



**SUMMARY TEST DATA
ON
HADA-D2002**

PL46307/2426

Customer: _____	Tested By: <u>Anton L.</u>
SO No: _____	Temperature: <u>+25°C -40°C +85°C</u>
Model No: <u>HADA-D2002</u>	Date: <u>6/25/24</u>
Serial No: <u>PL46307/2426</u>	Drawing No: <u>27620222</u> Rev: <u>A1</u>

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°	-41.5 dBm See Plot	
3	Frequency Flatness:	±1.65 dB Max	±0.847 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)* [-36 dBm ≤ INPUT ≤ +4 dBm] ±3.1 dB Max (Note)	-0.16 / -0.52 dB +0.52 / -1.78 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	+0.36 / -0.29 dB +0.52 / -0.49 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%)	26.3 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	155.9 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	77 mV @ +25°C 26 mV @ -40°C 77 mV @ +85°C	
12	Input VSWR:	3.0:1 Max @ +23 dBm	1.90:1 See Plot	

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13	Propagation Delay:	60 ns Max	45 ns	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-62 (or equivalent), 5 meter, 93±0.5 Ohms terminated.

QA/QC Approval: K. [Signature] Date: 6-25-24



**SUMMARY TEST DATA
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PL46307/2426

Log Linearity and Log Accuracy @ +25°C

Output Voltage Offset= 0.077 Volts

Frequency			
2 GHz	INTERCEPT (mV)	2152	
	SLOPE (mV/dB)	50.6	

6 GHz	INTERCEPT (mV)	2159	
	SLOPE (mV/dB)	49.9	

10 GHz	INTERCEPT (mV)	2136	
	SLOPE (mV/dB)	50.1	

14 GHz	INTERCEPT (mV)	2133	
	SLOPE (mV/dB)	50.1	

18 GHz	INTERCEPT (mV)	2112	
	SLOPE (mV/dB)	50.7	

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

	-36	-31	-26	-21	-16	-11	-6	-1	4	RF Input Power (dBm)		
	329	586	833	1076	1351	1614	1848	2099	2347	Measured Value (mV)	Error(dB)	
	-2	2	-4	-14	8	18	-1	-3	-7	Error (mV)	MAX	MIN
	-0.03	0.05	-0.07	-0.27	0.17	0.36	-0.01	-0.05	-0.15	LINEARITY ERROR (dB)	0.36	-0.27
	-0.42	-0.29	-0.34	-0.48	0.02	0.28	-0.04	-0.02	-0.06	LOGGING ACCURACY (dB)	0.28	-0.48
	355	610	863	1106	1368	1626	1856	2106	2352	Measured Value (mV)	Error(dB)	
	-6	-1	2	-5	8	16	-4	-3	-7	Error (mV)	MAX	MIN
	-0.13	-0.02	0.04	-0.09	0.16	0.32	-0.07	-0.07	-0.14	LINEARITY ERROR (dB)	0.32	-0.14
	0.10	0.20	0.26	0.12	0.36	0.52	0.12	0.12	0.04	LOGGING ACCURACY (dB)	0.52	0.04
	329	587	836	1078	1331	1591	1824	2086	2342	Measured Value (mV)	Error(dB)	
	-2	5	3	-5	-3	7	-11	0	6	Error (mV)	MAX	MIN
	-0.04	0.10	0.07	-0.10	-0.06	0.13	-0.22	0.01	0.11	LINEARITY ERROR (dB)	0.13	-0.22
	-0.42	-0.26	-0.28	-0.44	-0.38	-0.18	-0.52	-0.28	-0.16	LOGGING ACCURACY (dB)	-0.16	-0.52
	325	583	832	1074	1343	1600	1826	2082	2327	Measured Value (mV)	Error(dB)	
	-6	2	0	-8	11	17	-7	-1	-7	Error (mV)	MAX	MIN
	-0.12	0.03	0.00	-0.16	0.21	0.34	-0.14	-0.03	-0.13	LINEARITY ERROR (dB)	0.34	-0.16
	-0.50	-0.34	-0.36	-0.52	-0.14	0.00	-0.48	-0.36	-0.46	LOGGING ACCURACY (dB)	0.00	-0.52
	291	548	788	1033	1304	1561	1810	2068	2309	Measured Value (mV)	Error(dB)	
	3	7	-7	-15	3	6	2	6	-6	Error (mV)	MAX	MIN
	0.06	0.14	-0.13	-0.29	0.05	0.12	0.04	0.13	-0.12	LINEARITY ERROR (dB)	0.14	-0.29
	-1.18	-1.04	-1.24	-1.34	-0.92	-0.78	-0.80	-0.64	-0.82	LOGGING ACCURACY (dB)	-0.64	-1.34
	0.636	0.617	0.746	0.726	0.636	0.646	0.457	0.378	0.428			
	0.355	0.610	0.863	1.106	1.368	1.626	1.856	2.106	2.352			
	0.291	0.548	0.788	1.033	1.304	1.561	1.810	2.068	2.309			

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
LOGGING LINEARITY ERROR (dB)	0.36	-0.29

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
LOGGING ACCURACY ERROR (dB)	0.52	-1.34

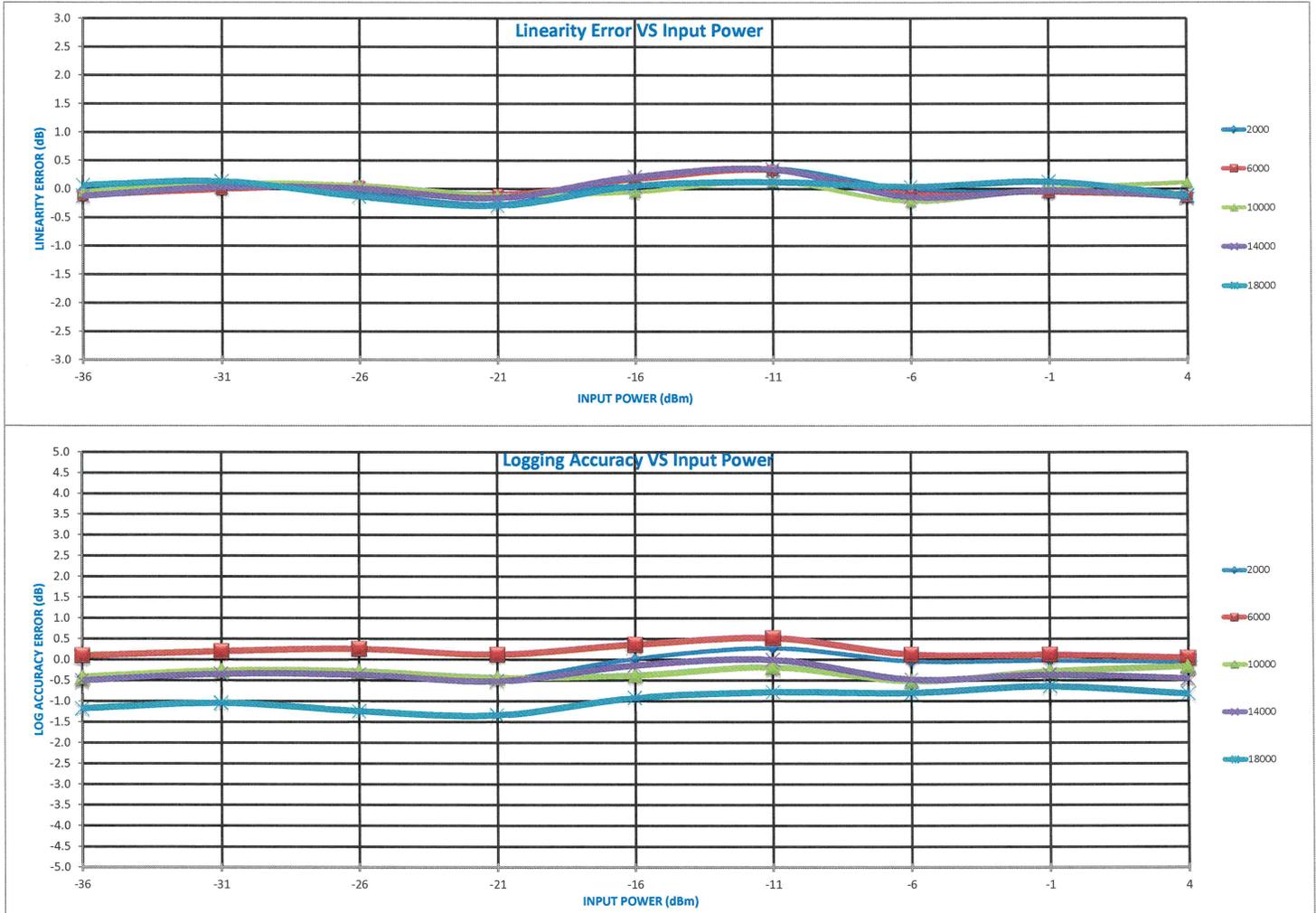
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SUMMARY TEST DATA
ON
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PL46307/2426

Log Linearity and Log Accuracy @ +25°C



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**SUMMARY TEST DATA
ON
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Log Linearity and Log Accuracy @ -40°C

Output Voltage Offset= 0.026 Volts

Frequency

2 GHz	INTERCEPT (mV)	2116
	SLOPE (mV/dB)	49.9

6 GHz	INTERCEPT (mV)	2125
	SLOPE (mV/dB)	49.3

10 GHz	INTERCEPT (mV)	2103
	SLOPE (mV/dB)	49.4

14 GHz	INTERCEPT (mV)	2116
	SLOPE (mV/dB)	49.5

18 GHz	INTERCEPT (mV)	2083
	SLOPE (mV/dB)	50.2

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

	-36	-31	-26	-21	-16	-11	-6	-1	4	RF Input Power (dBm)		
	316	559	813	1058	1332	1593	1831	2062	2292		Measured Value (mV)	Error(dB)
	-2	-9	-5	-10	15	26	14	-5	-24		Error (mV)	MAX MIN
	-0.05	-0.18	-0.10	-0.19	0.29	0.52	0.28	-0.09	-0.49		LINEARITY ERROR (dB)	0.52 -0.49
	-0.68	-0.82	-0.74	-0.84	-0.36	-0.14	-0.38	-0.76	-1.16		LOGGING ACCURACY (dB)	-0.14 -1.16
	343	585	843	1092	1351	1606	1842	2069	2299		Measured Value (mV)	Error(dB)
	-8	-12	-1	2	14	23	12	-7	-24		Error (mV)	MAX MIN
	-0.16	-0.25	-0.01	0.04	0.29	0.46	0.25	-0.14	-0.48		LINEARITY ERROR (dB)	0.46 -0.48
	-0.14	-0.30	-0.14	-0.16	0.02	0.12	-0.16	-0.62	-1.02		LOGGING ACCURACY (dB)	0.12 -1.02
	319	564	820	1066	1316	1575	1810	2052	2288		Measured Value (mV)	Error(dB)
	-5	-7	2	1	4	16	3	-2	-13		Error (mV)	MAX MIN
	-0.09	-0.14	0.04	0.02	0.08	0.32	0.07	-0.03	-0.26		LINEARITY ERROR (dB)	0.32 -0.26
	-0.62	-0.72	-0.60	-0.68	-0.68	-0.50	-0.80	-0.96	-1.24		LOGGING ACCURACY (dB)	-0.50 -1.24
	326	570	827	1074	1341	1595	1827	2061	2291		Measured Value (mV)	Error(dB)
	-7	-11	-1	-2	17	24	8	-5	-23		Error (mV)	MAX MIN
	-0.15	-0.22	-0.03	-0.04	0.35	0.48	0.17	-0.11	-0.46		LINEARITY ERROR (dB)	0.48 -0.46
	-0.48	-0.60	-0.46	-0.52	-0.18	-0.10	-0.46	-0.78	-1.18		LOGGING ACCURACY (dB)	-0.10 -1.18
	275	525	773	1015	1289	1546	1796	2039	2261		Measured Value (mV)	Error(dB)
	-1	-2	-5	-14	9	15	14	6	-23		Error (mV)	MAX MIN
	-0.01	-0.03	-0.10	-0.28	0.18	0.30	0.28	0.12	-0.46		LINEARITY ERROR (dB)	0.30 -0.46
	-1.50	-1.50	-1.54	-1.70	-1.22	-1.08	-1.08	-1.22	-1.78		LOGGING ACCURACY (dB)	-1.08 -1.78
	0.684	0.604	0.705	0.775	0.624	0.604	0.463	0.302	0.382			
	0.343	0.585	0.843	1.092	1.351	1.606	1.842	2.069	2.299			
	0.275	0.525	0.773	1.015	1.289	1.546	1.796	2.039	2.261			

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
LOGGING LINEARITY ERROR (dB)	0.52	-0.49

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
LOGGING ACCURACY ERROR (dB)	0.12	-1.78

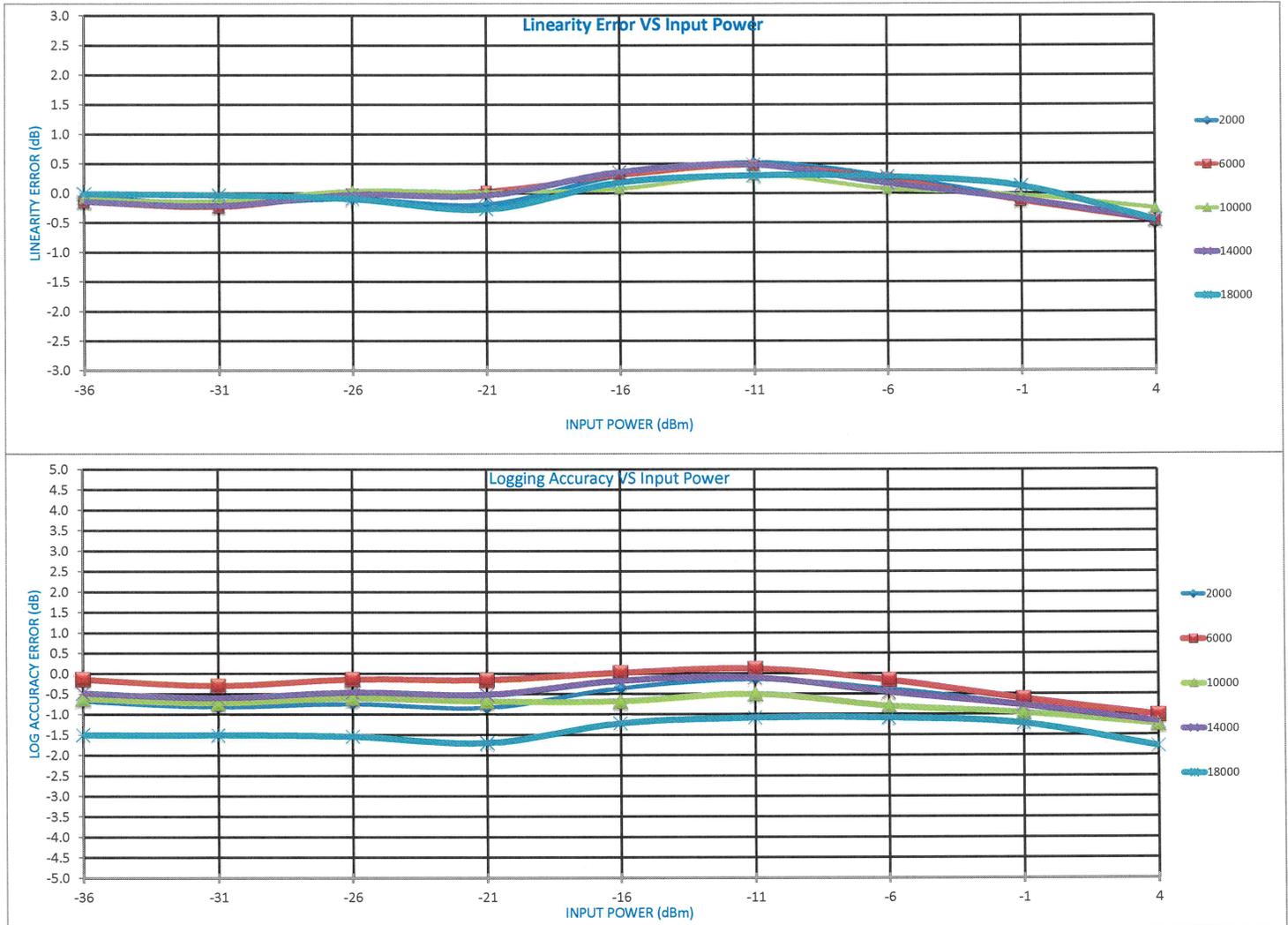
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Log Linearity and Log Accuracy @ -40°C



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**SUMMARY TEST DATA
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PL46307/2426

Log Linearity and Log Accuracy @ +85°C

Output Voltage Offset= 0.077 Volts

Frequency

2 GHz	INTERCEPT (mV)	2148
	SLOPE (mV/dB)	51.2

6 GHz	INTERCEPT (mV)	2159
	SLOPE (mV/dB)	50.5

10 GHz	INTERCEPT (mV)	2136
	SLOPE (mV/dB)	50.8

14 GHz	INTERCEPT (mV)	2116
	SLOPE (mV/dB)	50.5

18 GHz	INTERCEPT (mV)	2095
	SLOPE (mV/dB)	51

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

	-36	-31	-26	-21	-16	-11	-6	-1	4	RF Input Power (dBm)		
	302	572	817	1062	1334	1596	1832	2090	2359	Measured Value (mV)	Error(dB)	
	-4	10	-1	-12	5	11	-9	-7	7	Error (mV)	MAX	MIN
	-0.08	0.19	-0.02	-0.23	0.09	0.21	-0.17	-0.13	0.13	LINEARITY ERROR (dB)	0.21	-0.23
	-0.96	-0.56	-0.66	-0.76	-0.32	-0.08	-0.36	-0.20	0.18	LOGGING ACCURACY (dB)	0.18	-0.96
	332	602	851	1092	1354	1613	1843	2102	2370	Measured Value (mV)	Error(dB)	
	-9	9	5	-6	3	9	-13	-7	9	Error (mV)	MAX	MIN
	-0.17	0.18	0.10	-0.13	0.06	0.19	-0.26	-0.14	0.17	LINEARITY ERROR (dB)	0.19	-0.26
	-0.36	0.04	0.02	-0.16	0.08	0.26	-0.14	0.04	0.40	LOGGING ACCURACY (dB)	0.40	-0.36
	305	575	820	1063	1315	1575	1813	2080	2361	Measured Value (mV)	Error(dB)	
	-2	14	5	-6	-8	-2	-18	-5	22	Error (mV)	MAX	MIN
	-0.04	0.27	0.10	-0.12	-0.16	-0.04	-0.35	-0.10	0.44	LINEARITY ERROR (dB)	0.44	-0.35
	-0.90	-0.50	-0.60	-0.74	-0.70	-0.50	-0.74	-0.40	0.22	LOGGING ACCURACY (dB)	0.22	-0.90
	290	559	803	1048	1314	1570	1800	2058	2325	Measured Value (mV)	Error(dB)	
	-7	9	1	-7	7	10	-13	-7	7	Error (mV)	MAX	MIN
	-0.14	0.18	0.01	-0.14	0.13	0.20	-0.25	-0.14	0.15	LINEARITY ERROR (dB)	0.20	-0.25
	-1.20	-0.82	-0.94	-1.04	-0.72	-0.60	-1.00	-0.84	-0.50	LOGGING ACCURACY (dB)	-0.50	-1.20
	264	525	765	1013	1279	1536	1787	2044	2306	Measured Value (mV)	Error(dB)	
	4	10	-5	-12	-1	1	-3	0	7	Error (mV)	MAX	MIN
	0.07	0.19	-0.10	-0.24	-0.02	0.02	-0.05	-0.01	0.13	LINEARITY ERROR (dB)	0.19	-0.24
	-1.72	-1.50	-1.70	-1.74	-1.42	-1.28	-1.26	-1.12	-0.88	LOGGING ACCURACY (dB)	-0.88	-1.74
	0.669	0.758	0.847	0.778	0.738	0.758	0.551	0.571	0.630			
	0.332	0.602	0.851	1.092	1.354	1.613	1.843	2.102	2.370			
	0.264	0.525	0.765	1.013	1.279	1.536	1.787	2.044	2.306			

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
LOGGING LINEARITY ERROR (dB)	0.44	-0.35

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
LOGGING ACCURACY ERROR (dB)	0.40	-1.74

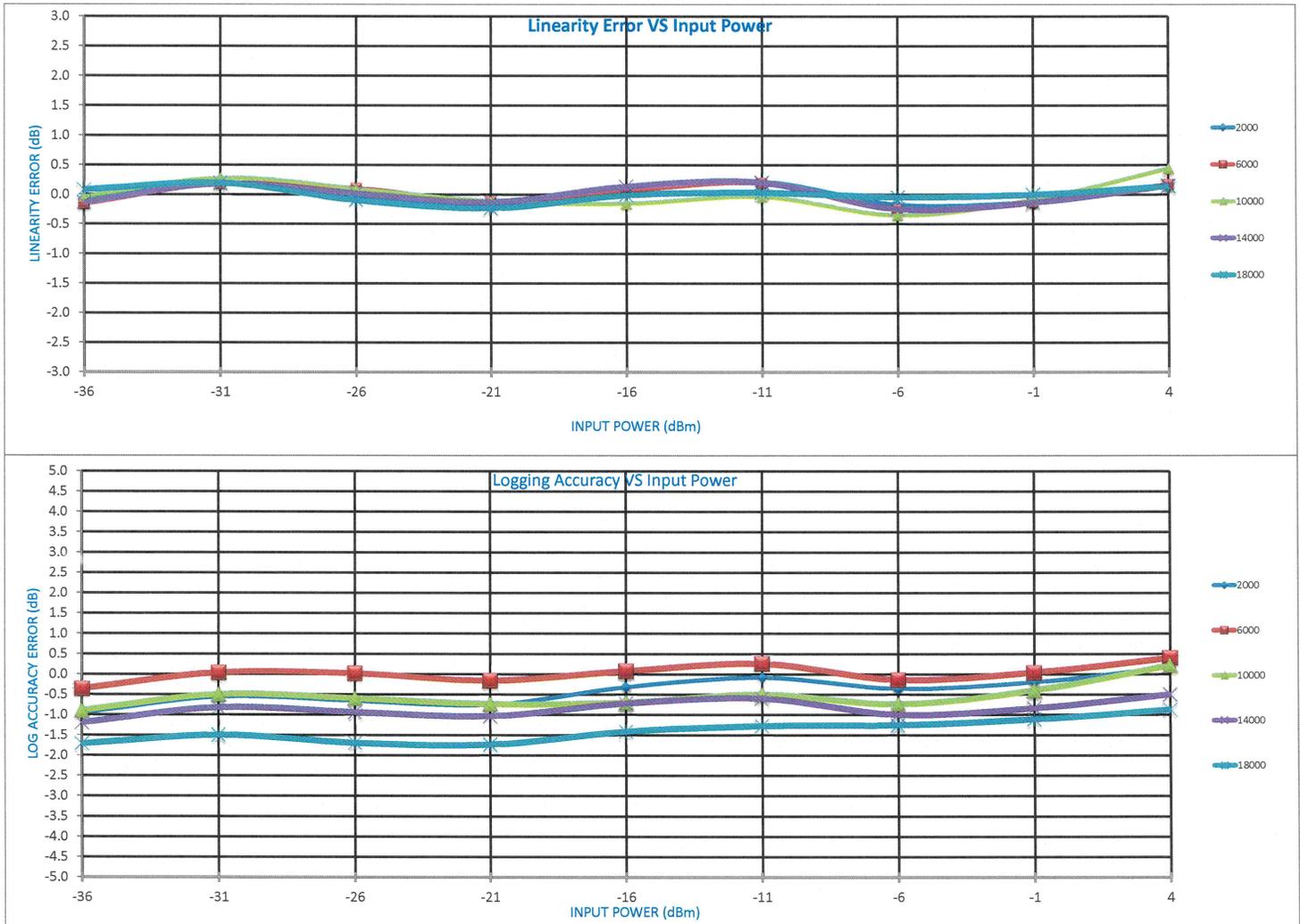
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ON
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Log Linearity and Log Accuracy @ +85°C



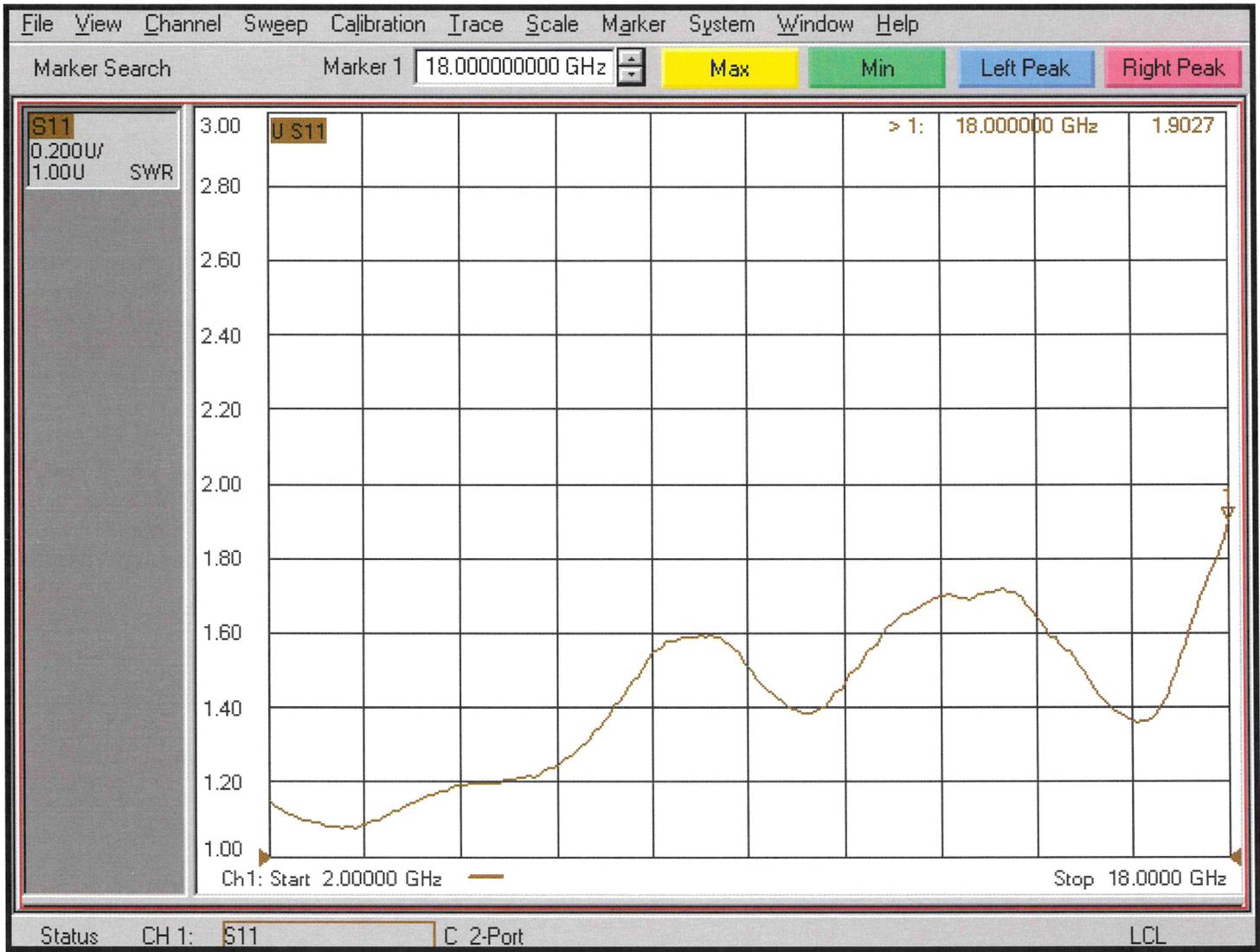
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VSWR 1.90:1



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**SUMMARY TEST DATA
ON
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TSS @ -41.5 dBm



MSO-X 3034T, MY59241076, 07.50.2021102830: Fri Jun 21 07:07:58 2024



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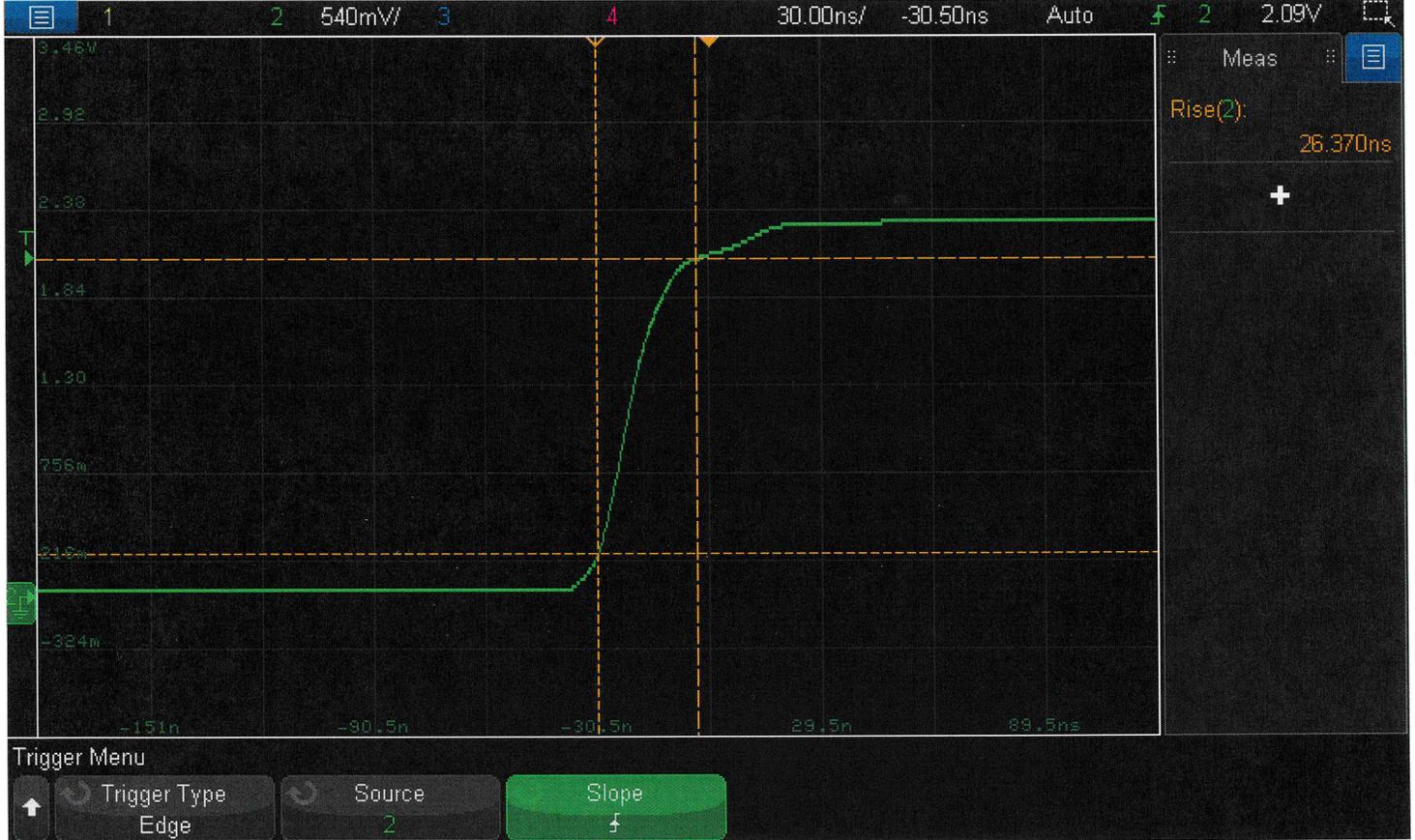
SUMMARY TEST DATA
ON
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PL46307/2426

Rise Time 26.3 ns



MSO-X 3034T, MY59241076, 07.50.2021102830: Fri Jun 21 06:48:11 2024



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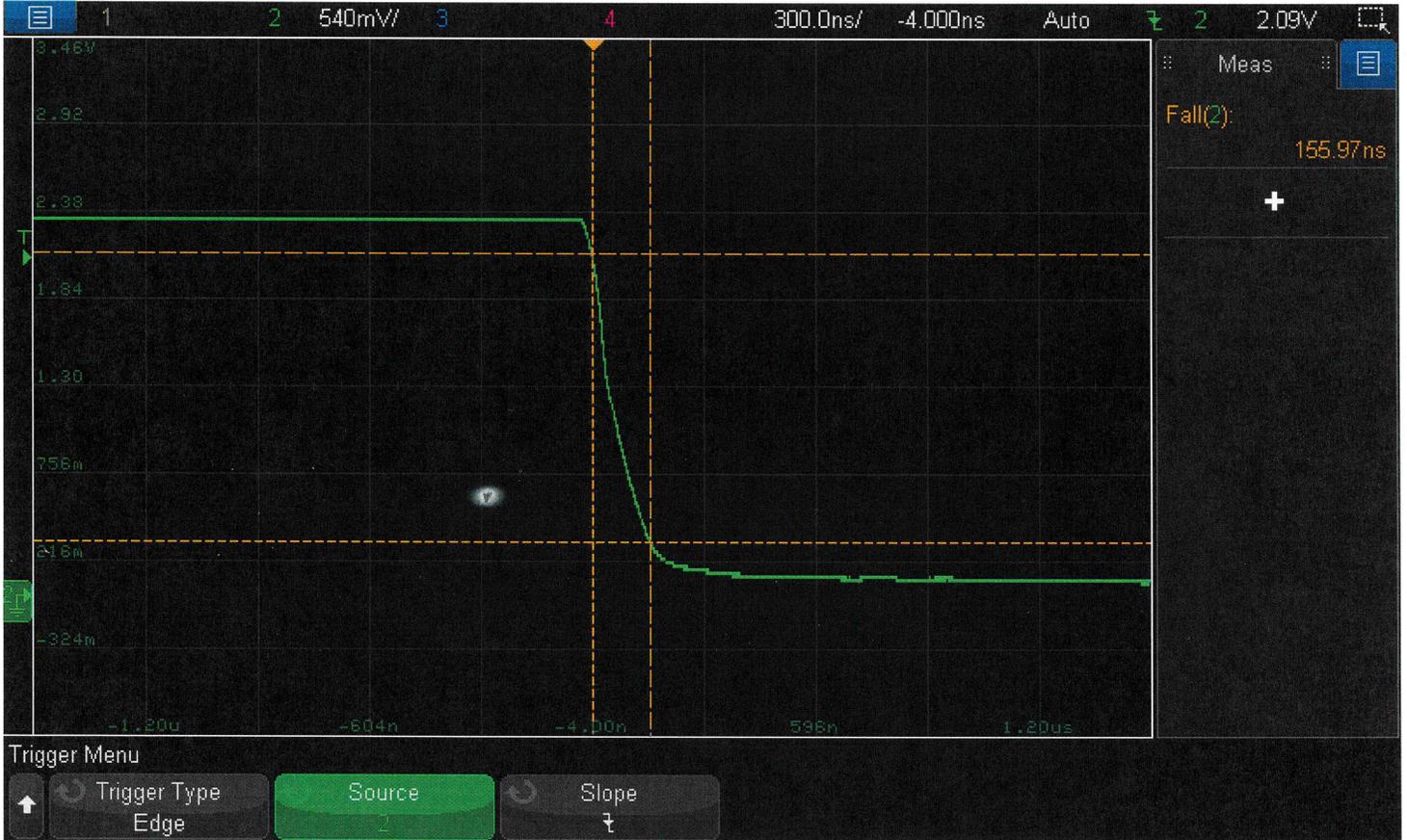
SUMMARY TEST DATA
ON
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PL46307/2426

Fall Time 155.9 ns



MSO-X 3034T, MY59241076, 07.50.2021102830: Fri Jun 21 06:27:19 2024



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