



**SUMMARY TEST DATA  
ON  
HADA-D2001**

PL45301/2415

Customer: _____	Tested By: <u>Anton L.</u>
SO No: _____	Temperature: <u>+25°C -40°C +85°C</u>
Model No: <u>HADA-D2001</u>	Date: <u>4/9/24</u>
Serial No: <u>PL45301/2415</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	<b>PMI</b> <b>QAS</b>
2	TSS:	-44 dBm Min @ -40°C to +85°	-45 dBm See Plot	
3	Frequency Flatness:	±0.75 dB Max	±0.2 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)	+0.42 / -0.22 dB +0.42 / -1.06 dB See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	+0.38 / -0.31 dB +0.42 / -0.40 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%)	21.8 ns See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	146 ns See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	+99 mV @ +25°C +89 mV @ -40°C +110 mV @ +85°C	
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.34:1 See Plot	
13	Propagation Delay:	60 ns Max	40 ns	

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14	Power Supply:	+12 ± 1VDC @ 125 mA Max -12 ± 1VDC @ 75 mA Max	115 mA 65 mA	PMI QA3
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. Inters

Date: 4-9-24

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Log Linearity and Log Accuracy @ +25°C

DC Offset= 0.099 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2341
	SLOPE (mV/dB)	50.3

1 GHz	INTERCEPT (mV)	2351
	SLOPE (mV/dB)	49.9

2 GHz	INTERCEPT (mV)	2358
	SLOPE (mV/dB)	50.1

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	334	588	829	1069	1342	1602	1825	2085	2349
	3	6	-4	-16	6	15	-13	-5	8
	0.06	0.12	-0.09	-0.31	0.12	0.30	-0.27	-0.09	0.16
	-0.32	-0.24	-0.42	-0.62	-0.16	0.04	-0.50	-0.30	-0.02
	353	606	849	1089	1362	1621	1843	2098	2350
	0	3	-4	-14	10	19	-9	-4	-1
	-0.01	0.06	-0.08	-0.27	0.19	0.38	-0.18	-0.07	-0.03
	0.06	0.12	-0.02	-0.22	0.24	0.42	-0.14	-0.04	0.00
	354	607	851	1091	1363	1621	1843	2106	2361
	1	4	-3	-14	3	15	-14	-1	3
	0.03	0.07	-0.06	-0.27	0.16	0.30	-0.27	-0.02	0.06
	-0.08	-0.14	-0.02	-0.18	-0.26	-0.32	-0.14	-0.12	-0.22
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10
	0.35	0.61	0.85	1.09	1.36	1.62	1.84	2.11	2.36
	0.33	0.59	0.83	1.07	1.34	1.60	1.83	2.09	2.35

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.30	-0.31
LOGGING ACCURACY (dB)	0.04	-0.62

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.38	-0.27
LOGGING ACCURACY (dB)	0.42	-0.22

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.30	-0.27
LOGGING ACCURACY (dB)	0.42	-0.18

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.38	-0.31

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.42	-0.62

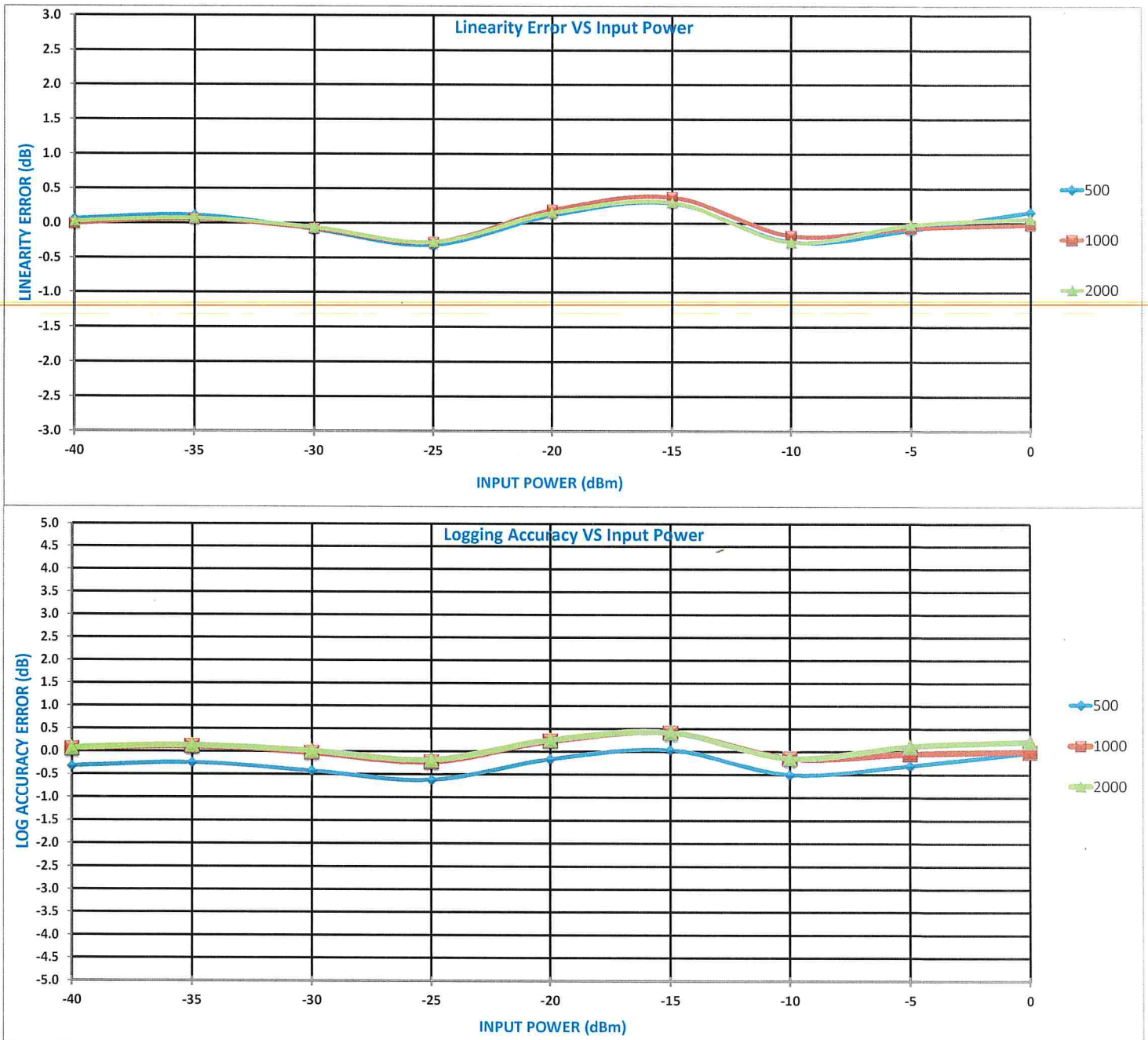
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Log Linearity and Log Accuracy @ +25°C



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

DC Offset= 0.089 V

Frequency

0.5 GHz	INTERCEPT (mV)	2298
	SLOPE (mV/dB)	49.2

1 GHz	INTERCEPT (mV)	2315
	SLOPE (mV/dB)	49.1

2 GHz	INTERCEPT (mV)	2315
	SLOPE (mV/dB)	49.3

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	346	568	809	1047	1319	1580	1799	2049	2300
	18	-6	-12	-20	6	21	-6	-3	2
	0.36	-0.13	-0.24	-0.40	0.12	0.42	-0.13	-0.05	0.04
	-0.08	-0.64	-0.82	-1.06	-0.62	-0.40	-1.02	-1.02	-1.00
	365	586	831	1071	1339	1598	1821	2069	2310
	15	-9	-10	-16	7	20	-2	0	-5
	0.31	-0.19	-0.20	-0.32	0.14	0.41	-0.05	0.00	-0.09
	0.30	-0.28	-0.38	-0.58	-0.22	-0.04	-0.58	-0.62	-0.80
	358	580	824	1063	1334	1594	1818	2067	2313
	17	-8	-11	-18	6	19	-3	-1	-2
	0.34	-0.16	-0.21	-0.37	0.12	0.39	-0.07	-0.02	-0.03
	0.16	-0.40	-0.32	-0.74	-0.32	-0.12	-0.64	-0.66	-0.74
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10
	0.37	0.59	0.83	1.07	1.34	1.60	1.82	2.07	2.31
	0.35	0.57	0.81	1.05	1.32	1.58	1.80	2.05	2.30

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.42	-0.40
LOGGING ACCURACY (dB)	-0.08	-1.06

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.41	-0.32
LOGGING ACCURACY (dB)	0.30	-0.80

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.39	-0.37
LOGGING ACCURACY (dB)	0.16	-0.74

Logging Linearity vs Frequency	Error(dB)	
TOTAL LOG LINEARITY (dB)	MAX	MIN
	0.42	-0.40

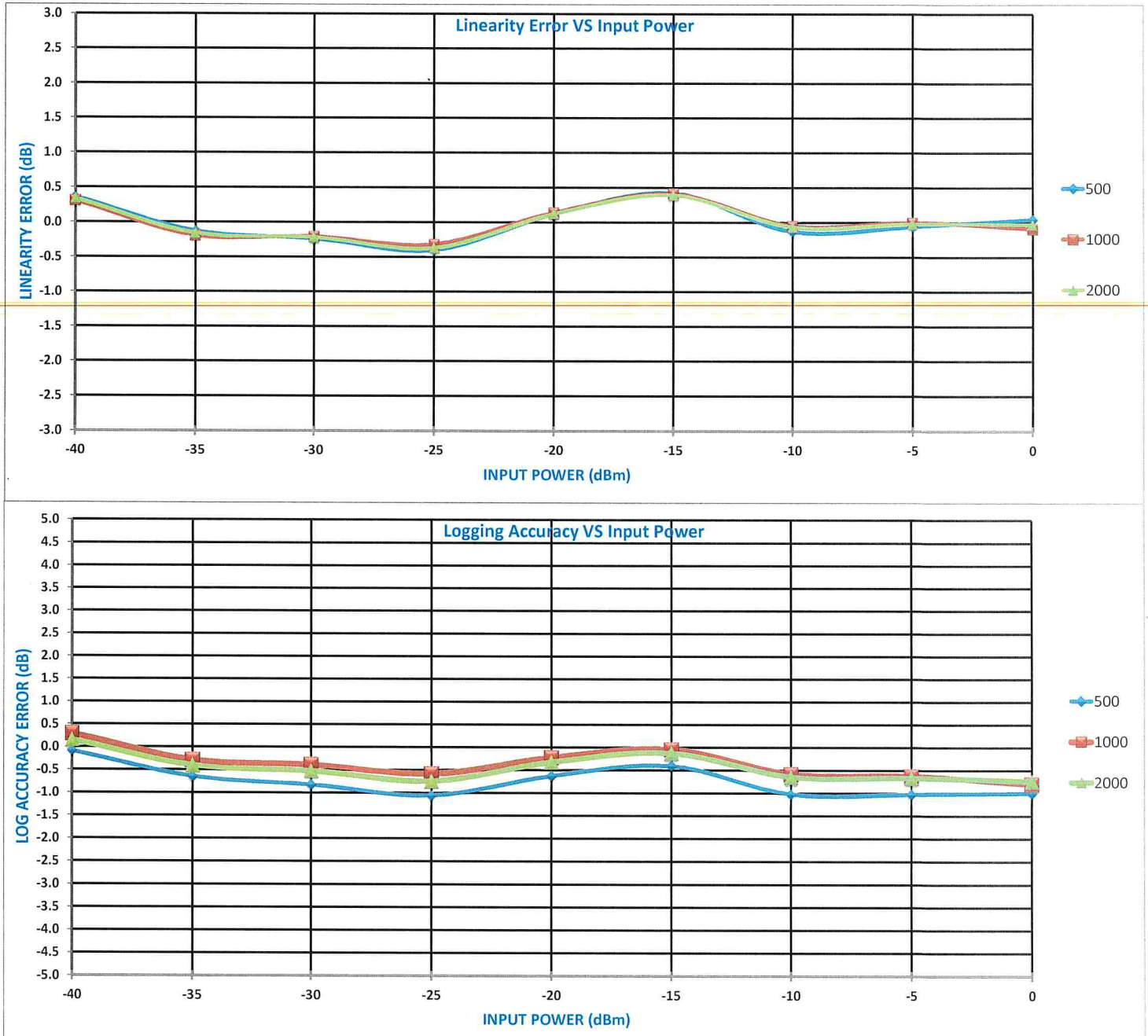
Logging Accuracy vs Frequency	Error(dB)	
TOTAL LOGGING ACCURACY (dB)	MAX	MIN
	0.30	-1.06



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Log Linearity and Log Accuracy @ -40°C



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## SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ +85°C

DC Offset= 0.110 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2325
	SLOPE (mV/dB)	50.1

1 GHz	INTERCEPT (mV)	2343
	SLOPE (mV/dB)	50

2 GHz	INTERCEPT (mV)	2344
	SLOPE (mV/dB)	50.3

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	322	578	814	1056	1328	1588	1813	2068	2332
	3	8	-7	-15	6	15	-10	-6	7
	0.05	0.16	-0.14	-0.31	0.12	0.30	-0.21	-0.12	0.14
	-0.56	-0.44	-0.72	-0.88	-0.44	-0.24	-0.74	-0.64	-0.36
	342	598	837	1078	1348	1607	1833	2093	2344
	1	6	-5	-14	6	15	-10	0	1
	0.01	0.13	-0.10	-0.28	0.12	0.29	-0.19	0.00	0.02
	-0.16	-0.04	-0.26	-0.44	-0.04	0.14	-0.34	-0.14	-0.12
	336	593	830	1071	1343	1603	1830	2091	2350
	3	9	-6	-16	4	13	-11	-2	6
	0.06	0.17	-0.12	-0.32	0.09	0.26	-0.22	-0.03	0.12
	-0.28	-0.14	-0.40	-0.58	-0.14	0.06	-0.40	-0.18	0.00
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
	0.34	0.60	0.84	1.08	1.35	1.61	1.83	2.09	2.35
	0.32	0.58	0.81	1.06	1.33	1.59	1.81	2.07	2.33

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.30	-0.31
LOGGING ACCURACY (dB)	-0.24	-0.88

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.29	-0.28
LOGGING ACCURACY (dB)	0.14	-0.44

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.26	-0.32
LOGGING ACCURACY (dB)	0.06	-0.58

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.30	-0.32

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.14	-0.88

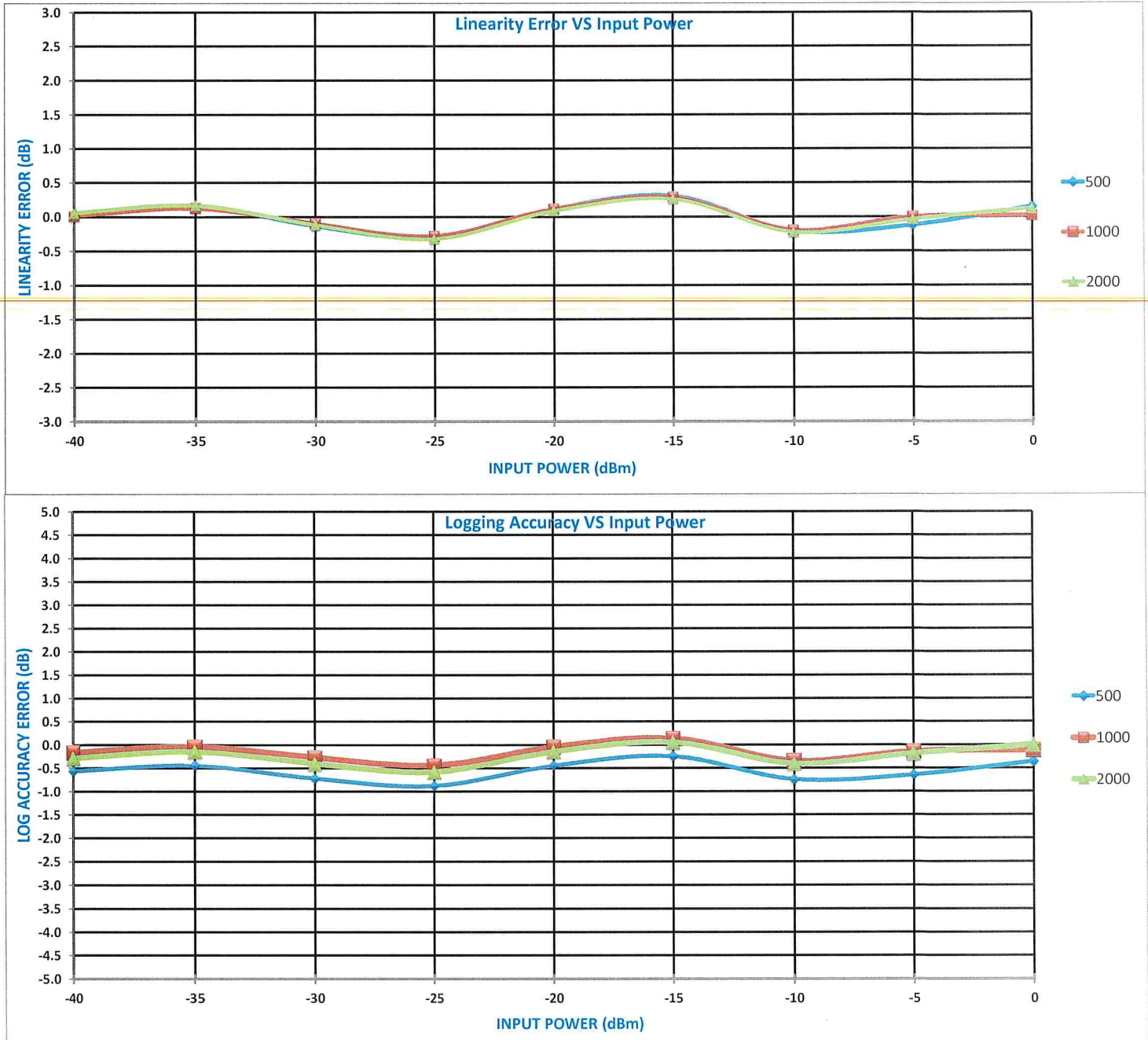
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Log Linearity and Log Accuracy @ +85°C



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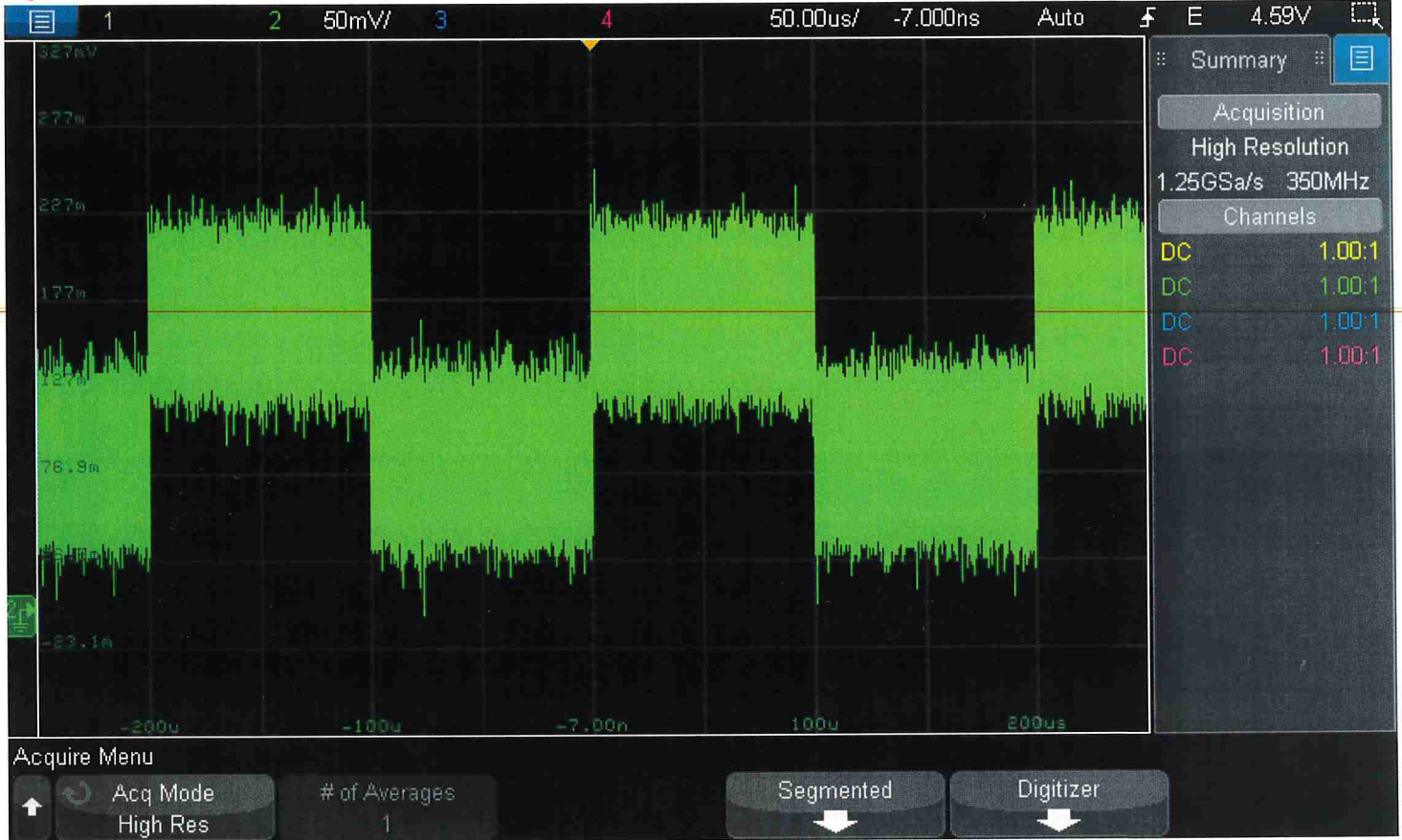
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TSS -45 dBm



MSO-X 3034T, MY59241076, 07.50.2021102830: Mon Apr 08 12:16:58 2024



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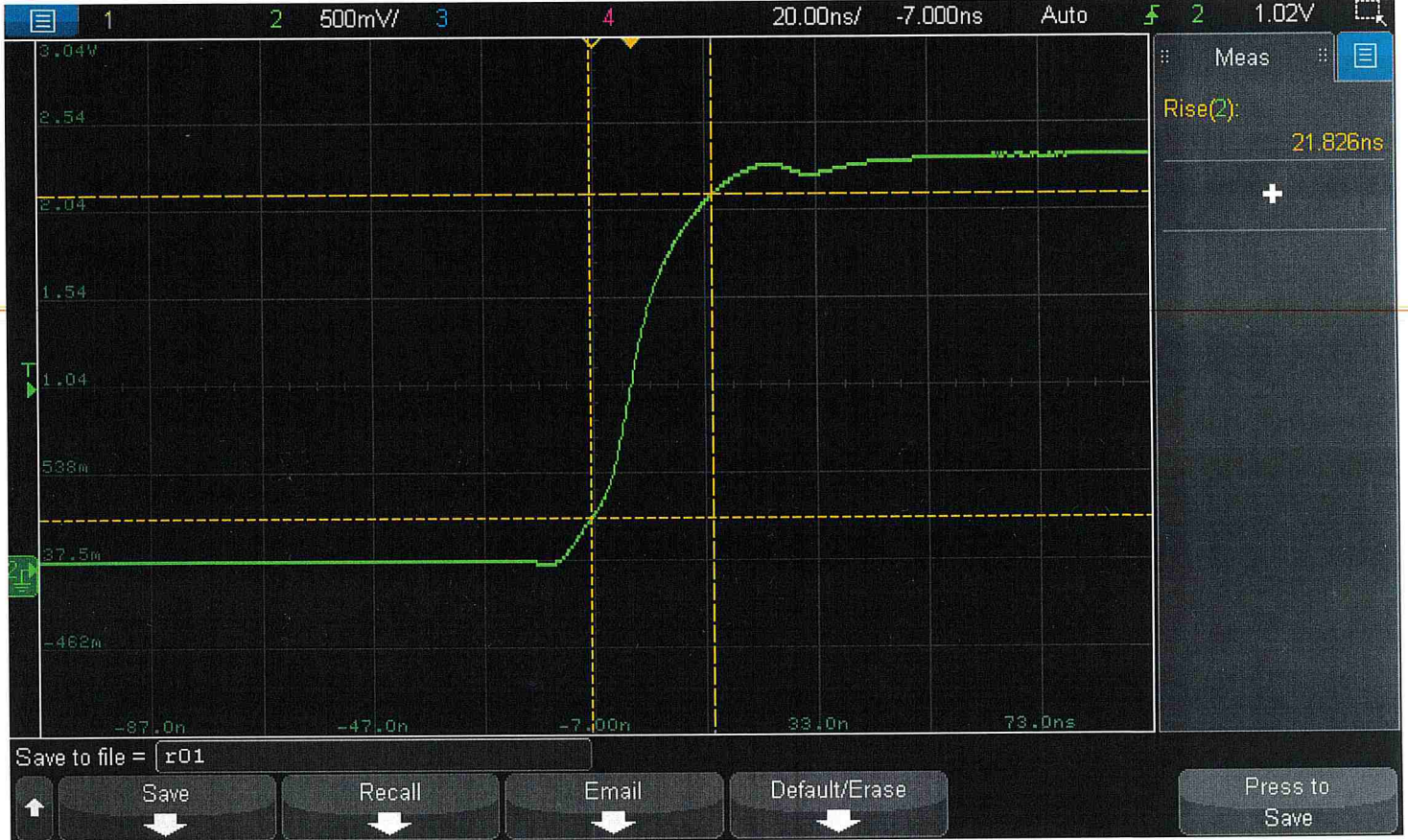
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PL45301/2415

Rise Time 21.8 ns



MSO-X 3034T, MY59241076, 07.50.2021102830: Mon Apr 08 12:11:23 2024



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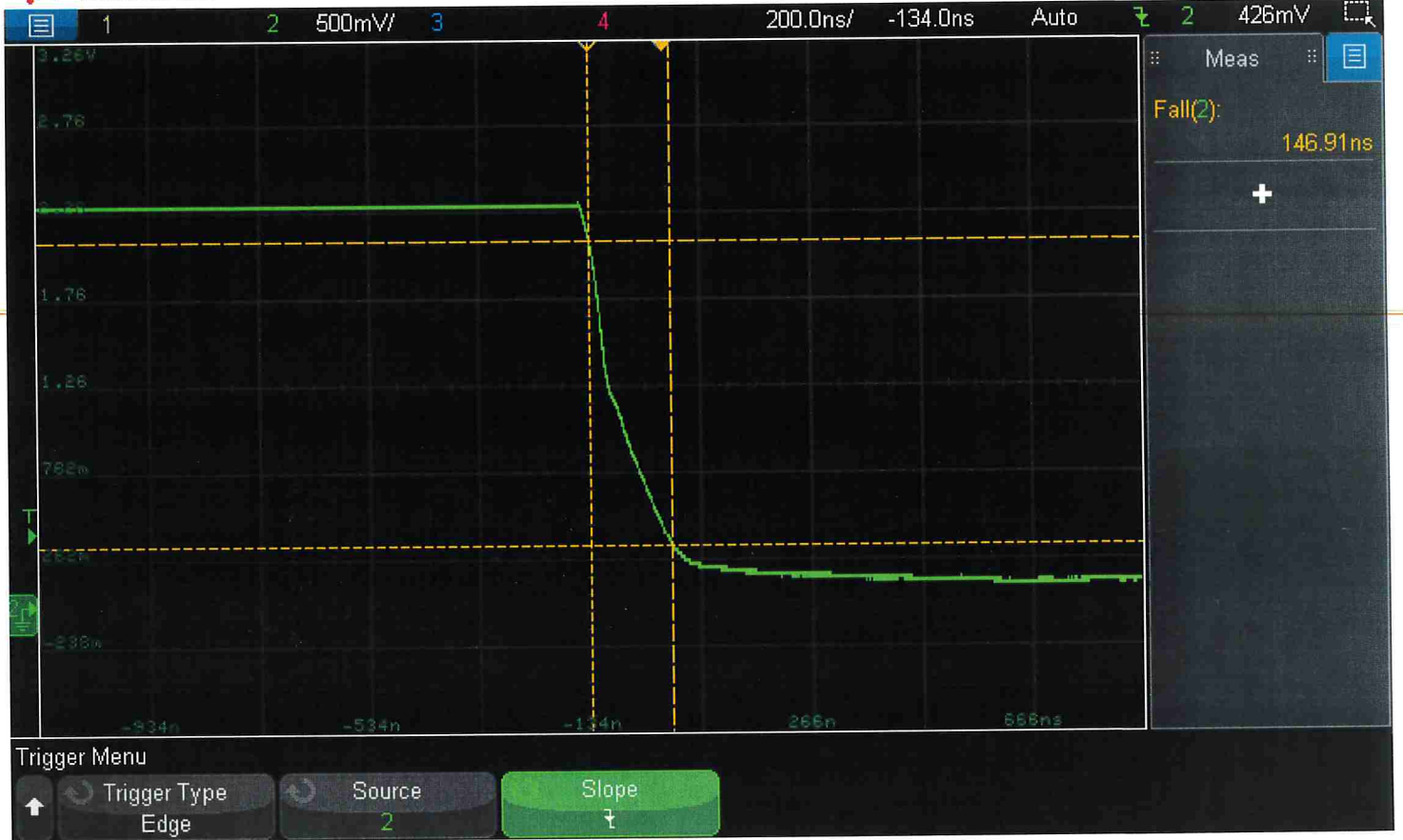
SUMMARY TEST DATA  
ON  
HADA-D2001

PL45301/2415

Fall Time 146 ns



MSO-X 3034T, MY59241076, 07.50.2021102830: Mon Apr 08 12:29:30 2024



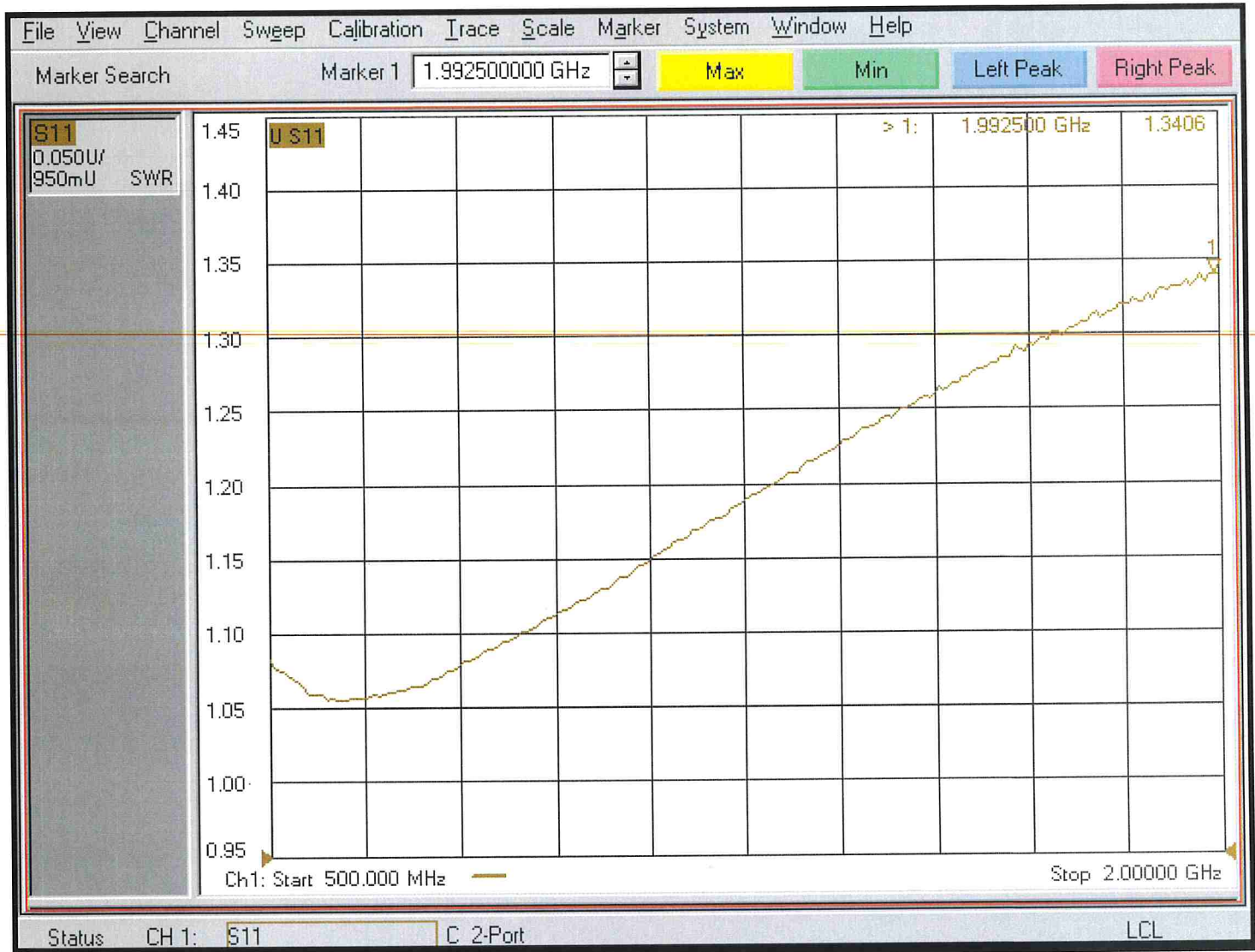
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VSWR 1.34:1



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