



SUMMARY TEST DATA ON HADA-D2002

Customer: _____
 SO No: _____
 Model No: HADA-D2002
 Serial No: PL49129/2442

Tested By: D. Weinrob
 Temperature: +25°C
 Date: 10/15/2024
 Drawing No: 27620222 Rev: A1

Test. Item No	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	qa gc PMI QA3
1	Frequency Range:	2.0 GHz – 18.0 GHz	2.0 GHz – 18.0 GHz See Plot	
2	TSS:	-40 dBm Min @ -40°C to +85°	-40 dBm See Plot	
3	Frequency Flatness:	±1.65 dB Max	1.34 dB See Plot	
4	Input / Output Characteristics: (93 Ω)	Y = 2150 + 50X [X: Input (dBm), Y: Output (mv)]	Pass	
5	Logging Accuracy	±1.5 dB Max (@ +25°C, 10 GHz)*	0.12 dB / -0.44 dB	
		[-36 dBm ≤ INPUT ≤ +4 dBm] ±3.1 dB Max (Note)	1.60 dB / -2.86 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C	0.29 dB / -0.38 dB	
		±0.75 dB Max @ -40°C to +85°C	0.65 dB / -0.71 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%)	22 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	125 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV	122 mV @ +25°C	
		+55/-100 mV (@ -40°C to +85°C)	37 mV @ -40°C 121 mV @ +85°C See Plot	



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12	Input VSWR:	3.0:1 Max @ +23 dBm	1.73:1 See Plot	PMI QA3
13	Propagation Delay:	60 ns Max	45 ns	
14	Power Supply:	+12 ± 1VDC @ 125 mA Max -12 ± 1VDC @ 75 mA Max	+12 ± 1VDC @ 90 mA -12 ± 1VDC @ 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-62 (or equivalent), 5 meter, 93±0.5 Ohms terminated.

QA/QC Approval: *K. Klumpp*

Date: 10-16-24



SUMMARY TEST DATA ON HADA-D2002

LOG TRANSFER WITH FREQUENCY @ +25C
 MODEL: HADA-D2002
 SERIAL NO: PL49128
 TESTED BY: D. Weinrob
 DATE: 9/30/2024



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

GRAPH #1

Output Voltage Offset= 0.122 Volts

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)	-36	-31	-26	-21	-16	-11	-6	-1	4	RF Input Power (dBm)	Measured Value (mV)	Error(dB)
2 GHz	2197	48.7	443	687	935	1171	1408	1672	1917	2145	2384			
			-1	-1	4	-4	-10	11	12	-3	-8			
			-0.03	-0.02	0.08	-0.07	-0.21	0.22	0.25	-0.06	-0.15			
			1.86	1.74	1.70	1.42	1.16	1.44	1.34	0.90	0.68			
6 GHz	2196	48.7	439	686	935	1170	1405	1668	1916	2145	2384			
			-3	0	6	-3	-11	8	12	-2	-7			
			-0.06	0.01	0.12	-0.06	-0.23	0.16	0.25	-0.05	-0.14			
			1.78	1.72	1.70	1.40	1.10	1.36	1.32	0.90	0.68			
10 GHz	2146	50.2	346	603	842	1078	1329	1581	1854	2106	2351			
			6	12	1	-14	-14	-13	9	10	4			
			0.13	0.25	0.01	-0.29	-0.29	-0.26	0.18	0.20	0.08			
			-0.08	0.06	-0.16	-0.44	-0.42	-0.38	0.08	0.12	0.02			
14 GHz	2126	48.7	367	623	865	1097	1340	1589	1847	2085	2309			
			-6	7	5	-6	-7	-1	13	8	-12			
			-0.12	0.14	0.10	-0.13	-0.14	-0.03	0.27	0.16	-0.24			
			0.34	0.46	0.30	-0.06	-0.20	-0.22	-0.06	-0.30	-0.82			
18 GHz	2107	49.4	334	589	822	1059	1303	1545	1824	2072	2304			
			5	13	-1	-11	-14	-19	13	14	-1			
			0.10	0.26	-0.02	-0.22	-0.28	-0.38	0.27	0.29	-0.02			
			-0.32	-0.22	-0.56	-0.82	-0.94	-1.10	-0.52	-0.56	-0.92			
Flatness +/- dB			1.109	0.997	1.150	1.140	1.068	1.292	0.946	0.743	0.814			
Max Video Output V			0.443	0.687	0.935	1.171	1.408	1.672	1.917	2.145	2.384			
Min Video Output V			0.334	0.589	0.822	1.059	1.303	1.545	1.824	2.072	2.304			

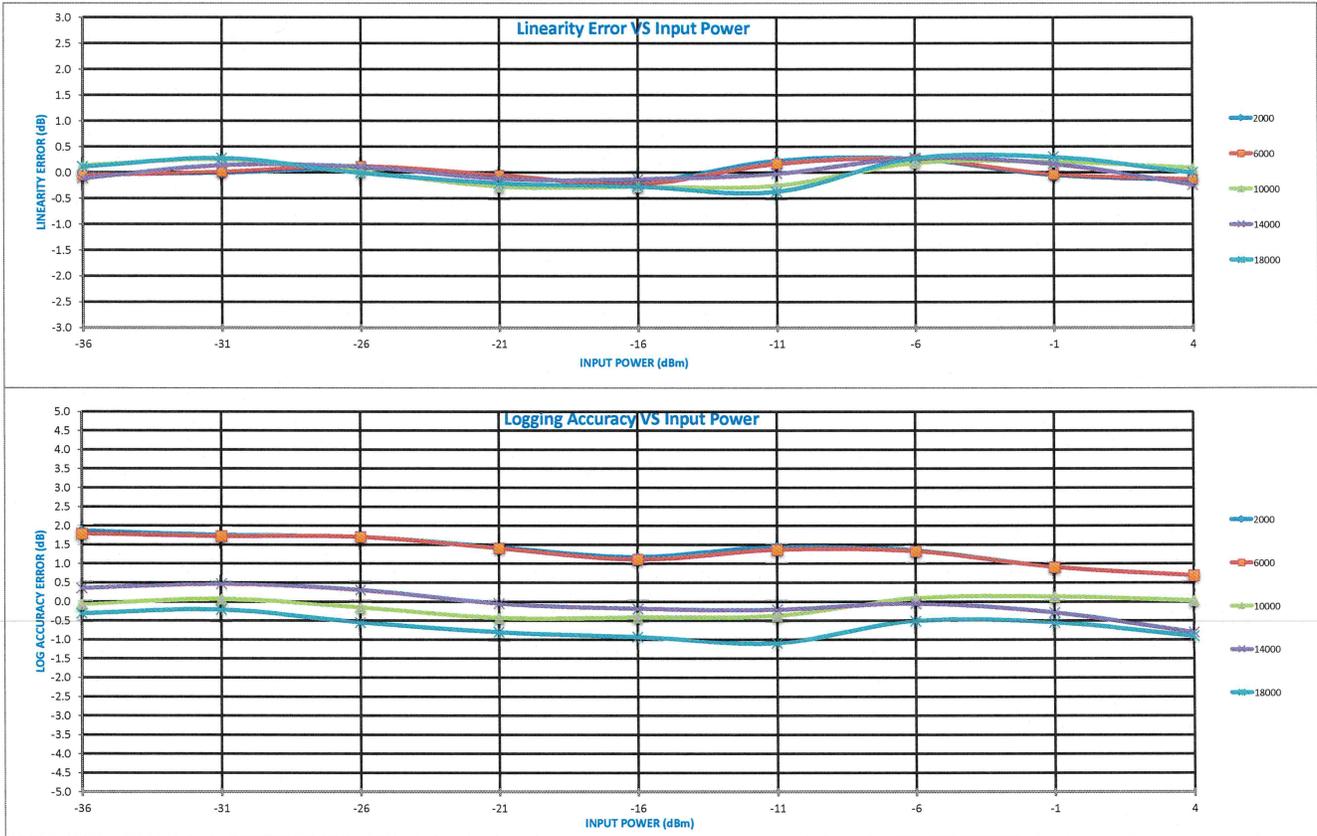
Logging Linearity vs Frequency	Error(dB)
	MAX MIN
LOGGING LINEARITY ERROR (dB)	0.29 -0.38

Logging Accuracy vs Frequency	Error(dB)
	MAX MIN
LOGGING ACCURACY ERROR (dB)	1.86 -1.10



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MODEL: HADA-D2002
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SUMMARY TEST DATA ON HADA-D2002

LOG TRANSFER WITH FREQUENCY @ -40C
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 SERIAL NO: PL48128
 TESTED BY: D. Weinrob
 DATE: 9/30/2024



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GRAPH #2

Output Voltage Offset= 0.037 Volts

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)	-36	-31	-26	-21	-16	-11	-6	-1	4	RF Input Power (dBm)	Measured Value (mV)	Error(dB)
2 GHz	2188	48.7	425	670	922	1172	1407	1680	1918	2120	2364	Measured Value (mV)	MAX	MIN
			-10	-8	0	7	-2	28	22	-19	-18	Error (mV)	0.52	-0.39
			-0.20	-0.17	0.00	0.14	-0.03	0.57	0.46	-0.39	-0.38	LINEARITY ERROR (dB)	1.60	0.28
			1.50	1.40	1.44	1.44	1.14	1.60	1.36	0.40	0.28	LOGGING ACCURACY (dB)		
6 GHz	2188	48.7	424	671	924	1173	1406	1678	1919	2122	2364	Measured Value (mV)	MAX	MIN
			-11	-8	2	7	-3	26	23	-17	-19	Error (mV)	0.52	-0.39
			-0.23	-0.16	0.04	0.15	-0.06	0.52	0.47	-0.36	-0.39	LINEARITY ERROR (dB)	1.56	0.28
			1.48	1.42	1.48	1.46	1.12	1.56	1.38	0.44	0.28	LOGGING ACCURACY (dB)		
10 GHz	2140	50.2	323	588	839	1077	1328	1597	1861	2088	2325	Measured Value (mV)	MAX	MIN
			-8	5	5	-8	-8	10	22	-2	-16	Error (mV)	0.45	-0.32
			-0.17	0.11	0.10	-0.16	-0.16	0.19	0.45	-0.04	-0.32	LINEARITY ERROR (dB)	0.22	-0.54
			-0.54	-0.24	-0.22	-0.46	-0.44	-0.06	0.22	-0.24	-0.50	LOGGING ACCURACY (dB)		
14 GHz	2131	48.8	359	617	871	1109	1348	1615	1864	2079	2296	Measured Value (mV)	MAX	MIN
			-17	-3	8	2	-3	20	26	-3	-30	Error (mV)	0.52	-0.61
			-0.35	-0.05	0.16	0.04	-0.06	0.42	0.52	-0.07	-0.61	LINEARITY ERROR (dB)	0.42	-1.08
			0.18	0.34	0.42	0.18	-0.04	0.30	0.28	-0.42	-1.08	LOGGING ACCURACY (dB)		
18 GHz	2107	49.6	312	577	825	1061	1306	1567	1834	2062	2285	Measured Value (mV)	MAX	MIN
			-11	6	6	-5	-8	5	24	4	-21	Error (mV)	0.48	-0.42
			-0.22	0.13	0.13	-0.11	-0.17	0.10	0.48	0.08	-0.42	LINEARITY ERROR (dB)	-0.32	-1.30
			-0.76	-0.46	-0.50	-0.78	-0.88	-0.86	-0.32	-0.76	-1.30	LOGGING ACCURACY (dB)		
Flatness +/- dB			1.149	0.956	1.006	1.138	1.027	1.149	0.864	0.610	0.803			
Max Video Output V			0.425	0.671	0.924	1.173	1.407	1.680	1.919	2.122	2.364			
Min Video Output V			0.312	0.577	0.825	1.061	1.306	1.567	1.834	2.062	2.285			

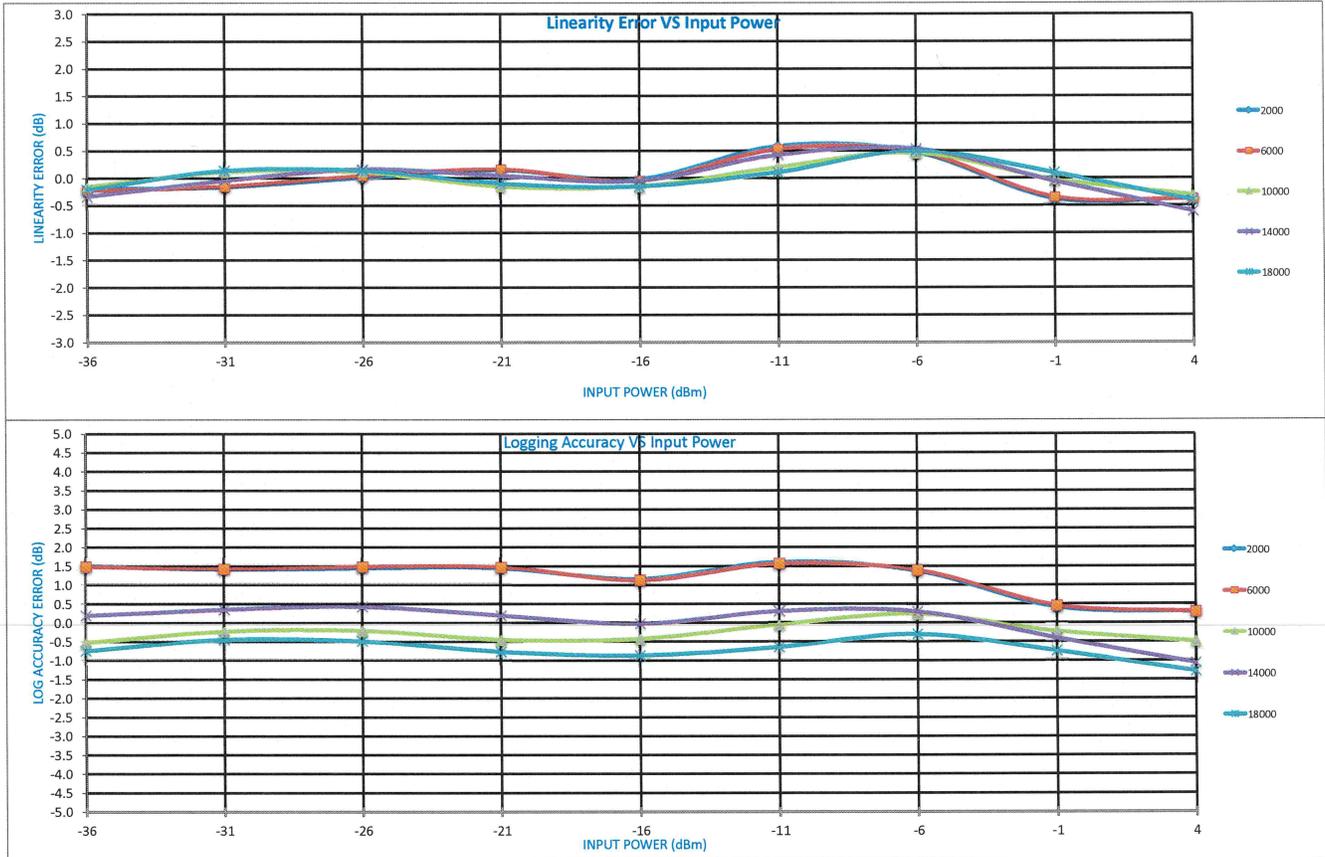
Logging Linearity vs Frequency	Error(dB)
	MAX
	MIN
LOGGING LINEARITY ERROR (dB)	0.57 -0.61

Logging Accuracy vs Frequency	Error(dB)
	MAX
	MIN
LOGGING ACCURACY ERROR (dB)	1.60 -1.30



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LOG TRANSFER WITH FREQUENCY @ -40C
MODEL: HADA-D2002
SERIAL NO: PL49128
TESTED BY: D. Weinrob





SUMMARY TEST DATA ON HADA-D2002

LOG TRANSFER WITH FREQUENCY @ +85C
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 SERIAL NO: PL49128
 TESTED BY: D. Weinrob
 DATE: 9/30/2024



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GRAPH #3

Output Voltage Offset= 0.121 Volts

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)	-36	-31	-26	-21	-16	-11	-6	-1	4	RF Input Power (dBm)	Measured Value (mV)	Error(dB)
2 GHz	2135	48.9	387	629	866	1095	1336	1589	1844	2093	2341			
			11	9	1	-14	-17	-9	2	7	10			
			0.22	0.18	0.03	-0.29	-0.35	-0.18	0.04	0.14	0.21			
			0.74	0.58	0.32	-0.10	-0.28	-0.22	-0.12	-0.14	-0.18			
6 GHz	2138	48.9	388	630	868	1096	1336	1587	1845	2096	2347			
			12	9	3	-14	-19	-12	1	7	14			
			0.24	0.19	0.05	-0.29	-0.38	-0.25	0.02	0.15	0.28			
			0.76	0.60	0.36	-0.08	-0.28	-0.26	-0.10	-0.08	-0.06			
10 GHz	2081	50.3	299	539	766	1003	1250	1493	1776	2045	2315			
			29	17	-7	-22	-26	-35	-3	14	33			
			0.57	0.35	-0.14	-0.43	-0.52	-0.69	-0.07	0.28	0.65			
			-1.02	-1.22	-1.68	-1.94	-2.00	-2.14	-1.48	-1.10	-0.70			
14 GHz	2054	48.7	314	556	784	1017	1258	1495	1763	2016	2265			
			14	13	-3	-14	-16	-23	1	11	16			
			0.30	0.26	-0.06	-0.28	-0.33	-0.47	0.03	0.22	0.33			
			-0.72	-0.88	-1.32	-1.66	-1.84	-2.10	-1.74	-1.68	-1.70			
18 GHz	2033	49.2	288	522	745	984	1218	1457	1740	1999	2257			
			27	15	-8	-15	-28	-35	2	15	27			
			0.55	0.30	-0.17	-0.31	-0.56	-0.71	0.04	0.30	0.54			
			-1.24	-1.55	-2.10	-2.32	-2.64	-2.86	-2.20	-2.02	-1.86			
Flatness +/- dB		1.016	1.097	1.250	1.138	1.199	1.341	1.067	0.986	0.914				
Max Video Output V		0.388	0.630	0.868	1.096	1.336	1.589	1.845	2.096	2.347				
Min Video Output V		0.288	0.522	0.745	0.984	1.218	1.457	1.740	1.999	2.257				

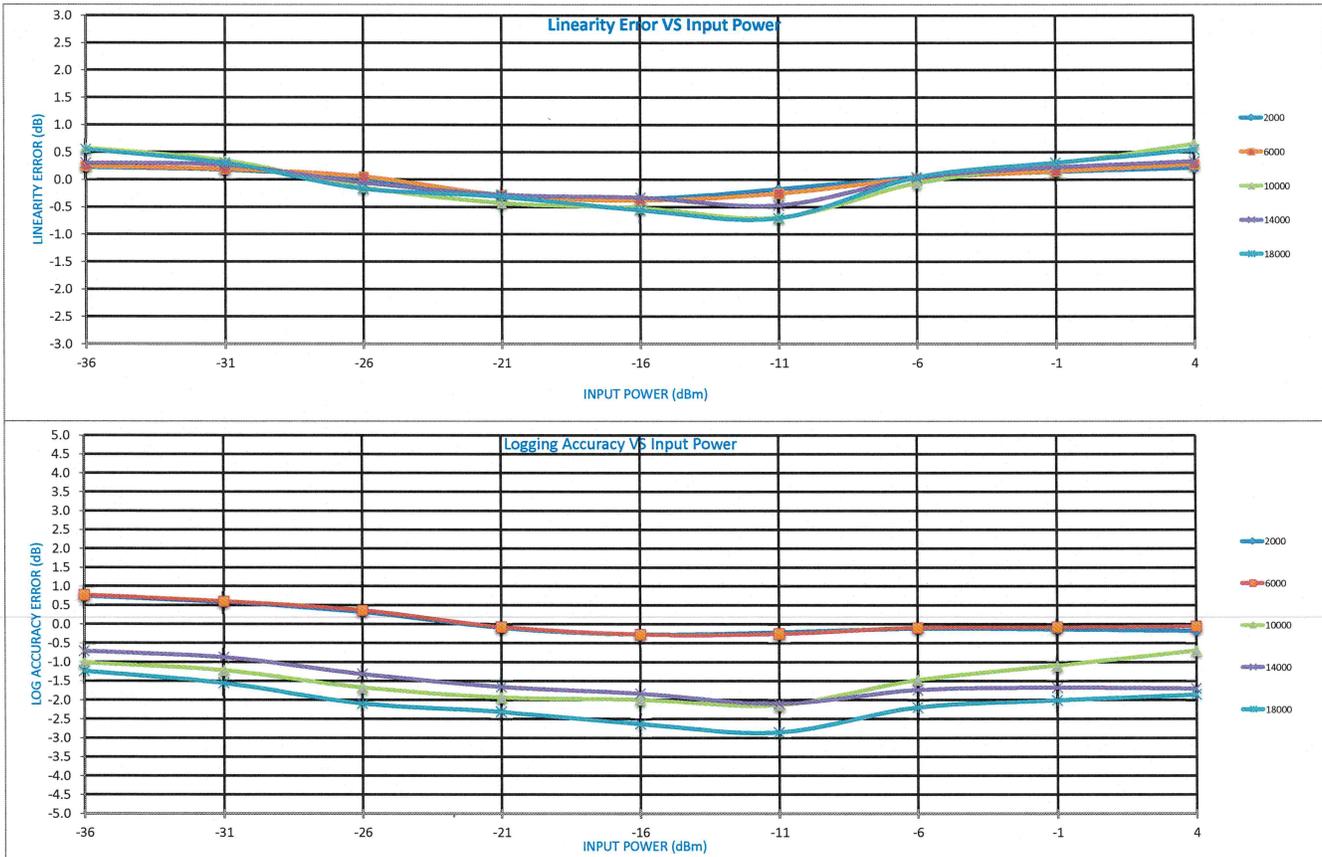
Logging Linearity vs Frequency	Error(dB)
	MAX MIN
LOGGING LINEARITY ERROR (dB)	0.65 -0.71

Logging Accuracy vs Frequency	Error(dB)
	MAX MIN
LOGGING ACCURACY ERROR (dB)	0.76 -2.86



SUMMARY TEST DATA ON HADA-D2002

LOG TRANSFER WITH FREQUENCY @ +85C
MODEL: HADA-D2002
SERIAL NO: PL49128
TESTED BY: D. Weinrob

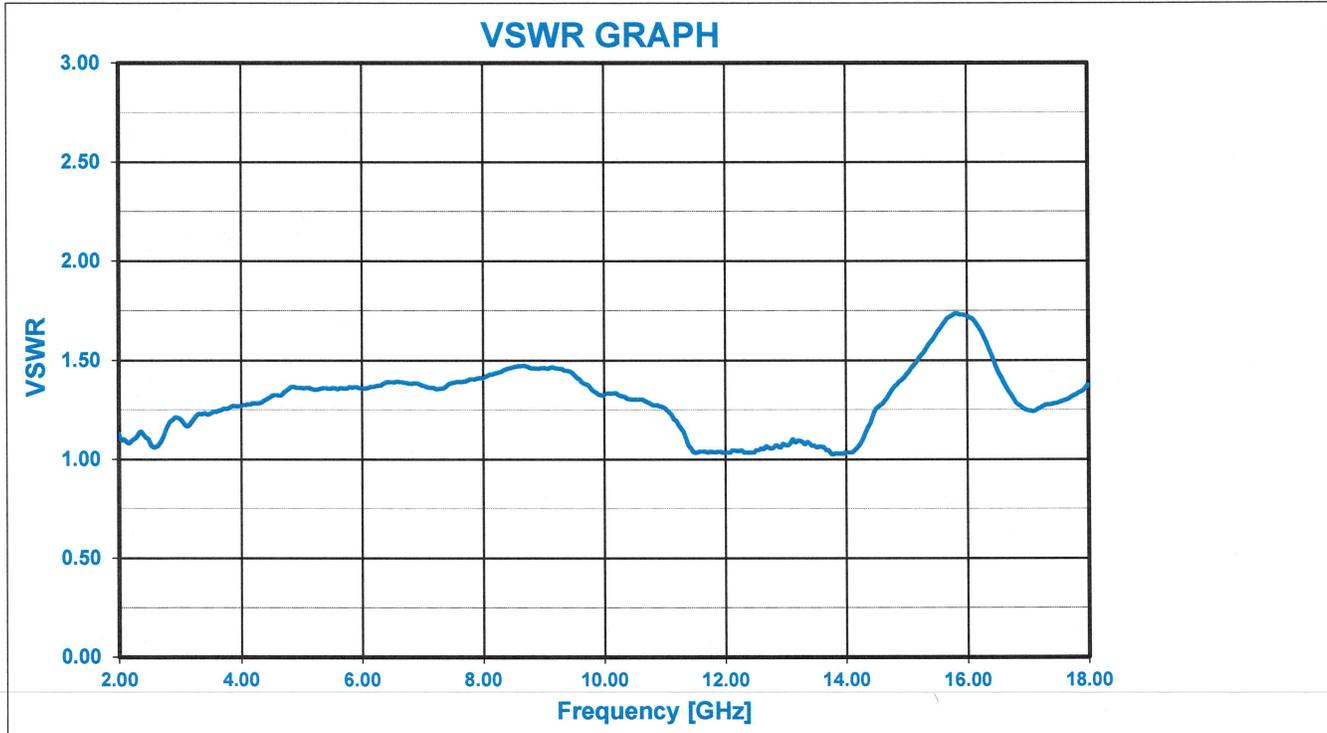




SUMMARY TEST DATA ON HADA-D2002

Model Number: HADA-D2002
Serial Number: PL49129

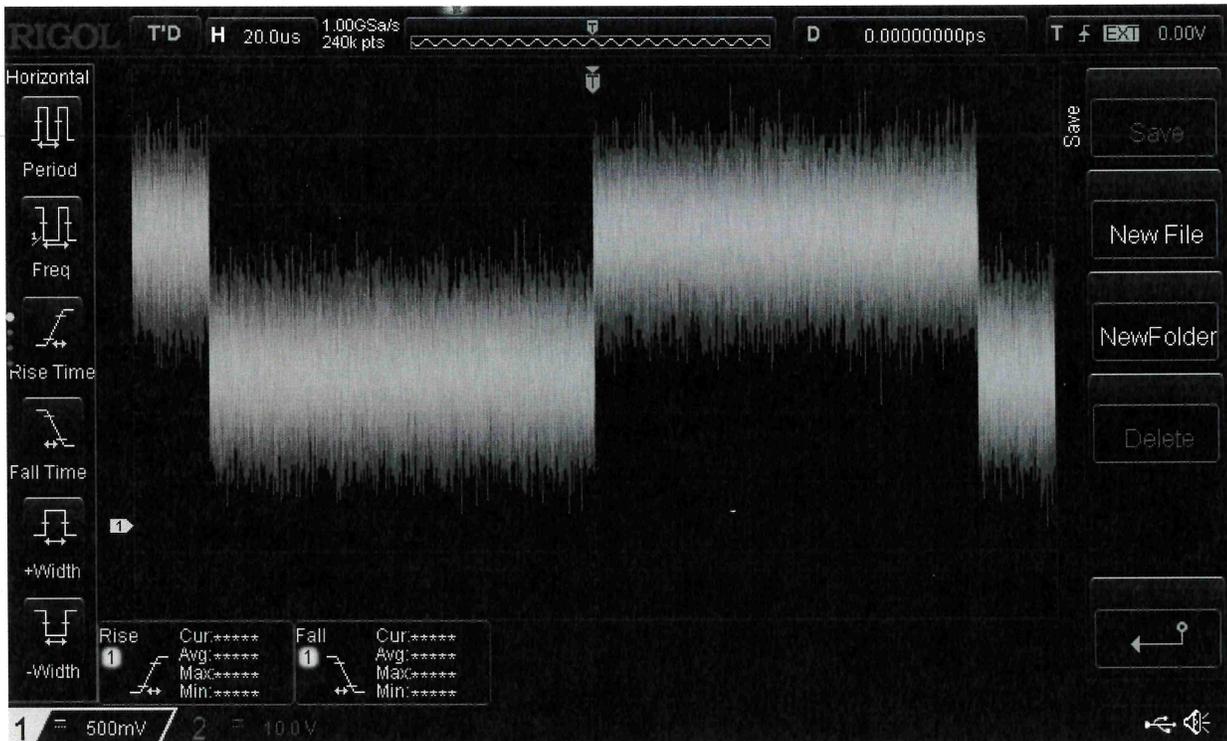
Temperature: +25C





**SUMMARY TEST DATA
ON
HADA-D2002**

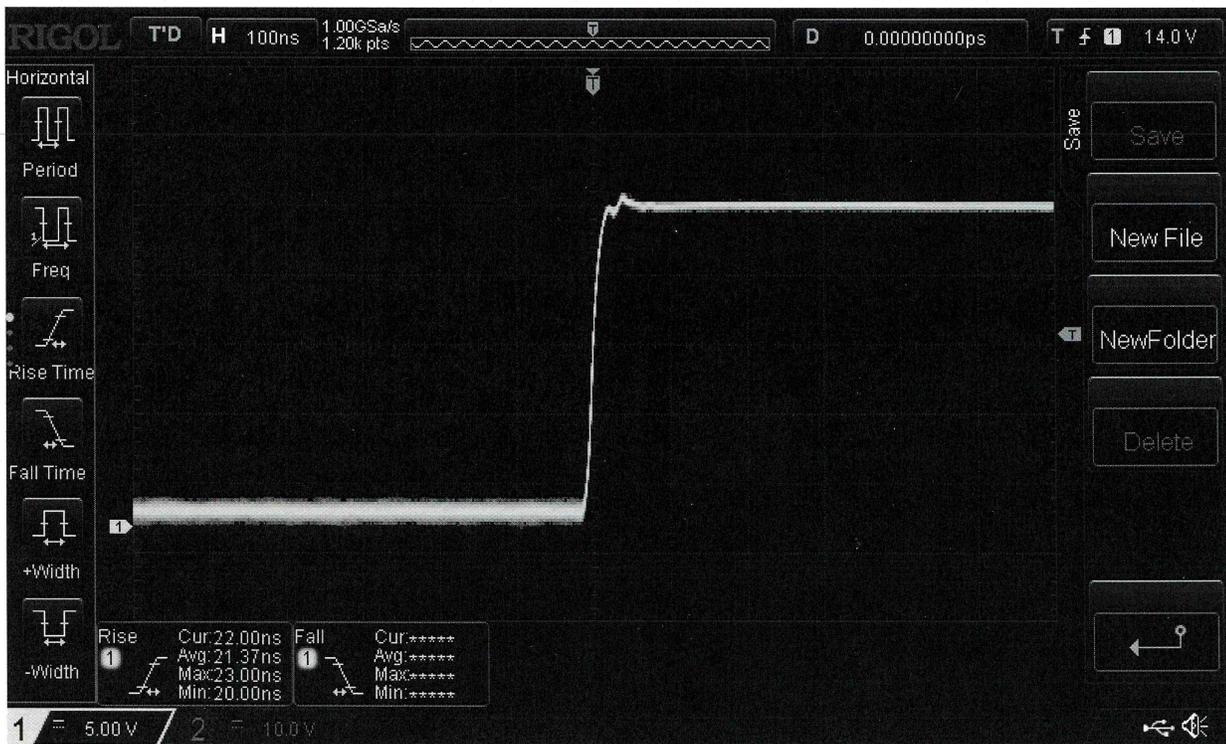
TSS = -40 dBm





**SUMMARY TEST DATA
ON
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Rise Time = 22 ns





**SUMMARY TEST DATA
ON
HADA-D2002**

Fall Time = 125 ns

