



SUMMARY TEST DATA ON HADA-D2002

Customer: _____
 SO No: _____
 Model No: HADA-D2002
 Serial No: PL49127/2442

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	0.46 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 / -0.20 dB	
		[-36 dBm ≤ INPUT ≤ +4 dBm] ±3.1 dB Max (Note)	0.98 dB / -1.14 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C	0.16 dB / -0.26 dB	
		±0.75 dB Max @ -40°C to +85°C	0.42 dB / -0.45 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%)	24 ns See Plot	
		500 ns Max (@ Pulse width 100usec input) (90% to 10%)	205 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV	87 mV @ +25°c	
		+55/-100 mV (@ -40°C to +85°C)	65 mV @ -40°c 90 mV @ +85°c See Plot	



**SUMMARY TEST DATA
ON
HADA-D2002**

12	Input VSWR:	3.0:1 Max @ +23 dBm	1.85:1 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 @ 50 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

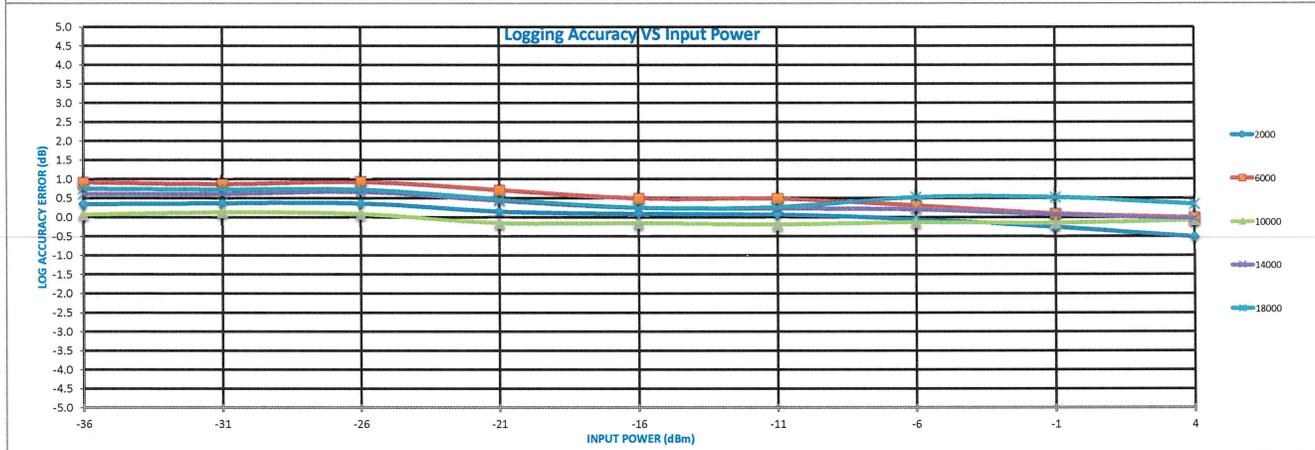
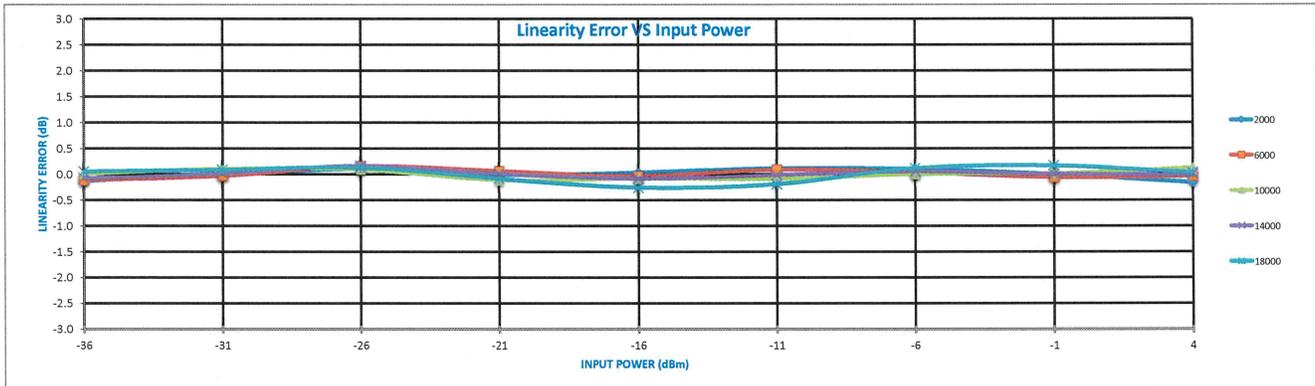
Output Voltage Offset= 0.087 Volts

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	INTERCEPT (mV)	2136	367	618	868	1107	1354	1603	1847	2087	2324	Measured Value (mV)	Error(mV)	MAX	MIN
	SLOPE (mV/dB)	49	-7	0	5	-1	1	5	5	0	-8				
6 GHz	INTERCEPT (mV)	2156	-0.13	-0.01	0.10	-0.02	0.02	0.11	0.09	0.00	-0.16	Measured Value (mV)	Error(mV)	MAX	MIN
	SLOPE (mV/dB)	48.8	0.34	0.36	0.36	0.14	0.08	0.06	-0.06	-0.26	-0.52				
10 GHz	INTERCEPT (mV)	2141	395	643	896	1135	1374	1624	1865	2104	2349	Measured Value (mV)	Error(mV)	MAX	MIN
	SLOPE (mV/dB)	49.7	-6	-2	7	3	-2	4	1	-3	-2				
14 GHz	INTERCEPT (mV)	2152	-0.12	-0.04	0.15	0.05	-0.04	0.08	0.03	-0.07	-0.04	Measured Value (mV)	Error(mV)	MAX	MIN
	SLOPE (mV/dB)	49.1	0.90	0.86	0.92	0.70	0.48	0.48	0.30	0.08	-0.02				
18 GHz	INTERCEPT (mV)	2168	353	606	854	1092	1342	1590	1843	2092	2346	Measured Value (mV)	Error(mV)	MAX	MIN
	SLOPE (mV/dB)	49.5	0	5	4	-6	-4	-5	0	0	6				
Flatness +/- dB	Max Video Output V	0.427	0.01	0.10	0.09	-0.12	-0.09	-0.10	-0.01	0.01	0.12	Measured Value (mV)	Error(mV)	MAX	MIN
	Min Video Output V	0.353	0.06	0.12	0.08	-0.16	-0.16	-0.20	-0.14	-0.16	-0.08				
Logging Linearity vs Frequency	MAX	0.395	0.630	0.883	1.121	1.362	1.611	1.860	2.103	2.348	Measured Value (mV)	Error(mV)	MAX	MIN	
	MIN	0.353	0.606	0.866	1.121	1.362	1.611	1.860	2.103	2.348					LINEARITY ERROR (dB)
Logging Accuracy vs Frequency	MAX	0.427	0.376	0.427	0.437	0.325	0.345	0.335	0.396	0.437	Measured Value (mV)	Error(mV)	MAX	MIN	
	MIN	0.395	0.643	0.896	1.135	1.374	1.624	1.876	2.126	2.367					LINEARITY ERROR (dB)
Logging Linearity Error (dB)	MAX	0.353	0.606	0.854	1.092	1.342	1.590	1.843	2.087	2.324	Measured Value (mV)	Error(mV)	MAX	MIN	
	MIN	0.353	0.606	0.854	1.092	1.342	1.590	1.843	2.087	2.324					LOGGING ACCURACY ERROR (dB)



SUMMARY TEST DATA ON HADA-D2002

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



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 #2

Output Voltage Offset= 0.065 Volts

Frequency	INTERCEPT (mV)	2134
2 GHz	SLOPE (mV/dB)	48.8

Frequency	INTERCEPT (mV)	2152
6 GHz	SLOPE (mV/dB)	48.5

Frequency	INTERCEPT (mV)	2138
10 GHz	SLOPE (mV/dB)	49.5

Frequency	INTERCEPT (mV)	2153
14 GHz	SLOPE (mV/dB)	49

Frequency	INTERCEPT (mV)	2159
18 GHz	SLOPE (mV/dB)	49.6

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

	-36	-31	-26	-21	-16	-11	-6	-1	4
373	613	868	1111	1355	1615	1852	2082	2311	
-5	-9	2	2	2	18	11	-3	-18	
-0.10	-0.18	0.05	0.03	0.03	0.37	0.22	-0.06	-0.36	
0.46	0.26	0.36	0.22	0.10	0.30	0.04	-0.36	-0.78	
399	638	895	1140	1376	1635	1870	2096	2333	
-6	-10	4	7	0	17	9	-8	-13	
-0.13	-0.21	0.09	0.14	0.00	0.34	0.19	-0.16	-0.27	
0.98	0.76	0.90	0.80	0.52	0.70	0.40	-0.08	-0.34	
355	600	854	1095	1344	1603	1847	2085	2329	
-1	-4	3	-3	-2	10	6	-3	-6	
-0.02	-0.07	0.06	-0.07	-0.04	0.20	0.13	-0.06	-0.13	
0.10	0.00	0.08	-0.10	-0.12	0.06	-0.06	-0.30	-0.42	
385	627	884	1128	1365	1627	1868	2100	2338	
-4	-7	5	4	-4	13	9	-4	-11	
-0.09	-0.15	0.10	0.08	-0.08	0.26	0.18	-0.08	-0.22	
0.70	0.54	0.68	0.56	0.30	0.54	0.36	0.00	-0.24	
377	621	875	1117	1354	1616	1873	2110	2353	
2	-2	4	-1	-12	2	11	0	-4	
0.04	-0.04	0.09	-0.03	-0.25	0.04	0.23	0.01	-0.09	
0.54	0.42	0.50	0.34	0.08	0.32	0.46	0.20	0.06	
0.448	0.387	0.418	0.459	0.326	0.326	0.265	0.285	0.428	
0.399	0.638	0.895	1.140	1.376	1.635	1.873	2.110	2.353	
0.355	0.600	0.854	1.095	1.344	1.603	1.847	2.082	2.311	

RF Input Power (dBm)

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.37 -0.36
LOGGING ACCURACY (dB)	0.46 -0.78

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.34 -0.27
LOGGING ACCURACY (dB)	0.98 -0.34

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.20 -0.13
LOGGING ACCURACY (dB)	0.10 -0.42

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.26 -0.22
LOGGING ACCURACY (dB)	0.70 -0.24

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.23 -0.25
LOGGING ACCURACY (dB)	0.54 0.06

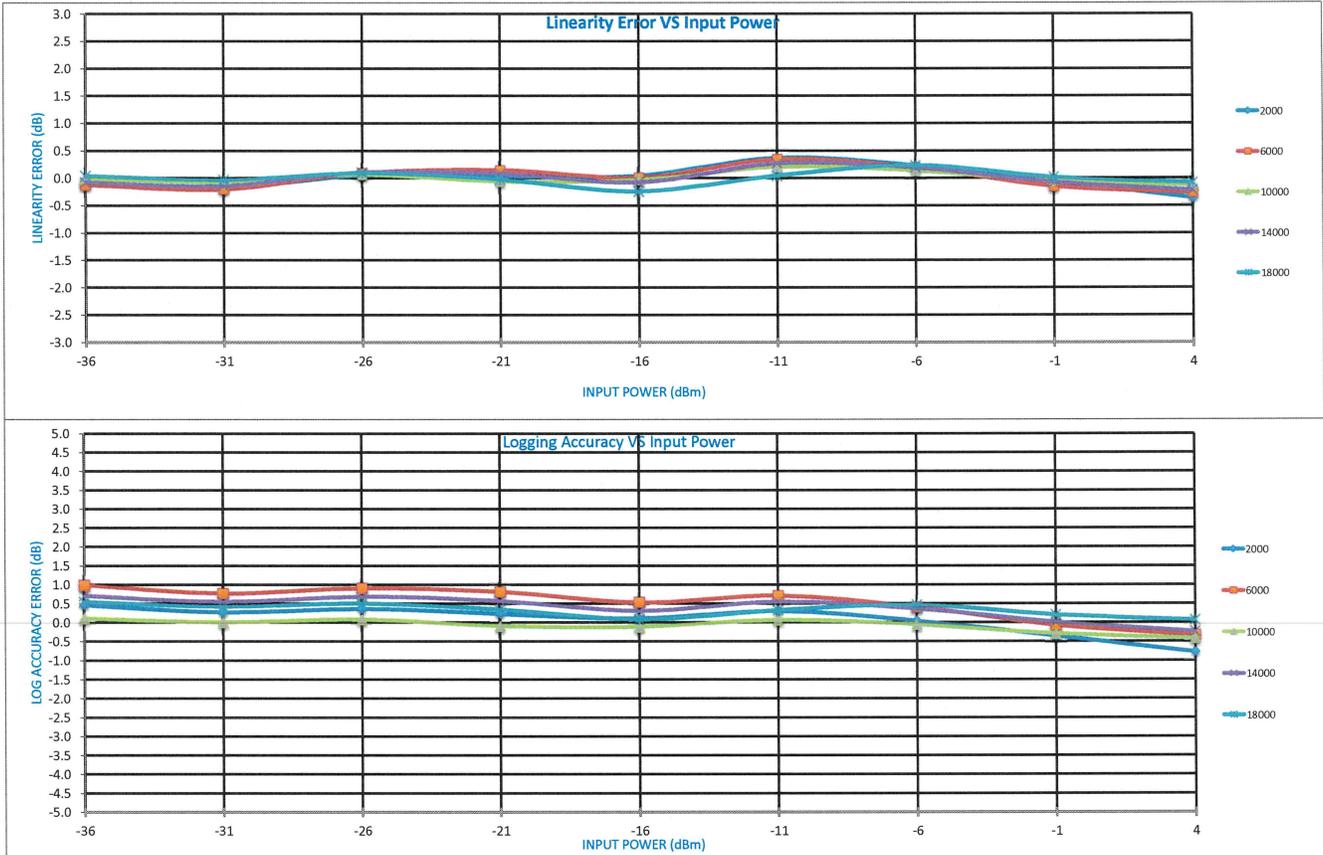
Logging Linearity vs Frequency	Error(dB)
Error (mV)	MAX MIN
LOGGING LINEARITY ERROR (dB)	0.37 -0.36

Logging Accuracy vs Frequency	Error(dB)
Error (mV)	MAX MIN
LOGGING ACCURACY ERROR (dB)	0.98 -0.78



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



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

GRAPH #3

Output Voltage Offset= 0.09 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	2103	49.1	332	589	830	1067	1316	1553	1807	2056	2306				
			-3	9	4	-5	-1	-10	-2	2	6		MAX	MIN	
			-0.06	0.17	0.08	-0.10	-0.03	-0.20	-0.03	0.04	0.13		LINEARITY ERROR (dB)	0.17	-0.20
			-0.36	-0.22	-0.40	-0.66	-0.68	-0.94	-0.86	-0.88	-0.88		LOGGING ACCURACY (dB)	-0.22	-0.94
6 GHz	2130	49	363	618	863	1098	1340	1579	1831	2080	2338				
			-2	8	8	-3	-6	-12	-5	-1	12		MAX	MIN	
			-0.05	0.15	0.15	-0.05	-0.11	-0.24	-0.09	-0.01	0.25		LINEARITY ERROR (dB)	0.25	-0.24
			0.26	0.36	0.26	-0.04	-0.20	-0.42	-0.38	-0.40	-0.24		LOGGING ACCURACY (dB)	0.36	-0.42
10 GHz	2112	49.9	321	578	818	1055	1306	1543	1806	2065	2333				
			5	13	3	-9	-8	-20	-7	2	21		MAX	MIN	
			0.11	0.26	0.06	-0.19	-0.16	-0.41	-0.14	0.05	0.42		LINEARITY ERROR (dB)	0.42	-0.41
			-0.58	-0.44	-0.64	-0.90	-0.88	-1.14	-0.88	-0.70	-0.34		LOGGING ACCURACY (dB)	-0.34	-1.14
14 GHz	2112	49.1	342	599	842	1077	1320	1557	1815	2066	2319				
			-2	9	7	-4	-6	-15	-2	3	10		MAX	MIN	
			-0.04	0.19	0.14	-0.08	-0.13	-0.30	-0.05	0.06	0.21		LINEARITY ERROR (dB)	0.21	-0.30
			-0.16	-0.02	-0.16	-0.46	-0.60	-0.86	-0.70	-0.68	-0.62		LOGGING ACCURACY (dB)	-0.02	-0.86
18 GHz	2122	49.5	344	601	840	1075	1318	1556	1830	2086	2326				
			3	13	4	-8	-13	-22	5	13	6		MAX	MIN	
			0.06	0.25	0.08	-0.17	-0.26	-0.45	0.09	0.27	0.12		LINEARITY ERROR (dB)	0.27	-0.45
			-0.12	0.02	-0.20	-0.50	-0.64	-0.88	-0.40	-0.28	-0.48		LOGGING ACCURACY (dB)	0.02	-0.88
Flatness +/- dB			0.426	0.405	0.456	0.436	0.345	0.365	0.253	0.304	0.324				
Max Video Output V			0.363	0.618	0.863	1.098	1.340	1.579	1.831	2.086	2.338				
Min Video Output V			0.321	0.578	0.818	1.055	1.306	1.543	1.806	2.056	2.306				

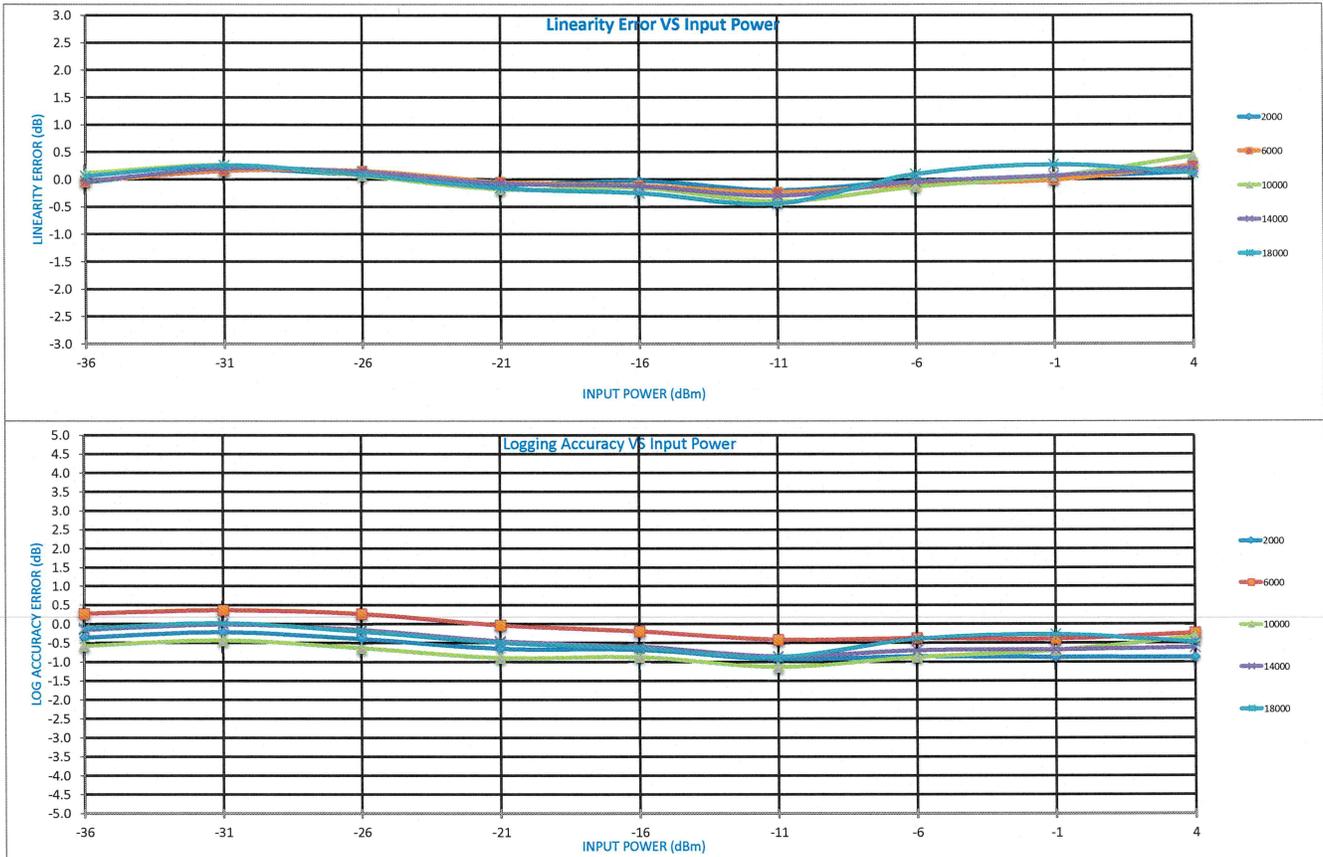
Logging Linearity vs Frequency	Error(dB)
	MAX MIN
LOGGING LINEARITY ERROR (dB)	0.42 -0.45

Logging Accuracy vs Frequency	Error(dB)
	MAX MIN
LOGGING ACCURACY ERROR (dB)	0.36 -1.14



SUMMARY TEST DATA ON HADA-D2002

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

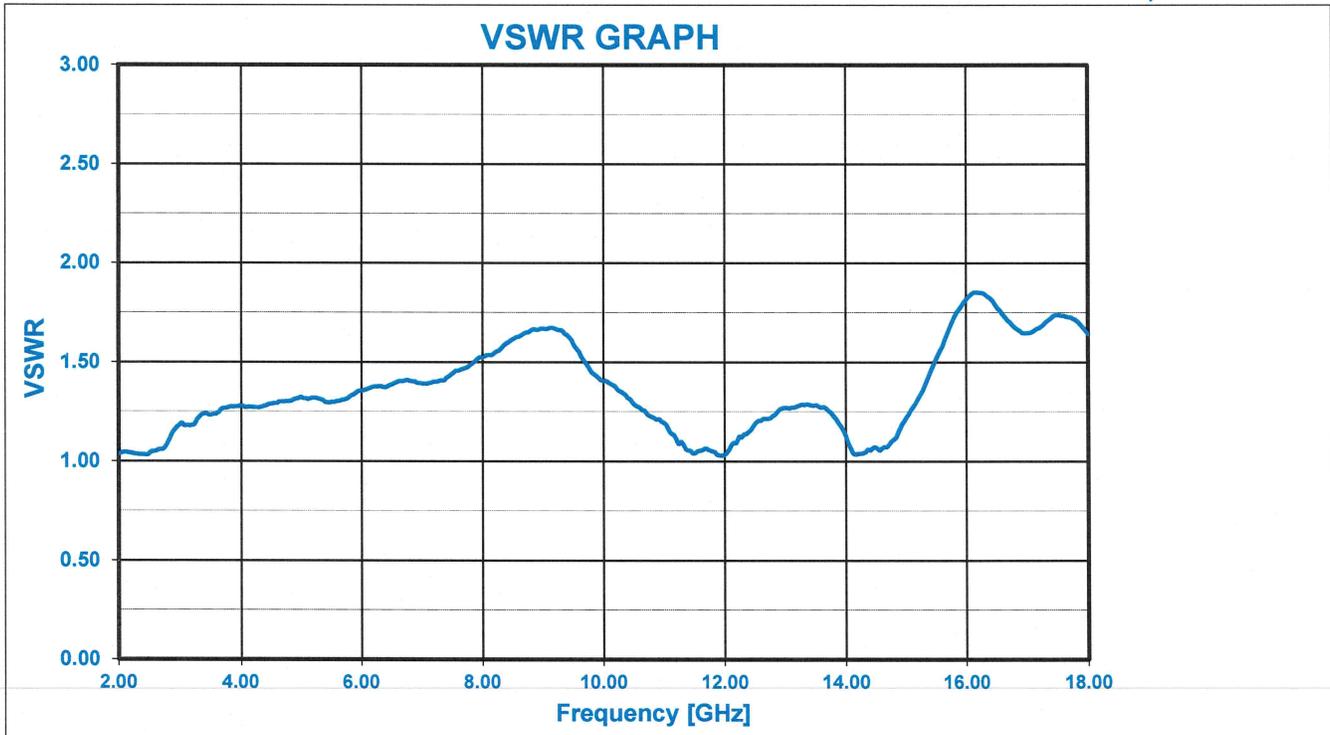




SUMMARY TEST DATA ON HADA-D2002

Model Number: HADA-D2002
Serial Number: PL49127

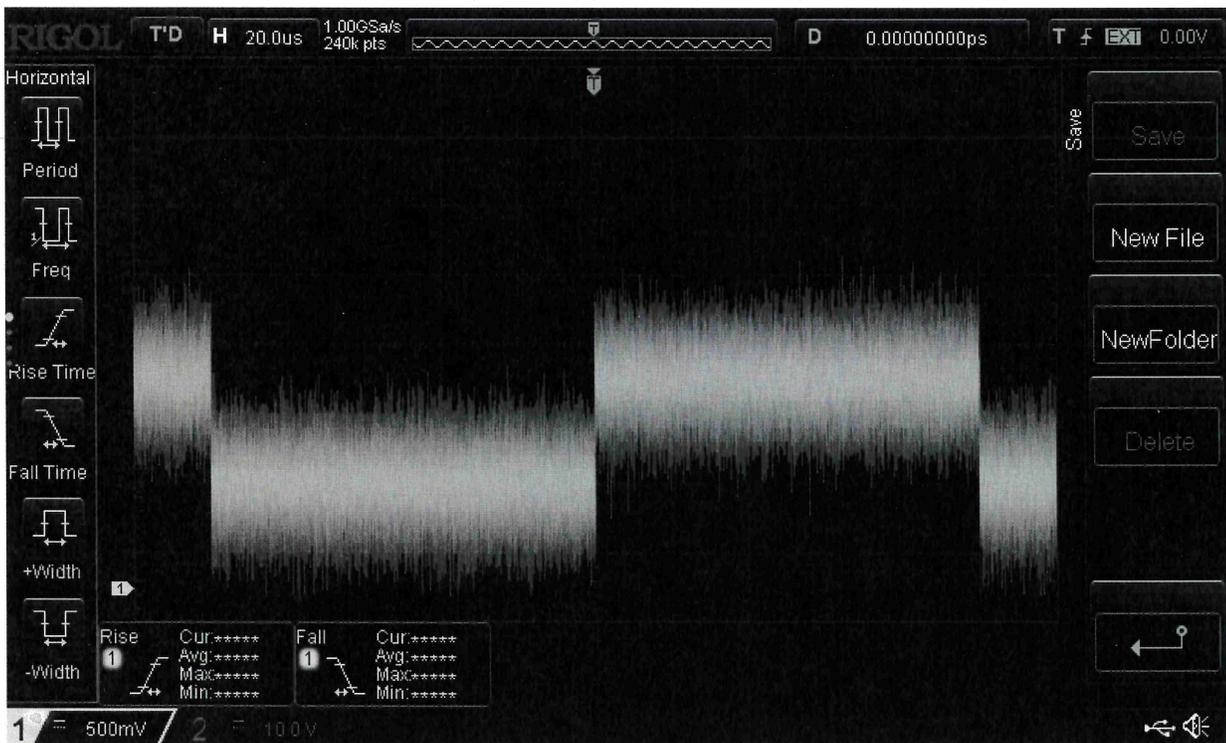
Temperature: +25C





**SUMMARY TEST DATA
ON
HADA-D2002**

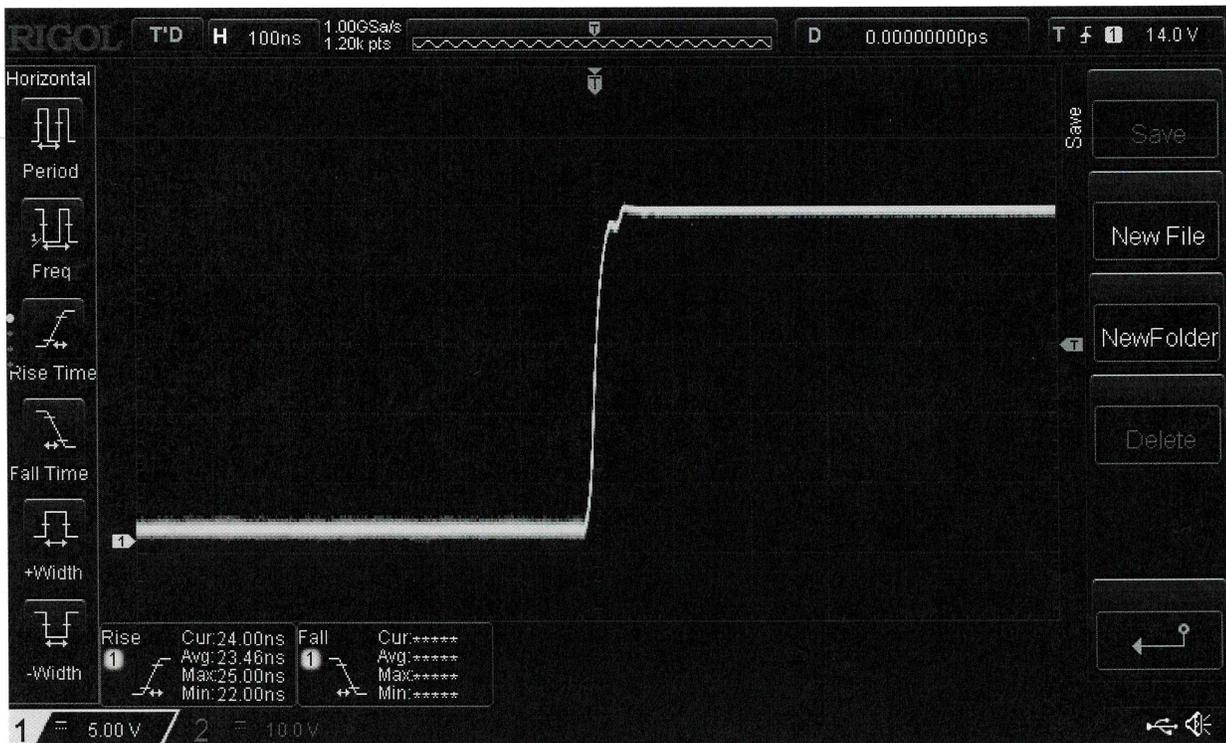
TSS = -42 dBm





**SUMMARY TEST DATA
ON
HADA-D2002**

Rise Time = 24 ns





**SUMMARY TEST DATA
ON
HADA-D2002**

Fall Time = 205 ns

