



**SUMMARY TEST DATA
ON
HADA-D2001**

PL30790/2051

Customer: _____	Tested By: <u>Simon K.</u>
SO No: _____	Temperature: <u>+25°C</u>
Model No: <u>HADA-D2001</u>	Date: <u>12/17/2020</u>
Serial No: <u>PL30790/2051</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	PMI QA3
2	TSS:	-44 dBm Min @ -40°C to +85°	-46 dBm See Plot	
3	Frequency Flatness:	±0.75 dB Max	±0.30 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)	+0.34 / -0.34 dB (Room Temp) +0.74 / -0.96 dB (Over Temp) See Plot	
6	Log Linearity:	±0.5 dB Max @ +25°C ±0.75 dB Max @ -40°C to +85°C	+0.38 / -0.30 dB (Room Temp) +0.43 / -0.41 dB (Over Temp) See Plot	
7	Maximum Input Power (CW):	+23 dBm	Pass	
8	Duty Cycle:	100%	Pass	PMI QA3

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9	Rise Time:	30 ns Max (10% to 90%)	19 ns See Plot	<i>PMI QA3</i>	
10	Fall Time:	500 ns Max (@ Pulse width 100usec input) (90% to 10%)	152 ns See Plot		
11	DC Offset: (Input 50 Ω terminated):	+95 mV +55 / -100 mV (@ -40°C to +85°C)	10 mV 90 mV		
12	Input VSWR:	2.5:1 Max @ +23 dBm	1.53:1 See Plot		
13	Propagation Delay:	60 ns Max	40 ns See Plot		
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		<i>PMI QA3</i>

*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: Arthur Zimmerman

Date: 12-21-20

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SUMMARY TEST DATA ON HADA-D2001

PL30790/2051

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: Simon K.
TEST DATE: 12/09/20
SERIAL NO: PL30790
TEST TEMP: +25C

Graph #1



PLANAR MONOLITHICS INDUSTRIES
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DC Offset= 0.053 V

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
0.5 GHz	2438	50.7

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
1 GHz	2432	50.1

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
2 GHz	2436	49.9

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
405	650	924	1182	1432	1668	1928	2187	2433	
-4	-12	8	12	9	-9	-2	3	-5	
-0.07	-0.24	0.16	0.24	0.17	-0.17	-0.05	0.06	-0.09	
-0.50	-0.60	-0.12	0.04	0.04	-0.24	-0.04	0.14	0.06	
419	663	938	1197	1440	1674	1925	2178	2430	
-8	-14	10	18	11	-6	-6	-3	-2	
-0.15	-0.29	0.20	0.37	0.21	-0.12	-0.11	-0.07	-0.04	
-0.22	-0.34	0.16	0.34	0.20	-0.12	-0.10	-0.04	0.00	
430	674	947	1207	1452	1682	1935	2181	2430	
-9	-15	9	19	14	-5	-2	-5	-6	
-0.19	-0.30	0.17	0.38	0.29	-0.10	-0.03	-0.10	-0.11	
0.00	-0.12	0.34	0.54	0.44	0.04	0.10	0.02	0.00	
0.20	0.20	0.20	0.20	0.20	0.10	0.10	0.10	0.00	
0.43	0.67	0.95	1.21	1.45	1.68	1.94	2.19	2.43	
0.41	0.65	0.92	1.18	1.43	1.67	1.93	2.18	2.43	

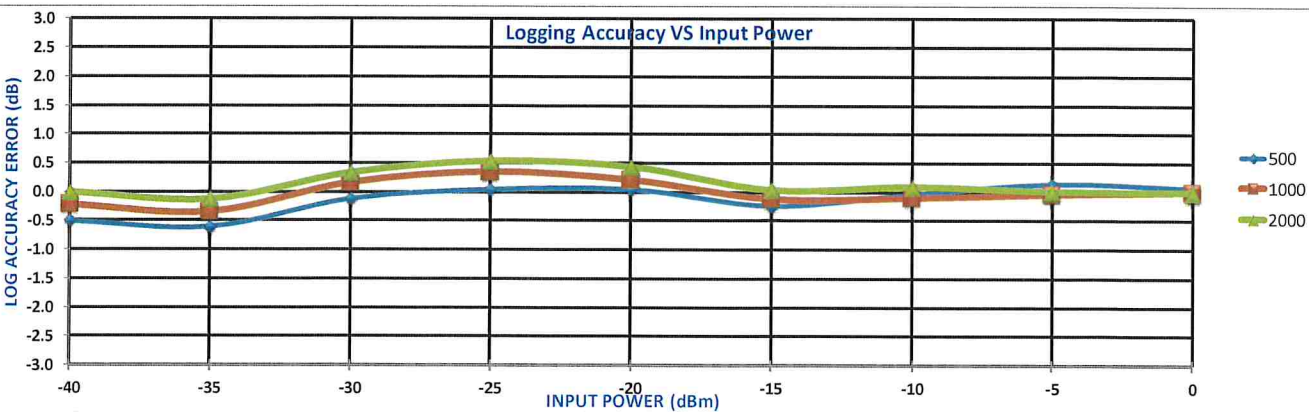
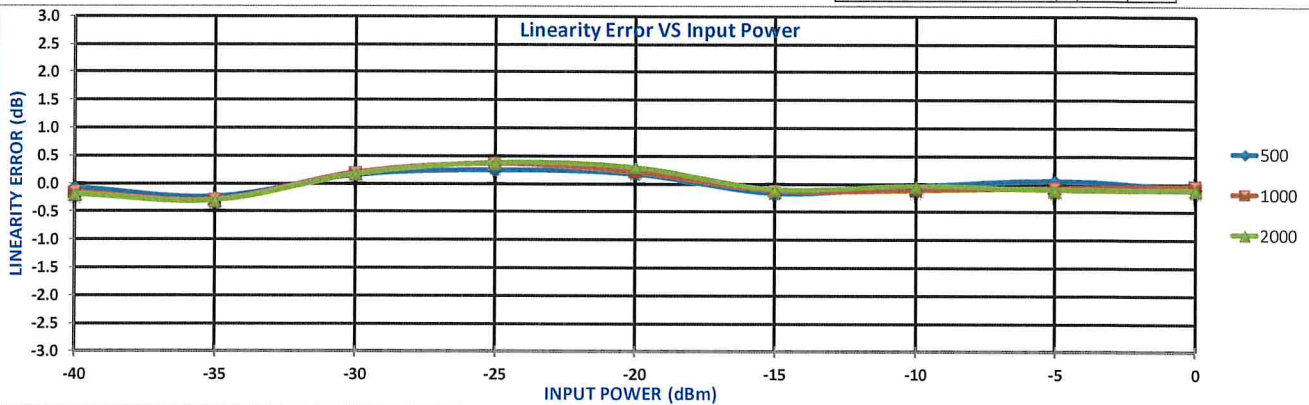
RF Input Power (dBm)	
Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.24 -0.24
LOGGING ACCURACY (dB)	0.14 -0.60

RF Input Power (dBm)	
Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.37 -0.29
LOGGING ACCURACY (dB)	0.34 -0.34

RF Input Power (dBm)	
Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.38 -0.30
LOGGING ACCURACY (dB)	0.54 -0.12

Logging Linearity vs Frequency	
Error(dB)	MAX MIN
TOTAL LOG LINEARITY (dB)	0.38 -0.30

Logging Accuracy vs Frequency	
Error(dB)	MAX MIN
TOTAL LOGGING ACCURACY (dB)	0.54 -0.60



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SUMMARY TEST DATA ON HADA-D2001

PL30790/2051

LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: Simon K.
TEST DATE: 12/09/20
SERIAL NO: PL30790
TEST TEMP: -40C

Graph #2



PLANAR MONOLITHICS INDUSTRIES
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TEL: 916-542-1401 FAX: 916-265-2597
EMAIL: SALES@PMI-RF.COM

DC Offset= 0.010 V

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
0.5 GHz	2315	48.9

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
1 GHz	2315	48.3

Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
2 GHz	2320	48.1

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
359	586	854	1108	1347	1580	1842	2065	2302	
-2	-19	4	14	9	-2	15	-6	-13	
-0.04	-0.39	0.09	0.29	0.18	-0.05	0.31	-0.12	-0.27	
0.18	-0.28	0.08	0.16	-0.06	-0.40	-0.16	-0.70	-0.96	
374	604	870	1127	1360	1591	1846	2062	2302	
-8	-19	5	20	12	1	14	-12	-13	
-0.16	-0.40	0.10	0.42	0.24	0.02	0.29	-0.24	-0.27	
0.48	0.08	0.40	0.54	0.20	-0.18	-0.08	-0.76	-0.96	
384	615	879	1137	1372	1600	1857	2066	2302	
-10	-20	4	21	15	2	19	-13	-18	
-0.21	-0.41	0.07	0.43	0.31	0.05	0.39	-0.27	-0.37	
0.68	0.30	0.58	0.74	0.44	0.00	0.14	-0.88	-0.96	
0.30	0.30	0.30	0.30	0.30	0.20	0.20	0.00	0.00	
0.38	0.62	0.88	1.14	1.37	1.60	1.86	2.07	2.30	
0.36	0.59	0.85	1.11	1.35	1.58	1.84	2.06	2.30	

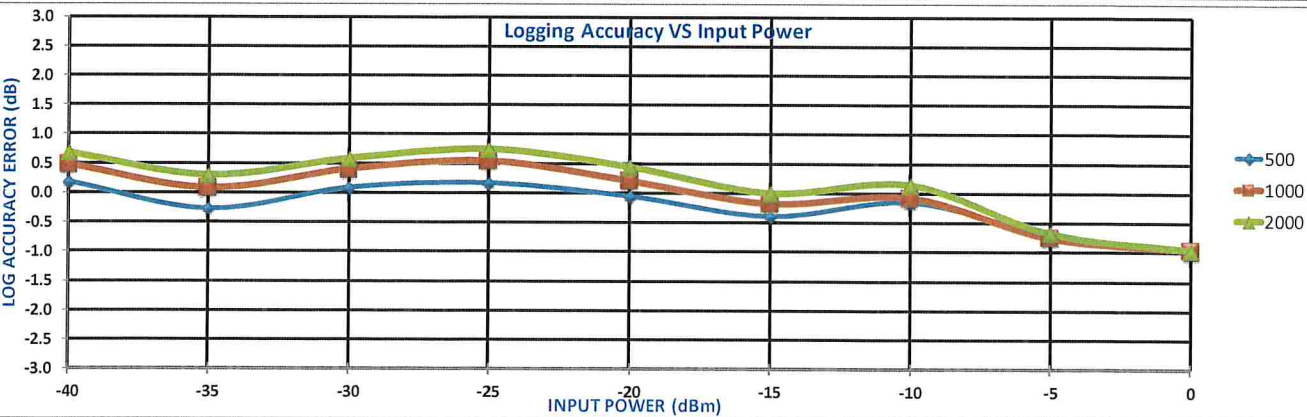
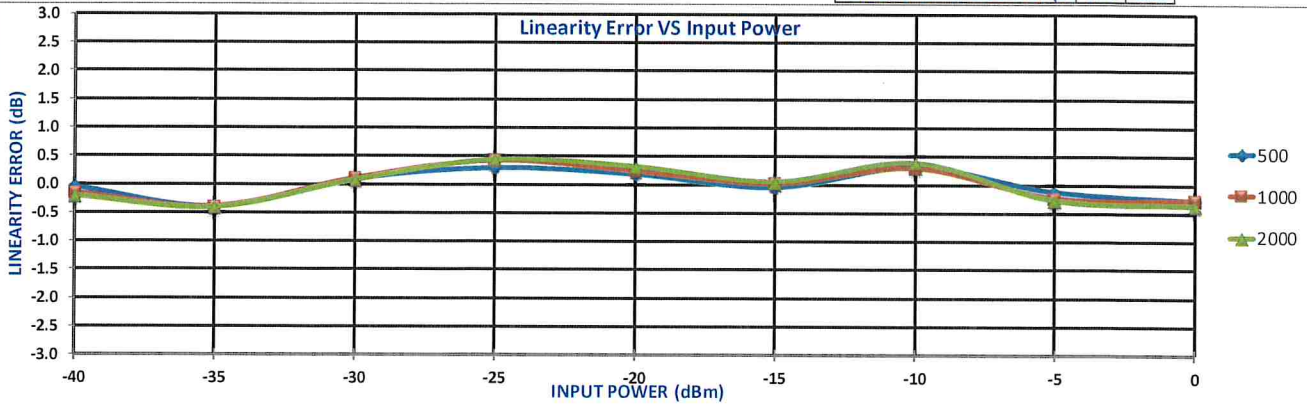
RF Input Power (dBm)	
Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.31 -0.39
LOGGING ACCURACY (dB)	0.18 -0.96

Measured Value (mV)	
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.42 -0.40
LOGGING ACCURACY (dB)	0.54 -0.96

Measured Value (mV)	
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.43 -0.41
LOGGING ACCURACY (dB)	0.74 -0.96

Logging Linearity vs Frequency	
Error(dB)	MAX MIN
TOTAL LOG LINEARITY (dB)	0.43 -0.41

Logging Accuracy vs Frequency	
Error(dB)	MAX MIN
TOTAL LOGGING ACCURACY (dB)	0.74 -0.96



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LOG TRANSFER WITH FREQUENCY
MODEL: HADA-D2001
TESTED BY: Simon K.
TEST DATE: 12/09/20
SERIAL NO: PL30790
TEST TEMP: +85C

Graph #3

DC Offset= 0.090 V



PLANAR MONOLITHICS INDUSTRIES
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Frequency	INTERCEPT (mV)	SLOPE (mV/dB)
0.5 GHz	2464	51.6

1 GHz	INTERCEPT (mV)	SLOPE (mV/dB)
2459	51	

2 GHz	INTERCEPT (mV)	SLOPE (mV/dB)
2463	50.7	

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

	-40	-35	-30	-25	-20	-15	-10	-5	0
393	651	924	1182	1445	1684	1938	2227	2446	
-8	-8	7	8	13	-6	-10	21	-18	
-0.15	-0.15	0.14	0.15	0.25	-0.12	-0.19	0.41	-0.34	
-0.94	-0.78	-0.32	-0.16	0.10	-0.12	-0.04	0.74	0.12	
408	664	940	1198	1454	1692	1938	2221	2442	
-12	-11	10	13	14	-3	-12	16	-17	
-0.23	-0.21	0.20	0.26	0.28	-0.05	-0.23	0.32	-0.34	
-0.64	-0.52	0.00	0.16	0.28	0.04	-0.04	0.62	0.04	
420	675	949	1208	1465	1700	1947	2223	2443	
-13	-12	9	14	17	-2	-8	14	-20	
-0.25	-0.23	0.17	0.28	0.34	-0.03	-0.16	0.28	-0.39	
-0.40	-0.39	0.18	0.36	0.50	0.20	0.14	0.66	0.06	
0.30	0.20	0.20	0.30	0.20	0.20	0.10	0.10	0.00	
0.42	0.68	0.95	1.21	1.47	1.70	1.95	2.23	2.45	
0.39	0.65	0.92	1.18	1.45	1.68	1.94	2.22	2.44	

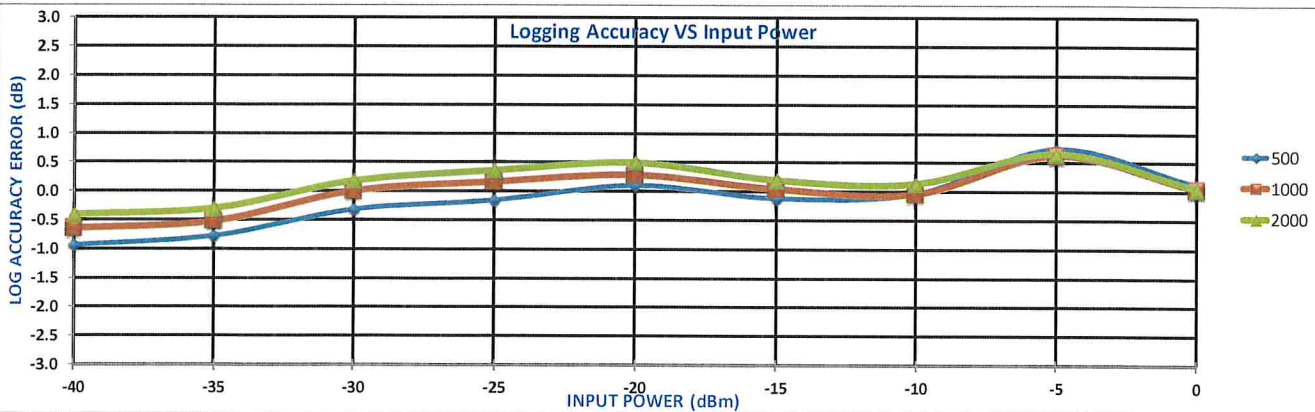
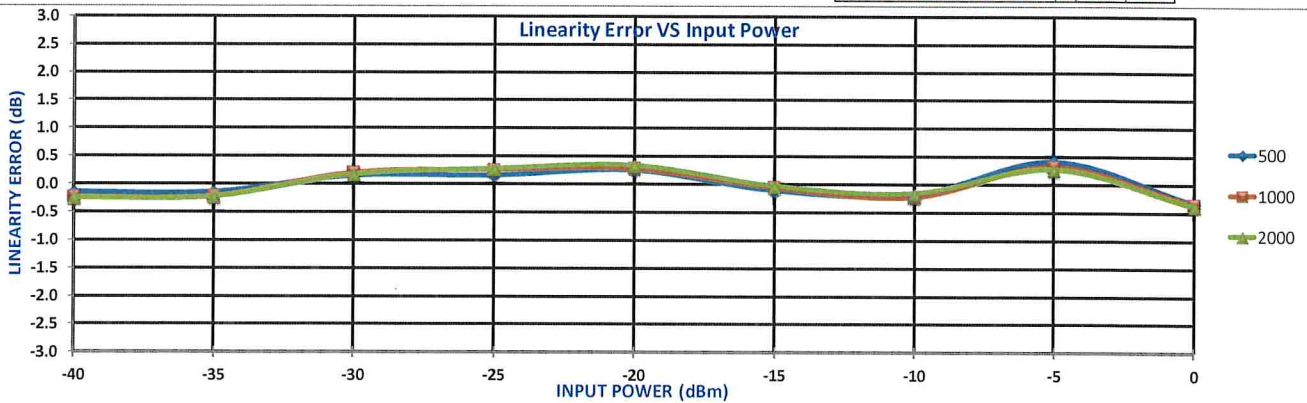
Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.41 -0.34
LOGGING ACCURACY (dB)	0.74 -0.94

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.32 -0.34
LOGGING ACCURACY (dB)	0.62 -0.64

Measured Value (mV)	Error(dB)
Error (mV)	MAX MIN
LINEARITY ERROR (dB)	0.34 -0.39
LOGGING ACCURACY (dB)	0.66 -0.40

Logging Linearity vs Frequency	Error(dB)
	MAX MIN
TOTAL LOG LINEARITY (dB)	0.41 -0.39

Logging Accuracy vs Frequency	Error(dB)
	MAX MIN
TOTAL LOGGING ACCURACY (dB)	0.74 -0.94



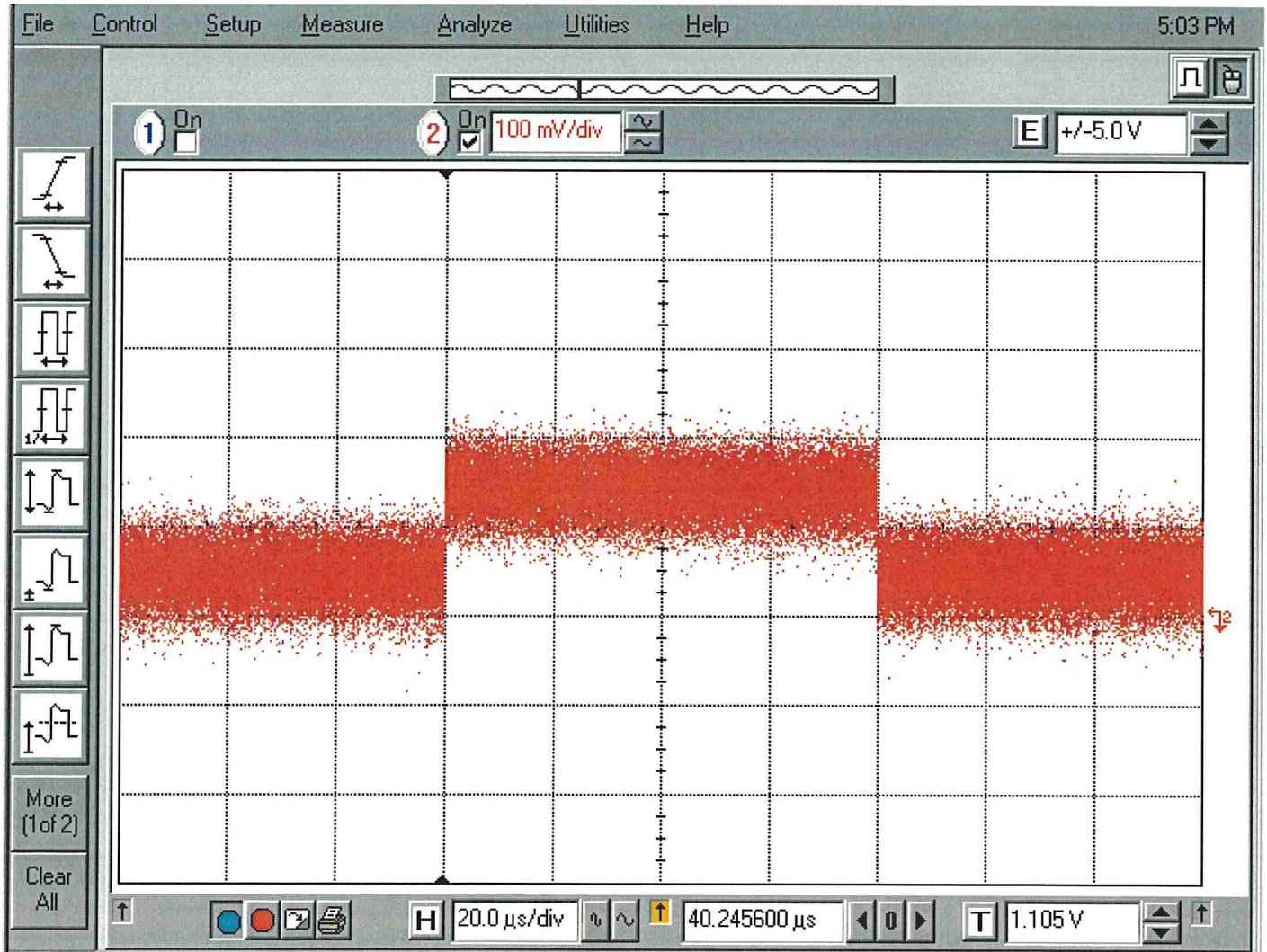
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**SUMMARY TEST DATA
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TSS @ -46 dBm

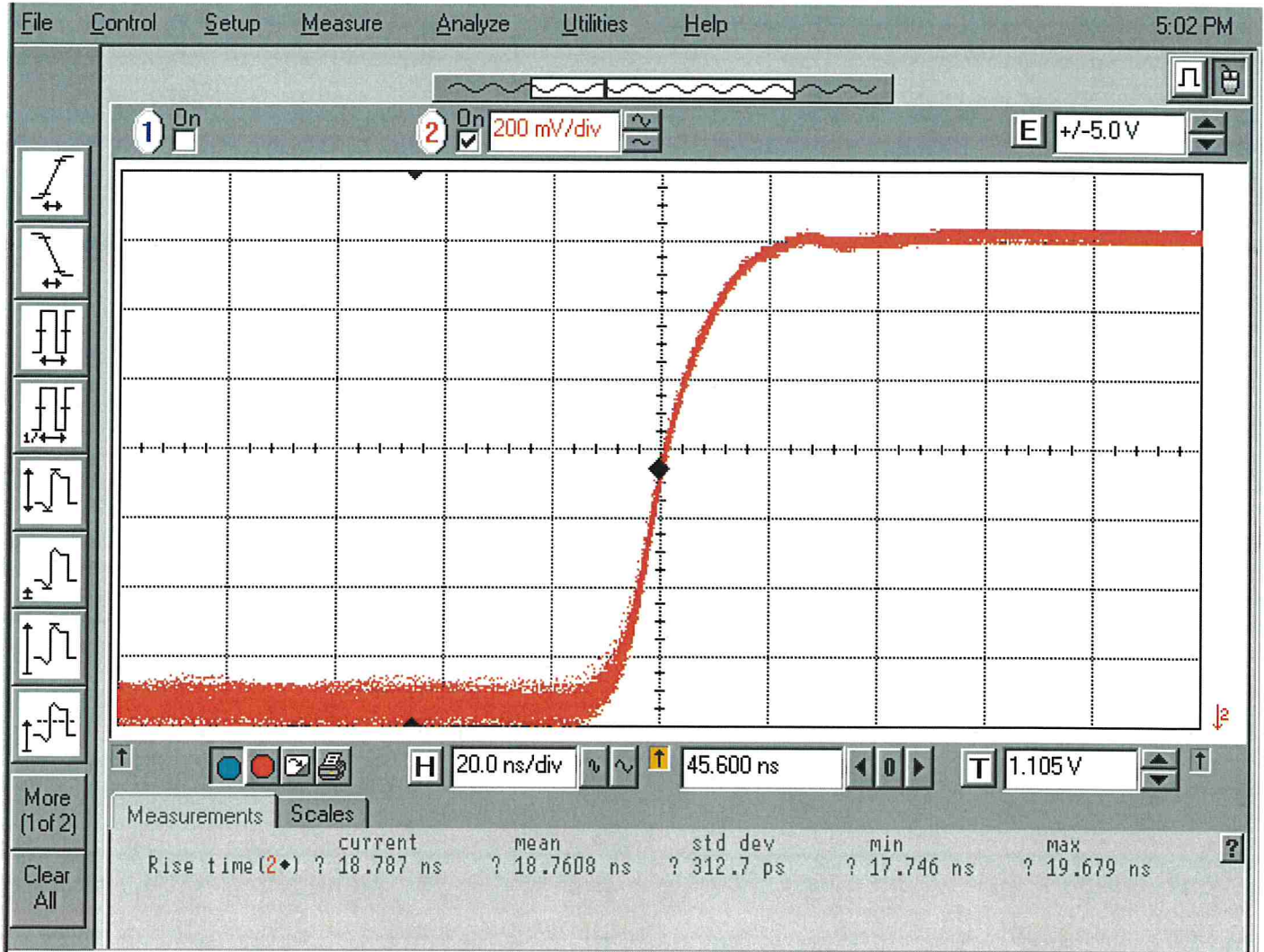




**SUMMARY TEST DATA
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PL30790/2051

Rise Time @ 19 ns



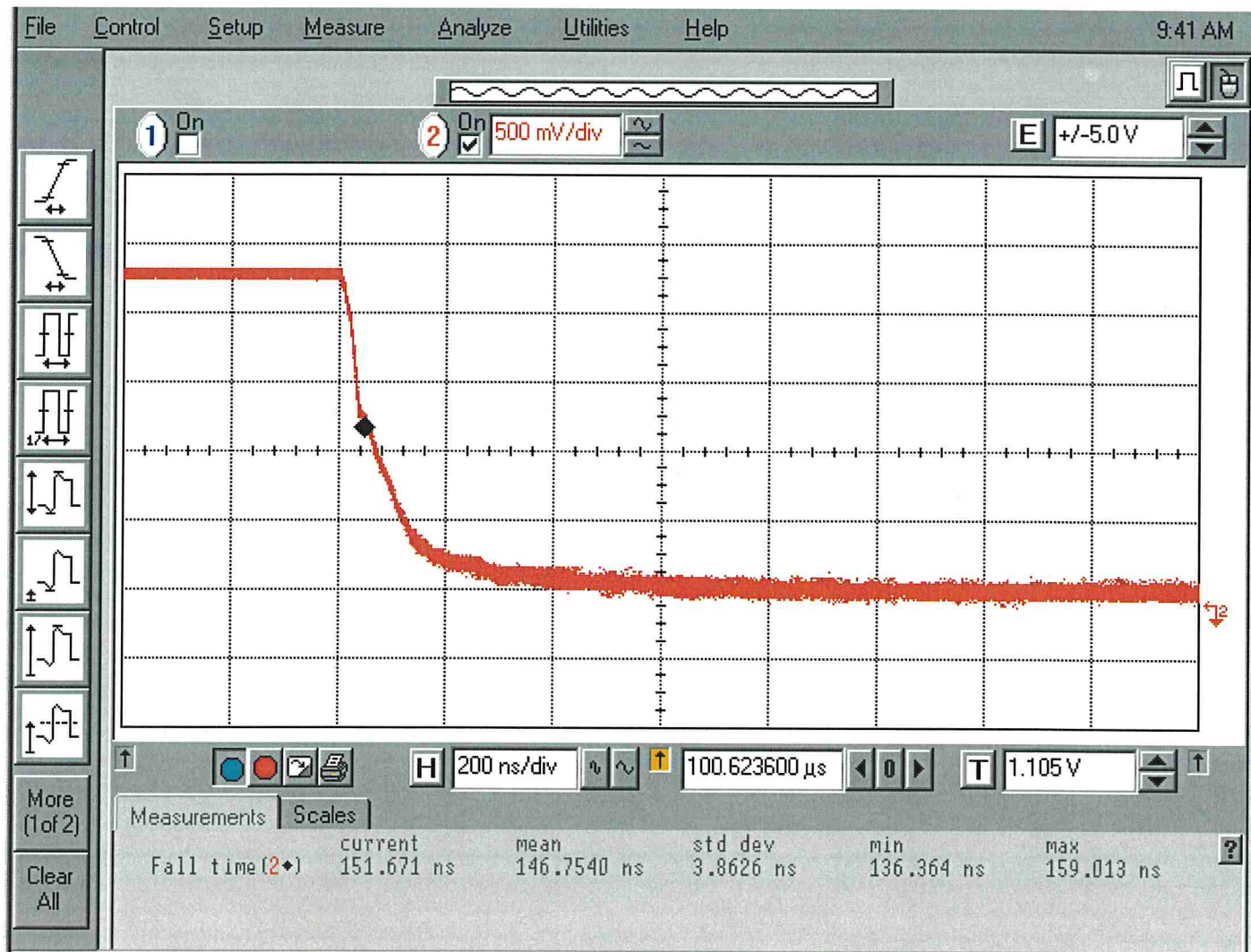
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**SUMMARY TEST DATA
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Fall Time @ 152 ns



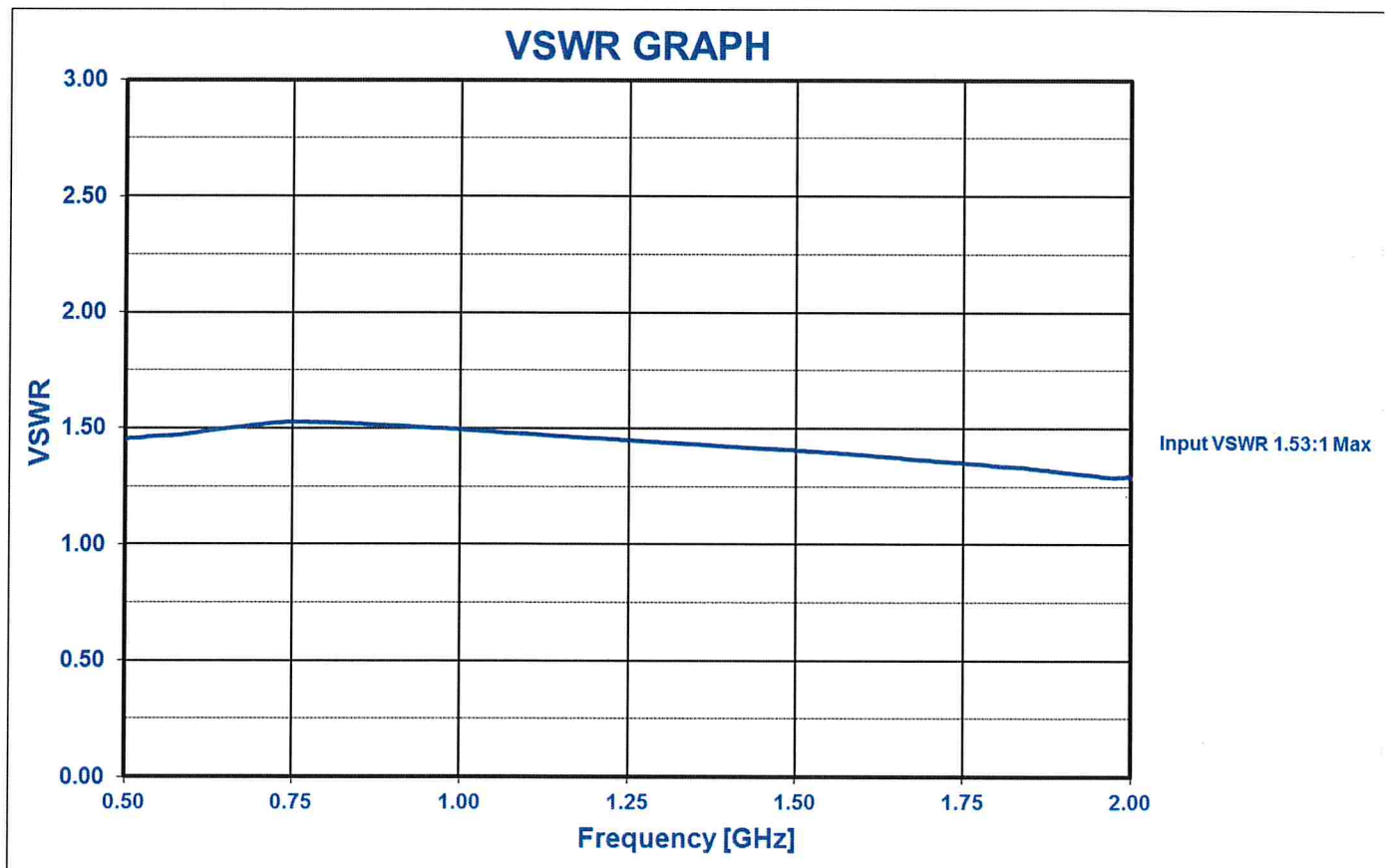
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VSWR @ 1.53:1



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