

***** MLMS Main Test Menu Final Test Data Summary *****

Serial Number: 0071
Model Number: MLMS-8020B
Time: 11:31:43 AM
Date: 12/10/2018
Minimum Frequency: 8000.000 MHz
Maximum Frequency: 20000.000 MHz
Frequency Step Size: 0.001 MHz
External 100 MHz PLL Reference Frequency: 10.0 MHz
Maximum RF Level (Min.): 8.0 dBm
Maximum RF Level (Max.): 18.0 dBm
Minimum Operating Temperature: 0 Degrees C.
Maximum Operating Temperature: 60 Degrees C.
MLMS Firmware Version: 3.0 Feb 20 2018
MLWI Sales Order #: 21*0031
MLWI Outline Drawing #: 211-001 A

Final Test Data Check Point Status:

Config data file backup = Pass
Coarse Cal file = Pass
Fine Cal file = 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
Full Cal Status = Pass
Coarse Cal = Pass
Fine 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.

Table with 2 columns: SHIPPING CHECKLIST (1-10 items) and Check box (checkboxes)

Notes:
Place labeled unit into anti-static pouch.
Place CD 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 8000.000 MHz to 20000.000 MHz in 10 MHz Steps *****

Serial Number: 0071
Model Number: MLMS-8020B
Time: 11:27:53 AM
Date: 12/10/2018
Minimum Frequency: 8000.000 MHz
Maximum Frequency: 20000.000 MHz
Temperature: +33.8C Deg. C
NOVO State: UnLocked
Power Supply Spec: +5.0 VDC +/- 0.25 V @ < 550 mA
Power Supply Spec: +15.0 VDC +/- 0.50 V @ < 450 mA
Accuracy Tested to: +/-0.002 MHz

Begin Frequency Lock Test from 8000.000 MHz to 20000.000 MHz in 10 MHz Steps

Total Frequency Errors: 0

Finish Time: 11:28:48 AM

Begin Random Frequency Lock Test from 8000.000 MHz to 20000.000 MHz (1000 Frequencies)

Total Random Frequency Errors: 0

Finish Time: 11:29:35 AM

Internal Power Supply Voltage Readings:

+2.5V = +2.5V Pass
+3.3V = +3.3V Pass
+5.0V = +5.0V Pass
-5.0V = -5.0V Pass
+6.75V = +6.7V Pass
+13.5V = +13.4V Pass
100 MHz PLL V = +1.7V Pass
YIG PLL V = +7.8V Pass

External Power Supply Voltage and Current Readings:

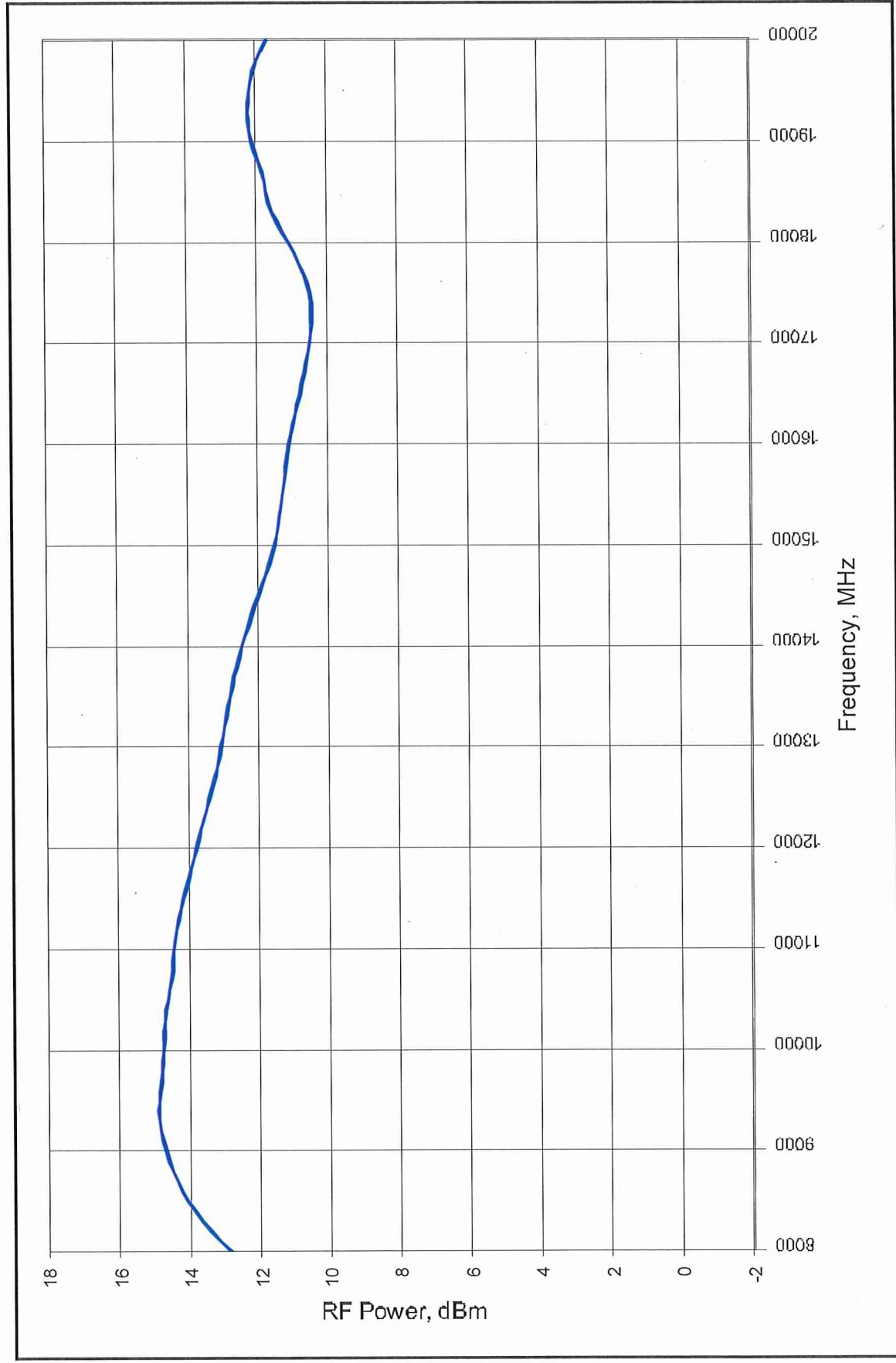
+5.0 VDC Voltage = 5.001V Pass
+5.0 VDC Current = 519mA Pass
+15.0 VDC Voltage = 14.996V Pass
+15.0 VDC Current = 414mA Pass

Finish Time: 11:29:36 AM

Total Errors: 0

Pass

Maximum RF Output Power vs. Frequency



Max Leveled Pwr: No dBm Min Leveled Pwr: N/A dBm Leveled Pwr Set: Max dBm Level Flatness Spec: +/-2.5 dB

Print

**** Harmonic Test from 8000.000000 MHz to 20000.000000 MHz in 100 MHz Steps ****

Model Number: MLMS-8020B

Serial Number: 0071

Time: 1:17:52 PM

Date: 12/6/2018

Minimum Frequency: 8000.000000 MHz

Maximum Frequency: 20000.000000 MHz

Current Unit Temperature: +35.8C Deg. C

Harmonic Spec Level (In Band): -15.0 dBc

Frequency	Level	Harm #	Status
8000 MHz	-21 dBc	2	PASS
8100 MHz	-21 dBc	2	PASS
8200 MHz	-20 dBc	2	PASS
8300 MHz	-19 dBc	2	PASS
8400 MHz	-18 dBc	2	PASS
8500 MHz	-19 dBc	2	PASS
8600 MHz	-19 dBc	2	PASS
8700 MHz	-18 dBc	2	PASS
8800 MHz	-18 dBc	2	PASS
8900 MHz	-18 dBc	2	PASS
9000 MHz	-18 dBc	2	PASS
9100 MHz	-18 dBc	2	PASS
9200 MHz	-18 dBc	2	PASS
9300 MHz	-18 dBc	2	PASS
9400 MHz	-18 dBc	2	PASS
9500 MHz	-18 dBc	2	PASS
9600 MHz	-19 dBc	2	PASS
9700 MHz	-19 dBc	2	PASS
9800 MHz	-19 dBc	2	PASS
9900 MHz	-19 dBc	2	PASS
10000 MHz	-19 dBc	2	PASS
10100 MHz	-18 dBc	2	PASS
10200 MHz	-18 dBc	2	PASS
10300 MHz	-18 dBc	2	PASS
10400 MHz	-19 dBc	2	PASS
10500 MHz	-19 dBc	2	PASS
10600 MHz	-19 dBc	2	PASS
10700 MHz	-20 dBc	2	PASS
10800 MHz	-20 dBc	2	PASS
10900 MHz	-20 dBc	2	PASS
11000 MHz	-20 dBc	2	PASS
11100 MHz	-20 dBc	2	PASS
11200 MHz	-20 dBc	2	PASS
11300 MHz	-19 dBc	2	PASS
11400 MHz	-20 dBc	2	PASS
11500 MHz	-19 dBc	2	PASS
11600 MHz	-18 dBc	2	PASS
11700 MHz	-19 dBc	2	PASS
11800 MHz	-18 dBc	2	PASS
11900 MHz	-18 dBc	2	PASS
12000 MHz	-18 dBc	2	PASS
12100 MHz	-18 dBc	2	PASS
12200 MHz	-19 dBc	2	PASS
12300 MHz	-18 dBc	2	PASS
12400 MHz	-19 dBc	2	PASS
12500 MHz	-19 dBc	2	PASS
12600 MHz	-18 dBc	2	PASS
12700 MHz	-18 dBc	2	PASS
12800 MHz	-19 dBc	2	PASS
12900 MHz	-19 dBc	2	PASS
13000 MHz	-19 dBc	2	PASS
13100 MHz	-20 dBc	2	PASS
13200 MHz	-21 dBc	2	PASS
13300 MHz	-19 dBc	2	PASS
13400 MHz	-20 dBc	2	PASS

Number of Failures: 0

Finish Time: 1:23:31 PM

Harmonic Readings complete

Pass

***** Random Spur Test from 8000.000 MHz to 20000.000 MHz *****

Serial Number: 0071
Model Number: MLMS-8020B
Time: 2:19:32 PM
Date: 12/6/2018
Minimum Frequency: 8000.000 MHz
Maximum Frequency: 20000.000 MHz
Analyzer Frequency Span Tested: 2 kHz to 2000 MHz - or Max span = 1.9 * CF if <=1000 MHz
Spur Level Spec <=: -54.0 dBc
Number of Frequencies Tested: 25
Temperature: +40.3C Deg. C
NOVO State: UnLocked

Random Frequency	Status
Frequency Tested = 11402.522604 MHz	Pass
Frequency Tested = 18089.489993 MHz	Pass
Frequency Tested = 19146.253245 MHz	Pass
Frequency Tested = 15973.216678 MHz	Pass
Frequency Tested = 14839.094933 MHz	Pass
Frequency Tested = 9271.108209 MHz	Pass
Frequency Tested = 16739.008247 MHz	Pass
Frequency Tested = 10273.037533 MHz	Pass
Frequency Tested = 19393.848206 MHz	Pass
Frequency Tested = 15885.454639 MHz	Pass
Frequency Tested = 17776.676156 MHz	Pass
Frequency Tested = 14326.280358 MHz	Pass
Frequency Tested = 15493.780147 MHz	Pass
Frequency Tested = 8801.317705 MHz	Pass
Frequency Tested = 14290.392272 MHz	Pass
Frequency Tested = 19244.448159 MHz	Pass
Frequency Tested = 14350.274180 MHz	Pass
Frequency Tested = 11470.602741 MHz	Pass
Frequency Tested = 13056.905357 MHz	Pass
Frequency Tested = 10574.005032 MHz	Pass
Frequency Tested = 9388.746824 MHz	Pass
Frequency Tested = 15238.108561 MHz	Pass
Frequency Tested = 16416.864553 MHz	Pass
Frequency Tested = 9341.056035 MHz	Pass
Frequency Tested = 15573.274572 MHz	Pass

Total Spur Errors: 0

Finish Time: 2:51:46 PM
Test Completed
Pass

***** Switching Speed Test from 8000.0 to 20000.0 MHz in 100 1000 MHz & Full Band Steps *****

Model Number: MLMS-8020B

Serial Number: 0071

Time: 1:24:20 PM

Date: 12/6/2018

Minimum Frequency: 8000.000 MHz

Maximum Frequency: 20000.000 MHz

Current Unit Temperature: +35.8C Deg. C

Switching Speed Spec:

For a 100 MHz Step: 1.0 mS (Frequencies <500 MHz = 2.0 mS)

For a 1000 MHz Step: 2.0 mS

For a Full Band Step: 3.0 mS

For 25 Random Jumps - Max Time Range: 1.0 to 3.0 mS

Frequency Step	Meas. Speed	Status
100 MHz Step Up =	0.8 mS	Pass
100 MHz Step Down =	0.6 mS	Pass
1000 MHz Step Up =	1.2 mS	Pass
1000 MHz Step Down =	1.2 mS	Pass
Full band Step Up =	2.3 mS	Pass
Full band Step Down =	2.0 mS	Pass

Frequency Step (MHz)	Step Size (MHz)	Meas. Speed	Status
Random Jump From 8000.0 To 13072.0	5072.0	1.9 mS	Pass
Random Jump From 13072.0 To 10164.0	-2908.0	1.6 mS	Pass
Random Jump From 10164.0 To 11090.0	926.0	1.2 mS	Pass
Random Jump From 11090.0 To 11249.0	159.0	0.6 mS	Pass
Random Jump From 11249.0 To 15154.0	3905.0	1.5 mS	Pass
Random Jump From 15154.0 To 10718.0	-4436.0	1.8 mS	Pass
Random Jump From 10718.0 To 18401.0	7683.0	2.0 mS	Pass
Random Jump From 18401.0 To 16846.0	-1555.0	1.5 mS	Pass
Random Jump From 16846.0 To 9064.0	-7782.0	2.0 mS	Pass
Random Jump From 9064.0 To 18291.0	9227.0	2.2 mS	Pass
Random Jump From 18291.0 To 8656.0	-9635.0	2.0 mS	Pass
Random Jump From 8656.0 To 14237.0	5581.0	1.5 mS	Pass
Random Jump From 14237.0 To 18213.0	3976.0	1.6 mS	Pass
Random Jump From 18213.0 To 18875.0	662.0	1.0 mS	Pass
Random Jump From 18875.0 To 8894.0	-9981.0	2.0 mS	Pass
Random Jump From 8894.0 To 17279.0	8385.0	2.1 mS	Pass
Random Jump From 17279.0 To 12798.0	-4481.0	1.7 mS	Pass
Random Jump From 12798.0 To 15120.0	2322.0	1.4 mS	Pass
Random Jump From 15120.0 To 10630.0	-4490.0	1.7 mS	Pass
Random Jump From 10630.0 To 10439.0	-191.0	0.6 mS	Pass
Random Jump From 10439.0 To 15425.0	4986.0	1.6 mS	Pass
Random Jump From 15425.0 To 14281.0	-1144.0	1.3 mS	Pass
Random Jump From 14281.0 To 8247.0	-6034.0	1.9 mS	Pass
Random Jump From 8247.0 To 16713.0	8466.0	1.9 mS	Pass
Random Jump From 16713.0 To 18352.0	1639.0	1.4 mS	Pass

Number of Failures: 0

Finish Time: 1:33:02 PM

Switching Speed Readings complete

Pass

***** Phase Noise Test from 8000.000 MHz to 20000.000 MHz in 1200 MHz Steps *****

Model Number: MLMS-8020B
Serial Number: 0071
Time: 1:53:26 PM
Date: 12/6/2018
Minimum Frequency: 8000.000 MHz
Maximum Frequency: 20000.000 MHz
Number of Frequencies Tested: 11
Current Unit Temperature: +33.9C Deg. C

Phase Noise Spec @ Offset:

@ 100 Hz = -68.0 dBc/Hz
@ 1.0 kHz = -84.0 dBc/Hz
@ 10.0 kHz = -88.0 dBc/Hz
@ 100 kHz = -115.0 dBc/Hz
@ 1.0 MHz = -138.0 dBc/Hz
@ 10.0 MHz = -145 dBc/Hz

Correlation = 1

Measured: Frequency	100 Hz	1 kHz	10 kHz	100 kHz	1 MHz	10 MHz	Status	RF Power
8000.004	-80.0	-97.0	-100.8	-117.6	-142.7	-158.2	Pass	6.47 dBm
9200.005	-78.1	-95.2	-96.7	-115.3	-143.0	-157.7	Pass	8.34 dBm
10400.006	-77.0	-94.9	-96.8	-117.2	-143.1	-158.0	Pass	6.27 dBm
11600.006	-76.6	-93.5	-95.9	-118.1	-142.9	-157.6	Pass	5.50 dBm
12800.007	-75.5	-92.4	-94.7	-117.6	-143.5	-157.7	Pass	4.88 dBm
14000.008	-77.9	-92.7	-93.7	-118.5	-143.3	-157.6	Pass	4.58 dBm
15200.008	-74.4	-91.5	-93.0	-119.5	-143.4	-157.6	Pass	3.07 dBm
16400.009	-74.0	-90.6	-91.4	-118.4	-142.8	-156.7	Pass	1.19 dBm
17600.010	-73.7	-90.0	-90.5	-118.2	-142.3	-155.8	Pass	1.23 dBm
18800.010	-73.2	-88.8	-89.7	-118.7	-141.9	-155.0	Pass	2.44 dBm
20000.011	-74.3	-88.6	-88.4	-118.7	-141.7	-154.6	Pass	1.32 dBm

Number of Failures: 0

Finish Time: 1:58:35 PM

Phase Noise Readings Complete

Pass