

***** MLVS Main Test Menu Final Test Data Summary *****

Serial Number: 0151
Model Number: MLVS-0520DS
Time: 10:24:37 AM
Date: 11/13/2019
Minimum Frequency: 50.000 MHz
Maximum Frequency: 21000.000 MHz
Frequency Step Size: 0.001 Hz
Internal Reference Oscillator SN: XF1278
Maximum RF Level (Min.): 15.0 dBm
Maximum RF Level (Max.): 22.0 dBm
Minimum Operating Temperature: 0.0 Degrees C.
Maximum Operating Temperature: 60.0 Degrees C.
MLVS Firmware Version: 00012019081611
MLWI Sales Order #: 10-0000
MLWI Outline Drawing #: 99-0101-001

Final Test Data Check Point Status:

Config data file backup = Pass
Xtal Oscillator 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
Cal Status = Pass
Xtal Cal = Pass
PLL Locked Status = Pass
MLWI Job # = Pass
MLWI Drawing # = Pass
Current Self Test Run = Pass

Pass - Unit is Ready to Ship

Label unit per outline drawing listed above.
Fill out all paperwork and submit to QA for inspection.
Copy all paperwork to include in shipping box.

SHIPPING CHECKLIST:

- 1. Labeled unit with SMA connector protectors installed
2. USB cable (1 per unit)
3. MLVS support USB Flash Drive (1 per lot)
6. MLVS quick start guide (1 per unit)
7. Copy of completed C of C
8. Copy of test data packet (1 per unit)
9. Copy of outline drawing (1 per unit)
10. Copy of completed Packing list (1 per unit)

Check box

Horizontal lines for check boxes corresponding to the shipping checklist items.

Notes:

Place labeled unit into anti-static pouch.
Place USB Flash Drive and USB cables in a separate large anti-static pouch.
Staple bags with J1 mating items to paperwork.
Box and ship product.

Initials: _____

Date: _____

***** Frequency Lock Test from 50.0 MHz to 21000.0 MHz in 10 MHz Steps *****

Serial Number: 0151
Model Number: MLVS-0520DS
Time: 10:15:37 AM
Date: 6/27/2019
Minimum Frequency: 50.0 MHz
Maximum Frequency: 21000.0 MHz
Temperature: +27.11C Deg. C
NOVO State: Unlocked
Power Supply Spec: +12.0 VDC +/- 0.50 V @ < 1350 mA
Accuracy Tested to: +/-0.002 MHz

Begin Frequency Lock Test from 50.0 MHz to 21000.0 MHz in 10 MHz Steps

Total Frequency Errors: 0

Finish Time: 10:17:44 AM

Begin Random Frequency Lock Test from 50.0 MHz to 21000.0 MHz (1000 Frequencies)

Total Random Frequency Errors: 0

Finish Time: 10:18:51 AM

+1.8V = 1.8V = Pass
+3.3V = 3.4V = Pass
+5.0V = 5.1V = Pass
+11.6V = 11.5V = Pass
+30.0V = 29.6V = Pass
-5.0V = -5.1V = Pass
+10.0V = 10.0V = Pass

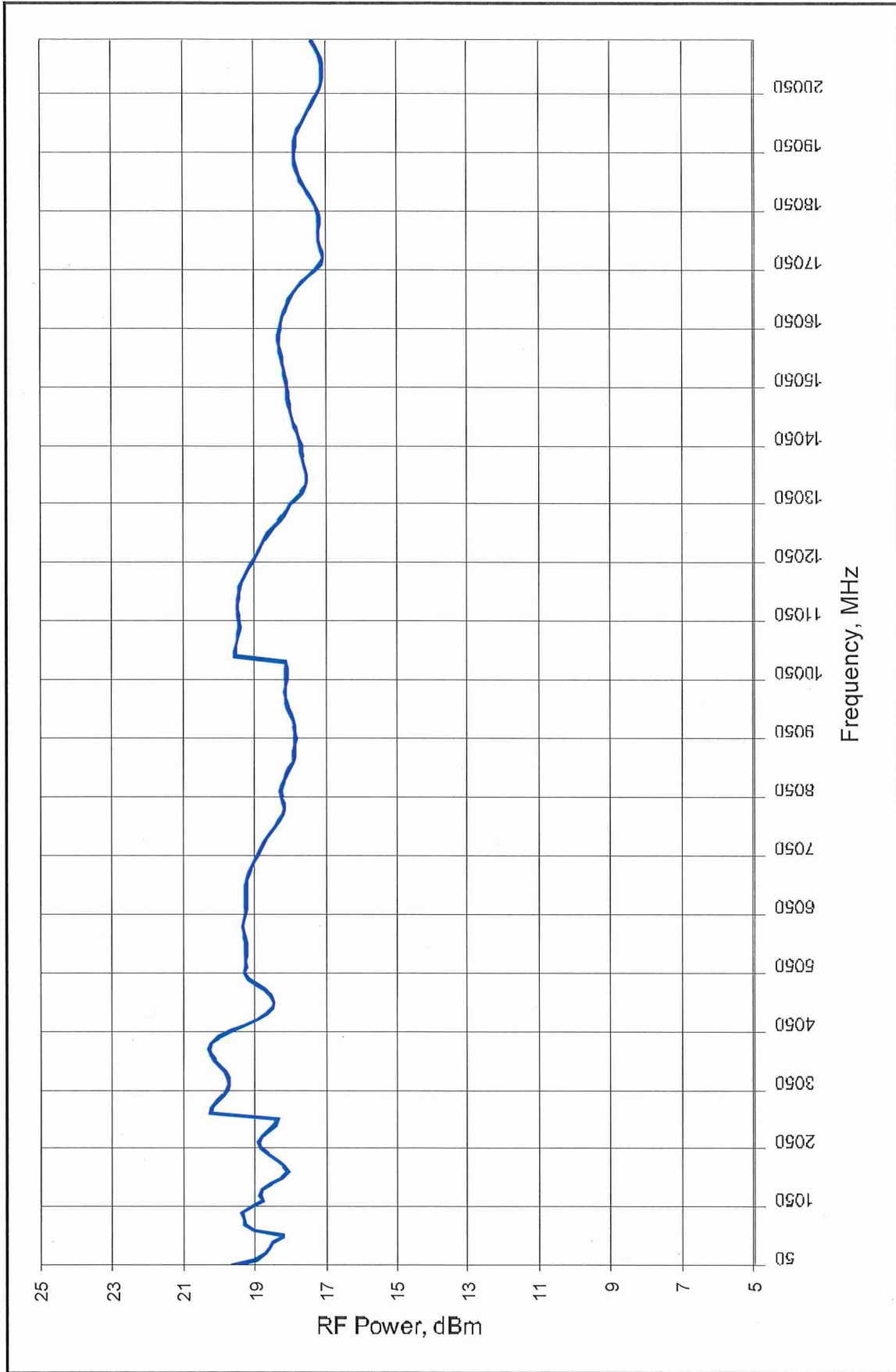
+12.0 VDC Voltage = 11.994V Pass
+12.0 VDC Current = 1339mA Pass

Finish Time: 10:18:53 AM

Total Errors: 0

Pass

Maximum RF Output Power vs. Frequency



Max Levelled Pwr: N/A dBm Min Levelled Pwr: N/A dBm Levelled Pwr Set: Max dBm Level Flatness Spec: +/-2.5 dB

Print

***** Harmonic Test from 50.000000 MHz to 21000.000000 MHz in 100 MHz Steps *****

Model Number: MLVS-0520DS

Serial Number: 0151

Time: 10:48:31 AM

Date: 6/27/2019

Minimum Frequency: 50.000000 MHz

Maximum Frequency: 21000.000000 MHz

Current Unit Temperature: +37.22C Deg. C

Harmonic Spec Level (In Band): -12.0 dBc

Harmonic Spec Level <= 250 MHz: -10.0 dBc

Frequency	Level	Harm #	Status
50 MHz	-11 dBc	3	PASS
150 MHz	-10 dBc	3	PASS
250 MHz	-12 dBc	3	PASS
350 MHz	-17 dBc	3	PASS
450 MHz	-22 dBc	3	PASS
550 MHz	-26 dBc	2	PASS
650 MHz	-23 dBc	2	PASS
750 MHz	-23 dBc	3	PASS
850 MHz	-21 dBc	3	PASS
950 MHz	-21 dBc	3	PASS
1050 MHz	-23 dBc	2	PASS
1150 MHz	-23 dBc	2	PASS
1250 MHz	-22 dBc	3	PASS
1350 MHz	-23 dBc	3	PASS
1450 MHz	-23 dBc	3	PASS
1550 MHz	-23 dBc	3	PASS
1650 MHz	-24 dBc	3	PASS
1750 MHz	-22 dBc	3	PASS
1850 MHz	-23 dBc	2	PASS
1950 MHz	-23 dBc	2	PASS
2050 MHz	-22 dBc	3	PASS
2150 MHz	-22 dBc	3	PASS
2250 MHz	-22 dBc	3	PASS
2350 MHz	-23 dBc	2	PASS
2450 MHz	-23 dBc	2	PASS
2550 MHz	-24 dBc	2	PASS
2650 MHz	-17 dBc	3	PASS
2750 MHz	-17 dBc	3	PASS
2850 MHz	-18 dBc	3	PASS
2950 MHz	-19 dBc	3	PASS
3050 MHz	-19 dBc	3	PASS
3150 MHz	-19 dBc	3	PASS
3250 MHz	-19 dBc	3	PASS
3350 MHz	-19 dBc	3	PASS
3450 MHz	-19 dBc	3	PASS
3550 MHz	-19 dBc	3	PASS
3650 MHz	-19 dBc	3	PASS
3750 MHz	-19 dBc	3	PASS
3850 MHz	-19 dBc	2	PASS
3950 MHz	-19 dBc	2	PASS
4050 MHz	-20 dBc	2	PASS
4150 MHz	-20 dBc	2	PASS
4250 MHz	-22 dBc	2	PASS
4350 MHz	-23 dBc	3	PASS
4450 MHz	-23 dBc	2	PASS
4550 MHz	-22 dBc	2	PASS
4650 MHz	-21 dBc	2	PASS
4750 MHz	-20 dBc	2	PASS
4850 MHz	-20 dBc	2	PASS
4950 MHz	-21 dBc	2	PASS
5050 MHz	-20 dBc	3	PASS
5150 MHz	-20 dBc	3	PASS
5250 MHz	-20 dBc	3	PASS
5350 MHz	-19 dBc	3	PASS
5450 MHz	-20 dBc	3	PASS
5550 MHz	-20 dBc	3	PASS
5650 MHz	-21 dBc	3	PASS
5750 MHz	-21 dBc	3	PASS
5850 MHz	-21 dBc	3	PASS
5950 MHz	-22 dBc	3	PASS
6050 MHz	-23 dBc	2	PASS
6150 MHz	-23 dBc	2	PASS
6250 MHz	-22 dBc	2	PASS
6350 MHz	-20 dBc	2	PASS
6450 MHz	-20 dBc	2	PASS
6550 MHz	-19 dBc	2	PASS
6650 MHz	-19 dBc	2	PASS
6750 MHz	-19 dBc	2	PASS
6850 MHz	-20 dBc	2	PASS
6950 MHz	-21 dBc	2	PASS
7050 MHz	-22 dBc	2	PASS
7150 MHz	-22 dBc	2	PASS

7250	MHz	-22	dBc	2	PASS
7350	MHz	-23	dBc	2	PASS
7450	MHz	-23	dBc	2	PASS
7550	MHz	-23	dBc	2	PASS
7650	MHz	-23	dBc	2	PASS
7750	MHz	-23	dBc	2	PASS
7850	MHz	-22	dBc	2	PASS
7950	MHz	-22	dBc	2	PASS
8050	MHz	-21	dBc	2	PASS
8150	MHz	-22	dBc	2	PASS
8250	MHz	-21	dBc	2	PASS
8350	MHz	-19	dBc	2	PASS
8450	MHz	-19	dBc	2	PASS
8550	MHz	-19	dBc	2	PASS
8650	MHz	-19	dBc	2	PASS
8750	MHz	-19	dBc	2	PASS
8850	MHz	-19	dBc	2	PASS
8950	MHz	-21	dBc	2	PASS
9050	MHz	-21	dBc	2	PASS
9150	MHz	-23	dBc	2	PASS
9250	MHz	-23	dBc	2	PASS
9350	MHz	-23	dBc	2	PASS
9450	MHz	-23	dBc	2	PASS
9550	MHz	-23	dBc	2	PASS
9650	MHz	-23	dBc	2	PASS
9750	MHz	-24	dBc	2	PASS
9850	MHz	-23	dBc	2	PASS
9950	MHz	-21	dBc	2	PASS
10050	MHz	-22	dBc	2	PASS
10150	MHz	-19	dBc	2	PASS
10250	MHz	-17	dBc	2	PASS
10350	MHz	-17	dBc	2	PASS
10450	MHz	-24	dBc	2	PASS
10550	MHz	-24	dBc	2	PASS
10650	MHz	-23	dBc	2	PASS
10750	MHz	-25	dBc	2	PASS
10850	MHz	-24	dBc	2	PASS
10950	MHz	-23	dBc	2	PASS
11050	MHz	-22	dBc	2	PASS
11150	MHz	-20	dBc	2	PASS
11250	MHz	-19	dBc	2	PASS
11350	MHz	-19	dBc	2	PASS
11450	MHz	-19	dBc	2	PASS
11550	MHz	-19	dBc	2	PASS
11650	MHz	-19	dBc	2	PASS
11750	MHz	-19	dBc	2	PASS
11850	MHz	-20	dBc	2	PASS
11950	MHz	-21	dBc	2	PASS
12050	MHz	-21	dBc	2	PASS
12150	MHz	-22	dBc	2	PASS
12250	MHz	-23	dBc	2	PASS
12350	MHz	-24	dBc	2	PASS
12450	MHz	-23	dBc	2	PASS
12550	MHz	-23	dBc	2	PASS
12650	MHz	-24	dBc	2	PASS
12750	MHz	-22	dBc	2	PASS
12850	MHz	-23	dBc	2	PASS
12950	MHz	-23	dBc	2	PASS
13050	MHz	-23	dBc	2	PASS
13150	MHz	-24	dBc	2	PASS
13250	MHz	-26	dBc	2	PASS
13350	MHz	-28	dBc	2	PASS

Number of Failures: 0

Finish Time: 11:09:09 AM

Harmonic Readings complete

Pass

**** Random Spur Test from 50.0 MHz to 21000.0 MHz ****

Serial Number: 0151
Model Number: MLVS-0520DS
Time: 11:32:28 AM
Date: 6/27/2019
Minimum Frequency: 50.0 MHz
Maximum Frequency: 21000.0 MHz
Analyzer Frequency Span Tested: 2 kHz to 2000 MHz - or Max span = 1.9 * CF if <=1000 MHz
Spur Level Spec <=: -60.0 dBc
Number of Frequencies Tested: 25
Temperature: +37.30C Deg. C
NOVO State: Unlocked

Random Frequency	Status
Frequency Tested = 20472.481396 MHz	Pass
Frequency Tested = 16299.197577 MHz	Pass
Frequency Tested = 8321.365041 MHz	Pass
Frequency Tested = 14935.505716 MHz	Pass
Frequency Tested = 18158.812468 MHz	Pass
Frequency Tested = 7147.805709 MHz	Pass
Frequency Tested = 9709.550414 MHz	Pass
Frequency Tested = 10943.260833 MHz	Pass
Frequency Tested = 17665.520612 MHz	Pass
Frequency Tested = 9240.521044 MHz	Pass
Frequency Tested = 20437.148502 MHz	Pass
Frequency Tested = 7635.865189 MHz	Pass
Frequency Tested = 11309.890495 MHz	Pass
Frequency Tested = 260.001818 MHz	Pass
Frequency Tested = 8444.998951 MHz	Pass
Frequency Tested = 10846.006087 MHz	Pass
Frequency Tested = 1649.097548 MHz	Pass
Frequency Tested = 1379.750105 MHz	Pass
Frequency Tested = 17266.463959 MHz	Pass
Frequency Tested = 8020.538429 MHz	Pass
Frequency Tested = 5939.840074 MHz	Pass
Frequency Tested = 2953.533697 MHz	Pass
Frequency Tested = 10356.536737 MHz	Pass
Frequency Tested = 15318.355741 MHz	Pass
Frequency Tested = 20664.922913 MHz	Pass

Total Spur Errors: 0

Finish Time: 12:04:43 PM
Test Completed
Pass

**** Switching Speed Test from 50.0 to 21000.0 MHz in 100 1000 MHz & Full Band Steps ****

Model Number: MLVS-0520DS
Serial Number: 0151
Time: 11:24:45 AM
Date: 6/27/2019
Minimum Frequency: 50.000 MHz
Maximum Frequency: 21000.000 MHz
Current Unit Temperature: +37.29C Deg. C
Switching Speed Spec:
For a Full Band Step: 50.0 uS
For 25 Random Jumps - Max Time Range: 50.0 uS

Frequency Step	Meas. Speed	Status
Full band Step Up =	35.0 uS	Pass
Full band Step Down =	21.0 uS	Pass

Frequency Step (MHz)	Step Size (MHz)	Meas. Speed	Status
Random Jump From 50.0 To 9345.0	9295.0	28.0 uS	Pass
Random Jump From 9345.0 To 15615.0	6270.0	27.0 uS	Pass
Random Jump From 15615.0 To 1420.0	-14195.0	22.0 uS	Pass
Random Jump From 1420.0 To 9658.0	8238.0	30.0 uS	Pass
Random Jump From 9658.0 To 5880.0	-3778.0	27.0 uS	Pass
Random Jump From 5880.0 To 14022.0	8142.0	23.0 uS	Pass
Random Jump From 14022.0 To 6120.0	-7902.0	23.0 uS	Pass
Random Jump From 6120.0 To 11892.0	5772.0	22.0 uS	Pass
Random Jump From 11892.0 To 15511.0	3619.0	25.0 uS	Pass
Random Jump From 15511.0 To 14055.0	-1456.0	24.0 uS	Pass
Random Jump From 14055.0 To 11569.0	-2486.0	22.0 uS	Pass
Random Jump From 11569.0 To 6078.0	-5491.0	25.0 uS	Pass
Random Jump From 6078.0 To 15788.0	9710.0	25.0 uS	Pass
Random Jump From 15788.0 To 2095.0	-13693.0	22.0 uS	Pass
Random Jump From 2095.0 To 17714.0	15619.0	22.0 uS	Pass
Random Jump From 17714.0 To 2546.0	-15168.0	31.0 uS	Pass
Random Jump From 2546.0 To 12222.0	9676.0	32.0 uS	Pass
Random Jump From 12222.0 To 10969.0	-1253.0	23.0 uS	Pass
Random Jump From 10969.0 To 11929.0	960.0	24.0 uS	Pass
Random Jump From 11929.0 To 5705.0	-6224.0	22.0 uS	Pass
Random Jump From 5705.0 To 5743.0	38.0	18.0 uS	Pass
Random Jump From 5743.0 To 6108.0	365.0	16.0 uS	Pass
Random Jump From 6108.0 To 18118.0	12010.0	30.0 uS	Pass
Random Jump From 18118.0 To 9551.0	-8567.0	22.0 uS	Pass
Random Jump From 9551.0 To 6480.0	-3071.0	28.0 uS	Pass

Number of Failures: 0

Finish Time: 11:31:54 AM

Switching Speed Readings complete

Pass

***** Phase Noise Test from 50.0 MHz to 21000.0 MHz *****

Model Number: MLVS-0520DS
 Serial Number: 0151
 Time: 12:50:33 PM
 Date: 6/27/2019
 Minimum Frequency: 50.0 MHz
 Maximum Frequency: 21000.0 MHz
 Current Unit Temperature: +45.13C Deg. C

Phase Noise Spec @ Offset and Frequency:

Offset	Noise 50 MHz	Noise 500 MHz	Noise 5 GHz	Noise 10 GHz	Noise 20 GHz	Noise 21 GHz	
100 Hz =	-123	-111	-97	-89	-86	-86	dBc/Hz
1.0 kHz =	-140	-125	-118	-110	-108	-104	dBc/Hz
10.0 kHz =	-148	-137	-127	-121	-115	-113	dBc/Hz
100 kHz =	-153	-144	-129	-123	-117	-116	dBc/Hz
1.0 MHz =	-153	-144	-127	-121	-115	-114	dBc/Hz
10.0 MHz =	-153	-148	-140	-135	-127	-131	dBc/Hz

Correlation = 100

Measured:

Frequency	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	10 MHz	Status	RF Power
50.000	-133.0	-144.7	-152.2	-156.4	-157.6	-157.6	Pass	14.86 dBm
150.000	-126.2	-144.4	-150.1	-153.2	-153.7	-154.8	Pass	12.81 dBm
250.000	-123.0	-140.7	-147.2	-150.5	-151.0	-153.6	Pass	15.19 dBm
500.000	-118.3	-136.1	-142.6	-146.1	-146.7	-151.0	Pass	14.90 dBm
750.000	-114.7	-138.9	-145.3	-144.3	-142.1	-150.2	Pass	15.19 dBm
2000.000	-106.2	-131.3	-137.3	-137.5	-137.1	-146.6	Pass	13.98 dBm
5000.001	-106.8	-125.6	-130.1	-129.9	-130.0	-143.2	Pass	12.80 dBm
7500.001	-103.6	-122.1	-126.3	-126.3	-125.2	-135.9	Pass	12.82 dBm
10000.001	-99.8	-120.3	-124.0	-124.0	-124.0	-138.2	Pass	11.75 dBm
10400.001	-100.4	-119.5	-123.9	-120.3	-117.1	-129.4	Pass	7.55 dBm
12000.001	-98.0	-117.3	-122.8	-120.8	-118.0	-129.2	Pass	8.66 dBm
14000.002	-98.0	-117.0	-121.2	-120.9	-119.1	-129.7	Pass	9.66 dBm
16000.002	-96.8	-118.2	-120.2	-119.8	-119.1	-131.1	Pass	10.05 dBm
18000.002	-95.0	-115.5	-119.2	-119.2	-119.1	-131.5	Pass	10.01 dBm
20000.002	-93.3	-115.0	-118.1	-117.9	-117.9	-132.7	Pass	10.27 dBm
21000.002	-94.5	-113.4	-117.8	-116.9	-117.1	-133.7	Pass	10.66 dBm

Number of Failures: 0

Finish Time: 1:07:43 PM

Phase Noise Readings Complete

Pass