



**SUMMARY TEST DATA  
ON  
HADA-D2001**

PL38222/2246

Customer: _____	Tested By: <u>EA Valdez</u>
SO No: _____	Temperature: <u>+25°C</u>
Model No: <u>HADA-D2001</u>	Date: <u>11/18/2022</u>
Serial No: <u>PL38222/2246</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°	-45.5 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)	0.72 dB 1.98 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	0.20 dB -0.39 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 nS See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	412 nS See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+35 mV +80 mV	
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.90:1 See Plot	
13	Propagation Delay:	60 ns Max	40 nS	

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**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:

*K. Muter*

Date:

11-18-22

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**SUMMARY TEST DATA  
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HADA-D2001**

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**Log Linearity and Log Accuracy @ +25°C**

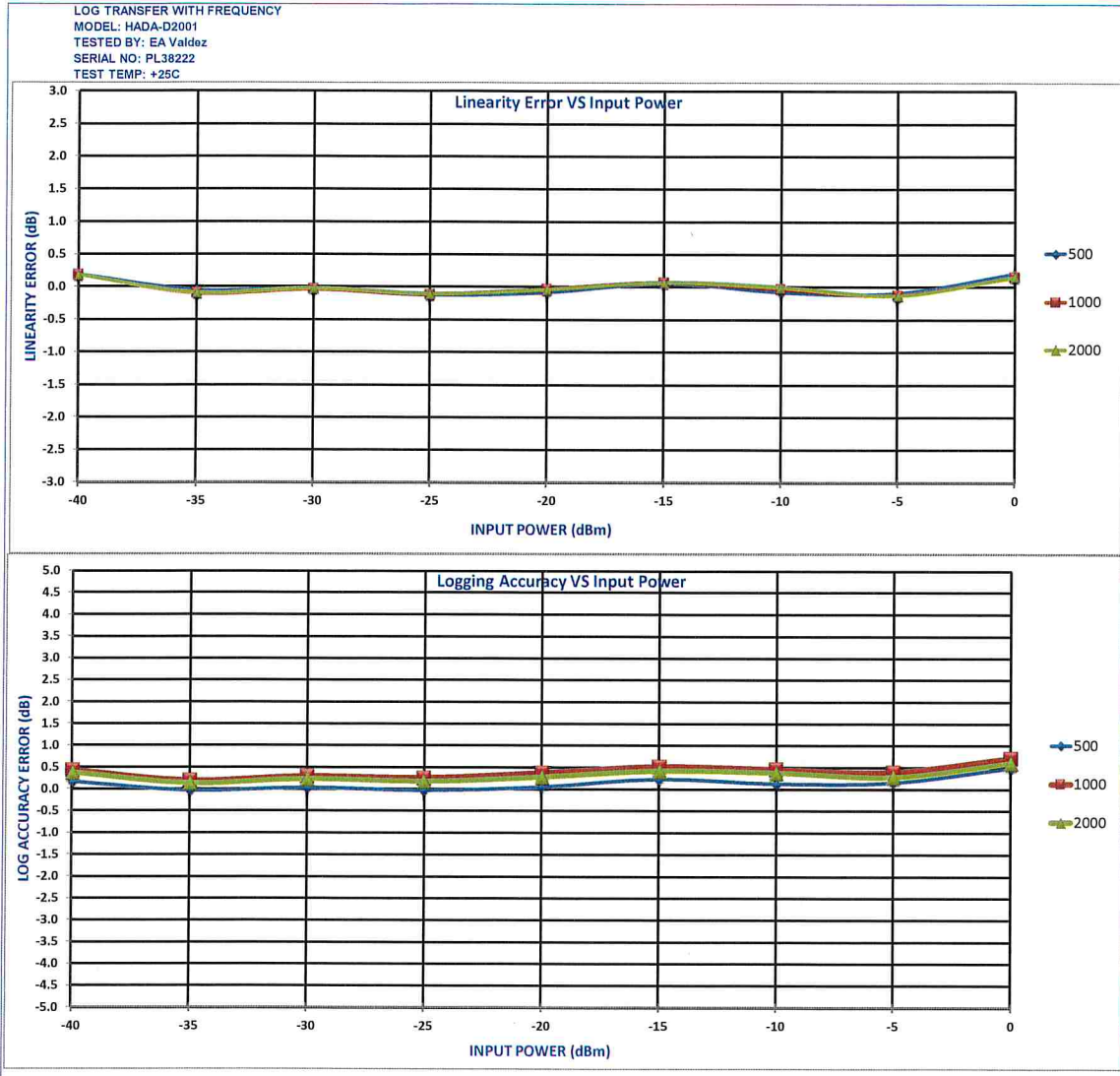
LOG TRANSFER WITH FREQUENCY			DC Offset= 0.035 V										RF Input Power (dBm)		
MODEL: HADA-D2001 TESTED BY: EA Valdez TEST DATE: 11/18/22 SERIAL NO: PL38222 TEST TEMP: +25C													PLANAR MONOLITHICS INDUSTRIES 4921 Robert J. Mathews Parkway Suite 1 El Dorado Hills, CA 95762 TEL: 916-542-1401 FAX: 916-265-2597 EMAIL: SALES@PMI-RF.COM		
Frequency			-40	-35	-30	-25	-20	-15	-10	-5	0				
0.5 GHz	INTERCEPT (mV)	2364	358	528	851	1086	1352	1611	1850	2107	2374	Measured Value (mV)			
	SLOPE (mV/dB)	50.4	9	-2	-1	-6	-4	3	-4	-5	10	Error (dB)			
			0.19	-0.05	-0.03	-0.12	-0.08	0.06	-0.08	-0.10	0.20	MAX MIN			
			0.18	-0.04	0.02	-0.04	0.04	0.22	0.12	0.14	0.48	LINEARITY ERROR (dB)			
												LOGGING ACCURACY (dB)			
												0.48 -0.04			
1 GHz	INTERCEPT (mV)	2378	372	610	865	1113	1368	1626	1873	2120	2388	Measured Value (mV)			
	SLOPE (mV/dB)	50.4	9	-5	-2	-6	-1	4	-1	-6	8	Error (dB)			
			0.18	-0.09	-0.03	-0.11	-0.03	0.07	-0.03	-0.12	0.18	MAX MIN			
			0.44	0.20	0.30	0.26	0.36	0.52	0.46	0.40	0.72	LINEARITY ERROR (dB)			
												LOGGING ACCURACY (dB)			
												0.72 0.20			
2 GHz	INTERCEPT (mV)	2372	369	607	862	1100	1364	1621	1869	2114	2380	Measured Value (mV)			
	SLOPE (mV/dB)	50.3	9	-5	-1	-6	-2	3	0	-7	8	Error (dB)			
			0.18	-0.09	-0.02	-0.11	-0.04	0.07	0.00	-0.13	0.18	MAX MIN			
			0.36	0.14	0.24	0.18	0.25	0.42	0.39	0.26	0.60	LINEARITY ERROR (dB)			
												LOGGING ACCURACY (dB)			
												0.60 0.14			
Flatness +/- dB			0.10	0.10	0.10	0.10	0.20	0.10	0.20	0.10	0.10	Logging Linearity vs Frequency			
Max Video Output Volts			0.37	0.61	0.87	1.11	1.37	1.63	1.87	2.12	2.38	Error (dB)			
Min Video Output Volts			0.36	0.60	0.85	1.10	1.36	1.61	1.86	2.11	2.37	MAX MIN			
												TOTAL LOG LINEARITY (dB)			
												0.20 -0.13			
Logging Accuracy vs Frequency												Error (dB)			
												MAX MIN			
												TOTAL LOGGING ACCURACY (dB)			
												0.72 -0.04			



# SUMMARY TEST DATA ON HADA-D2001

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## Log Linearity and Log Accuracy @ +25°C




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**SUMMARY TEST DATA  
ON  
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PL38222/2246

**Log Linearity and Log Accuracy @ -40°C**

LOG TRANSFER WITH FREQUENCY			DC Offset= 0.054 V										RF Input Power (dBm)																				
MODEL: HADA-D2001 TESTED BY: EA Valdez TEST DATE: 11/18/22 SERIAL NO: PL38222 TEST TEMP: -40C													 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																				
Frequency			-40	-35	-30	-25	-20	-15	-10	-5	0	Measured Value (mV)	Error(dB)																				
0.5 GHz	INTERCEPT (mV)	2411	423	874	934	1177	1418	1675	1923	2146	2411	Measured Value (mV)	MAX	MIN																			
	SLOPE (mV/dB)	49.5	-7	-4	8	4	-3	7	12	-17	0	Error (mV)	0.25	-0.35																			
			-0.15	-0.08	0.17	0.08	-0.05	0.14	0.25	-0.35	0.00	LINEARITY ERROR (dB)	1.88	0.92																			
			1.46	1.48	1.68	1.54	1.36	1.50	1.56	0.92	1.22	LOGGING ACCURACY (dB)																					
1 GHz	INTERCEPT (mV)	2427	442	891	949	1194	1439	1694	1947	2160	2424	Measured Value (mV)	MAX	MIN																			
	SLOPE (mV/dB)	49.4	-7	-5	6	3	1	9	15	-19	-3	Error (mV)	0.30	-0.39																			
			-0.14	-0.11	0.11	0.07	0.02	0.18	0.30	-0.39	-0.05	LINEARITY ERROR (dB)	1.98	1.20																			
			1.84	1.82	1.98	1.88	1.78	1.88	1.94	1.20	1.48	LOGGING ACCURACY (dB)																					
2 GHz	INTERCEPT (mV)	2422	438	888	947	1190	1436	1690	1945	2158	2417	Measured Value (mV)	MAX	MIN																			
	SLOPE (mV/dB)	49.4	-9	-5	7	3	2	9	17	-19	-5	Error (mV)	0.34	-0.38																			
			-0.17	-0.11	0.14	0.06	0.04	0.18	0.34	-0.38	-0.10	LINEARITY ERROR (dB)	1.94	1.12																			
			1.78	1.76	1.94	1.89	1.72	1.80	1.90	1.32	1.04	LOGGING ACCURACY (dB)																					
Flatness +/- dB			0.20	0.20	0.20	0.20	0.20	0.20	0.10	0.10																							
Max Video Output Volts			0.44	0.69	0.95	1.19	1.44	1.69	1.95	2.16	2.42																						
Min Video Output Volts			0.42	0.67	0.93	1.18	1.42	1.68	1.93	2.15	2.41																						
			<table border="1"> <thead> <tr> <th>Logging Linearity vs Frequency</th> <th colspan="2">Error(dB)</th> </tr> <tr> <td></td> <th>MAX</th> <th>MIN</th> </tr> </thead> <tbody> <tr> <td>TOTAL LOG LINEARITY (dB)</td> <td>0.34</td> <td>-0.39</td> </tr> </tbody> </table>										Logging Linearity vs Frequency	Error(dB)			MAX	MIN	TOTAL LOG LINEARITY (dB)	0.34	-0.39	<table border="1"> <thead> <tr> <th>Logging Accuracy vs Frequency</th> <th colspan="2">Error(dB)</th> </tr> <tr> <td></td> <th>MAX</th> <th>MIN</th> </tr> </thead> <tbody> <tr> <td>TOTAL LOGGING ACCURACY (dB)</td> <td>1.98</td> <td>0.92</td> </tr> </tbody> </table>			Logging Accuracy vs Frequency	Error(dB)			MAX	MIN	TOTAL LOGGING ACCURACY (dB)	1.98	0.92
Logging Linearity vs Frequency	Error(dB)																																
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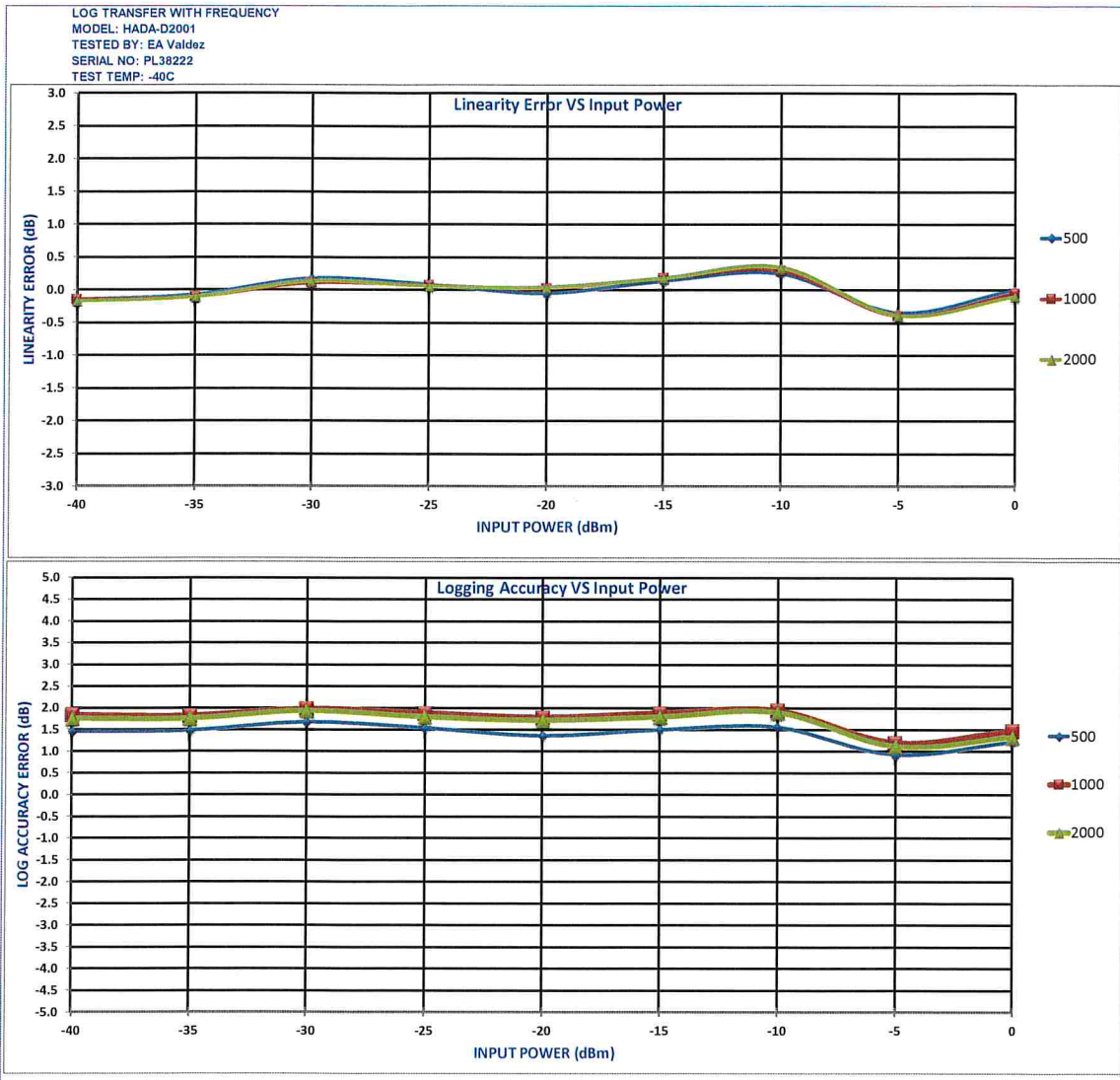
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# SUMMARY TEST DATA ON HADA-D2001

PL38222/2246

Log Linearity and Log Accuracy @ -40°C



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## SUMMARY TEST DATA ON HADA-D2001

PL38222/2246

### Log Linearity and Log Accuracy @ +85°C

LOG TRANSFER WITH FREQUENCY		DC Offset= 0.080 V										RF Input Power (dBm)				
MODEL: HADA-D2001 TESTED BY: EA Valdez TEST DATE: 11/18/22 SERIAL NO: PL38222 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				
Frequency		-40	-35	-30	-25	-20	-15	-10	-5	0						
0.5 GHz	INTERCEPT (mV)	2413											Measured Value (mV)		Error (dB)	
	SLOPE (mV/dB)	50.8											Error (mV)		MAX	MIN
			375	645	898	1142	1391	1651	1899	2162	2424	LINEARITY ERROR (dB)		0.21	-0.32	
			-8	-10	7	-1	-6	0	-18	3	11	LOGGING ACCURACY (dB)		1.48	0.50	
			-0.12	0.19	0.13	-0.02	-0.12	-0.01	-0.32	0.05	0.21					
			0.50	0.90	0.92	0.84	0.82	1.02	0.78	1.24	1.48					
1 GHz	INTERCEPT (mV)	2429											Measured Value (mV)		Error (dB)	
	SLOPE (mV/dB)	50.7											Error (mV)		MAX	MIN
			394	890	912	1158	1409	1668	1908	2179	2435	LINEARITY ERROR (dB)		0.15	-0.28	
			-5	7	5	-2	-5	1	-13	4	6	LOGGING ACCURACY (dB)		1.70	0.88	
			-0.09	0.15	0.11	-0.04	-0.09	0.01	-0.28	0.08	0.13					
			0.98	1.20	1.24	1.18	1.18	1.38	1.16	1.58	1.70					
2 GHz	INTERCEPT (mV)	2424											Measured Value (mV)		Error (dB)	
	SLOPE (mV/dB)	50.7											Error (mV)		MAX	MIN
			392	897	909	1154	1406	1663	1904	2173	2433	LINEARITY ERROR (dB)		0.17	-0.28	
			-4	-7	8	-3	-9	-1	-13	2	9	LOGGING ACCURACY (dB)		1.66	0.84	
			-0.08	0.15	0.12	-0.05	-0.08	-0.01	-0.28	0.05	0.17					
			0.64	1.14	1.18	1.08	1.12	1.26	1.08	1.40	1.64					
			0.20	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.10					
			0.39	0.06	0.81	-1.16	1.41	1.67	1.91	2.18	2.44					
			0.38	-0.55	0.80	-1.14	1.39	1.65	1.88	2.16	2.42					
Flatness +/- dB													Logging Linearity vs Frequency		Error (dB)	
Max Video Output Volts													Error (mV)		MAX	MIN
Min Video Output Volts													TOTAL LOG LINEARITY (dB)		0.21	-0.32
													Logging Accuracy vs Frequency		Error (dB)	
													Error (mV)		MAX	MIN
													TOTAL LOGGING ACCURACY (dB)		1.70	0.50

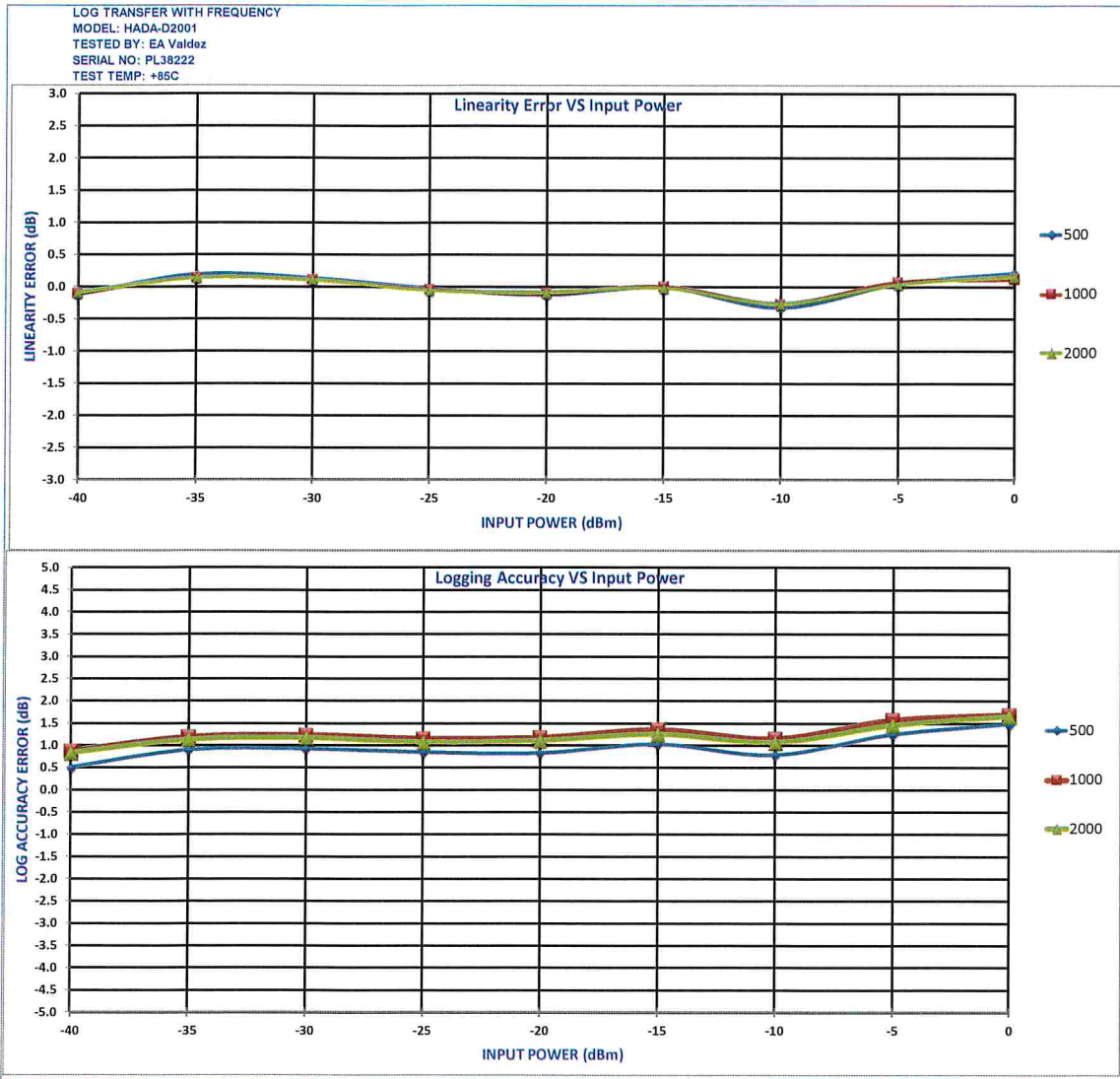
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# SUMMARY TEST DATA ON HADA-D2001

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## Log Linearity and Log Accuracy @ +85°C



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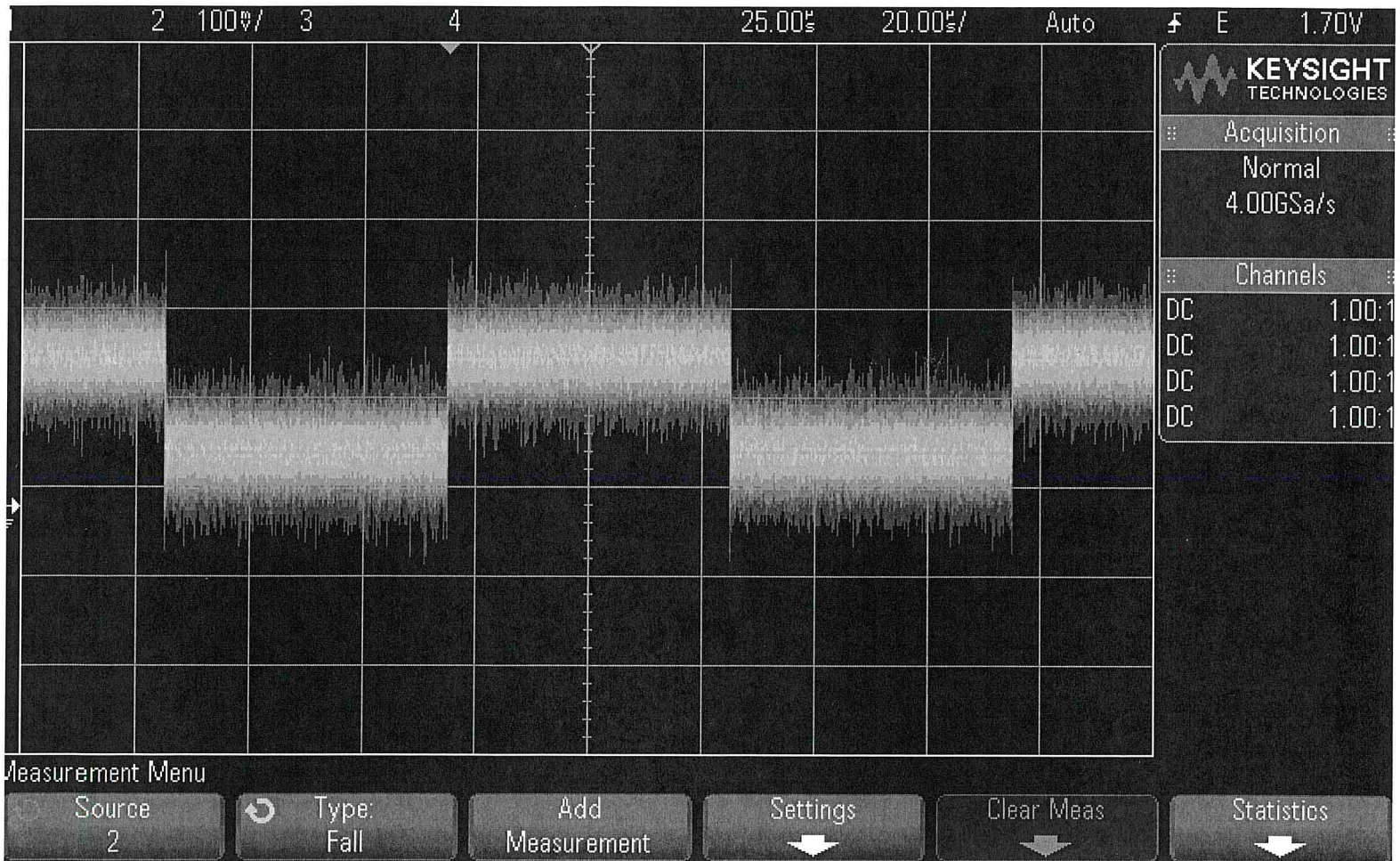


**SUMMARY TEST DATA  
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TSS -45 dBm

ISO-X 3024A, MY54490369: Thu Nov 17 10:50:34 2022



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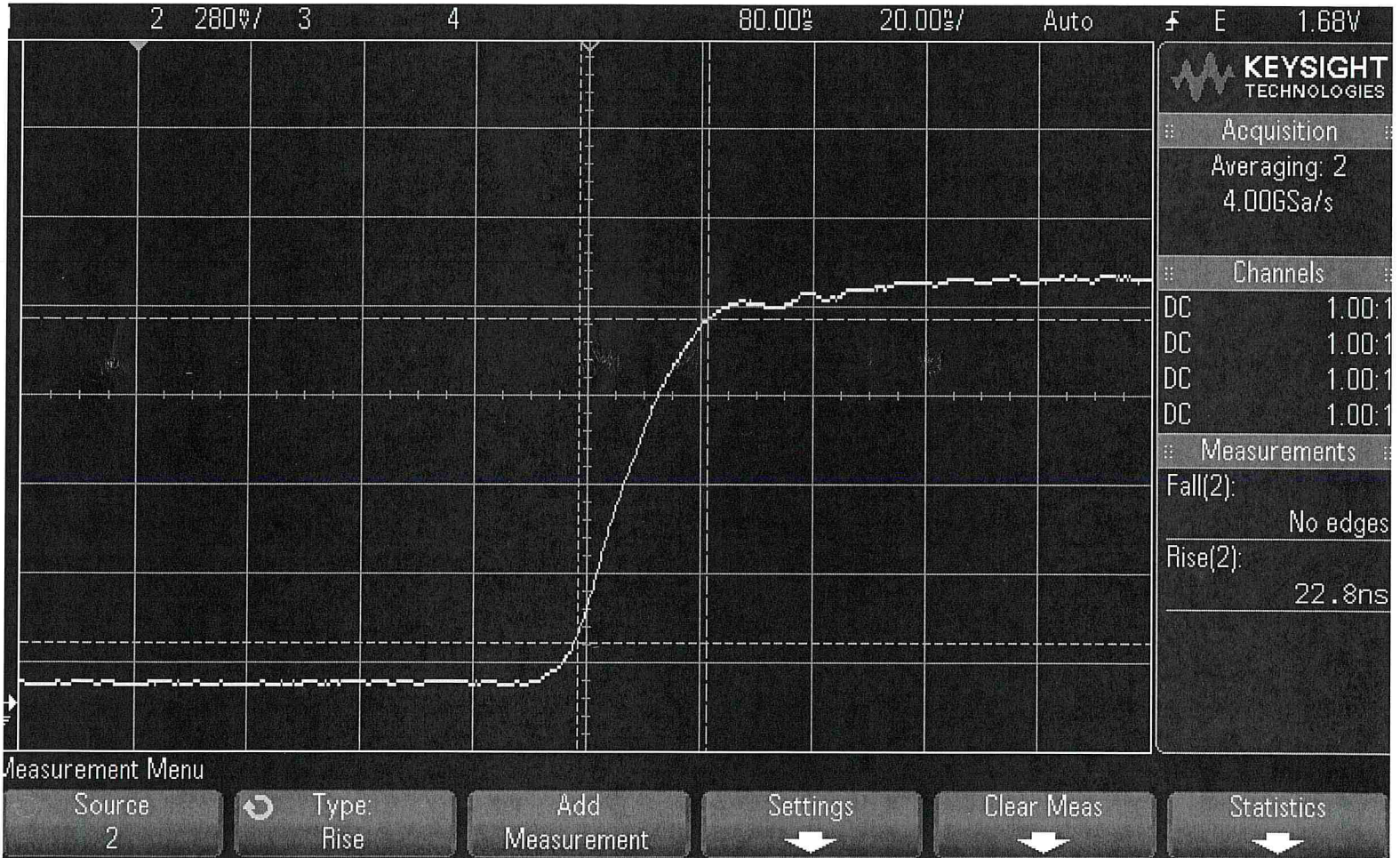


**SUMMARY TEST DATA  
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Rise Time

ISO-X 3024A, MY54490369: Thu Nov 17 10:39:02 2022



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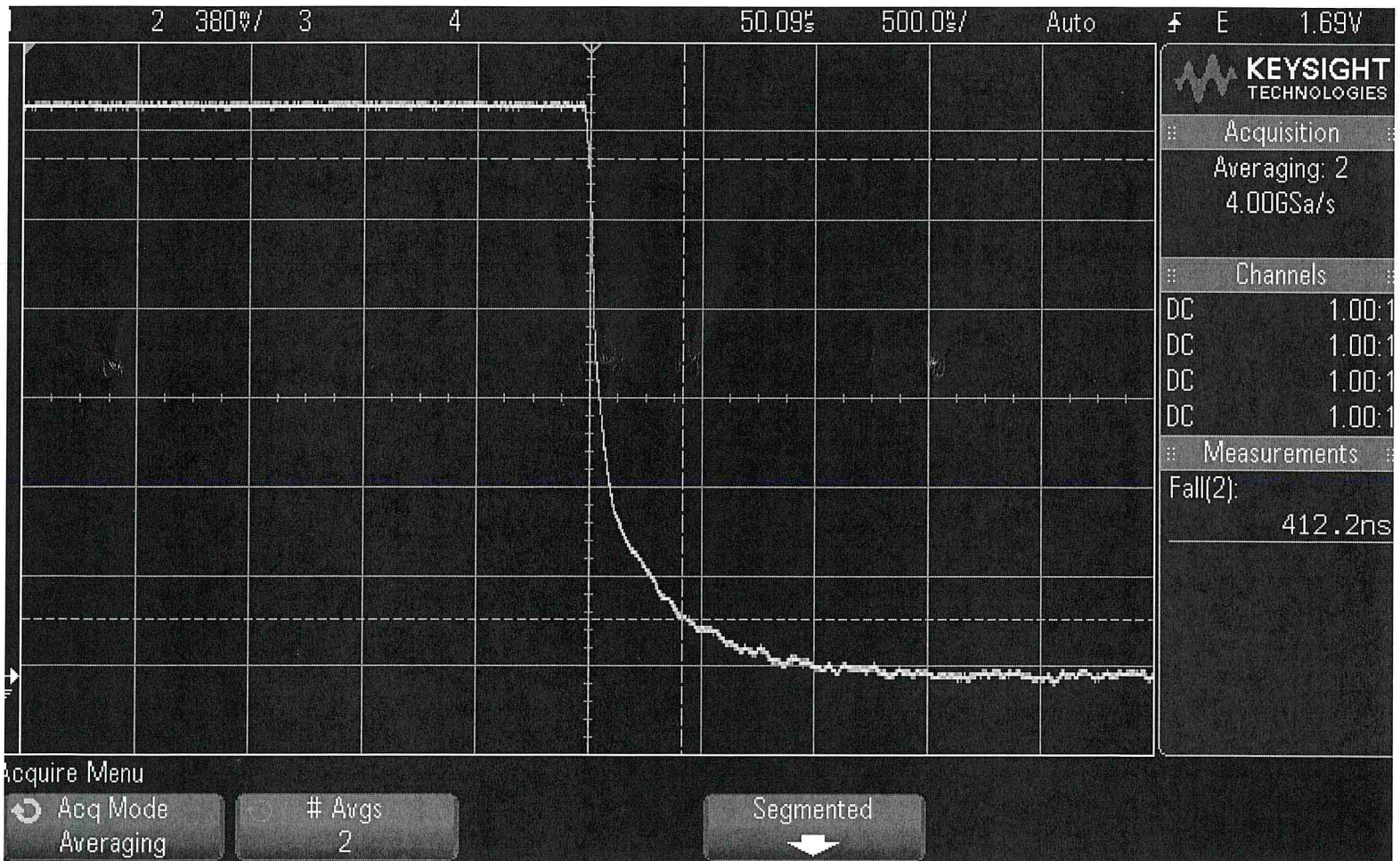


**SUMMARY TEST DATA  
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**Fall Time**

ISO-X 3024A, MY54490369: Thu Nov 17 14:07:21 2022



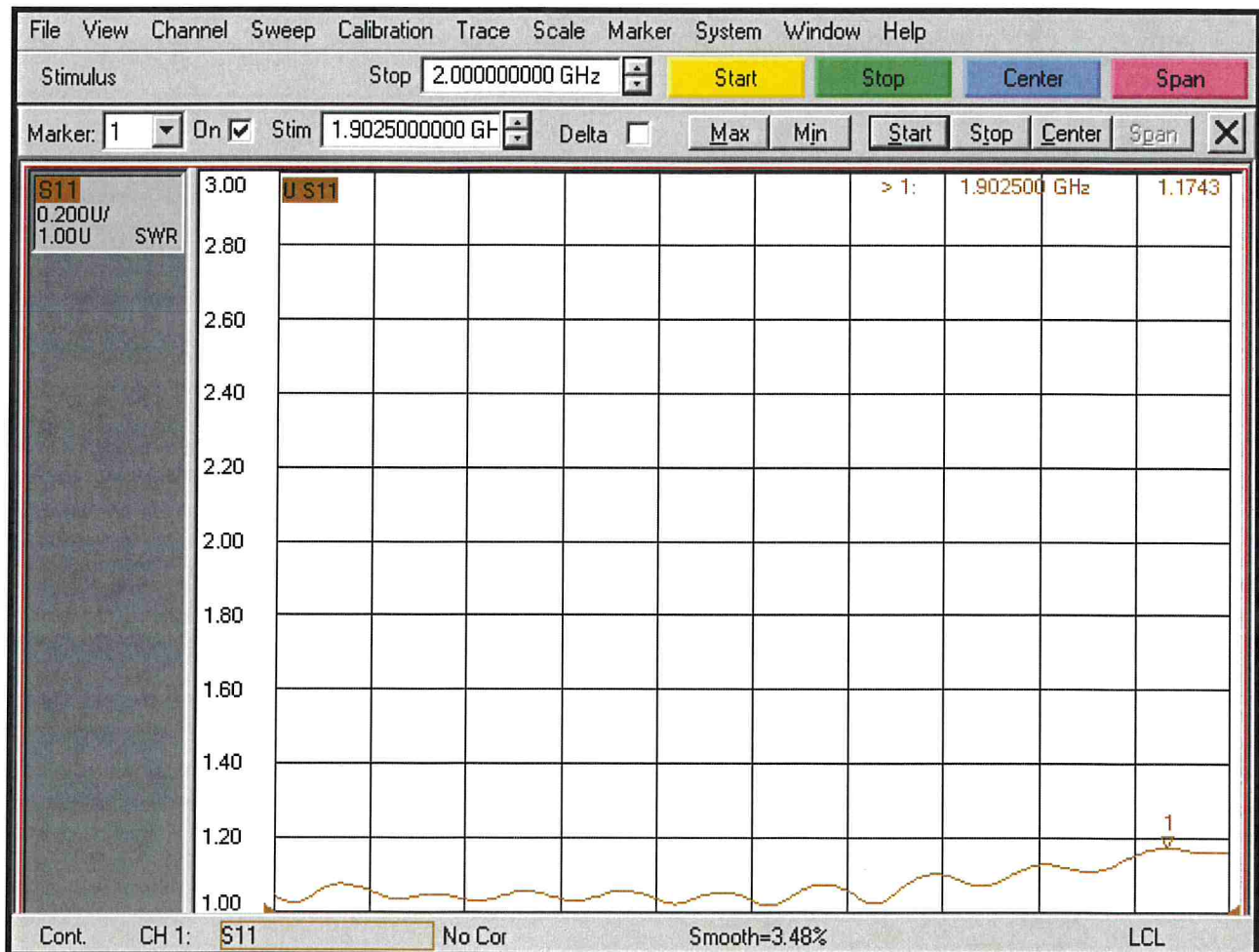
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**VSWR :1**



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