



**SUMMARY TEST DATA  
ON  
HADA-D2001**

PL44194/2409

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>2/26/23</u>
Serial No: <u>PL44194/2409</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	<b>0.5 GHz – 2.0 GHz</b> See Plot	PMI QA3
2	TSS:	-44 dBm Min @ -40°C to +85°	<b>-45.5 dBm</b> See Plot	
3	Frequency Flatness:	±0.75 dB Max	<b>±0.20 dB</b> See Plot	
4	Input / Output Characteristics: (93 Ω)	Y = 2350 + 50X [X: Input (dBm), Y: Output (mv)]	<b>Pass</b>	
5	Logging Accuracy	±1.5 dB Max (@ +25°C, 1.0 GHz) [-40 dBm ≤ INPUT ≤ 0 dBm] ±2.2 dB Max (Note)	<b>+0.30 / -0.64 dB</b> <b>+0.62 / -0.66 dB</b> See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	<b>+0.40 / -0.22 dB</b> <b>+0.58 / -0.51 dB</b> See Plot	
7	Maximum Input Power (CW):	+23 dBm	<b>Pass</b>	
8	Duty Cycle:	100%	<b>Pass</b>	
9	Rise Time:	30 ns Max (10% to 90%)	<b>24.8 ns</b> See Plot	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	<b>398 ns</b> See Plot	
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55/-100 mV (@ -40°C to +85°C)	<b>+82 mV @ +25°C</b> <b>+72 mV @ -40°C</b> <b>+104 mV @ +85°C</b>	
12	Input VSWR:	2.5:1 Max @ +23 dBm	<b>1.27:0</b> See Plot	
13	Propagation Delay:	60 ns Max	<b>40 ns</b>	

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14	Power Supply:	+12 ± 1VDC @ 125 mA Max -12 ± 1VDC @ 75 mA Max	<b>120 mA</b> <b>70 mA</b>	PMI QA3
15	Warm Up Time:	2 Minutes Max	<b>2 Minutes</b>	/

\*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. [Signature]* Date: 2-27-24



## SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ +25°C

DC Offset= 0.082 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2339
	SLOPE (mV/dB)	50.4

1 GHz	INTERCEPT (mV)	2347
	SLOPE (mV/dB)	50.1

2 GHz	INTERCEPT (mV)	2351
	SLOPE (mV/dB)	50.4

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	328	575	821	1068	1336	1598	1826	2085	2341
	5	0	-6	-11	5	15	-9	-2	2
	0.10	0.00	-0.12	-0.22	0.10	0.30	-0.18	-0.04	0.04
	-0.44	-0.50	-0.58	-0.64	-0.28	-0.04	-0.48	-0.30	-0.18
	343	589	839	1085	1352	1615	1839	2097	2340
	1	-3	-4	-9	8	20	-7	1	-7
	0.03	-0.06	-0.08	-0.17	0.15	0.40	-0.13	0.01	-0.14
	-0.14	-0.22	-0.22	-0.30	0.04	0.30	-0.22	-0.06	-0.20
	339	584	834	1080	1349	1611	1842	2101	2346
	5	-3	-5	-11	6	16	-5	2	-5
	0.09	-0.05	-0.09	-0.21	0.12	0.32	-0.10	0.04	-0.10
	-0.22	-0.32	-0.32	-0.40	-0.02	0.22	-0.16	0.02	-0.08
	0.10	0.10	0.20	0.20	0.20	0.20	0.20	0.20	0.10
	0.34	0.59	0.84	1.09	1.35	1.62	1.84	2.10	2.35
	0.33	0.58	0.82	1.07	1.34	1.60	1.83	2.09	2.34

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.30	-0.22
LOGGING ACCURACY (dB)	-0.04	-0.64

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.40	-0.17
LOGGING ACCURACY (dB)	0.30	-0.30

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.32	-0.21
LOGGING ACCURACY (dB)	0.22	-0.40

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.40	-0.22

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.30	-0.64

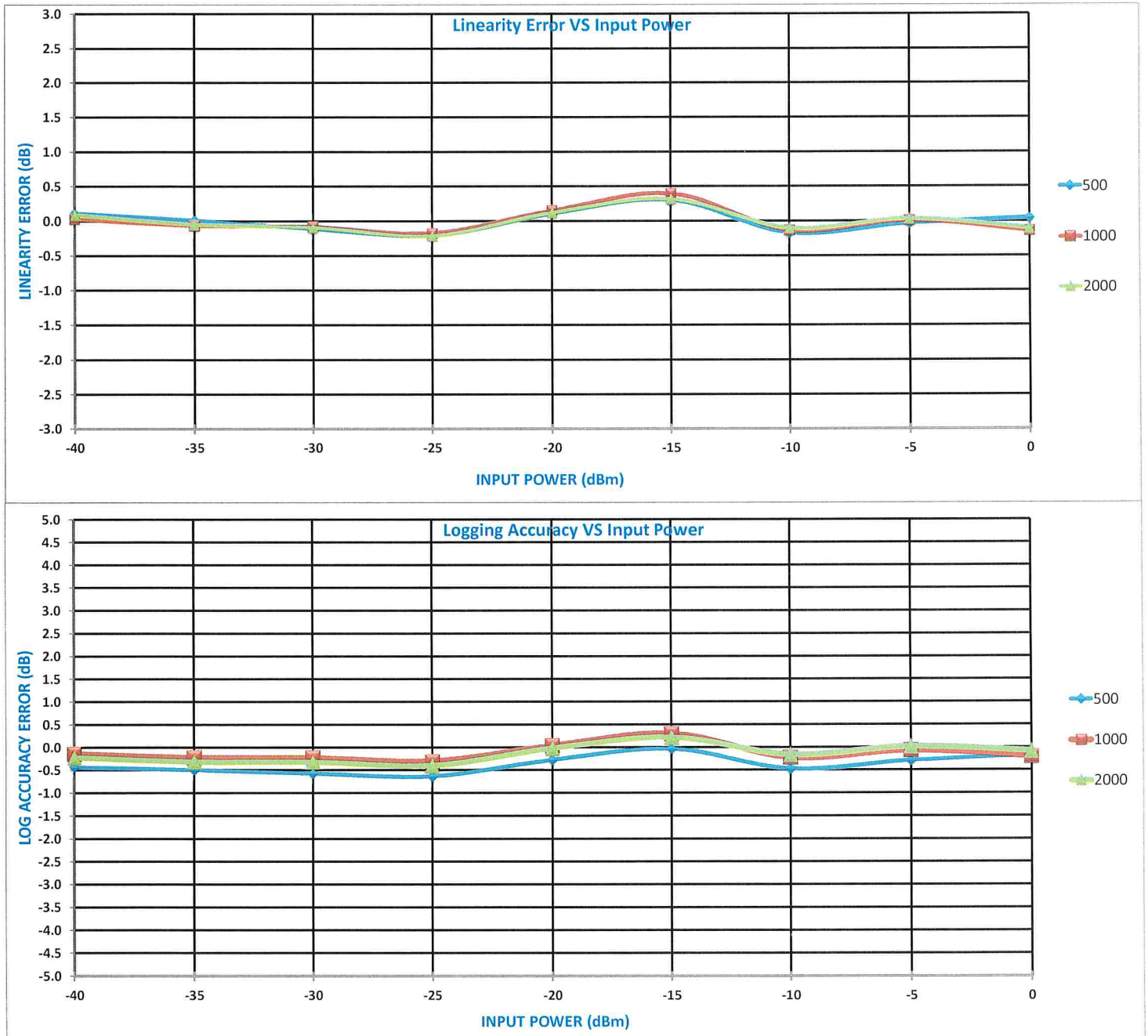
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Log Linearity and Log Accuracy @ +25°C



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## SUMMARY TEST DATA ON HADA-D2001

PL44194/2409

Log Linearity and Log Accuracy @ -40°C

DC Offset= 0.072 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2334
	SLOPE (mV/dB)	50.1

1 GHz	INTERCEPT (mV)	2342
	SLOPE (mV/dB)	49.7

2 GHz	INTERCEPT (mV)	2347
	SLOPE (mV/dB)	50

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	339	574	825	1072	1341	1607	1833	2087	2321
	7	-8	-8	-11	8	23	-1	3	-13
	0.14	-0.17	-0.15	-0.22	0.16	0.47	-0.02	0.06	-0.27
	-0.22	-0.52	-0.50	-0.56	-0.18	0.14	-0.34	-0.26	-0.58
	357	592	846	1095	1361	1626	1849	2099	2317
	1	-12	-7	-6	12	29	3	5	-25
	0.02	-0.25	-0.13	-0.12	0.24	0.58	0.07	0.10	-0.51
	0.14	-0.16	-0.08	-0.10	0.22	0.52	-0.02	-0.02	-0.66
	352	587	840	1088	1357	1622	1852	2103	2324
	4	-11	-7	-9	10	25	5	6	-23
	0.09	-0.21	-0.15	-0.19	0.20	0.50	0.10	0.12	-0.46
	0.94	-0.28	-0.20	-0.24	0.14	0.44	0.04	0.06	-0.52
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10
	0.36	0.59	0.85	1.10	1.36	1.63	1.85	2.10	2.32
	0.34	0.57	0.83	1.07	1.34	1.61	1.83	2.09	2.32

RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.47	-0.27
LOGGING ACCURACY (dB)	0.14	-0.58

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.58	-0.51
LOGGING ACCURACY (dB)	0.52	-0.66

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.50	-0.46
LOGGING ACCURACY (dB)	0.44	-0.52

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.58	-0.51

Logging Accuracy vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOGGING ACCURACY (dB)	0.52	-0.66

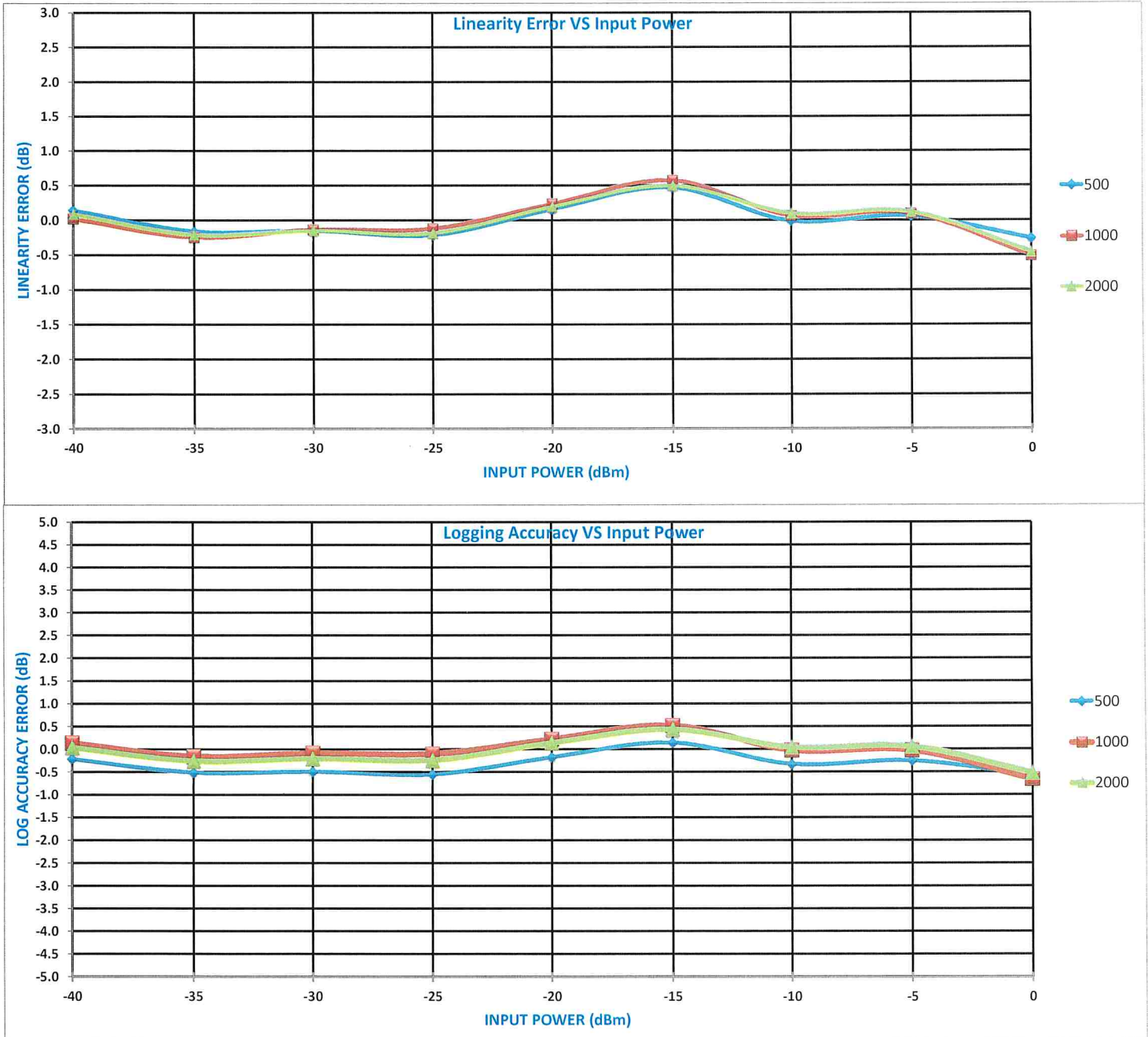
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Log Linearity and Log Accuracy @ -40°C



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## SUMMARY TEST DATA ON HADA-D2001

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Log Linearity and Log Accuracy @ +85°C

DC Offset= 0.104 V

Frequency		
0.5 GHz	INTERCEPT (mV)	2360
	SLOPE (mV/dB)	50.6

1 GHz	INTERCEPT (mV)	2372
	SLOPE (mV/dB)	50.4

2 GHz	INTERCEPT (mV)	2374
	SLOPE (mV/dB)	50.6

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
	329	594	839	1088	1355	1611	1846	2100	2362
	-6	6	-2	-6	8	11	-7	-6	2
	-0.11	0.12	-0.04	-0.12	0.16	0.21	-0.15	-0.13	0.05
	-0.42	-0.12	-0.22	-0.24	0.10	0.22	-0.08	0.00	0.24
	346	612	860	1107	1374	1631	1861	2117	2366
	-10	4	0	-5	10	15	-7	-3	-6
	-0.19	0.08	0.01	-0.09	0.20	0.30	-0.14	-0.06	-0.12
	-0.08	0.24	0.20	0.14	0.48	0.62	0.22	0.34	0.32
	341	606	853	1101	1370	1626	1862	2120	2368
	-7	5	-1	-7	9	12	-5	0	-6
	-0.14	0.10	-0.03	-0.13	0.18	0.24	-0.10	-0.01	-0.11
	-0.18	0.12	0.06	0.02	0.40	0.52	0.24	0.40	0.38
	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.10
	0.35	0.61	0.86	1.11	1.37	1.63	1.86	2.12	2.37
	0.33	0.59	0.84	1.09	1.36	1.61	1.85	2.10	2.36

### RF Input Power (dBm)

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.21	-0.15
LOGGING ACCURACY (dB)	0.24	-0.42

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.30	-0.19
LOGGING ACCURACY (dB)	0.62	-0.08

Measured Value (mV)	Error(dB)	
Error (mV)	MAX	MIN
LINEARITY ERROR (dB)	0.24	-0.14
LOGGING ACCURACY (dB)	0.52	-0.18

Logging Linearity vs Frequency	Error(dB)	
	MAX	MIN
TOTAL LOG LINEARITY (dB)	0.30	-0.19

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

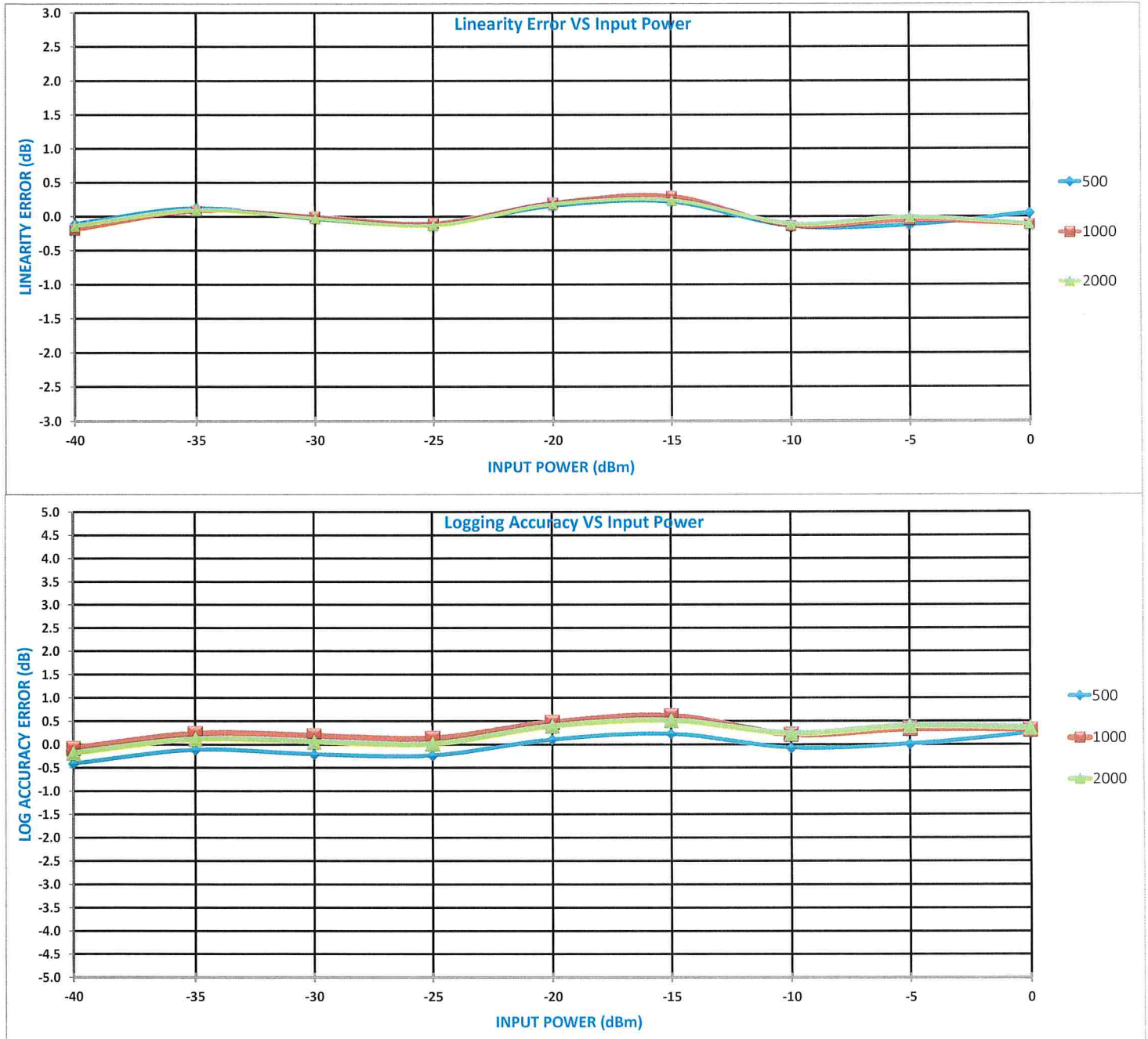
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Log Linearity and Log Accuracy @ +85°C



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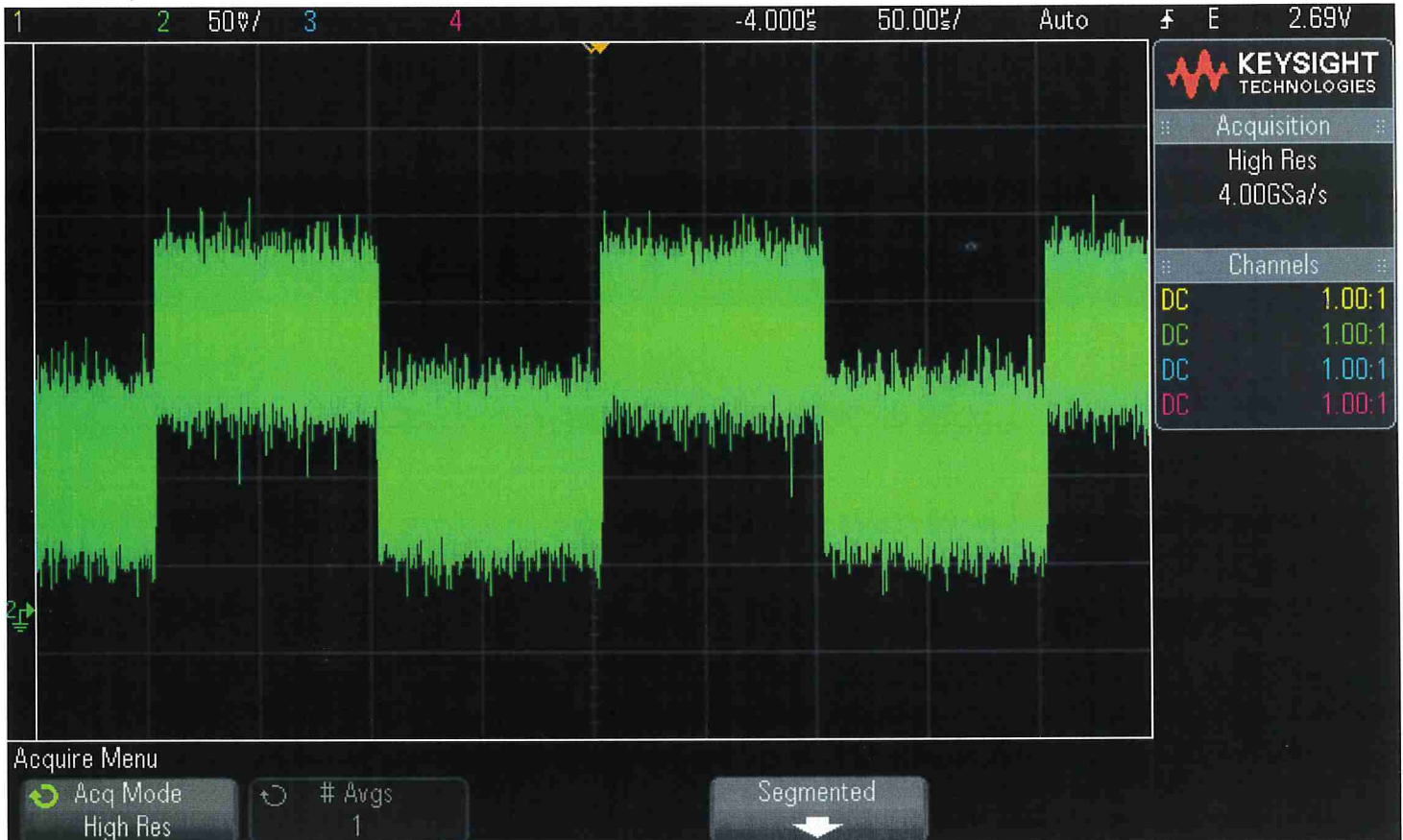


**SUMMARY TEST DATA  
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PL44194/2409

TSS -45.5 dBm

DSO-X 3024A, MY54490369, Fri Feb 23 14:02:05 2024



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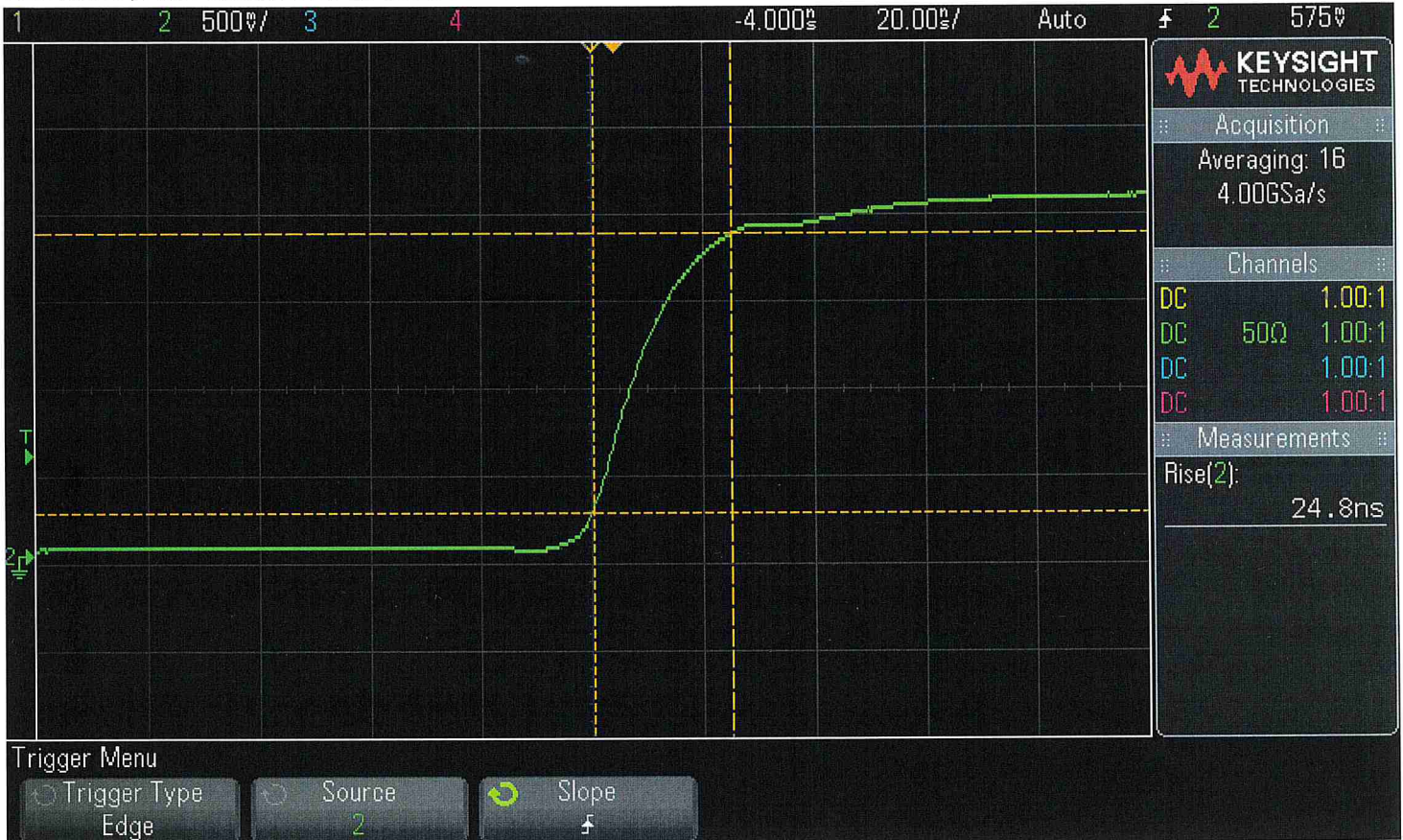


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PL44194/2409

Rise Time 24.8 ns

DSO-X 3024A, MY54490369, Fri Feb 23 13:46:29 2024



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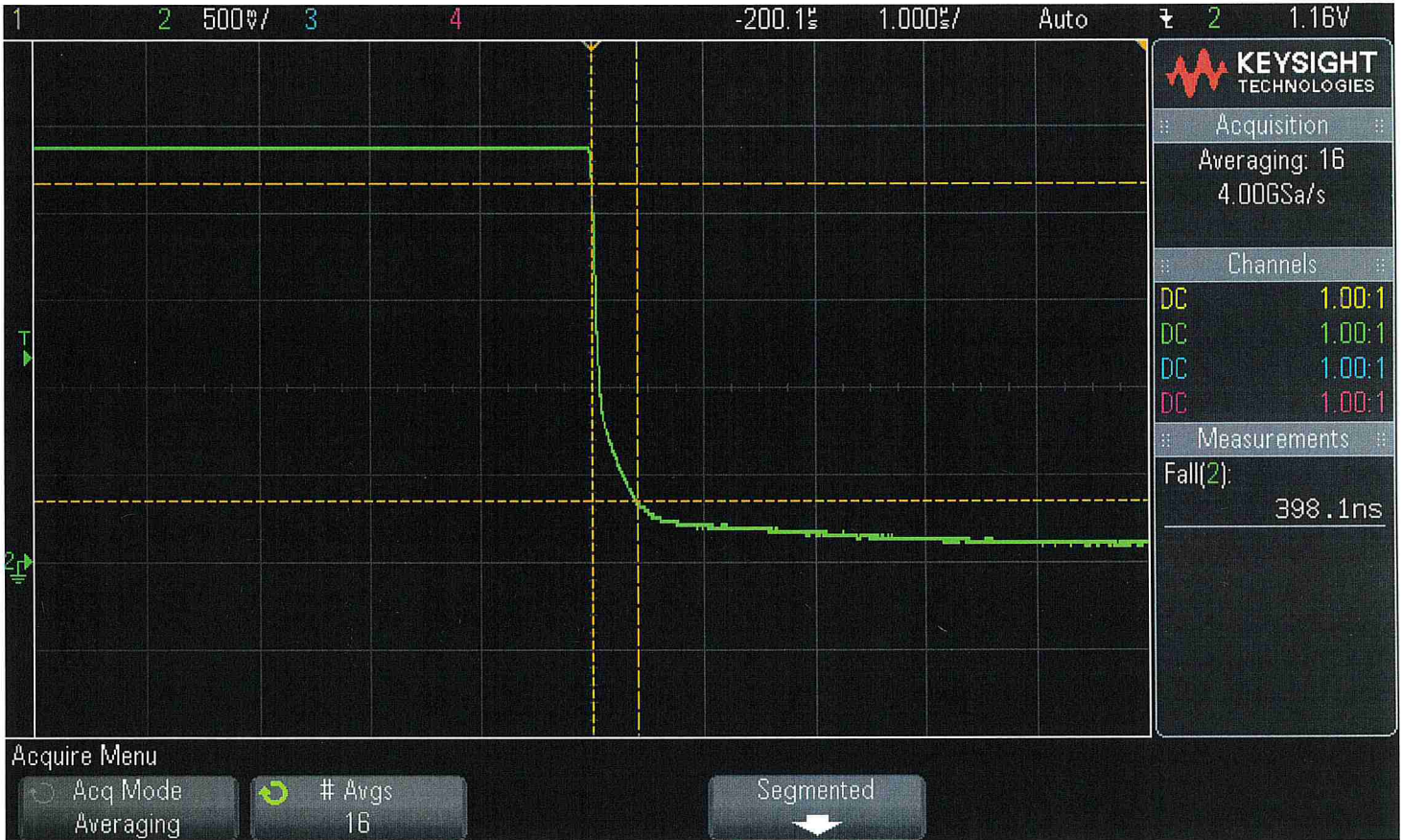


SUMMARY TEST DATA  
ON  
HADA-D2001

PL44194/2409

Fall Time 398 ns

DSO-X 3024A, MY54490369, Fri Feb 23 14:43:34 2024



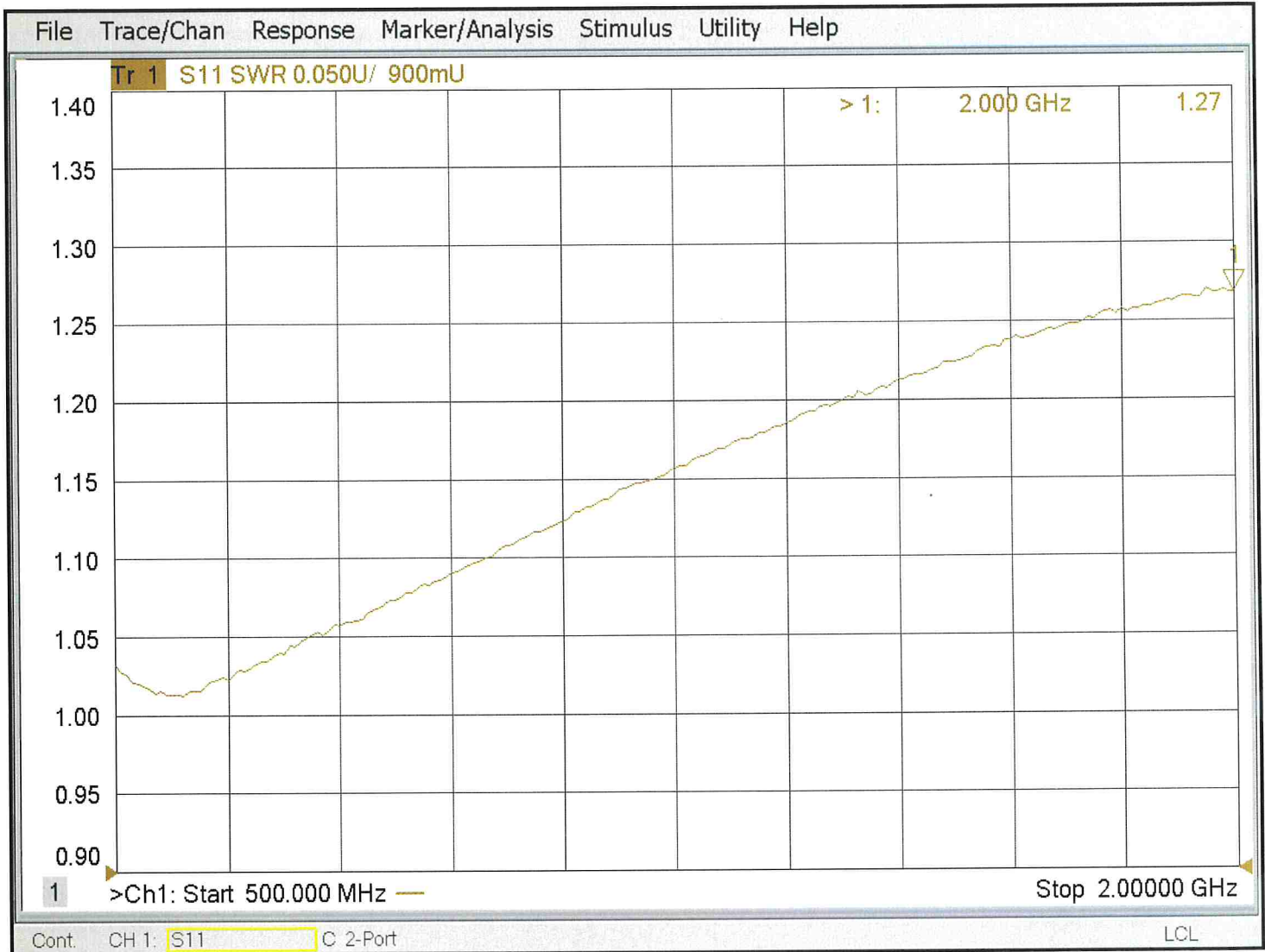
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VSWR 1.27:1



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