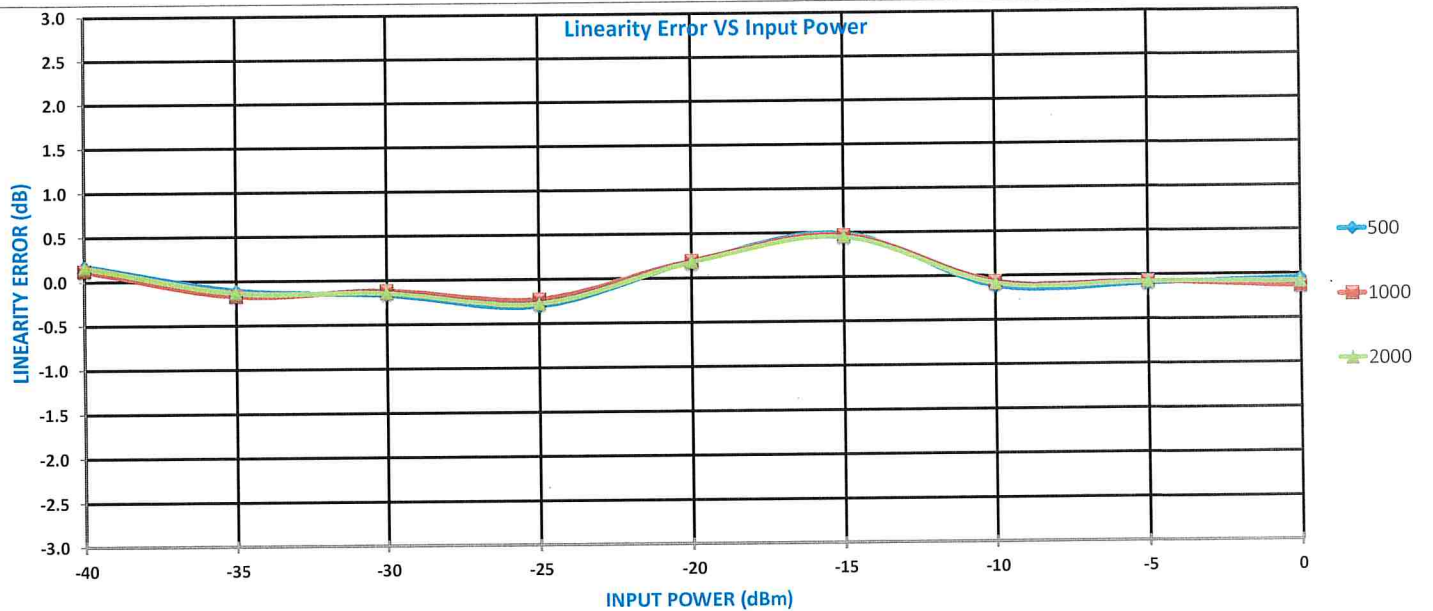
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SUMMARY TEST DATA ON HADA-D2001

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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= 0.120 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2344
	SLOPE (mV/dB)	50.6

1 GHz	INTERCEPT (mV)	2364
	SLOPE (mV/dB)	50.5

2 GHz	INTERCEPT (mV)	2368
	SLOPE (mV/dB)	50.8

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	326	584	822	1067	1335	1594	1824	2078	2365
	4	10	-5	-13	2	8	-14	-13	21
	0.09	0.19	-0.10	-0.26	0.04	0.17	-0.29	-0.26	0.41
	-0.48	-0.32	-0.56	-0.66	-0.30	-0.12	-0.52	-0.44	0.30
	346	605	845	1088	1356	1614	1844	2102	2381
	3	9	-3	-13	3	8	-15	-9	17
	0.06	0.18	-0.06	-0.25	0.05	0.16	-0.29	-0.18	0.34
	-0.08	0.10	-0.10	-0.24	0.12	0.28	-0.12	0.04	0.62
	342	602	840	1084	1355	1614	1845	2104	2388
	5	11	-5	-15	2	8	-15	-10	20
	0.09	0.21	-0.10	-0.29	0.05	0.15	-0.30	-0.20	0.39
	-0.16	0.04	-0.20	-0.32	0.10	0.28	-0.10	0.08	0.76
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.30	0.20
	0.35	0.61	0.85	1.09	1.36	1.61	1.85	2.10	2.39
	0.33	0.58	0.82	1.07	1.34	1.59	1.82	2.08	2.37

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.41	-0.29
LOGGING ACCURACY (dB)	0.30	-0.66

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.34	-0.29
LOGGING ACCURACY (dB)	0.62	-0.24

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.39	-0.30
LOGGING ACCURACY (dB)	0.76	-0.32

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.41	-0.30

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.76	-0.66

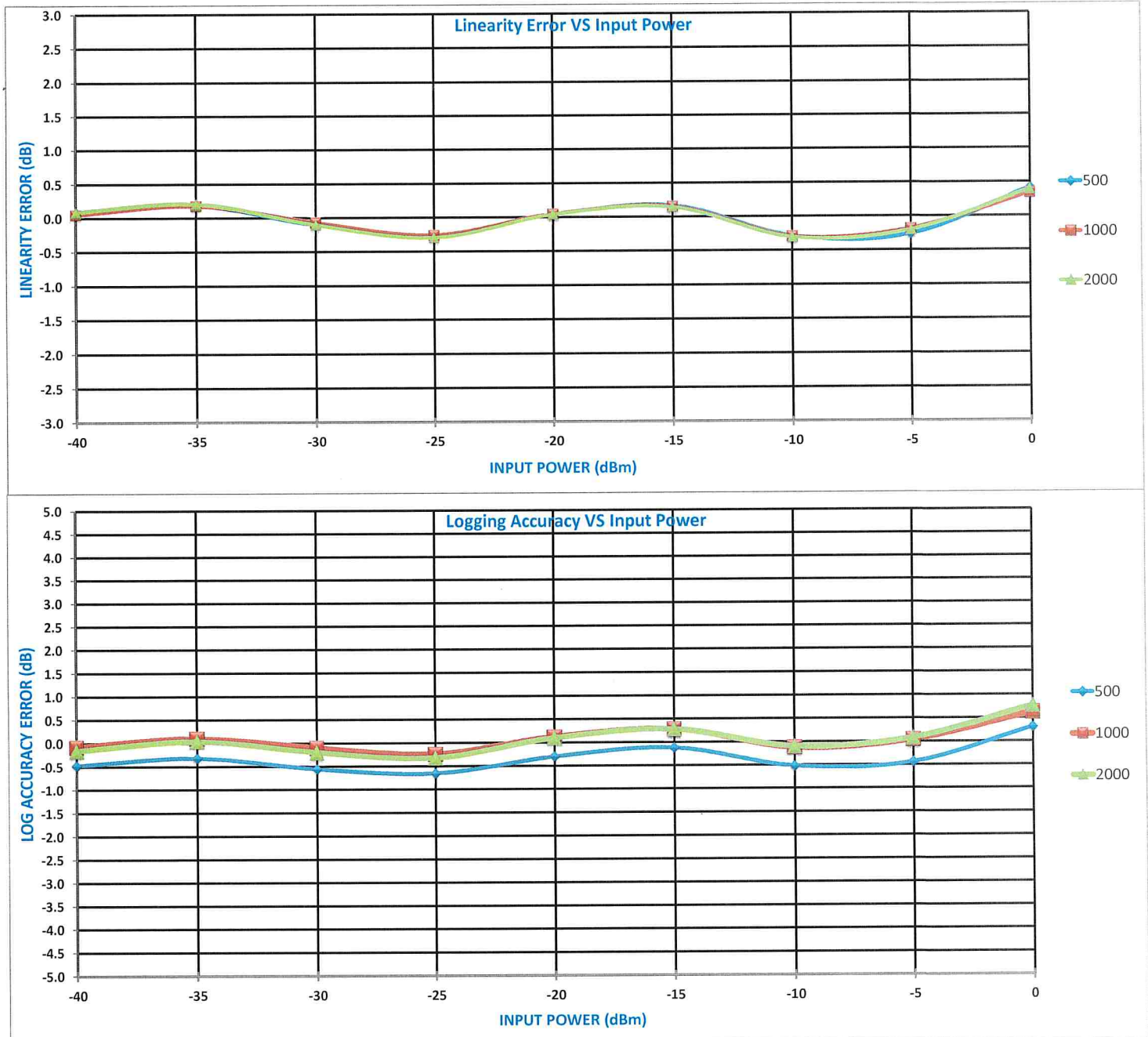
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Log Linearity and Log Accuracy @ +85°C



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**SUMMARY TEST DATA
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TSS -45 dBm



MSO-X 3034T, MY59241076, 07.50.2021102830: Mon Apr 08 12:19:12 2024



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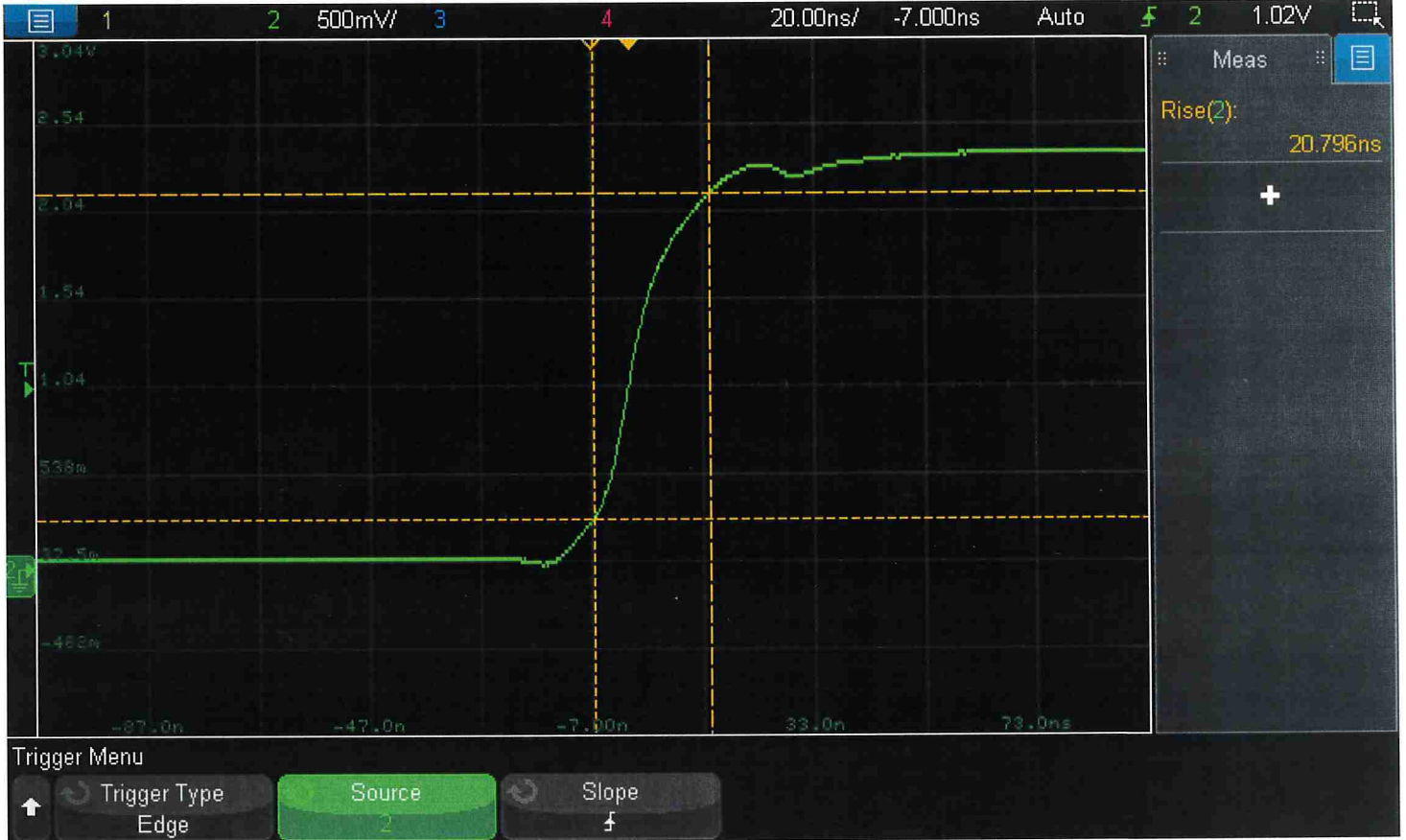
**SUMMARY TEST DATA
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Rise Time 20.7 ns



MSO-X 3034T, MY59241076, 07.50.2021102830: Mon Apr 08 12:10:22 2024



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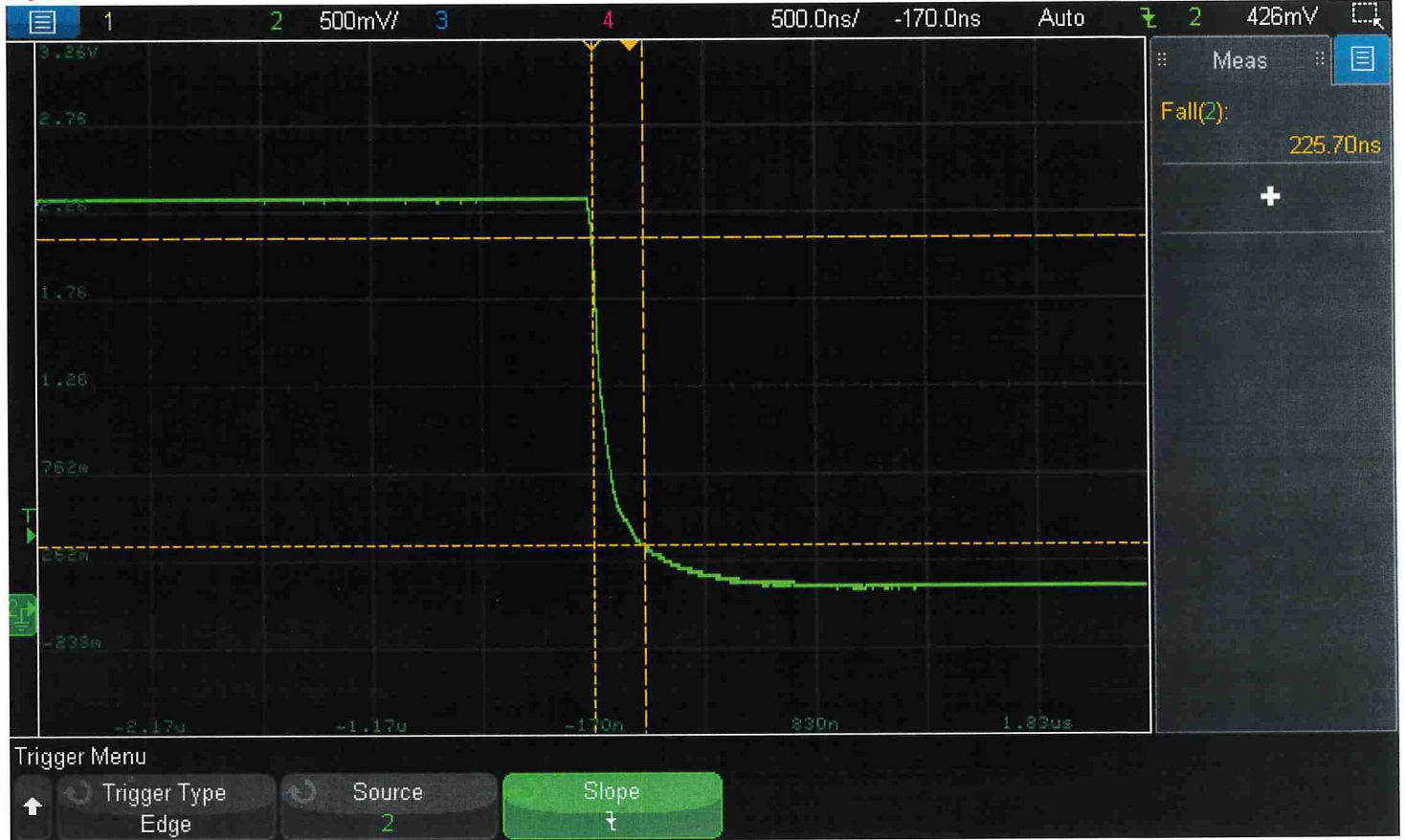
**SUMMARY TEST DATA
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PL45300/2415

Fall Time 225 ns



MSO-X 3034T, MY59241076, 07.50.2021102830: Mon Apr 08 12:27:22 2024



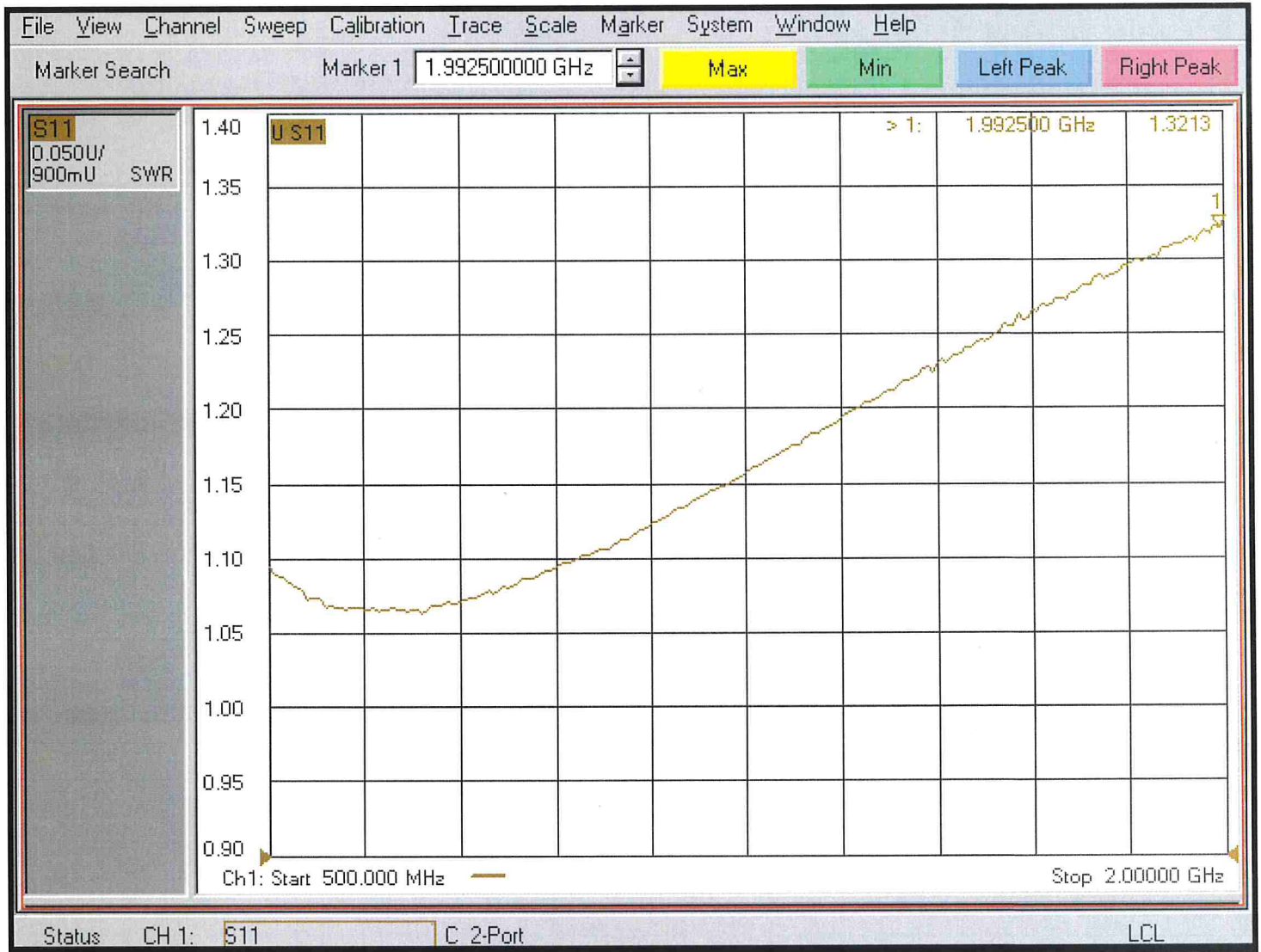
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**SUMMARY TEST DATA
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VSWR 1.32:1



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