

# **EMC Testing Laboratories, Inc.**

## **RF Emissions Test Report To Determine Compliance With: FCC, Part 15, Subpart B and C Rules and Regulations**

**Model number:** EL2100 **FCC ID:** VMZEL2100

**Date:** July 24, 2014

**Manufacturer:** One World Technologies  
1428 Pearman Dairy Rd.  
Anderson, SC 29625

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# Section 1

## *GENERAL INFORMATION*

**Manufacturer:** One World Technologies  
1428 Pearman Dairy Rd.  
Anderson, SC 29625

**Manufacturer representative:** **Mr. John Collins**

**Equipment covered by this report:** Model no. EL2100

**Options covered by this report:** None

**Equipment serial no.** Prototype

**Test specifications:** To determine compliance with:  
FCC, Part 15, Subpart B and C,  
Rules and Regulations, Class A.

**Test report number:** 14-191A

**Test commenced:** July 23, 2014

**Test completed:** July 24, 2014

**Test engineer:** **Edward Barnes**

**Test Facility:** The test facility used to perform these tests is on  
file with the FCC under registration number 637500  
and IC no. 3519A and located at:

**EMC Testing Laboratories, Inc.**  
2100 Brandon Trail  
Suite 101  
Alpharetta, GA 30004  
770-475-8819

## Section 2

### *PRODUCT DESCRIPTION AND TEST SUMMARY*

**Product description:**

Craftsman 19.2V ONE+ AM/FM/AUX/Bluetooth DC consumer radio featuring AM/FM radio, auxiliary input, Bluetooth input, USB charging, phone/media device storage and alkaline battery backup for time and radio preset memory retention. Radio contains one 3.5 inch diameter 3 watt speaker and is targeted for compatibility with 19.2V Craftsman battery packs only.

The product, model no. EL2100encloses the following component judged as critical:

- 1- A Main Board part no. 20-R350100G1 Rev: 1.2 and a Blue Tooth Module model no. MY8XSPK02M2.
- 2- A radio manufactured by Myland Ltd, model no. MY84SPK02M2.

The test results apply only to the products identified on the test report.

**Test configuration:**

The equipment under test (EUT) was set-up and configured as specified by the manufacturer as follows:

- 1- The product was connected to the following support peripherals:
  - A. None.
- 2- The EUT utilized the following cables and were connected as indicated below:
  - A- An Ethernet cable between the product and laptop.
  - B- Power cable.

**Modifications:**

The following modifications were required to comply with the indicated emission limits:

- 1- None

**Engineering Statement:**

All measurement data of this test report was taken in accordance with the FCC, Subpart C, Part 15.247, Class A Rules and Regulations and ANSI C63.4-(03) by EMC Testing Laboratories, Inc. located in Alpharetta, Georgia. Although this data is taken under stringent laboratory conditions and to the best of our knowledge, represents accurate data, it must be recognized that emissions from or immunity to this type equipment may be greatly affected by the final installation of the equipment. Therefore, EMC Testing Laboratories, Inc., while supporting the accuracy of the data in this report, takes no responsibility for use of equipment based on these tests. The manufacturer of this equipment must take full responsibility for any field problems which may arise, and agrees that EMC Testing Laboratories, Inc., in performing its functions in accordance with its objectives and purposes, does not assume or undertake to discharge any responsibility of the manufacturer to any other party or parties.

**Conclusion:**

With the above-indicated modifications, the product covered by this report has been tested and found to comply with the above-indicated standards.

Tested by: **Edward Barnes, RF Engineer**

Approved by: *Gene Bailey*  
**Gene Bailey, Engineering Manager,**  
**EMC Testing Laboratories, Inc.**

## Section 3

### *STANDARD REFERENCE*

The following primary standards were used for this test:

- 1- **ANSI C63.4-2011:** Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9 KHz to 40 GHz.
- 2- **US Code of Federal Regulations (CFR) (12):** Title 47, Part 15, Radio Frequency Devices, Subpart C, Intentional Radiators.

Note: Applicable amendments were applied to all standards.

## Section 4

### *CONDUCTED OUTPUT POWER AT ANTENNA TERMINALS*

#### **Test Results**

<b>Frequency (MHz)</b>	<b>Output in dBm</b>	<b>FCC Limits</b>
2402	-27.14 dBm	30 dBm
2439	-26.46 dBm	30 dBm
2480	-26.52 dBm	30 dBm

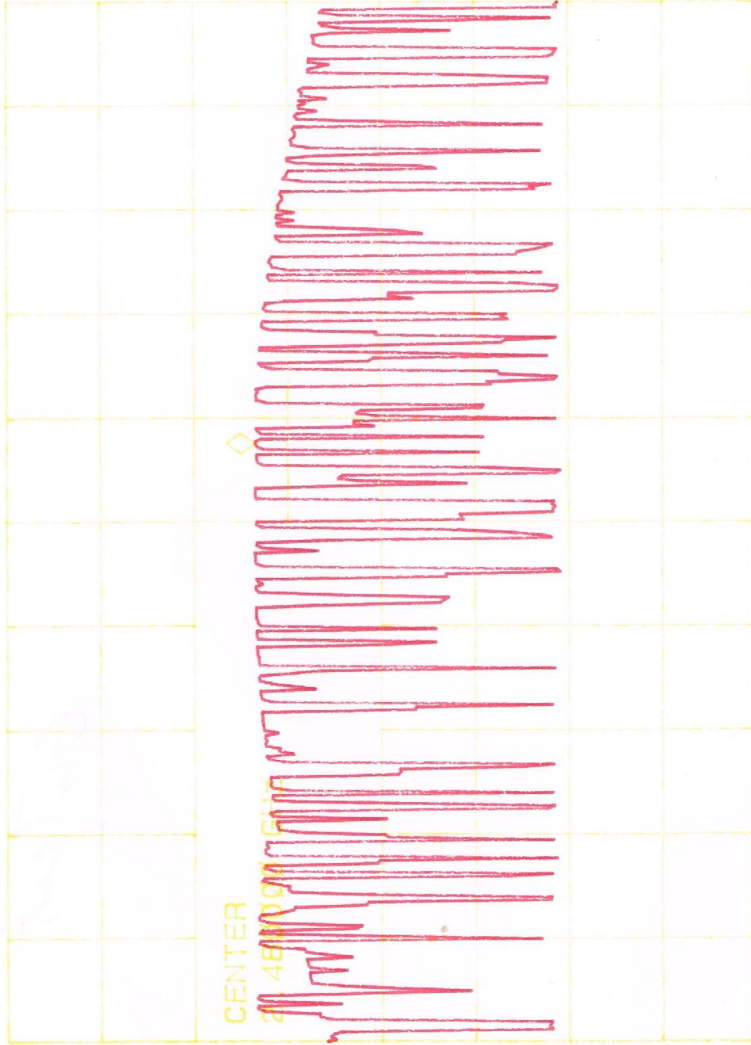
Please see the following 3 plots.

10:07:29 JUL 25, 2014

MKR 2.480146 GHz  
-26.52 dBm

REF .0 dBm AT 10 dB

PEAK  
LOG  
10  
dB/



CENTER

2.480146

MARKER  
→ CF

MARKER  
△

NEXT  
PEAK

NEXT PK  
RIGHT

NEXT PK  
LEFT

More  
1 of 2

VA SB  
SC FC  
CORR

CENTER 2.480000 GHz  
#RES BW 1.0 MHz

SPAN 1.940 MHz  
SWP 20.0 msec

#VBW 1 MHz



10:01:34 JUL 25, 2014

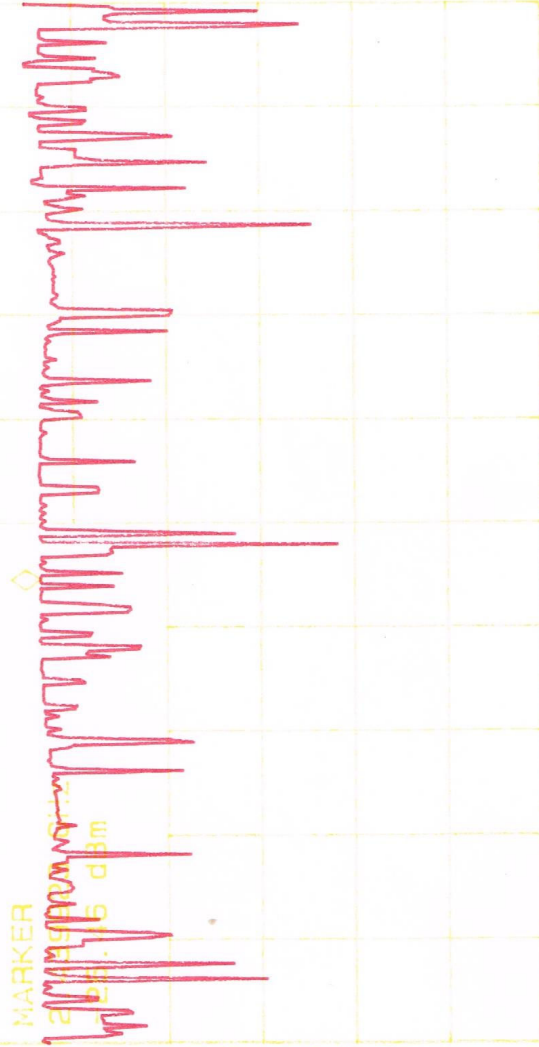
MKR 2.439923 GHz  
-26.46 dBm

REF .0 dBm AT 10 dB

PEAK  
LOG  
10  
dB/

CLEAR  
WRITE A

MAX  
HOLD A



VIEW A

BLANK A

VA SB  
SC FC  
CORR

Trace  
A B C

More  
1 of 3

START 2.439060 GHz #RES BW 1.0 MHz  
STOP 2.441000 GHz #VBW 1 MHz  
SWP 20.0 msec

09:53:32 JUL 25, 2014

MKR 2.401815 GHz  
-27.14 dBm

REF .0 dBm AT 10 dB

PEAK  
LOG  
10  
dB/

MARKER  
→ CF

MARKER  
△

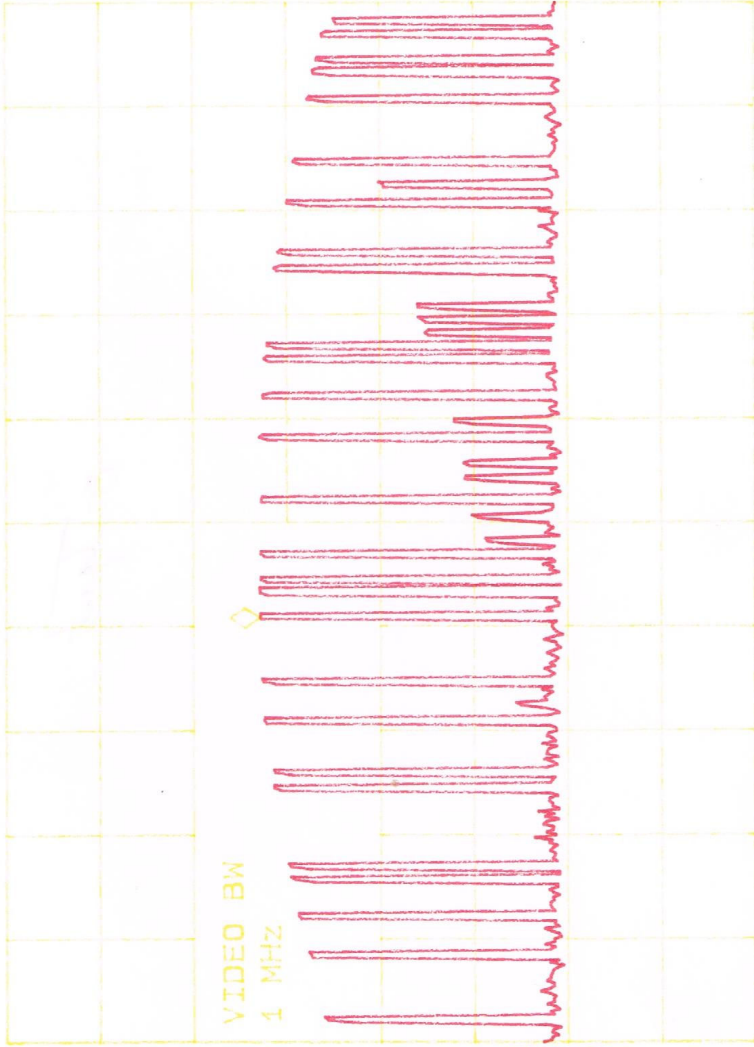
VIDEO BW  
1 MHz

NEXT  
PEAK

NEXT PK  
RIGHT

NEXT PK  
LEFT

MORE  
1 of 2



VA SB  
SC FC  
CORR

CENTER 2.402000 GHz SPAN 2.000 MHz  
#RES BW 1.0 MHz #VBW 1 MHz SWP 20.0 msec

## Section 5

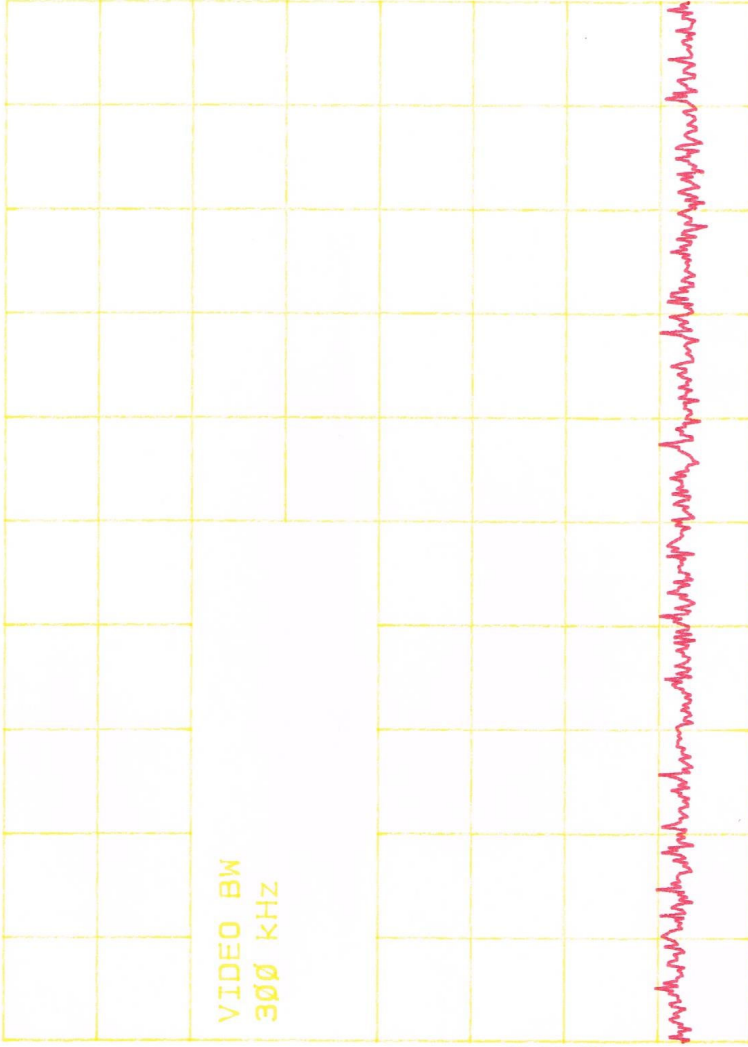
*Antenna Conducted Spurious Emissions*  
*15.247(c)*

11:12:53 JUL 24, 2014

HP

REF .0 dBm AT 10 dB

PEAK  
LOG  
10  
dB/



VA SB  
SC FC  
CORR

START 10.0 MHz

#RES BW 100 kHz

#VBW 300 kHz

STOP 1.0000 GHz

SWP 297 msec

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

11:15:32 JUL 24, 2014

REF .0 dBm AT 10 dB

PEAK  
LOG  
10  
dB/

CLEAR  
WRITE A

MAX  
HOLD A

STOP  
2.500 GHz

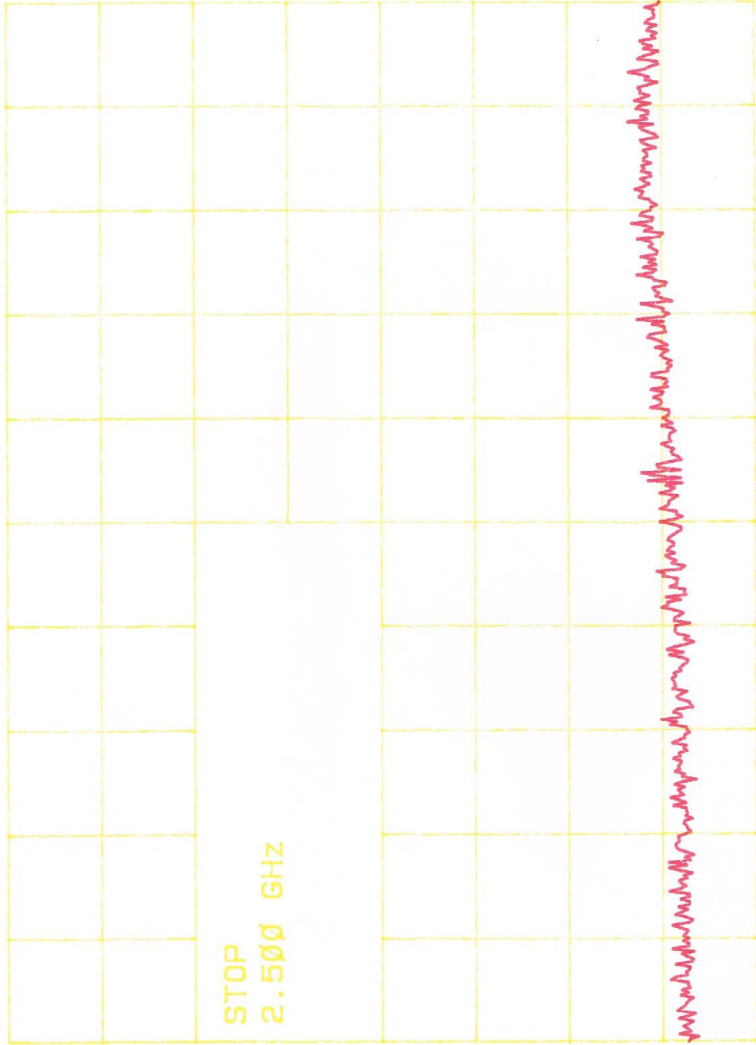
VIEW A

BLANK A

VA SB  
SC FC  
CORR

Trace  
A B C

More  
1 of 3



START 900 MHz #RES BW 100 KHZ #VBW 300 KHZ STOP 2.500 GHz  
#RES BW 100 KHZ #VBW 300 KHZ SWP 480 msec

11:18:38 JUL 24, 2014

7p

REF .0 dBm AT 10 dB

PEAK  
LOG  
10  
dB/

CLEAR  
WRITE A

MAX  
HOLD A

STOP  
12.000 GHz

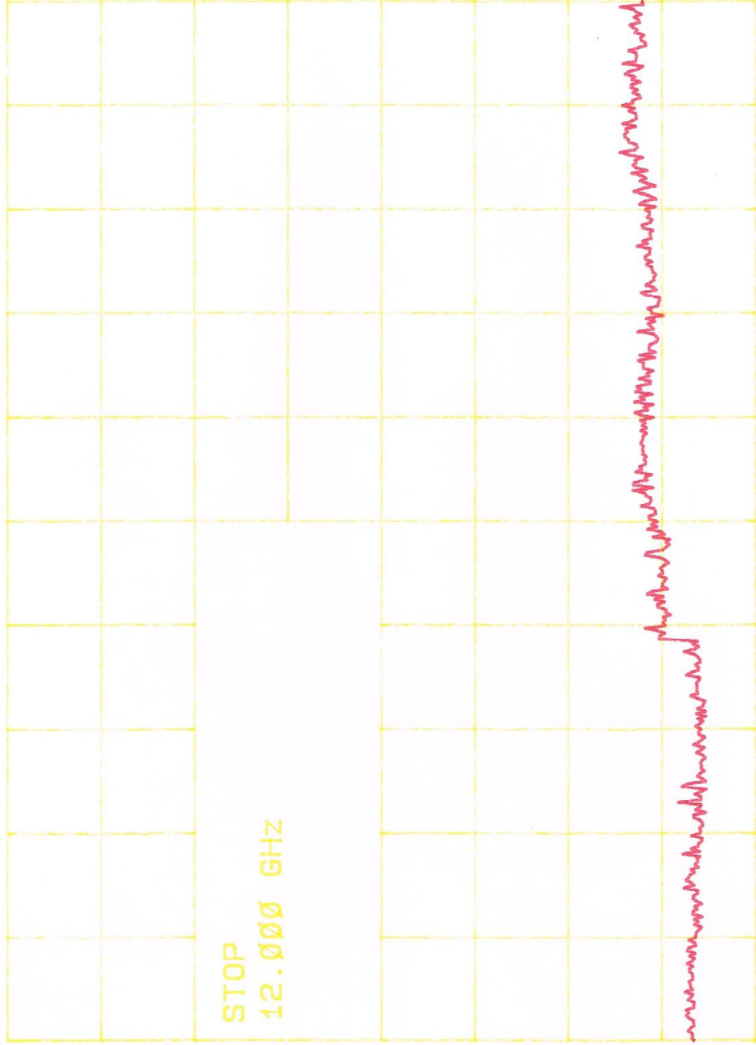
VIEW A

BLANK A

VA SB  
SC FC  
CORR

Trace  
A B C

More  
1 of 3



START 2.679 GHz #RES BW 100 KHZ #VBW 300 KHZ STOP 12.000 GHz SWP 2.80 sec

## Section 6

### *TRANSMITTER RADIATED EMISSIONS IN RESTRICTED BANDS*

Radiated emissions were performed from 30 MHz to 24000 MHz.

For radiated emissions tests, the analyzer setting was as follows:

<u>RES BW</u>		<u>VID BW</u>	
Frequency < 1 GHz	100 kHz	100 kHz	
Frequency > 1GHz	1 MHz	1 MHz (Peak Measurements)	
	1 MHz	10 Hz (Average Measurements)	

Transmitter was tested and scanned for emissions.

#### **Method**

In any 100 kHz bandwidth outside the EUT passband, the RF power shall be at least 20 dB below that of the maximum in-band 100 kHz emission.

<b>Frequency (MHz)</b>	<b>Polarity</b>	<b>Level below carrier (dBc)</b>
4880 MHz	Horizontal	-41.75 dBc
4880 MHz	Vertical	-40.89 dBc
4950 MHz	Horizontal	-37.64 dBc
4950 MHz	Vertical	-36.42 dBc

12:20:18 JUL 24, 2014

77

REF .0 dBm

AT 10 dB

MKR 2.4013 GHz

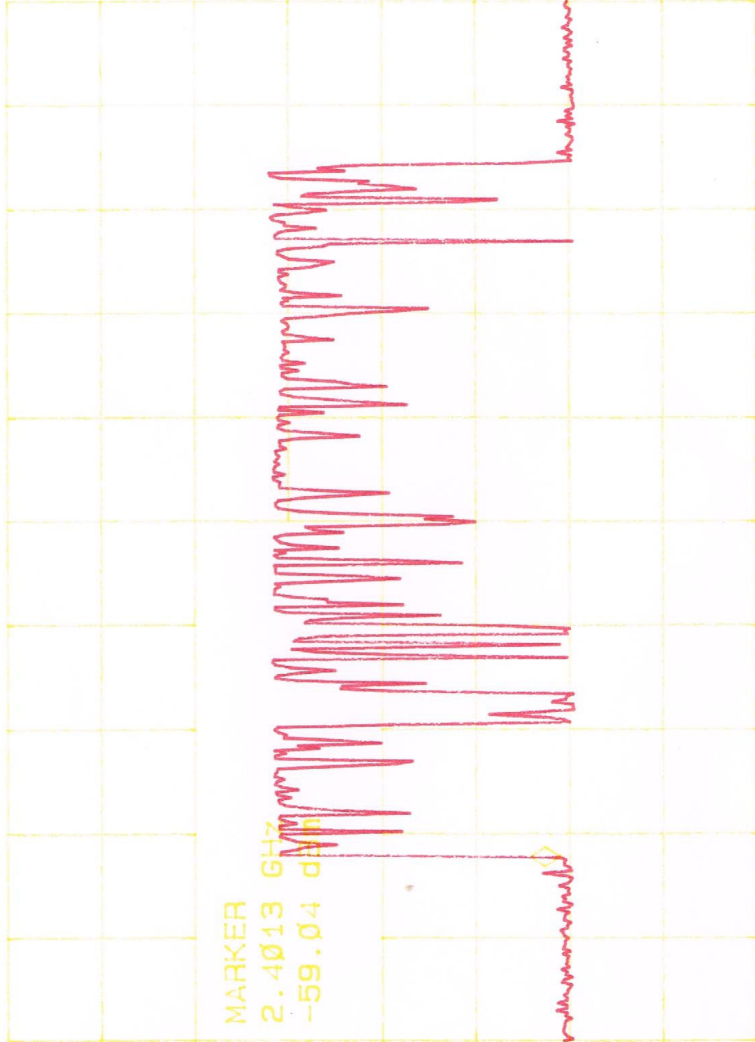
-59.04 dBm

PEAK

LOG

10

dB/



MARKER

2.4013 GHz

-59.04 dBm

MA SB

SC FC

CORR

MARKER  
→ CF

MARKER  
→REF LVL

MARKER  
→CF STEP

MARKER Δ  
→SPAN

MARKER  
→MINIMUM

More  
1 of 2

START 2.3800 GHz

#RES BW 1.0 MHz

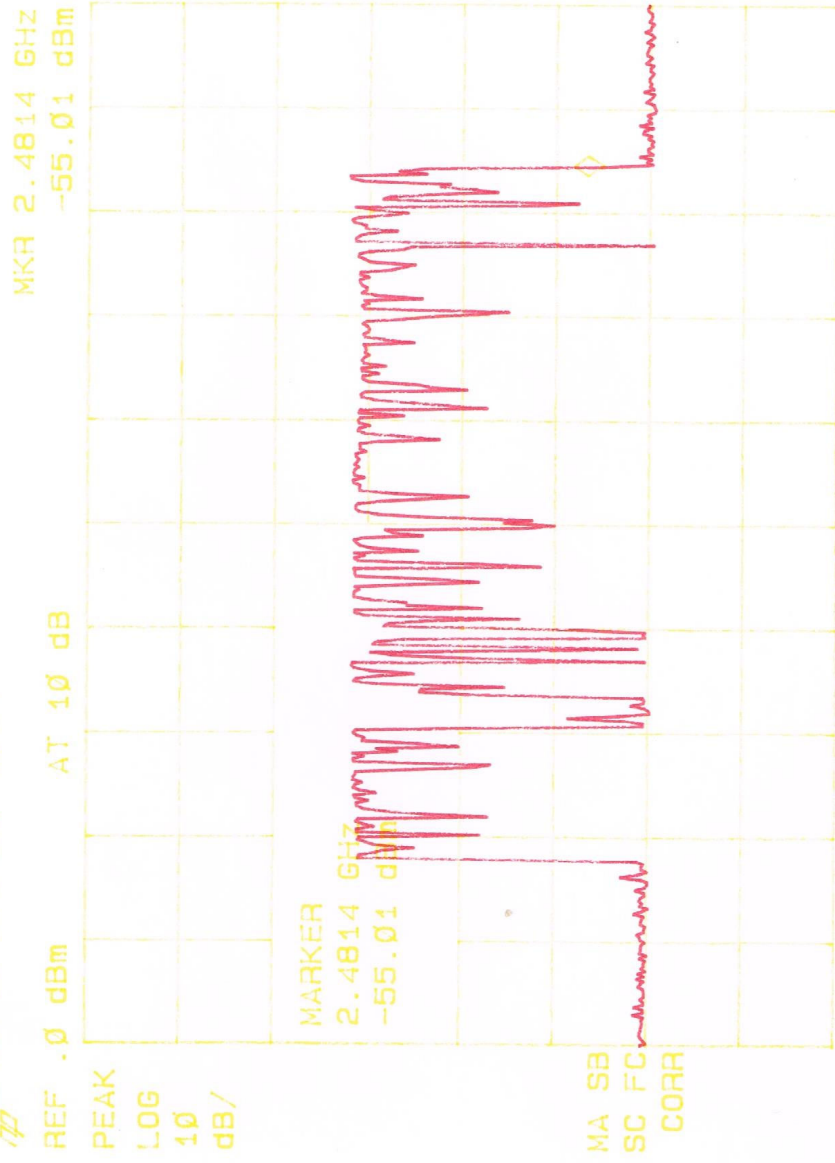
STOP 2.5000 GHz

VBW 300 kHz

SWP 20.0 msec



12:25:01 JUL 24, 2014



MARKER -> CF  
MARKER -> REF LVL  
MARKER -> CF STEP  
MARKER Δ -> SPAN  
MARKER -> MINIMUM  
More  
1 of 2

START 2.3800 GHz #RES BW 1.0 MHz VBW 300 kHz STOP 2.5000 GHz SWP 20.0 msec

MA SB  
SC FC  
CORR

REF .0 dBm  
AT 10 dB  
PEAK  
LOG  
10  
dB/

## Section 7

### *RADIATED EMISSIONS MEASUREMENTS*

**Paragraphs:** 15.209 (a)

**Model number:** EL2100

**Test date:** July 23, 2014

<b>Frequency, MHz</b>	<b>Measurement Reading, dB<math>\mu</math>V/m</b>	<b>Corrected Reading, dB<math>\mu</math>V/m</b>	<b>FCC Limit, dB<math>\mu</math>V/m</b>	<b>Minimum Margin, dB<math>\mu</math>V/m</b>
<b>Horizontal - Horizontal</b>				
There were no measurable radiated emissions from the EUT Within 12 dB from the limits in either the Vertical or Horizontal Antenna Polarization				