



**SUMMARY TEST DATA
ON
HADA-D2001**

PL44190/2409

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>PL44190/2409</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°	-46 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)	+0.52 / -0.32 dB +0.70 / -1.26 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	+0.24 / -0.36 dB +0.42 / -0.36 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%)	23.5 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	303 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+92 mV @ +25°C +68 mV @ -40°C +106 mV @ +85°C	
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.28:0 See Plot	
13	Propagation Delay:	60 ns Max	40 ns	

4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax:
(916)265-2597
Email: sales@pmi-rf.com



**SUMMARY TEST DATA
ON
HADA-D2001**

PL44190/2409

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. Hinton* Date: 2-27-24



SUMMARY TEST DATA ON HADA-D2001

PL44190/2409

Log Linearity and Log Accuracy @ +25°C

DC Offset= 0.092 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2350
	SLOPE (mV/dB)	49.8

1 GHz	INTERCEPT (mV)	2357
	SLOPE (mV/dB)	49.6

2 GHz	INTERCEPT (mV)	2364
	SLOPE (mV/dB)	49.9

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	351	614	861	1102	1361	1610	1834	2093	2362
	-8	7	5	-3	7	7	-18	-8	12
	-0.15	0.13	0.09	-0.07	0.14	0.14	-0.36	-0.16	0.24
	0.02	0.28	0.22	0.04	0.22	0.20	-0.32	-0.14	0.24
	364	626	876	1117	1375	1624	1845	2104	2362
	-10	4	6	-1	9	10	-17	-5	5
	-0.21	0.07	0.12	-0.02	0.18	0.21	-0.33	-0.11	0.10
	0.28	0.52	0.52	0.34	0.50	0.48	-0.10	0.08	0.24
	360	622	871	1113	1373	1622	1849	2110	2371
	-7	5	4	-3	7	7	-16	-4	7
	-0.15	0.10	0.09	-0.06	0.15	0.14	-0.32	-0.09	0.14
	0.20	0.44	0.42	0.26	0.46	0.44	-0.02	0.20	0.42
	0.10	0.10	0.20	0.20	0.10	0.10	0.20	0.20	0.10
	0.36	0.63	0.88	1.12	1.38	1.62	1.85	2.11	2.37
	0.35	0.61	0.86	1.10	1.36	1.61	1.83	2.09	2.36

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.24	-0.36
LOGGING ACCURACY (dB)	0.28	-0.32

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.21	-0.33
LOGGING ACCURACY (dB)	0.52	-0.10

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.15	-0.32
LOGGING ACCURACY (dB)	0.46	-0.02

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.24	-0.36

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.52	-0.32

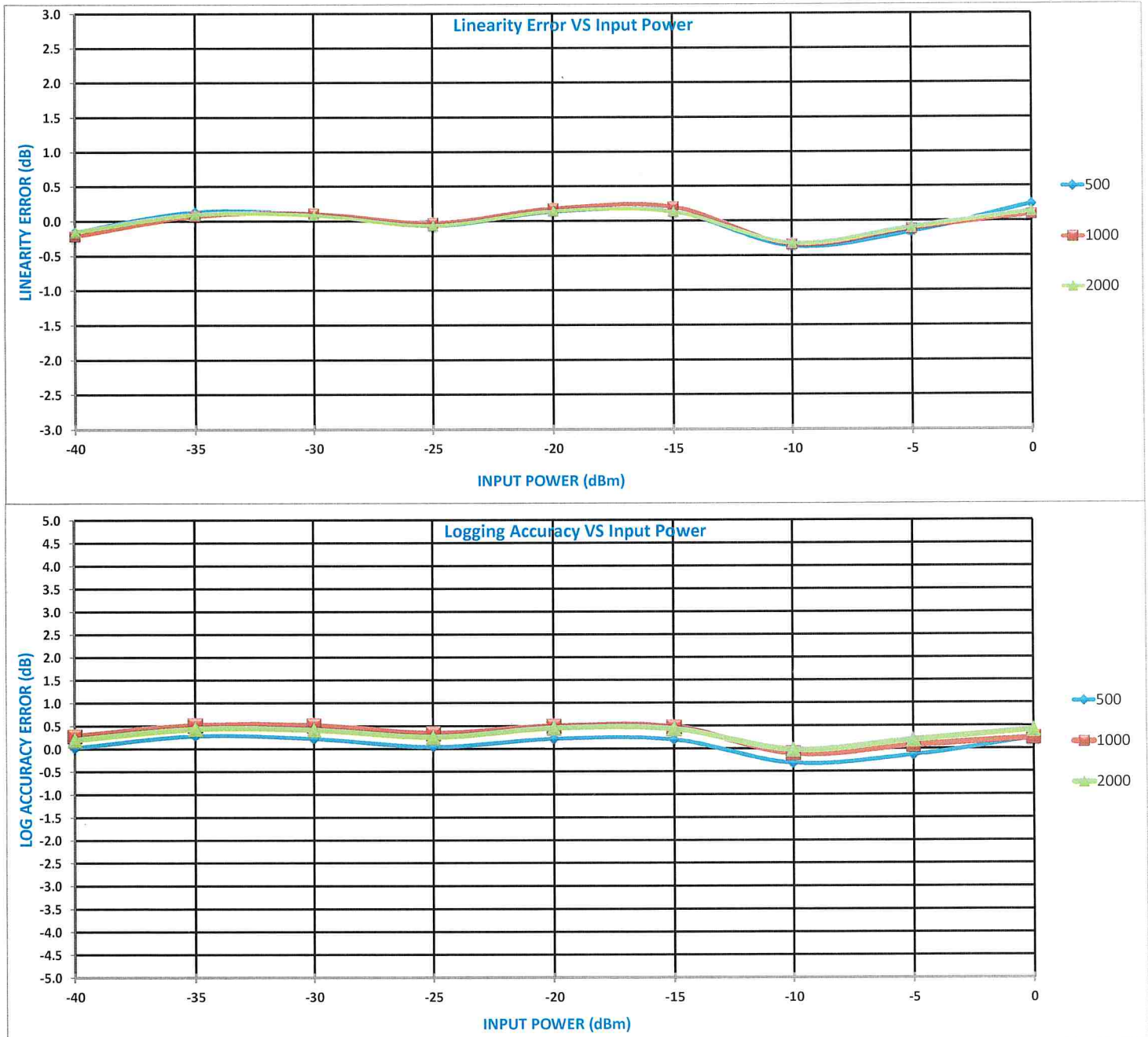
4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com



SUMMARY TEST DATA ON HADA-D2001

PL44190/2409

Log Linearity and Log Accuracy @ +25°C



4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com



SUMMARY TEST DATA ON HADA-D2001

PL44190/2409

Log Linearity and Log Accuracy @ -40°C

DC Offset= 0.068 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2347
	SLOPE (mV/dB)	49.5

1 GHz	INTERCEPT (mV)	2352
	SLOPE (mV/dB)	49.2

2 GHz	INTERCEPT (mV)	2358
	SLOPE (mV/dB)	49.5

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	356	613	865	1108	1367	1620	1839	2096	2343
	-10	0	4	-1	11	16	-13	-3	-4
	-0.20	-0.01	0.08	-0.01	0.22	0.32	-0.25	-0.06	-0.08
	0.12	0.26	0.30	0.16	0.34	0.40	-0.22	-0.08	-0.14
	373	627	881	1125	1383	1635	1853	2106	2337
	-13	-5	4	2	14	20	-7	0	-15
	-0.26	-0.09	0.07	0.04	0.29	0.41	-0.15	0.00	-0.31
	0.46	0.54	0.62	0.50	0.66	0.70	0.06	0.12	-0.26
	366	621	875	1118	1379	1632	1855	2111	2346
	-10	-3	3	-1	12	17	-7	1	-12
	-0.20	-0.06	0.07	-0.03	0.24	0.35	-0.15	0.02	-0.24
	0.32	0.42	0.50	0.36	0.58	0.64	0.10	0.22	-0.08
	0.20	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.10
	0.37	0.63	0.88	1.13	1.38	1.64	1.86	2.11	2.35
	0.36	0.61	0.87	1.11	1.37	1.62	1.84	2.10	2.34

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.32	-0.25
LOGGING ACCURACY (dB)	0.40	-0.22

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.41	-0.31
LOGGING ACCURACY (dB)	0.70	-0.26

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.35	-0.24
LOGGING ACCURACY (dB)	0.64	-0.08

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.41	-0.31

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.70	-0.26

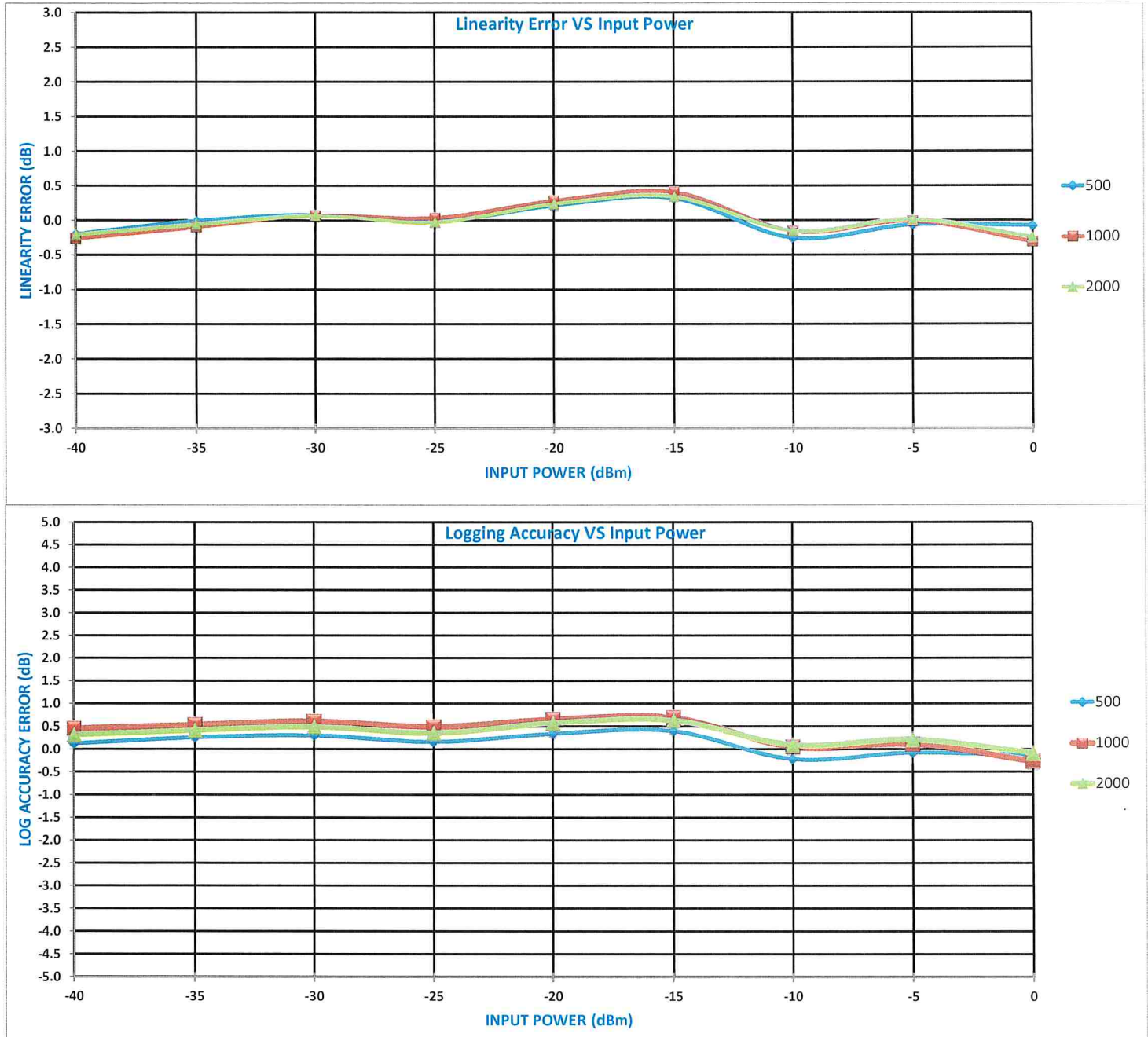
4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax:
(916)265-2597
Email: sales@pmi-rf.com



SUMMARY TEST DATA ON HADA-D2001

PL44190/2409

Log Linearity and Log Accuracy @ -40°C



4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com



SUMMARY TEST DATA ON HADA-D2001

PL44190/2409

Log Linearity and Log Accuracy @ +85°C

DC Offset= 0.106 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2294
	SLOPE (mV/dB)	49.2

1 GHz	INTERCEPT (mV)	2306
	SLOPE (mV/dB)	49.1

2 GHz	INTERCEPT (mV)	2305
	SLOPE (mV/dB)	49.4

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
0.5 GHz	327	582	819	1058	1314	1556	1787	2038	2315
	0	9	0	-7	3	-1	-15	-10	21
	0.00	0.18	0.00	-0.14	0.07	-0.01	-0.31	-0.21	0.42
	-0.46	-0.36	-0.62	-0.84	-0.72	-0.88	-1.26	-1.24	-0.70
1 GHz	340	596	835	1074	1330	1572	1800	2054	2319
	-3	7	1	-5	6	2	-15	-6	13
	-0.07	0.15	0.02	-0.10	0.11	0.05	-0.31	-0.13	0.27
	-0.20	-0.08	-0.30	-0.52	-0.40	-0.56	-1.00	-0.92	-0.62
2 GHz	330	586	824	1063	1322	1564	1798	2053	2321
	0	9	0	-8	4	-1	-14	-6	18
	-0.01	0.18	0.00	-0.16	0.08	-0.02	-0.28	-0.11	0.31
	-0.40	-0.28	-0.52	-0.74	-0.55	-0.72	-1.04	-0.94	-0.58
Flatness +/- dB	0.10	0.10	0.20	0.20	0.20	0.20	0.10	0.20	0.10
Max Video Output Volts	0.34	0.60	0.84	1.07	1.33	1.57	1.80	2.05	2.32
Min Video Output Volts	0.33	0.58	0.82	1.06	1.31	1.56	1.79	2.04	2.32

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.42	-0.31
LOGGING ACCURACY (dB)	-0.36	-1.26

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.27	-0.31
LOGGING ACCURACY (dB)	-0.08	-1.00

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.31	-0.28
LOGGING ACCURACY (dB)	-0.28	-1.04

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.42	-0.31

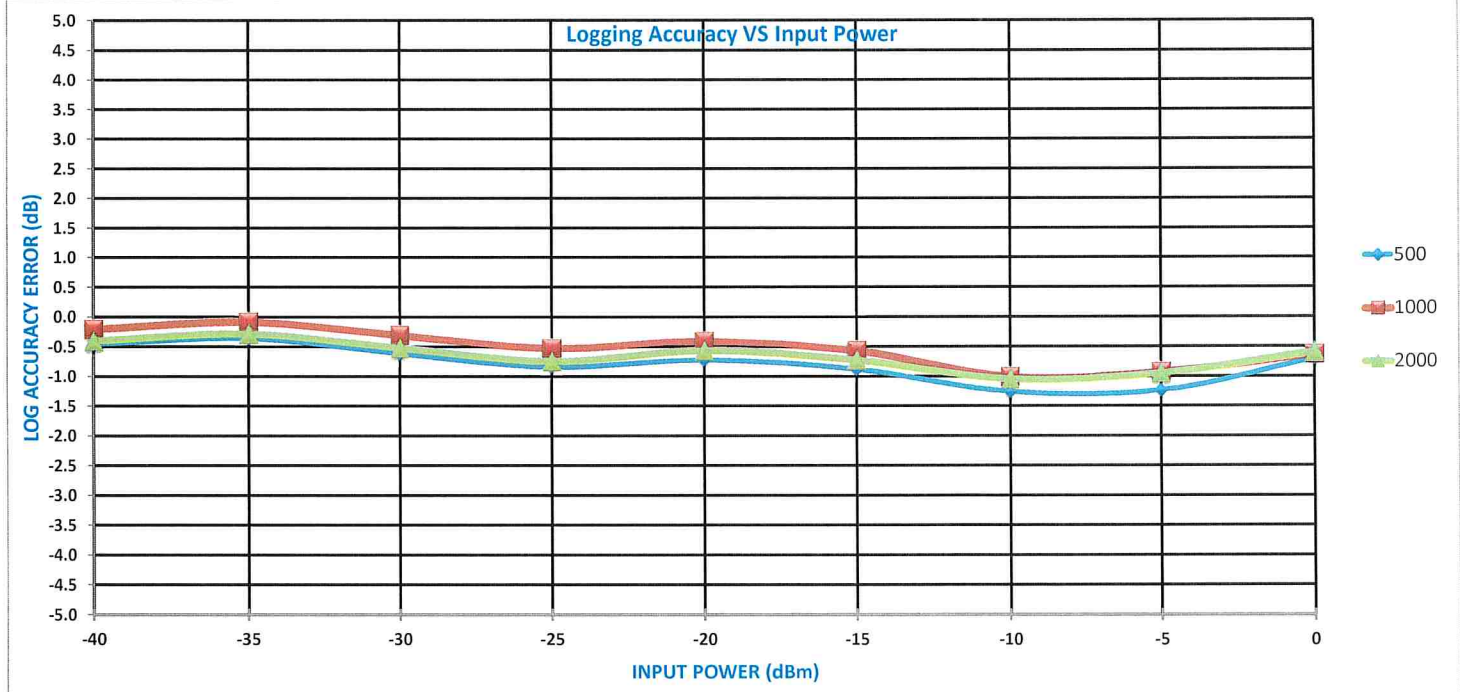
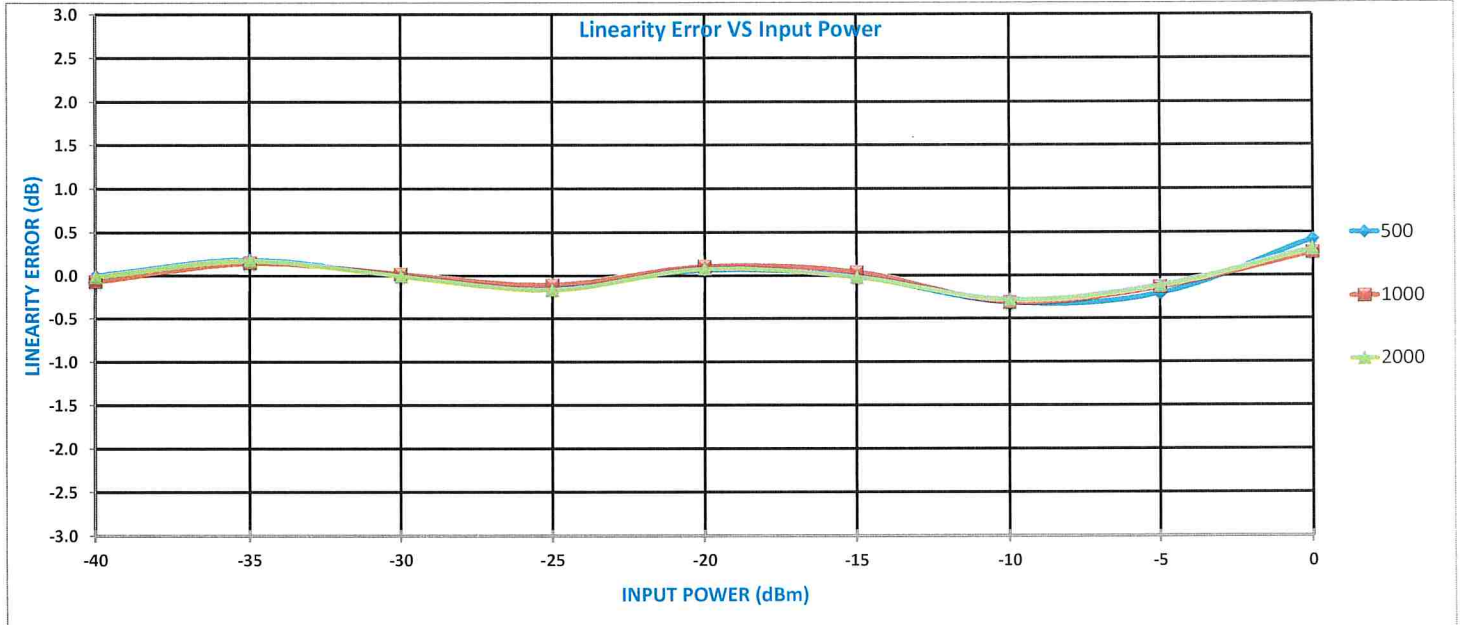
Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	-0.08	-1.26



SUMMARY TEST DATA
ON
HADA-D2001

PL44190/2409

Log Linearity and Log Accuracy @ +85°C



4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com

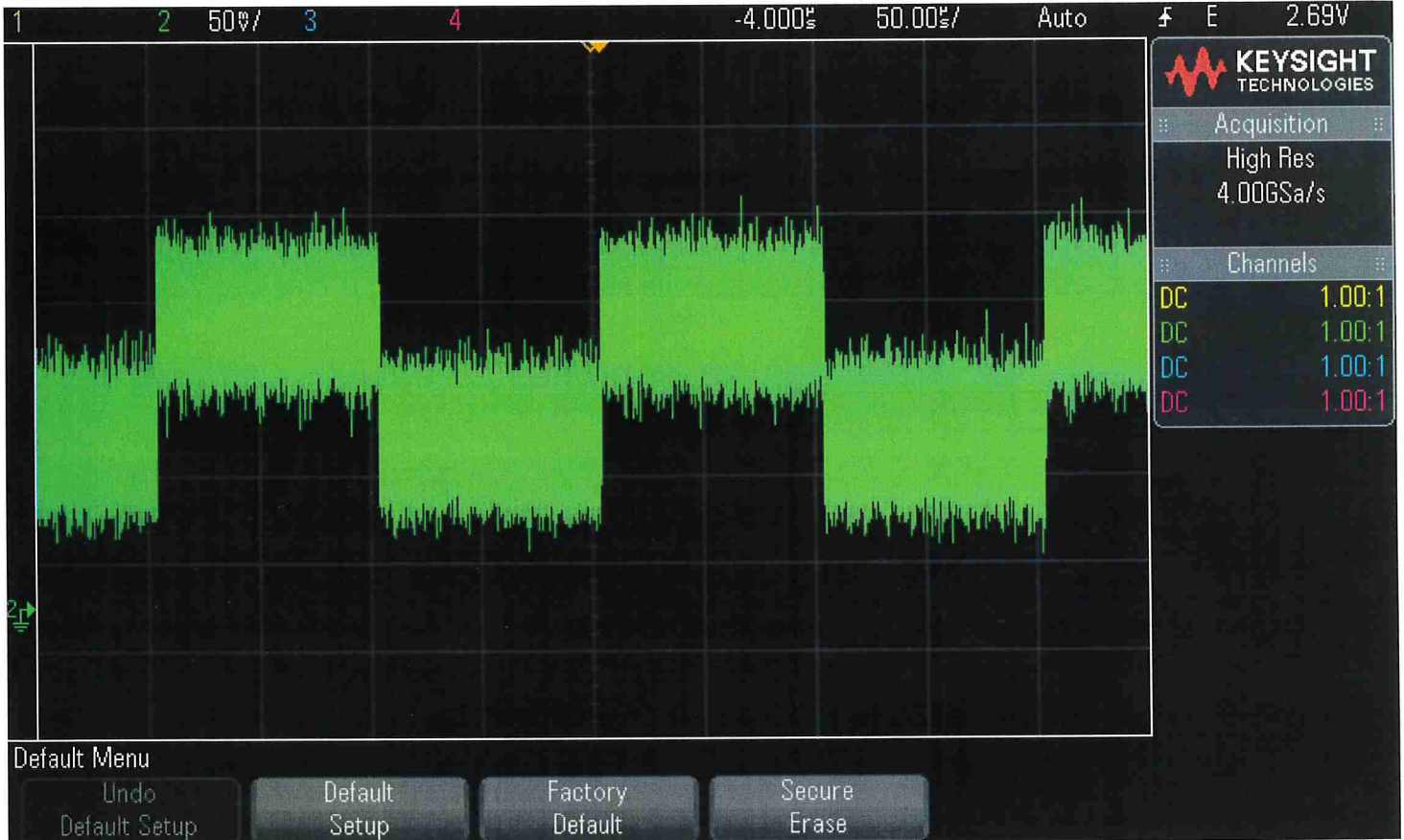


**SUMMARY TEST DATA
ON
HADA-D2001**

PL44190/2409

TSS -46 dBm

DSO-X 3024A, MY54490369: Fri Feb 23 14:10:04 2024



4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com

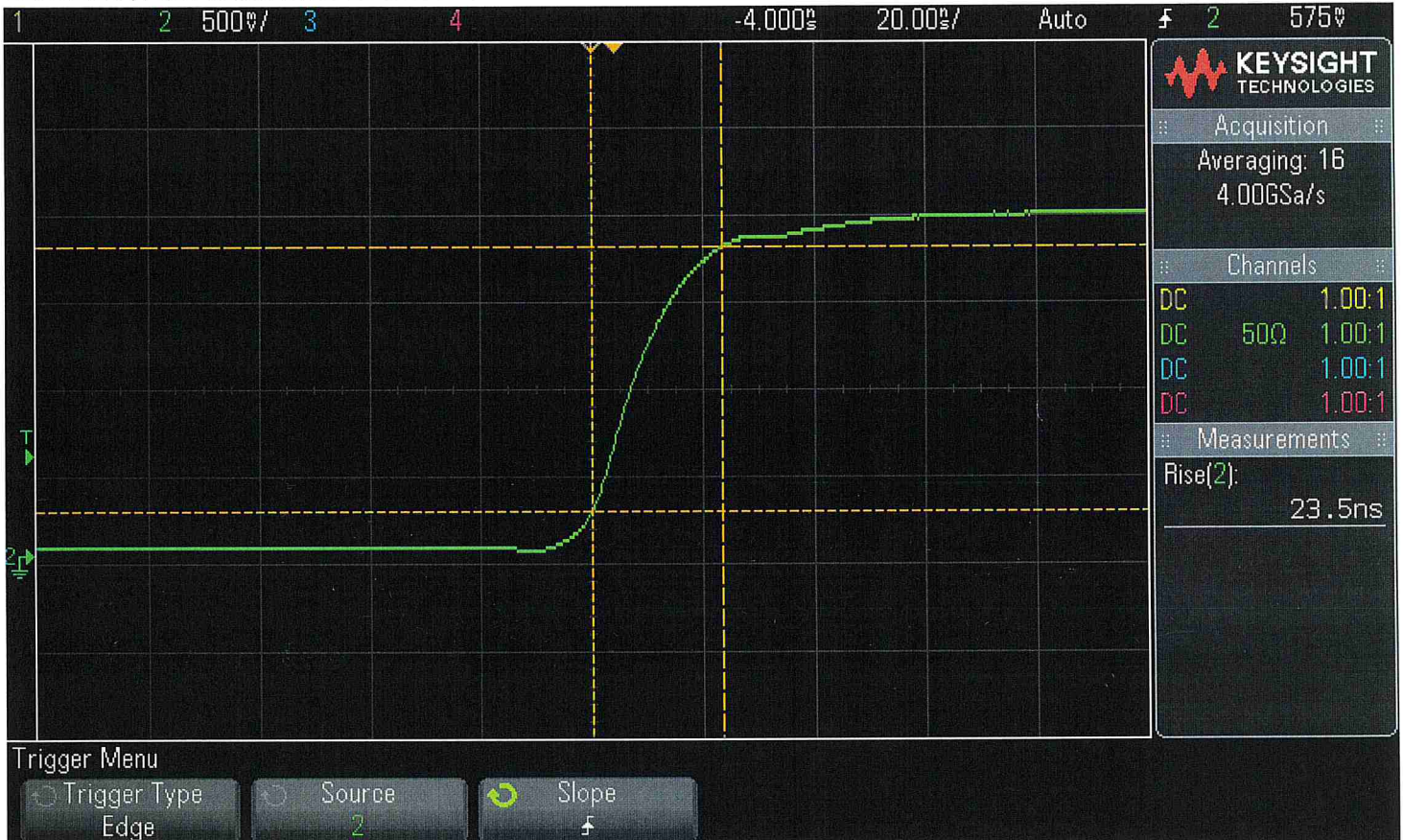


**SUMMARY TEST DATA
ON
HADA-D2001**

PL44190/2409

Rise Time 23.5 ns

DSO-X 3024A, MY54490369, Fri Feb 23 13:40:28 2024



4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com

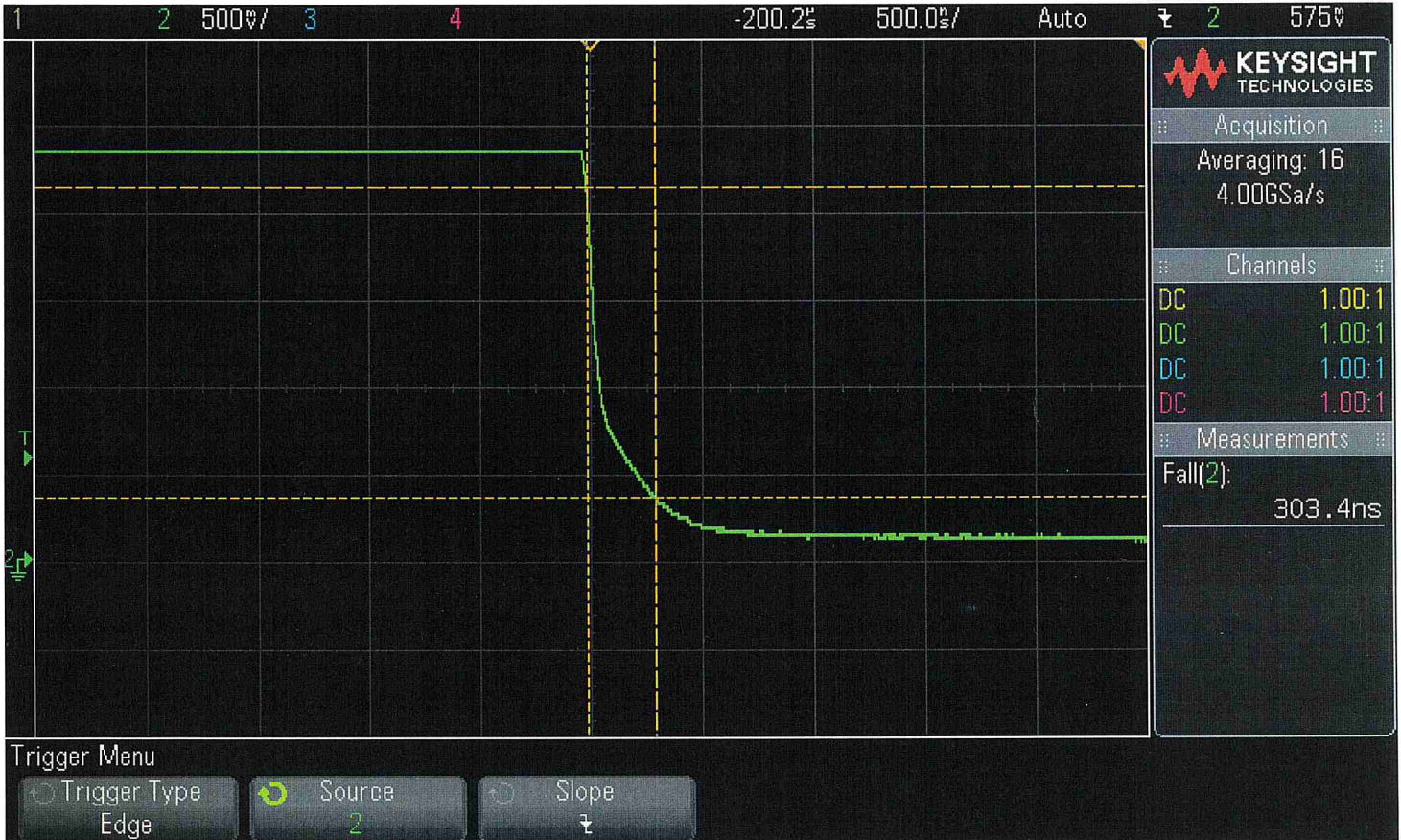


SUMMARY TEST DATA
ON
HADA-D2001

PL44190/2409

Fall Time 303 ns

DSO-X 3024A, MY54490369, Fri Feb 23 14:25:41 2024



4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax:
(916)265-2597
Email: sales@pmi-rf.com



SUMMARY TEST DATA
ON
HADA-D2001

PL44190/2409

VSWR 1.28:1

