***** MLSP Main Test Menu Final Test Data Summary *****

Serial Number: 0011
Model Number: MLSP-2020BD
Time: 4:04:18 PM
Date: 2/23/2012
Mi um Frequency: 2000.000 MHz
Ma .um Frequency: 20000.000 MHz

Final Test Data Check Point Status:

Config data file backup =	Pass
Coarse Cal file =	Pass
Fine Cal file =	Pass
Frequency Lock test file =	Pass
RF Max Power test file =	Pass
Harmonics test file =	Pass
Random Spur test file =	Pass
Switching Speed test file =	Pass
Phase Noise test file =	Pass
NOVO Locked =	Pass
Unit Health =	Pass
Xtal SN Exists =	Pass
Last Self Test =	Pass
Full Cal Status =	Pass
Coarse Cal =	Pass
Fine Cal =	Pass
Xtal Cal =	Pass
Level Cal =	Pass
PLL Locked Status =	Pass
MLWI Job # =	Pass
MLWI Drawing # =	Pass
Current Self Test Run =	Pass

Pass - Unit is Ready to Ship

:**** Step Lock Test from 2000 MHz to 20000 MHz in 10 MHz Steps *****

ierial Number: 0011
fodel Number: MLSP-2020BD
!ime: 1:35:22 PM
)ate: 2/23/2012
fi 'm Frequency: 2000 MHz
fa. ,m Frequency: 20000 MHz
'emperature: +35.9C Deg. C
fOVO State: Locked
'ower Supply Spec: +5.0 VDC +/- 0.25 V @ < 300 mA
'ower Supply Spec: +15.0 VDC +/- 0.50 V @ < 2200 mA
ıccuracy Tested to: +/-0.002 MHz

!otal Frequency Errors: 0

'inish Time: 1:37:50 PM

)egin Random Step Lock Test from 2000 MHz to 20000 MHz (1000 Frequencies)

!otal Ramdom Frequency Errors: 0

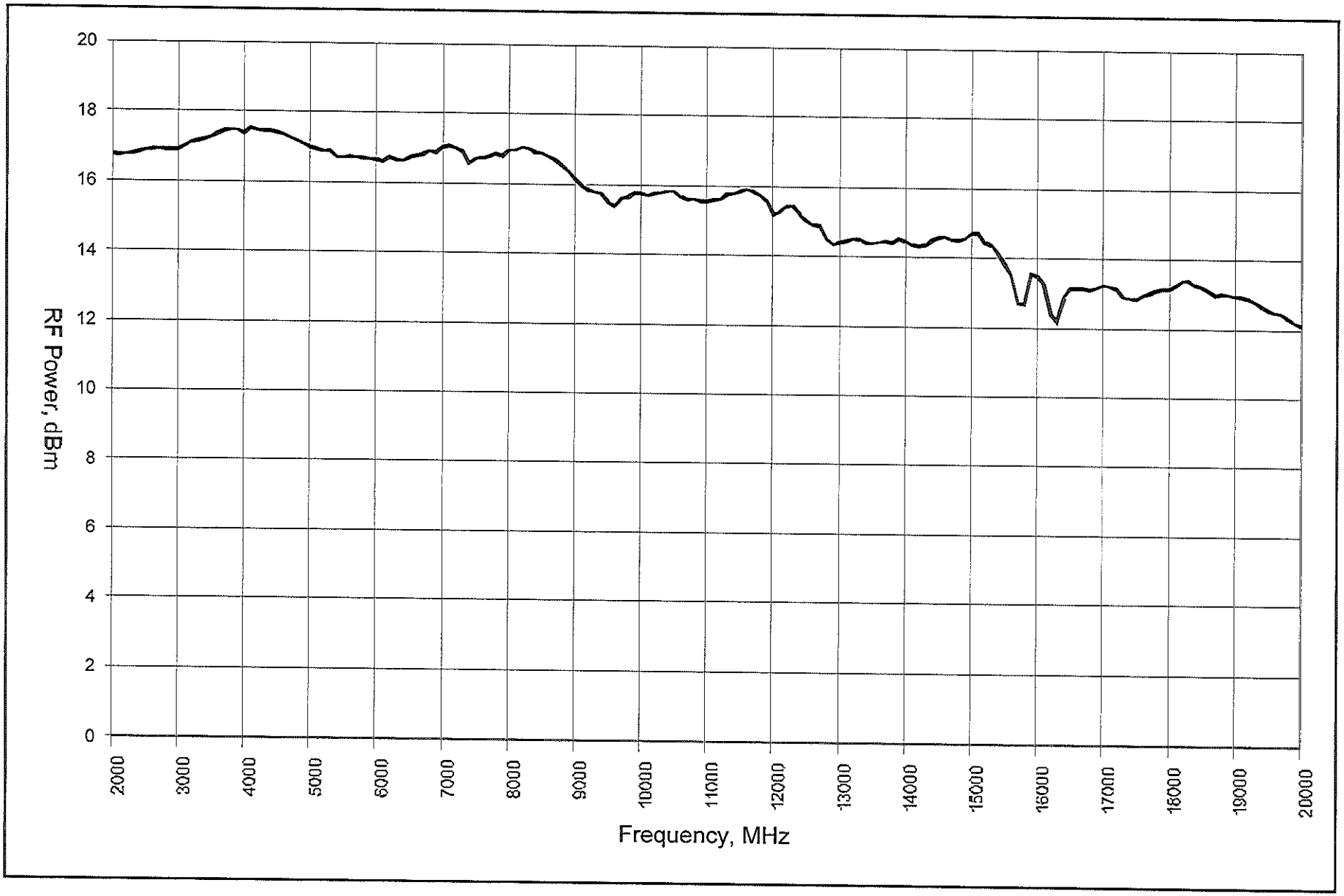
'inish Time: 1:39:12 PM

·5.0 VDC Voltage = 5.002V Pass
·5.0 VDC Current = 299mA Pass
·15.0 VDC Voltage = 14.996V Pass
·15.0 VDC Current = 2102mA Pass

'ass

Model #: MLSP-2020BD Serial #: 0011 Min Power: 10 dBm Max Power: 19 dBm Temp. : +38.2C Deg. C Date: 02-22-2012 Time: 15:02:26 Status = Pass

Maximum RF Output Power vs. Frequency



Print

Max Leveled Pwr: N/A dBm Min Leveled Pwr: N/A dBm Leveled Pwr Set: Max dBm Level Flatness Spec: +/-3.5 dB

***** Harmonic Test from 2000.000000 MHz to 20000.000000 MHz in 100 MHz Steps *****

Model Number: MLSP-2020BD
Serial Number: 0011
Time: 1:20:19 PM
Date: 2/23/2012
Minimum Frequency: 2000.000000 MHz
Maximum Frequency: 20000.000000 MHz
Current Unit Temperature: +32.0C Deg. C
Harmonic Spec Level (In Band): -12.0 dBc

Frequency	Level	Harm #	Status
2000 MHz	-14 dBc	3	PASS
2100 MHz	-14 dBc	3	PASS
2200 MHz	-13 dBc	3	PASS
2300 MHz	-13 dBc	3	PASS
2400 MHz	-13 dBc	3	PASS
2500 MHz	-13 dBc	3	PASS
2600 MHz	-13 dBc	3	PASS
2700 MHz	-13 dBc	3	PASS
2800 MHz	-13 dBc	3	PASS
2900 MHz	-14 dBc	3	PASS
3000 MHz	-14 dBc	3	PASS
3100 MHz	-14 dBc	3	PASS
3200 MHz	-16 dBc	3	PASS
3300 MHz	-15 dBc	3	PASS
3400 MHz	-14 dBc	3	PASS
3500 MHz	-14 dBc	3	PASS
3600 MHz	-14 dBc	3	PASS
3700 MHz	-14 dBc	3	PASS
3800 MHz	-14 dBc	3	PASS
3900 MHz	-15 dBc	3	PASS
4000 MHz	-15 dBc	3	PASS
4100 MHz	-16 dBc	3	PASS
4200 MHz	-16 dBc	3	PASS
4300 MHz	-17 dBc	3	PASS
4400 MHz	-17 dBc	2	PASS
4500 MHz	-16 dBc	3	PASS
4600 MHz	-15 dBc	3	PASS
4700 MHz	-15 dBc	3	PASS
4800 MHz	-14 dBc	3	PASS
4900 MHz	-14 dBc	3	PASS
5000 MHz	-14 dBc	3	PASS
5100 MHz	-15 dBc	3	PASS
5200 MHz	-15 dBc	3	PASS
5300 MHz	-16 dBc	2	PASS
5400 MHz	-17 dBc	3	PASS
5500 MHz	-15 dBc	3	PASS
5600 MHz	-15 dBc	3	PASS
5700 MHz	-15 dBc	3	PASS
5800 MHz	-15 dBc	3	PASS
5900 MHz	-14 dBc	3	PASS
6000 MHz	-15 dBc	3	PASS
6100 MHz	-15 dBc	3	PASS
6200 MHz	-15 dBc	2	PASS
6300 MHz	-15 dBc	2	PASS
6400 MHz	-15 dBc	2	PASS
6500 MHz	-16 dBc	2	PASS
6600 MHz	-16 dBc	3	PASS
6700 MHz	-16 dBc	3	PASS
6800 MHz	-18 dBc	2	PASS
6900 MHz	-17 dBc	3	PASS
7000 MHz	-17 dBc	3	PASS
7100 MHz	-17 dBc	3	PASS
7200 MHz	-18 dBc	3	PASS
7300 MHz	-18 dBc	3	PASS
7400 MHz	-19 dBc	3	PASS
7500 MHz	-20 dBc	2	PASS
7600 MHz	-20 dBc	3	PASS
7700 MHz	-20 dBc	2	PASS
7800 MHz	-18 dBc	2	PASS
7900 MHz	-19 dBc	2	PASS
8000 MHz	-16 dBc	2	PASS
8100 MHz	-17 dBc	2	PASS
8200 MHz	-15 dBc	2	PASS
8300 MHz	-14 dBc	2	PASS
8400 MHz	-13 dBc	2	PASS
8500 MHz	-12 dBc	2	PASS
8600 MHz	-12 dBc	2	PASS
8700 MHz	-12 dBc	2	PASS
8800 MHz	-13 dBc	2	PASS
8900 MHz	-14 dBc	2	PASS
9000 MHz	-14 dBc	2	PASS

9100	MHz	-16	dBc	2	PASS
9200	MHz	-16	dBc	2	PASS
9300	MHz	-16	dBc	2	PASS
9400	MHz	-16	dBc	2	PASS
9500	MHz	-16	dBc	2	PASS
9600	MHz	-15	dBc	2	PASS
9700	MHz	-16	dBc	2	PASS
9[illegible]	MHz	-17	dBc	2	PASS
9[illegible]	MHz	-19	dBc	2	PASS
10000	MHz	-20	dBc	2	PASS
10100	MHz	-23	dBc	2	PASS
10200	MHz	-23	dBc	2	PASS
10300	MHz	-23	dBc	2	PASS
10400	MHz	-27	dBc	2	PASS
10500	MHz	-33	dBc	2	PASS
10600	MHz	-32	dBc	2	PASS
10700	MHz	-28	dBc	2	PASS
10800	MHz	-27	dBc	2	PASS
10900	MHz	-25	dBc	2	PASS
11000	MHz	-25	dBc	2	PASS
11100	MHz	-26	dBc	2	PASS
11200	MHz	-29	dBc	2	PASS
11300	MHz	-29	dBc	2	PASS
11400	MHz	-31	dBc	2	PASS
11500	MHz	-27	dBc	2	PASS
11600	MHz	-24	dBc	2	PASS
11700	MHz	-22	dBc	2	PASS
11800	MHz	-22	dBc	2	PASS
11900	MHz	-22	dBc	2	PASS
12000	MHz	-21	dBc	2	PASS
12100	MHz	-20	dBc	2	PASS
12200	MHz	-23	dBc	2	PASS
12300	MHz	-22	dBc	2	PASS
12400	MHz	-24	dBc	2	PASS
12500	MHz	-26	dBc	2	PASS
12600	MHz	-25	dBc	2	PASS
12700	MHz	-25	dBc	2	PASS
12800	MHz	-27	dBc	2	PASS
12900	MHz	-26	dBc	2	PASS
13000	MHz	-26	dBc	2	PASS
13[illegible]	MHz	-27	dBc	2	PASS
1[illegible]	MHz	-28	dBc	2	PASS
13[illegible]	MHz	-25	dBc	2	PASS
13400	MHz	-25	dBc	2	PASS

Number of Failures: 0

Finish Time: 1:33:50 PM

Harmonic Readings complete

Pass

***** Random Spur Test from 2000 MHz to 20000 MHz *****

Serial Number: 0011
Model Number: MLSP-2020BD
Time: 1:40:00 PM
Date: 2/23/2012
Minimum Frequency: 2000 MHz
Maximum Frequency: 20000 MHz
Analyzer Frequency Span Tested: 2 kHz to 2000 MHz
Spur Level Spec <500 kHz Span: -60.0 dBc
Spur Level Spec >= 500 kHz Span: -80 dBc
Number of Frequencies Tested: 25
Temperature: +36.5C Deg. C
NOVO State: Locked

Random Frequency	Status
Frequency Tested = 19598.812 MHz	Pass
Frequency Tested = 3604.498 MHz	Pass
Frequency Tested = 9425.888 MHz	Pass
Frequency Tested = 11806.052 MHz	Pass
Frequency Tested = 8689.525 MHz	Pass
Frequency Tested = 10499.321 MHz	Pass
Frequency Tested = 15808.290 MHz	Pass
Frequency Tested = 6393.341 MHz	Pass
Frequency Tested = 13488.881 MHz	Pass
Frequency Tested = 18375.072 MHz	Pass
Frequency Tested = 9397.021 MHz	Pass
Frequency Tested = 5165.075 MHz	Pass
Frequency Tested = 14495.066 MHz	Pass
Frequency Tested = 7831.839 MHz	Pass
Frequency Tested = 6210.213 MHz	Pass
Frequency Tested = 16168.361 MHz	Pass
Frequency Tested = 9025.343 MHz	Pass
Frequency Tested = 2063.322 MHz	Pass
Frequency Tested = 16531.364 MHz	Pass
Frequency Tested = 8329.940 MHz	Pass
Frequency Tested = 8063.080 MHz	Pass
Frequency Tested = 8113.525 MHz	Pass
Frequency Tested = 12230.617 MHz	Pass
Frequency Tested = 5559.862 MHz	Pass
Frequency Tested = 2179.287 MHz	Pass

Total Spur Errors: 0

Finish Time: 2:12:13 PM
Pass

***** Switching Speed Test from 2000.0 to 20000.0 MHz in 100 1000 MHz & Full Band Steps *****

Model Number: MLSP-2020BD
Serial Number: 0011
Time: 9:29:12 AM
Date: 2/23/2012
Minimum Frequency: 2000.000 MHz
Maximum Frequency: 20000.000 MHz
Current Unit Temperature: +38.1C Deg. C
Switching Speed Spec:
For a 100 MHz Step: 1.0 mS
For a 1000 MHz Step: 3.0 mS
For a Full Band Step: 5.0 to 6.0 mS
For 25 Random Jumps - Max Time Range: 1.0 to 6.0 mS

Frequency Step	Meas. Speed	Status
100 MHz Step Up =	0.5 mS	Pass
100 MHz Step Down =	0.4 mS	Pass
1000 MHz Step Up =	1.5 mS	Pass
1000 MHz Step Down =	1.8 mS	Pass
Full band Step Up =	4.9 mS	Pass
Full band Step Down =	4.3 mS	Pass

Frequency Step (MHz)	Step Size (MHz)	Meas. Speed	Status
Random Jump From 2000.0 To 13513.0	11513.0	3.7 mS	Pass
Random Jump From 13513.0 To 3407.0	-10106.0	3.2 mS	Pass
Random Jump From 3407.0 To 11032.0	7625.0	3.2 mS	Pass
Random Jump From 11032.0 To 17915.0	6883.0	3.5 mS	Pass
Random Jump From 17915.0 To 7439.0	-10476.0	3.1 mS	Pass
Random Jump From 7439.0 To 4814.0	-2625.0	2.2 mS	Pass
Random Jump From 4814.0 To 7317.0	2503.0	2.4 mS	Pass
Random Jump From 7317.0 To 12875.0	5558.0	2.9 mS	Pass
Random Jump From 12875.0 To 8544.0	-4331.0	2.6 mS	Pass
Random Jump From 8544.0 To 5141.0	-3403.0	2.5 mS	Pass
Random Jump From 5141.0 To 11612.0	6471.0	3.0 mS	Pass
Random Jump From 11612.0 To 2908.0	-8704.0	3.1 mS	Pass
[illegible] Jump From 2908.0 To 5460.0	2552.0	2.3 mS	Pass
Random Jump From 5460.0 To 18093.0	12633.0	4.4 mS	Pass
Random Jump From 18093.0 To 9476.0	-8617.0	2.9 mS	Pass
Random Jump From 9476.0 To 2966.0	-6510.0	2.9 mS	Pass
Random Jump From 2966.0 To 6194.0	3228.0	2.9 mS	Pass
Random Jump From 6194.0 To 18344.0	12150.0	4.2 mS	Pass
Random Jump From 18344.0 To 17859.0	-485.0	1.2 mS	Pass
Random Jump From 17859.0 To 6304.0	-11555.0	3.3 mS	Pass
Random Jump From 6304.0 To 11008.0	4704.0	3.4 mS	Pass
Random Jump From 11008.0 To 17712.0	6704.0	3.3 mS	Pass
Random Jump From 17712.0 To 3692.0	-14020.0	3.7 mS	Pass
Random Jump From 3692.0 To 15476.0	11784.0	4.0 mS	Pass
Random Jump From 15476.0 To 18670.0	3194.0	3.1 mS	Pass

Number of Failures: 0

Finish Time: 9:38:51 AM

Switching Speed Readings complete

Pass

***** Phase Noise Test from 2000 MHz to 20000 MHz in 1800 MHz Steps *****

Model Number: MLSP-2020BD
Serial Number: 0011
Time: 9:34:37 AM
Date: 2/24/2012
Minimum Frequency: 2000 MHz
Maximum Frequency: 20000 MHz
Number of Frequencies Tested: 11
Current Unit Temperature: +35.1C Deg. C

Phase Noise Spec @ Offset:
@ 100 Hz = -70.0 dBc/Hz
@ 1.0 kHz = -75.0 dBc/Hz
@ 10.0 kHz = -70.0 dBc/Hz
@ 100 Hz = -98.0 dBc/Hz
@ 1.0 MHz = -125.0 dBc/Hz
@ 10.0 MHz = -150 dBc/Hz

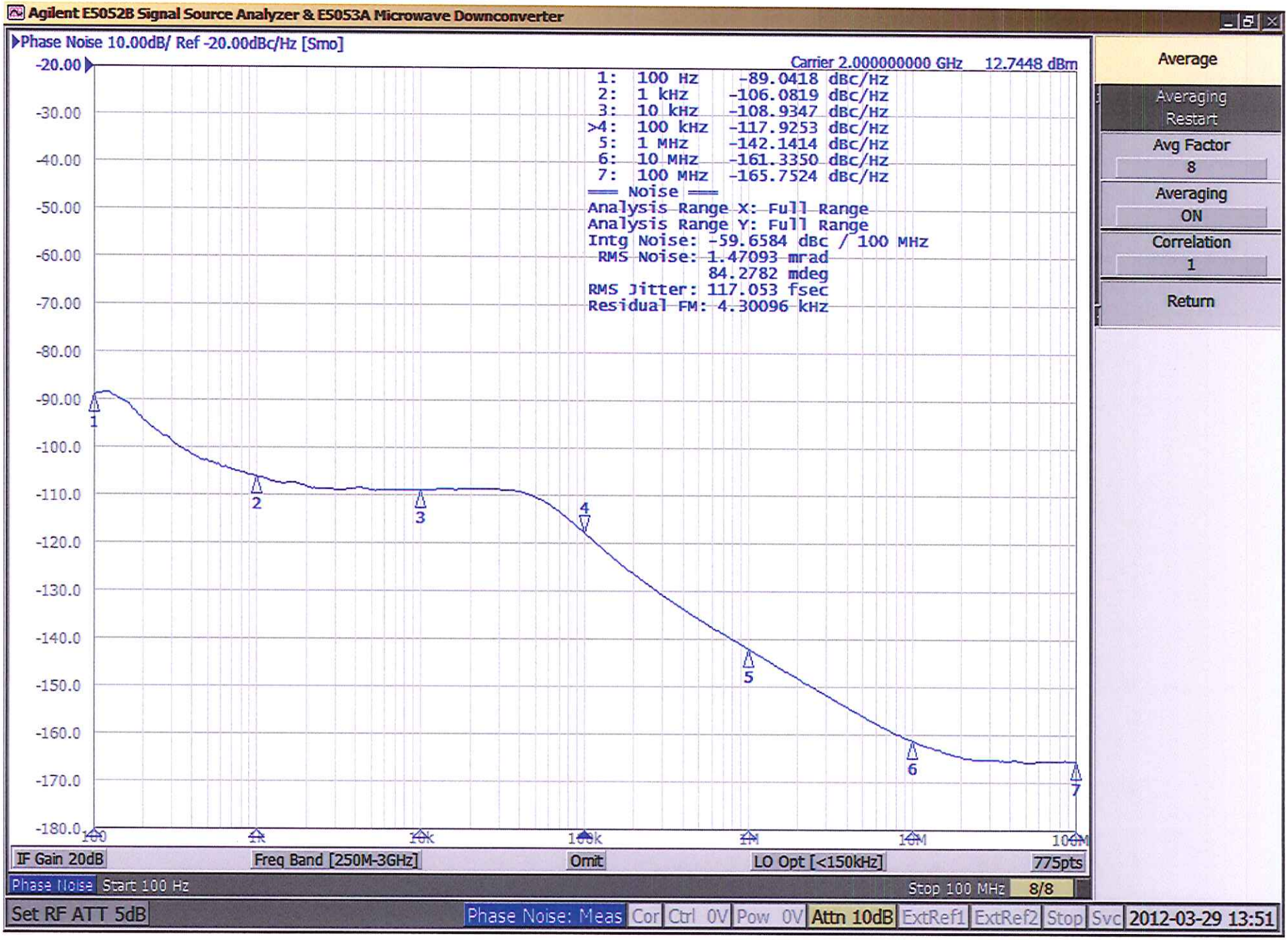
Measured:

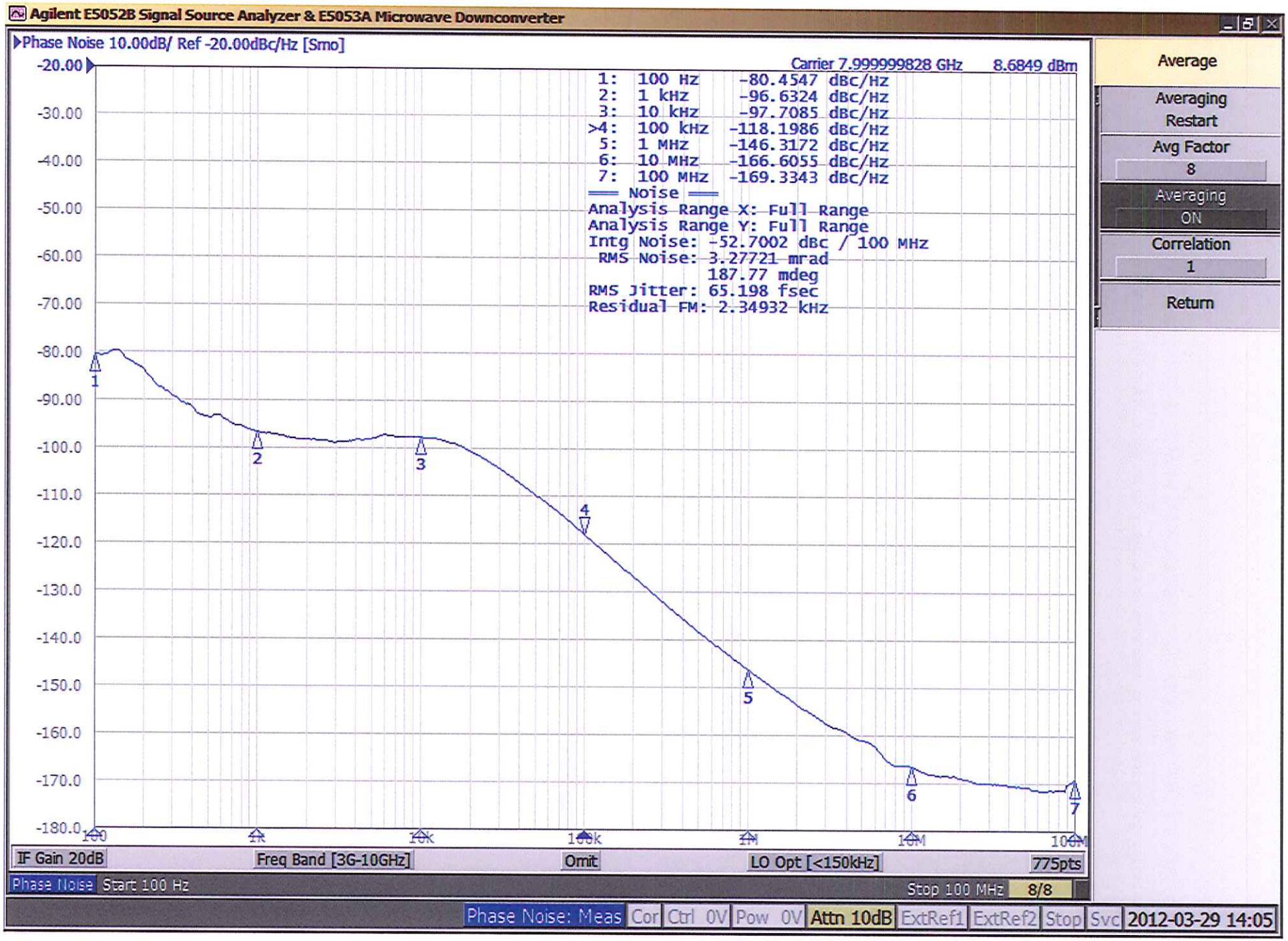
Frequency	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	10 MHz	Status	RF Power
2000.000	-93.9	-110.0	-113.1	-106.1	-139.8	-151.6	Pass	1.21 dBm
3800.000	-90.3	-104.7	-109.4	-112.3	-142.9	-159.0	Pass	4.58 dBm
5600.000	-85.9	-101.3	-104.7	-113.1	-143.1	-158.9	Pass	3.05 dBm
7400.000	-84.6	-99.1	-102.4	-114.3	-143.2	-159.0	Pass	5.65 dBm
9200.000	-82.5	-96.9	-98.5	-112.8	-142.7	-159.0	Pass	4.98 dBm
11000.000	-80.0	-94.9	-96.8	-113.3	-142.3	-157.9	Pass	2.73 dBm
12800.000	-79.6	-94.0	-94.4	-112.7	-141.6	-157.8	Pass	2.35 dBm
14600.000	-79.0	-92.2	-93.1	-112.7	-140.9	-157.7	Pass	4.19 dBm
16400.000	-76.7	-90.7	-89.1	-109.7	-138.7	-155.8	Pass	1.14 dBm
18200.000	-76.9	-88.4	-84.5	-106.2	-135.9	-156.3	Pass	0.77 dBm
20000.000	-75.1	-82.8	-75.2	-98.4	-128.3	-153.1	Pass	-0.56 dBm

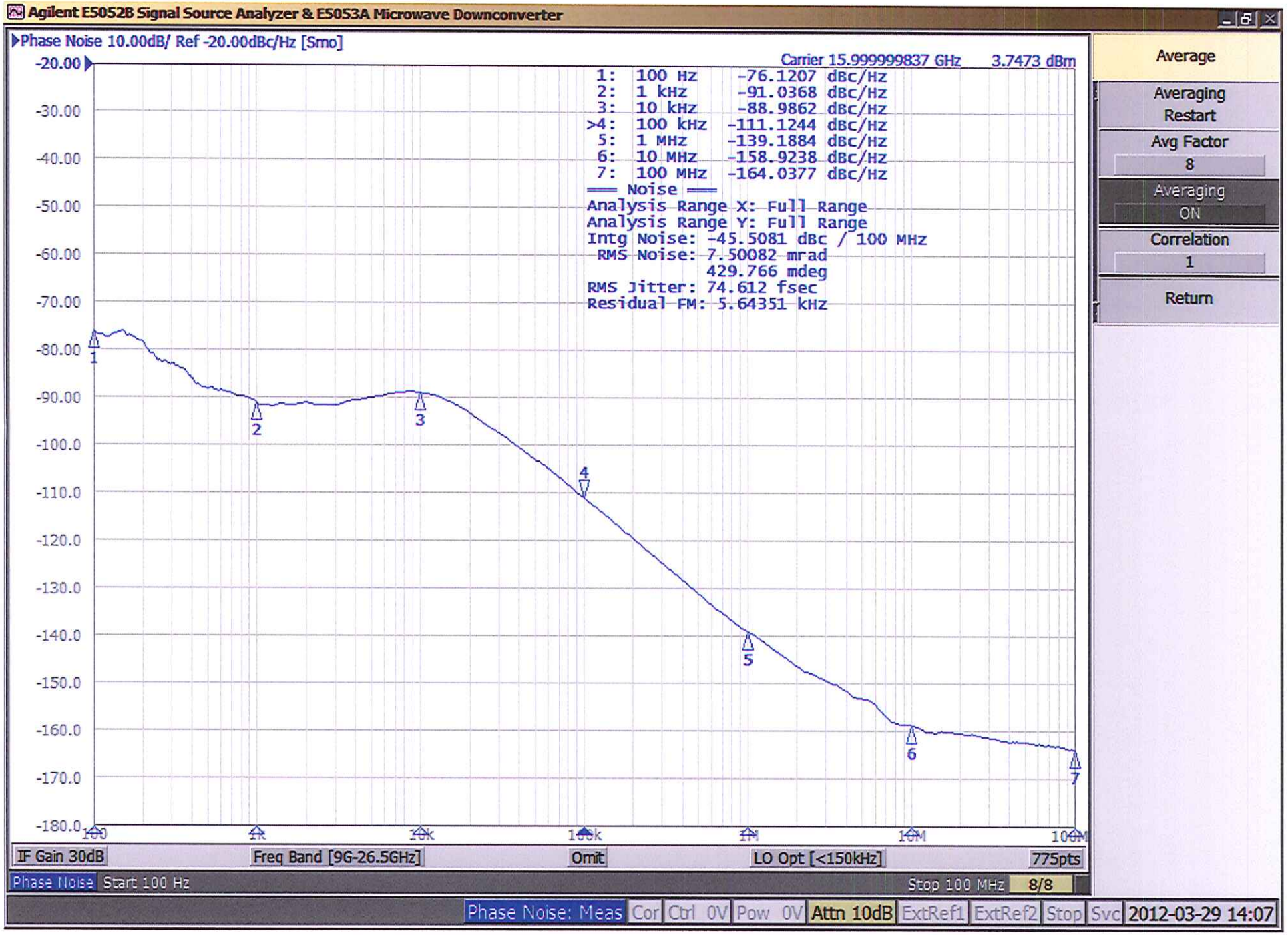
Number of Failures: 0

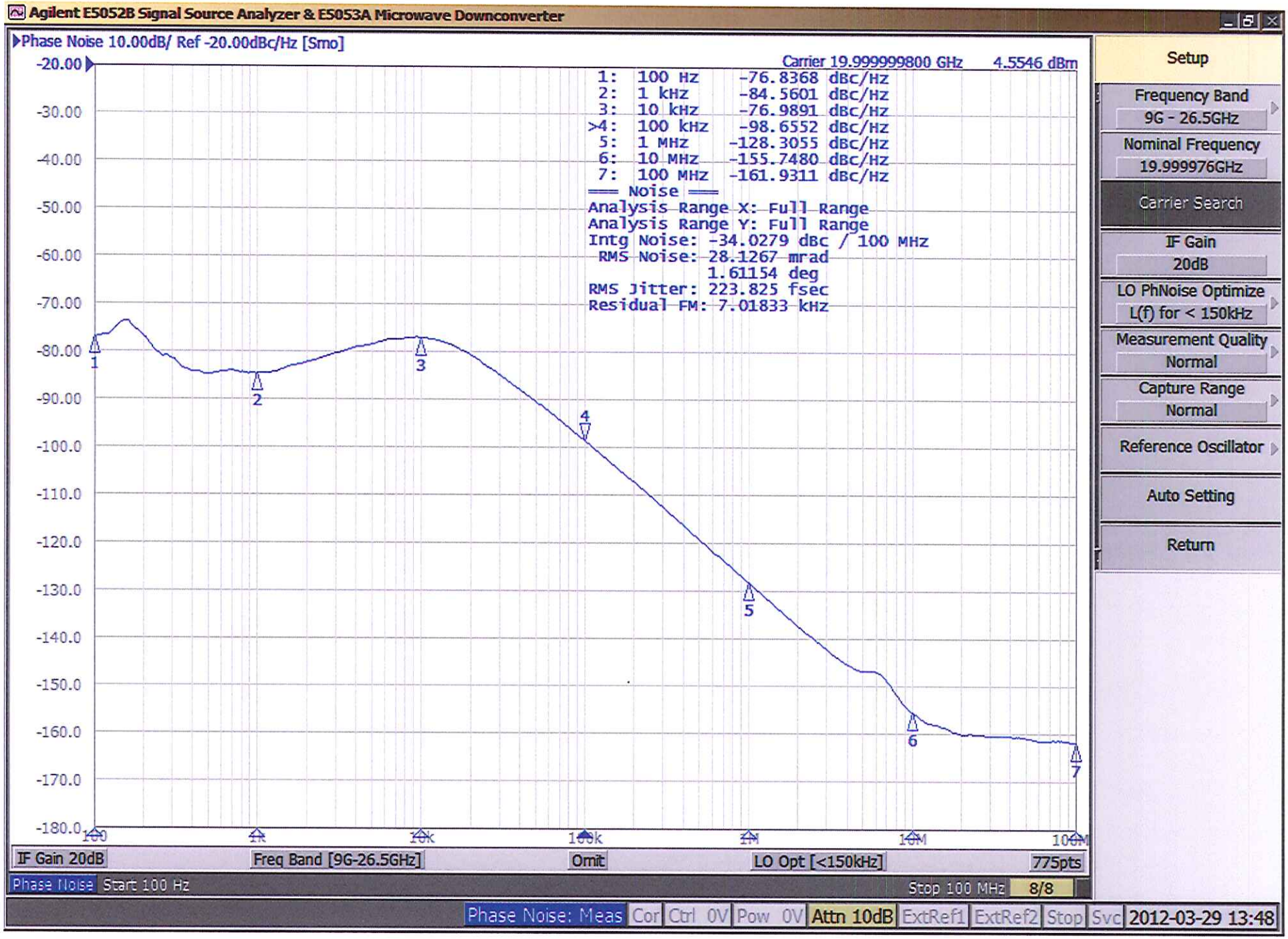
Finish Time: 9:38:41 AM

Phase Noise Readings Complete


Agilent E5052B Signal Source Analyzer & E5053A Microwave Downconverter
Phase Noise 10.00dB/ Ref -20.00dBc/Hz [Smo]
Carrier 2.000000000 GHz 12.7448 dBm
1: 100 Hz -89.0418 dBc/Hz
2: 1 kHz -106.0819 dBc/Hz
3: 10 kHz -108.9347 dBc/Hz
>4: 100 kHz -117.9253 dBc/Hz
5: 1 MHz -142.1414 dBc/Hz
6: 10 MHz -161.3350 dBc/Hz
7: 100 MHz -165.7524 dBc/Hz
Noise
Analysis Range X: Full Range
Analysis Range Y: Full Range
Intg Noise: -59.6584 dBc / 100 MHz
RMS Noise: 1.47093 mrad
84.2782 mdeg
RMS Jitter: 117.053 fsec
Residual FM: 4.30096 kHz
-20.00
-30.00
-40.00
-50.00
-60.00
-70.00
-80.00
-90.00
-100.0
-110.0
-120.0
-130.0
-140.0
-150.0
-160.0
-170.0
-180.0
100
1k
10k
100k
1M
10M
100M
IF Gain 20dB
Freq Band [250M-3GHz]
Omit
LO Opt [<150kHz]
775pts
Phase Noise
Start 100 Hz
Stop 100 MHz
8/8
Average
Averaging Restart
Avg Factor 8
Averaging ON
Correlation 1
Return
Set RF ATT 5dB
Phase Noise: Meas
Cor
Ctrl 0V
Pow 0V
Attn 10dB
ExtRef1
ExtRef2
Stop
Svc
2012-03-29 13:51


Agilent E5052B Signal Source Analyzer & E5053A Microwave Downconverter
Phase Noise 10.00dB/ Ref -20.00dBc/Hz [Smo]
Carrier 7.999999828 GHz 8.6849 dBm
1: 100 Hz -80.4547 dBc/Hz
2: 1 kHz -96.6324 dBc/Hz
3: 10 kHz -97.7085 dBc/Hz
>4: 100 kHz -118.1986 dBc/Hz
5: 1 MHz -146.3172 dBc/Hz
6: 10 MHz -166.6055 dBc/Hz
7: 100 MHz -169.3343 dBc/Hz
Noise
Analysis Range X: Full Range
Analysis Range Y: Full Range
Intg Noise: -52.7002 dBc / 100 MHz
RMS Noise: 3.27721 mrad
187.77 mdeg
RMS Jitter: 65.198 fsec
Residual FM: 2.34932 kHz
-20.00
-30.00
-40.00
-50.00
-60.00
-70.00
-80.00
-90.00
-100.0
-110.0
-120.0
-130.0
-140.0
-150.0
-160.0
-170.0
-180.0
100
1k
10k
100k
1M
10M
100M
IF Gain 20dB
Freq Band [3G-10GHz]
Omit
LO Opt [<150kHz]
775pts
Phase Noise
Start 100 Hz
Stop 100 MHz
8/8
Average
Averaging Restart
Avg Factor
8
Averaging
ON
Correlation
1
Return
Phase Noise: Meas
Cor
Ctrl 0V
Pow 0V
Attn 10dB
ExtRef1
ExtRef2
Stop
Svc
2012-03-29 14:05


Agilent E5052B Signal Source Analyzer & E5053A Microwave Downconverter
Phase Noise 10.00dB/ Ref -20.00dBc/Hz [Smo]
Carrier 15.999999837 GHz 3.7473 dBm
1: 100 Hz -76.1207 dBc/Hz
2: 1 kHz -91.0368 dBc/Hz
3: 10 kHz -88.9862 dBc/Hz
>4: 100 kHz -111.1244 dBc/Hz
5: 1 MHz -139.1884 dBc/Hz
6: 10 MHz -158.9238 dBc/Hz
7: 100 MHz -164.0377 dBc/Hz
Noise
Analysis Range X: Full Range
Analysis Range Y: Full Range
Intg Noise: -45.5081 dBc / 100 MHz
RMS Noise: 7.50082 mrad
429.766 mdeg
RMS Jitter: 74.612 fsec
Residual FM: 5.64351 kHz
-20.00
-30.00
-40.00
-50.00
-60.00
-70.00
-80.00
-90.00
-100.0
-110.0
-120.0
-130.0
-140.0
-150.0
-160.0
-170.0
-180.0
IF Gain 30dB
Freq Band [9G-26.5GHz]
Omit
LO Opt [<150kHz]
775pts
Phase Noise
Start 100 Hz
Stop 100 MHz
8/8
Average
Averaging Restart
Avg Factor
8
Averaging
ON
Correlation
1
Return
Phase Noise: Meas
Cor
Ctrl 0V
Pow 0V
Attn 10dB
ExtRef1
ExtRef2
Stop
Svc
2012-03-29 14:07


Agilent E5052B Signal Source Analyzer & E5053A Microwave Downconverter
Phase Noise 10.00dB/ Ref -20.00dBc/Hz [Smo]
Carrier 19.999999800 GHz 4.5546 dBm
1: 100 Hz -76.8368 dBc/Hz
2: 1 kHz -84.5601 dBc/Hz
3: 10 kHz -76.9891 dBc/Hz
>4: 100 kHz -98.6552 dBc/Hz
5: 1 MHz -128.3055 dBc/Hz
6: 10 MHz -155.7480 dBc/Hz
7: 100 MHz -161.9311 dBc/Hz
Noise
Analysis Range X: Full Range
Analysis Range Y: Full Range
Intg Noise: -34.0279 dBc / 100 MHz
RMS Noise: 28.1267 mrad
1.61154 deg
RMS Jitter: 223.825 fsec
Residual FM: 7.01833 kHz
-20.00
-30.00
-40.00
-50.00
-60.00
-70.00
-80.00
-90.00
-100.0
-110.0
-120.0
-130.0
-140.0
-150.0
-160.0
-170.0
-180.0
100
1k
10k
100k
1M
10M
100M
IF Gain 20dB
Freq Band [9G-26.5GHz]
Omit
LO Opt [<150kHz]
775pts
Phase Noise
Start 100 Hz
Stop 100 MHz
8/8
Setup
Frequency Band
9G - 26.5GHz
Nominal Frequency
19.999976GHz
Carrier Search
IF Gain
20dB
LO PhNoise Optimize
L(f) for < 150kHz
Measurement Quality
Normal
Capture Range
Normal
Reference Oscillator
Auto Setting
Return
Phase Noise: Meas
Cor
Ctrl 0V
Pow 0V
Attn 10dB
ExtRef1
ExtRef2
Stop
Svc
2012-03-29 13:48