



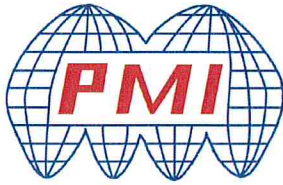
**SUMMARY TEST DATA
ON
HADA-D2001**

PL38221/2245

Customer: _____	Tested By: <u>J. Monley</u>
SO No: _____	Temperature: <u>+25°C</u>
Model No: <u>HADA-D2001</u>	Date: <u>10/28/22</u>
Serial No: <u>PL38221/2245</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°	-45 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)	-0.26 dB -1.30 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	-0.28 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%)	19 nS See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	207 nS See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+ 90 mV +102 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



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ON
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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: 11. *Winters*

Date: 11-14-22



SUMMARY TEST DATA ON HADA-D2001

PL38221/2245

Log Linearity and Log Accuracy @ +25°C

<p>LOG TRANSFER WITH FREQUENCY MODEL: HADA-D2001 TESTED BY: EA Vaklez TEST DATE: 11/03/22 SERIAL NO: PL38221 TEST TEMP: +25C</p>			DC Offset= 0.090 V										 PLANAR MONOLITHICS INDUSTRIES 4921 Robert J. Mathews Parkway Suite 1 El Dorado Hills, CA 95762 TEL: 916-542-1401 FAX: 916-265-2597 EMAIL: SALES@PMI-RF.COM																																																																															
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #e0e0e0;">Flatness +/- dB</td> <td colspan="2"></td> </tr> <tr> <td style="background-color: #e0e0e0;">Max Video Output Volts</td> <td colspan="2"></td> </tr> <tr> <td style="background-color: #e0e0e0;">Min Video Output Volts</td> <td colspan="2"></td> </tr> </table>			Flatness +/- dB			Max Video Output Volts			Min Video Output Volts			<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th style="background-color: #e0e0e0;">-40</th> <th style="background-color: #e0e0e0;">-35</th> <th style="background-color: #e0e0e0;">-30</th> <th style="background-color: #e0e0e0;">-25</th> <th style="background-color: #e0e0e0;">-20</th> <th style="background-color: #e0e0e0;">-15</th> <th style="background-color: #e0e0e0;">-10</th> <th style="background-color: #e0e0e0;">-5</th> <th style="background-color: #e0e0e0;">0</th> <td colspan="2"></td> </tr> <tr> <td style="background-color: #e0e0e0;">0.20</td> <td style="background-color: #e0e0e0;">0.20</td> <td style="background-color: #e0e0e0;">0.20</td> <td style="background-color: #e0e0e0;">0.20</td> <td style="background-color: #e0e0e0;">0.20</td> <td style="background-color: #e0e0e0;">0.20</td> <td style="background-color: #e0e0e0;">0.20</td> <td style="background-color: #e0e0e0;">0.20</td> <td style="background-color: #e0e0e0;">0.10</td> <td colspan="2"></td> </tr> <tr> <td style="background-color: #e0e0e0;">0.36</td> <td style="background-color: #e0e0e0;">0.63</td> <td style="background-color: #e0e0e0;">0.88</td> <td style="background-color: #e0e0e0;">1.13</td> <td style="background-color: #e0e0e0;">1.37</td> <td style="background-color: #e0e0e0;">1.63</td> <td style="background-color: #e0e0e0;">1.86</td> <td style="background-color: #e0e0e0;">2.13</td> <td style="background-color: #e0e0e0;">2.37</td> <td colspan="2"></td> </tr> <tr> <td style="background-color: #e0e0e0;">0.35</td> <td style="background-color: #e0e0e0;">0.62</td> <td style="background-color: #e0e0e0;">0.87</td> <td style="background-color: #e0e0e0;">1.11</td> <td style="background-color: #e0e0e0;">1.35</td> <td style="background-color: #e0e0e0;">1.61</td> <td style="background-color: #e0e0e0;">1.84</td> <td style="background-color: #e0e0e0;">2.11</td> <td style="background-color: #e0e0e0;">2.36</td> <td colspan="2"></td> </tr> </table>										-40	-35	-30	-25	-20	-15	-10	-5	0			0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10			0.36	0.63	0.88	1.13	1.37	1.63	1.86	2.13	2.37			0.35	0.62	0.87	1.11	1.35	1.61	1.84	2.11	2.36			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="background-color: #e0e0e0;">Logging Linearity vs Frequency</th> <th colspan="2" style="background-color: #e0e0e0;">Error (dB)</th> </tr> <tr> <td style="background-color: #e0e0e0;">TOTAL LOG LINEARITY (dB)</td> <td style="background-color: #e0e0e0;">MAX</td> <td style="background-color: #e0e0e0;">MIN</td> <td></td> </tr> <tr> <td style="background-color: #e0e0e0;">TOTAL LOG LINEARITY (dB)</td> <td style="text-align: right;">0.21</td> <td style="text-align: right;">-0.28</td> <td></td> </tr> </table>			Logging Linearity vs Frequency		Error (dB)		TOTAL LOG LINEARITY (dB)	MAX	MIN		TOTAL LOG LINEARITY (dB)	0.21	-0.28													
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0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10																																																																																				
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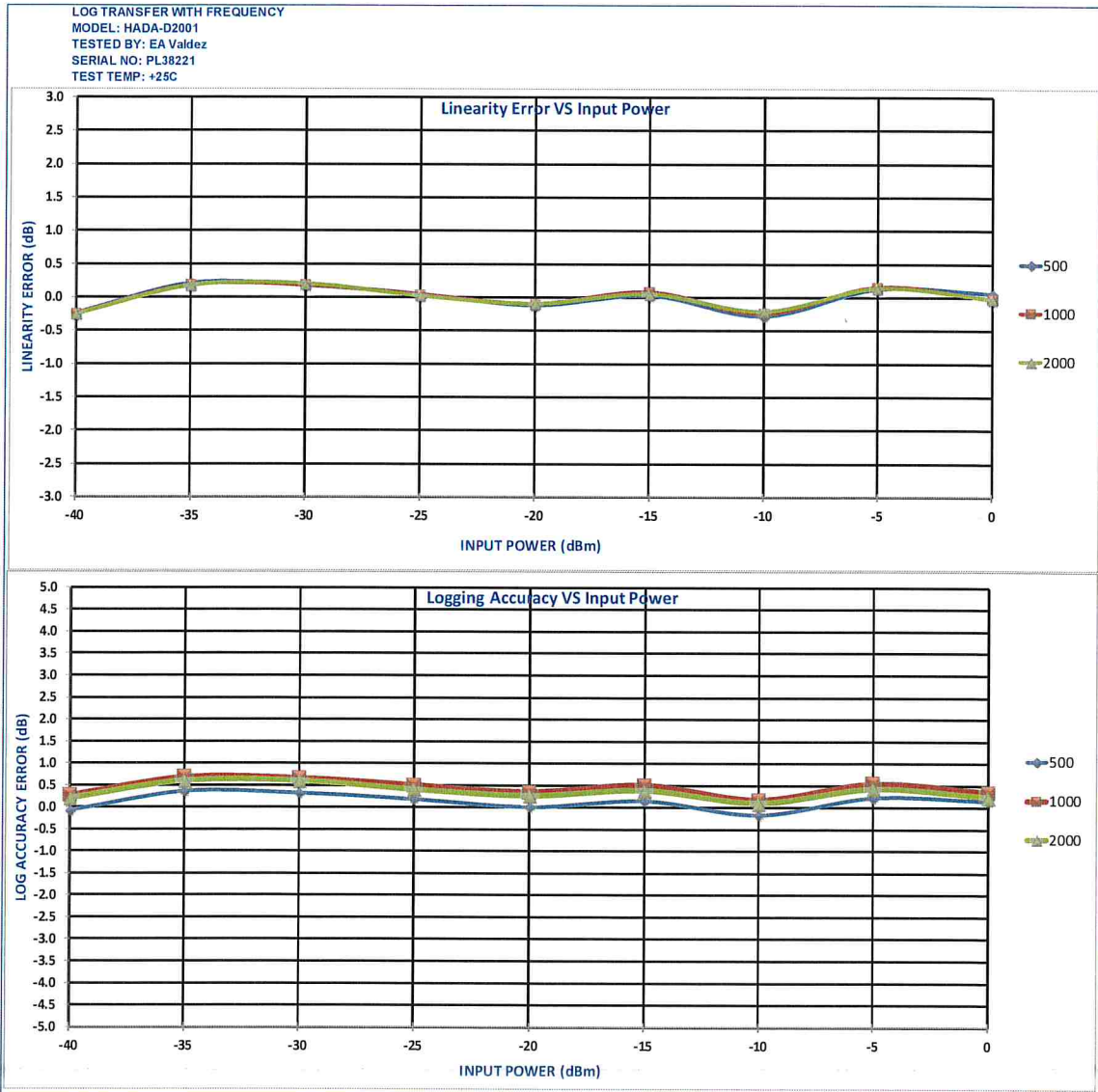
4921 Robert J. Mathews Pkwy Suite 1, El Dorado Hills, CA 95762 USA Phone: (916)542-1401 Fax: (916)265-2597
 Email: sales@pmi-rf.com



SUMMARY TEST DATA ON HADA-D2001

PL38221/2245

Log Linearity and Log Accuracy @ +25°C



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SUMMARY TEST DATA ON HADA-D2001

PL38221/2245

Log Linearity and Log Accuracy @ -40°C

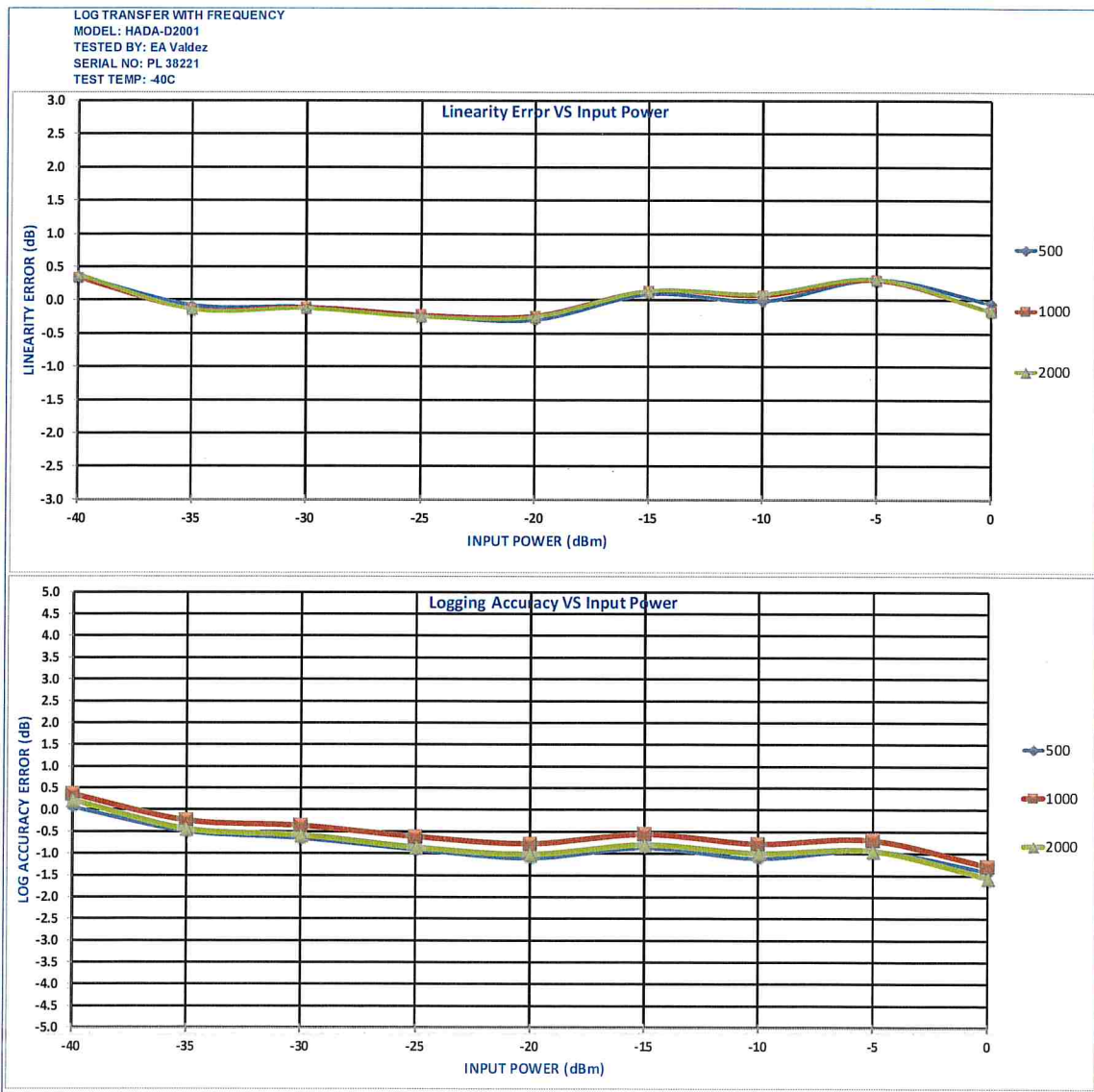
LOG TRANSFER WITH FREQUENCY			DC Offset= 0.102 V										RF Input Power (dBm)				
MODEL: HADA-D2001 TESTED BY: EA Valdez TEST DATE: 11/11/22 SERIAL NO: PL 38221 TEST TEMP: -40C													PLANAR MONOLITHICS INDUSTRIES 4921 Robert J. Mathews Parkway Suit 1 El Dorado Hills, CA 95762 TEL: 916-542-1401 FAX: 916-265-2597 EMAIL: SALES@PMI-RF.COM				
Frequency			-40	-35	-30	-25	-20	-15	-10	-5	0						
0.5 GHz	INTERCEPT (mV)	2281											Measured Value (mV)			Error (dB)	
	SLOPE (mV/dB)	48.6	353	675	817	1054	1294	1556	1794	2053	2279	Error (mV)		MAX	MIN		
			18	-4	-5	-11	-14	4	-1	15	-2	LINEARITY ERROR (dB)		0.36	-0.29		
			0.36	-0.07	-0.10	-0.23	-0.29	0.09	-0.02	0.31	-0.05	LOGGING ACCURACY (dB)		0.06	-1.42		
1 GHz	INTERCEPT (mV)	2293											Measured Value (mV)			Error (dB)	
	SLOPE (mV/dB)	48.5	368	688	832	1089	1311	1572	1811	2065	2285	Error (mV)		MAX	MIN		
			16	-6	-5	-11	-11	7	3	15	-9	LINEARITY ERROR (dB)		0.34	-0.23		
			0.34	-0.13	-0.10	-0.22	-0.23	0.14	0.07	0.30	-0.16	LOGGING ACCURACY (dB)		0.36	-1.30		
2 GHz	INTERCEPT (mV)	2280											Measured Value (mV)			Error (dB)	
	SLOPE (mV/dB)	48.4	361	678	821	1057	1299	1560	1800	2063	2272	Error (mV)		MAX	MIN		
			15	-7	-6	-12	-12	7	4	15	-5	LINEARITY ERROR (dB)		0.38	-0.25		
			0.38	-0.14	-0.12	-0.25	-0.25	0.14	0.09	0.32	-0.16	LOGGING ACCURACY (dB)		0.22	-1.56		
Flatness +/- dB													Logging Linearity vs Frequency			Error (dB)	
Max Video Output Volts			0.20	0.10	0.20	0.20	0.20	0.20	0.20	0.10	0.10	TOTAL LOG LINEARITY (dB)		0.38	-0.29		
Min Video Output Volts			0.37	0.59	0.83	1.07	1.31	1.57	1.81	2.07	2.29	Logging Accuracy vs Frequency			Error (dB)		
			0.35	0.58	0.82	1.05	1.29	1.56	1.79	2.05	2.27	TOTAL LOGGING ACCURACY (dB)		0.36	-1.56		



SUMMARY TEST DATA ON HADA-D2001

PL38221/2245

Log Linearity and Log Accuracy @ -40°C



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SUMMARY TEST DATA ON HADA-D2001

PL38221/2245

Log Linearity and Log Accuracy @ +85°C

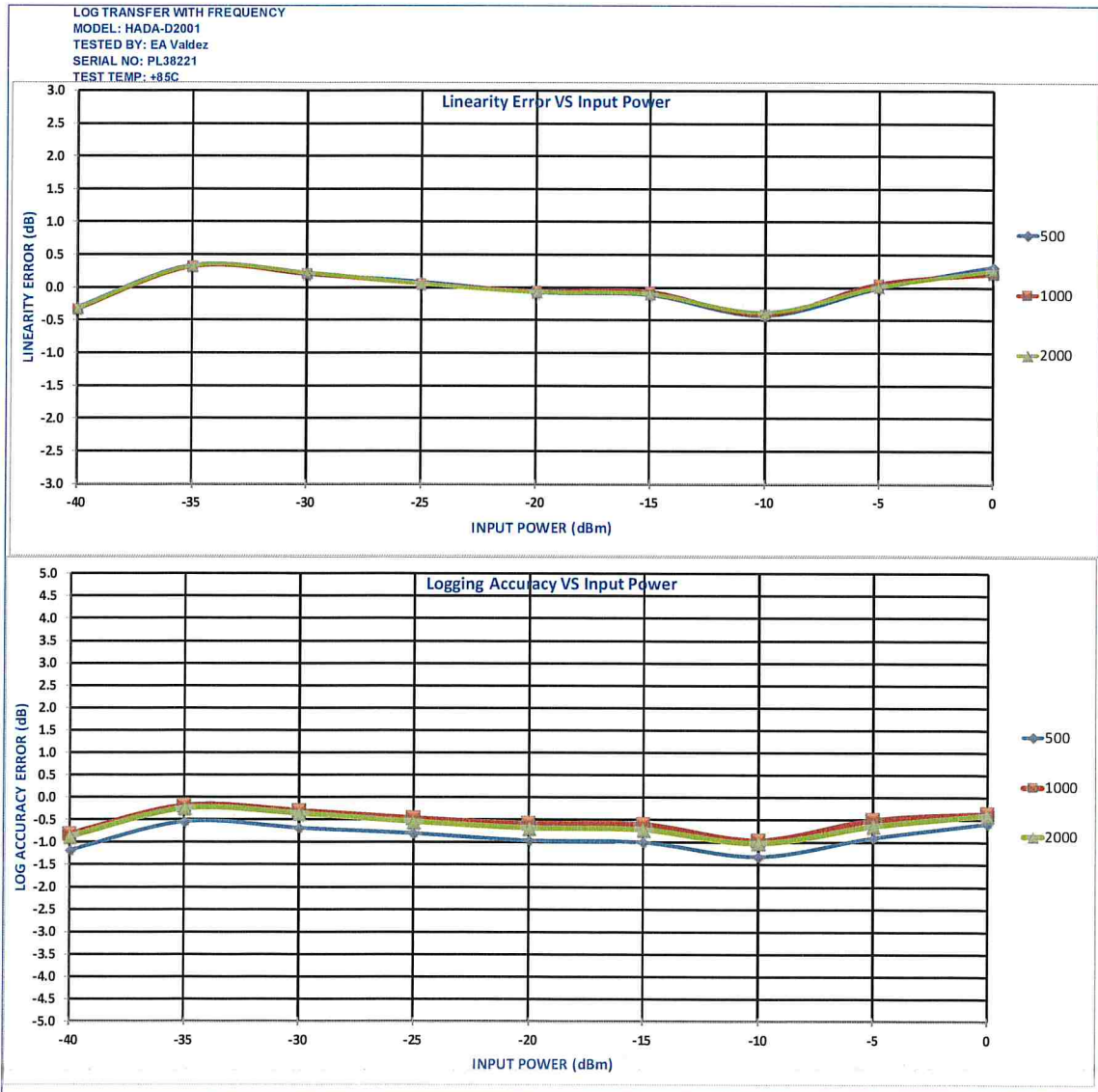
LOG TRANSFER WITH FREQUENCY				DC Offset= 0.070 V										RF Input Power (dBm)					
MODEL: HADA-D2001 TESTED BY: EA Valdez TEST DATE: 11/04/22 SERIAL NO: PL38221 TEST TEMP: +85C														PLANAR MONOLITHICS INDUSTRIES 4921 Robert J. Mathews Parkway Suite 1 El Dorado Hills, CA 95762 TEL: 916-542-1401 FAX: 916-265-2597 EMAIL: SALES@PMI-RF.COM					
				-40	-35	-30	-25	-20	-15	-10	-5	0							
Frequency														Measured Value (mV) Error(dB)					
0.5 GHz	INTERCEPT (mV)	2305		291	573	816	1060	1302	1550	1784	2055	2321	Error (mV)		MAX	MIN			
	SLOPE (mV/dB)	50		-15	17	10	4	-4	-6	-22	0	16	LINEARITY ERROR (dB)		0.34	-0.43			
				-0.31	0.34	0.20	0.08	-0.08	-0.11	-0.43	-0.01	0.32	LOGGING ACCURACY (dB)		-0.54	-1.32			
				-1.18	-0.54	-0.68	-0.80	-0.96	-1.00	-1.32	-0.90	-0.58							
1 GHz	INTERCEPT (mV)	2322		-309	591	835	1077	1321	1570	1802	2075	2332	Error (mV)		MAX	MIN			
	SLOPE (mV/dB)	49.9		-16	16	10	3	-3	-3	-21	3	10	LINEARITY ERROR (dB)		0.32	-0.41			
				-0.33	0.32	0.21	0.06	-0.05	-0.06	-0.41	0.06	0.21	LOGGING ACCURACY (dB)		-0.18	-0.96			
				-0.82	-0.18	-0.30	-0.46	-0.58	-0.60	-0.96	-0.50	-0.36							
2 GHz	INTERCEPT (mV)	2317		-306	588	832	1073	1316	1564	1799	2068	2330	Error (mV)		MAX	MIN			
	SLOPE (mV/dB)	49.9		-16	16	11	3	-4	-5	-19	0	13	LINEARITY ERROR (dB)		0.33	-0.39			
				-0.32	0.33	0.22	0.06	-0.07	-0.10	-0.39	0.01	0.26	LOGGING ACCURACY (dB)		-0.24	-1.02			
				-0.88	-0.24	-0.36	-0.54	-0.68	-0.72	-1.02	-0.64	-0.40							
	Flatness +/- dB			0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10							
	Max Video Output Volts			0.31	0.59	0.84	1.06	1.32	1.57	1.80	2.06	2.33							
	Min Video Output Volts			0.29	0.57	0.82	1.06	1.30	1.55	1.78	2.06	2.32							
														Logging Linearity vs Frequency Error(dB)					
														TOTAL LOG LINEARITY (dB)		0.34	-0.43		
														Logging Accuracy vs Frequency Error(dB)					
														TOTAL LOGGING ACCURACY (dB)		-0.18	-1.32		



SUMMARY TEST DATA ON HADA-D2001

PL38221/2245

Log Linearity and Log Accuracy @ +85°C



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**SUMMARY TEST DATA
ON
HADA-D2001**

PL38221/2245

TSS -45 dBm



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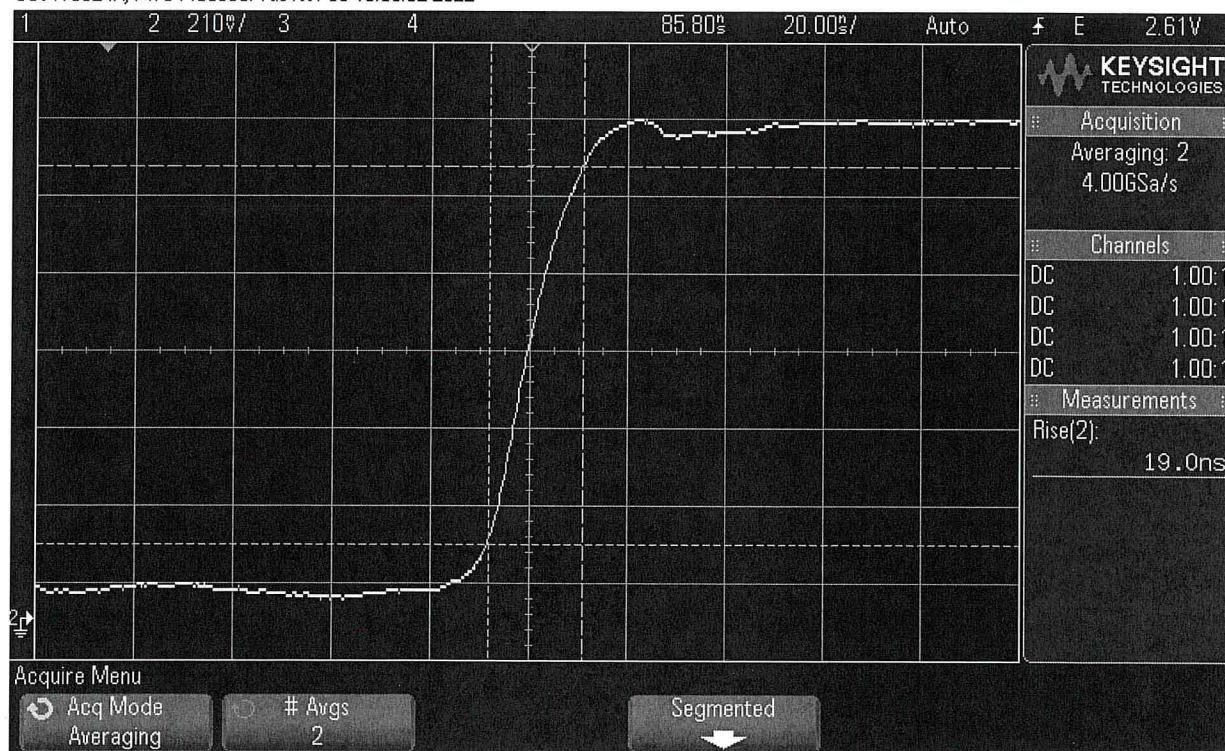


**SUMMARY TEST DATA
ON
HADA-D2001**

PL38221/2245

Rise Time 19nS

DSO-X 3024A, MY54490369: Tue Nov 08 18:38:32 2022



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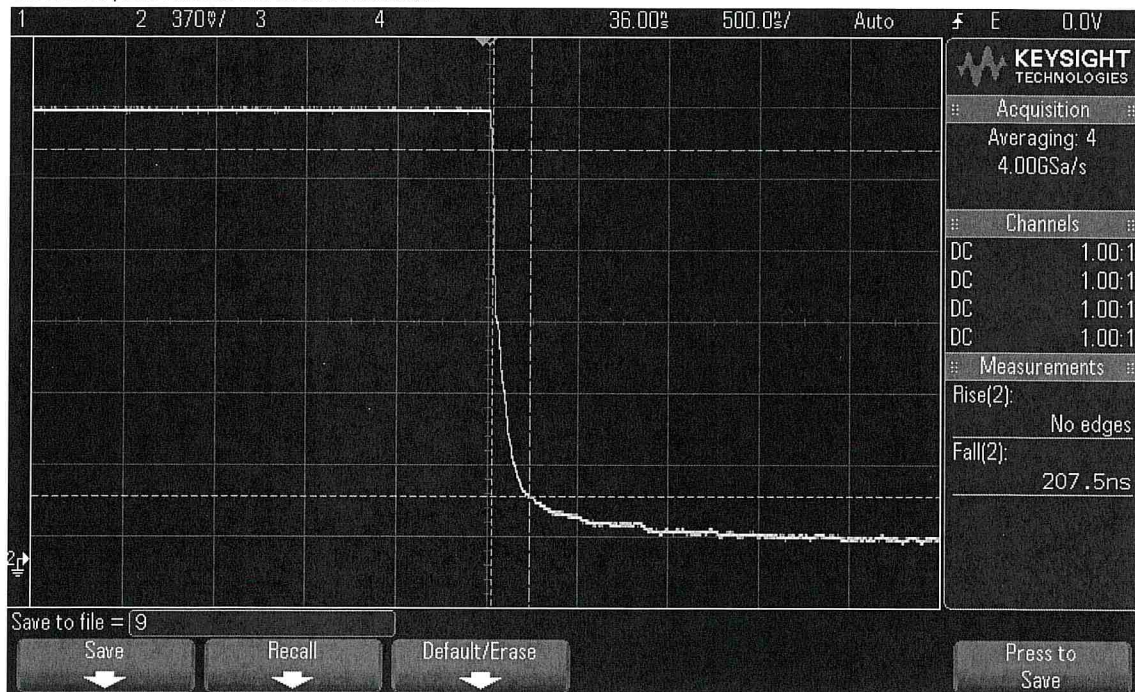


**SUMMARY TEST DATA
ON
HADA-D2001**

PL38221/2245

Fall Time 207.5nS

DSO-X 3024A, MY54490369: Tue Nov 08 13:48:52 2022



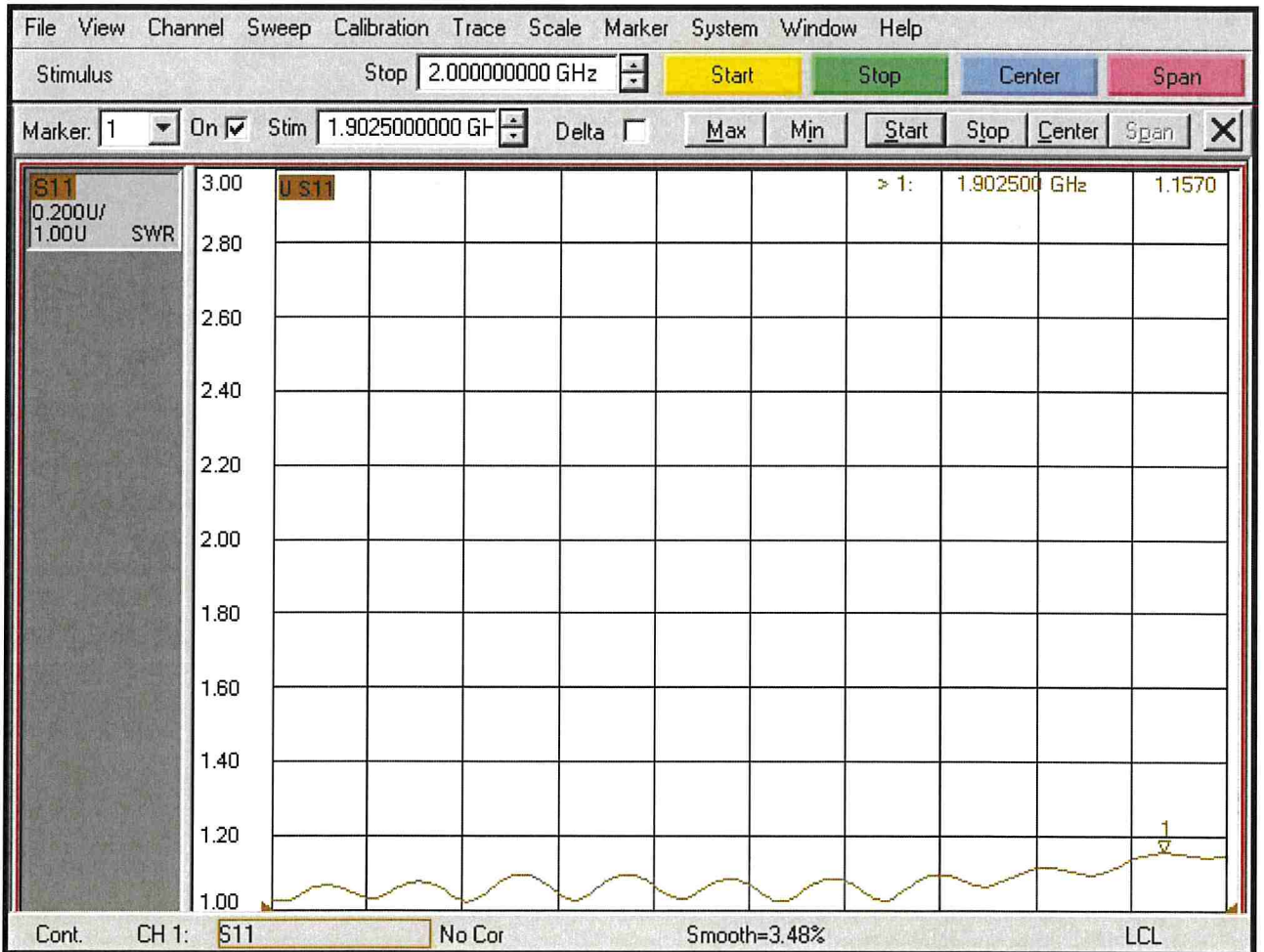
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**SUMMARY TEST DATA
ON
HADA-D2001**

PL38221/2245

VSWR 1.16:1



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