



**SUMMARY TEST DATA
ON
HADA-D2001**

PL47265/2435

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>PL47265/2435</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 / -0.62 dB +0.20 / -0.90 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	+0.31 / -0.24 dB +0.38 / -0.35 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%)	26.8 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	156 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+79 mV @ +25°C +57 mV @ -40°C +116 mV @ +85°C	
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.23:1 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**

PL47265/2435

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	4

*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. Winters* Date: *6-30-24*

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**

PL47265/2435

Log Linearity and Log Accuracy @ +25°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
TEST DATE: 08/28/2024
SERIAL NO: PL47265
TEST TEMP: +25C

Graph #1

DC Offset= 0.079 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2328
	SLOPE (mV/dB)	49.7

1 GHz	INTERCEPT (mV)	2336
	SLOPE (mV/dB)	49.8

2 GHz	INTERCEPT (mV)	2335
	SLOPE (mV/dB)	50.1

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
0.5 GHz	326	595	837	1075	1342	1597	1824	2080	2319
Error (mV)	-12	8	2	-9	9	16	-6	1	-9
LINEARITY ERROR (dB)	-0.24	0.17	0.03	-0.18	0.19	0.31	-0.12	0.02	-0.17
LOGGING ACCURACY (dB)	-0.48	-0.10	-0.26	-0.50	-0.16	-0.06	-0.52	-0.40	-0.62
1 GHz	332	601	844	1081	1349	1603	1831	2088	2328
Error (mV)	-12	8	2	-10	9	14	-7	1	-8
LINEARITY ERROR (dB)	-0.23	0.17	0.05	-0.19	0.19	0.29	-0.13	0.03	-0.16
LOGGING ACCURACY (dB)	-0.36	0.02	-0.12	-0.38	-0.02	0.06	-0.38	-0.24	-0.44
2 GHz	323	592	834	1071	1339	1594	1826	2086	2332
Error (mV)	-9	10	2	-12	6	13	-8	2	-3
LINEARITY ERROR (dB)	-0.17	0.20	0.04	-0.23	0.12	0.21	-0.16	0.03	-0.05
LOGGING ACCURACY (dB)	-0.34	-0.19	-0.02	-0.38	-0.22	-0.12	-0.43	-0.28	-0.36
Flatness +/- dB	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Max Video Output Volts	0.33	0.60	0.84	1.08	1.35	1.60	1.83	2.09	2.33
Min Video Output Volts	0.32	0.59	0.83	1.07	1.34	1.59	1.82	2.08	2.32

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.31	-0.24
LOGGING ACCURACY (dB)	-0.06	-0.62

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.29	-0.23
LOGGING ACCURACY (dB)	0.06	-0.44

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.21	-0.23
LOGGING ACCURACY (dB)	-0.12	-0.58

Logging Linearity vs Frequency	Error(dB)	
TOTAL LOG LINEARITY (dB)	MAX	MIN
	0.31	-0.24

Logging Accuracy vs Frequency	Error(dB)	
TOTAL LOGGING ACCURACY (dB)	MAX	MIN
	0.06	-0.62



PLANAR MONOLITHICS INDUSTRIES
4921 Robert J. Mathews Parkway Suit 1
El Dorado Hills, CA 95762
TEL: 916-542-1401 FAX: 916-265-2597
EMAIL: SALES@PMI-RF.COM

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

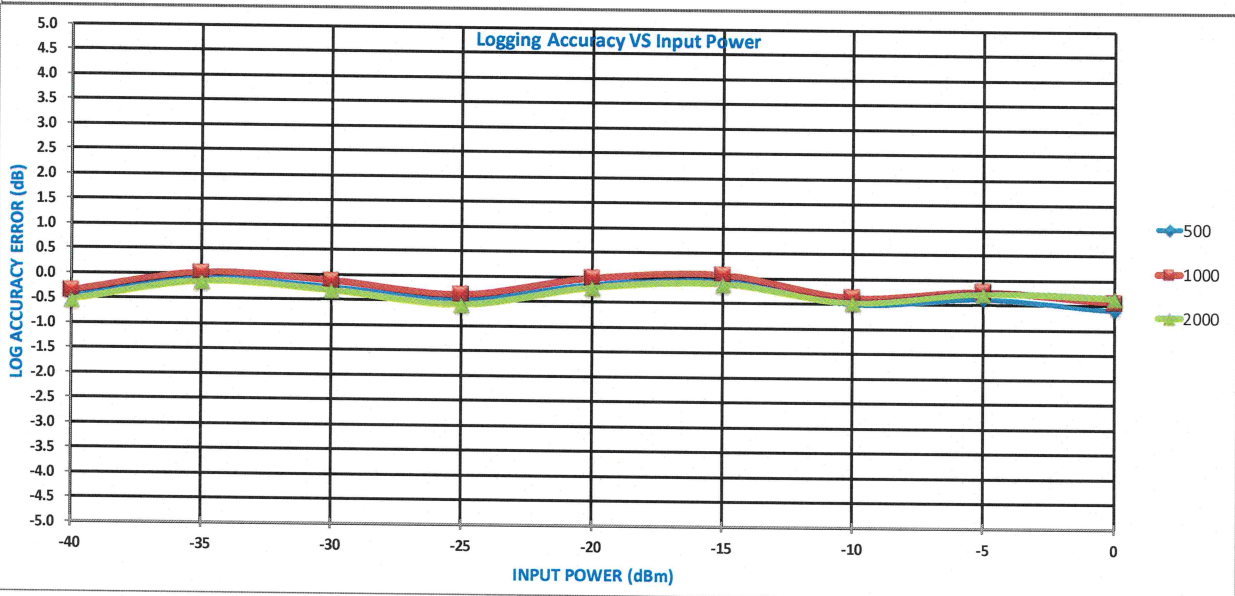
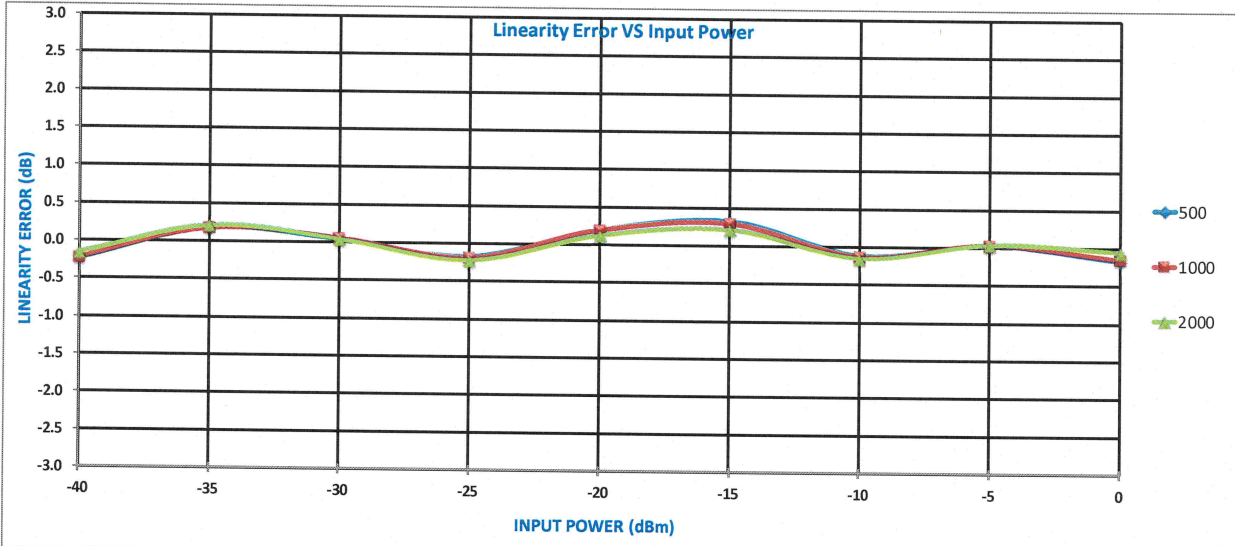


SUMMARY TEST DATA ON HADA-D2001

PL47265/2435

Log Linearity and Log Accuracy @ +25°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
SERIAL NO: PL47265
TEST TEMP: +25C



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**

PL47265/2435

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: PL47265
TEST TEMP: -40C

Graph #2

DC Offset= 0.057 V



PLANAR MONOLITHICS INDUSTRIES
4921 Robert J. Mathews Parkway Suit 1
El Dorado Hills, CA 95762
TEL: 916-542-1401 FAX: 916-265-2597
EMAIL: SALES@PMI-RF.COM

Frequency		
0.5 GHz	INTERCEPT (mV)	2322
	SLOPE (mV/dB)	49.2

1 GHz	INTERCEPT (mV)	2329
	SLOPE (mV/dB)	49.2

2 GHz	INTERCEPT (mV)	2330
	SLOPE (mV/dB)	49.5

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	352	595	842	1083	1347	1602	1834	2077	2305
	-1	-4	-3	-8	10	19	5	2	-17
	-0.03	-0.09	-0.07	-0.17	0.19	0.38	0.09	0.03	-0.34
	0.04	-0.10	-0.16	-0.34	-0.06	0.04	-0.32	-0.46	-0.90
	360	603	849	1092	1356	1609	1843	2085	2312
	-2	-4	-4	-7	11	18	6	2	-17
	-0.03	-0.09	-0.09	-0.15	0.21	0.36	0.11	0.03	-0.35
	0.20	0.06	-0.02	-0.16	0.12	0.18	-0.14	-0.30	-0.76
	353	596	842	1083	1349	1603	1839	2085	2317
	1	-3	-2	-5	8	15	2	2	-13
	0.03	-0.06	-0.09	-0.21	0.17	0.30	0.07	0.05	-0.26
	0.06	-0.08	-0.16	-0.34	-0.02	0.08	-0.22	-0.30	-0.66
	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	0.36	0.60	0.85	1.09	1.36	1.61	1.84	2.09	2.32
	0.35	0.60	0.84	1.08	1.35	1.60	1.83	2.08	2.31

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.38	-0.34
LOGGING ACCURACY (dB)	0.04	-0.90

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.36	-0.35
LOGGING ACCURACY (dB)	0.20	-0.76

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.30	-0.26
LOGGING ACCURACY (dB)	0.06	-0.66

Logging Linearity vs Frequency	Error(dB)	
TOTAL LOG LINEARITY (dB)	0.38	-0.35

Logging Accuracy vs Frequency	Error(dB)	
TOTAL LOGGING ACCURACY (dB)	0.20	-0.90

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

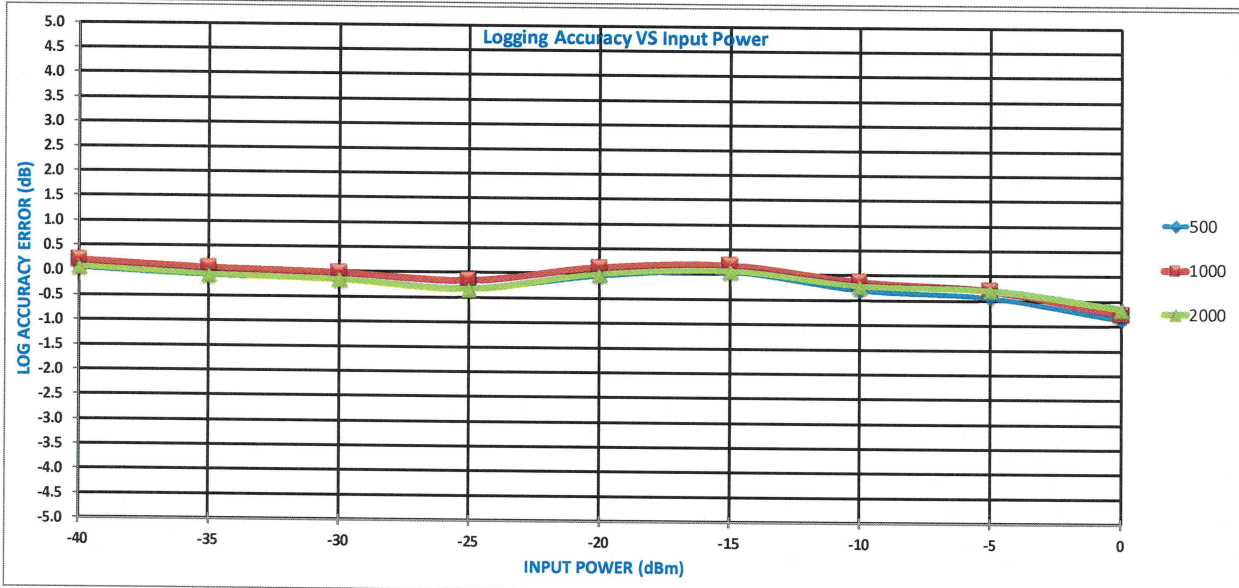
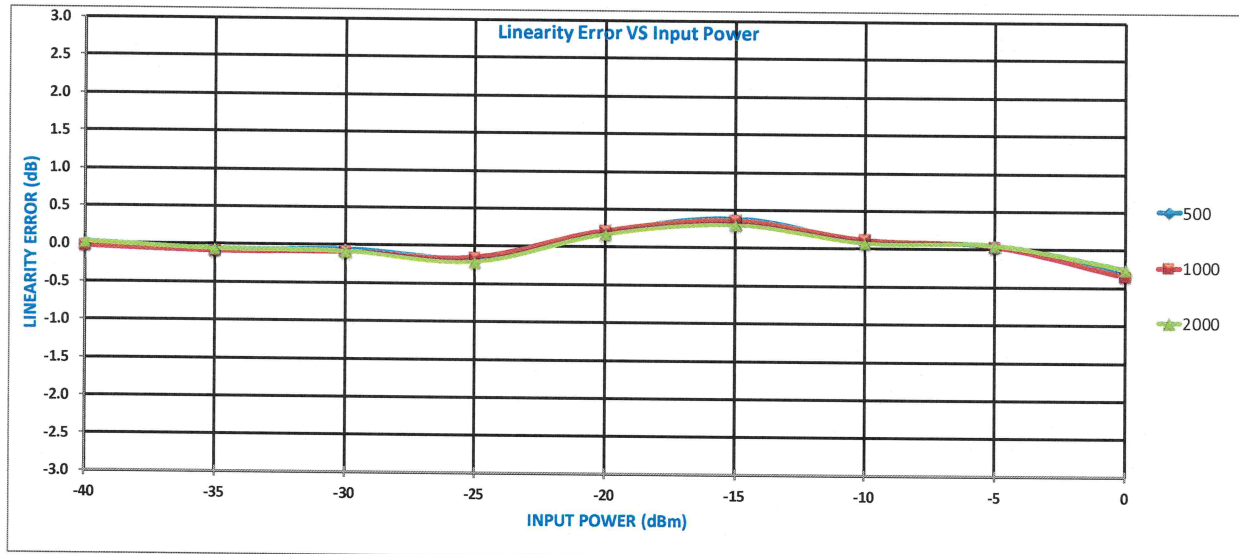


SUMMARY TEST DATA ON HADA-D2001

PL47265/2435

Log Linearity and Log Accuracy @ -40°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
SERIAL NO: PL47265
TEST TEMP: -40C



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

PL47265/2435

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: PL47265
 TEST TEMP: +85C

Graph #3

DC Offset= 0.116 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2323
	SLOPE (mV/dB)	49.8

1 GHz	INTERCEPT (mV)	2332
	SLOPE (mV/dB)	49.8

2 GHz	INTERCEPT (mV)	2331
	SLOPE (mV/dB)	50.1

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	331	592	828	1064	1329	1583	1813	2070	2334
	0	12	-1	-14	2	7	-12	-4	11
	-0.01	0.23	-0.03	-0.29	0.04	0.14	-0.24	-0.08	0.23
	-0.38	-0.16	-0.44	-0.72	-0.42	-0.34	-0.74	-0.60	-0.32
	338	600	835	1071	1337	1590	1820	2080	2344
	0	13	-2	-15	2	6	-13	-3	12
	0.00	0.25	-0.03	-0.30	0.04	0.12	-0.27	-0.05	0.24
	-0.24	0.00	-0.30	-0.58	-0.26	-0.20	-0.60	-0.40	-0.12
	331	591	825	1062	1328	1581	1816	2079	2348
	0	14	-3	-16	-1	1	-14	-2	12
	0.08	0.27	-0.06	-0.33	-0.02	0.03	-0.28	-0.03	0.34
	-0.20	-0.18	-0.20	-0.29	-0.38	-0.38	-0.63	-0.32	-0.04
	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	0.34	0.60	0.84	1.07	1.34	1.59	1.82	2.08	2.35
	0.33	0.59	0.83	1.06	1.33	1.58	1.81	2.07	2.33

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.23	-0.29
LOGGING ACCURACY (dB)	-0.16	-0.74

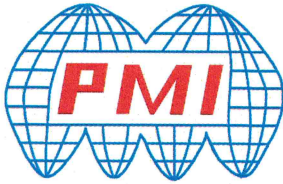
Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.25	-0.30
LOGGING ACCURACY (dB)	0.00	-0.60

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.34	-0.33
LOGGING ACCURACY (dB)	-0.04	-0.76

Logging Linearity vs Frequency	Error(dB)	
TOTAL LOG LINEARITY (dB)	MAX	MIN
	0.34	-0.33

Logging Accuracy vs Frequency	Error(dB)	
TOTAL LOGGING ACCURACY (dB)	MAX	MIN
	0.00	-0.76

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

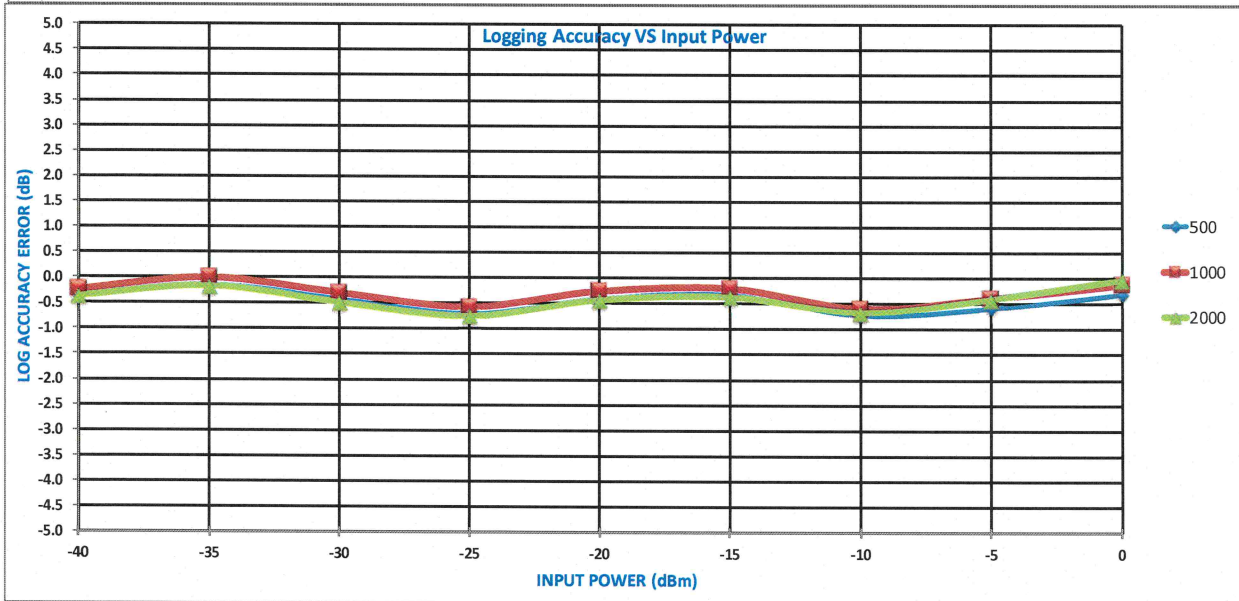
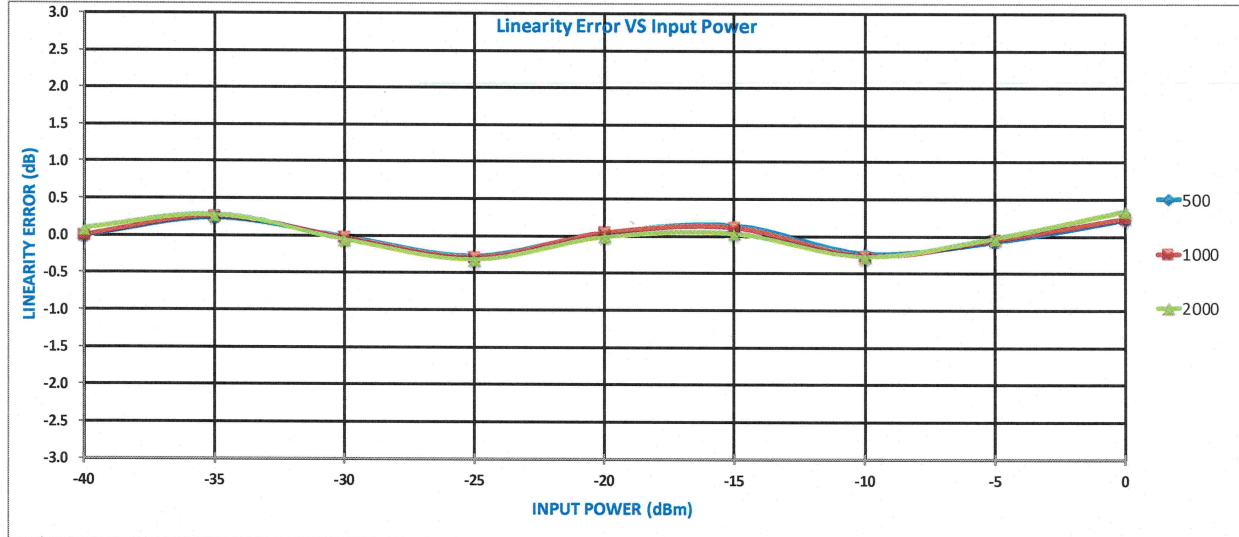


SUMMARY TEST DATA ON HADA-D2001

PL47265/2435

Log Linearity and Log Accuracy @ +85°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: J. Monley
SERIAL NO: PL47265
TEST TEMP: +85C



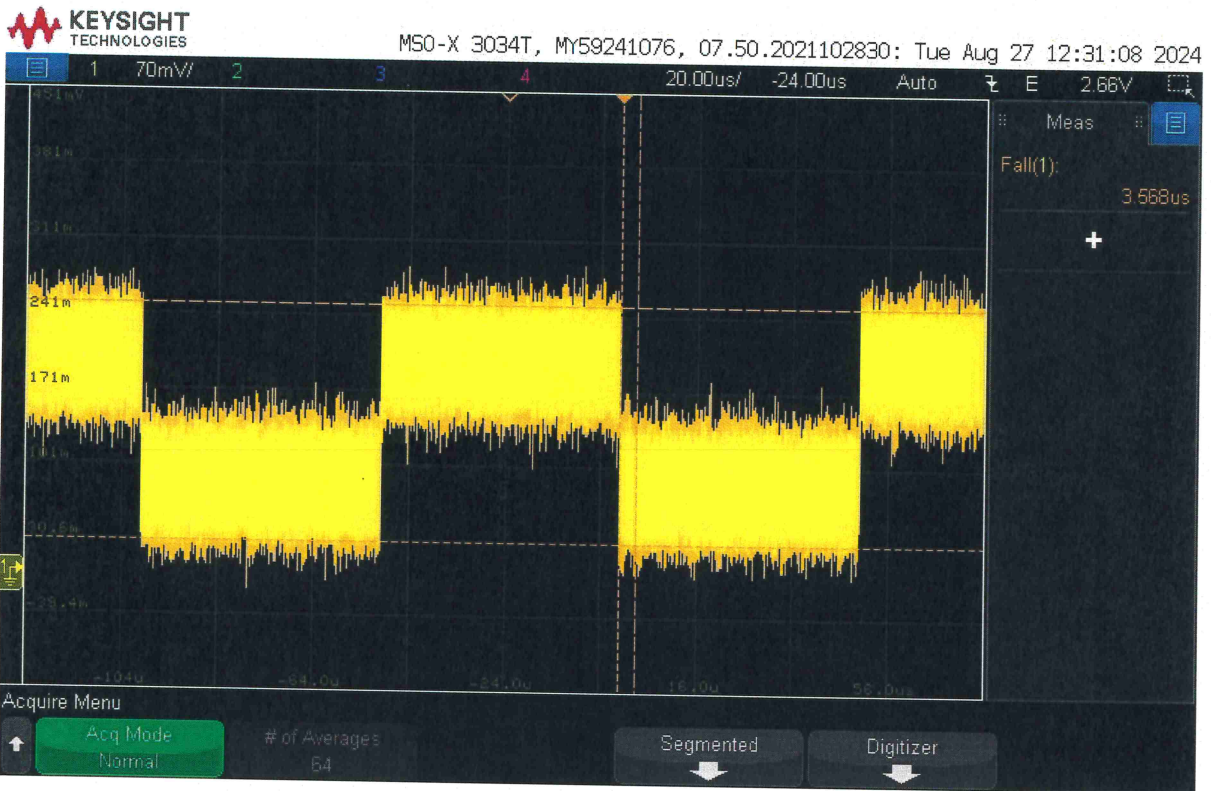
4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com



**SUMMARY TEST DATA
ON
HADA-D2001**

PL47265/2435

TSS -44.2 dBm



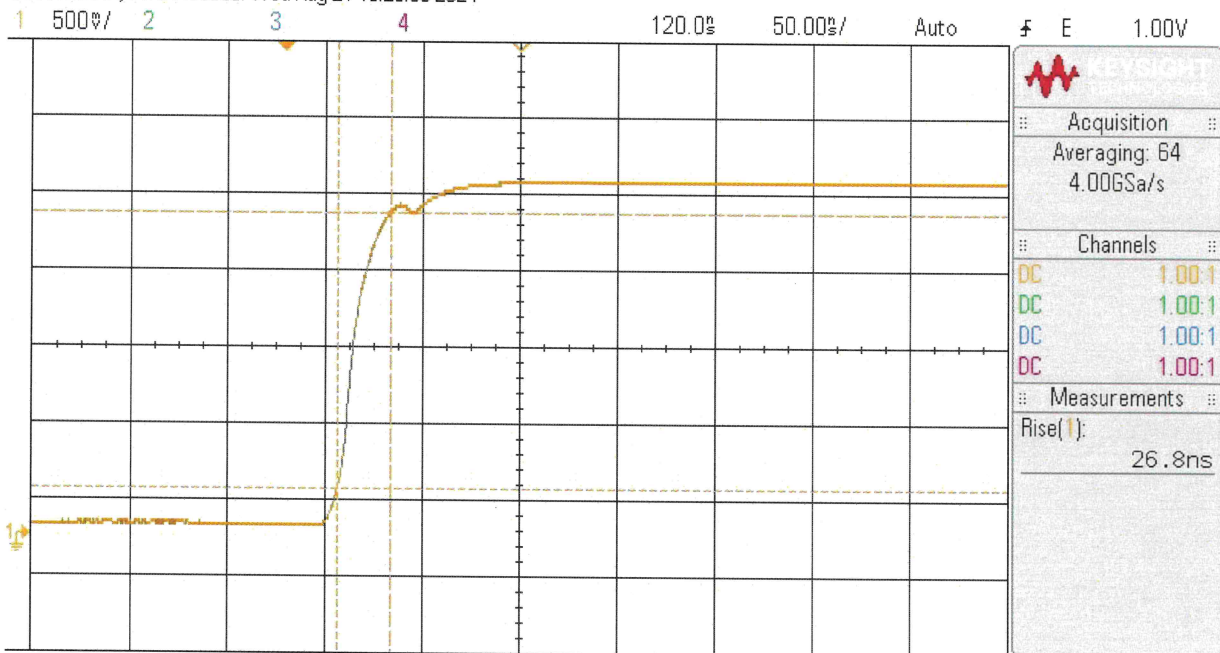


**SUMMARY TEST DATA
ON
HADA-D2001**

PL47265/2435

Rise Time

DSO-X 3024A, MY54490369: Wed Aug 21 15:23:59 2024



Acquire Menu

Acq Mode
Averaging

Avgs
64

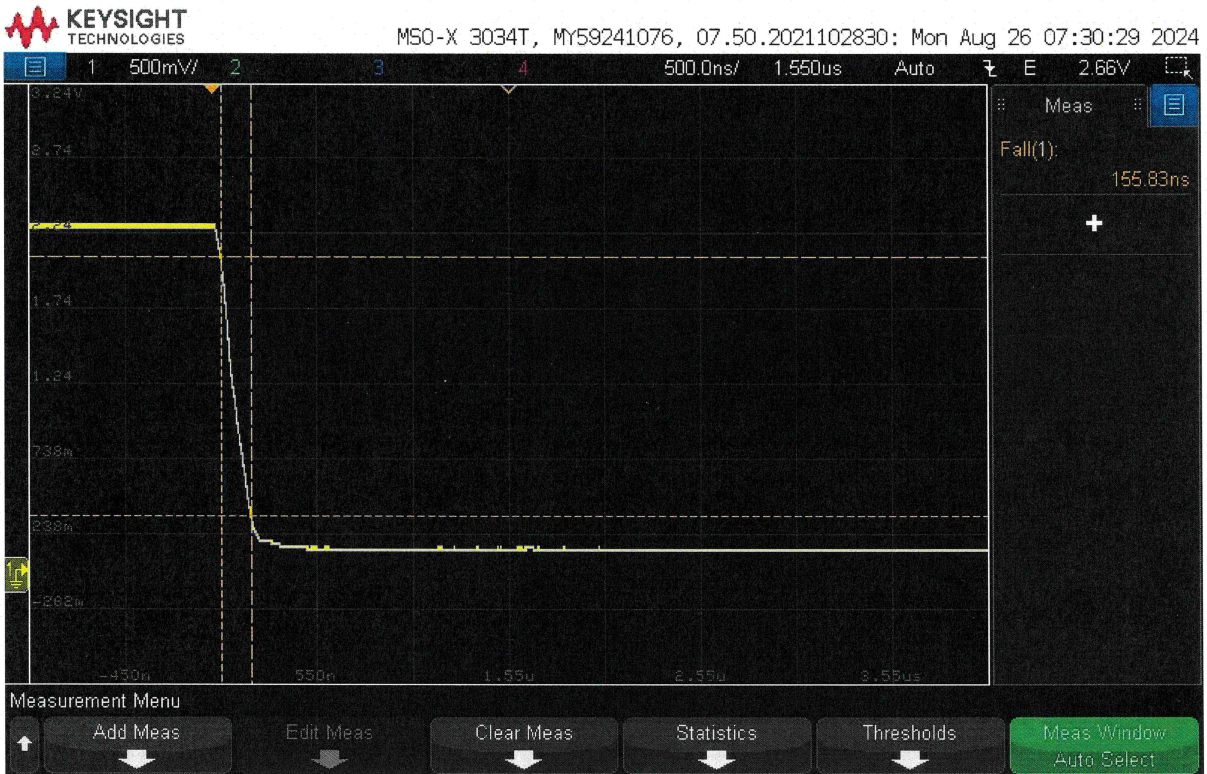
Segmented



**SUMMARY TEST DATA
ON
HADA-D2001**

PL47265/2435

Fall Time



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**

PL47265/2435

VSWR

