



**FCC CFR47 PART 15 SUBPART C  
INDUSTRY CANADA RSS-210 ISSUE 8**

**CERTIFICATION TEST REPORT**

**FOR**

**CCO MODULE**

**MODEL NUMBER: LMJ-CC01-24-B**

**FCC ID: JPZ0096  
IC: 2851A-JPZ0096**

**REPORT NUMBER: 10012459**

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*Prepared for*  
**LUTRON ELECTRONICS CO INC  
7200 SUTER RD  
COOPERSBURG , PA 18036 USA**

*Prepared by*  
**UL LLC  
1285 WALT WHITMAN RD.  
MELVILLE, NY 11747, U.S.A.  
TEL: (631) 271-6200  
FAX: (877) 854-3577**



**NVLAP LAB CODE 100255-0**

Revision History

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Lutron Electronics Co Inc  
7200 Suter Rd  
Coopersburg, PA 18036 USA

**EUT DESCRIPTION:** CCO Module

**MODEL:** LMJ-CC01-24-B

**SERIAL NUMBER:** Non-serialized production unit

**DATE TESTED:** 2013-06-03 through 2013-08-26

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Pass
INDUSTRY CANADA RSS-210 Issue 8, Annex 1	Pass
INDUSTRY CANADA RSS-GEN Issue 3	Pass

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards, using test results reported in the test report documents referenced below and/or documentation furnished by the applicant. All indications of Pass/Fail in this report are opinions expressed by UL LLC based on interpretations of these calculations. The results show that the equipment is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation, as described by the referenced documents. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL By:

Tested By:



Mike Antola  
WiSE Project Lead  
UL

Bob DeLisi  
WiSE Principal Engineer  
UL

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 1285 Walt Whitman Rd. Melville, NY 11747, USA.

UL Melville is accredited by NVLAP, Laboratory Code 100255-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/1002550.htm>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamplifier Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	± 3.3 dB
Radiated Disturbance, 30 to 1000 MHz	± 4.00 dB

Uncertainty figures are valid to a confidence level of 95%.

## **5. EQUIPMENT UNDER TEST**

### **5.1. DESCRIPTION OF EUT**

The PowPak™ CCO Module is a low-voltage radio frequency (RF) control that provides a single dry contact closure output based on input from Pico® controls and Radio Powr Savr™ occupancy and daylight sensors. It can be powered by to 24 V~ or 24 V - for easy connection and integration into building management, HVAC, VAV, and other 3rd-party systems. Communication with RF input devices, such as Pico® controls and Radio Powr Savr™ sensors, is accomplished using Lutron Clear Connect® RF Technology.

After testing was completed the manufacturer changed the model number to LMJ-CCO1-24-B. Data in this report noted as RMJ-CCO1-24-B represents the LMJ-CCO1-24-B.

The EUT operates on frequencies between 431.6MHz and 436.6MHz

### **5.2. DESCRIPTION OF AVAILABLE ANTENNAS**

The radio utilizes an integral dipole antenna.

### **5.3. SOFTWARE AND FIRMWARE**

The EUT driver software installed during testing was 0794667 version 1.44.

The test utility software used during testing was 0795001, rev. A.

### **5.4. WORST-CASE CONFIGURATION AND MODE**

The CCO was tested at the high and low channels for transmit and receive modes of operation. For the transmit mode the worst case orientation was determined during preliminary investigations and it was determined the Z axis was the worst case axis. All radiated testing in transmit mode was tested in this orientation.

### **5.5. MODIFICATIONS**

No modifications were made during testing.

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Not Applicable

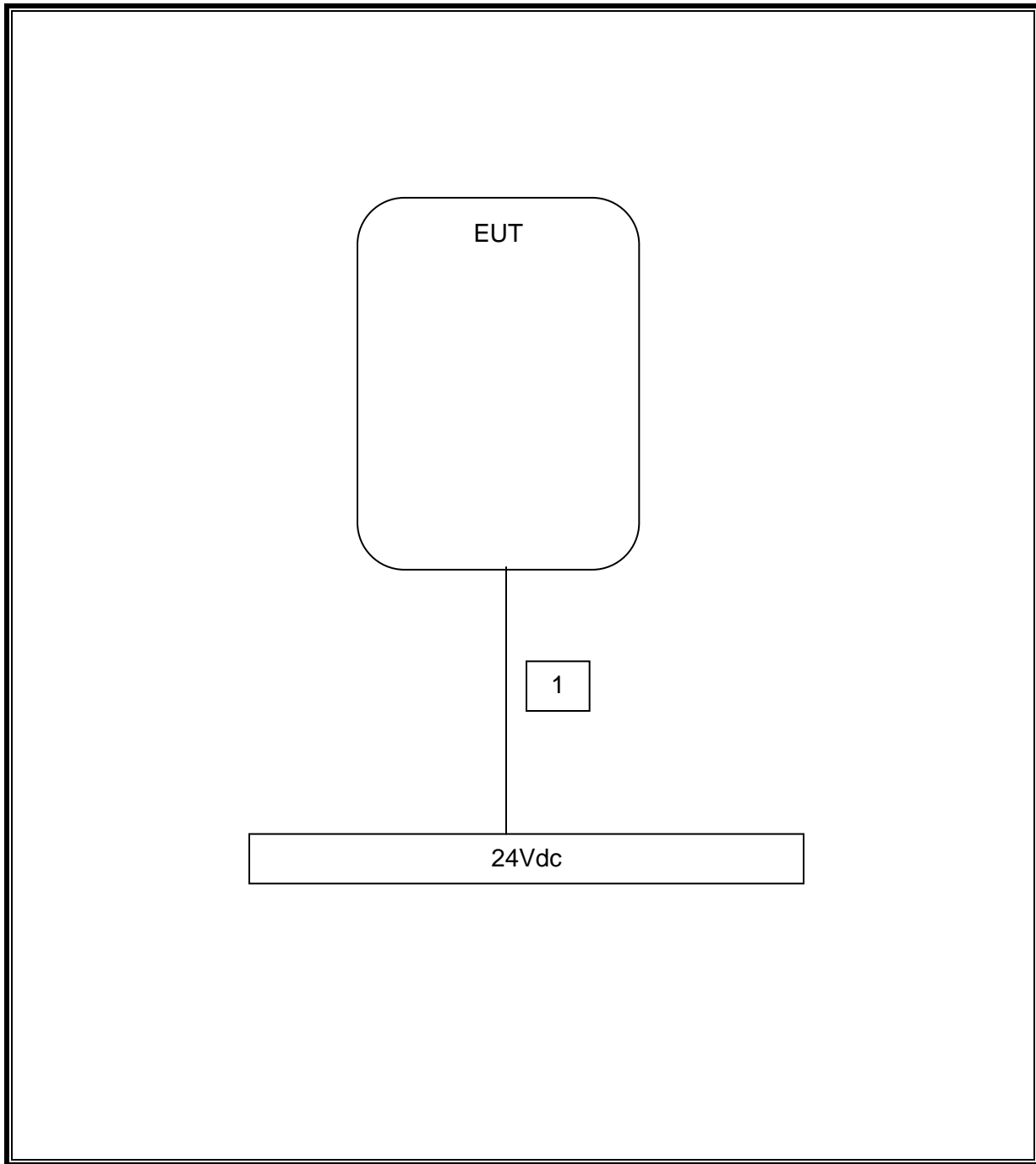
### I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	Hardwire	Unshielded	>3m	None

### TEST SETUP

The EUT was tested as a standalone device.

**SETUP DIAGRAM FOR TESTS**





## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Radiated Emissions					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
30-1000MHz					
EMI Receiver	Rohde & Schwarz	ESCI 7	75141	2013-01-30	2014-01-31
Log-P Antenna	Schaffner	UPA6109	44068	2013-04-03	2014-04-03
Bicon Antenna	Schaffner	VBA6106A	54	2013-04-03	2014-04-03
Bias Tee	Miteq	AM-1523-7687	44392	N/A	N/A
Bias Tee	Miteq	AM-1523-7687	44393	N/A	N/A
Preamp	Miteq	AM-3A-000110-7687	44391	N/A	N/A
Preamp	Miteq	AM-3A-000110-7687	44394	N/A	N/A
Switch Driver	HP	11713A	ME7A-627	N/A	N/A
System Controller	Sunol Sciences	SC99V	44396	N/A	N/A
Camera Controller	Panasonic	WV-CU254	44395	N/A	N/A
RF Switch Box	UL	1	44398	N/A	N/A
Measurement Software	UL	Version 9.5	44740	2012-12-22	2014-12-22
Multimeter	Fluke	83III	ME5B-305	2013-01-29	2014-01-31
Above 1GHz (Band Optimized System)					
Spectrum Analyzer	Agilent	E4446A	72823	2013-01-29	2014-01-31
Horn Antenna (1-2 GHz)	ETS	3161-01 (26°)**	51442	2008-03-28	See * below
Horn Antenna (2-4 GHz)	ETS	3161-02 (22°)**	48107	2007-09-27	See * below
Horn Antenna (4-8 GHz)	ETS	3161-03 (22°)**	48106	2007-09-27	See * below
Signal Path Controller	HP	11713A	50250	N/A	N/A
Gain Controller	HP	11713A	50251	N/A	N/A
RF Switch / Preamp Fixture	UL	BOMS1	50249	N/A	N/A
System Controller	UL	BOMS2	50252	N/A	N/A
Measurement Software	UL	Version 9.5	44740	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268	2012-12-22	2014-12-22
Multimeter	Fluke	83III	ME5B-305	2013-01-29	2014-01-31
<p>* - Note: As allowed by the calibration standard ANSI C63.4 Section 4.4.2, standard gain horns need only a one-time calibration. Only if physical damage occurs will the horn antenna require re-calibration.</p> <p>Gain standard horn antennas (sometimes called standard gain horn antennas) need not be calibrated beyond that which is provided by the manufacturer unless they are damaged or deterioration is suspected, or they are used at a distance closer than <math>2D^2/\lambda</math>. Gain standard horn antennas have gains that are fixed by their dimensions and dimensional tolerances.</p> <p>** - Number in parentheses denotes antenna beam width.</p>					

<b>Conducted Emissions</b>					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
Conducted Emissions – GP 1					
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081	2013-01-29	2014-01-31
LISN	Solar	9252-50-R-24-BNC	ME5A-636	2013-02-01	2014-02-28
Switch Driver	HP	11713A	44397	N/A	N/A
RF Switch Box	UL	4	44404	N/A	N/A
Measurement Software	UL	Version 9.5	44736	N/A	N/A
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734	2012-03-12	2014-03-13
Multimeter	Fluke	87V	64386	2013-01-28	2014-01-31

<b>Antenna Port</b>					
Description	Manufacturer	Model	Identifier	Cal Date	Cal Due Date
Conducted Emissions – GP 1					
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081	2013-01-29	2014-01-31
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734	2012-03-12	2014-03-13
Multimeter	Fluke	87V	64386	2013-01-28	2014-01-31
Dipole Antenna	EMCO	3121C	3359	2012-12-17	2013-12-27

## 7. ANTENNA PORT TEST RESULTS

### 7.1. 20 dB AND 99% BW

#### LIMITS

FCC §15.231 (c)

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

IC A1.1.3

For the purpose of Section A1.1, the 99% Bandwidth shall be no wider than 0.25% of the center frequency for devices operating between 70-900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency.

#### TEST PROCEDURE

ANSI C63.4

The transmitter output is connected to the spectrum analyzer.

20dB Bandwidth: The RBW is set to 10 KHz. The VBW is set to 30 KHz. The sweep time is coupled. Bandwidth is determined at the points 20 dB down from the modulated carrier.

99% Bandwidth: The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

**RESULTS**

No non-compliance noted:

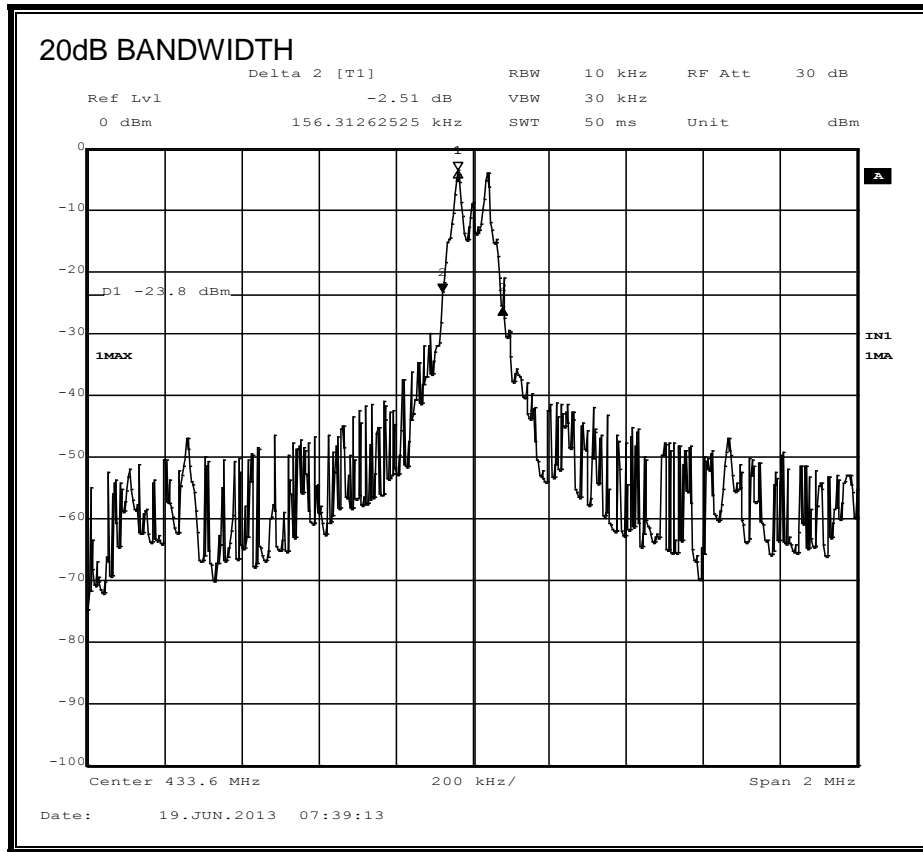
20dB Bandwidth

<b>Frequency (MHz)</b>	<b>20dB Bandwidth (kHz)</b>	<b>Limit (kHz)</b>	<b>Margin (kHz)</b>
433.6	156.3	1084	-927.7

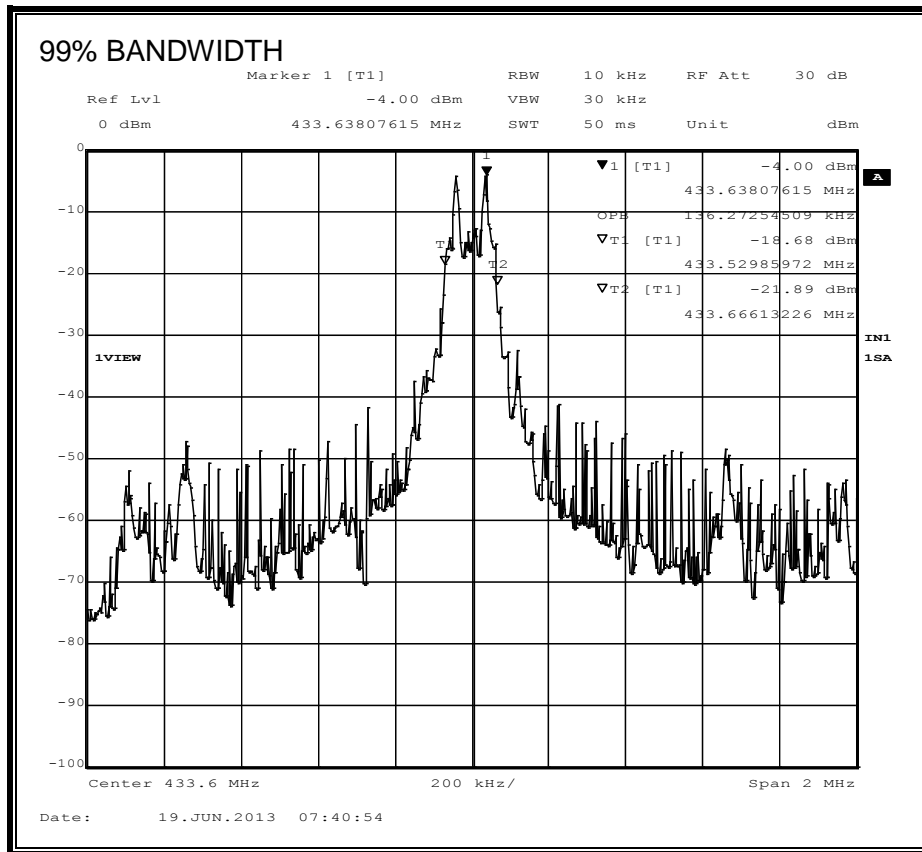
99% Bandwidth

<b>Frequency (MHz)</b>	<b>99% Bandwidth (kHz)</b>	<b>Limit (kHz)</b>	<b>Margin (kHz)</b>
433.6	136.2	1084	-947.8

20dB BANDWIDTH



99% BANDWIDTH



## 7.2. DUTY CYCLE

### LIMITS

FCC §15.35 (c)

The measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification or shall be retained in the measurement data file for equipment subject to notification or verification.

### TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer or radiated field strength. The RBW is set to 1 MHz and the VBW is set to 1 MHz. The sweep time is coupled and the span is set to 0 Hz. The number of pulses is measured and calculated in a 100 ms scan.

### CALCULATION

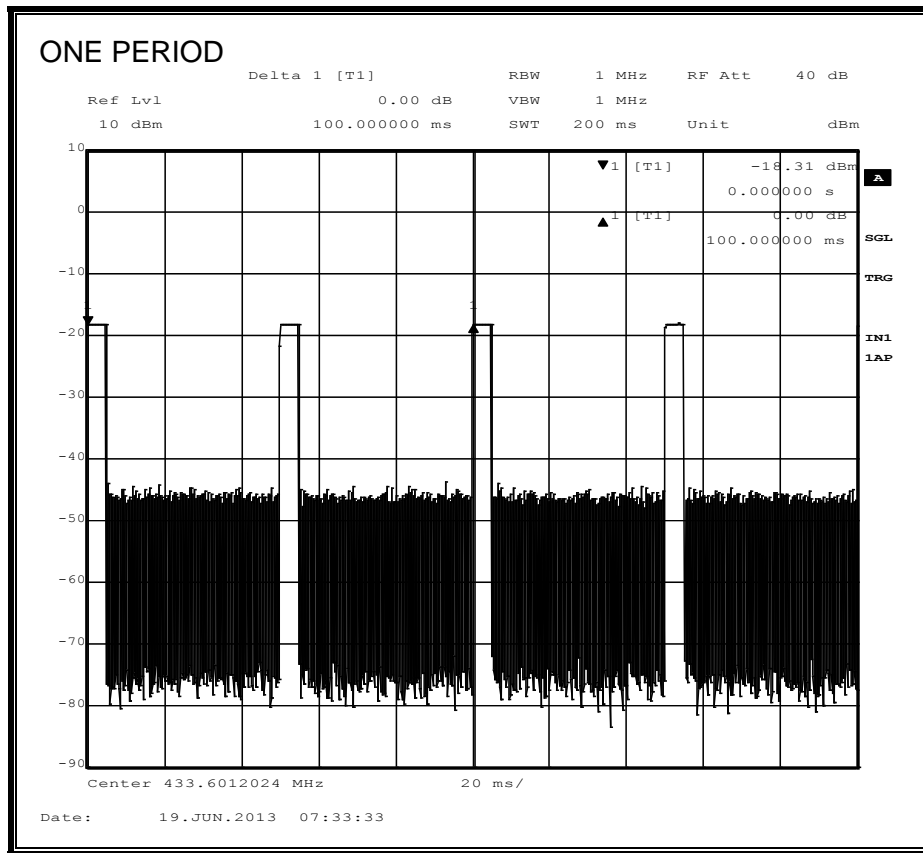
Average Reading = Peak Reading (dBuV/m) + 20log (Duty Cycle), Where Duty Cycle is (# of long pulses \* long pulse width) + (# of short pulses \* short pulse width) / 100 or T

### RESULTS

No non-compliance noted:

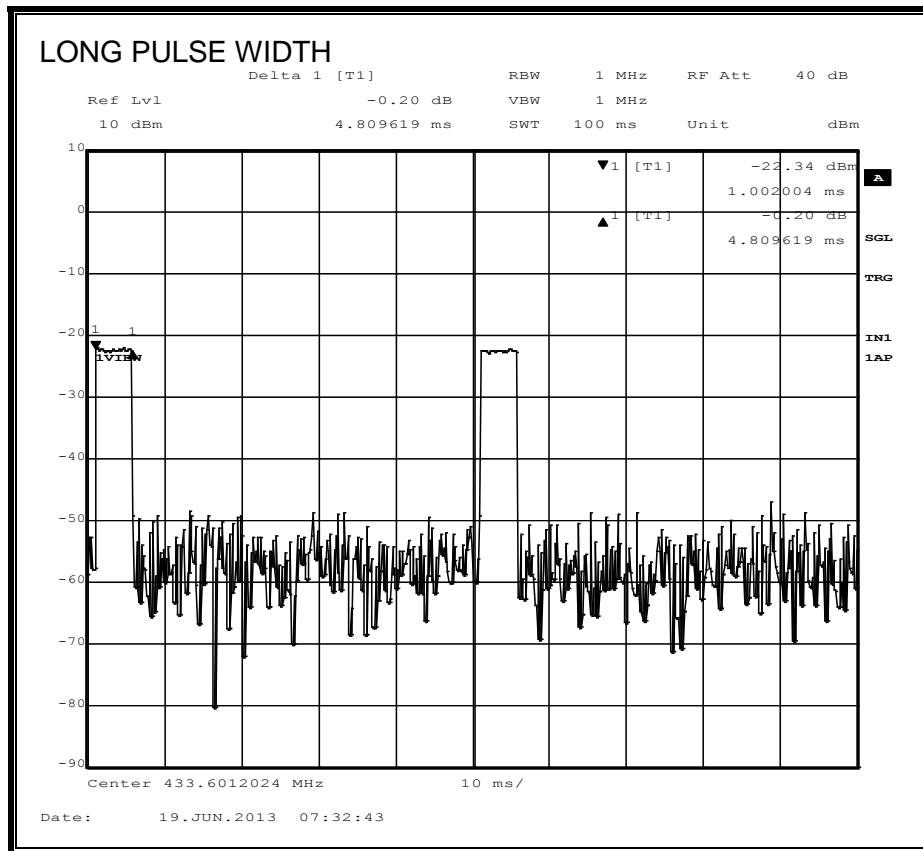
One Period (ms)	Long Pulse Width (ms)	# of Long Pulses	Short Width (ms)	# of Short Pulses	Duty Cycle	20*Log Duty Cycle (dB)
100	4.81	2	0.00	0	0.096	-20.34

**ONE PERIOD**

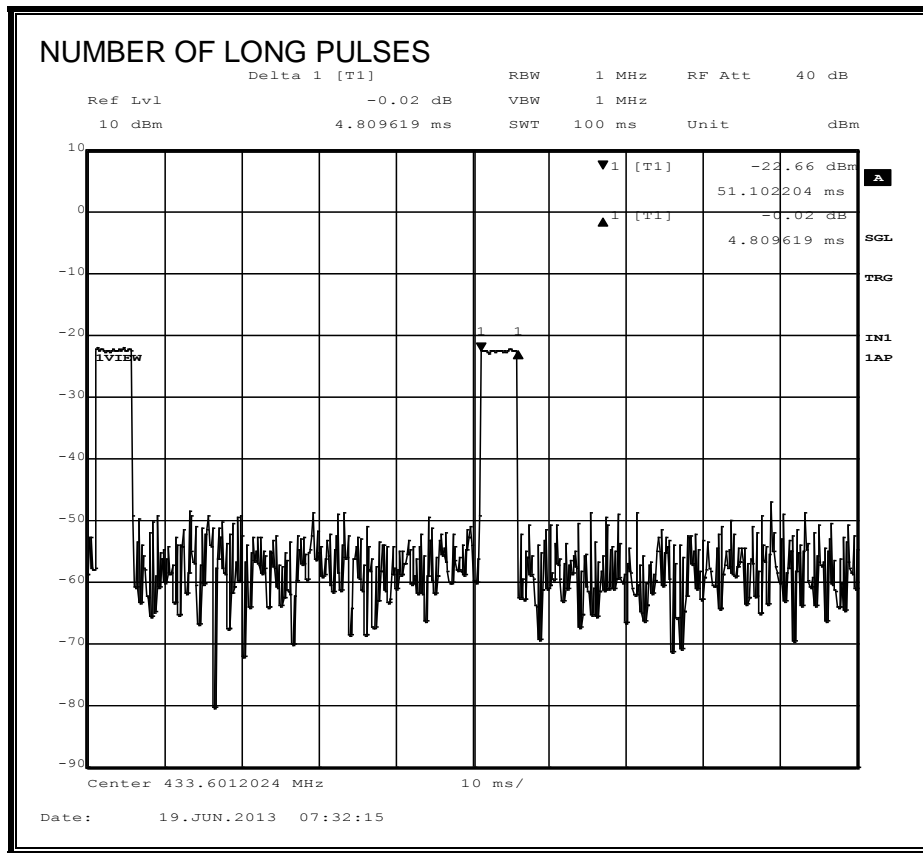




**LONG PULSE WIDTH**



**NUMBER OF LONG PULSES**



### **7.3. TRANSMISSION TIME**

#### **LIMITS**

FCC §15.231 (a) (2)

IC A1.1.1 (b)

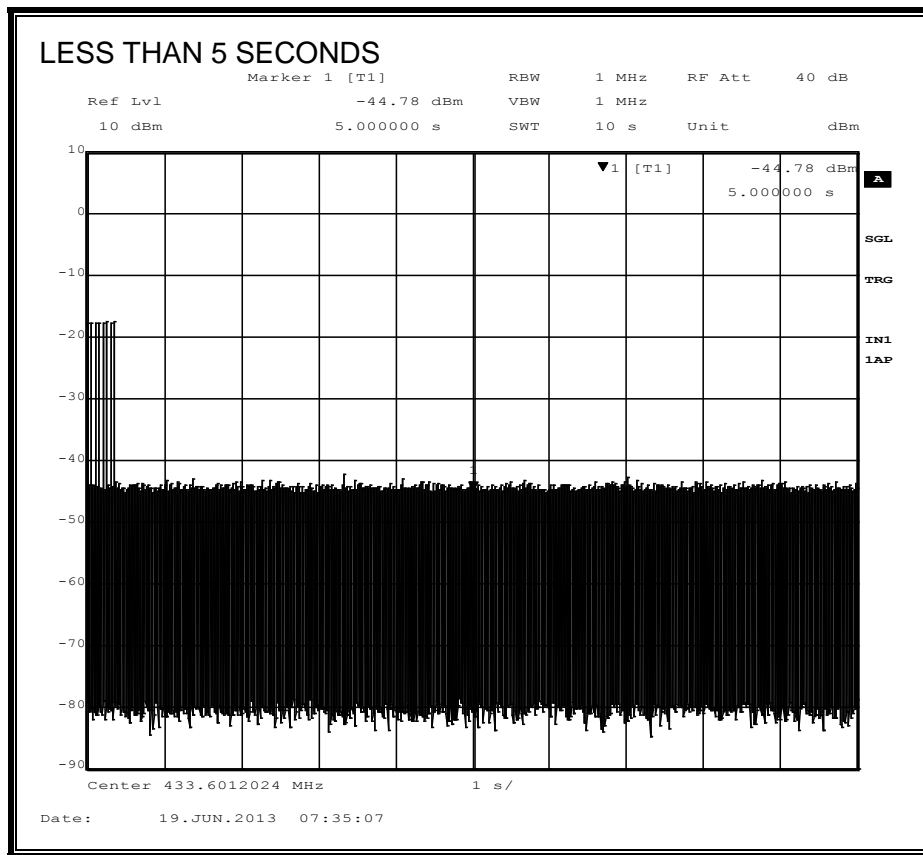
A transmitter activated automatically shall cease transmission within 5 seconds after activation.

#### **TEST PROCEDURE**

The transmitter output is connected to a spectrum analyzer or radiated field strength. The RBW is set to 1 MHz and the VBW is set to 1 MHz. The sweep time is set to 10 seconds and the span is set to 0 Hz.

#### **RESULTS**

No non-compliance noted:



## 8. RADIATED EMISSION TEST RESULTS

### 8.1. TX RADIATED SPURIOUS EMISSION

#### LIMITS

FCC §15.231 (b)  
 IC A1.1.2

In addition to the provisions of § 15.205, the field strength of emissions from Intentional radiators operated under this section shall not exceed the following:

Fundamental Frequency (MHz)	Field Strength of Fundamental Frequency (microvolts/meter)	Field Strength of Spurious Emissions (microvolts/meter)
40.66 - 40.70	2,250	225
70 - 130	1,250	125
130 - 174	1,250 to 3,750 <sup>1</sup>	125 to 375 <sup>1</sup>
174 - 260	3,750	375
260 - 470	3,750 to 12,500 <sup>1</sup>	375 to 1,250 <sup>1</sup>
Above 470	12,500	1,250

<sup>1</sup> Linear interpolation

§15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	( <sup>2</sup> )
13.36 - 13.41	322 - 335.4		

1 Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.  
2 Above 38.6

§15.205 (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

§15.209 (a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30 88	100 **	3
88 216	150 **	3
216 960	200 **	3
Above 960	500	3

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

§15.209 (b) In the emission table above, the tighter limit applies at the band edges.

## **TEST PROCEDURE**

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

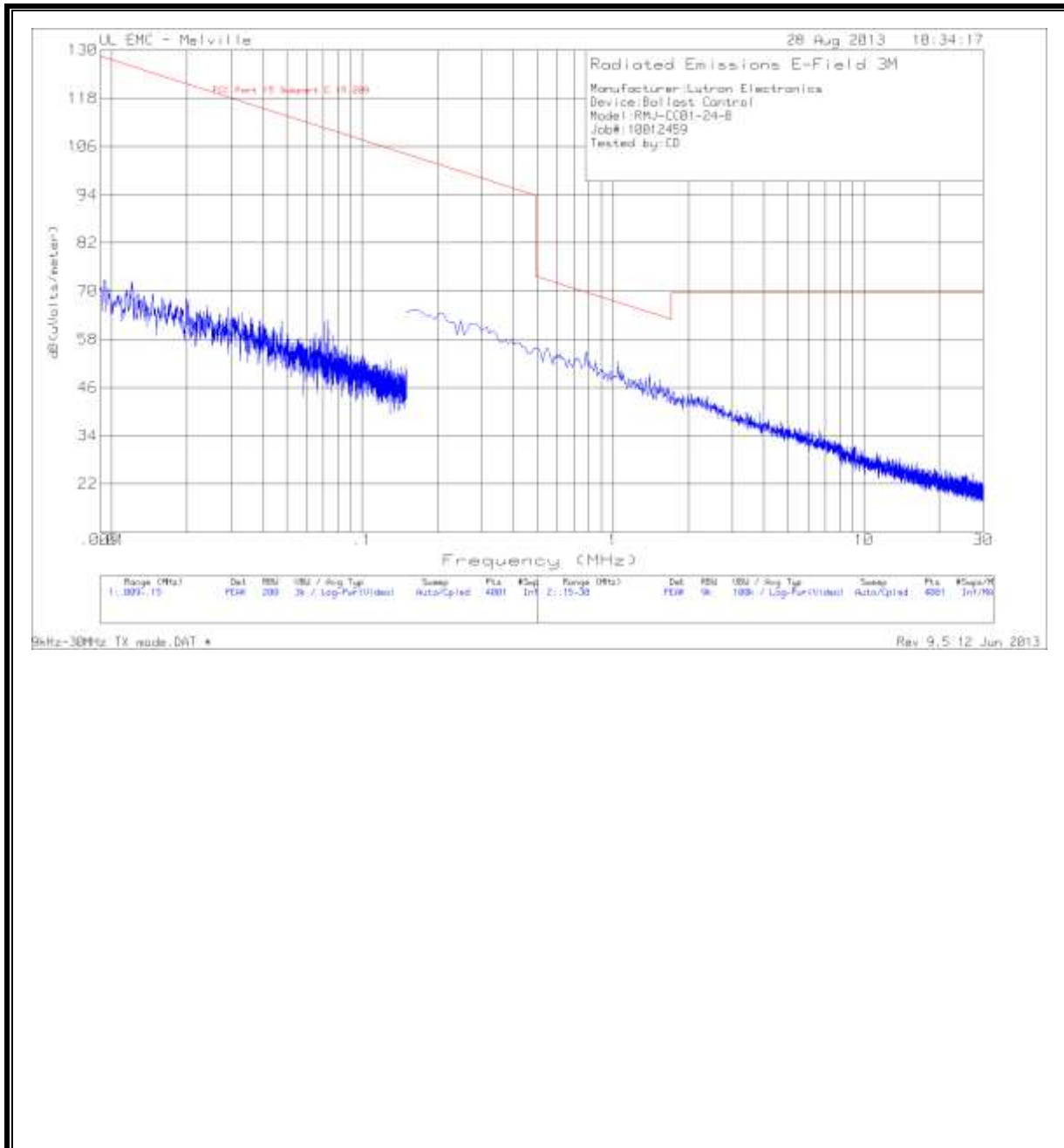
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

## **RESULTS**

No non-compliance noted:

**TX SPURIOUS EMISSION (Below 30MHz) – Worst Case**

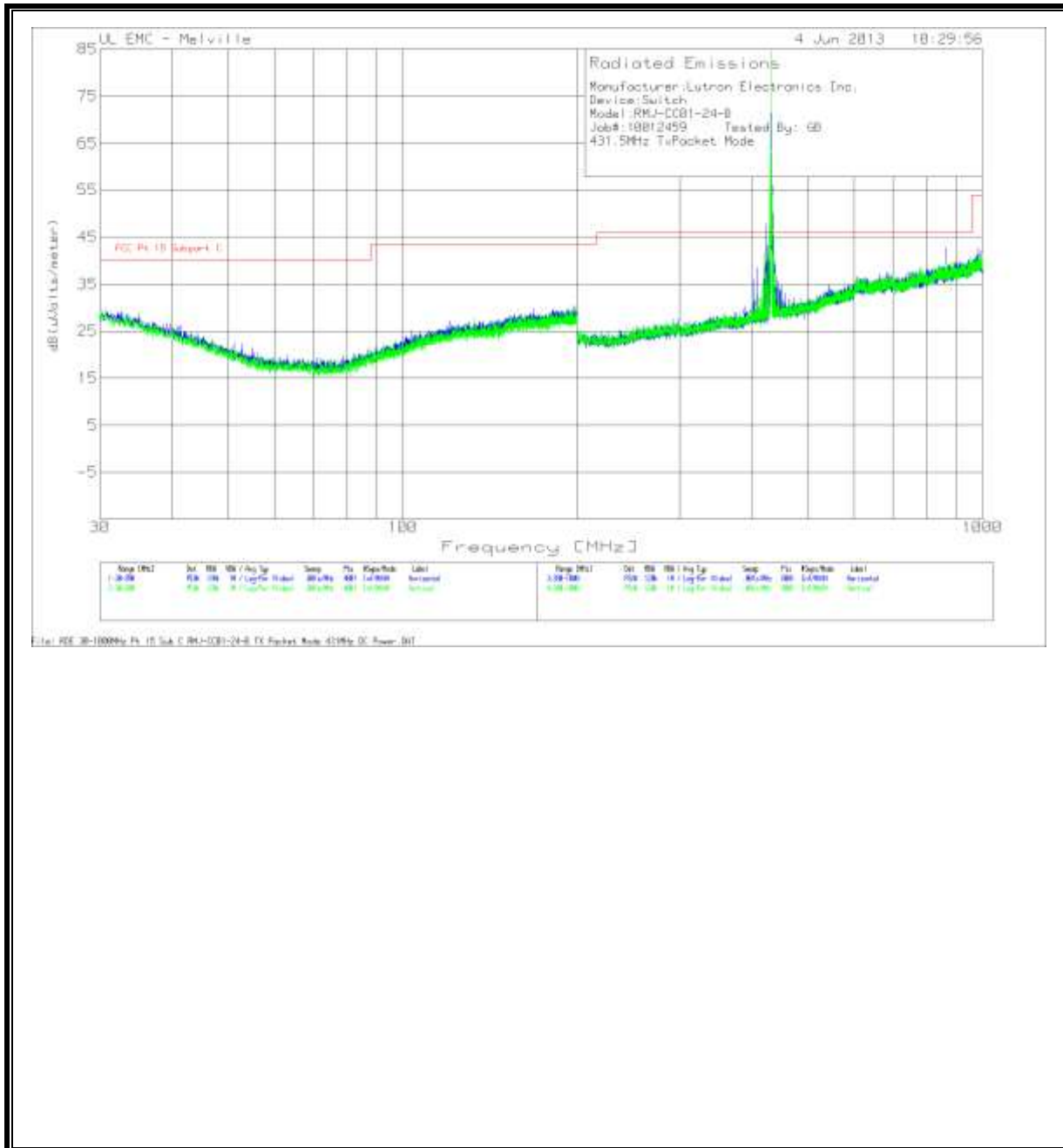




Frequency (MHz)	Meter Reading (dBuV)	Det	AF [dB/m]	GL [dB]	Corrected Reading (dBuV/m)	FCC Part 15 Subpart C 15.209	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
.012102	43.8	PK	28.6	0	72.4	125.93	-53.53	0-360	100	V
.072662	45.57	PK	17.3	0	62.87	110.37	-47.5	0-360	100	V
.78431	38.81	PK	16.2	-.1	54.91	69.71	-14.8	0-360	100	V
1.0455	36.09	PK	16.4	-.1	52.39	67.22	-14.83	0-360	100	V
6.88864	16.79	PK	16.5	-.2	33.09	69.5	-36.41	0-360	100	V
24.96281	5.48	PK	16.8	-.5	21.78	69.5	-47.72	0-360	100	V

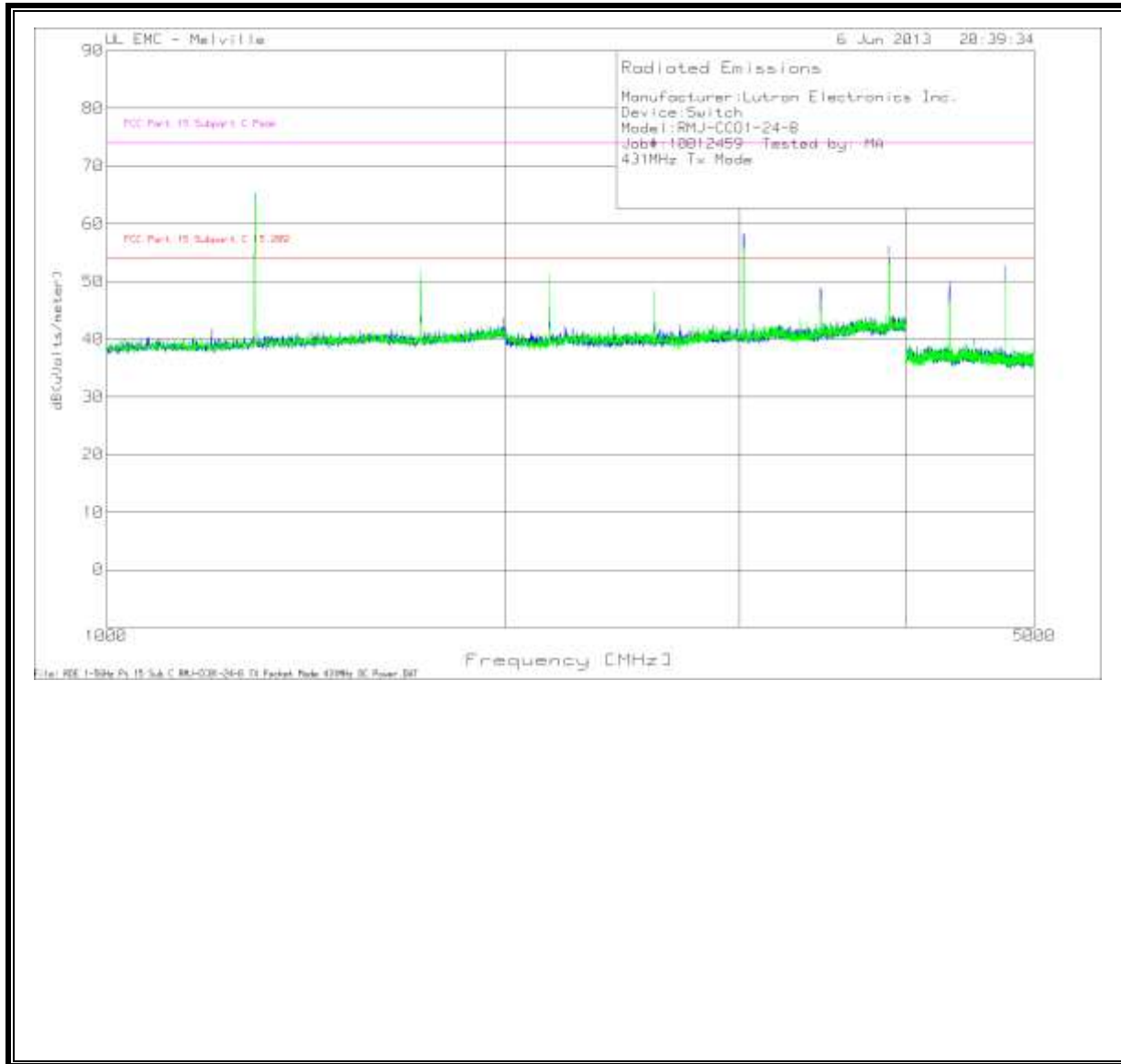
PK - Peak detector

**FUNDAMENTAL, HARMONICS AND TX SPURIOUS EMISSION (30 – 1000 MHz) – Low Channel**



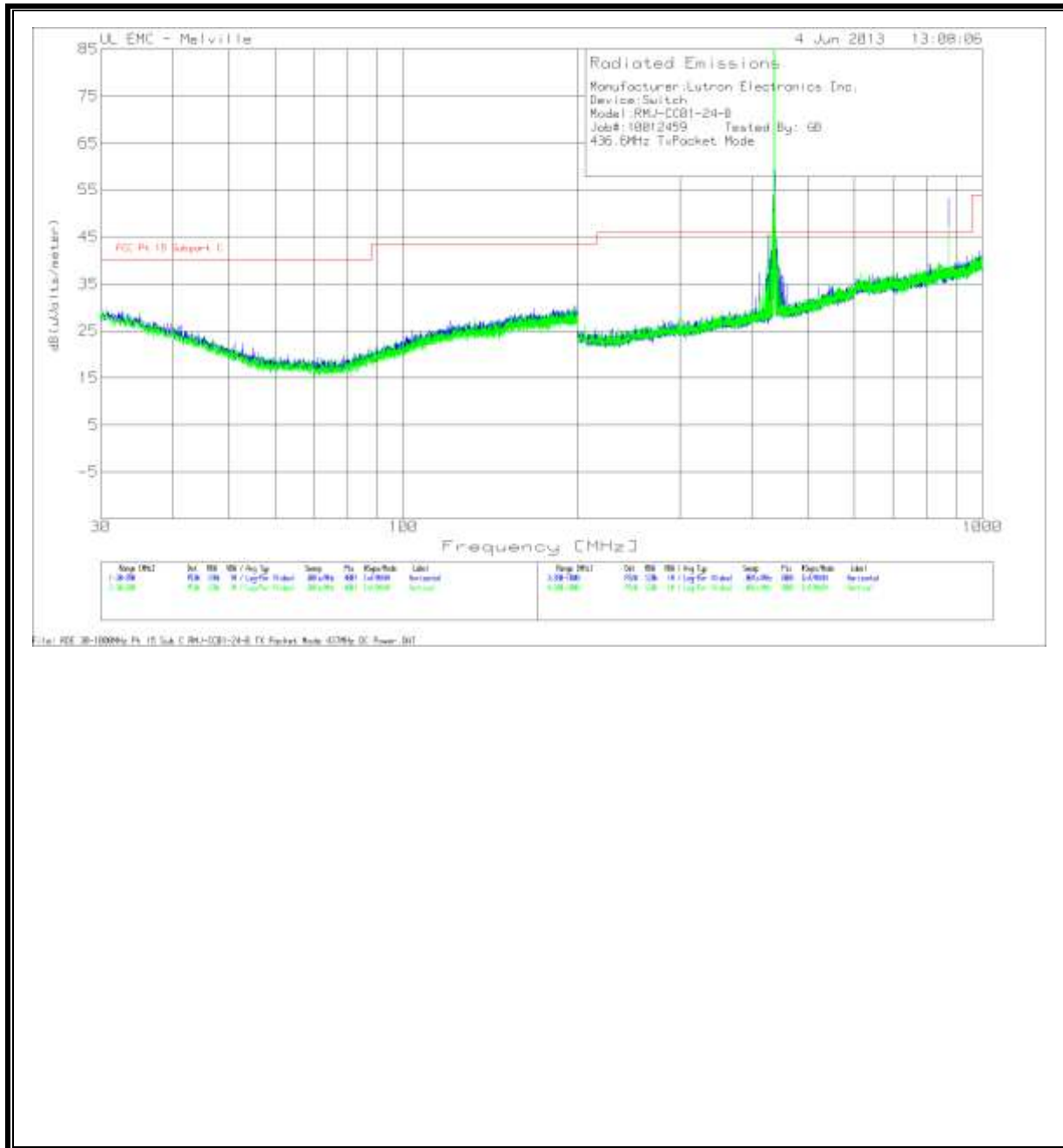
Manufacturer: Lutron Electronics Inc.																
Device: Switch																
Model: RMJ-CC01-24-B																
Job#: 10012459 Tested By: GB																
431.5MHz TxPacket Mode																
Test	Meter		AF-44068	GL-3M	dB(uVolts/		Corrected	FCC Part 15		FCC Pt 15		FCC Part	Margin	Azimuth	Height	Polarity
Frequency	Reading	Detector	[dB/m]	[dB]	meter)	DCF (dB)	Average	Subpart C	Margin	Subpart C	Margin	15 Peak	(dB)	[Degs]	[cm]	
Horizontal 200 - 1000MHz																
431.461	75.7	PK	16.2	1.4	93.3	-20.34	72.96	80.7	-7.74	-	-	100.7	-7.4	159	109	Horz
863	19.42	PK	22.5	2.3	44.22	-20.34	23.88	60.7	-36.82	-	-	80.7	-36.48	32	106	Horz
433.3	19.2	QP	16.3	1.5	37	-	-	-	-	46	-9	-	-	126	290	Horz
430	17.45	QP	16.1	1.4	34.95	-	-	-	-	46	-11.05	-	-	207	106	Horz
434.1	16.66	QP	16.3	1.4	34.36	-	-	-	-	46	-11.64	-	-	9	193	Horz
435.8	-2.24	QP	16.4	1.5	15.66	-	-	-	-	46	-30.34	-	-	54	140	Horz
434.5	18.56	QP	16.4	1.4	36.36	-	-	-	-	46	-9.64	-	-	138	100	Horz
427.1	10.29	QP	15.9	1.5	27.69	-	-	-	-	46	-18.31	-	-	166	130	Horz
424.9	11.22	QP	15.8	1.4	28.42	-	-	-	-	46	-17.58	-	-	135	102	Horz
429.2	13.84	QP	16.1	1.5	31.44	-	-	-	-	46	-14.56	-	-	144	312	Horz
Vertical 200 - 1000MHz																
431.5381	79.04	PK	16.2	1.4	96.64	-20.34	76.3	80.7	-4.4	-	-	100.7	-4.06	86	133	Vert
863	18.91	PK	22.5	2.3	43.71	-20.34	23.37	60.7	-37.33	-	-	80.7	-36.99	286	137	Vert
432.4	47.36	PK	16.4	1.5	65.26	-20.34	44.92	60.7	-15.78	-	-	80.7	-15.44	78	126	Vert
429.8	21.02	QP	16.4	1.4	38.82	-	-	-	-	46	-7.18	-	-	141	142	Vert
429	18	QP	16.3	1.5	35.8	-	-	-	-	46	-10.2	-	-	140	138	Vert
433.5	18.42	QP	16.5	1.4	36.32	-	-	-	-	46	-9.68	-	-	95	316	Vert
434.5	17.8	QP	16.5	1.4	35.7	-	-	-	-	46	-10.3	-	-	138	135	Vert
435.1	14.73	QP	16.5	1.4	32.63	-	-	-	-	46	-13.37	-	-	150	144	Vert
PK - Peak detector																
QP - Quasi-Peak detector																

**HARMONICS AND TX SPURIOUS EMISSIONS ABOVE 1GHz – Low Channel**



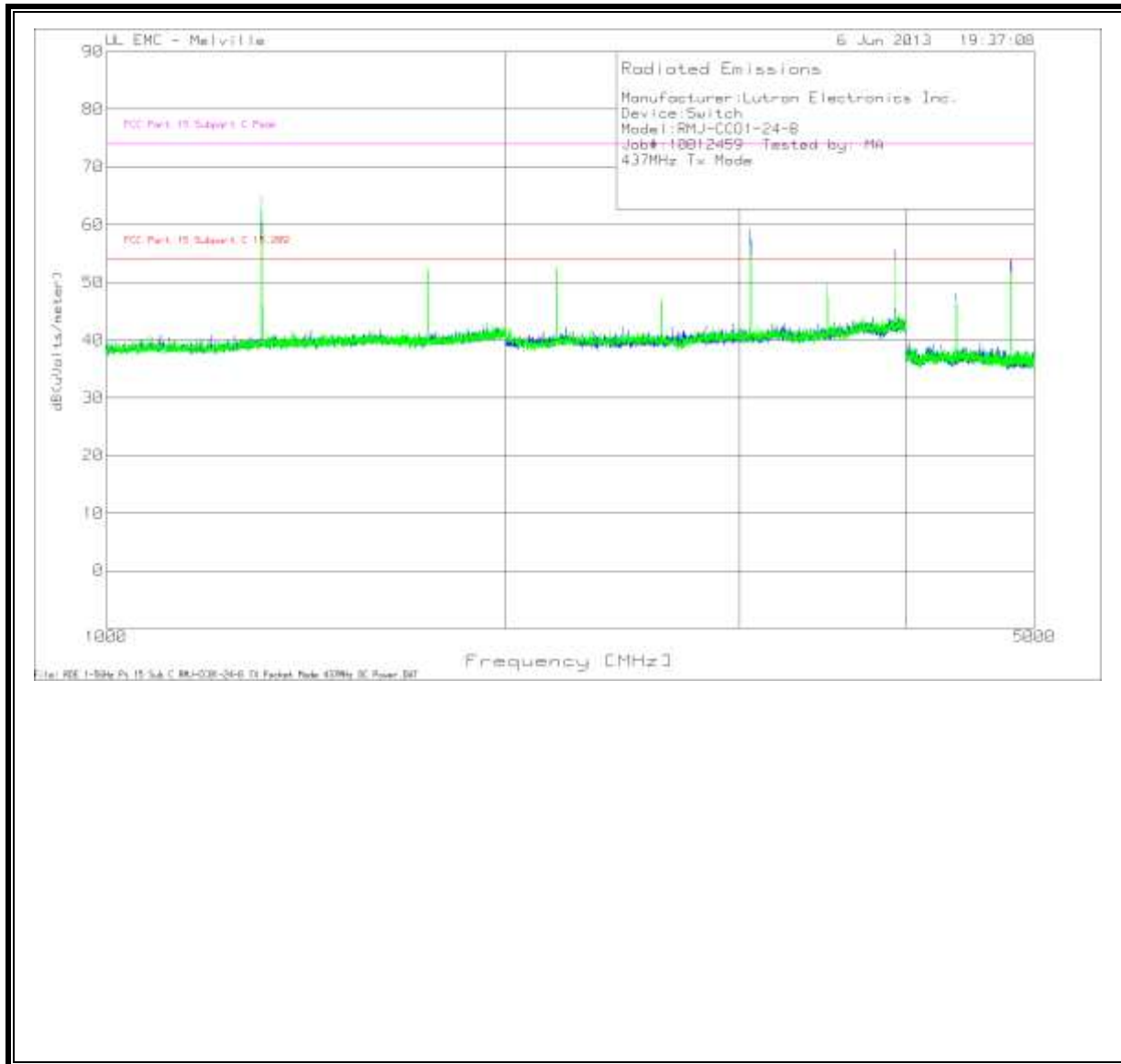
Manufacturer:Lutron Electronics Inc.														
Device:Switch														
Model:RMI-CC01-24-B														
Job#:10012459 Tested by: MA														
431MHz Tx Mode														
Test	Meter	Detector	AF-51442	BOMS Factor [dB]	dB(uVolts/meter)	DCF (dB)	Corrected Average (dBuV/m)	FCC Part 15 Subpart C 15.209	Margin (dB)	FCC Part 15 Subpart C Peak	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
Horizontal 1000 - 2000MHz														
1294.53	89.67	PK	20.5	-44.16	66.01	-20.34	45.67	54	-8.33	74	-7.99	244	270	Vert
1294.43	92.61	PK	20.5	-44.15	68.96	-20.34	48.62	54	-5.38	74	-5.04	179	282	Horz
1725.815	75.3	PK	20.8	-43.82	52.28	-20.34	31.94	54	-22.06	74	-21.72	208	392	Horz
1726.25	75.76	PK	20.8	-43.83	52.73	-20.34	32.39	54	-21.61	74	-21.27	249	159	Vert
Horizontal 2000 - 4000MHz														
2157.28	75.13	PK	21.4	-43.26	53.27	-20.34	32.93	54	-21.07	74	-20.73	292	400	Vert
2157.7333	72.63	PK	21.4	-43.26	50.77	-20.34	30.43	54	-23.57	74	-23.23	44	212	Horz
2589.4067	67.75	PK	21.3	-42.48	46.57	-20.34	26.23	54	-27.77	74	-27.43	24	103	Horz
2588.7233	70.17	PK	21.3	-42.47	49	-20.34	28.66	54	-25.34	74	-25	0	134	Vert
3020.71	78.66	PK	21.5	-41.63	58.53	-20.34	38.19	54	-15.81	74	-15.47	124	300	Vert
3020.1067	78.63	PK	21.5	-41.66	58.47	-20.34	38.13	54	-15.87	74	-15.53	54	326	Horz
3452.1067	67.32	PK	22.2	-41.25	48.27	-20.34	27.93	54	-26.07	74	-25.73	56	300	Horz
3452.0333	65.67	PK	22.2	-41.25	46.62	-20.34	26.28	54	-27.72	74	-27.38	49	163	Vert
3883.45	74.7	PK	22.6	-41.51	55.79	-20.34	35.45	54	-18.55	74	-18.21	241	339	Vert
3883.2267	73.07	PK	22.6	-41.52	54.15	-20.34	33.81	54	-20.19	74	-19.85	69	338	Horz
Horizontal 4000 - 5000MHz														
4314.685	73.82	PK	27.7	-51.35	50.17	-20.34	29.83	54	-24.17	74	-23.83	48	125	Horz
4314.53	72.11	PK	27.7	-51.35	48.46	-20.34	28.12	54	-25.88	74	-25.54	132	304	Vert
PK - Peak detector														

**FUNDAMENTAL, HARMONICS AND TX SPURIOUS EMISSION (30 – 1000 MHz) – High Channel**



Manufacturer:Lutron Electronics Inc.																
Device:Switch																
Model:RMJ-CC01-24-B																
Job#:10012459 Tested By: GB																
436.6MHz TxPacket Mode																
Test Frequency	Meter Reading	Detector	AF-44068 [dB/m]	GL-3M [dB]	dB(uVolts/meter)	DCF (dB)	Corrected Average (dBUV/m)	FCC Part 15 Subpart C 15.231	Margin (dB)	FCC Pt 15 Subpart C 15.209	Margin (dB)	FCC Part 15 Peak	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
Horizontal 200 - 1000MHz																
436.5585	67.23	PK	16.5	1.5	85.23	-20.34	64.89	80.9	-16.01	-	-	100.9	-15.67	163	108	Horz
873.2666	27.73	PK	22.8	2.1	52.63	-20.34	32.29	60.9	-28.61	-	-	80.9	-28.27	183	174	Horz
434.8	15.69	QP	16.4	1.4	33.49	-	-	-	-	46	-12.51	-	-	128	280	Horz
438.4	22.1	QP	16.6	1.5	40.2	-	-	-	-	46	-5.8	-	-	169	100	Horz
439.6	14.39	QP	16.7	1.5	32.59	-	-	-	-	46	-13.41	-	-	0	225	Horz
441.6	8.82	QP	16.8	1.6	27.22	-	-	-	-	46	-18.78	-	-	7	234	Horz
429.7	8.52	QP	16.1	1.4	26.02	-	-	-	-	46	-19.98	-	-	5	225	Horz
426	7.35	QP	15.9	1.4	24.65	-	-	-	-	46	-21.35	-	-	0	244	Horz
431.7	10.06	QP	16.2	1.4	27.66	-	-	-	-	46	-18.34	-	-	8	225	Horz
433.7	14.22	QP	16.3	1.4	31.92	-	-	-	-	46	-14.08	-	-	1	233	Horz
442.4	8.06	QP	16.8	1.6	26.46	-	-	-	-	46	-19.54	-	-	15	233	Horz
Vertical 200 - 1000MHz																
436.56	71.22	PK	16.5	1.5	89.22	-20.34	68.88	80.9	-12.02	-	-	100.9	-11.68	63	139	Vert
873.3	23.67	PK	22.5	2.1	48.27	-20.34	27.93	60.9	-32.97	-	-	80.9	-32.63	55	204	Vert
429.8	8.26	QP	16.4	1.4	26.06	-	-	-	-	46	-19.94	-	-	191	144	Vert
431.7	12.11	QP	16.4	1.4	29.91	-	-	-	-	46	-16.09	-	-	147	134	Vert
433.7	16.45	QP	16.5	1.4	34.35	-	-	-	-	46	-11.65	-	-	139	135	Vert
435.6	25.02	QP	16.5	1.5	43.02	-	-	-	-	46	-2.98	-	-	150	133	Vert
438	22.72	QP	16.6	1.5	40.82	-	-	-	-	46	-5.18	-	-	67	124	Vert
438.5	20.77	QP	16.6	1.5	38.87	-	-	-	-	46	-7.13	-	-	142	134	Vert
439.5	8.06	QP	16.6	1.4	26.06	-	-	-	-	46	-19.94	-	-	146	293	Vert
PK - Peak detector																
QP - Quasi-Peak detector																

**HARMONICS AND TX SPURIOUS EMISSIONS ABOVE 1GHz – High Channel**





Manufacturer:Lutron Electronics Inc.														
Device:Switch														
Model:RMI-CCO1-24-B														
Job#:10012459 Tested by: MA														
437MHz Tx Mode														
Test Frequency	Meter Reading	Detector	AF-51442	BOMS Factor [dB]	dB(uVolts/meter)	DCF (dB)	Corrected Average (dBuV/m)	FCC Part 15 Subpart C 15.209	Margin (dB)	FCC Part 15 Subpart C Peak	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
Horizontal 1000 - 2000MHz														
1309.87	89.49	PK	20.5	-44.23	65.76	-20.34	45.42	54	-8.58	74	-8.24	163	270	Horz
1309.834	88.5	PK	20.5	-44.23	64.77	-20.34	44.43	54	-9.57	74	-9.23	232	124	Vert
1746.504	77.71	PK	20.8	-43.5	55.01	-20.34	34.67	54	-19.33	74	-18.99	105	147	Vert
1746.144	74.27	PK	20.8	-43.46	51.61	-20.34	31.27	54	-22.73	74	-22.39	194	370	Horz
Horizontal 2000 - 4000MHz														
2183.1933	75.31	PK	21.4	-43.13	53.58	-20.34	33.24	54	-20.76	74	-20.42	3	237	Horz
2183.0467	73.44	PK	21.4	-43.13	51.71	-20.34	31.37	54	-22.63	74	-22.29	253	302	Vert
2619.8167	69.18	PK	21.4	-42.68	47.9	-20.34	27.56	54	-26.44	74	-26.1	7	254	Vert
2619.4767	67.35	PK	21.4	-42.64	46.11	-20.34	25.77	54	-28.23	74	-27.89	13	355	Horz
3055.93	79.81	PK	21.6	-41.67	59.74	-20.34	39.4	54	-14.6	74	-14.26	223	114	Horz
3056.24	79.7	PK	21.6	-41.64	59.66	-20.34	39.32	54	-14.68	74	-14.34	67	280	Vert
3492.5133	70.37	PK	22.2	-41.45	51.12	-20.34	30.78	54	-23.22	74	-22.88	331	295	Vert
3492.5867	69.38	PK	22.2	-41.46	50.12	-20.34	29.78	54	-24.22	74	-23.88	32	299	Horz
3929.63	76.24	PK	22.7	-41.48	57.46	-20.34	37.12	54	-16.88	74	-16.54	40	287	Horz
3929.67	74.53	PK	22.7	-41.49	55.74	-20.34	35.4	54	-18.6	74	-18.26	212	338	Vert
Horizontal 4000 - 5000MHz														
4365.68	74.37	PK	27.6	-51.54	50.43	-20.34	30.09	54	-23.91	74	-23.57	360	390	Vert
4365.69	72.06	PK	27.6	-51.54	48.12	-20.34	27.78	54	-26.22	74	-25.88	360	290	Horz
PK - Peak detector														

## 8.2. RX RADIATED SPURIOUS EMISSION

### LIMITS

IC RSS-Gen Issue 2, section 7.2.3.2

All spurious emissions shall comply with the limits shown below:

Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dB $\mu$ V/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54

Note: The lower limit shall apply at the transition frequency.

### TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to receive in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

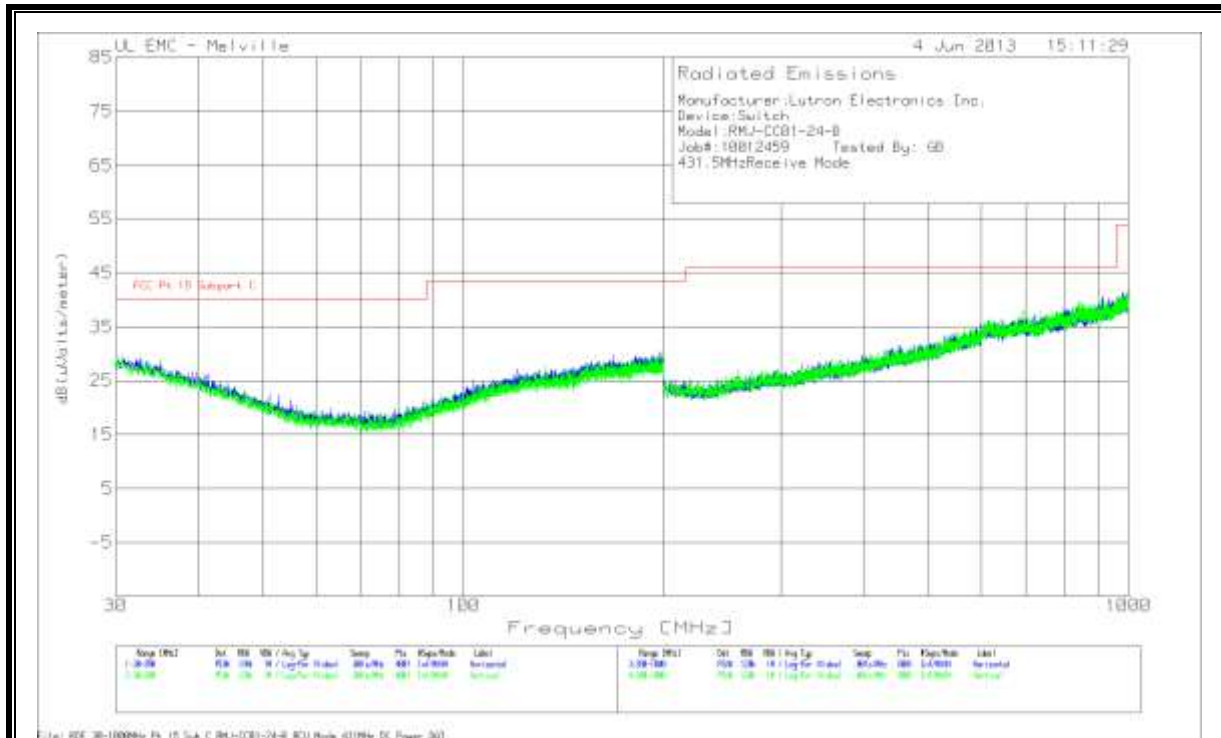
The spectrum from 30 MHz to 5th harmonic is investigated with the transmitter set to the middle channel.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

### RESULTS

No non-compliance noted:

**RECEIVER SPURIOUS EMISSION (30MHz - 1GHz) – Low Channel**

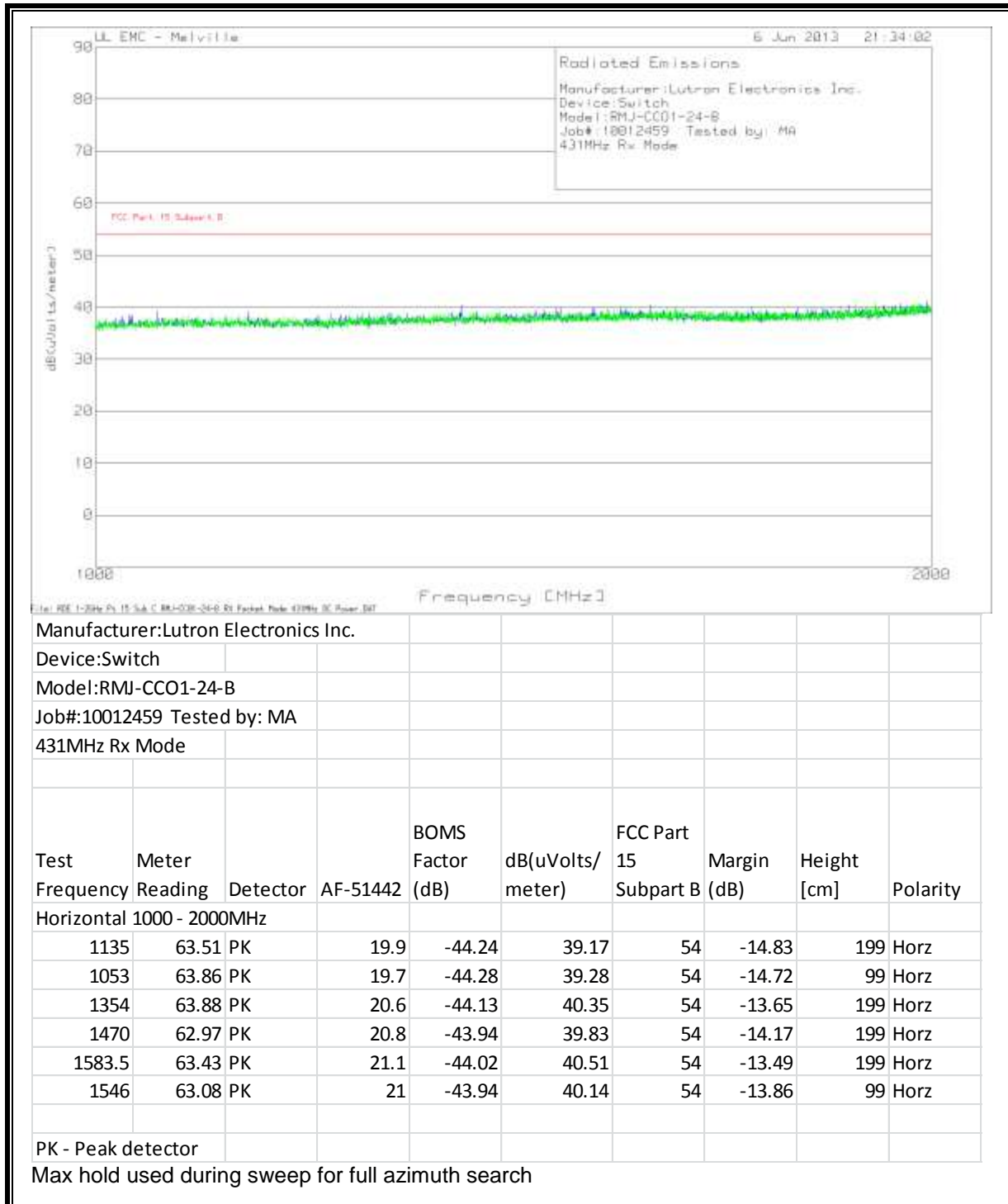


Manufacturer:Lutron Electronics Inc.  
 Device:Switch  
 Model:RMJ-CC01-24-B  
 Job#:10012459 Tested By: GB  
 431.5MHz Receive Mode

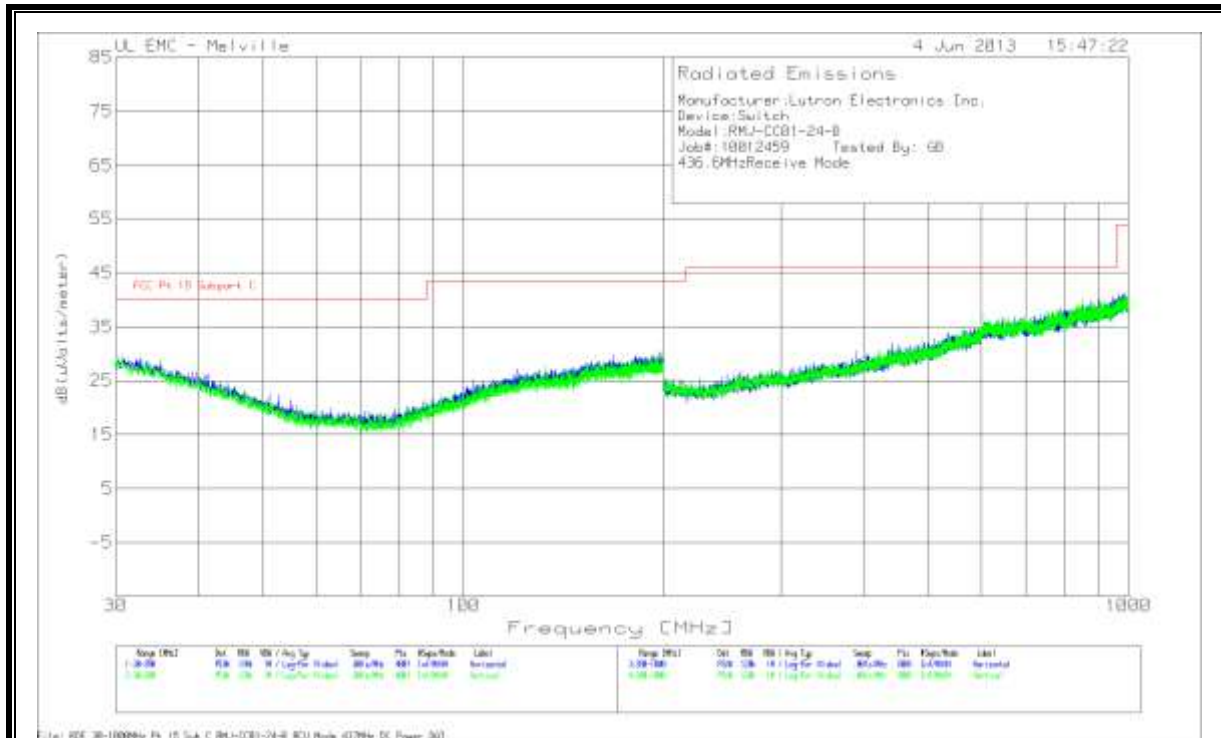
Test	Meter	AF-44068	GL-3M	dB(uVolts /meter)	FCC Pt 15 Subpart C	Margin (dB)	Height [cm]	Polarity
Horizontal 200 - 1000MHz								
807.7	14.2 PK	22.1	2	38.3	46	-7.7	98	Horz
914.1	15.49 PK	23.1	2.1	40.69	46	-5.31	400	Horz
934.3	13.94 PK	23.3	2.1	39.34	46	-6.66	98	Horz
Vertical 200 - 1000MHz								
692.6	15.63 PK	20.7	1.8	38.13	46	-7.87	200	Vert
734.9	15.83 PK	20.3	1.8	37.93	46	-8.07	300	Vert
840	14.38 PK	23.1	2.2	39.68	46	-6.32	400	Vert

PK - Peak detector  
 Max hold used during sweep for full azimuth search

**RECEIVER SPURIOUS EMISSION ABOVE 1GHz – Low Channel**



**RECEIVER SPURIOUS EMISSION (30MHz - 1GHz) – High Channel**



Manufacturer:Lutron Electronics Inc.

Device:Switch

Model:RMJ-CC01-24-B

Job#:10012459 Tested By: GB

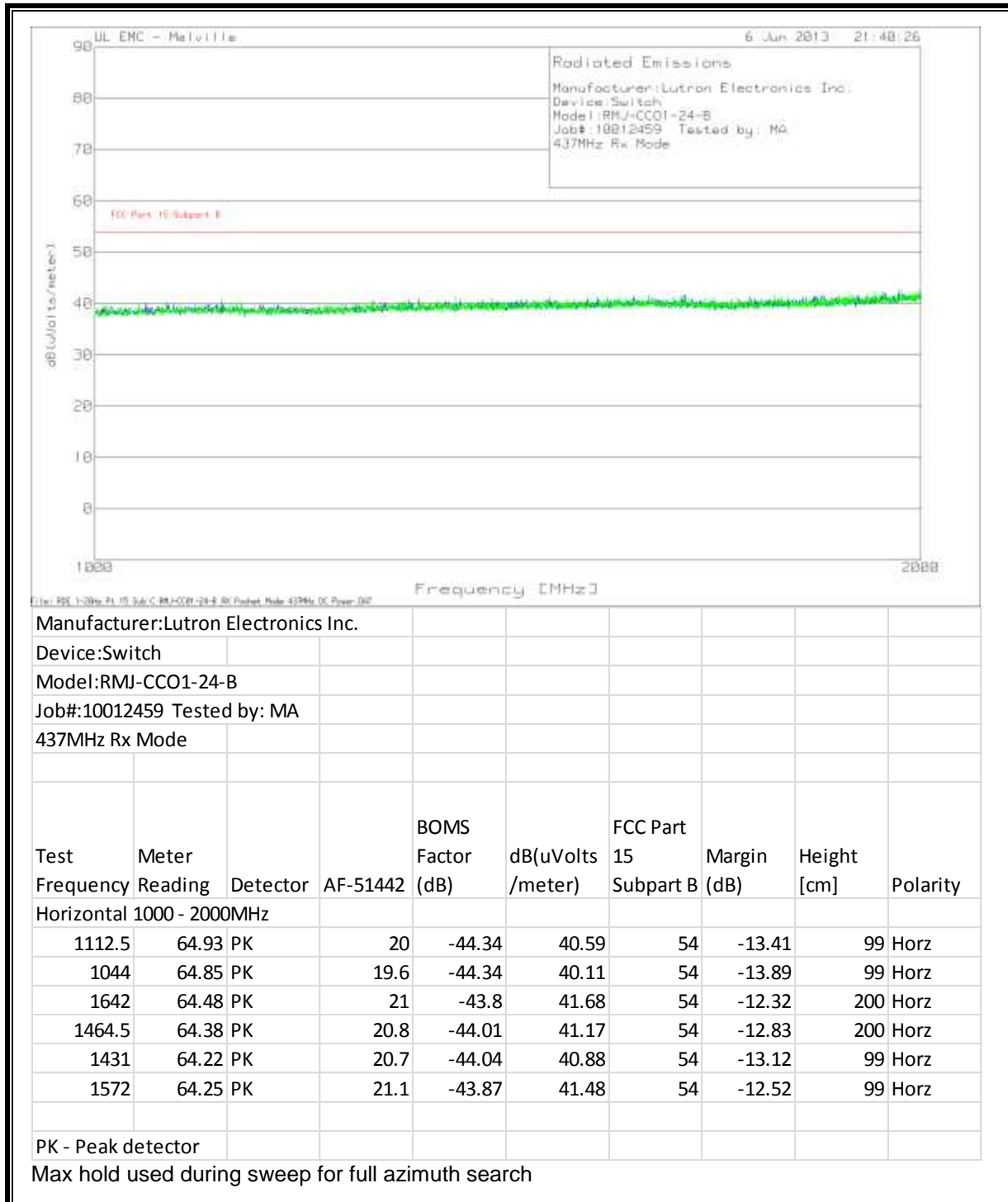
436.6MHz Receive Mode

Test	Meter	AF-44068	GL-3M	dB(uVolts /meter)	FCC Pt 15 Subpart C	Margin (dB)	Height [cm]	Polarity
Horizontal 200 - 1000MHz								
875.3	14.91 PK	22.8	2.1	39.81	46	-6.19	200	Horz
900.7	14.37 PK	23.1	2.1	39.57	46	-6.43	300	Horz
949.8	14.85 PK	23.3	2.2	40.35	46	-5.65	100	Horz
Vertical 200 - 1000MHz								
851.3	15.62 PK	22.6	2.1	40.32	46	-5.68	400	Vert
917.8	15.17 PK	22.9	2.1	40.17	46	-5.83	400	Vert
965.9	14.46 PK	23.9	2.3	40.66	54	-13.34	100	Vert

PK - Peak detector

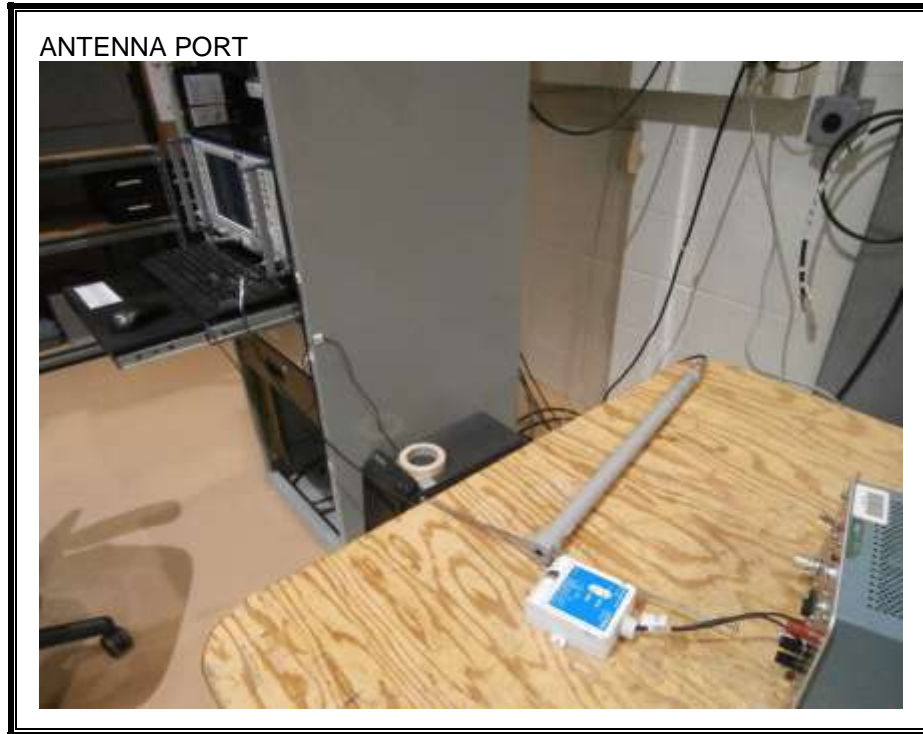
Max hold used during sweep for full azimuth search

**RECEIVER SPURIOUS EMISSION ABOVE 1GHz – High Channel**

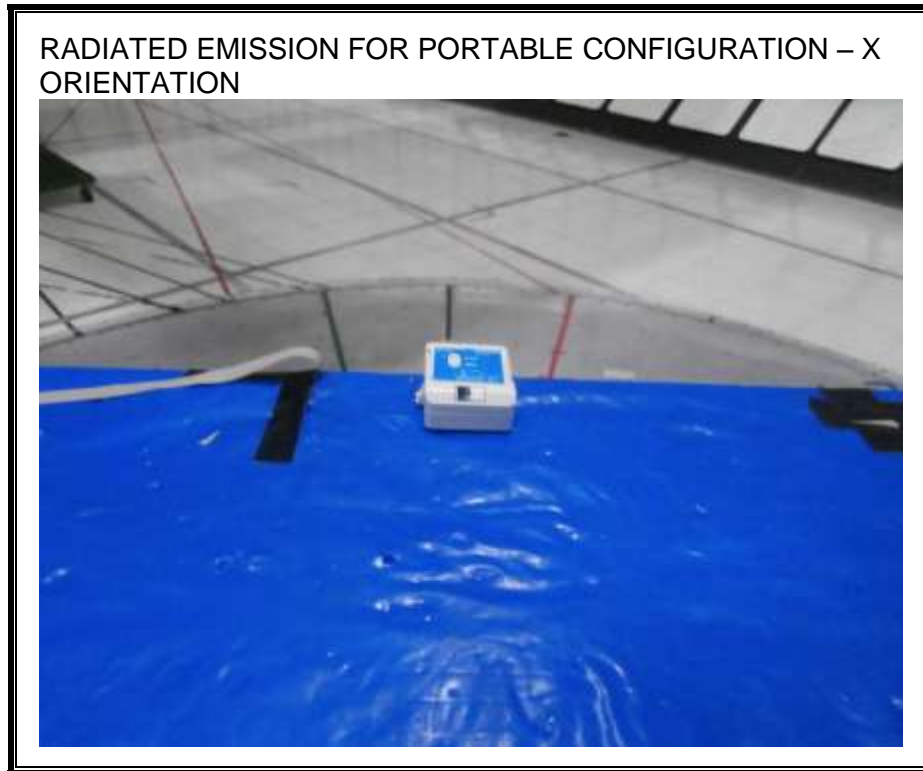


## 9. SETUP PHOTOS

### ANTENNA PORT



**RADIATED EMISSION FOR PORTABLE CONFIGURATION – X ORIENTATION**

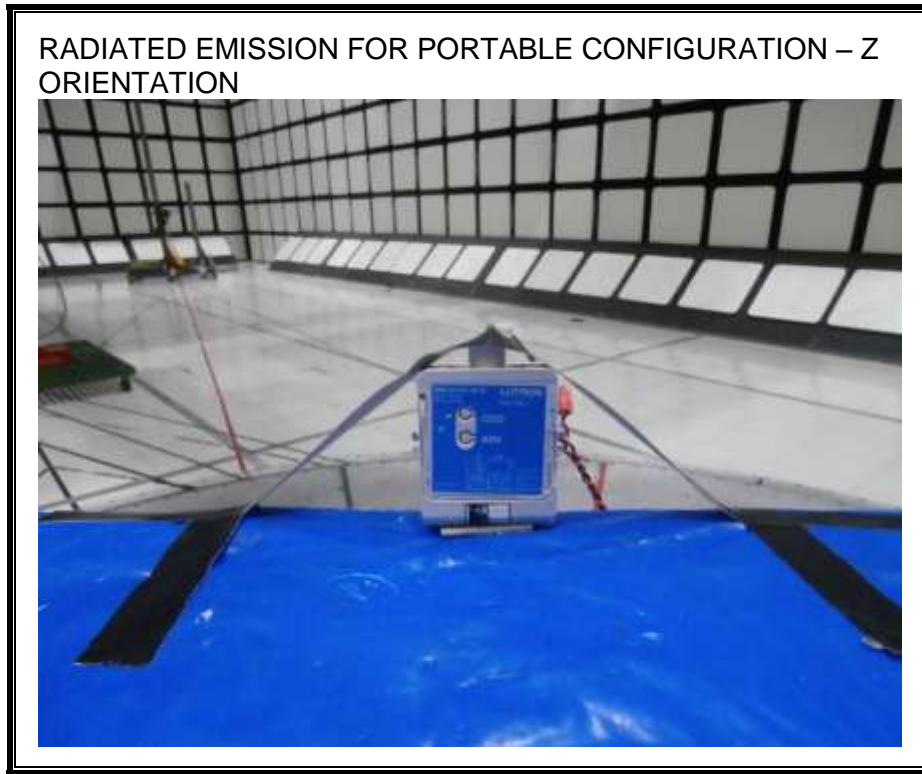




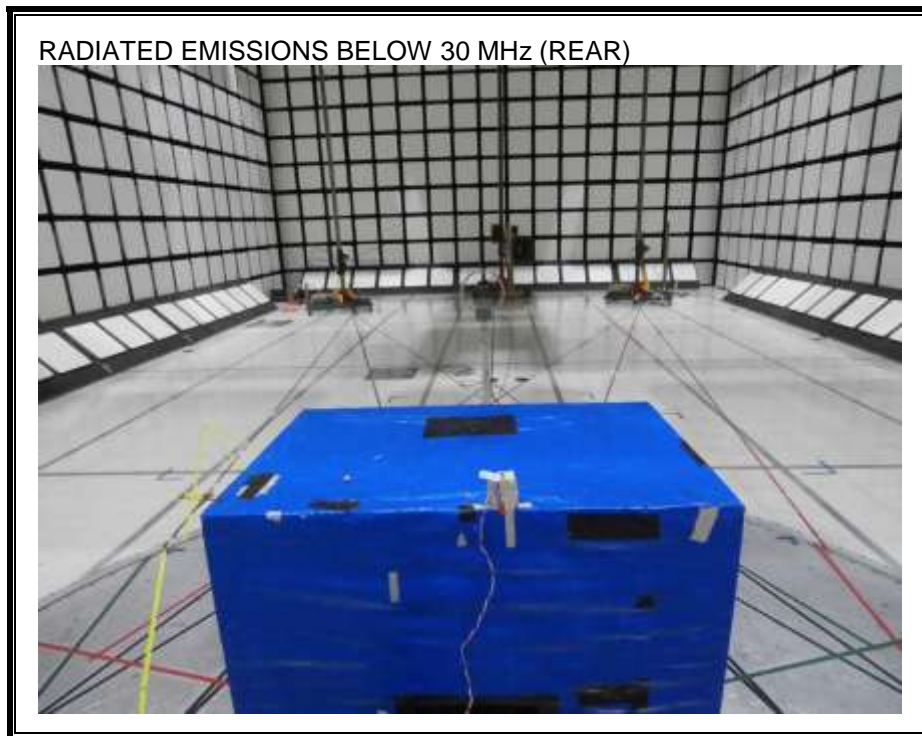
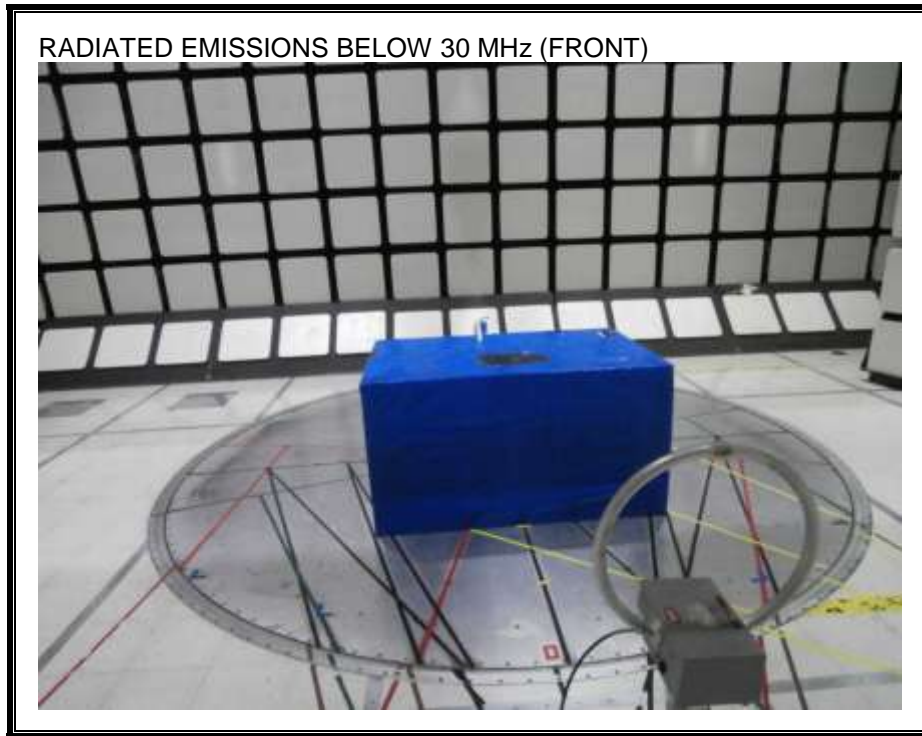
**RADIATED EMISSION FOR PORTABLE CONFIGURATION – Y ORIENTATION**



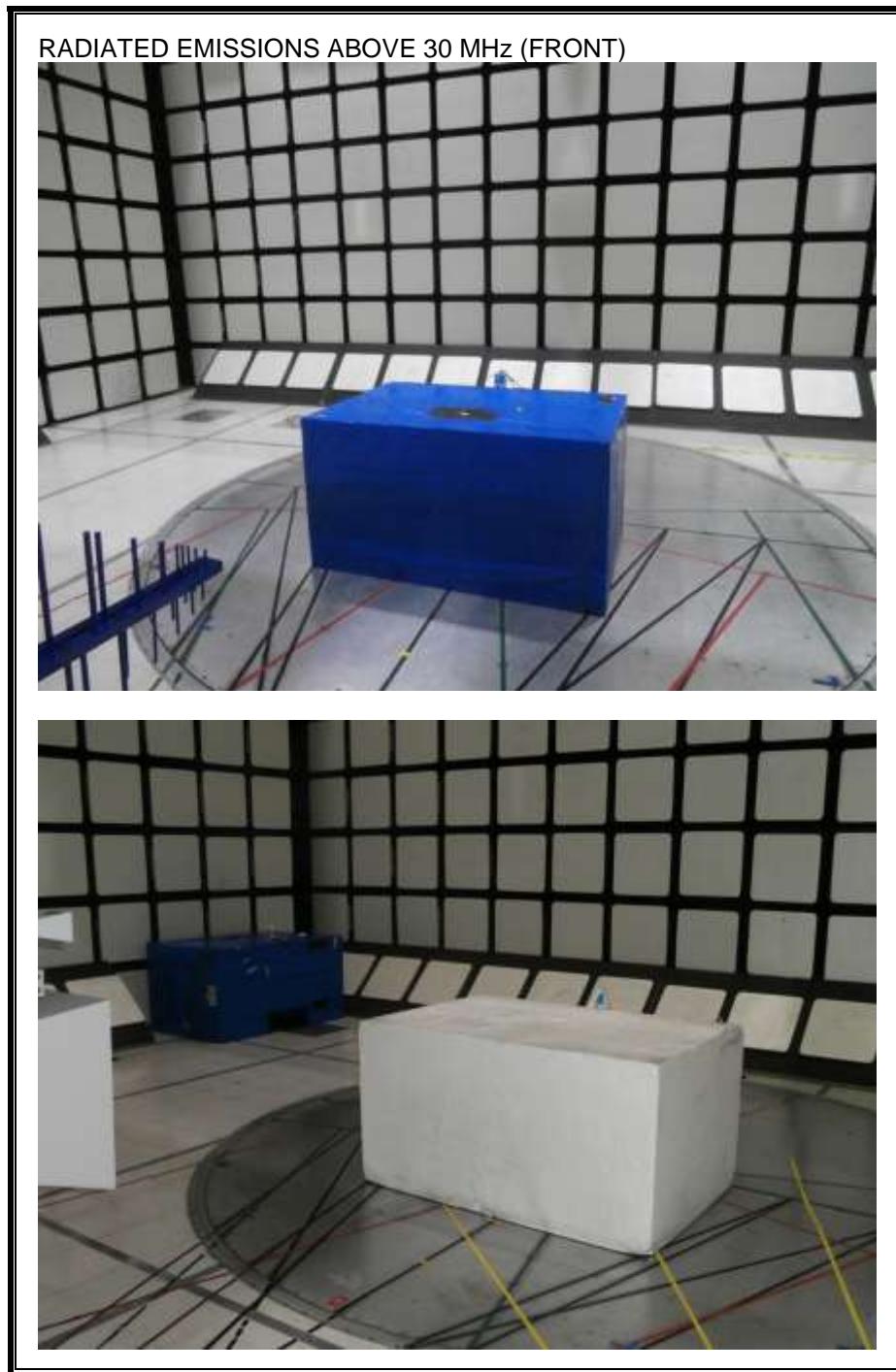
**RADIATED EMISSION FOR PORTABLE CONFIGURATION – Z ORIENTATION**



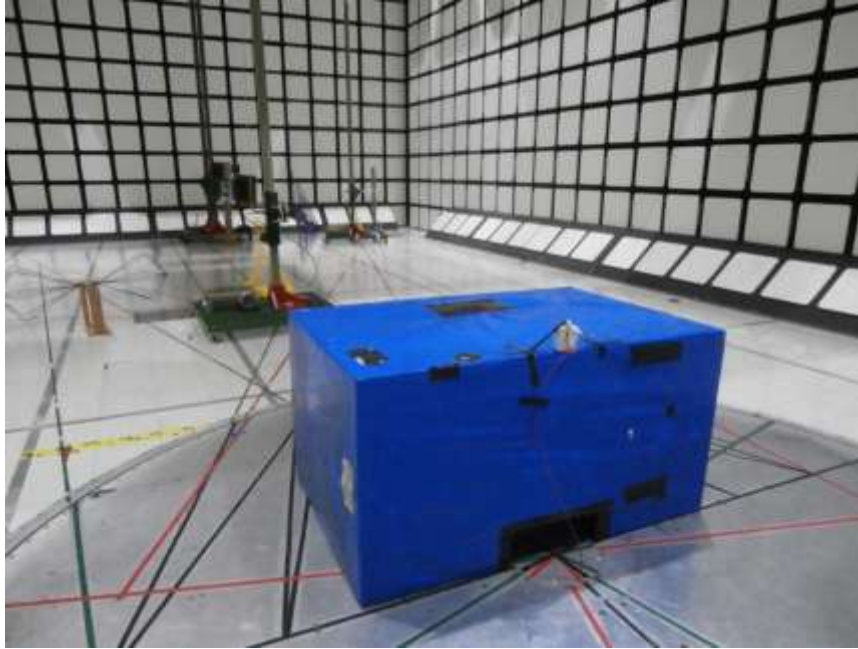
**RADIATED EMISSION BELOW 30 MHz**



**RADIATED EMISSION ABOVE 30 MHz**



RADIATED EMISSIONS ABOVE 30 MHz (BACK)



**END OF REPORT**