



**SUMMARY TEST DATA
ON
HADA-D2001**

PL47259/2435

Customer: _____	Tested By: <u>Joshua Monley</u>
SO No: _____	Temperature: <u>+25°C -40°C +85°C</u>
Model No: <u>HADA-D2001</u>	Date: <u>8/28/2024</u>
Serial No: <u>PL47259/2435</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°	-44.2 dBm See Plot	
3	Frequency Flatness:	±0.75 dB Max	±0.1 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)	+0.06 / -0.64 dB +0.96 / -1.60 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	+0.20 / -0.32 dB +0.68 / -0.49 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%)	24.9 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	147 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+95 mV @ +25°C +143 mV @ -40°C +51 mV @ +85°C	
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.28:1 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	85 mA 40 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. Luter

Date: 8.30.24



**SUMMARY TEST DATA
ON
HADA-D2001**

PL47259/2435

Log Linearity and Log Accuracy @ +25°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Montley
TEST DATE: 08/28/2024
SERIAL NO: PL47259
TEST TEMP: +25C

Graph #1

DC Offset= 0.095 V



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Frequency		
0.5 GHz	INTERCEPT (mV)	2340
	SLOPE (mV/dB)	50.2

1 GHz	INTERCEPT (mV)	2347
	SLOPE (mV/dB)	50.2

2 GHz	INTERCEPT (mV)	2346
	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	588	831	1071	1336	1597	1832	2094	2339
	4	5	-3	-14	0	10	-6	5	-1
	0.09	0.09	-0.07	-0.28	0.00	0.20	-0.12	0.10	-0.01
	-0.26	-0.24	-0.38	-0.58	-0.28	-0.06	-0.36	-0.12	-0.22
	343	593	836	1077	1342	1603	1838	2101	2347
	5	4	-4	-14	0	10	-7	5	0
	0.11	0.09	-0.08	-0.28	0.00	0.19	-0.13	0.11	0.00
	-0.14	-0.14	-0.28	-0.46	-0.16	0.06	-0.24	0.02	-0.06
	335	586	828	1068	1334	1595	1834	2100	2350
	6	6	-4	-16	-3	6	-7	6	6
	0.15	0.13	-0.08	-0.32	-0.05	0.12	-0.15	0.12	0.08
	-0.30	-0.28	-0.44	-0.64	-0.32	-0.10	-0.32	-0.08	-0.06
	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	0.34	0.59	0.84	1.08	1.34	1.60	1.84	2.10	2.35
	0.34	0.59	0.83	1.07	1.33	1.60	1.83	2.09	2.34

RF Input Power (dBm)

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.20 -0.28 x
LOGGING ACCURACY (dB)	-0.06 -0.58

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.19 -0.28
LOGGING ACCURACY (dB)	0.06 -0.46

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.15 -0.32
LOGGING ACCURACY (dB)	0.00 -0.64

Logging Linearity vs Frequency	Error(dB)
	MAX MIN
TOTAL LOG LINEARITY (dB)	0.20 -0.32

Logging Accuracy vs Frequency	Error(dB)
	MAX MIN
TOTAL LOGGING ACCURACY (dB)	0.06 -0.64

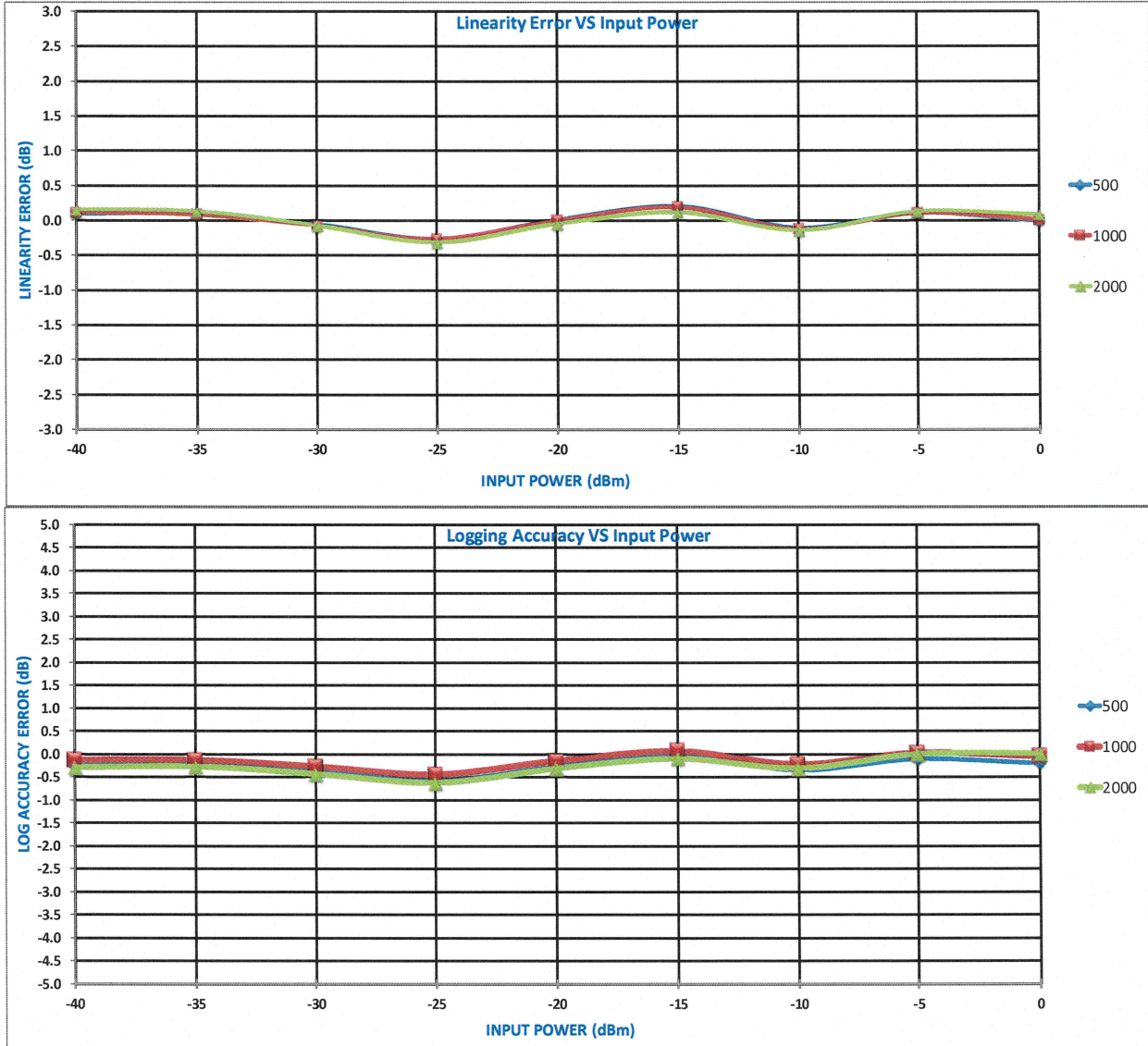


**SUMMARY TEST DATA
ON
HADA-D2001**

PL47259/2435

Log Linearity and Log Accuracy @ +25°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
SERIAL NO: PL47259
TEST TEMP: +25C



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**SUMMARY TEST DATA
ON
HADA-D2001**

PL47259/2435

Log Linearity and Log Accuracy @ -40°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
TEST DATE: 08/27/2024
SERIAL NO: PL47259
TEST TEMP: -40C

Graph #2

DC Offset= 0.143 V

Frequency	INTERCEPT (mV)	2302
0.5 GHz	SLOPE (mV/dB)	48.5

Frequency	INTERCEPT (mV)	2311
1 GHz	SLOPE (mV/dB)	48.6

Frequency	INTERCEPT (mV)	2310
2 GHz	SLOPE (mV/dB)	48.8

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
391	590	831	1066	1326	1585	1825	2070	2295	
31	-13	-15	-22	-5	11	9	11	-7	
0.64	-0.26	-0.30	-0.46	-0.10	0.23	0.18	0.22	-0.14	
0.82	-0.20	-0.38	-0.68	-0.48	-0.30	-0.50	-0.60	-1.10	
398	598	839	1076	1336	1594	1835	2078	2303	
30	-13	-16	-21	-4	12	10	10	-8	
0.61	-0.27	-0.31	-0.43	-0.08	0.24	0.20	0.20	-0.16	
0.96	-0.04	-0.22	-0.48	-0.28	-0.12	-0.30	-0.44	-0.94	
392	592	831	1067	1328	1587	1831	2077	2307	
33	-11	-16	-24	-7	6	8	11	-3	
0.68	-0.22	-0.32	-0.49	-0.14	0.17	0.17	0.22	-0.07	
0.84	-0.16	-0.30	-0.69	-0.44	-0.26	-0.38	-0.46	-0.96	
0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	
0.40	0.60	0.84	1.08	1.34	1.59	1.84	2.08	2.31	
0.39	0.69	0.83	1.07	1.33	1.59	1.83	2.07	2.30	

RF Input Power (dBm)

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.64 -0.46
LOGGING ACCURACY (dB)	0.82 -1.10

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.61 -0.43
LOGGING ACCURACY (dB)	0.96 -0.94

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.68 -0.49
LOGGING ACCURACY (dB)	0.84 -0.86

Logging Linearity vs Frequency	Error(dB)
	MAX MIN
TOTAL LOG LINEARITY (dB)	0.68 -0.49

Logging Accuracy vs Frequency	Error(dB)
	MAX MIN
TOTAL LOGGING ACCURACY (dB)	0.96 -1.10



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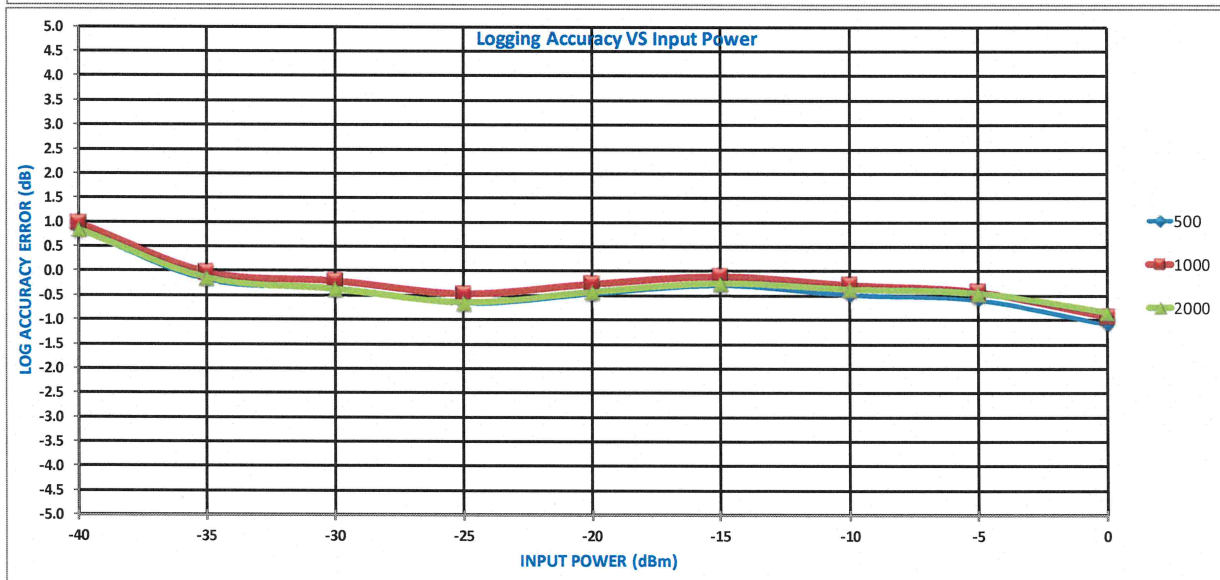
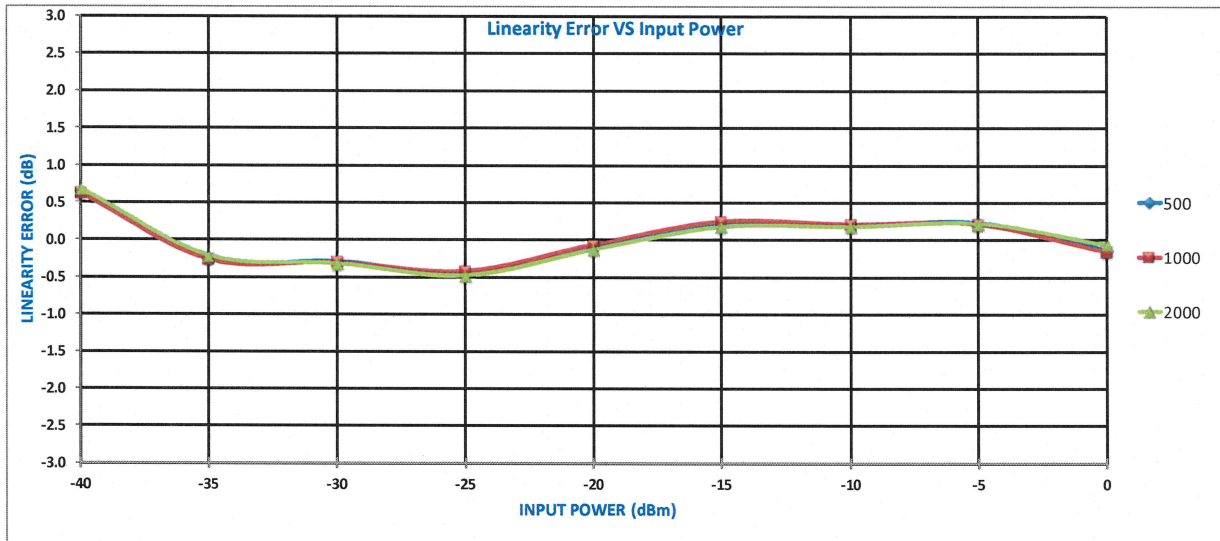


SUMMARY TEST DATA ON HADA-D2001

PL47259/2435

Log Linearity and Log Accuracy @ -40°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
SERIAL NO: PL47259
TEST TEMP: -40C



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**SUMMARY TEST DATA
ON
HADA-D2001**

PL47259/2435

Log Linearity and Log Accuracy @ +85°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
TEST DATE: 08/27/2024
SERIAL NO: PL47259
TEST TEMP: +85C

Graph #3

DC Offset= 0.051 V



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Frequency		
0.5 GHz	INTERCEPT (mV)	2340
	SLOPE (mV/dB)	51.4

1 GHz	INTERCEPT (mV)	2348
	SLOPE (mV/dB)	51.5

2 GHz	INTERCEPT (mV)	2348
	SLOPE (mV/dB)	51.7

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	270	553	803	1049	1316	1576	1814	2078	2345
	-13	13	6	-5	4	7	-12	-5	5
	-0.26	0.25	0.11	-0.11	0.09	0.14	-0.23	-0.09	0.10
	-1.60	-0.94	-0.94	-1.02	-0.68	-0.48	-0.72	-0.44	-0.10
	277	560	809	1054	1322	1582	1820	2087	2354
	-12	14	5	-7	4	6	-13	-3	6
	-0.23	0.26	0.10	-0.14	0.07	0.12	-0.25	-0.06	0.12
	-1.46	-0.80	-0.82	-0.92	-0.56	-0.36	-0.60	-0.26	0.08
	270	553	801	1048	1314	1575	1818	2087	2358
	5	15	4	-7	0	3	-13	-3	10
	-0.18	0.29	0.08	-0.14	0.00	0.05	-0.25	-0.05	0.19
	-1.60	-0.94	-0.93	-1.04	-0.72	-0.50	-0.84	-0.25	0.16
	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	0.28	0.56	0.81	1.05	1.32	1.58	1.82	2.09	2.36
	0.27	0.55	0.80	1.05	1.31	1.58	1.81	2.08	2.35

RF Input Power (dBm)	
Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.25 -0.26
LOGGING ACCURACY (dB)	-0.10 -1.60

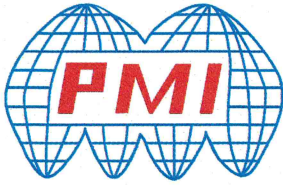
Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.26 -0.25
LOGGING ACCURACY (dB)	0.08 -1.46

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.29 -0.25 *
LOGGING ACCURACY (dB)	0.16 -1.60

Logging Linearity vs Frequency	Error(dB)
	MAX MIN
TOTAL LOG LINEARITY (dB)	0.29 -0.26

Logging Accuracy vs Frequency	Error(dB)
	MAX MIN
TOTAL LOGGING ACCURACY (dB)	0.16 -1.60

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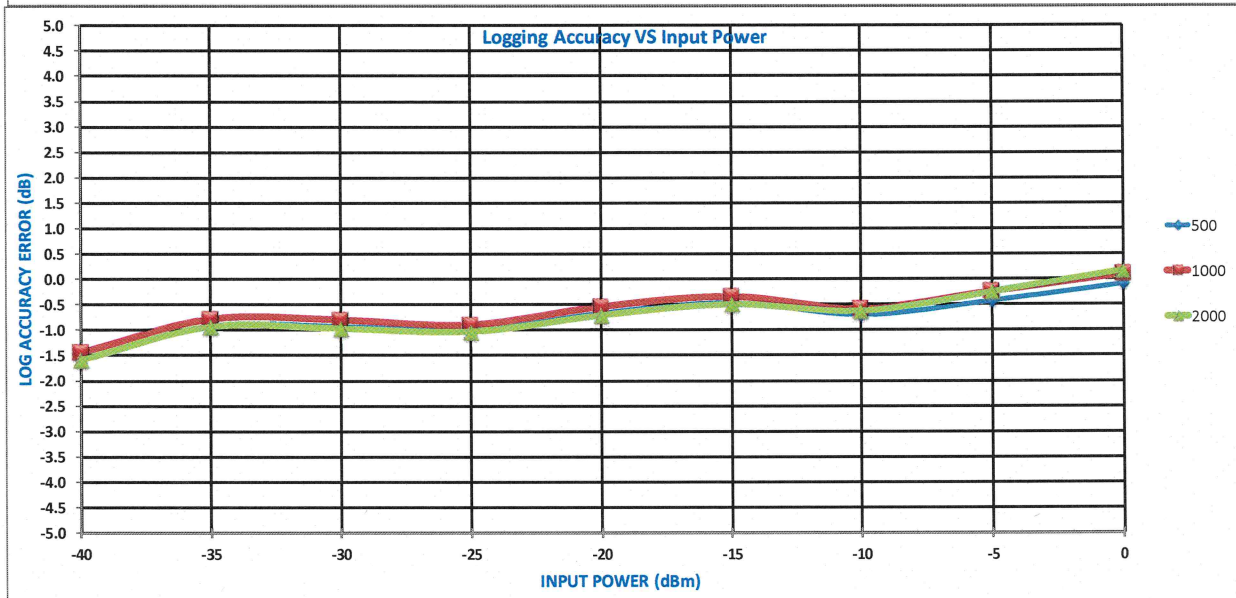
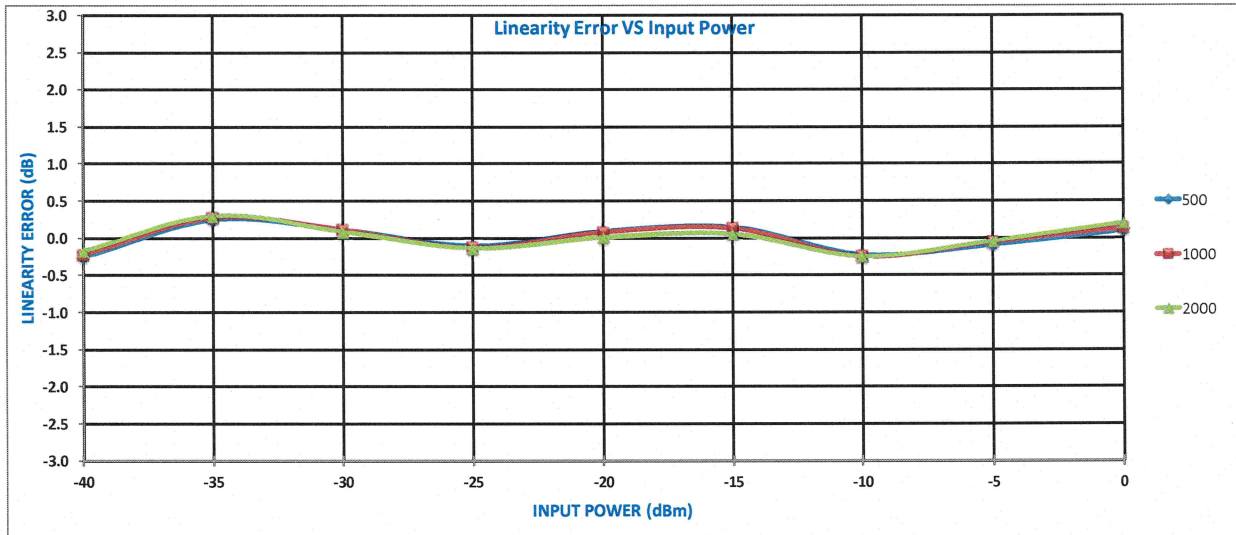


SUMMARY TEST DATA ON HADA-D2001

PL47259/2435

Log Linearity and Log Accuracy @ +85°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
SERIAL NO: PL47259
TEST TEMP: +85C



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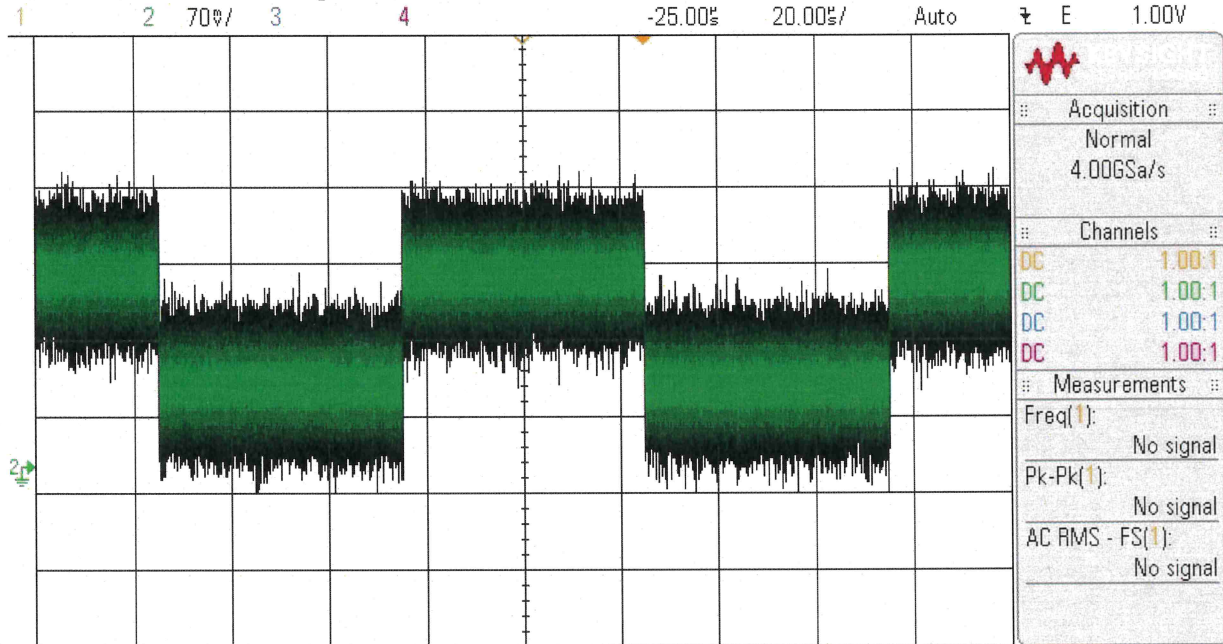


**SUMMARY TEST DATA
ON
HADA-D2001**

PL47259/2435

TSS -44.2 dBm

DSO-X 3024A, MY54490369, Wed Aug 14 10:21:38 2024



Acquire Menu

Acq Mode
Normal

Avgs
8

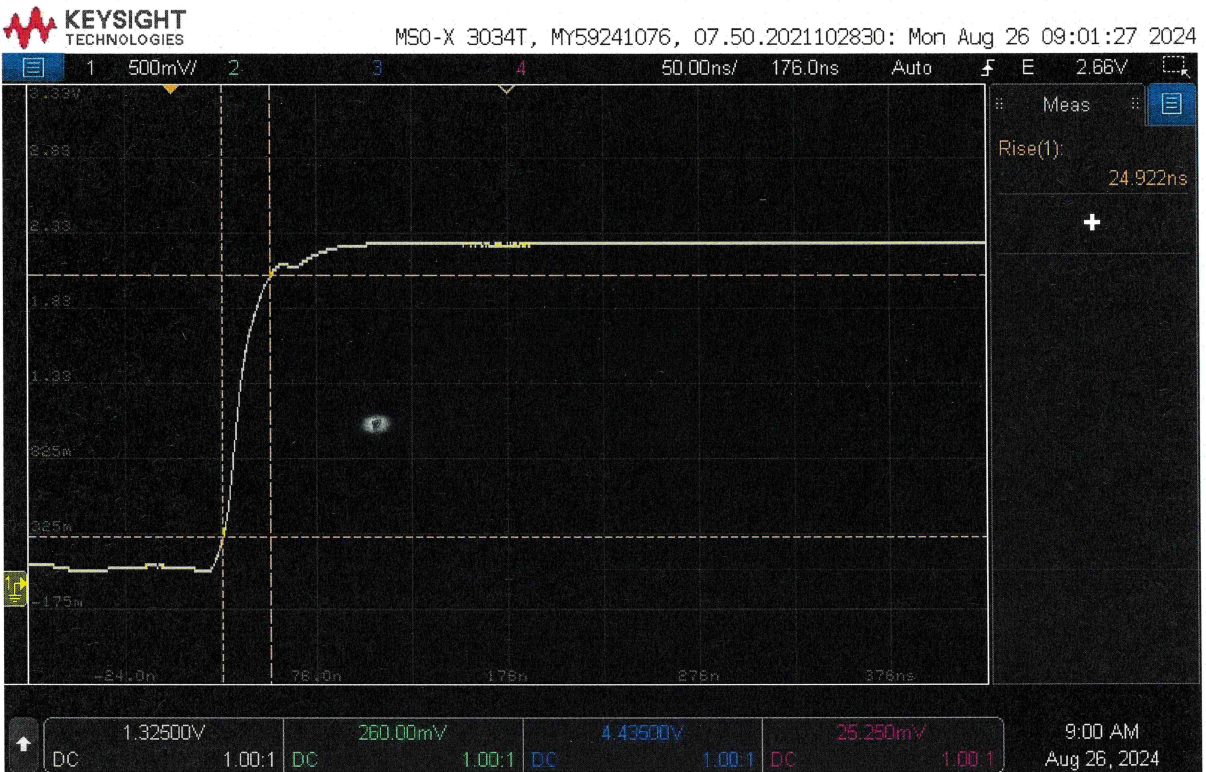
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**SUMMARY TEST DATA
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PL47259/2435

Rise Time



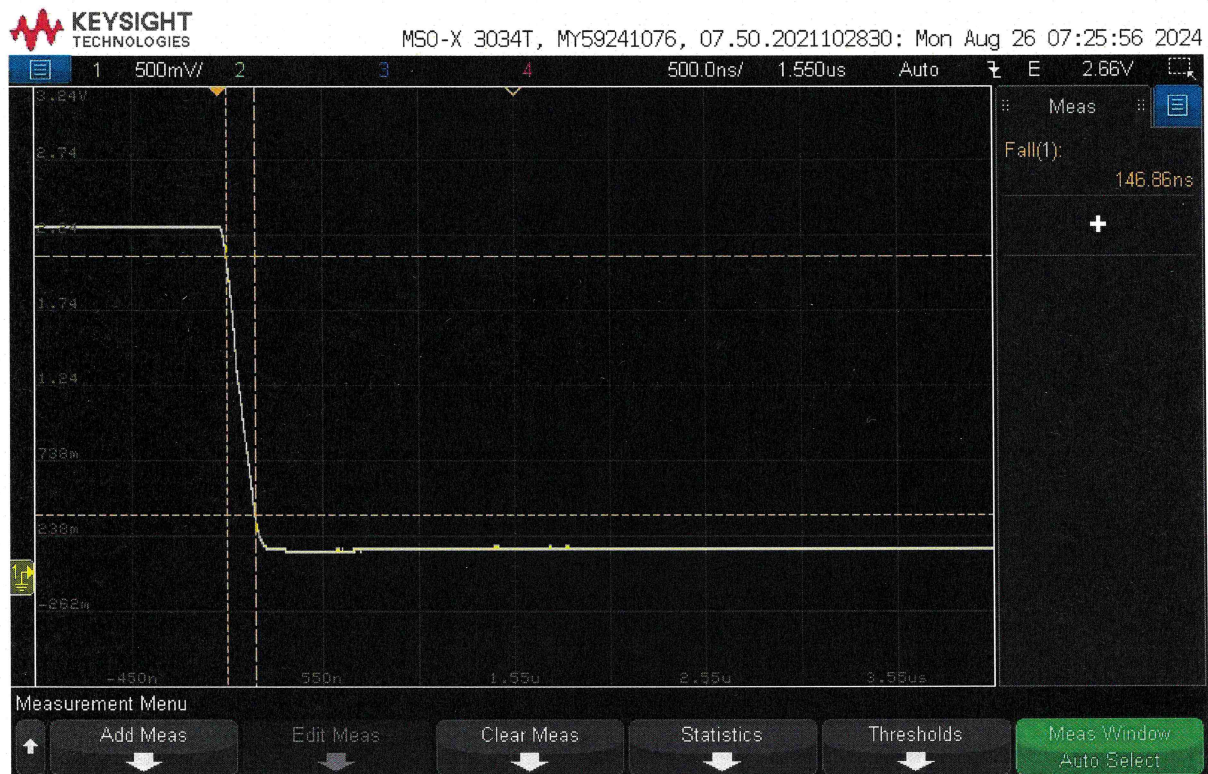
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**SUMMARY TEST DATA
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Fall Time



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VSWR

