SUMMARY TEST DATA ON HADA-D2001

PL38216/2245

Customer:		**Tested By:**	J. Monley
SO No:		**Temperature:**	+25°C
Model No:	HADA-D2001	**Date:**	10/28/22
Serial No:	PL38216/2245	**Drawing No:**	27620201 **Rev:** A1

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 dBm See Plot**	
3	Frequency Flatness:	±0.75 dB Max	**±0.10 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)	**+0.56 dB** **+1.12 dB See Plot**	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	**-0.24 dB +0.43 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%)	**18.0 nS See Plot**	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	**281 nS See Plot**	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	**+ 84 mV +115 mV**	
12	Input VSWR:	2.5:1 Max @ +23 dBm	**1.16:1 See Plot**	

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

PL38216/2245

13	Propagation Delay:	60 ns Max	**40 nS**	PMI QA3
14	Power Supply:	+12 ± 1VDC @ 125 mA Max -12 ± 1VDC @ 75 mA Max	**90 mA** **40 mA**	
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: _____ **Date:** 11-4-22

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

PL38216/2245

Log Linearity and Log Accuracy @ +25°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: EA Valdez
TEST DATE: 11/04/22
SERIAL NO: PL38216
TEST TEMP: +25C

DC Offset= 0.084 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)	2353
	SLOPE (mV/dB)	49.7
1 GHz	INTERCEPT (mV)	2363
	SLOPE (mV/dB)	49.7
2 GHz	INTERCEPT (mV)	2352
	SLOPE (mV/dB)	49.6

RF Input Power (dBm)	-40	-35	-30	-25	-20	-15	-10	-5	0
	365	618	868	1108	1348	1607	1844	2109	2362
	0	5	6	-2	-11	0	-12	5	9
	0.01	0.10	0.13	-0.05	-0.22	-0.01	-0.24	0.09	0.18
	0.30	0.36	0.36	0.16	-0.04	0.14	-0.12	0.18	0.24
	376	628	878	1119	1361	1620	1857	2119	2369
	0	4	5	-2	-9	2	-9	4	6
	0.00	0.07	0.10	-0.05	-0.17	0.04	-0.19	0.08	0.12
	0.52	0.56	0.56	0.38	0.22	0.40	0.14	0.38	0.38
	366	619	868	1108	1350	1608	1847	2108	2356
	0	5	5	-3	-9	1	-9	4	6
	0.00	0.09	0.11	-0.06	-0.18	0.01	-0.17	0.09	0.12
	0.32	0.38	0.36	0.16	0.00	0.16	-0.06	0.16	0.16
Flatness +/- dB	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Max Video Output Volts	0.38	0.63	0.88	1.12	1.36	1.62	1.86	2.12	2.37
Min Video Output Volts	0.37	0.62	0.87	1.11	1.35	1.61	1.84	2.11	2.36

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.18	-0.24
LOGGING ACCURACY (dB)	0.36	-0.12

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.12	-0.19
LOGGING ACCURACY (dB)	0.56	0.14

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.12	-0.18
LOGGING ACCURACY (dB)	0.38	-0.06

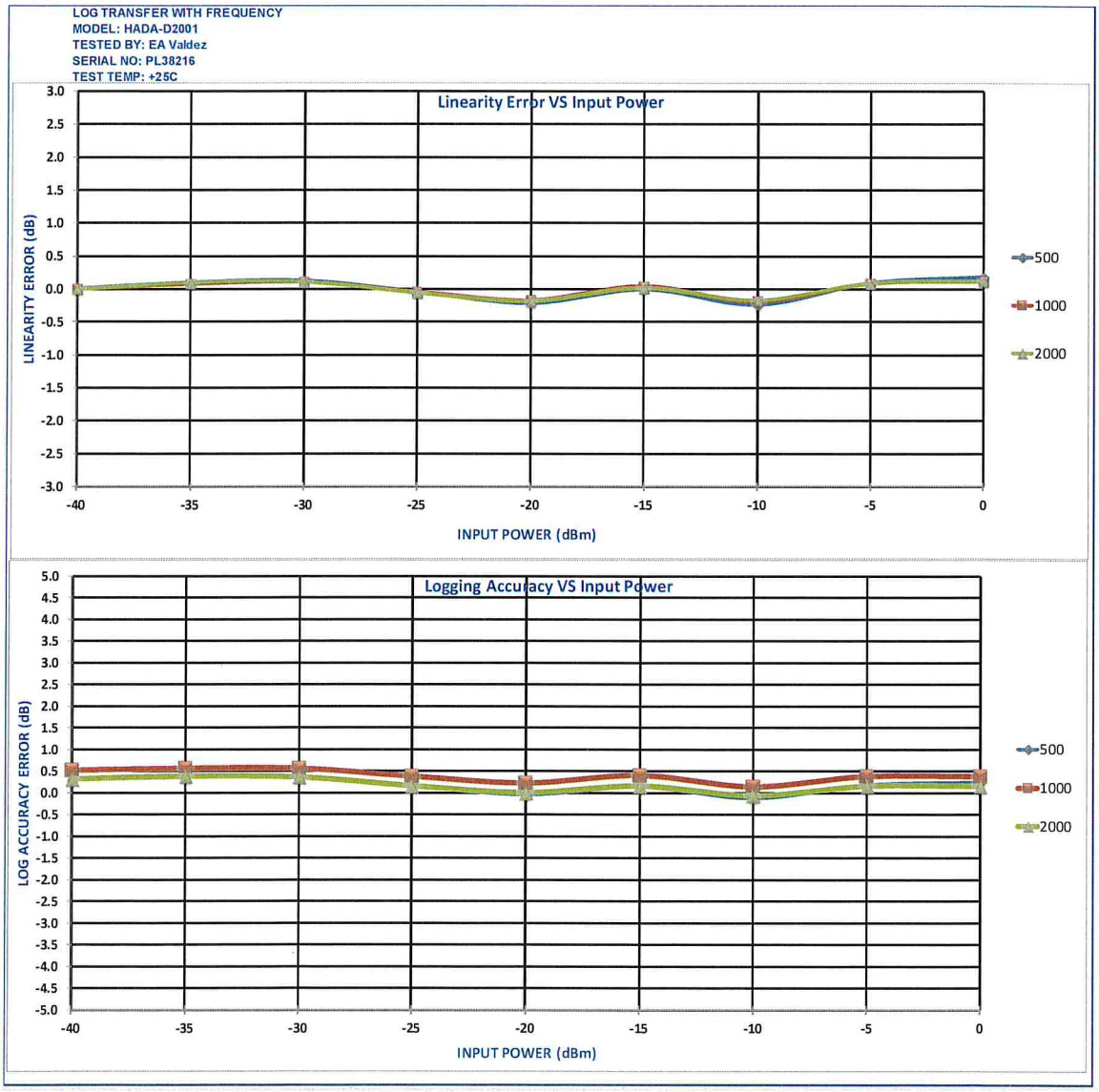
Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.18	-0.24

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB	0.56	-0.12

SUMMARY TEST DATA
ON
HADA-D2001

PL38216/2245

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

PL38216/2245

Log Linearity and Log Accuracy @ -40°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: EA Valdez
TEST DATE: 11/04/22
SERIAL NO: PL38216
TEST TEMP: -40C

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

DC Offset= 0.115 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2312
	SLOPE (mV/dB)	48.4
1 GHz	INTERCEPT (mV)	2323
	SLOPE (mV/dB)	48.3
2 GHz	INTERCEPT (mV)	2314
	SLOPE (mV/dB)	48.3

RF Input Power (dBm)	-40	-35	-30	-25	-20	-15	-10	-5	0
	395	611	857	1093	1331	1589	1833	2075	2313
Error (mV)	18	-6	-3	-9	-13	3	5	5	1
LINEARITY ERROR (dB)	0.38	-0.16	-0.07	-0.19	-0.27	0.06	0.11	0.11	0.03
LOGGING ACCURACY (dB)	0.90	0.22	0.14	-0.14	-0.38	-0.22	-0.34	-0.50	-0.74
	406	622	869	1106	1347	1604	1849	2085	2318
Error (mV)	16	-9	-4	-9	-9	6	10	4	-5
LINEARITY ERROR (dB)	0.33	-0.20	-0.08	-0.18	-0.19	0.13	0.20	0.08	-0.09
LOGGING ACCURACY (dB)	1.12	0.44	0.38	0.12	-0.06	0.08	-0.02	-0.30	-0.64
	399	615	862	1098	1338	1595	1841	2078	2308
Error (mV)	16	-9	-4	-9	-10	5	10	6	-5
LINEARITY ERROR (dB)	0.33	-0.19	-0.07	-0.18	-0.21	0.11	0.21	0.12	-0.12
LOGGING ACCURACY (dB)	0.98	0.30	0.24	-0.04	-0.24	-0.10	-0.18	-0.44	-0.84
Flatness +/- dB	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.10	0.10
Max Video Output Volts	0.41	0.62	0.87	1.11	1.35	1.60	1.85	2.09	2.32
Min Video Output Volts	0.40	0.61	0.86	1.09	1.33	1.59	1.83	2.08	2.31

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.38	-0.27
LOGGING ACCURACY (dB)	0.90	-0.74

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.33	-0.20
LOGGING ACCURACY (dB)	1.12	-0.64

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.33	-0.21
LOGGING ACCURACY (dB)	0.98	-0.84

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.38	-0.27

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB	1.12	-0.84

SUMMARY TEST DATA
ON
HADA-D2001

PL38216/2245

Log Linearity and Log Accuracy @ +85°C

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: EA Valdez
TEST DATE: 11/04/22
SERIAL NO: PL38216
TEST TEMP: +85C

DC Offset= 0.081 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)	2327
	SLOPE (mV/dB)	50
1 GHz	INTERCEPT (mV)	2340
	SLOPE (mV/dB)	50
2 GHz	INTERCEPT (mV)	2329
	SLOPE (mV/dB)	49.9

	Flatness +/- dB	Max Video Output Volts	Min Video Output Volts
-40	0.10	0.34	0.33
-35	0.10	0.60	0.59
-30	0.10	0.85	0.83
-25	0.10	1.09	1.07
-20	0.20	1.33	1.32
-15	0.20	1.59	1.57
-10	0.10	1.82	1.81
-5	0.20	2.10	2.08
0	0.10	2.36	2.35

RF Input Power (dBm)	-40	-35	-30	-25	-20	-15	-10	-5	0
0.5 GHz	327	589	832	1073	1315	1570	1805	2080	2348
	0	12	5	-4	-12	-7	-22	3	21
	0.01	0.25	0.11	-0.07	-0.23	-0.13	-0.43	0.07	0.43
	-0.46	-0.22	-0.36	-0.54	-0.70	-0.60	-0.90	-0.40	-0.04
1 GHz	341	602	845	1086	1330	1586	1819	2095	2357
	0	11	5	-4	-10	-4	-21	5	17
	0.01	0.23	0.09	-0.09	-0.20	-0.08	-0.42	0.11	0.35
	-0.18	0.04	-0.10	-0.28	-0.40	-0.28	-0.62	-0.10	0.14
2 GHz	333	594	836	1076	1321	1575	1811	2082	2348
	1	12	4	-5	-10	-5	-19	3	19
	0.01	0.24	0.09	-0.10	-0.19	-0.10	-0.38	0.05	0.38
	-0.34	-0.12	-0.28	-0.48	-0.58	-0.50	-0.78	-0.36	-0.04

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.43	-0.43
LOGGING ACCURACY (dB)	-0.04	-0.90

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.35	-0.42
LOGGING ACCURACY (dB)	0.14	-0.62

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.38	-0.38
LOGGING ACCURACY (dB)	-0.04	-0.78

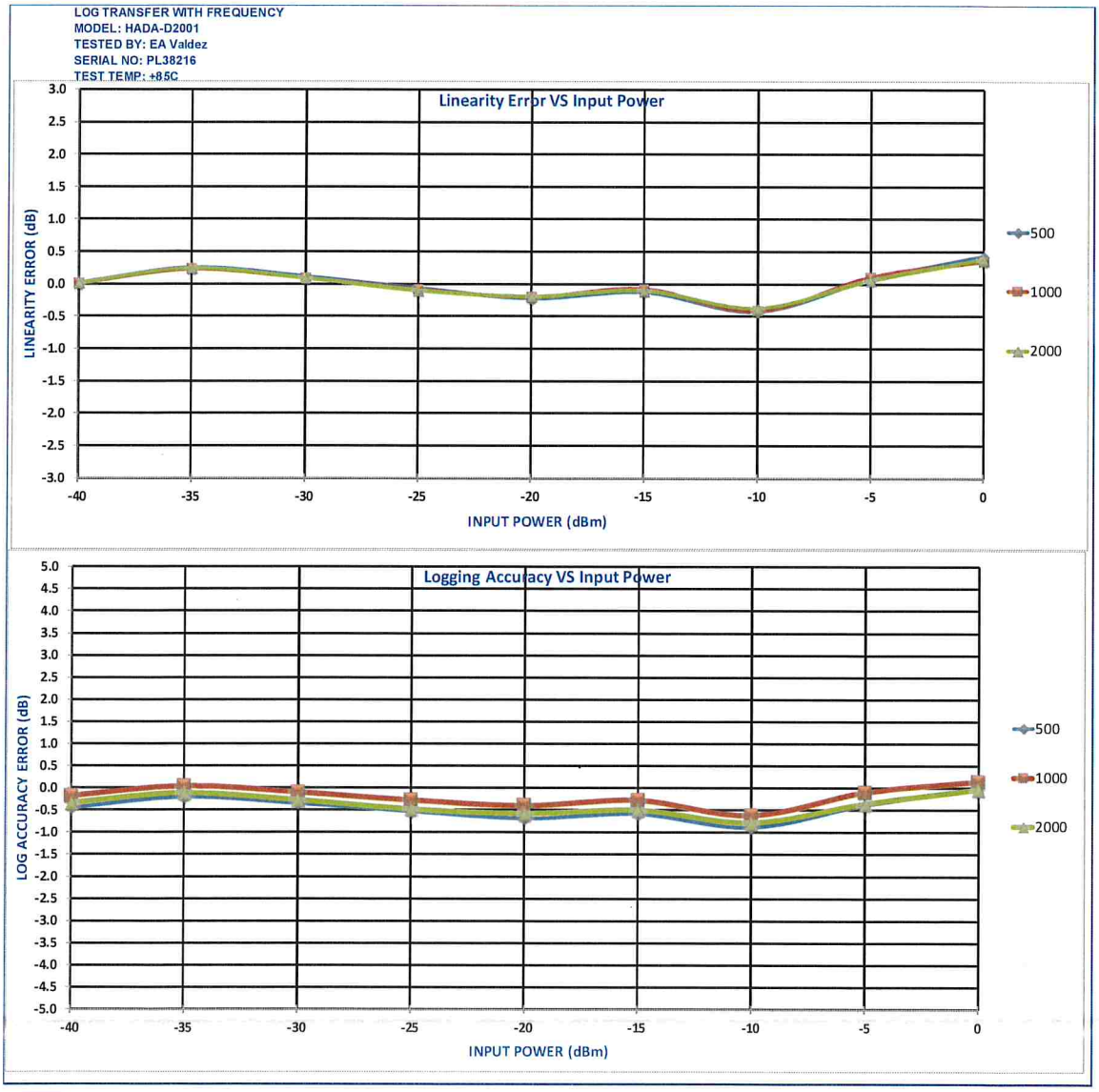
Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.43	-0.43

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB	0.14	-0.90

SUMMARY TEST DATA ON HADA-D2001

PL38216/2245

Log Linearity and Log Accuracy @ +85°C

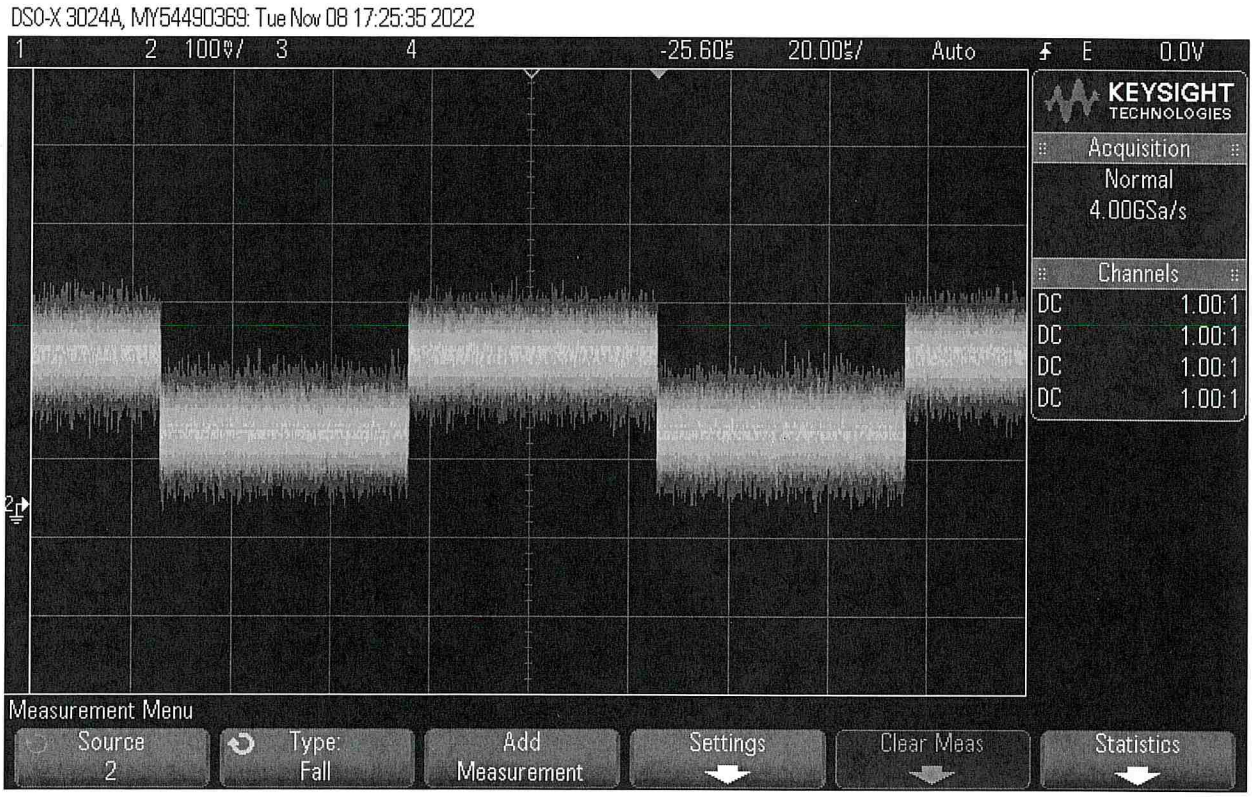


4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com

SUMMARY TEST DATA
ON
HADA-D2001

PL38216/2245

TSS @ -45 dBm

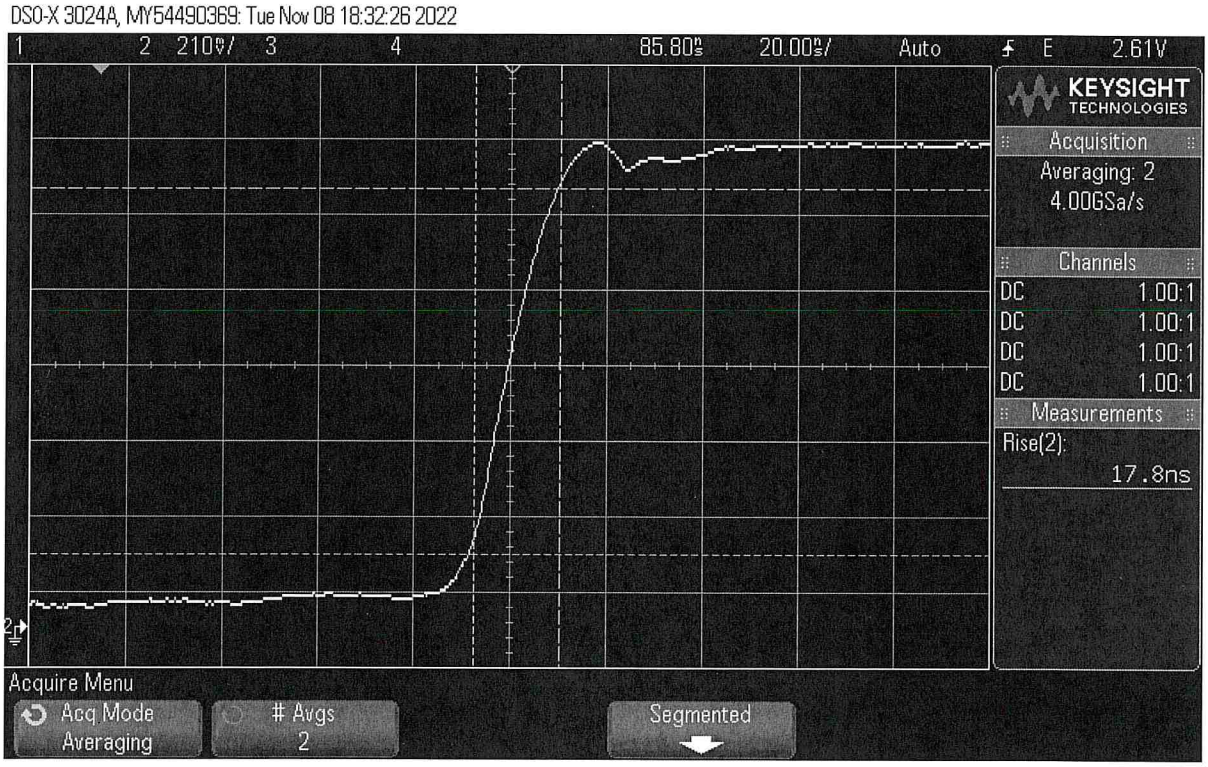


4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com

SUMMARY TEST DATA
ON
HADA-D2001

PL38216/2245

Rise Time 17.8nS

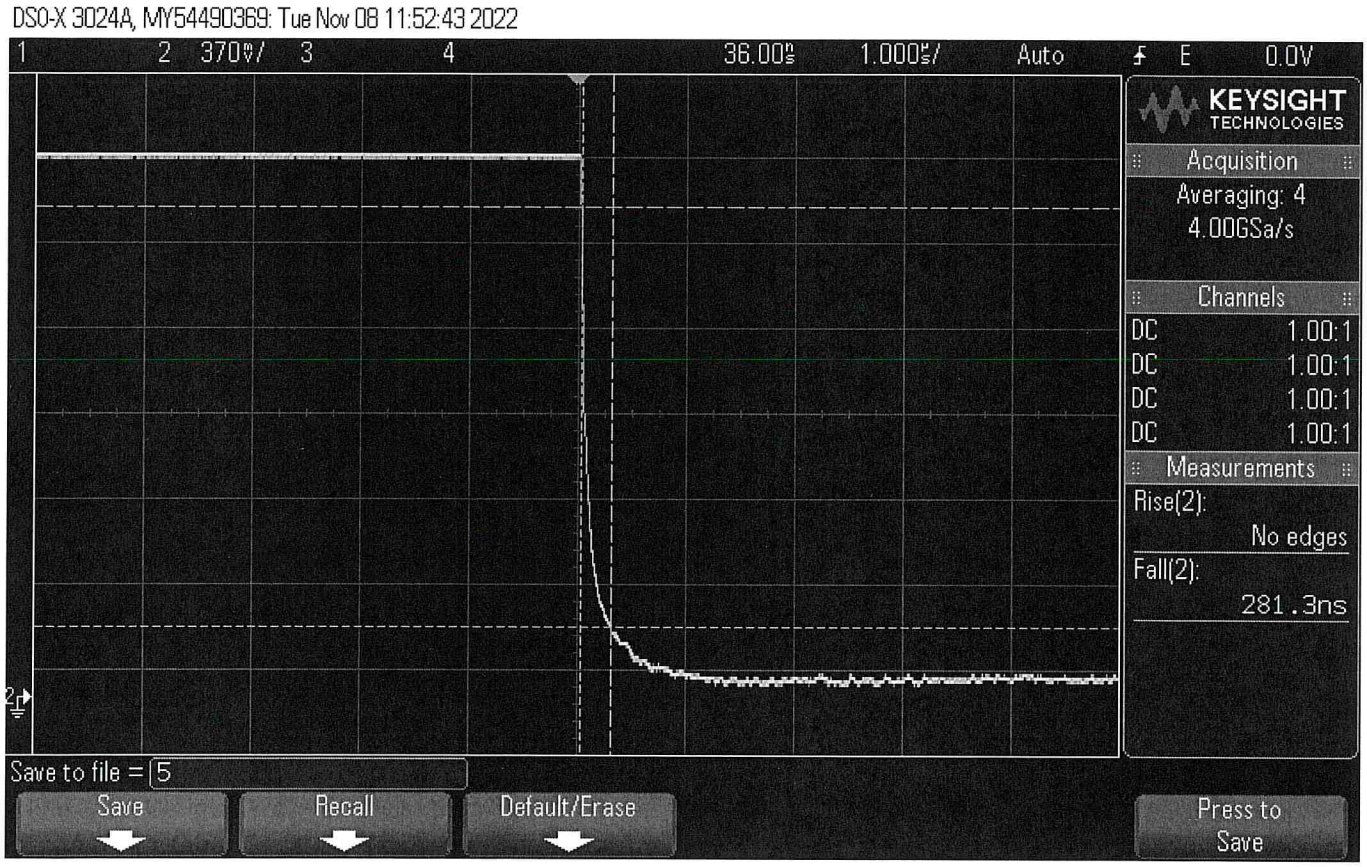


4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com

SUMMARY TEST DATA
ON
HADA-D2001

PL38216/2245

Fall Time 281nS

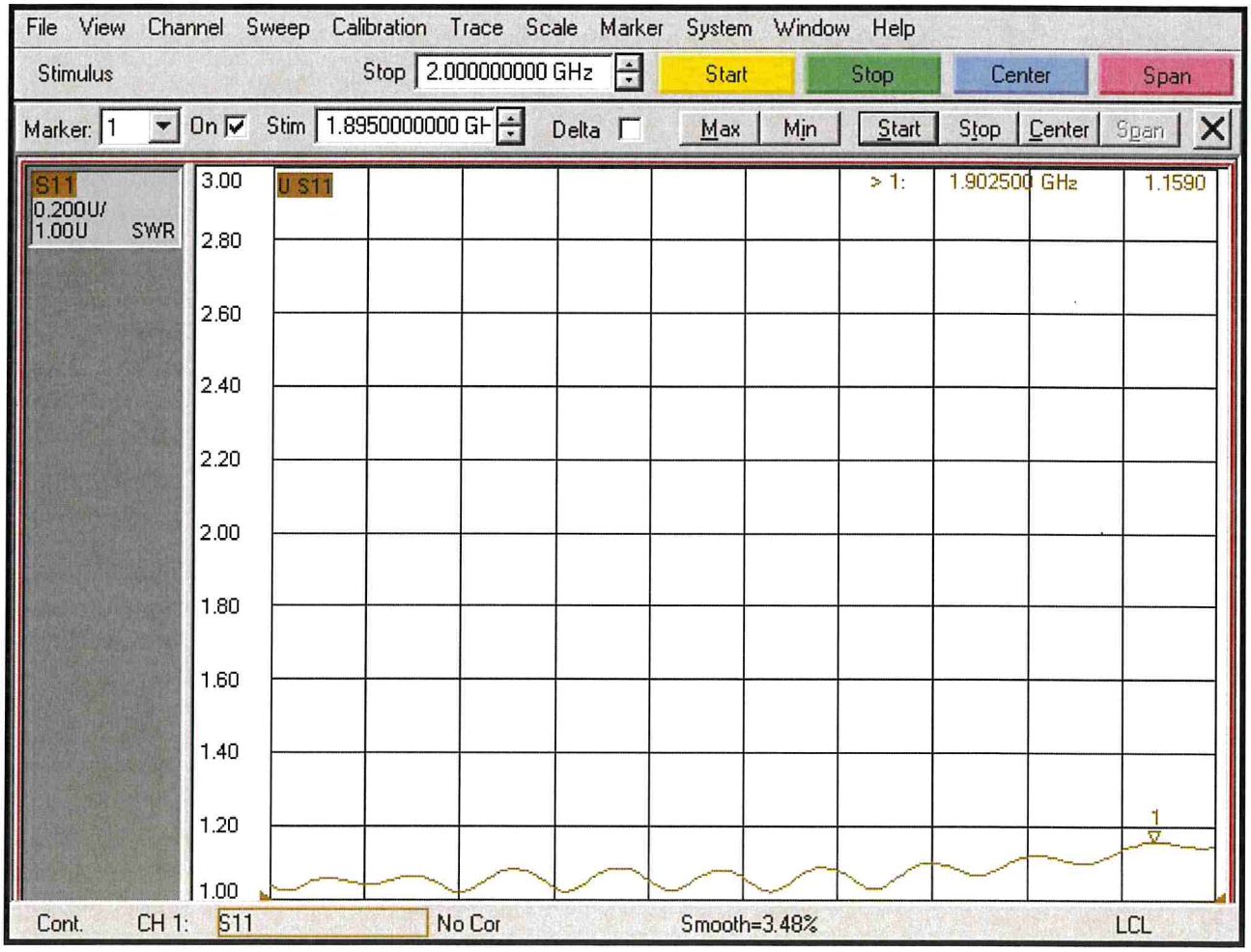


4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
Email: sales@pmi-rf.com

SUMMARY TEST DATA
ON
HADA-D2001

PL38216/2245

VSWR 116:1



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