



SUMMARY TEST DATA ON HADA-D2002

Customer: _____
 SO No: _____
 Model No: HADA-D2002
 Serial No: PL49128/2442

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 qc
1	Frequency Range:	2.0 GHz – 18.0 GHz	2.0 GHz – 18.0 GHz See Plot	PMI QA3
2	TSS:	-40 dBm Min @ -40°C to +85°	-42 dBm See Plot	
3	Frequency Flatness:	±1.65 dB Max	0.68 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)*	0.20 dB / -0.54 dB	
		[-36 dBm ≤ INPUT ≤ +4 dBm] ±3.1 dB Max (Note)	1.52 dB / -1.46 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C	0.30 dB / -0.34 dB	
		±0.75 dB Max @ -40°C to +85°C	0.59 dB / -0.51 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%)	25 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	165 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV	64 mV @ +25°c	
		+55/-100 mV (@ -40°C to +85°C)	30 mV @ -40°c 92 mV @ +85°c See Plot	



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12	Input VSWR:	3.0:1 Max @ +23 dBm	1.72:1 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 @ 100 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. Klamm

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= 0.064 Volts

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
2 GHz	2143	49.4
6 GHz	2161	49.3
10 GHz	2147	50.6
14 GHz	2155	49.9
18 GHz	2182	50.6
Flatness +/- dB		
Max Video Output V		
Min Video Output V		

	-36	-31	-26	-21	-16	-11	-6	-1	4	RF Input Power (dBm)
2 GHz	353	613	865	1105	1353	1607	1852	2090	2332	Measured Value (mV)
	-11	2	7	0	1	8	6	-3	-8	Error (mV)
	-0.22	0.04	0.14	0.00	0.02	0.16	0.11	-0.07	-0.17	MAX
	0.06	0.26	0.30	0.10	0.06	0.14	0.04	-0.20	-0.36	MIN
										LINEARITY ERROR (dB)
										LOGGING ACCURACY (dB)
6 GHz	375	634	889	1128	1370	1624	1867	2106	2357	Measured Value (mV)
	-11	2	10	2	-2	5	2	-6	-2	Error (mV)
	-0.22	0.03	0.20	0.05	-0.05	0.10	0.03	-0.12	-0.03	MAX
	0.50	0.68	0.78	0.56	0.40	0.48	0.34	0.12	0.14	MIN
										LINEARITY ERROR (dB)
										LOGGING ACCURACY (dB)
10 GHz	323	589	839	1078	1331	1583	1842	2093	2360	Measured Value (mV)
	-3	10	7	-7	-7	-7	-1	-3	11	Error (mV)
	-0.06	0.20	0.14	-0.13	-0.13	-0.15	-0.02	-0.06	0.22	MAX
	-0.54	-0.22	-0.22	-0.44	-0.38	-0.34	-0.16	-0.14	0.20	MIN
										LINEARITY ERROR (dB)
										LOGGING ACCURACY (dB)
14 GHz	353	615	869	1106	1350	1603	1856	2102	2361	Measured Value (mV)
	-7	6	11	-2	-7	-4	0	-3	6	Error (mV)
	-0.13	0.12	0.21	-0.04	-0.14	-0.07	0.00	-0.07	0.12	MAX
	0.06	0.30	0.38	0.12	0.00	0.06	0.12	0.04	0.22	MIN
										LINEARITY ERROR (dB)
										LOGGING ACCURACY (dB)
18 GHz	363	623	874	1112	1355	1612	1878	2133	2400	Measured Value (mV)
	3	10	8	-7	-17	-13	0	1	15	Error (mV)
	0.06	0.20	0.16	-0.14	-0.34	-0.26	-0.01	0.03	0.30	MAX
	0.26	0.46	0.48	0.24	0.10	0.24	0.56	0.66	1.00	MIN
										LINEARITY ERROR (dB)
										LOGGING ACCURACY (dB)
	0.520	0.450	0.500	0.500	0.390	0.410	0.360	0.430	0.681	
	0.375	0.634	0.889	1.128	1.370	1.624	1.878	2.133	2.400	
	0.323	0.589	0.839	1.078	1.331	1.583	1.842	2.090	2.332	

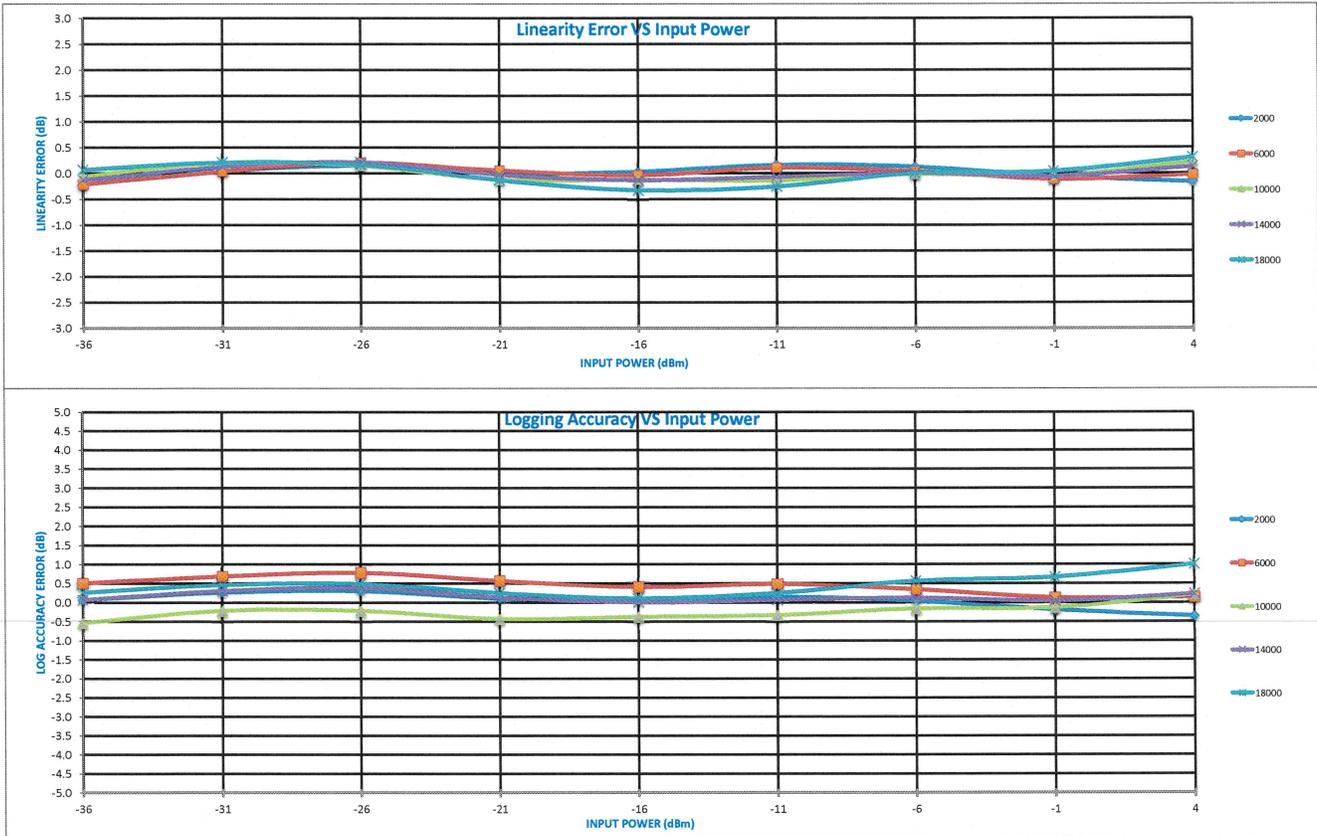
Logging Linearity vs Frequency	Error(dB)
	MAX
	MIN
LOGGING LINEARITY ERROR (dB)	0.30
	-0.34

Logging Accuracy vs Frequency	Error(dB)
	MAX
	MIN
LOGGING ACCURACY ERROR (dB)	1.00
	-0.54



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





SUMMARY TEST DATA ON HADA-D2002

LOG TRANSFER WITH FREQUENCY @ -40C
 MODEL: HADA-D2002
 SERIAL NO: PL49128
 TESTED BY: D. Weinrob
 DATE: 9/30/2024



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GRAPH #2

Output Voltage Offset= 0.03 Volts

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
2 GHz	2178	49.5

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
6 GHz	2196	49.3

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
10 GHz	2182	50.6

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
14 GHz	2195	50

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
18 GHz	2209	50.8

Flatness +/- dB
Max Video Output V
Min Video Output V

	-36	-31	-26	-21	-16	-11	-6	-1	4	RF Input Power (dBm)
2 GHz	375	639	900	1147	1392	1659	1894	2117	2353	Measured Value (mV)
	-21	-5	9	8	6	25	13	-12	-23	Error (mV)
	-0.43	-0.10	0.17	0.17	0.12	0.51	0.26	-0.23	-0.46	MAX MIN
	0.50	0.78	1.00	0.94	0.84	1.18	0.88	0.34	0.06	LINEARITY ERROR (dB)
										LOGGING ACCURACY (dB)
										1.18 0.06
6 GHz	400	661	924	1172	1410	1676	1909	2131	2377	Measured Value (mV)
	-21	-6	10	12	3	23	9	-15	-16	Error (mV)
	-0.42	-0.12	0.21	0.24	0.07	0.46	0.19	-0.31	-0.32	MAX MIN
	1.00	1.22	1.48	1.44	1.20	1.52	1.18	0.62	0.54	LINEARITY ERROR (dB)
										LOGGING ACCURACY (dB)
										1.52 0.54
10 GHz	343	615	876	1119	1371	1636	1885	2120	2379	Measured Value (mV)
	-16	3	11	1	-1	11	7	-11	-5	Error (mV)
	-0.31	0.06	0.22	0.01	-0.01	0.22	0.14	-0.22	-0.11	MAX MIN
	-0.14	0.30	0.52	0.38	0.42	0.72	0.70	0.40	0.58	LINEARITY ERROR (dB)
										LOGGING ACCURACY (dB)
										0.22 -0.31
										0.72 -0.14
14 GHz	380	644	907	1152	1393	1659	1902	2132	2388	Measured Value (mV)
	-16	-2	12	7	-2	14	7	-13	-7	Error (mV)
	-0.31	-0.03	0.23	0.13	-0.04	0.28	0.14	-0.26	-0.14	MAX MIN
	0.60	0.88	1.14	1.04	0.86	1.18	1.04	0.64	0.76	LINEARITY ERROR (dB)
										LOGGING ACCURACY (dB)
										0.28 -0.31
										1.18 0.60
18 GHz	373	639	898	1143	1384	1652	1910	2147	2419	Measured Value (mV)
	-7	5	10	1	-12	2	6	-11	7	Error (mV)
	-0.14	0.10	0.20	0.02	-0.24	0.04	0.12	-0.22	0.13	MAX MIN
	0.46	0.78	0.96	0.86	0.68	1.04	1.20	0.94	1.38	LINEARITY ERROR (dB)
										LOGGING ACCURACY (dB)
										0.20 -0.24
										1.38 0.46
Flatness +/- dB	0.569	0.460	0.480	0.530	0.390	0.400	0.250	0.300	0.659	
Max Video Output V	0.400	0.661	0.924	1.172	1.410	1.676	1.910	2.147	2.419	
Min Video Output V	0.343	0.615	0.876	1.119	1.371	1.636	1.885	2.117	2.353	

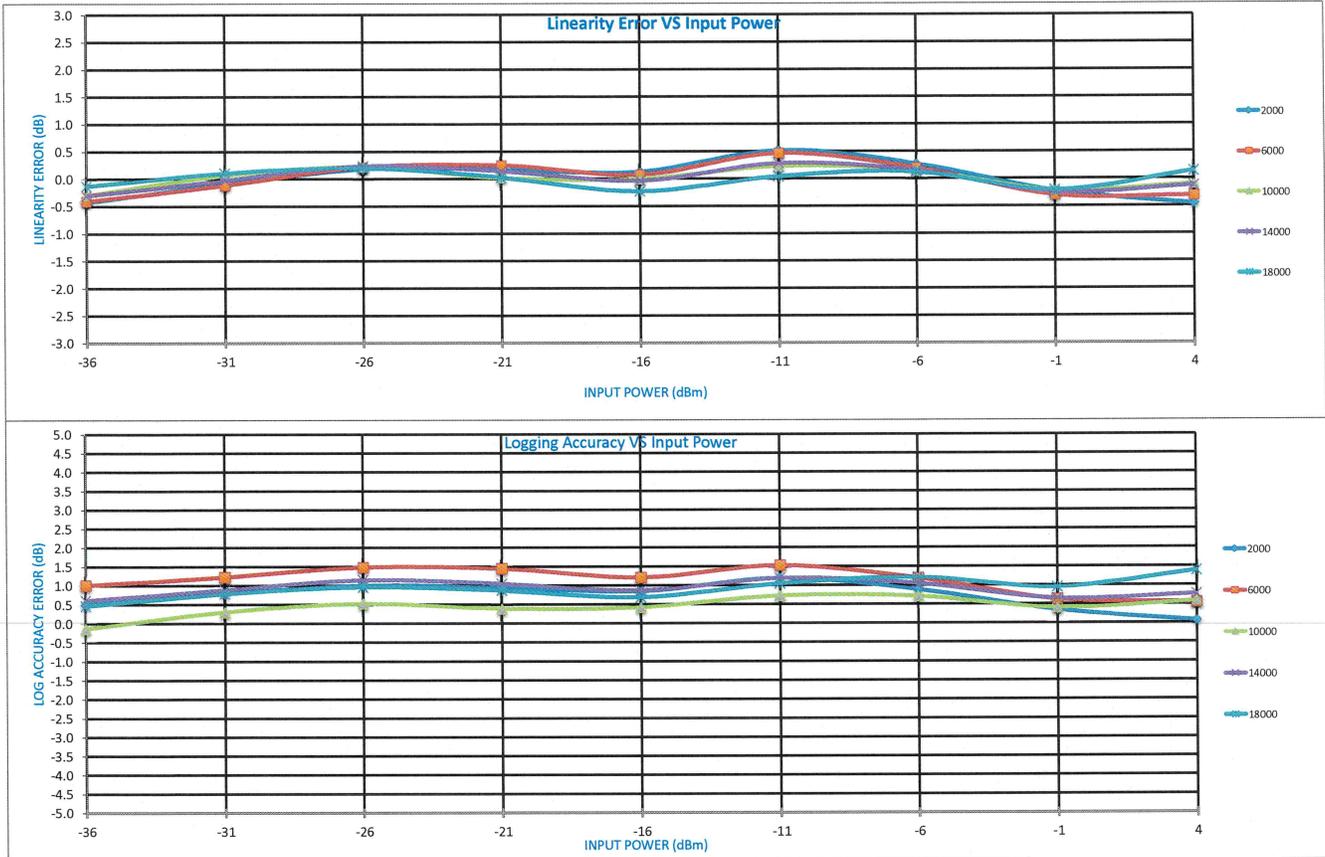
Logging Linearity vs Frequency	Error(dB)
	MAX MIN
LOGGING LINEARITY ERROR (dB)	0.51 -0.46

Logging Accuracy vs Frequency	Error(dB)
	MAX MIN
LOGGING ACCURACY ERROR (dB)	1.52 -0.14



SUMMARY TEST DATA ON HADA-D2002

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
 MODEL: HADA-D2002
 SERIAL NO: PL49128
 TESTED BY: D. Weinrob
 DATE: 9/30/2024



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GRAPH #3

Output Voltage Offset= 0.092 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	2097		329	582	820	1056	1305	1547	1803	2049	2302			
			2	9	1	-9	-5	-9	1	1	8			
			0.04	0.19	0.03	-0.17	-0.11	-0.19	0.02	0.02	0.17			
			-0.42	-0.36	-0.60	-0.88	-0.90	-1.06	-0.94	-1.02	-0.96			
6 GHz	2125		355	608	851	1085	1328	1572	1826	2075	2337			
	49.2		2	9	6	-6	-9	-12	-4	-1	15			
			0.04	0.18	0.12	-0.13	-0.19	-0.23	-0.07	-0.02	0.31			
			0.10	0.16	0.02	-0.30	-0.44	-0.56	-0.48	-0.50	-0.26			
10 GHz	2106		305	559	796	1033	1285	1527	1797	2058	2338			
	50.4		14	15	0	-15	-15	-25	-7	2	30			
			0.27	0.31	0.01	-0.29	-0.29	-0.49	-0.14	0.04	0.59			
			-0.90	-0.82	-1.08	-1.34	-1.30	-1.46	-1.06	-0.84	-0.24			
14 GHz	2106		328	582	822	1056	1301	1542	1804	2059	2324			
	49.6		6	12	4	-9	-12	-19	-5	3	20			
			0.12	0.24	0.09	-0.19	-0.24	-0.38	-0.09	0.05	0.40			
			-0.44	-0.36	-0.56	-0.88	-0.98	-1.16	-0.92	-0.82	-0.52			
18 GHz	2135		340	594	832	1066	1310	1557	1832	2096	2356			
	50.2		13	16	3	-14	-21	-25	-1	12	20			
			0.25	0.31	0.05	-0.29	-0.43	-0.51	-0.03	0.23	0.41			
			-0.20	-0.12	-0.36	-0.68	-0.80	-0.86	-0.36	-0.08	0.12			
Flatness +/- dB		0.503	0.493	0.553	0.523	0.432	0.453	0.352	0.473	0.543				
Max Video Output V		0.355	0.608	0.851	1.085	1.328	1.572	1.832	2.096	2.356				
Min Video Output V		0.305	0.559	0.796	1.033	1.285	1.527	1.797	2.049	2.302				

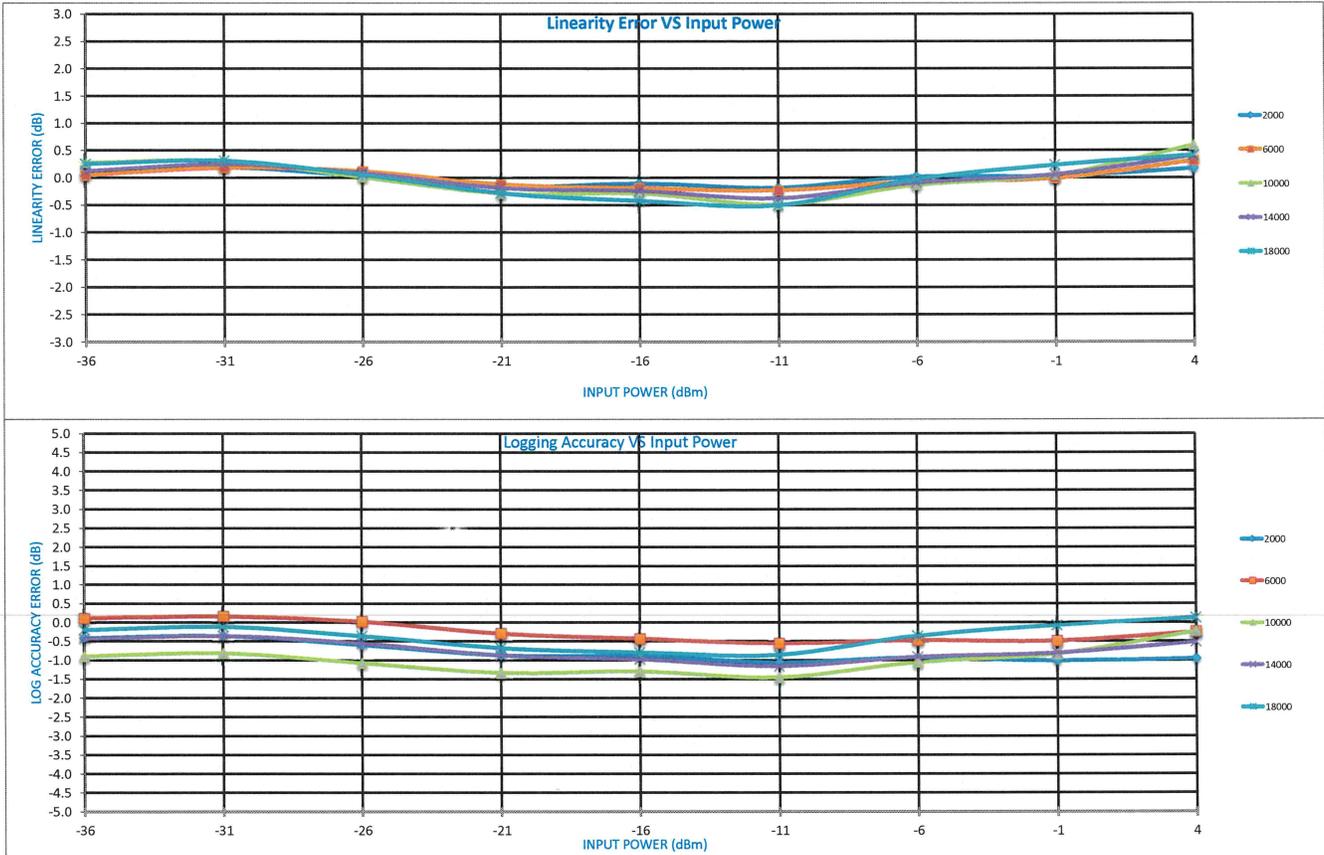
Logging Linearity vs Frequency	Error(dB)
	MAX MIN
LOGGING LINEARITY ERROR (dB)	0.59 -0.51

Logging Accuracy vs Frequency	Error(dB)
	MAX MIN
LOGGING ACCURACY ERROR (dB)	0.16 -1.46



SUMMARY TEST DATA ON HADA-D2002

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

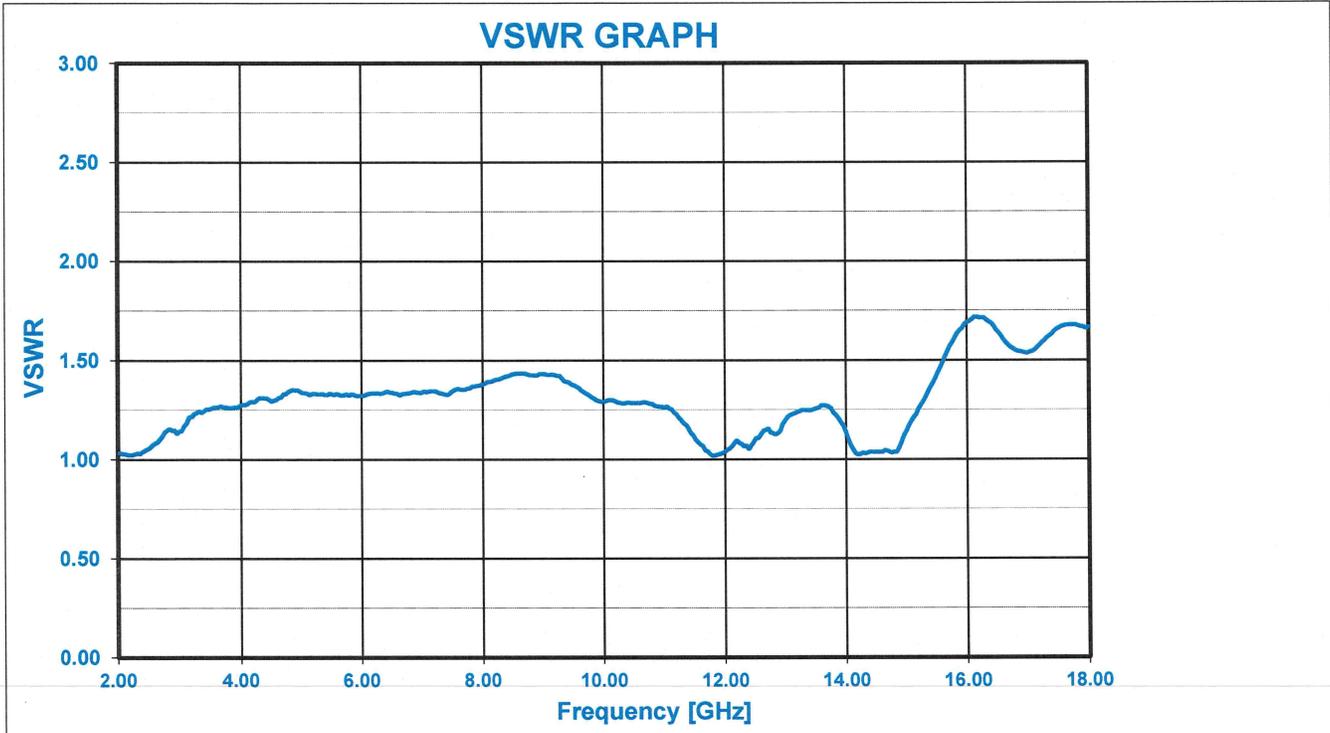




SUMMARY TEST DATA ON HADA-D2002

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Serial Number: PL49128

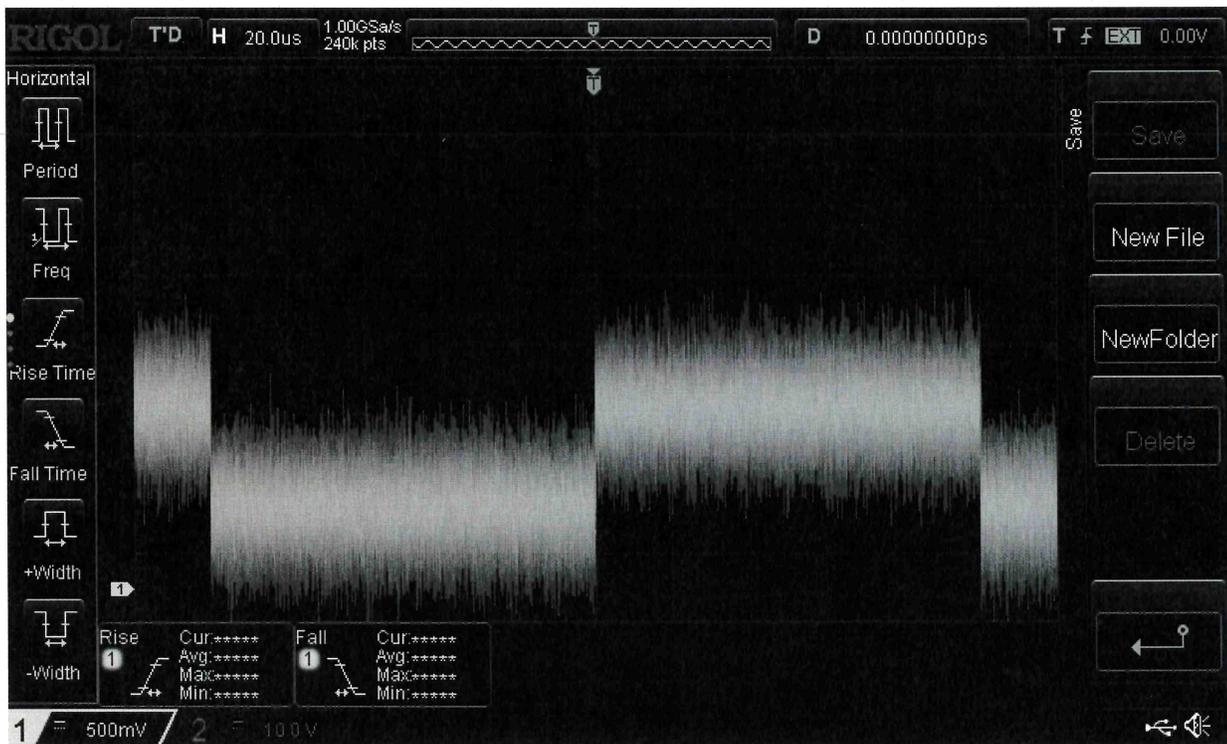
Temperature: +25C





**SUMMARY TEST DATA
ON
HADA-D2002**

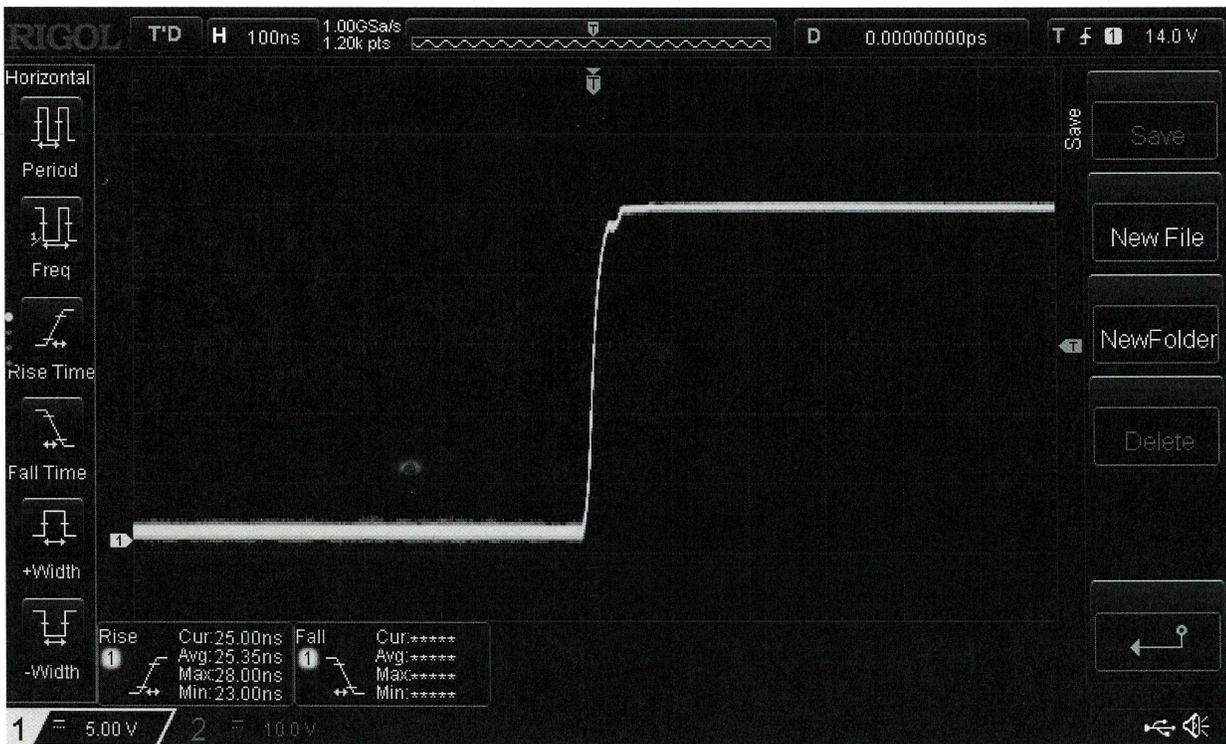
TSS = -42 dBm





**SUMMARY TEST DATA
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Rise Time = 25 ns





**SUMMARY TEST DATA
ON
HADA-D2002**

Fall Time = 165 ns

