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

CERTIFICATION TEST REPORT

FOR

DIMMER

MODEL NUMBER: 6DCL

FCC ID: JPZ0092
IC: 2851A-JPZ0092

REPORT NUMBER: 10008004

ISSUE DATE: 2013-06-07

Prepared for
LUTRON ELECTRONICS CO INC.
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Prepared by
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NVLAP LAB CODE 100255-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	2013-06-07	Initial Issue	B. DeLisi

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UL LLC. FORM NO: CCSUP4701D
1285 WALT WHITMAN RD, MELVILLE, NY 11747, USA TEL: (631) 271-6200 FAX: (877) 854-3577

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: COMPANY
STREET
CITY, STATE, ZIP, COUNTRY

EUT DESCRIPTION: Dimmer

MODEL: 6DCL

SERIAL NUMBER: Non-serialized production unit

DATE TESTED: 2013-06-03 through 2013-06-06

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:

Bob DeLisi
WiSE Principal Engineer
UL LLC

Tested By:

Joseph Danisi
WiSE Project Lead
UL LLC

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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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 EUT is a dimmer intended for lighting applications. The operating frequency is 431MHz – 437MHz.

The model number was changed after testing was conducted. The model number shown in this report represents the model 6DCL

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an integral antenna.

5.3. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was RRD_6CL.SAP Dated 5/21/2013.

The test utility software used during testing was RRD_6CL_FCC_NO_CAL.SAP Dated 5/22/2013.

5.4. WORST-CASE CONFIGURATION AND MODE

The dimmer is only to be installed in one direction. Low and high channels were tested.

5.5. MODIFICATIONS

No modifications were made during testing.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Not Applicable

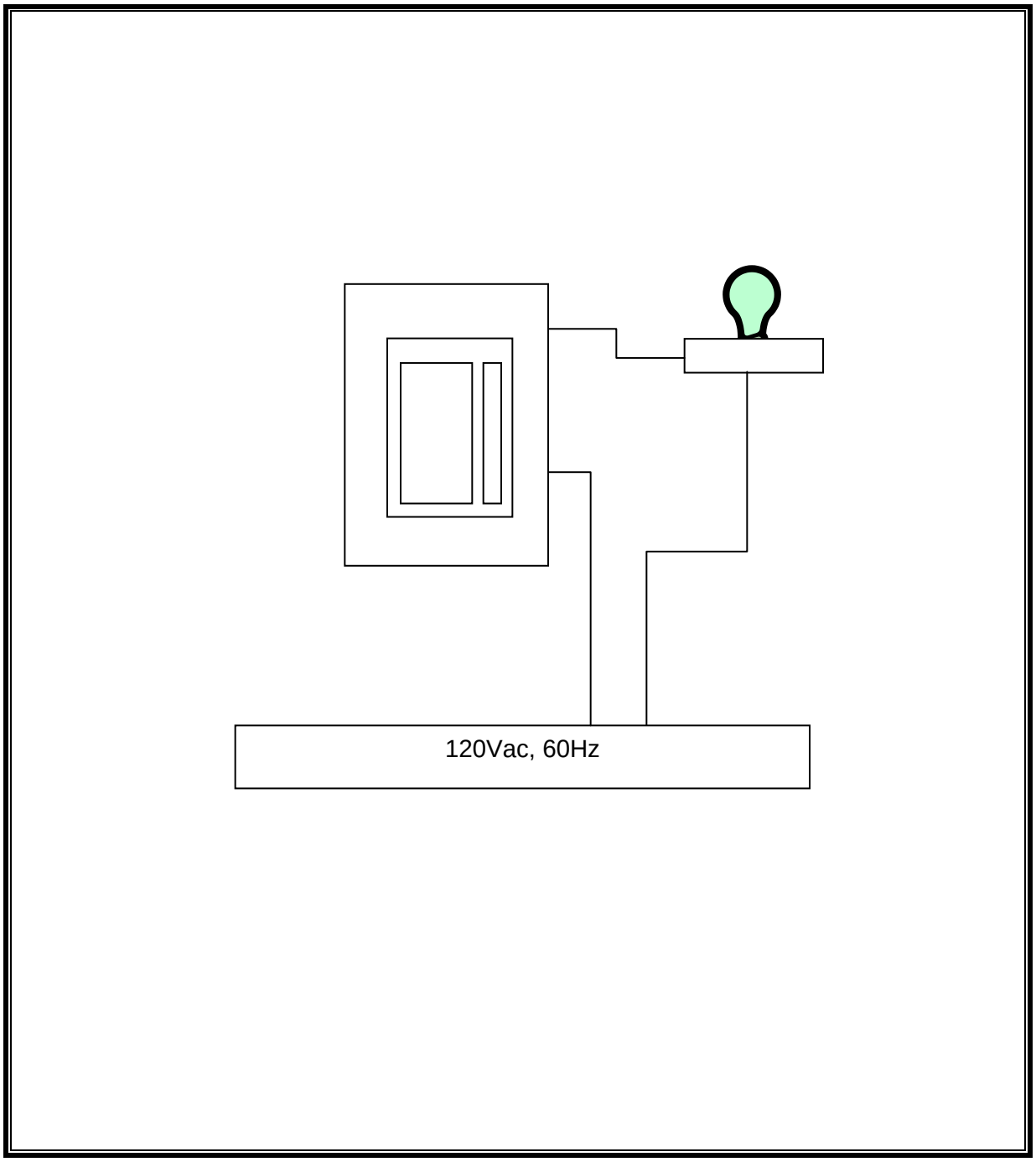
I/O CABLES

I/O CABLE LIST						
Cable No.	**Port**	**# of Identica Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	1	Hardwired	Unshielded	>3m	None

TEST SETUP

The EUT is a stand-alone device and tested in a plastic electrical box connected to a lamp load.

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

* - 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.

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 $2D^2/\lambda$. Gain standard horn antennas have gains that are fixed by their dimensions and dimensional tolerances.

** - Number in parentheses denotes antenna beam width.

Conducted Emissions					
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	NA	NA
RF Switch Box	UL	4	44404	NA	NA
Measurement Software	UL	Version 9.5	44736	NA	NA
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734	2012-03-13	2014-03-13
Multimeter	Fluke	87V	64386	2013-01-28	2014-01-31
Adjustable Dipolar Antenna	Emco	3120-B3	31603	NA	NA

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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 100 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:

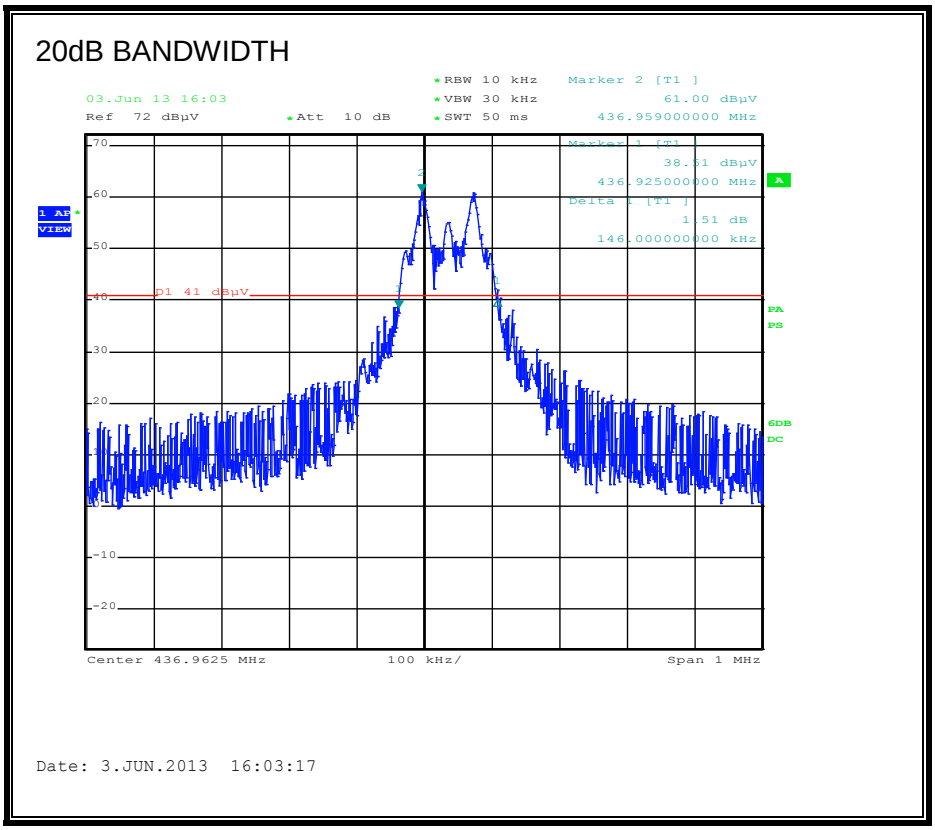
20dB Bandwidth

Frequency (MHz)	20dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)
437	146	1092.5	-946.5

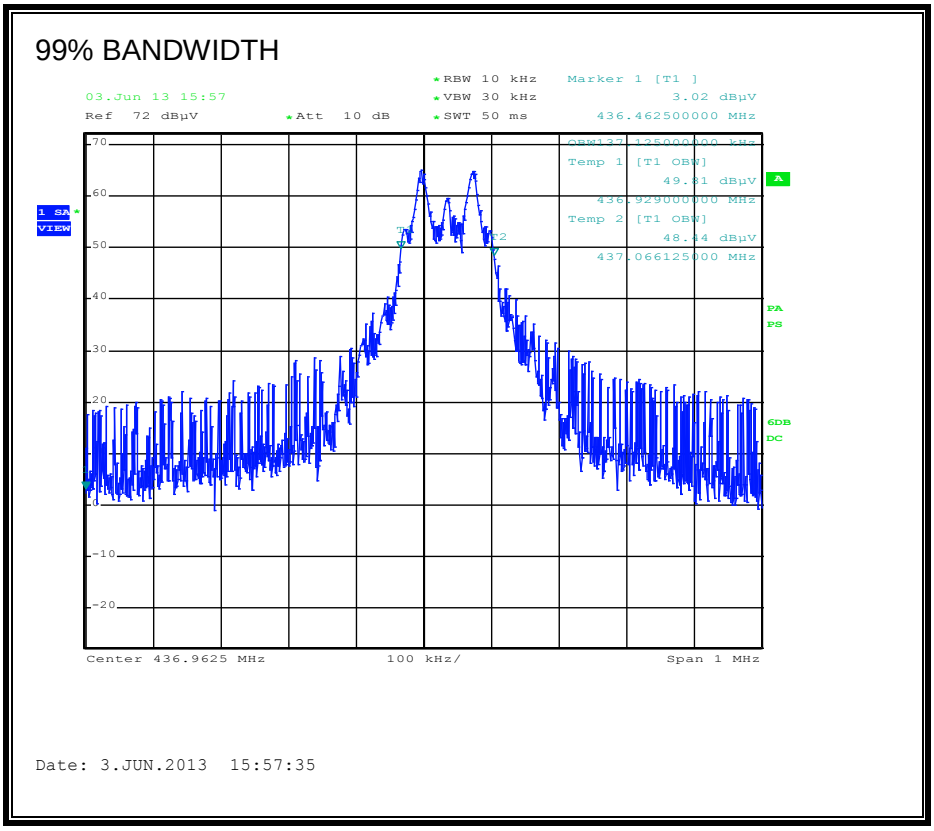
99% Bandwidth

Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)	Margin (kHz)
437	137.13	1092.5	-955.37

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

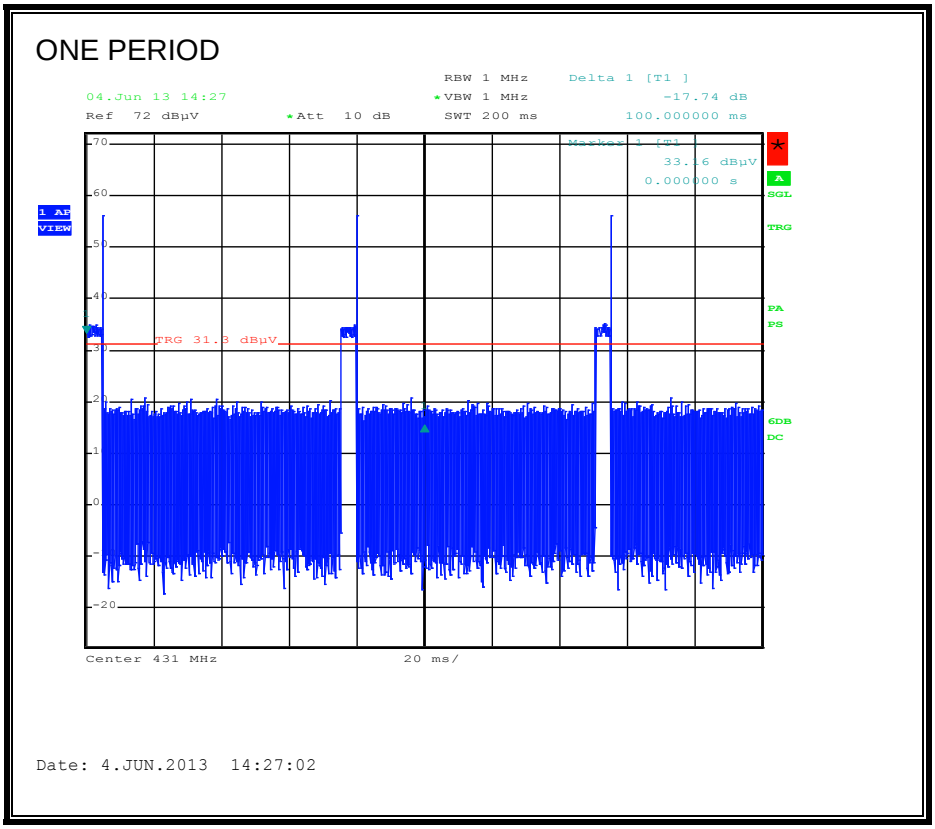
Average Reading = Peak Reading (dBuV/m) + 20log (Duty Cycle), Where Duty Cycle is
(# of long pulses * long pulse width) + (# of short pulses * short pulse width) / 100 or T

RESULTS

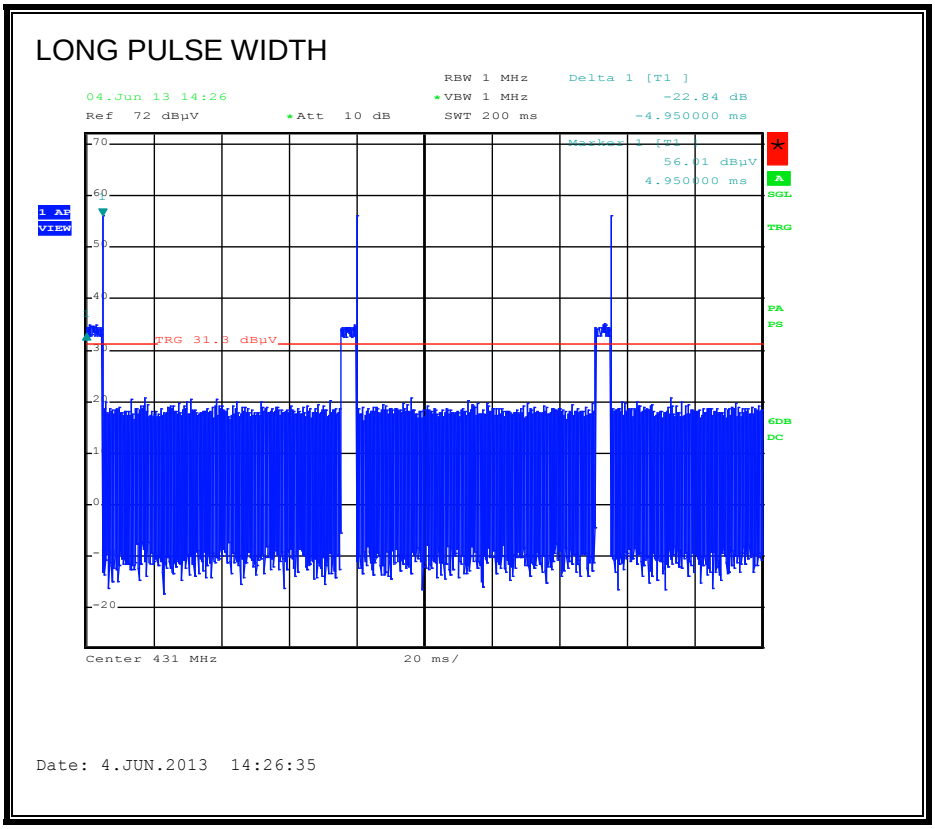
No non-compliance noted:

One Period (ms)	Long Pulse Width (ms)	# of Long Pulses	Short Width (ms)	# of Short Pulses	Duty Cycle	20*Log Duty Cycle (dB)
100	4.95	1	4.80	1	0.098	-20.22

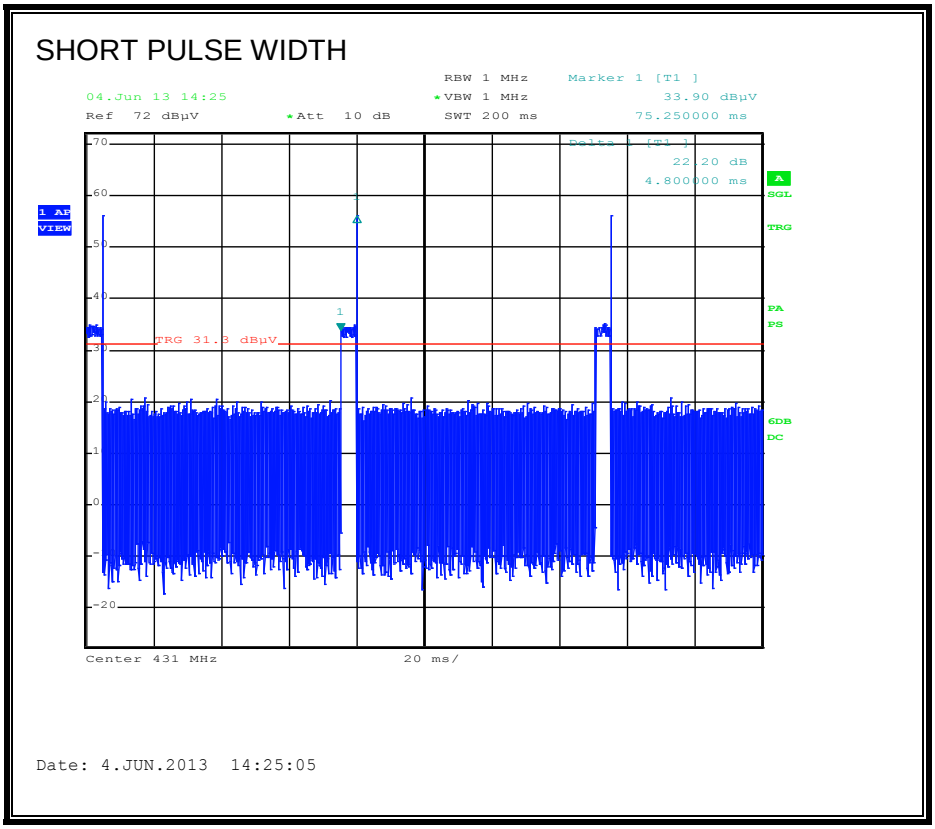
ONE PERIOD



LONG PULSE WIDTH



SHORT PULSE WIDTH



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.

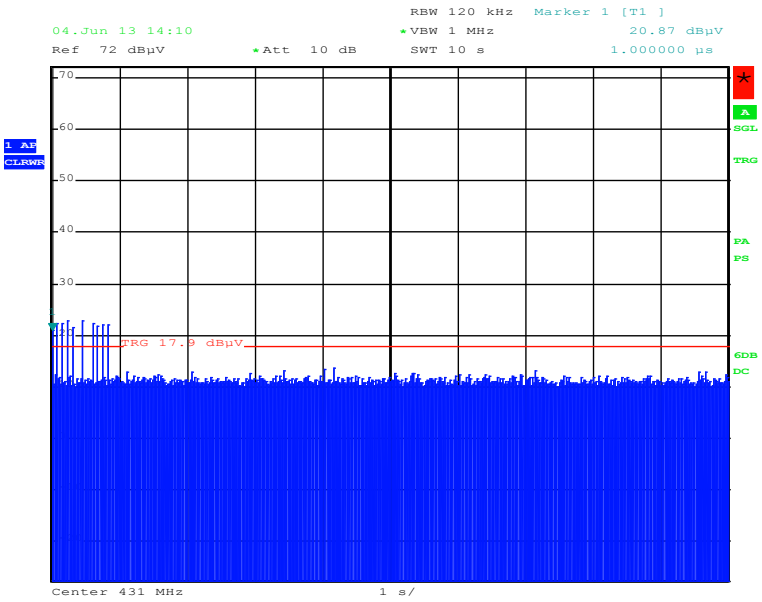
TEST PROCEDURE

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:

LESS THAN 5 SECONDS



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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 3,7501	125 to 3751
174 - 260	3,750	375
260 - 470	3,750 to 12,5001	375 to 1,2501
Above 470	12,500	1,250

1 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
[1]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	([2])
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)
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:

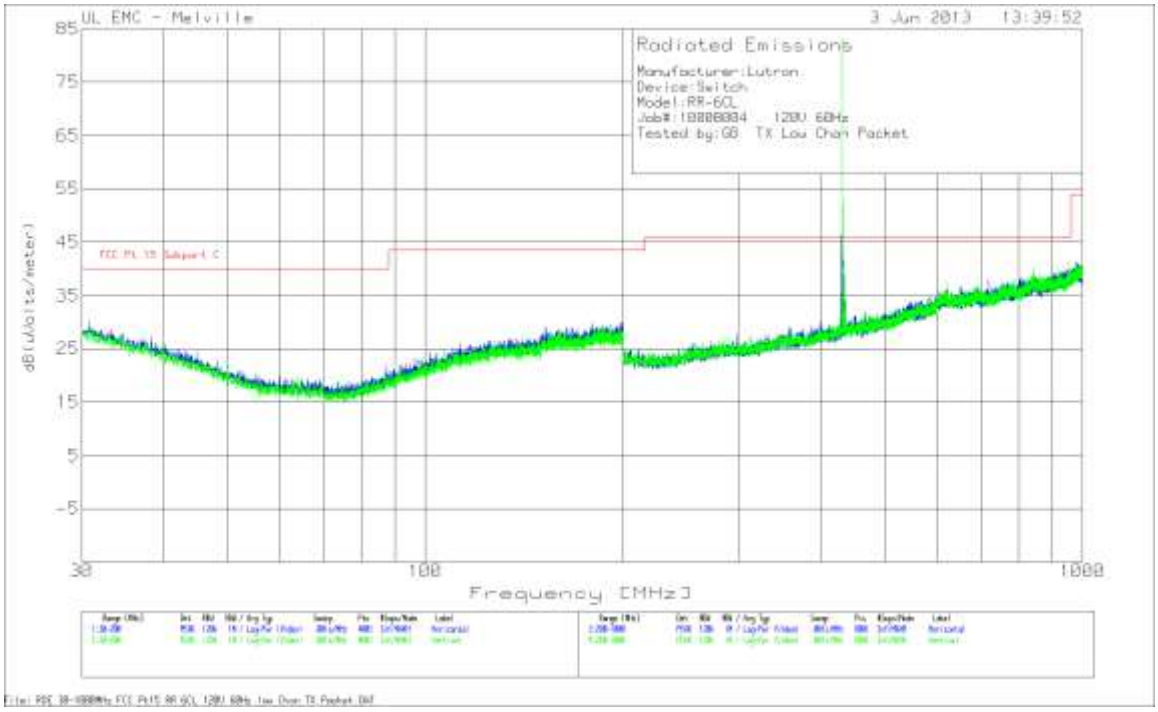
Note: Unless otherwise noted in the data in this section, spurious emissions in non-restricted (15.205) bands were compared against the 15.209 limits in lieu of the 15.231(b)(3) limits.

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

Manufacturer:Lutron
Device:Switch
Model:RR-6CL
Job#:10008004 120V 60Hz
Tested by:GB TX High Chan Packet

Test Frequency	Meter Reading	Detector	AF-44068 [dB/m]	GL-3M [dB]	dB(uVolts/ meter)	DC Factor (dB)	Corrected Value (dBuV/m)	FCC Pt 15 Subpart C 15.231	Margin (dB)	FCC Pt 15 Subpart C Peak	Margin (dB)	FCC Pt 15 Subpart C 15.209	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
431.035	63.37	PK	16.2	1.4	80.97	-20.22	60.75	80.7	-19.95	100.7	-19.73	-	-	28	109	Horz
431.0387	64.22	PK	16.4	1.4	82.02	-20.22	61.8	80.7	-18.9	100.7	-18.68	-	-	0	120	Vert
432.7	2.15	QP	16.3	1.5	19.95	-	-	-	-	-	-	46	-26.05	286	289	Vert
433.3	3.09	QP	16.3	1.5	20.89	-	-	-	-	-	-	46	-25.11	115	193	Horz
431.9	1.95	QP	16.4	1.5	19.85	-	-	-	-	-	-	46	-26.15	326	284	Horz
433.2	1.38	QP	16.5	1.5	19.38	-	-	-	-	-	-	46	-26.62	198	334	Horz

PK - Peak detector
QP - Quasi-Peak detector

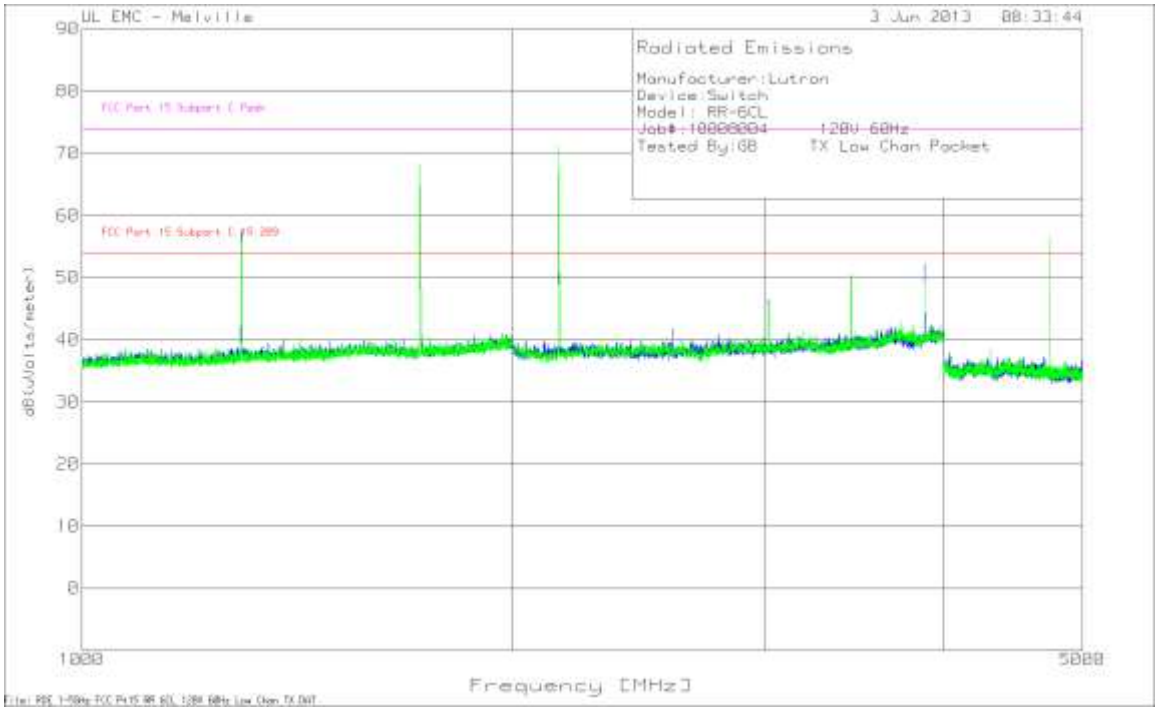


HARMONICS AND TX SPURIOUS EMISSIONS ABOVE 1GHz – Low Channel

Manufacturer:Lutron
Device:Switch
Model: RR-6CL
Job#:10008004 120V 60Hz
Tested By:GB TX Low Chan Packet

Test Frequency	Meter Reading	Detector	AF-51442	BOMS Factor [dB]	dB(uVolts/ meter)	DC Factor (dB)	Corrected Level (dBuV/m)	FCC Part 15 Subpart C 15.209	Margin (dB)	FCC Part 15 Subpart C 15.231	Margin (dB)	FCC Part 15 Subpart C Peak	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1000 - 2000MHz																
1293.09	86.08	PK	20.5	-44.15	62.43	-20.22	42.21	54	-11.79	-	-	74	-11.57	123	393	Horz
1292.985	82.72	PK	20.5	-44.16	59.06	-20.22	38.84	54	-15.16	-	-	74	-14.94	212	289	Vert
1724	87.27	PK	20.8	-43.58	64.49	-20.22	44.27	54	-9.73	-	-	74	-9.51	334	397	Vert
1724	92.95	PK	20.8	-43.58	70.17	-20.22	49.95	54	-4.05	-	-	74	-3.83	122	238	Horz
2000 - 4000MHz																
2154.84	93.55	PK	21.4	-43.12	71.83	-20.22	51.61	54	-2.39	-	-	74	-2.17	96	365	Horz
2154.84	97.94	PK	21.4	-43.12	76.22	-20.22	56	-	-	60.7	-4.7	80.7	-4.48	201	328	Vert
3017.2733	71.9	PK	21.5	-41.61	51.79	-20.22	31.57	54	-22.43	-	-	74	-22.21	360	177	Vert
3017.2733	69.59	PK	21.5	-41.61	49.48	-20.22	29.26	54	-24.74	-	-	74	-24.52	65	119	Horz
3447.81	70.81	PK	22.1	-41.33	51.58	-20.22	31.36	54	-22.64	-	-	74	-22.42	144	197	Horz
3447.81	73.93	PK	22.1	-41.33	54.7	-20.22	34.48	54	-19.52	-	-	74	-19.3	220	242	Vert
3879.3533	74.78	PK	22.6	-41.56	55.82	-20.22	35.6	54	-18.4	-	-	74	-18.18	191	391	Vert
3879.3533	75.58	PK	22.6	-41.56	56.62	-20.22	36.4	54	-17.6	-	-	74	-17.38	125	373	Horz
4000 - 5000MHz																
4740.54	85.9	PK	27.2	-51.83	61.27	-20.22	41.05	54	-12.95	-	-	74	-12.73	186	309	Horz
4740.54	88.41	PK	27.2	-51.83	63.78	-20.22	43.56	54	-10.44	-	-	74	-10.22	226	351	Vert

PK - Peak detector

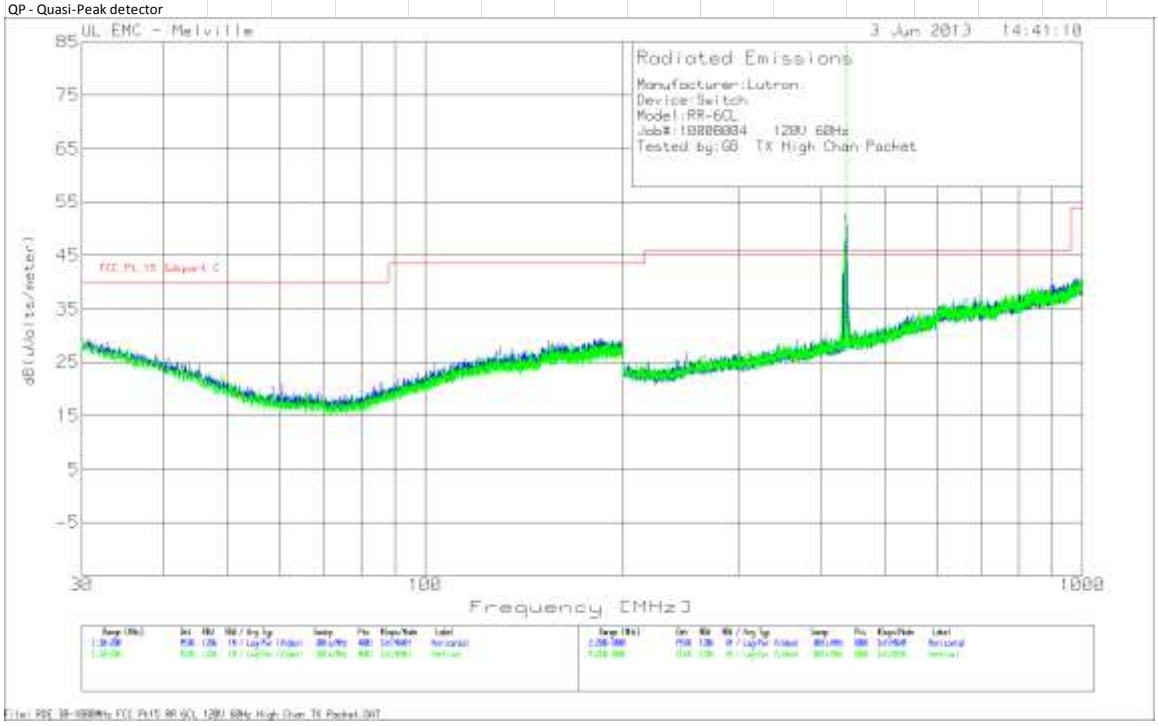


FUNDAMENTAL, HARMONICS AND TX SPURIOUS EMISSION (30 – 1000 MHz) – High Channel

Manufacturer:Lutron
Device:Switch
Model:RR-6CL
Job#:10008004 120V 60Hz
Tested by:GB TX High Chan Packet

Test Frequency	Meter Reading	Detector	AF-44068 [dB/m]	GL-3M [dB]	dB(uVolts/ meter)	DC Factor (dB)	Corrected Value (dBuV/m)	FCC Pt 15 Subpart C 15.231	Margin (dB)	FCC Pt 15 Subpart C Peak	Margin (dB)	FCC Pt 15 Subpart C 15.209	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
436.9579	66.99	PK	16.5	1.5	84.99	-20.22	64.77	80.9	-16.13	100.9	-15.91	-	-	207	102	Horz
436.9579	66.47	PK	16.5	1.5	84.47	-20.22	64.25	80.9	-16.65	100.9	-16.43	-	-	260	136	Vert
437.4	24.36	QP	16.5	1.5	42.36	-	-	-	-	-	-	46	-3.64	3	146	Vert
437.7	13.18	QP	16.6	1.5	31.28	-	-	-	-	-	-	46	-14.72	95	392	Horz
436.3	13.95	QP	16.5	1.5	31.95	-	-	-	-	-	-	46	-14.05	287	306	Horz
431.4	6.76	QP	16.2	1.4	24.36	-	-	-	-	-	-	46	-21.64	286	289	Horz

PK - Peak detector
QP - Quasi-Peak detector

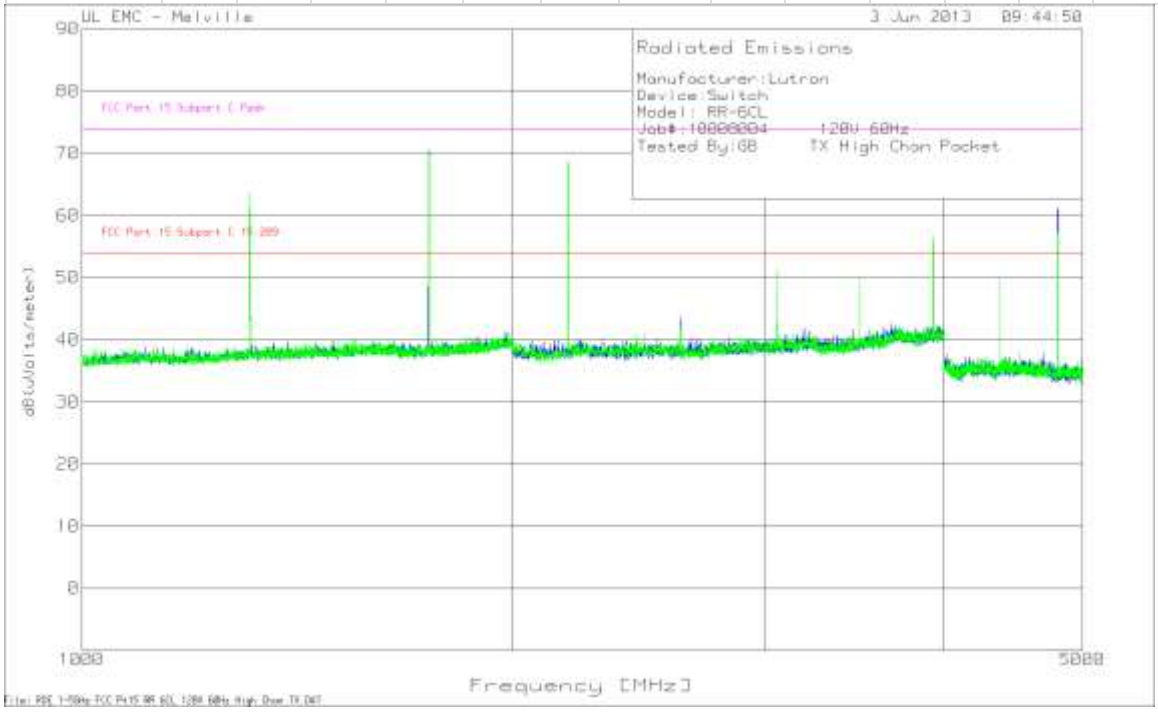


HARMONICS AND TX SPURIOUS EMISSIONS ABOVE 1GHz – High Channel

Manufacturer:Lutron
Device:Switch
Model: RR-6CL
Job#:10008004 120V 60Hz
Tested By:GB TX High Chan Packet

Test Frequency	Meter Reading	Detector	AF-51442	BOMS Factor [dB]	dB(uVolts /meter)	DC Factor (dB)	Corrected Level (dBuV/m)	FCC Part 15 Subpart C 15.209	Margin (dB)	FCC Part 15 Subpart C Peak	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1000 - 2000MHz														
1310.865	87.8	PK	20.5	-44.27	64.03	-20.22	43.81	54	-10.19	74	-9.97	132	105	Vert
1310.865	85.63	PK	20.5	-44.27	61.86	-20.22	41.64	54	-12.36	74	-12.14	88	375	Horz
1747.805	92.96	PK	20.8	-43.78	69.98	-20.22	49.76	54	-4.24	74	-4.02	125	254	Horz
1747.805	93.79	PK	20.8	-43.78	70.81	-20.22	50.59	54	-3.41	74	-3.19	191	249	Vert
2000 - 4000MHz														
2184.7867	91.1	PK	21.5	-43.11	69.49	-20.22	49.27	54	-4.73	74	-4.51	249	232	Vert
2184.7867	89.16	PK	21.5	-43.11	67.55	-20.22	47.33	54	-6.67	74	-6.45	74	367	Horz
2621.75	65.56	PK	21.4	-42.3	44.66	-20.22	24.44	54	-29.56	74	-29.34	122	227	Horz
2621.75	65.61	PK	21.4	-42.3	44.71	-20.22	24.49	54	-29.51	74	-29.29	132	116	Vert
3058.8733	69.71	PK	21.6	-41.64	49.67	-20.22	29.45	54	-24.55	74	-24.33	35	127	Vert
3058.8733	70.19	PK	21.6	-41.64	50.15	-20.22	29.93	54	-24.07	74	-23.85	27	106	Horz
3496	67.03	PK	22.2	-41.48	47.75	-20.22	27.53	54	-26.47	74	-26.25	219	205	Vert
3496	70.62	PK	22.2	-41.48	51.34	-20.22	31.12	54	-22.88	74	-22.66	254	371	Horz
3933.2833	75.04	PK	22.7	-41.42	56.32	-20.22	36.1	54	-17.9	74	-17.68	118	253	Horz
3933.2833	75.54	PK	22.7	-41.42	56.82	-20.22	36.6	54	-17.4	74	-17.18	186	309	Vert
4000 - 5000MHz														
4369.57	72.6	PK	27.6	-51.54	48.66	-20.22	28.44	54	-25.56	74	-25.34	240	286	Vert
4369.57	74.28	PK	27.6	-51.54	50.34	-20.22	30.12	54	-23.88	74	-23.66	149	108	Horz
4807.435	81.54	PK	27.1	-52.23	56.41	-20.22	36.19	54	-17.81	74	-17.59	143	184	Horz
4807.435	83.11	PK	27.1	-52.23	57.98	-20.22	37.76	54	-16.24	74	-16.02	285	196	Vert

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 (dBµV/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.

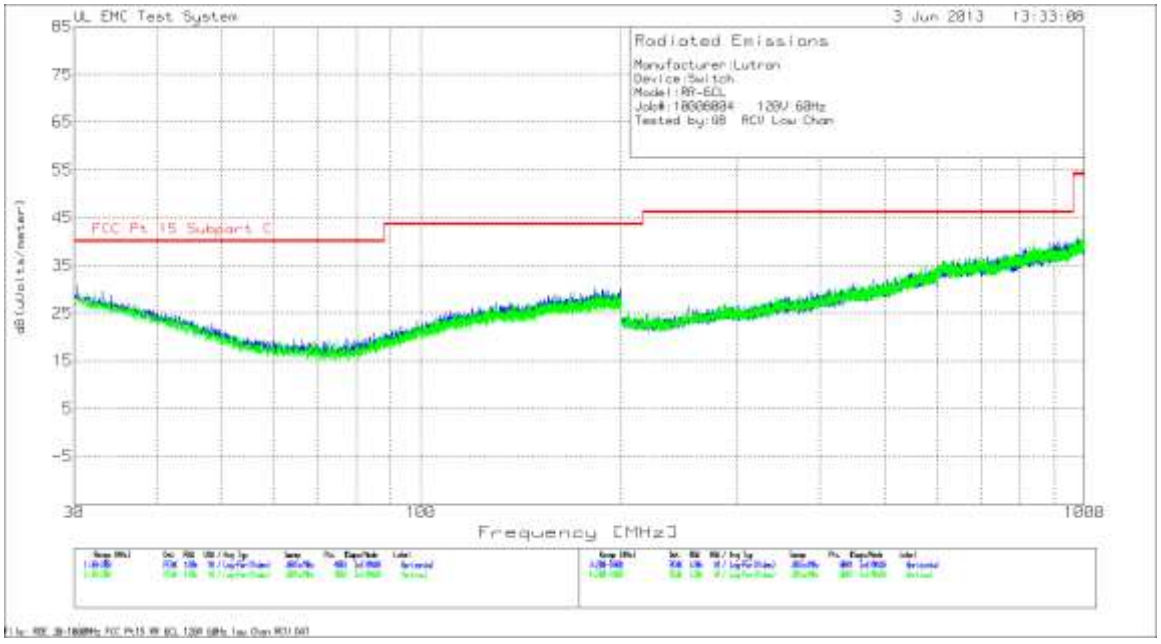
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

RESULTS

No non-compliance noted:

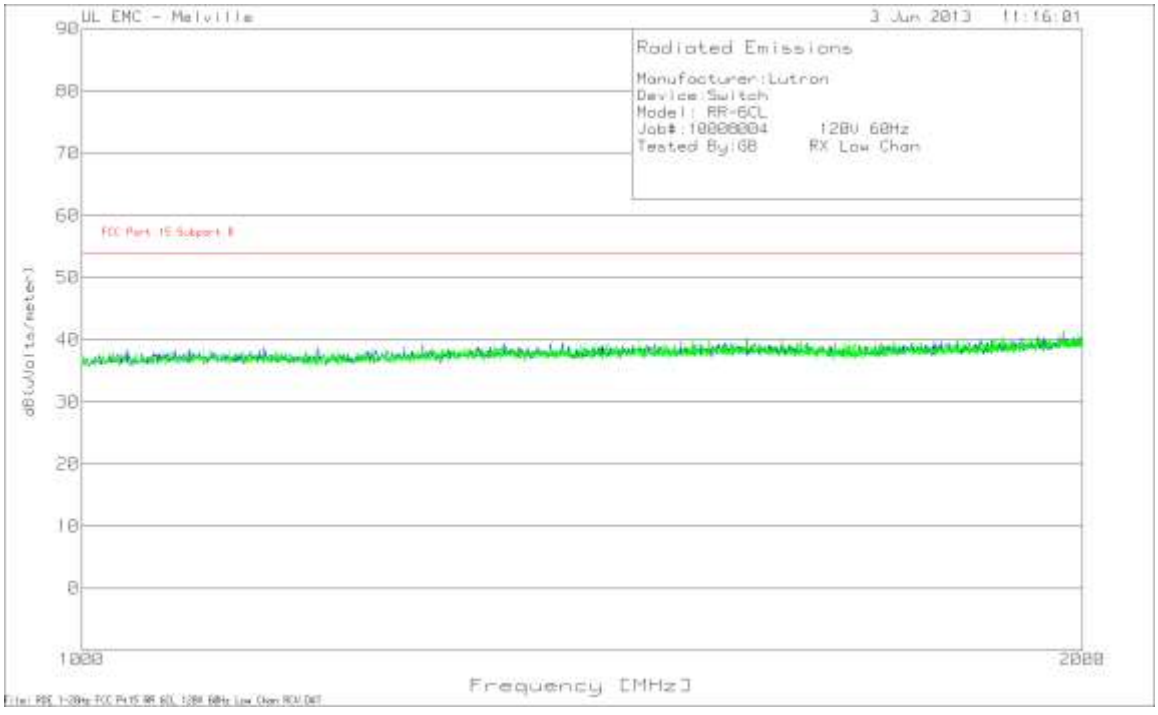
RECEIVER SPURIOUS EMISSION (30MHz - 1GHz) – Low Channel

Manufacturer:Lutron									
Device:Switch									
Model:RR-6CL									
Job#:10008004 120V 60Hz									
Tested by:GB RCV Low Chan									
Test Frequency	Meter Reading	Detector	AF-54 [dB/m]	GL-3M [dB]	dB(uVolts /meter)	FCC Pt 15 Subpart B	Margin (dB)	Height [cm]	Polarity
Horizontal 30 - 200MHz									
30.3825	13.11	PK	17.6	0	30.71	40	-9.29	100	Horz
33.1025	12.87	PK	16.6	0.1	29.57	40	-10.43	100	Horz
155.9275	13.53	PK	14.7	0.6	28.83	43.5	-14.67	400	Horz
Vertical 30 - 200MHz									
182.065	14.07	PK	15.6	0.8	30.47	43.5	-13.03	100	Vert
Horizontal 200 - 1000MHz									
882.9	15.17	PK	22.5	2.1	39.77	46	-6.23	400	Horz
Vertical 200 - 1000MHz									
838.3	15.04	PK	22.9	2.1	40.04	46	-5.96	400	Vert
PK - Peak detector									



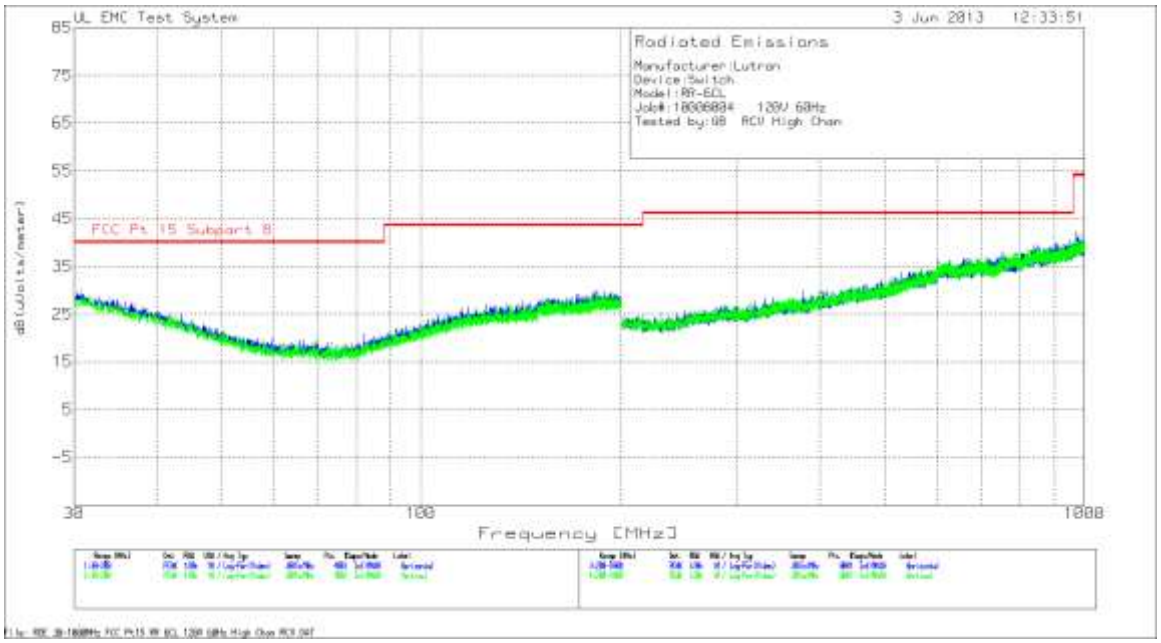
RECEIVER SPURIOUS EMISSION ABOVE 1GHz – Low Channel

Manufacturer:Lutron									
Device:Switch									
Model: RR-6CL									
Job#:10008004 120V 60Hz									
Tested By:GB RX Low Chan									
Test Frequency	Meter Reading	Detector	AF-51442	BOMS Factor (dB)	dB(uVolts/ meter)	FCC Part 15 Subpart B	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 2000MHz									
1032	63.28	PK	19.5	-44.29	38.49	54	-15.51	250	Horz
1135	63.1	PK	19.9	-44.24	38.76	54	-15.24	99	Horz
1178	63.28	PK	19.8	-44.23	38.85	54	-15.15	250	Horz
1266.5	63.04	PK	20.3	-44.1	39.24	54	-14.76	250	Horz
1340	62.93	PK	20.6	-43.99	39.54	54	-14.46	250	Horz
1974	62.59	PK	22	-43.21	41.38	54	-12.62	250	Horz
PK - Peak detector									



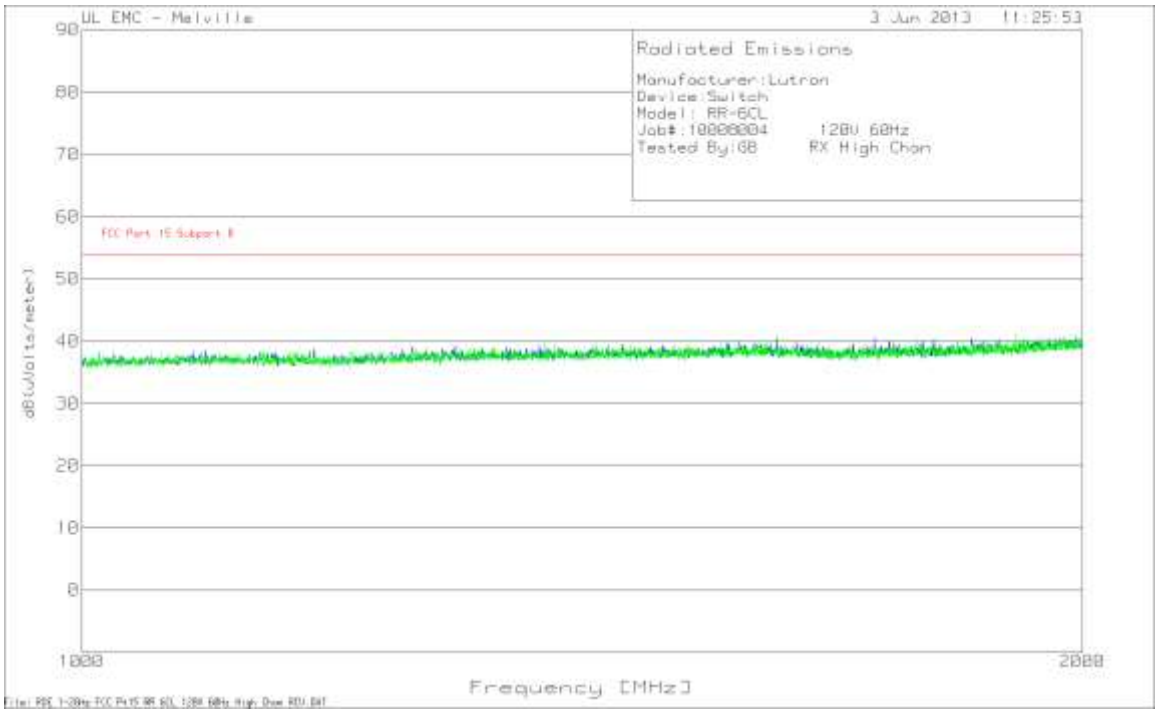
RECEIVER SPURIOUS EMISSION (30MHz - 1GHz) – High Channel

Manufacturer:Lutron									
Device:Switch									
Model:RR-6CL									
Job#:10008004 120V 60Hz									
Tested by:GB RCV High Chan									
Test Frequency	Meter Reading	Detector	AF-54 [dB/m]	GL-3M [dB]	dB(uVolts/ meter)	FCC Pt 15 Subpart B	Margin (dB)	Height [cm]	Polarity
Horizontal 30 - 200MHz									
43.5575	12.5	PK	12.3	0.2	25	40	-15	100	Horz
118.0175	12.88	PK	13.3	0.4	26.58	43.5	-16.92	250	Horz
183	13.71	PK	15.6	0.7	30.01	43.5	-13.49	250	Horz
Vertical 30 - 200MHz									
30.8075	12.99	PK	17.5	0	30.49	40	-9.51	100	Vert
Horizontal 200 - 1000MHz									
971.5	15.72	PK	24.3	2.2	42.22	54	-11.78	400	Horz
Vertical 200 - 1000MHz									
990.4	15.43	PK	24.4	2.2	42.03	54	-11.97	200	Vert
PK - Peak detector									



RECEIVER SPURIOUS EMISSION ABOVE 1GHz – High Channel

Manufacturer:Lutron									
Device:Switch									
Model: RR-6CL									
Job#:10008004 120V 60Hz									
Tested By:GB RX High Chan									
Test Frequency	Meter Reading	Detector	AF-51442	BOMS Factor (dB)	dB(uVolts/ meter)	FCC Part 15 Subpart B	Margin (dB)	Height [cm]	Polarity
Horizontal 1000 - 2000MHz									
1080.5	62.77	PK	19.9	-44.29	38.38	54	-15.62	99	Horz
1174.5	63.09	PK	19.9	-44.26	38.73	54	-15.27	250	Horz
1257.5	63.11	PK	20.2	-44.1	39.21	54	-14.79	250	Horz
1640.5	62.79	PK	21	-43.86	39.93	54	-14.07	99	Horz
1731.5	63.77	PK	20.8	-43.96	40.61	54	-13.39	99	Horz
1852.5	62.88	PK	21.3	-43.68	40.5	54	-13.5	250	Horz
PK - Peak detector									



9. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207 (a)
IC RSS-GEN, Section 7.2.2

Frequency of emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50
* Decreases with the logarithm of the frequency.		

TEST PROCEDURE

ANSI C63.4

RESULTS

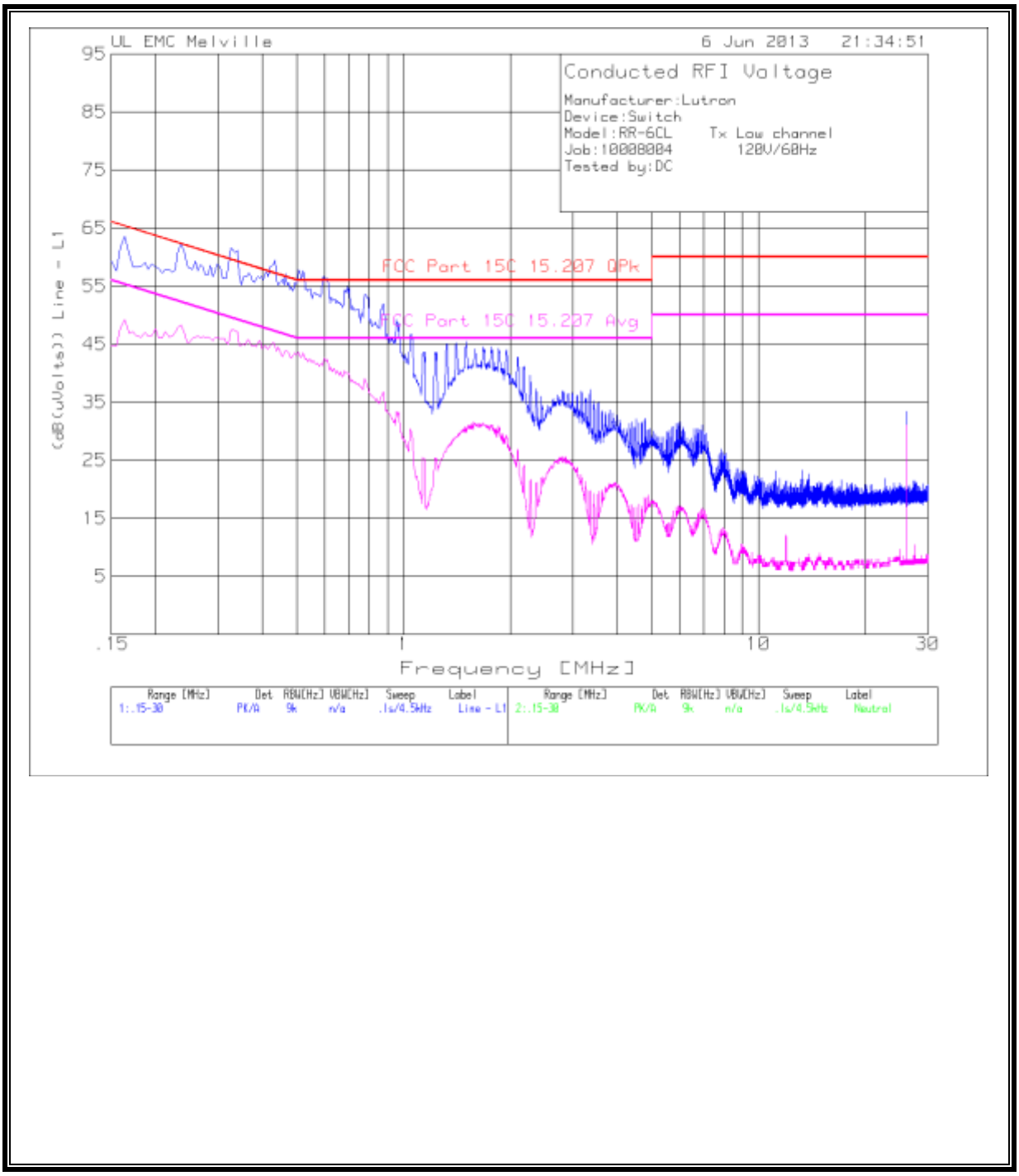
No non-compliance noted:

EMISSIONS – TX Low Channel

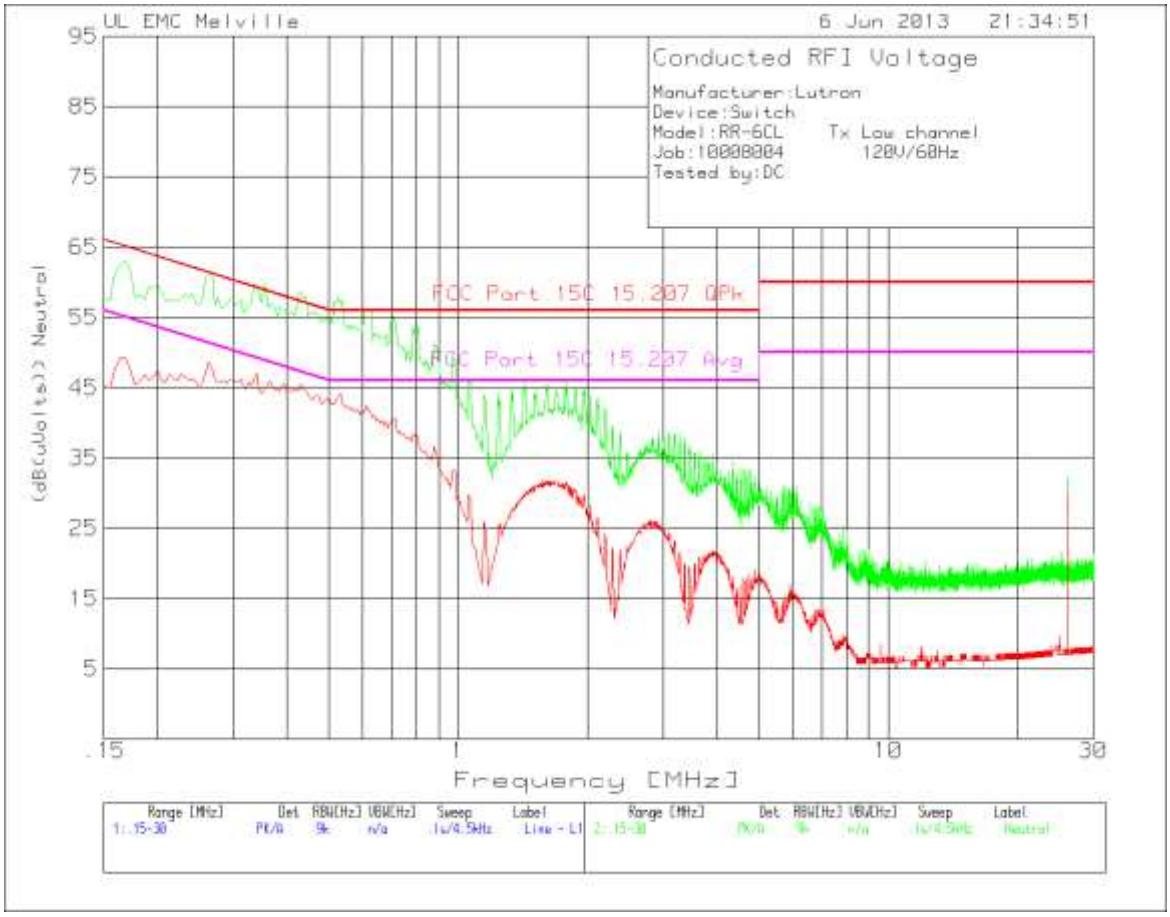
Manufacturer:Lutron								
Device:Switch								
Model:RR-6CL Tx Low channel								
Job:10008004 120V/60Hz								
Tested by:DC								
Test Frequency	Meter Reading	Detector	5A636 L1 (dB)	(dB(uVolts))	FCC Part 15C 15.207 QPk	Margin	FCC Part 15C 15.207 Avg	Margin
Line - L1 .15 - 30MHz								
0.1635	39.17	Av	10	49.17	-	-	55.3	-6.13
0.2355	38.26	Av	10	48.26	-	-	52.3	-4.04
0.3255	37.39	Av	10	47.39	-	-	49.6	-2.21
0.4335	34.54	Av	10	44.54	-	-	47.2	-2.66
0.5055	33.56	Av	10	43.56	-	-	46	-2.44
0.5955	32.47	Av	10	42.47	-	-	46	-3.53
0.6945	29.94	Av	10	39.94	-	-	46	-6.06
0.78	28.78	Av	10	38.78	-	-	46	-7.22
0.8745	26.79	Av	10	36.79	-	-	46	-9.21
0.951	23.36	Av	10	33.36	-	-	46	-12.64
1.05	19.91	Av	10	29.91	-	-	46	-16.09
1.5	20.34	Av	10.1	30.44	-	-	46	-15.56
Neutral .15 - 30MHz								
0.168	39.15	Av	10	49.15	-	-	55.1	-5.95
0.26475	37.73	Av	10	47.73	-	-	51.3	-3.57
0.3525	34.83	Av	10	44.83	-	-	48.9	-4.07
0.429	35.38	Av	10	45.38	-	-	47.3	-1.92
0.5235	33.58	Av	10.1	43.68	-	-	46	-2.32
0.6135	31.99	Av	10.1	42.09	-	-	46	-3.91
0.70575	30.42	Av	10.1	40.52	-	-	46	-5.48
0.807	27.41	Av	10.1	37.51	-	-	46	-8.49
0.879	26.34	Av	10.1	36.44	-	-	46	-9.56
0.969	23.14	Av	10.1	33.24	-	-	46	-12.76
1.0545	19.62	Av	10.1	29.72	-	-	46	-16.28
1.7745	21.46	Av	10.1	31.56	-	-	46	-14.44
Av - Average detector								

Manufacturer:Lutron								
Device:Switch								
Model:RR-6CL Tx Low channel								
Job:10008004 120V/60Hz								
Tested by:DC								
Test Frequency	Meter Reading	Detector	5A636 L1 (dB)	(dB(uVolts))	FCC Part 15C 15.207 QPk	Margin	FCC Part 15C 15.207 Avg	Margin
Line - L1 .15 - 30MHz								
0.1653	45.51	QP	10	55.51	65.19	-9.68	-	-
0.2373	46.22	QP	10	56.22	62.19	-5.97	-	-
0.3282	46.41	QP	10	56.41	59.5	-3.09	-	-
0.438	44.35	QP	10	54.35	57.1	-2.75	-	-
0.5082	43.19	QP	10	53.19	56	-2.81	-	-
0.5982	42.7	QP	10	52.7	56	-3.3	-	-
0.6972	40.84	QP	10	50.84	56	-5.16	-	-
0.7818	39.36	QP	10	49.36	56	-6.64	-	-
0.8763	32.72	QP	10	42.72	56	-13.28	-	-
0.9465	32.99	QP	10	42.99	56	-13.01	-	-
1.0482	30.03	QP	10	40.03	56	-15.97	-	-
1.4964	26.86	QP	10.1	36.96	56	-19.04	-	-
Neutral .15 - 30MHz								
0.1671	47.7	QP	10	57.7	65.1	-7.4	-	-
0.26925	46.89	QP	10	56.89	61.14	-4.25	-	-
0.3552	45.09	QP	10	55.09	58.84	-3.75	-	-
0.4317	44.66	QP	10	54.66	57.22	-2.56	-	-
0.5244	43.7	QP	10.1	53.8	56	-2.2	-	-
0.618	41.43	QP	10.1	51.53	56	-4.47	-	-
0.70845	40.16	QP	10.1	50.26	56	-5.74	-	-
0.8079	39.3	QP	10.1	49.4	56	-6.6	-	-
0.8781	32.49	QP	10.1	42.59	56	-13.41	-	-
0.9645	32.95	QP	10.1	43.05	56	-12.95	-	-
1.0527	24.51	QP	10.1	34.61	56	-21.39	-	-
1.77	28.8	QP	10.1	38.9	56	-17.1	-	-
QP - Quasi-Peak detector								

LINE 1 RESULTS



LINE 2 RESULTS

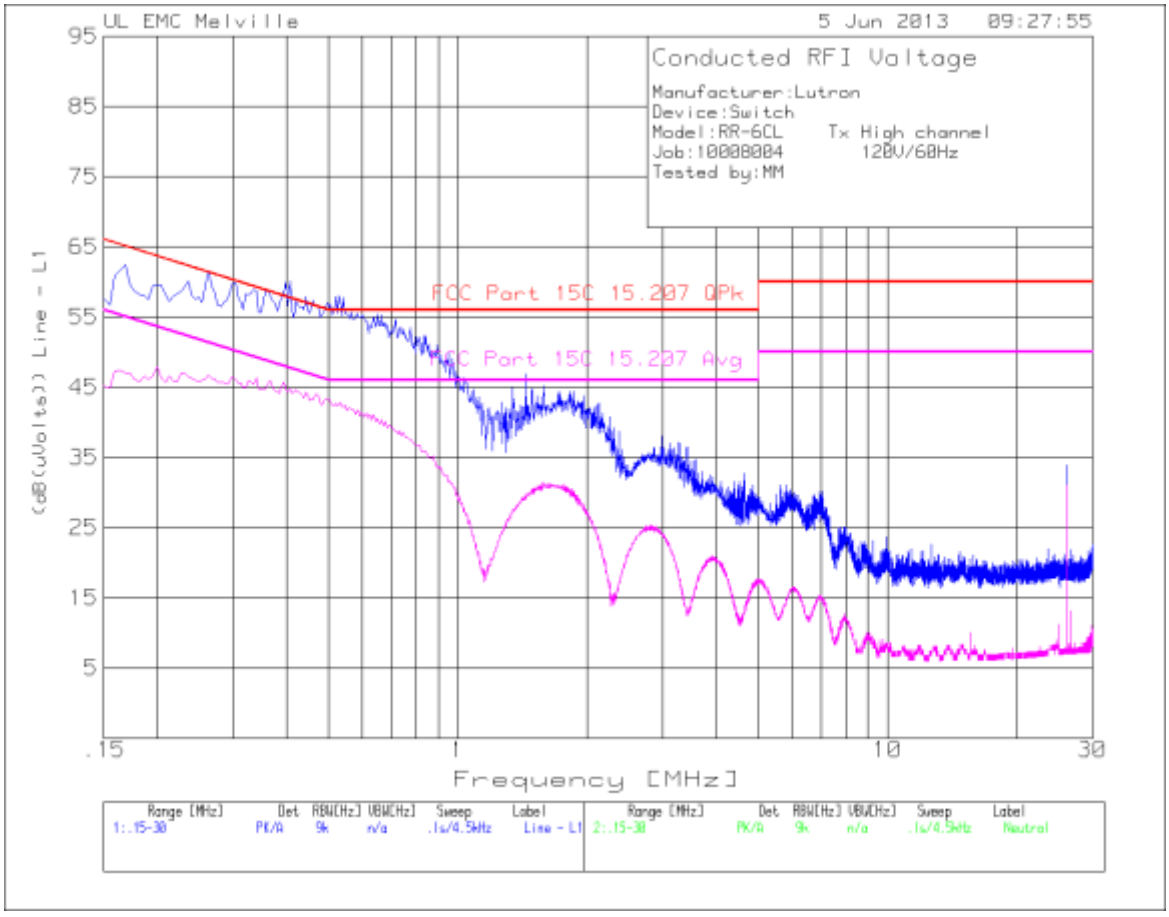


EMISSIONS – TX High Channel

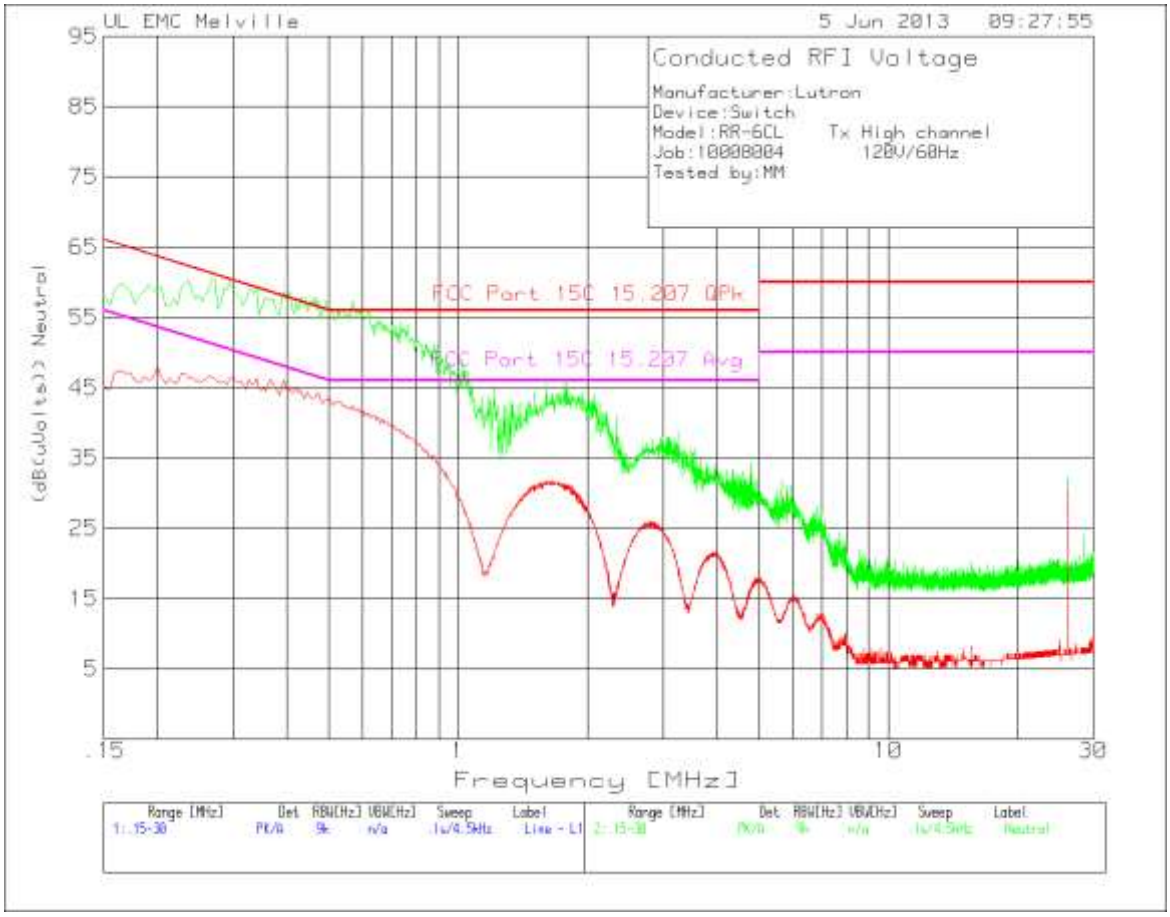
Manufacturer:Lutron								
Device:Switch								
Model:RR-6CL Tx High channel								
Job:10008004 120V/60Hz								
Tested by:MM								
Test Frequency	Meter Reading	Detector	5A636 L1 (dB)	(dB(uVolts))	FCC Part 15C 15.207 QPk	Margin	FCC Part 15C 15.207 Avg	Margin
Line - L1 .15 - 30MHz								
0.168	36.98	Av	10	46.98	-	-	55.1	-8.12
0.2355	36.42	Av	10	46.42	-	-	52.3	-5.88
0.2625	36.75	Av	10	46.75	-	-	51.4	-4.65
0.303	36.09	Av	10	46.09	-	-	50.2	-4.11
0.357	34.78	Av	10	44.78	-	-	48.8	-4.02
0.4065	34.78	Av	10	44.78	-	-	47.7	-2.92
0.528	32.48	Av	10	42.48	-	-	46	-3.52
0.6495	30.52	Av	10	40.52	-	-	46	-5.48
0.8385	25.85	Av	10	35.85	-	-	46	-10.15
Neutral .15 - 30MHz								
0.1905	36.01	Av	10	46.01	-	-	54	-7.99
0.2355	36.4	Av	10	46.4	-	-	52.3	-5.9
0.267	36.5	Av	10	46.5	-	-	51.2	-4.7
0.294	36.07	Av	10	46.07	-	-	50.4	-4.33
0.339	36.32	Av	10	46.32	-	-	49.2	-2.88
0.393	36.05	Av	10	46.05	-	-	48	-1.95
0.465	33.65	Av	10	43.65	-	-	46.6	-2.95
0.5685	32.22	Av	10.1	42.32	-	-	46	-3.68
0.7035	29.48	Av	10.1	39.58	-	-	46	-6.42
0.762	28.16	Av	10.1	38.26	-	-	46	-7.74
Av - Average detector								

Manufacturer:Lutron								
Device:Switch								
Model:RR-6CL Tx High channel								
Job:10008004 120V/60Hz								
Tested by:MM								
Test Frequency	Meter Reading	Detector	5A636 L1 (dB)	(dB(uVolts))	FCC Part 15C 15.207 QPk	Margin	FCC Part 15C 15.207 Avg	Margin
Line - L1 .15 - 30MHz								
0.1635	45.5	QP	10	55.5	65.28	-9.78	-	-
0.231	44.8	QP	10	54.8	62.41	-7.61	-	-
0.2607	44.93	QP	10	54.93	61.41	-6.48	-	-
0.3021	43.93	QP	10	53.93	60.18	-6.25	-	-
0.3579	43.06	QP	10	53.06	58.78	-5.72	-	-
0.4074	43.14	QP	10	53.14	57.7	-4.56	-	-
0.5271	41.7	QP	10	51.7	56	-4.3	-	-
0.6504	38.84	QP	10	48.84	56	-7.16	-	-
0.843	34.87	QP	10	44.87	56	-11.13	-	-
Neutral .15 - 30MHz								
0.1932	44.16	QP	10	54.16	63.9	-9.74	-	-
0.2355	44.38	QP	10	54.38	62.25	-7.87	-	-
0.2634	44.61	QP	10	54.61	61.32	-6.71	-	-
0.2967	43.78	QP	10	53.78	60.33	-6.55	-	-
0.3381	44.26	QP	10	54.26	59.25	-4.99	-	-
0.3894	43.85	QP	10	53.85	58.08	-4.23	-	-
0.4659	42.4	QP	10	52.4	56.59	-4.19	-	-
0.5658	40.02	QP	10.1	50.12	56	-5.88	-	-
0.7035	37.67	QP	10.1	47.77	56	-8.23	-	-
0.7611	36.87	QP	10.1	46.97	56	-9.03	-	-
QP - Quasi-Peak detector								

LINE 1 RESULTS



LINE 2 RESULTS

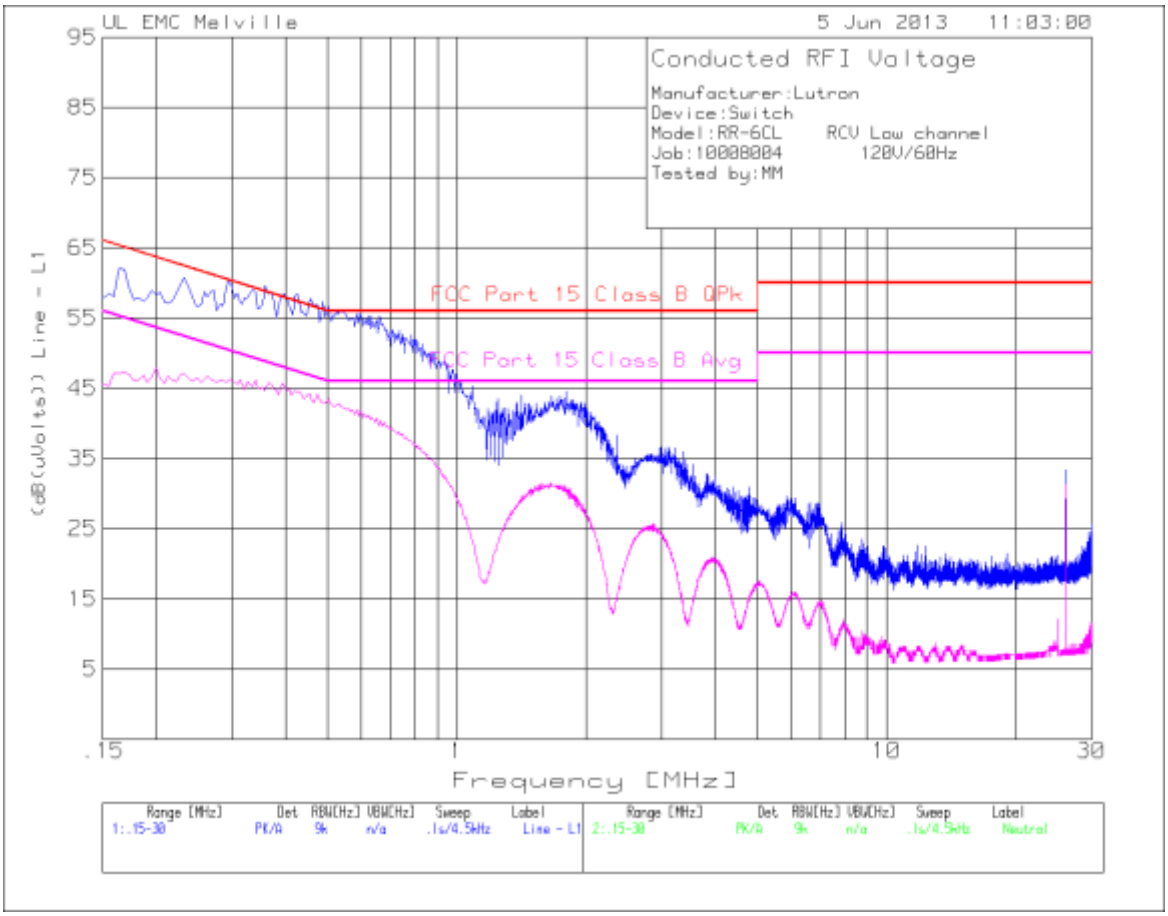


EMISSIONS – RX Worst Case

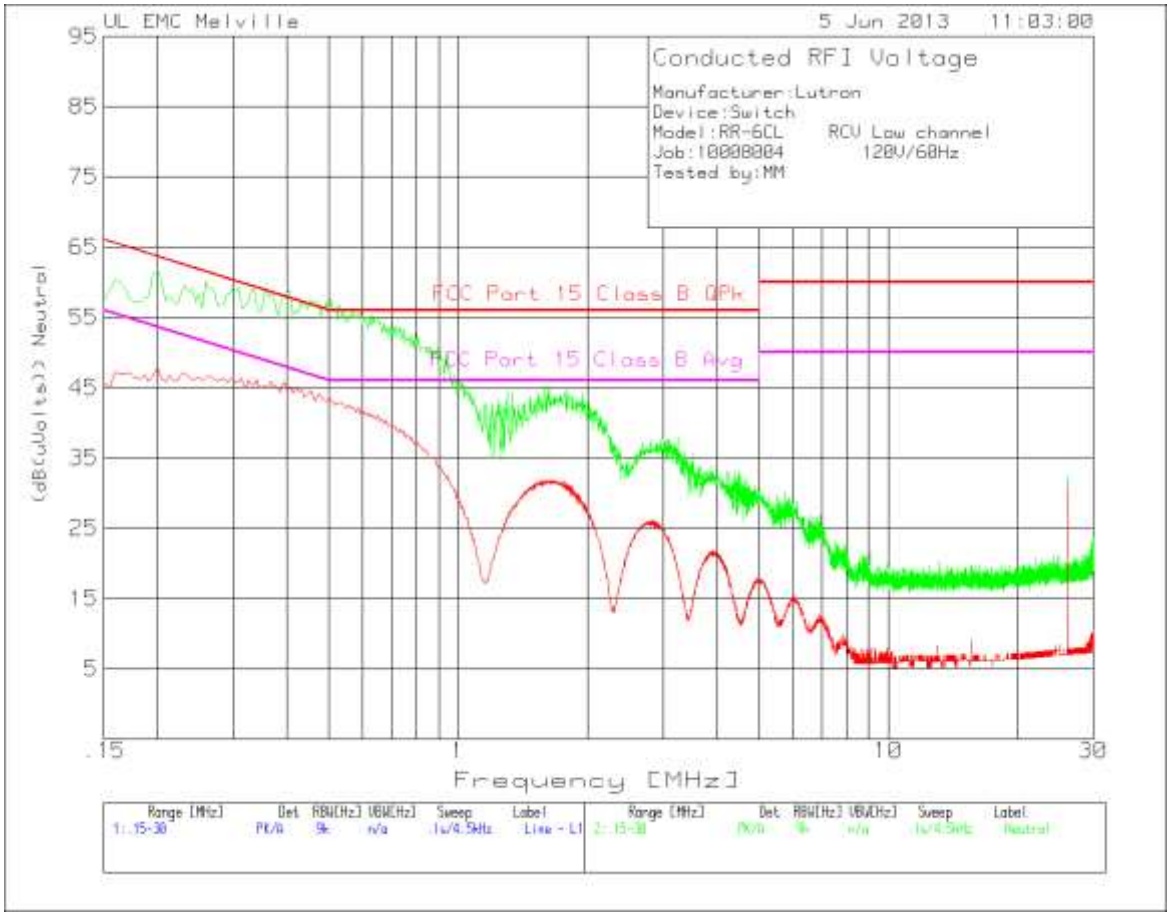
Manufacturer:Lutron								
Device:Switch								
Model:RR-6CL RCV Low channel								
Job:10008004 120V/60Hz								
Tested by:MM								
Test Frequency	Meter Reading	Detector	5A636 L1 (dB)	(dB(uVolts))	FCC Part 15 Class B QPk	Margin	FCC Part 15 Class B Avg	Margin
Line - L1 .15 - 30MHz								
0.1635	37.12	Av	10	47.12	-	-	55.3	-8.18
0.231	37.13	Av	10	47.13	-	-	52.4	-5.27
0.294	36.13	Av	10	46.13	-	-	50.4	-4.27
0.357	34.62	Av	10	44.62	-	-	48.8	-4.18
0.3705	35.38	Av	10	45.38	-	-	48.5	-3.12
0.3975	34.99	Av	10	44.99	-	-	47.9	-2.91
0.4245	34.42	Av	10	44.42	-	-	47.4	-2.98
0.456	34.1	Av	10	44.1	-	-	46.8	-2.7
0.501	33.47	Av	10	43.47	-	-	46	-2.53
0.6585	29.63	Av	10	39.63	-	-	46	-6.37
0.7845	27.42	Av	10	37.42	-	-	46	-8.58
Neutral .15 - 30MHz								
0.1995	37.95	Av	10	47.95	-	-	53.6	-5.65
0.258	36.32	Av	10	46.32	-	-	51.5	-5.18
0.2985	36.48	Av	10	46.48	-	-	50.3	-3.82
0.357	34.87	Av	10	44.87	-	-	48.8	-3.93
0.402	34.81	Av	10	44.81	-	-	47.8	-2.99
0.429	34.63	Av	10	44.63	-	-	47.3	-2.67
0.5055	33.29	Av	10	43.29	-	-	46	-2.71
0.5685	32.17	Av	10.1	42.27	-	-	46	-3.73
0.6495	30.94	Av	10.1	41.04	-	-	46	-4.96
0.7125	29.17	Av	10.1	39.27	-	-	46	-6.73
0.8385	25.91	Av	10.1	36.01	-	-	46	-9.99
Av - Average detector								

Manufacturer:Lutron								
Device:Switch								
Model:RR-6CL RCV Low channel								
Job:10008004 120V/60Hz								
Tested by:MM								
Line - L1 .15 - 30MHz								
Test Frequency	Meter Reading	Detector	5A636 L1 (dB)	(dB(uVolts))	FCC Part 15 Class B QPk	Margin	FCC Part 15 Class B Avg	Margin
0.1653	45.77	QP	10	55.77	65.19	-9.42	-	-
0.2319	44.97	QP	10	54.97	62.38	-7.41	-	-
0.2976	43.77	QP	10	53.77	60.31	-6.54	-	-
0.3579	42.96	QP	10	52.96	58.78	-5.82	-	-
0.3678	43.72	QP	10	53.72	58.55	-4.83	-	-
0.3966	43.93	QP	10	53.93	57.92	-3.99	-	-
0.4236	42.77	QP	10	52.77	57.38	-4.61	-	-
0.4524	42.75	QP	10	52.75	56.83	-4.08	-	-
0.5001	41.29	QP	10	51.29	56	-4.71	-	-
0.6549	38.43	QP	10	48.43	56	-7.57	-	-
0.7854	35.44	QP	10	45.44	56	-10.56	-	-
Neutral .15 - 30MHz								
0.2022	45.73	QP	10	55.73	63.52	-7.79	-	-
0.2607	44.79	QP	10	54.79	61.41	-6.62	-	-
0.2994	44.34	QP	10	54.34	60.26	-5.92	-	-
0.3525	42.7	QP	10	52.7	58.9	-6.2	-	-
0.3975	44.25	QP	10	54.25	57.91	-3.66	-	-
0.4326	42.91	QP	10	52.91	57.2	-4.29	-	-
0.5037	41.48	QP	10	51.48	56	-4.52	-	-
0.5685	40.17	QP	10.1	50.27	56	-5.73	-	-
0.645	38.67	QP	10.1	48.77	56	-7.23	-	-
0.708	37.36	QP	10.1	47.46	56	-8.54	-	-
0.8421	34.22	QP	10.1	44.32	56	-11.68	-	-
1.0527	24.51	QP	10.1	34.61	56	-21.39	-	-
1.77	28.8	QP	10.1	38.9	56	-17.1	-	-
QP - Quasi-Peak detector								

LINE 1 RESULTS



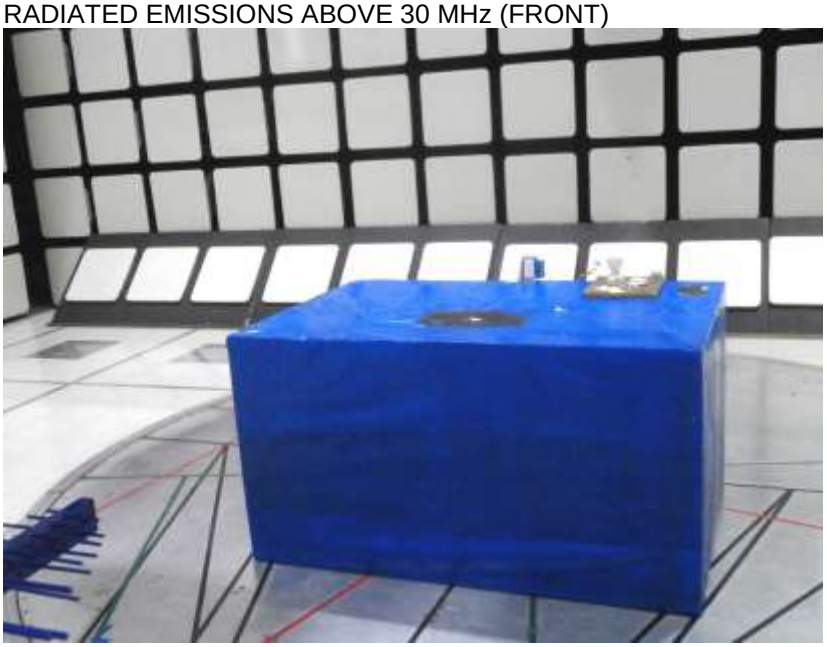
LINE 2 RESULTS

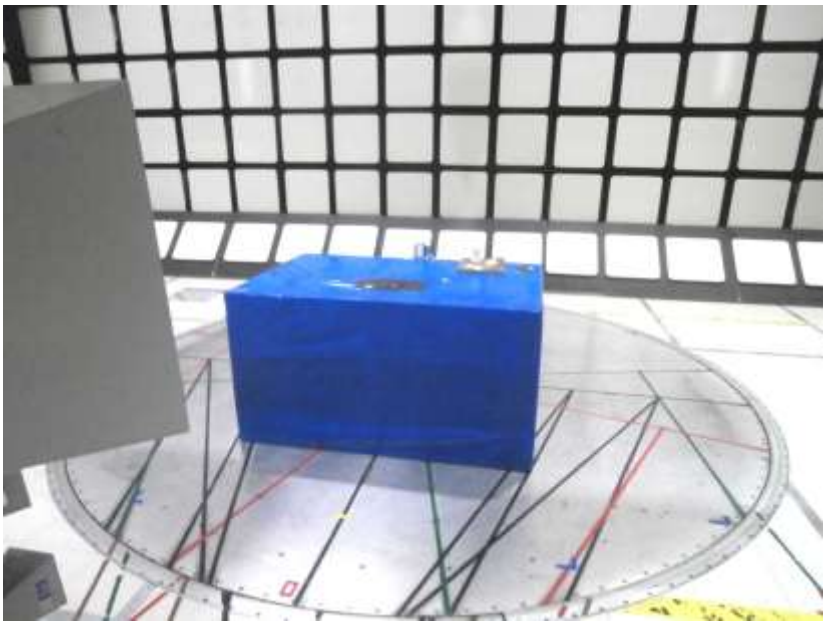


10. SETUP PHOTOS

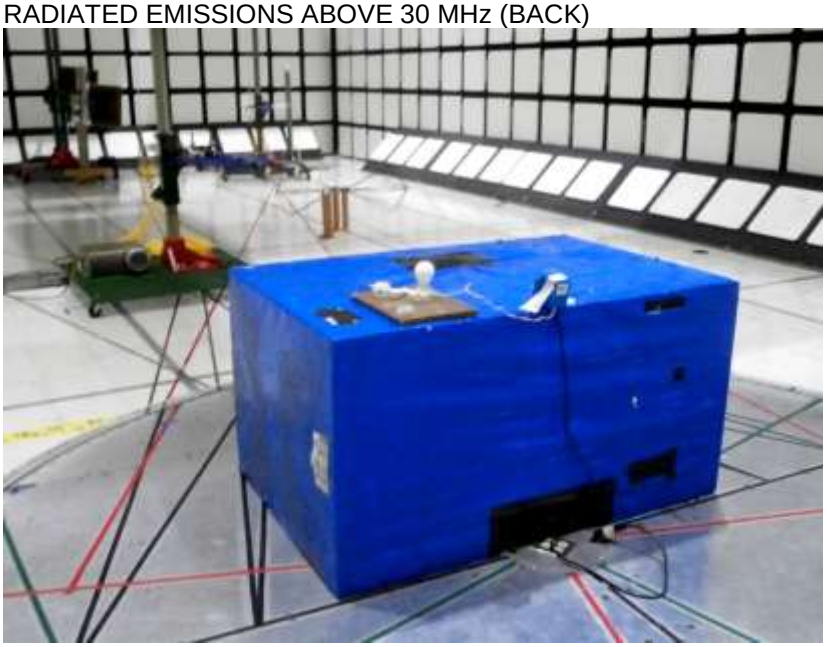
RADIATED EMISSION ABOVE 30 MHz

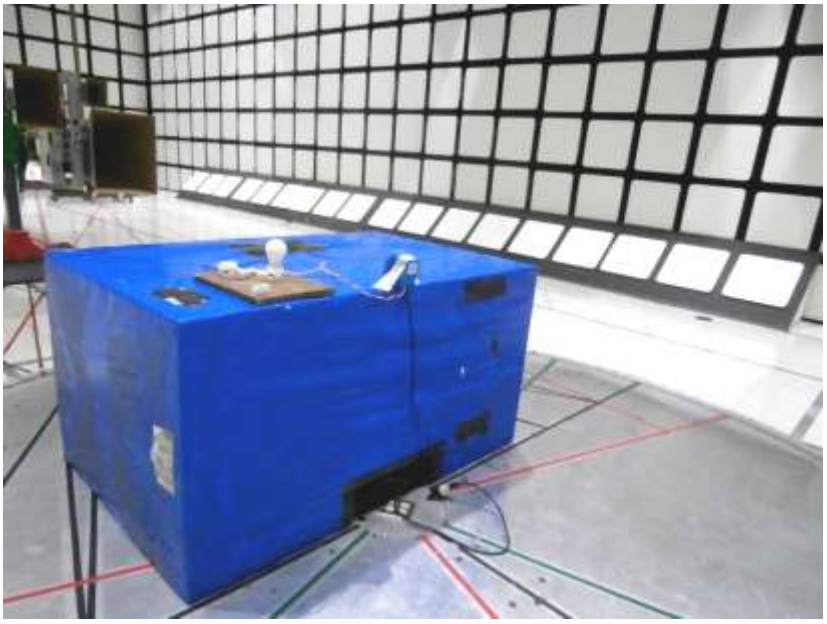
RADIATED EMISSIONS ABOVE 30 MHz (FRONT)





RADIATED EMISSIONS ABOVE 30 MHz (BACK)





AC MAINS LINE CONDUCTED EMISSION

LINE CONDUCTED EMISSION (FRONT)

LINE CONDUCTED EMISSION (BACK)

END OF REPORT