



**SUMMARY TEST DATA
ON
HADA-D2001**

PL38213/2245

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>PL38213/2245</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	±0.10 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)	+0.76 dB -0.16 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	-0.44 dB -0.44 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%)	229 nS See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+91 mV +92 mV	
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.18:1 See Plot	

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13	Propagation Delay:	60 ns Max	40 nS	PMI QA
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: *H. Hunter*

Date: 11-14-22



SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ +25°C

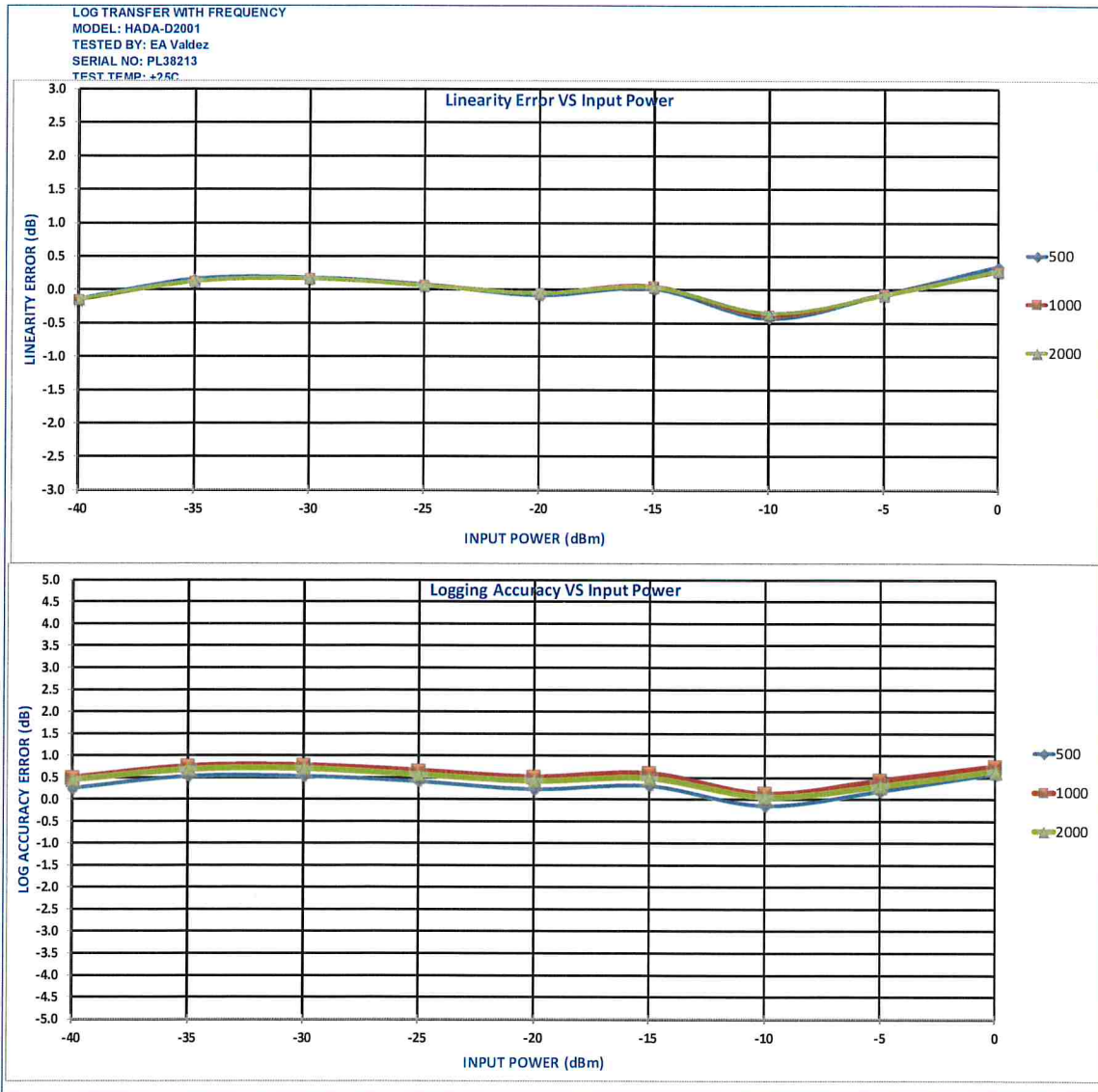
LOG TRANSFER WITH FREQUENCY			DC Offset= 0.091 V										RF Input Power (dBm)				
MODEL: HADA-D2001 TESTED BY: EA Valdez TEST DATE: 11/03/22 SERIAL NO: PL38213 TEST TEMP: +25C													PLANAR MONOLITHICS INDUSTRIES 4921 Robert J. Mathews Parkway Suit 1 El Dorado Hills, CA 95762 TEL: 916-542-1401 FAX: 916-265-2597 EMAIL: SALES@PMI-RF.COM				
Frequency			-40	-35	-30	-25	-20	-15	-10	-5	0						
0.5 GHz	INTERCEPT (mV)	2362											Measured Value (mV)		Error(dB)		
	SLOPE (mV/dB)	49.8											Error (mV)		MAX	MIN	
													LINEARITY ERROR (dB)		0.34	-0.44	
													LOGGING ACCURACY (dB)		0.58	-0.16	
1 GHz	INTERCEPT (mV)	2373											Measured Value (mV)		Error(dB)		
	SLOPE (mV/dB)	49.8											Error (mV)		MAX	MIN	
													LINEARITY ERROR (dB)		0.27	-0.39	
													LOGGING ACCURACY (dB)		0.76	0.12	
2 GHz	INTERCEPT (mV)	2368											Measured Value (mV)		Error(dB)		
	SLOPE (mV/dB)	49.7											Error (mV)		MAX	MIN	
													LINEARITY ERROR (dB)		0.28	-0.36	
													LOGGING ACCURACY (dB)		0.70	0.05	
Flatness +/- dB													Logging Linearity vs Frequency			Error(dB)	
Max Video Output Volts													TOTAL LOG LINEARITY (dB)		0.34	-0.44	
Min Video Output Volts													Logging Accuracy vs Frequency			Error(dB)	
													TOTAL LOGGING ACCURACY (dB)		0.76	-0.16	



SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ +25°C





SUMMARY TEST DATA ON HADA-D2001

PL38213/2245

Log Linearity and Log Accuracy @ -40°C

LOG TRANSFER WITH FREQUENCY		DC Offset= 0.089 V										RF Input Power (dBm)											
MODEL: HADA-D2001 TESTED BY: EA Valdez TEST DATE: 11/03/22 SERIAL NO: PL38213 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													
0.5 GHz	INTERCEPT (mV)	386	630	885	1127	1366	1621	1852	2100	2357	Measured Value (mV)	Error(dB)											
	SLOPE (mV/dB)	-2	-3	6	3	-3	6	-8	-5	6	Error (mV)	MAX MIN											
		-0.04	-0.07	0.13	0.06	-0.07	0.13	-0.16	-0.11	0.13	LINEARITY ERROR (dB)	0.13 -0.16											
		0.72	0.60	0.70	0.54	0.32	0.42	0.04	0.00	0.14	LOGGING ACCURACY (dB)	0.72 0.00											
1 GHz	INTERCEPT (mV)	400	644	900	1142	1383	1637	1889	2113	2365	Measured Value (mV)	Error(dB)											
	SLOPE (mV/dB)	-4	-5	6	3	-1	8	-5	-6	-1	Error (mV)	MAX MIN											
		-0.07	-0.10	0.13	0.07	-0.01	0.17	-0.10	-0.12	0.03	LINEARITY ERROR (dB)	0.17 -0.12											
		1.00	0.88	1.00	0.84	0.66	0.74	0.38	0.26	0.30	LOGGING ACCURACY (dB)	1.00 0.26											
2 GHz	INTERCEPT (mV)	401	643	899	1140	1382	1634	1889	2111	2363	Measured Value (mV)	Error(dB)											
	SLOPE (mV/dB)	-2	-5	6	2	0	7	-3	-6	-1	Error (mV)	MAX MIN											
		-0.05	-0.11	0.12	0.05	-0.01	0.14	-0.06	-0.12	0.03	LINEARITY ERROR (dB)	0.14 -0.12											
		1.02	0.85	0.88	0.30	0.84	0.88	0.38	0.22	0.26	LOGGING ACCURACY (dB)	1.02 0.22											
Flatness +/- dB		0.20	0.10	0.20	0.20	0.20	0.20	0.20	0.10	0.10													
Max Video Output Volts		0.40	0.64	0.90	1.14	1.38	1.64	1.87	2.11	2.37													
Min Video Output Volts		0.39	0.63	0.89	1.13	1.37	1.62	1.85	2.10	2.36													
<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th colspan="2">Logging Linearity vs Frequency</th> <th colspan="2">Error(dB)</th> </tr> <tr> <th></th> <th></th> <th>MAX</th> <th>MIN</th> </tr> </thead> <tbody> <tr> <td colspan="2">TOTAL LOG LINEARITY (dB)</td> <td>0.17</td> <td>-0.16</td> </tr> </tbody> </table>												Logging Linearity vs Frequency		Error(dB)				MAX	MIN	TOTAL LOG LINEARITY (dB)		0.17	-0.16
Logging Linearity vs Frequency		Error(dB)																					
		MAX	MIN																				
TOTAL LOG LINEARITY (dB)		0.17	-0.16																				
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Logging Accuracy vs Frequency		Error(dB)																					
		MAX	MIN																				
TOTAL LOGGING ACCURACY (dB)		1.02	0.00																				

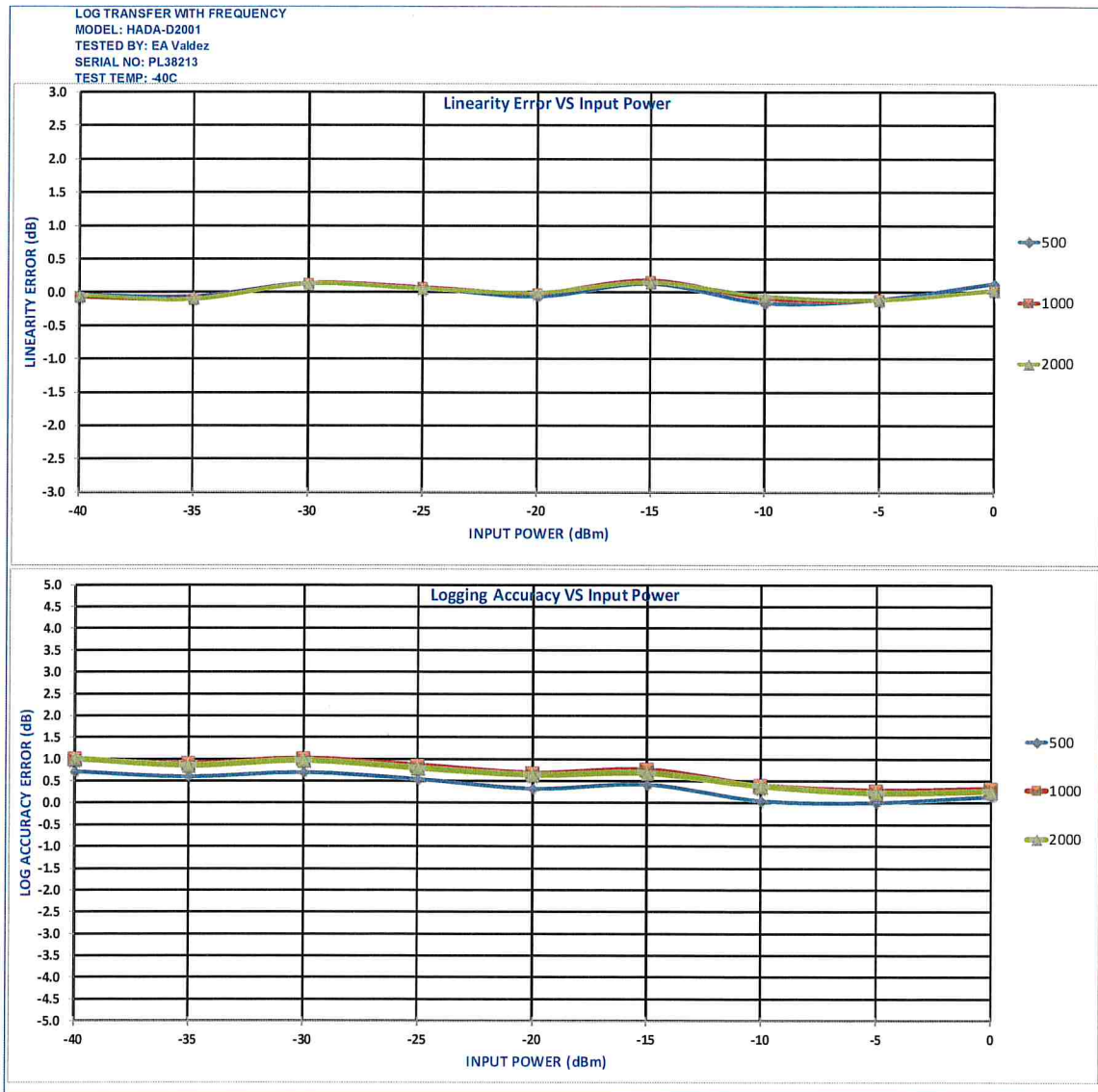
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SUMMARY TEST DATA ON HADA-D2001

PL38213/2245

Log Linearity and Log Accuracy @ -40°C



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**SUMMARY TEST DATA
ON
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Log Linearity and Log Accuracy @ +85°C

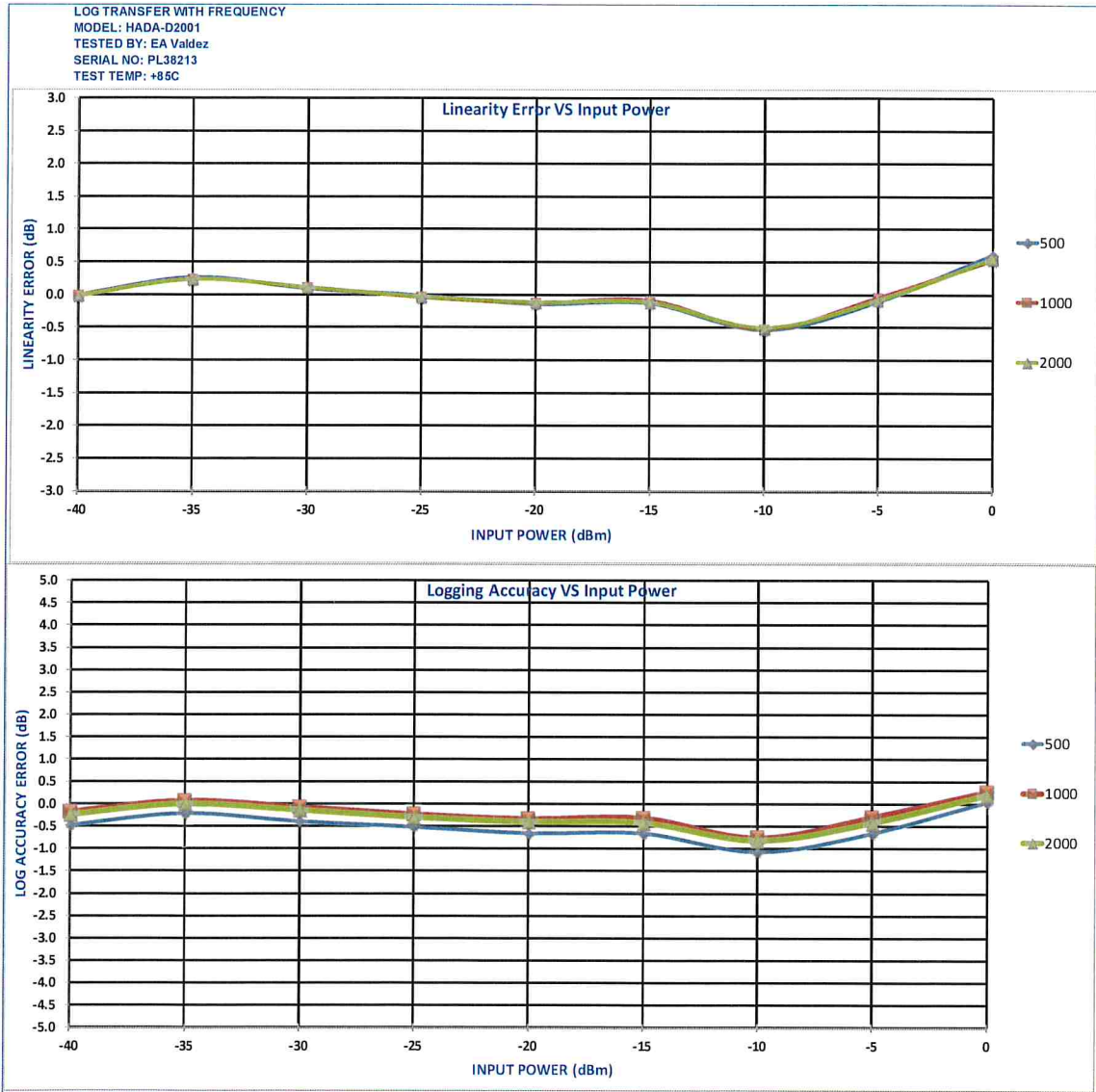
LOG TRANSFER WITH FREQUENCY			DC Offset= 0.092 V										RF Input Power (dBm)	
MODEL: HADA-D2001 TESTED BY: EA Vaklez TEST DATE: 11/03/22 SERIAL NO: PL38213 TEST TEMP: +85C													PLANAR MONOLITHICS INDUSTRIES 4921 Robert J. Mathews Parkway Suit 1 El Dorado Hills, CA 95762 TEL: 916-542-1401 FAX: 916-265-2597 EMAIL: SALES@PMI-RF.COM	
Frequency			-40	-35	-30	-25	-20	-15	-10	-5	0			
0.5 GHz	INTERCEPT (mV)	2322	326	589	830	1074	1317	1567	1796	2067	2352	Measured Value (mV) Error(dB)		
	SLOPE (mV/dB)	49.9	-1	13	5	-1	-7	-7	-27	-5	30	Error (mV) MAX MIN		
			-0.01	0.26	0.09	-0.02	-0.14	-0.13	-0.54	-0.11	0.61	LINEARITY ERROR (dB) 0.61 -0.54		
			-0.48	-0.22	-0.40	-0.52	-0.66	-0.66	-1.08	-0.66	0.04	LOGGING ACCURACY (dB) 0.04 -1.08		
1 GHz	INTERCEPT (mV)	2337	341	603	846	1088	1333	1584	1812	2085	2363	Measured Value (mV) Error(dB)		
	SLOPE (mV/dB)	49.9	-1	12	5	-2	-6	-5	-26	-3	26	Error (mV) MAX MIN		
			-0.02	0.23	0.11	-0.04	-0.13	-0.10	-0.52	-0.05	0.52	LINEARITY ERROR (dB) 0.52 -0.52		
			-0.78	0.06	-0.08	-0.24	-0.34	-0.32	-0.76	-0.30	0.26	LOGGING ACCURACY (dB) 0.26 -0.76		
2 GHz	INTERCEPT (mV)	2333	338	600	843	1085	1330	1579	1809	2079	2360	Measured Value (mV) Error(dB)		
	SLOPE (mV/dB)	49.8	-1	12	5	-2	-6	-5	-25	-4	27	Error (mV) MAX MIN		
			-0.02	0.23	0.11	-0.03	-0.12	-0.12	-0.51	-0.09	0.55	LINEARITY ERROR (dB) 0.55 -0.51		
			-0.24	0.06	-0.14	-0.30	-0.40	-0.42	-0.82	-0.42	0.20	LOGGING ACCURACY (dB) 0.20 -0.82		
Flatness +/- dB			0.20	0.10	0.20	0.10	0.20	0.20	0.20	0.20	0.10			
Max Video Output Volts			0.34	0.60	0.85	1.09	1.33	1.58	1.81	2.09	2.36			
Min Video Output Volts			0.33	0.59	0.83	1.07	1.32	1.57	1.80	2.07	2.35			
											Logging Linearity vs Frequency Error(dB)			
											MAX MIN			
											TOTAL LOG LINEARITY (dB) 0.61 -0.54			
											Logging Accuracy vs Frequency Error(dB)			
											MAX MIN			
											TOTAL LOGGING ACCURACY (dB) 0.26 -1.08			



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Log Linearity and Log Accuracy +85°C



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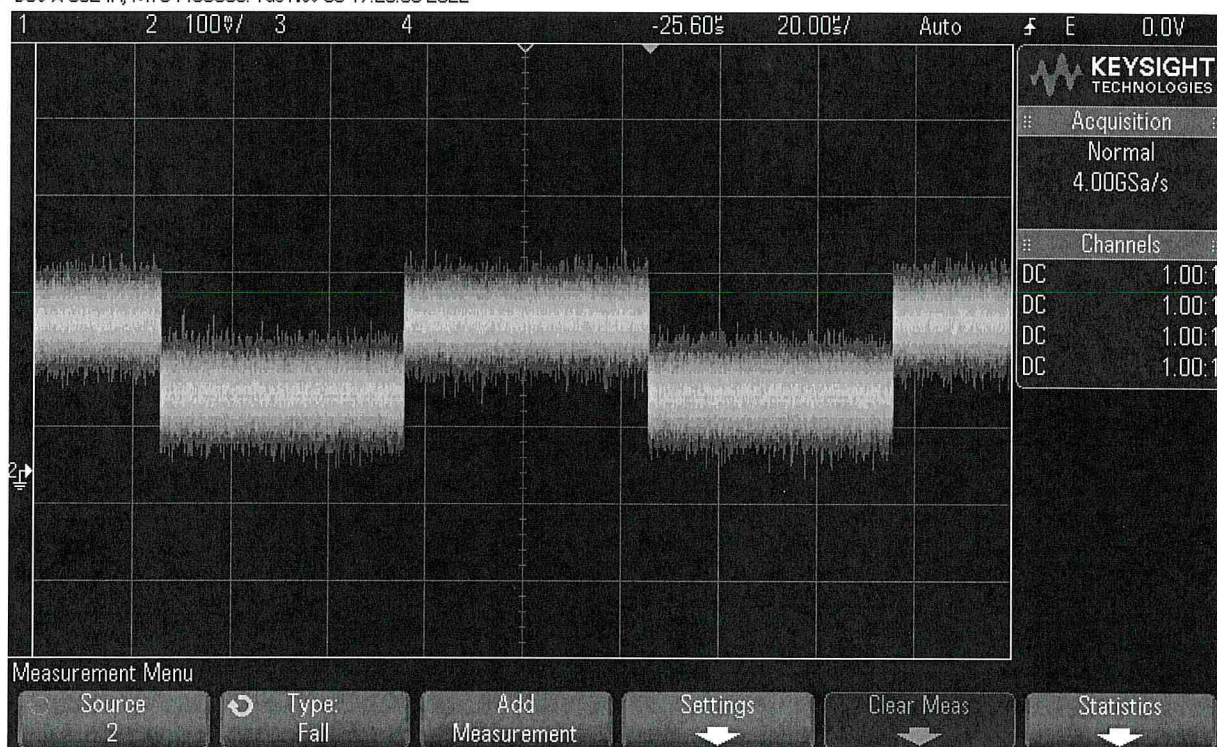


**SUMMARY TEST DATA
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TSS @- 45 dBm

DSO-X 3024A, MY54490369, Tue Nov 08 17:20:09 2022



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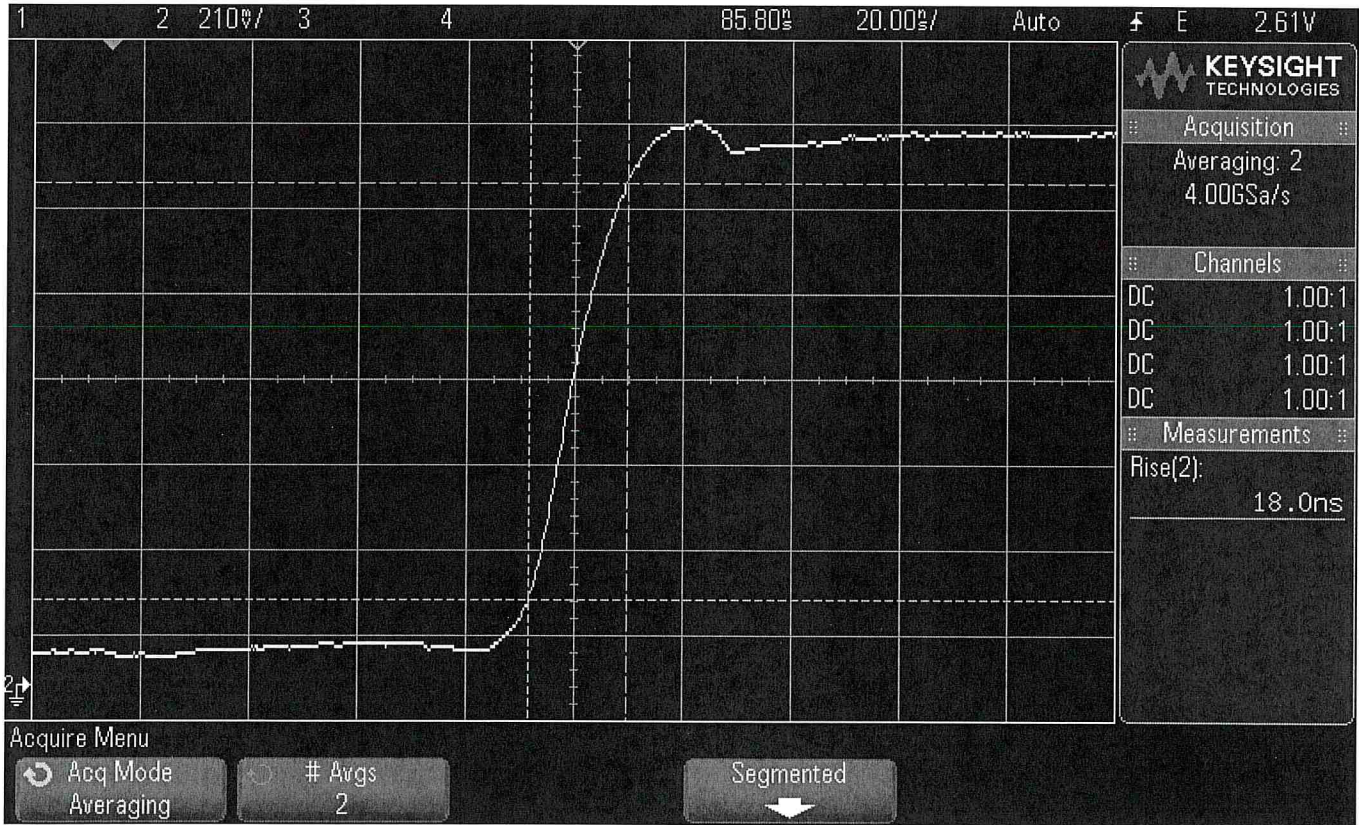


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Rise Time 18nS

DSO-X 3024A, MY54490369: Tue Nov 08 18:28:01 2022



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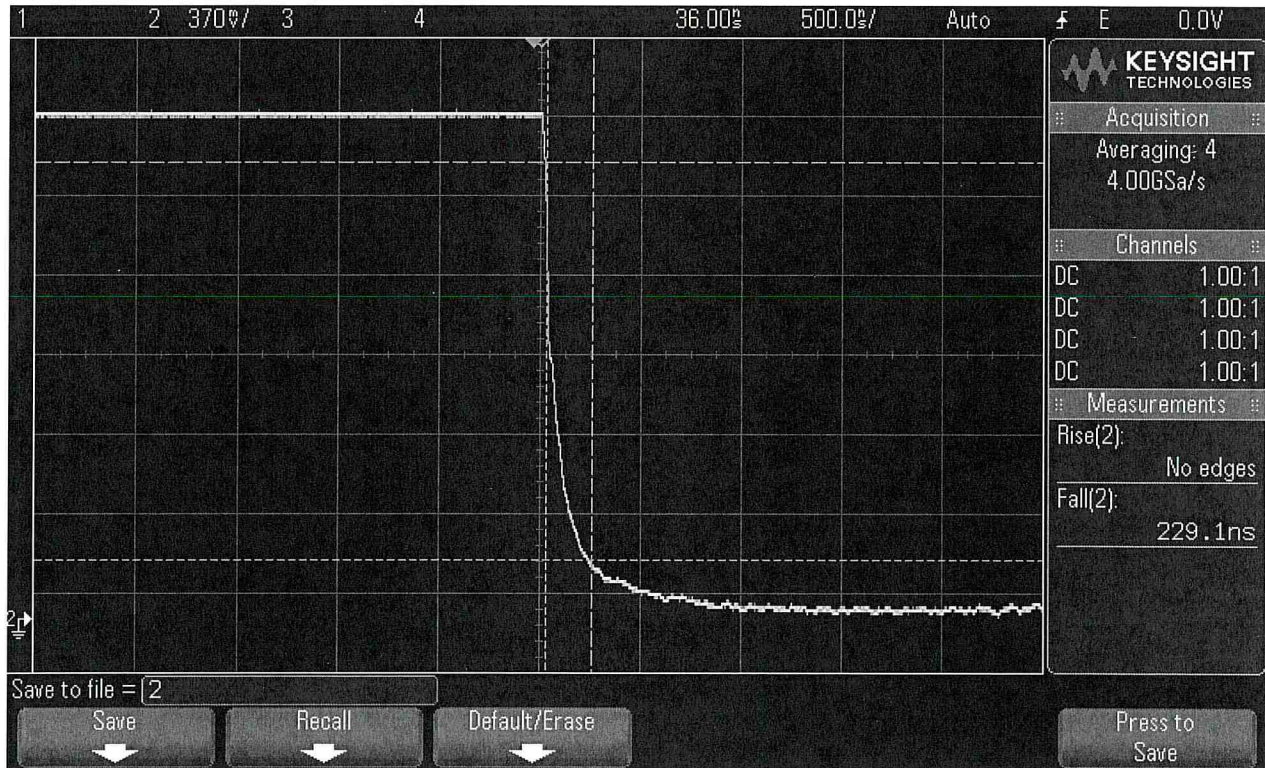


**SUMMARY TEST DATA
ON
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PL38213/2245

Fall Time 229nS

DSO-X 3024A, MY54490369: Tue Nov 08 10:53:14 2022



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VSWR 1.18:1

