



FCC 47 CFR PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

Wireless In-Wall Dimmer Switch

MODEL NUMBER: PD10NXD1

FCC ID: JPZ0111

REPORT NUMBER: 10703597

ISSUE DATE: April 7, 2015

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

Prepared by
UL LLC
333 Pfingsten Rd.
Northbrook, IL 60062
TEL: (847) 272-8800



NVLAP Lab code: 100414-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	April 7, 2015	Initial Issue	BM

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY	5
4.1. MEASURING INSTRUMENT CALIBRATION	5
4.2. SAMPLE CALCULATION.....	5
4.3. MEASUREMENT UNCERTAINTY.....	5
5. EQUIPMENT UNDER TEST	6
5.1. DESCRIPTION OF EUT.....	6
5.2. DESCRIPTION OF AVAILABLE ANTENNAS.....	6
5.3. SOFTWARE AND FIRMWARE.....	6
5.4. WORST-CASE CONFIGURATION AND MODE	6
5.5. MODIFICATIONS.....	6
5.6. DESCRIPTION OF TEST SETUP.....	7
6. TEST AND MEASUREMENT EQUIPMENT	9
7. ANTENNA PORT TEST RESULTS	10
7.1. 20 dB AND 99% BW	10
7.2. DUTY CYCLE.....	14
7.3. TRANSMISSION TIME	17
8. RADIATED EMISSION TEST RESULTS	18
8.1. TX RADIATED SPURIOUS EMISSION	18
8.2. RX & DIGITAL EMISSION	24
9. AC MAINS LINE CONDUCTED EMISSIONS.....	27
10. SETUP PHOTOS.....	35

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LUTRON ELECTRONICS CO INC.
7200 SUTER RD
COOPERSBURG, PA, 18036, USA

EUT DESCRIPTION: Wireless In-Wall Dimmer Switch

MODEL: PD10NXD1

SERIAL NUMBER: Non-Serialized

DATE TESTED: April 1, 2015 – April 6, 2015

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	Pass

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL LLC based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested 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 herein. 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 LLC By: Michael Ferrer

Tested By: Bart Mucha



UL LLC



UL LLC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15.

* Test method above 1GHz was derived from ANSI C63.10:2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 333 Pfingsten Road, Northbrook, IL 60062 USA.

UL NBK is accredited by NVLAP, Laboratory Code 100414-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/Standards/scopes/1004140.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

Sample Calculations

Radiated Field Strength and Conducted Emissions data contained within this report is calculated on the following basis:

Field Strength (dBuV/m) = Meter Reading (dBuV) + AF (dB/m) - Gain (dB) + Cable Loss (dB)

Conducted Voltage (dBuV) = Meter Reading (dBuV) + Cable Loss (dB) + LISN IL (dB)

Conducted Current (dBuA) = Meter Reading (dBuV) + Cable Loss (dB) - Transducer Factor (dBohms)

4.3. MEASUREMENT UNCERTAINTY

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

Test	Range	Equipment	Uncertainty k=2
Radiated Emissions	30-200MHz	Bicon 3m Horz	3.30dB
Radiated Emissions	30-130MHz	Bicon 3m Vert	4.84dB
Radiated Emissions	130-200MHz	Bicon 3m Vert	4.94dB
Radiated Emissions	200-1000MHz	LogP 3m Horz	3.46dB
Radiated Emissions	200-1000MHz	LogP 3m Vert	4.98dB
Radiated Emissions	1-6GHz	Horn	5.02dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a wireless dimmer switch intended for lighting applications. It contains a periodic transceiver that operates on single pre-set channel between 431MHz and 437MHz.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an integral antenna that is not user accessible or configurable.

5.3. SOFTWARE AND FIRMWARE

The software used during testing was rev 0.44

5.4. WORST-CASE CONFIGURATION AND MODE

Testing was conducted for Radiated and Conducted emissions on the lowest and highest channels.

5.5. MODIFICATIONS

No modifications were made during testing.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

None

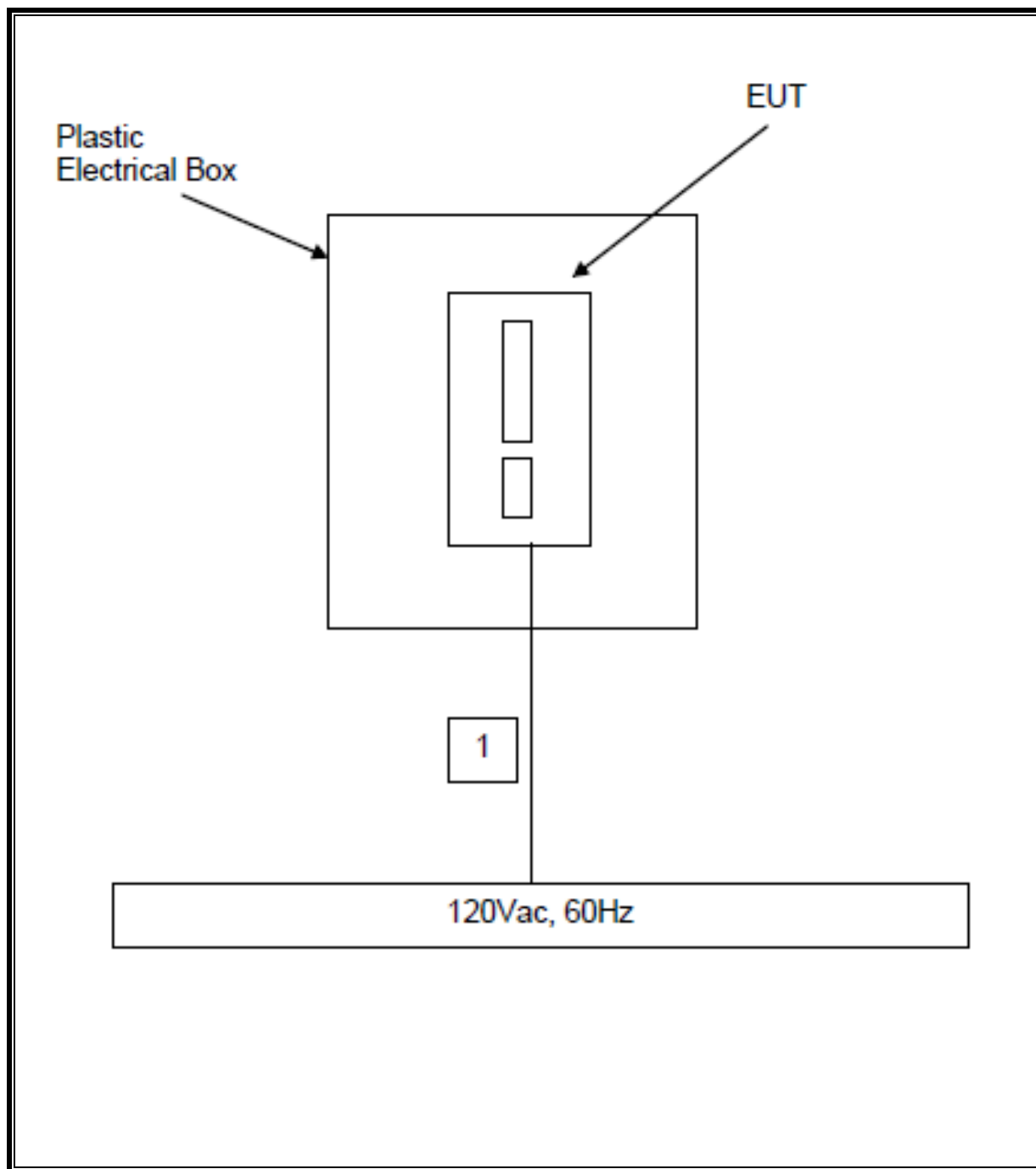
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC Mains	1	Hardwire	Unshielded	> 3m	None
2	AC Output	1	Hardwire	Unshielded	> 3m	Light bulb installed, off

TEST SETUP

The EUT was tested in a plastic electrical box as a stand-alone 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:

Conducted Emissions

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESR	EMC4377	April 1, 2014	April 30, 2015
Transient Limiter	Electro-Metrics	EM7600-2	EMC4224	N/A	N/A
HighPass Filter	Solar Electronics	2803-150	885551	N/A	N/A
Attenuator	HP	8494B	2831A00838	N/A	N/A
LISN - L1	Solar	8602-50-TS-50-N	EMC4052	Jan 09, 2015	Jan 10, 2016
LISN - L2	Solar	8602-50-TS-50-N	EMC4064	Jan 09, 2015	Jan 10, 2016

Radiated Emissions including Duty Cycle Measurements & Bandwidth Measurements

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC4328	20141230	20151231
Bicon Antenna	Chase	VBA6106A	EMC4078	20140401	20150430
Log-P Antenna	Chase	UPA6109	EMC4313	20141119	20151130
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323	20141227	20151231
Antenna Array	UL	BOMS	EMC4276	20141201	20151231
Spectrum Analyzer	Agilent	N9030A (PXA)	EMC4360	20141227	20151231

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 RSS-210, 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 C63.10

The transmitter output is connected to the spectrum analyzer.

20dB Bandwidth: The RBW is set to 99% Bandwidth settings below.. 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 5% 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:

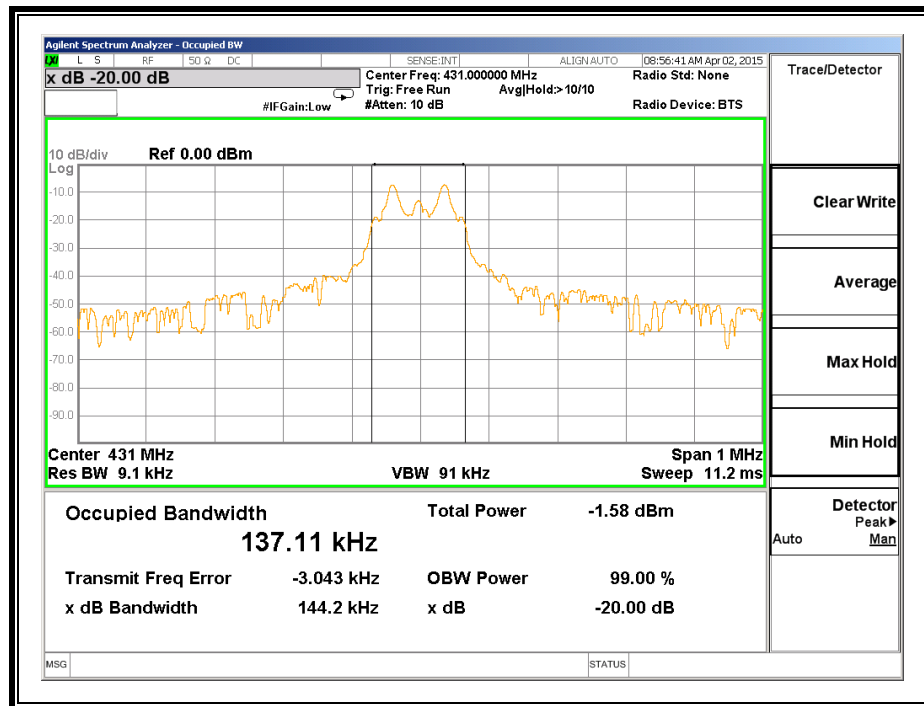
20dB Bandwidth

Frequency (MHz)	20dB Bandwidth (kHz)	Limit (kHz)	Margin (kHz)
431	144.2	1077.5	-933.3
437	145.9	1092.5	-946.6

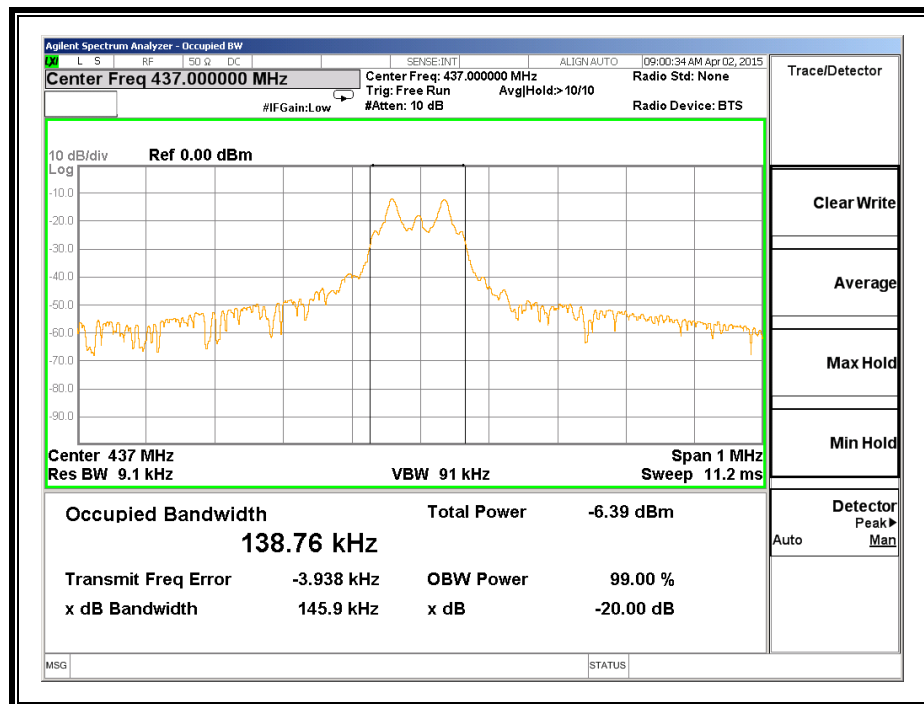
99% Bandwidth

Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)	Margin (kHz)
431	137.38	1077.5	-940.12
437	136.81	1092.5	-955.69

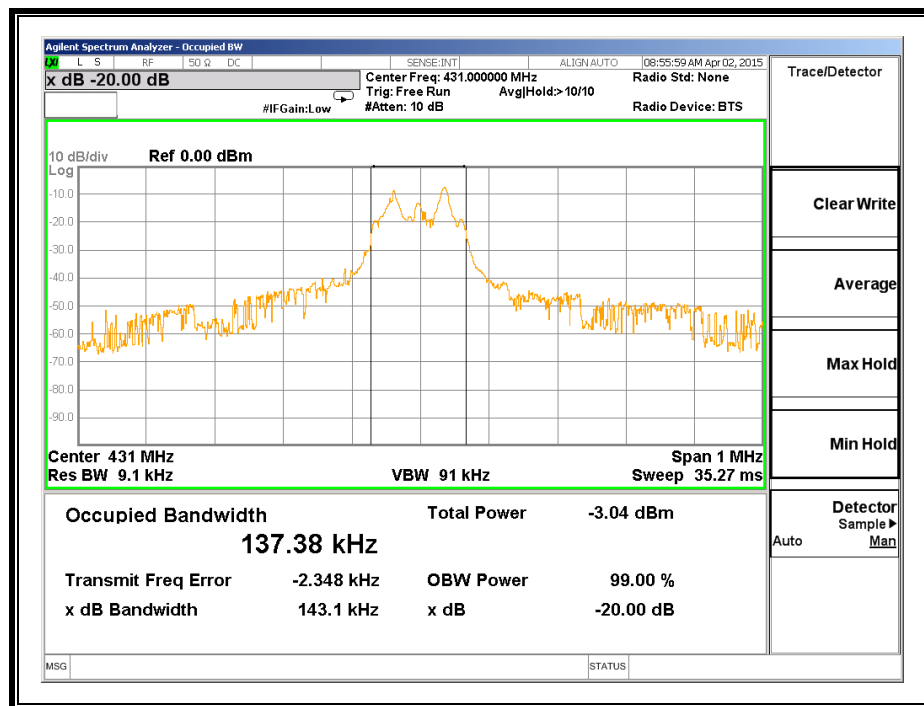
20dB BANDWIDTH Low Channel



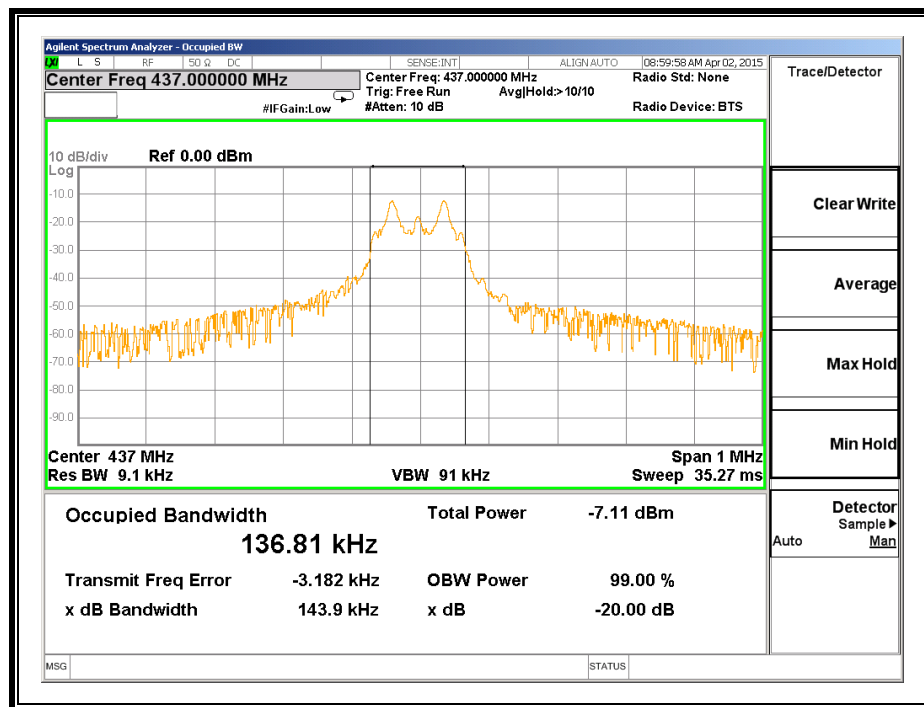
20dB BANDWIDTH High Channel



99% BANDWIDTH Low Channel



99% BANDWIDTH High Channel



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 1000 kHz and the VBW is set to 1000 kHz. 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

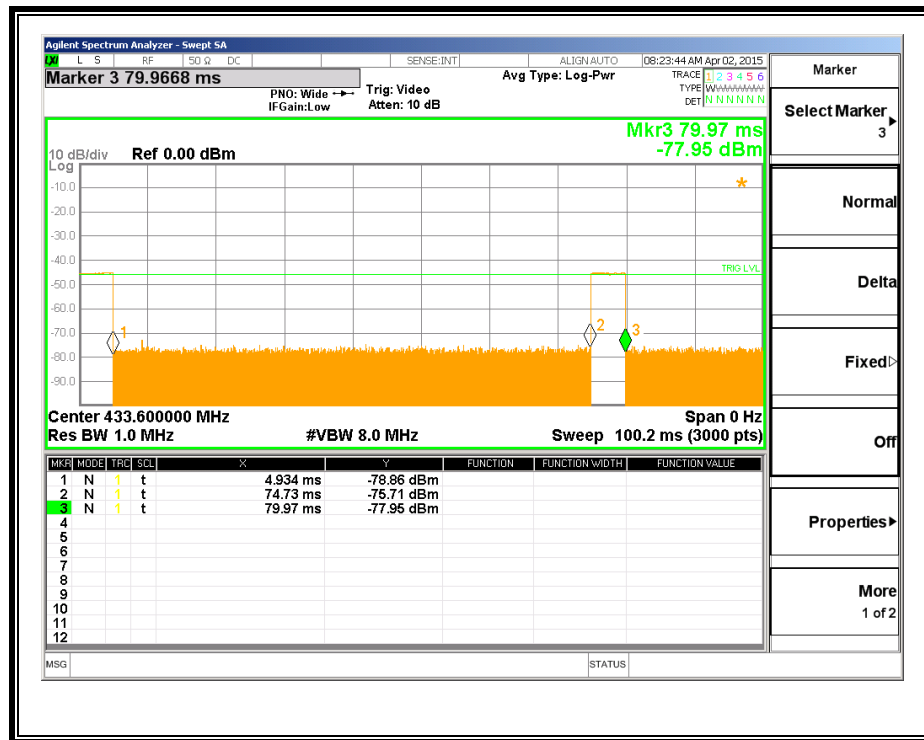
Average Reading = Peak Reading (dBuV/m) + 20log (Duty Cycle), Where Duty Cycle is
(# of long pulses * long pulse width) + (# of short pulses * short pulse width) / 100 or T

RESULTS

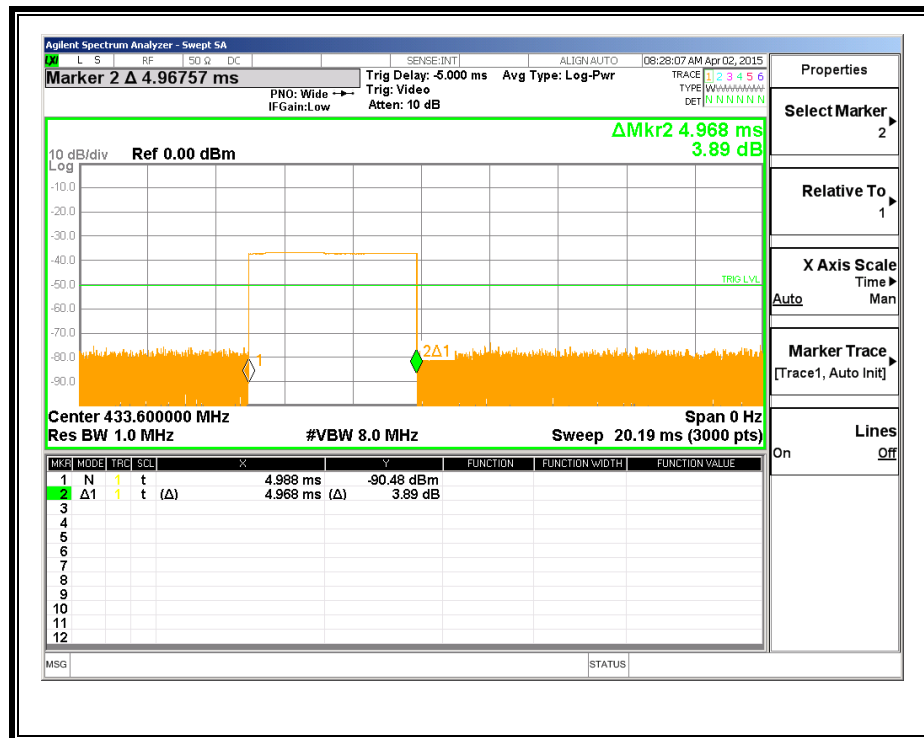
No non-compliance noted:

One Period (ms)	Pulse Width (ms)	# of Pulses	Duty Cycle	20*Log Duty Cycle (dB)
100	4.968	2	0.099	-20.056

Period



PULSE WIDTH



7.3. TRANSMISSION TIME

LIMITS

FCC §15.231 (a) (2)

IC RSS-210 A1.1.1 (b)

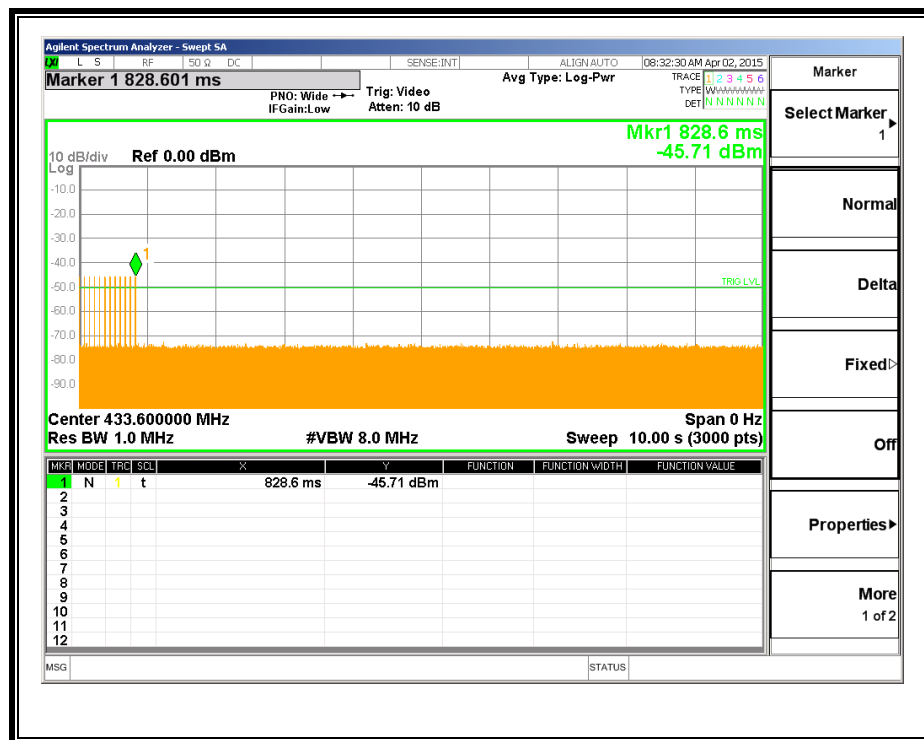
A transmitter activated automatically shall cease transmission within 5 seconds after activation.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer or radiated field strength. The RBW is set to 1000 kHz and the VBW is set to 8MHz. The sweep time is set to 10 seconds and the span is set to 0 Hz.

RESULTS

No non-compliance noted:



The device stops transmitting after 0.8286s.

8. RADIATED EMISSION TEST RESULTS

8.1. TX RADIATED SPURIOUS EMISSION

LIMITS

FCC §15.231 (b)

IC RSS-210 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 ¹	125 to 375 ¹
174 - 260	3,750	375
260 - 470	3,750 to 12,500 ¹	375 to 1,250 ¹
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:

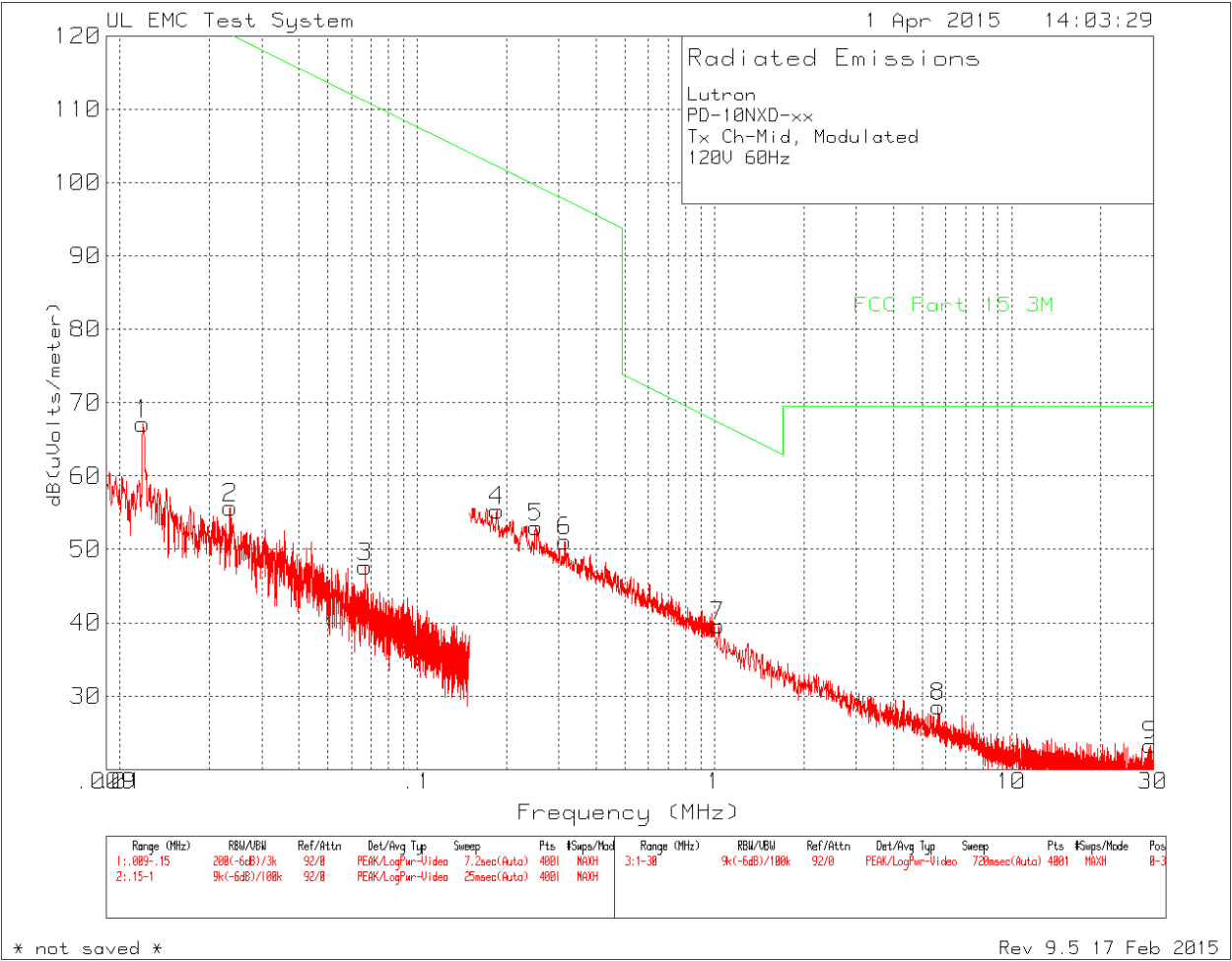
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

**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., §§15.231 and 15.241.

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

RESULTS

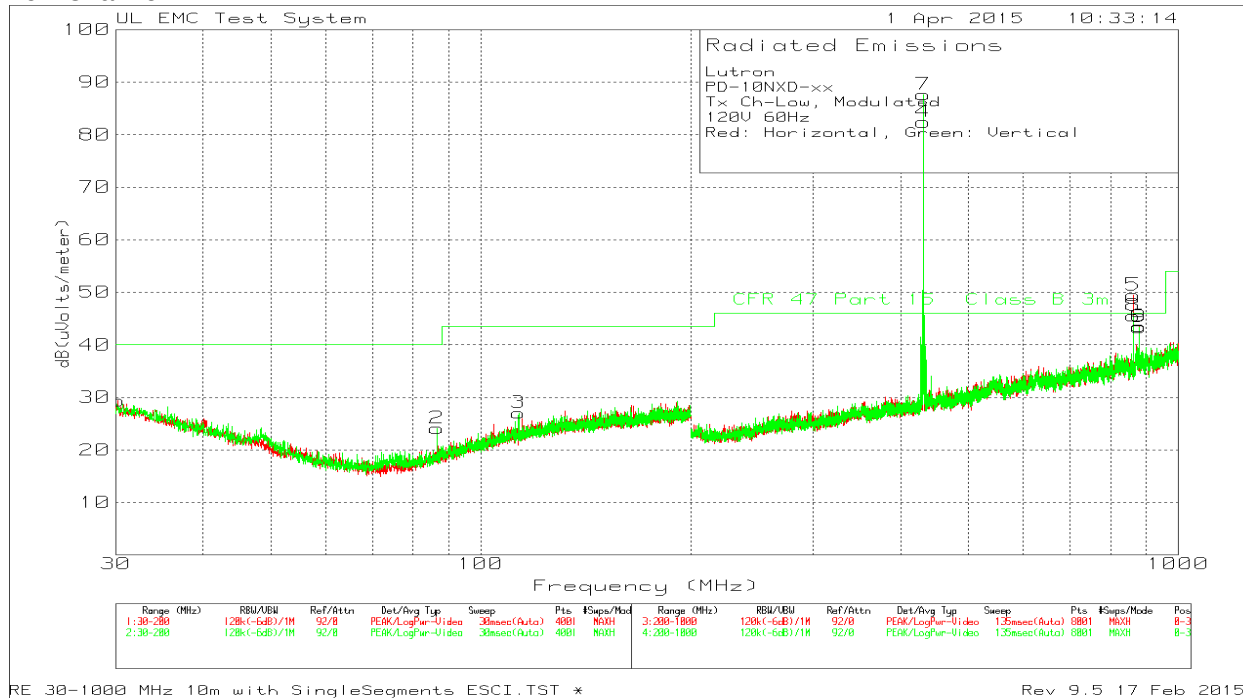
Emissions 9kHz – 30MHz



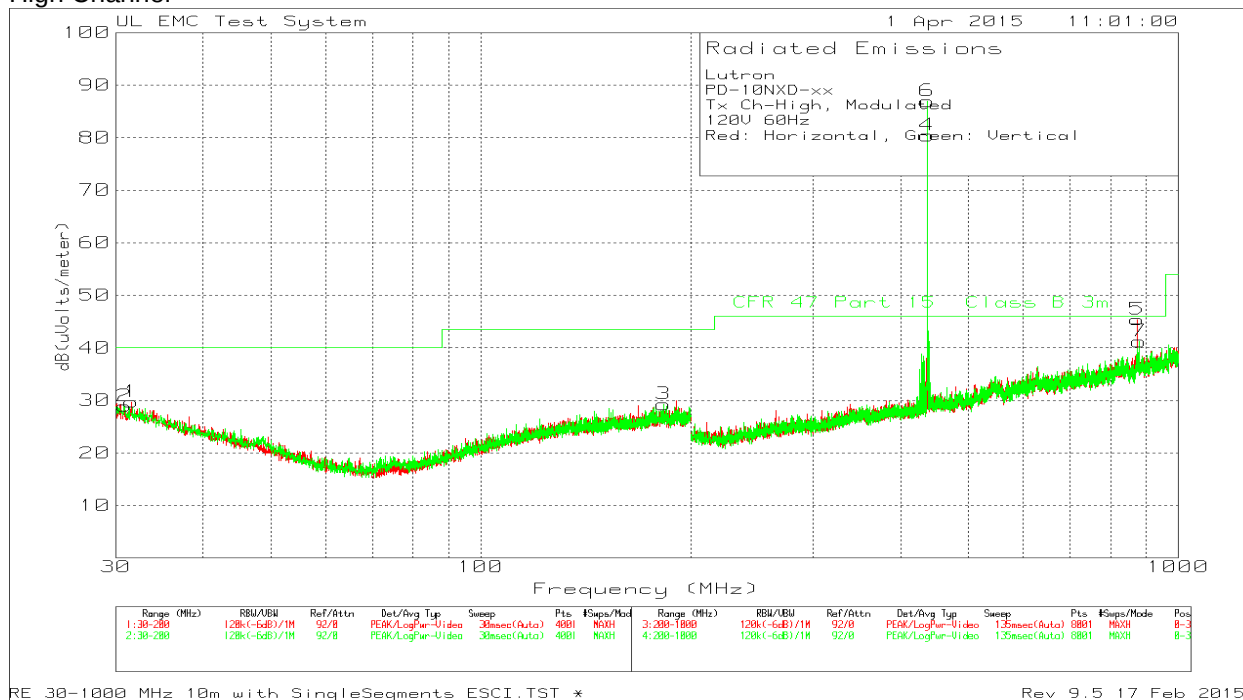
* There were no emissions recorded between 9kHz and 30MHz

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

Low Channel

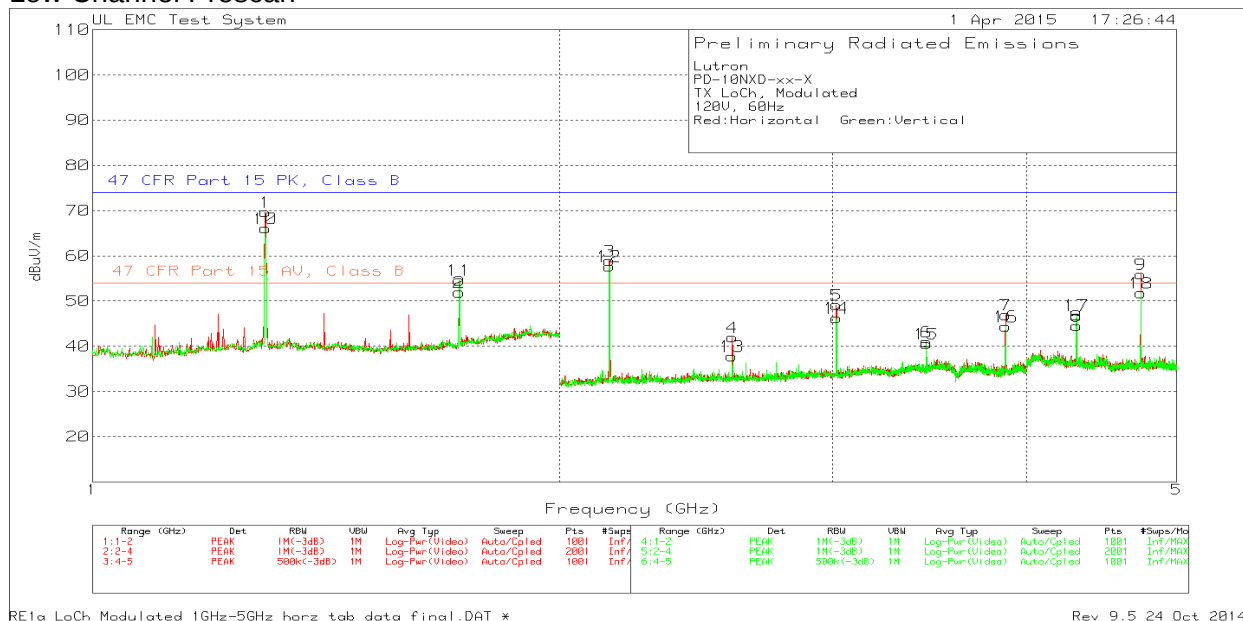


High Channel

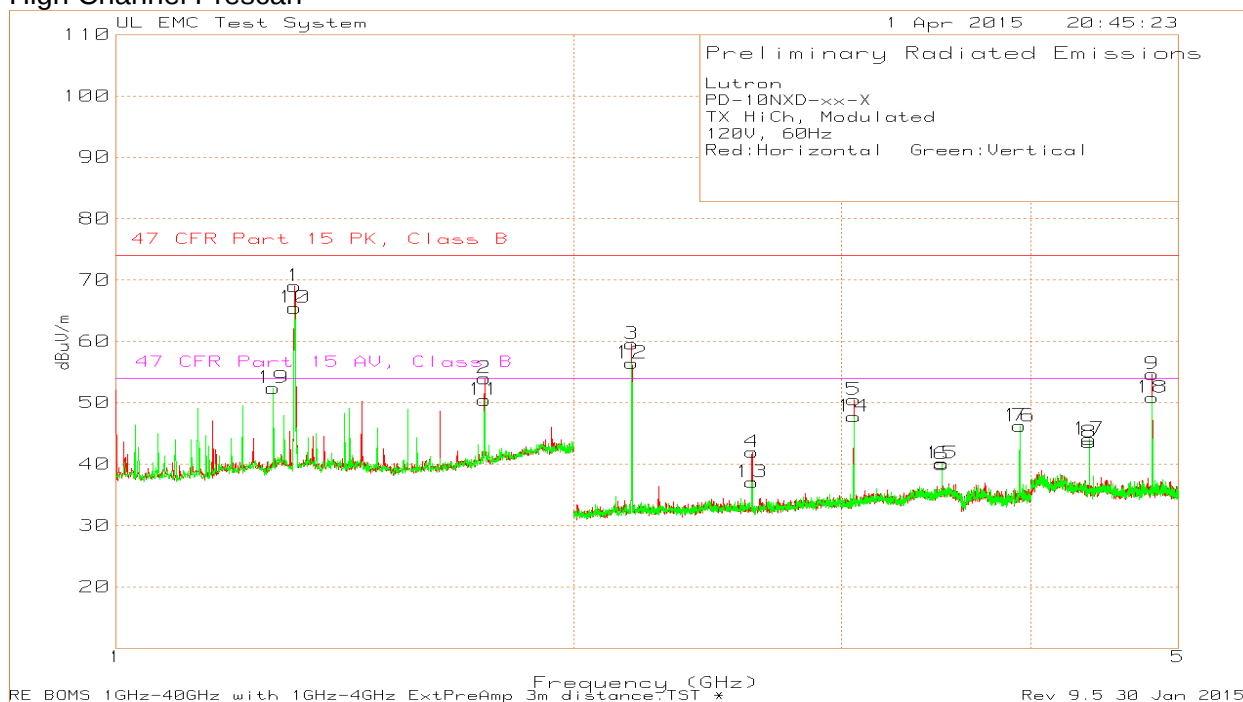


HARMONICS AND TX SPURIOUS EMISSIONS ABOVE 1GHz

Low Channel Prescan



High Channel Prescan



* Random noise other than harmonics was generated by loose connection in provided setup. Its only visible when turn table is spinning.

Radiated Emissions Data

Below 1GHz Low Channel, Middle Channel, High Channel Data															
Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	Peak Level dBuV/m	Peak Limit dBuV/m	Margin dB	DC Factor dB	Average Level dBuV/m	Average Limit dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity	
431.0366	58.74	Pk	17	8.5	84.24	100.73	-16.49	-20.05	64.19	80.73	-16.54	68	296	H	
431.0336	56.84	Pk	17	8.5	82.34	100.73	-18.39	-20.05	62.29	80.73	-18.44	173	116	V	
433.9565	47.28	Pk	17.1	8.4	72.78	100.83	-28.05	-20.05	52.73	80.83	-28.1	260	107	H	
434.035	66.56	Pk	17.1	8.4	92.06	100.83	-8.77	-20.05	72.01	80.83	-8.82	173	107	V	
436.9583	56.8	Pk	17.2	8.5	82.5	100.93	-18.43	-20.05	62.45	80.93	-18.48	72	311	H	
436.9573	55.93	Pk	17.2	8.5	81.63	100.93	-19.3	-20.05	61.58	80.93	-19.35	173	114	V	
862.0695	16.17	Pk	23.3	10.2	49.67	66.02	-16.35	-20.05	29.62	46.02	-16.4	40	101	H	
861.936	13.15	Pk	23.3	10.2	46.65	66.02	-19.37	-20.05	26.6	46.02	-19.42	331	125	V	
868.06	13.33	Pk	23.1	10	46.43	66.02	-19.59	-20.05	26.38	46.02	-19.64	302	101	H	
868.088	13.13	Pk	23.1	10	46.23	66.02	-19.79	-20.05	26.18	46.02	-19.84	338	125	V	
879.373	5.18	Pk	23	10.2	38.38	66.02	-27.64	-20.05	18.33	46.02	-27.69	5	386	H	
879.343	5.25	Pk	23	10.2	38.45	66.02	-27.57	-20.05	18.4	46.02	-27.62	38	206	V	
Above 1GHz Low Channel Data															
Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	Peak Level dBuV/m	Peak Limit dBuV/m	Margin dB	DC Factor dB	Average Level dBuV/m	Average Limit dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity	
1.2929	97.98	Pk	29.1	-55.71	71.37	74	-2.63	-20.05	51.32	54	-2.68	228	104	H	
1.7241	80.37	Pk	29.4	-54.16	55.61	74	-18.39	-20.05	35.56	54	-18.44	261	100	H	
2.155	90.06	Pk	21.6	-52.47	59.19	74	-14.81	-20.05	39.14	54	-14.86	211	100	H	
2.5857	73.27	Pk	22.3	-51.68	43.89	74	-30.11	-20.05	23.84	54	-30.16	219	206	H	
3.0167	78.34	Pk	22.5	-50.84	50	74	-24	-20.05	29.95	54	-24.05	226	100	H	
3.4478	69.46	Pk	23.5	-51.08	41.88	74	-32.12	-20.05	21.83	54	-32.17	300	100	H	
3.8793	75.6	Pk	23.9	-51.2	48.3	74	-25.7	-20.05	28.25	54	-25.75	253	175	H	
4.3095	70.13	Pk	28.1	-52.19	46.04	74	-27.96	-20.05	25.99	54	-28.01	281	100	H	
4.7405	80.15	Pk	27.7	-51.28	56.57	74	-17.43	-20.05	36.52	54	-17.48	295	100	H	
1.2929	95.87	Pk	29.1	-55.71	69.26	74	-4.74	-20.05	49.21	54	-4.79	248	100	V	
1.7241	80.97	Pk	29.4	-54.16	56.21	74	-17.79	-20.05	36.16	54	-17.84	185	190	V	
2.1551	87.96	Pk	21.6	-52.47	57.09	74	-16.91	-20.05	37.04	54	-16.96	207	215	V	
2.5859	69.8	Pk	22.3	-51.68	40.42	74	-33.58	-20.05	20.37	54	-33.63	332	100	V	
3.017	76.05	Pk	22.5	-50.85	47.7	74	-26.3	-20.05	27.65	54	-26.35	290	100	V	
3.4482	69.49	Pk	23.5	-51.07	41.92	74	-32.08	-20.05	21.87	54	-32.13	224	100	V	
3.8785	73.96	Pk	23.9	-51.19	46.67	74	-27.33	-20.05	26.62	54	-27.38	310	100	V	
4.3105	73.68	Pk	28.1	-52.2	49.58	74	-24.42	-20.05	29.53	54	-24.47	215	111	V	
4.7407	76.55	Pk	27.7	-51.28	52.97	74	-21.03	-20.05	32.92	54	-21.08	80	158	V	
Above 1GHz High Channel Data															
Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	Peak Level dBuV/m	Peak Limit dBuV/m	Margin dB	DC Factor dB	Average Level dBuV/m	Average Limit dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity	
1.311	96.42	Pk	29.1	-55.54	69.98	74	-4.02	-20.05	49.93	54	-4.07	33	108	H	
1.7482	79.41	Pk	29.6	-53.99	55.02	74	-18.98	-20.05	34.97	54	-19.03	261	100	H	
2.1848	90.2	Pk	21.7	-52.28	59.62	74	-14.38	-20.05	39.57	54	-14.43	109	158	H	
2.622	71.48	Pk	22.3	-51.82	41.96	74	-32.04	-20.05	21.91	54	-32.09	0-360	200	H	
3.059	78.56	Pk	22.6	-50.67	50.49	74	-23.51	-20.05	30.44	54	-23.56	0-360	150	H	
3.496	66.61	Pk	23.5	-50.13	39.98	74	-34.02	-20.05	19.93	54	-34.07	0-360	150	H	
3.933	73.3	Pk	24	-51.05	46.25	74	-27.75	-20.05	26.2	54	-27.8	0-360	200	H	
4.37	67.56	Pk	28	-52.02	43.54	74	-30.46	-20.05	23.49	54	-30.51	0-360	199	H	
4.8073	79.68	Pk	27.7	-50.59	56.79	74	-17.21	-20.05	36.74	54	-17.26	298	119	H	
1.3111	94.39	Pk	29.1	-55.54	67.95	74	-6.05	-20.05	47.9	54	-6.1	224	100	V	
1.748	78.96	Pk	29.6	-53.99	54.57	74	-19.43	-20.05	34.52	54	-19.48	169	184	V	
1.269	79.34	Pk	29	-55.96	52.38	74	-21.62	-20.05	32.33	54	-21.67	0-360	150	V	
2.1848	86.98	Pk	21.7	-52.28	56.4	74	-17.6	-20.05	36.35	54	-17.65	217	202	V	
2.622	66.58	Pk	22.3	-51.82	37.06	74	-36.94	-20.05	17.01	54	-36.99	0-360	200	V	
3.059	75.82	Pk	22.6	-50.67	47.75	74	-26.25	-20.05	27.7	54	-26.3	0-360	100	V	
3.496	66.76	Pk	23.5	-50.13	40.13	74	-33.87	-20.05	20.08	54	-33.92	0-360	150	V	
3.933	73.27	Pk	24	-51.05	46.22	74	-27.78	-20.05	26.17	54	-27.83	0-360	200	V	
4.37	68.08	Pk	28	-52.02	44.06	74	-29.94	-20.05	24.01	54	-29.99	0-360	100	V	

8.2. RX & DIGITAL EMISSION

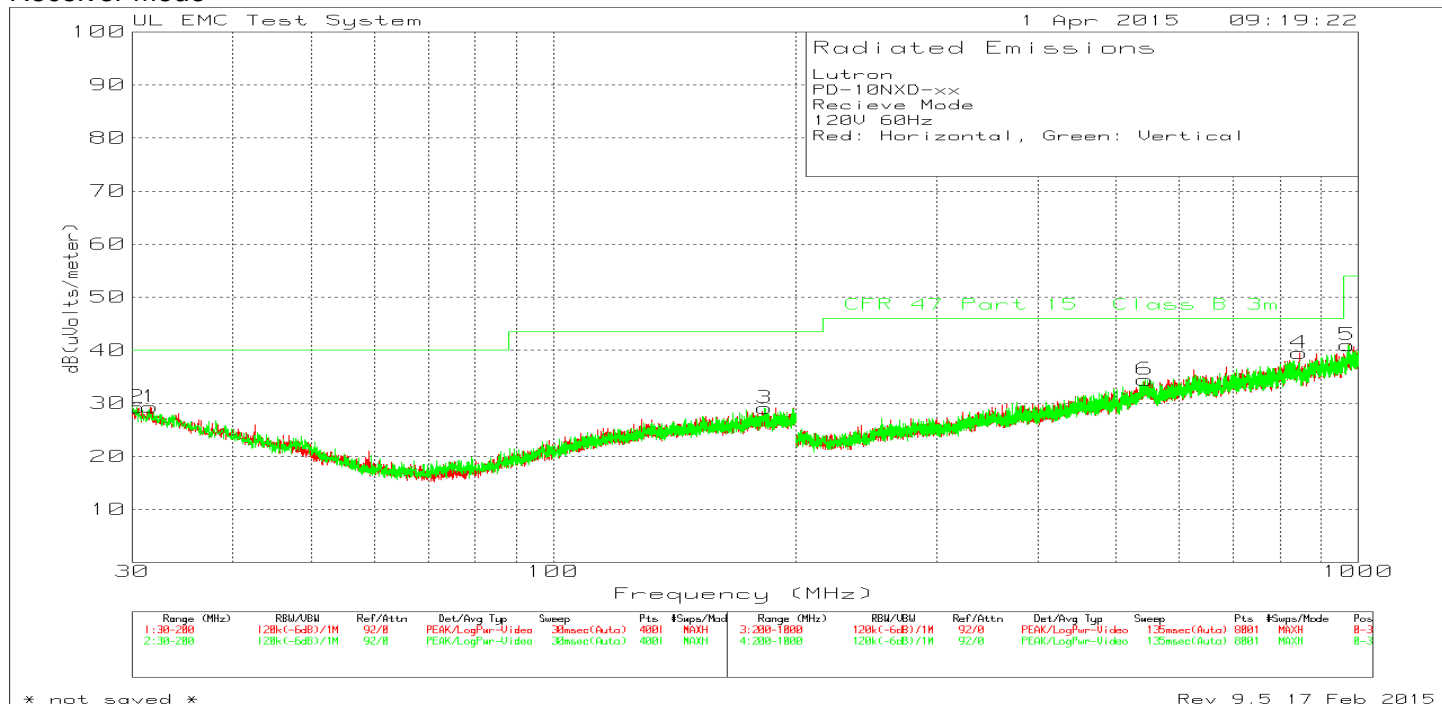
LIMITS

§15.109 Radiated emission limits.

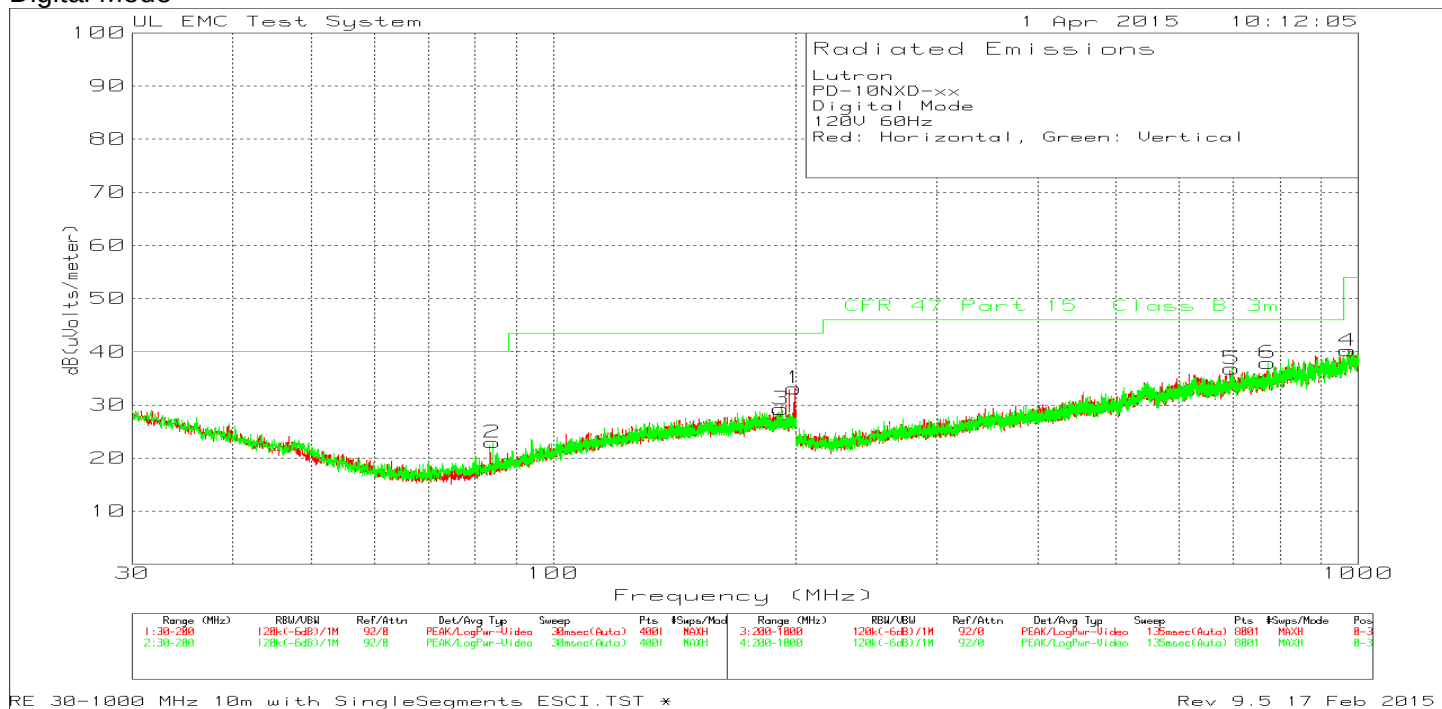
(a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of emission (MHz)	Field strength (microvolts/meter)
30-88	100
88-216	150
216-960	200
Above 960	500

Receiver Mode

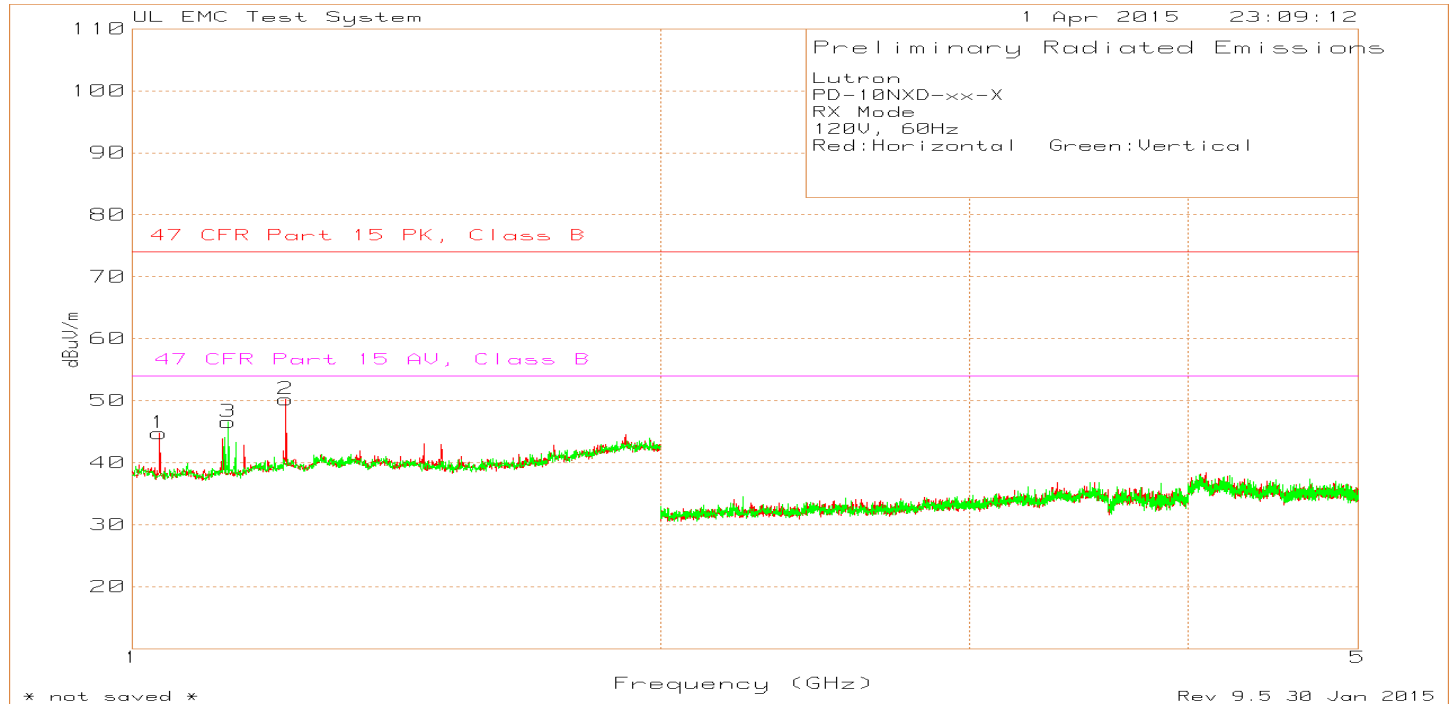


Digital Mode



*No significant emissions recorded. Digital radiated emissions measurements were conducted at a distance of 10m. The limits were extrapolated to the measurement distance.

RX Mode Emissions above 1GHz



* There were no emissions recorded from the EUT. There was also no emissions recorded above 1GHz.

Digital Mode Emissions above 1GHz



*No significant emissions recorded above 1GHz. Emissions shown in the plot are result of loose connection and only randomly show up when the turntable is spinning.

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

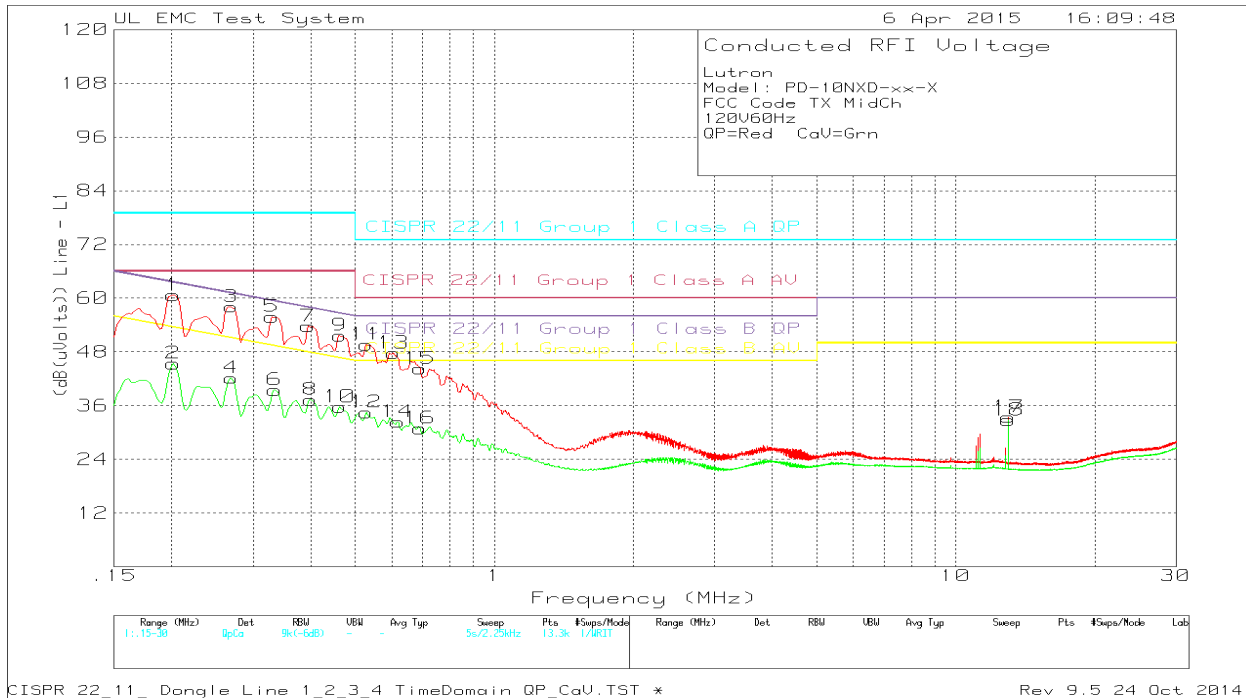
ANSI C63.10

RESULTS

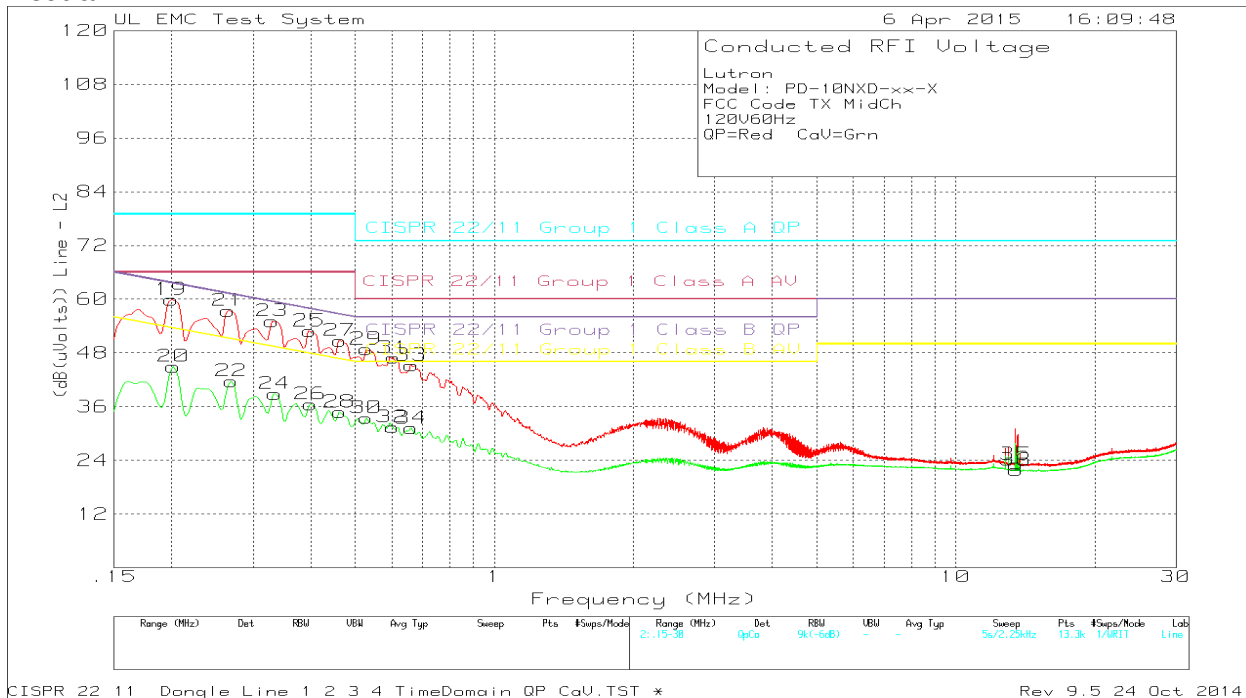
No non-compliance noted:

Conducted Emissions Scan – TX Mode

Line



Neutral



Conducted Emissions Data

Lutron
Model: PD-10NXD-xx-X
FCC Code TX MidCh
120V60Hz
QP=Red CaV=Grn

Trace Markers											
No.	Test Frequency (MHz)	Meter Reading	Transducer Factor (dB)	Gain/Loss Factor (dB)	Corrected Reading (dB(uVolts))	Limit:1	2	3	4	5	6
=====											
Line - L1											
1	.20175	49.16dBuV Qp	.1	11.4	60.66	79	-	63.54	-	-	-
					Margin (dB)	-18.34	-	-2.88	-	-	-
2	.20175	33.92dBuV Ca	.1	11.4	45.42	-	66	-	53.54	-	-
					Margin (dB)	-	-20.58	-	-8.12	-	-
3	.26925	47dBuV Qp	.1	11	58.1	79	-	61.14	-	-	-
					Margin (dB)	-20.9	-	-3.04	-	-	-
4	.26925	31.07dBuV Ca	.1	11	42.17	-	66	-	51.14	-	-
					Margin (dB)	-	-23.83	-	-8.97	-	-
5	.33	44.94dBuV Qp	.1	10.8	55.84	79	-	59.45	-	-	-
					Margin (dB)	-23.16	-	-3.61	-	-	-
6	.3345	28.59dBuV Ca	.1	10.8	39.49	-	66	-	49.34	-	-
					Margin (dB)	-	-26.51	-	-9.85	-	-
7	.39525	42.96dBuV Qp	.1	10.7	53.76	79	-	57.95	-	-	-
					Margin (dB)	-25.24	-	-4.19	-	-	-
8	.39975	26.52dBuV Ca	.1	10.7	37.32	-	66	-	47.86	-	-
					Margin (dB)	-	-28.68	-	-10.54	-	-
9	.46275	40.84dBuV Qp	.1	10.7	51.64	79	-	56.64	-	-	-
					Margin (dB)	-27.36	-	-5	-	-	-
10	.46275	24.9dBuV Ca	.1	10.7	35.7	-	66	-	46.64	-	-
					Margin (dB)	-	-30.3	-	-10.94	-	-
11	.528	38.92dBuV Qp	.1	10.6	49.62	73	-	56	-	-	-
					Margin (dB)	-23.38	-	-6.38	-	-	-
12	.528	23.81dBuV Ca	.1	10.6	34.51	-	60	-	46	-	-
					Margin (dB)	-	-25.49	-	-11.49	-	-
13	.6045	36.99dBuV Qp	.1	10.6	47.69	73	-	56	-	-	-
					Margin (dB)	-25.31	-	-8.31	-	-	-
14	.618	21.68dBuV Ca	.1	10.6	32.38	-	60	-	46	-	-
					Margin (dB)	-	-27.62	-	-13.62	-	-
15	.69	33.55dBuV Qp	.1	10.6	44.25	73	-	56	-	-	-
					Margin (dB)	-28.75	-	-11.75	-	-	-
16	.69	20.22dBuV Ca	.1	10.6	30.92	-	60	-	46	-	-
					Margin (dB)	-	-29.08	-	-15.08	-	-
17	12.99975	21.87dBuV Qp	.5	11.1	33.47	73	-	60	-	-	-
					Margin (dB)	-39.53	-	-26.53	-	-	-
18	12.99975	21.15dBuV Ca	.5	11.1	32.75	-	60	-	50	-	-
					Margin (dB)	-	-27.25	-	-17.25	-	-

LIMIT 1: CISPR 22/11 Group 1 Class A QP
LIMIT 2: CISPR 22/11 Group 1 Class A AV
LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

Qp - Quasi-Peak detector
Ca - CISPR Average detection

Lutron
Model: PD-10NXD-xx-X
FCC Code TX MidCh
120V60Hz
QP=Red CaV=Grn

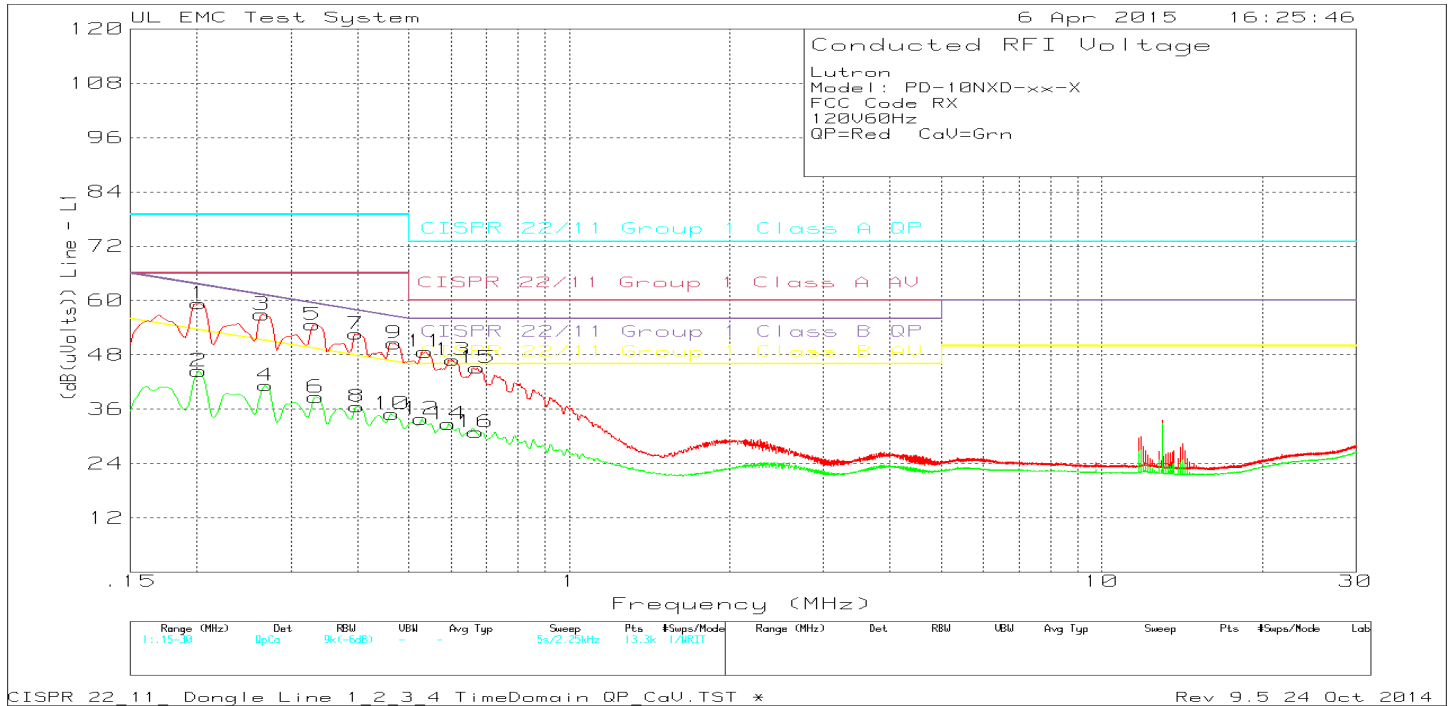
Trace Markers		Meter Reading	Transducer Factor (dB)	Gain/Loss Factor (dB)	Corrected Reading (dB(uVolts))	Limit:1	2	3	4	5	6
No.	Test Frequency (MHz)										
=====											
Line - L2											
19	.1995	48.27dBuV Qp	.1	11.5	59.87	79	-	63.63	-	-	-
					Margin (dB)	-19.13	-	-3.76	-	-	-
20	.20175	33.32dBuV Ca	.1	11.5	44.92	-	66	-	53.54	-	-
					Margin (dB)	-	-21.08	-	-8.62	-	-
21	.26475	46.11dBuV Qp	.1	11.2	57.41	79	-	61.28	-	-	-
					Margin (dB)	-21.59	-	-3.87	-	-	-
22	.26925	30.47dBuV Ca	.1	11.1	41.67	-	66	-	51.14	-	-
					Margin (dB)	-	-24.33	-	-9.47	-	-
23	.33	44.08dBuV Qp	.1	10.9	55.08	79	-	59.45	-	-	-
					Margin (dB)	-23.92	-	-4.37	-	-	-
24	.3345	27.86dBuV Ca	.1	10.9	38.86	-	66	-	49.34	-	-
					Margin (dB)	-	-27.14	-	-10.48	-	-
25	.3975	41.94dBuV Qp	.1	10.8	52.84	79	-	57.91	-	-	-
					Margin (dB)	-26.16	-	-5.07	-	-	-
26	.39975	25.6dBuV Ca	.1	10.8	36.5	-	66	-	47.86	-	-
					Margin (dB)	-	-29.5	-	-11.36	-	-
27	.46275	39.84dBuV Qp	.1	10.8	50.74	79	-	56.64	-	-	-
					Margin (dB)	-28.26	-	-5.9	-	-	-
28	.46275	23.88dBuV Ca	.1	10.8	34.78	-	66	-	46.64	-	-
					Margin (dB)	-	-31.22	-	-11.86	-	-
29	.528	37.98dBuV Qp	.1	10.7	48.78	73	-	56	-	-	-
					Margin (dB)	-24.22	-	-7.22	-	-	-
30	.528	22.68dBuV Ca	.1	10.7	33.48	-	60	-	46	-	-
					Margin (dB)	-	-26.52	-	-12.52	-	-
31	.6045	36.1dBuV Qp	.1	10.7	46.9	73	-	56	-	-	-
					Margin (dB)	-26.1	-	-9.1	-	-	-
32	.60225	20.61dBuV Ca	.1	10.7	31.41	-	60	-	46	-	-
					Margin (dB)	-	-28.59	-	-14.59	-	-
33	.66187	34.39dBuV Qp	.1	10.7	45.19	73	-	56	-	-	-
					Margin (dB)	-27.81	-	-10.81	-	-	-
34	.66075	20.39dBuV Ca	.1	10.7	31.19	-	60	-	46	-	-
					Margin (dB)	-	-28.81	-	-14.81	-	-
35	13.506	11.38dBuV Qp	.5	11.2	23.08	73	-	60	-	-	-
					Margin (dB)	-49.92	-	-36.92	-	-	-
36	13.50375	10.11dBuV Ca	.5	11.2	21.81	-	60	-	50	-	-
					Margin (dB)	-	-38.19	-	-28.19	-	-

LIMIT 1: CISPR 22/11 Group 1 Class A QP
LIMIT 2: CISPR 22/11 Group 1 Class A AV
LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

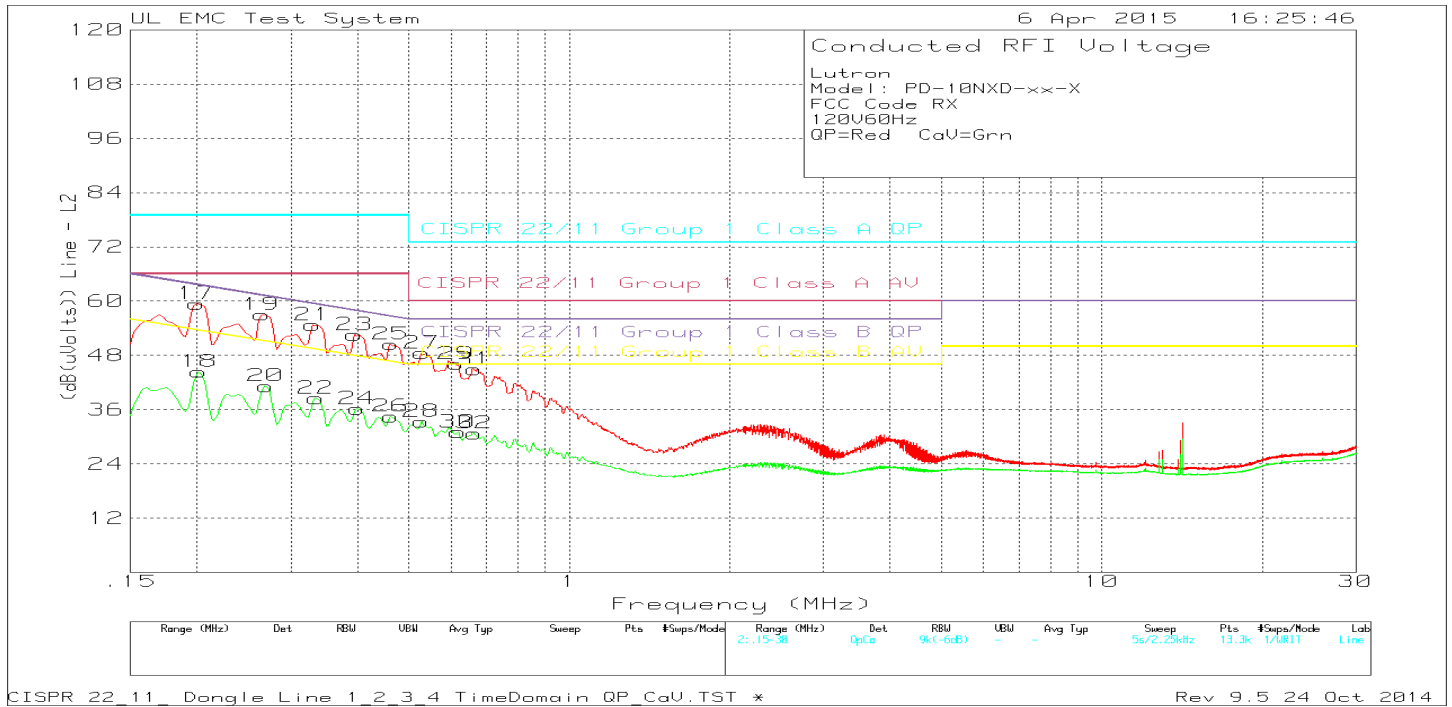
Qp - Quasi-Peak detector
Ca - CISPR Average detection

Conducted Emissions Scan – RX Mode

Line



Neutral



Conducted Emissions Data

Lutron
Model: PD-10NXD-xx-X
FCC Code RX
120V60Hz
QP=Red CaV=Grn

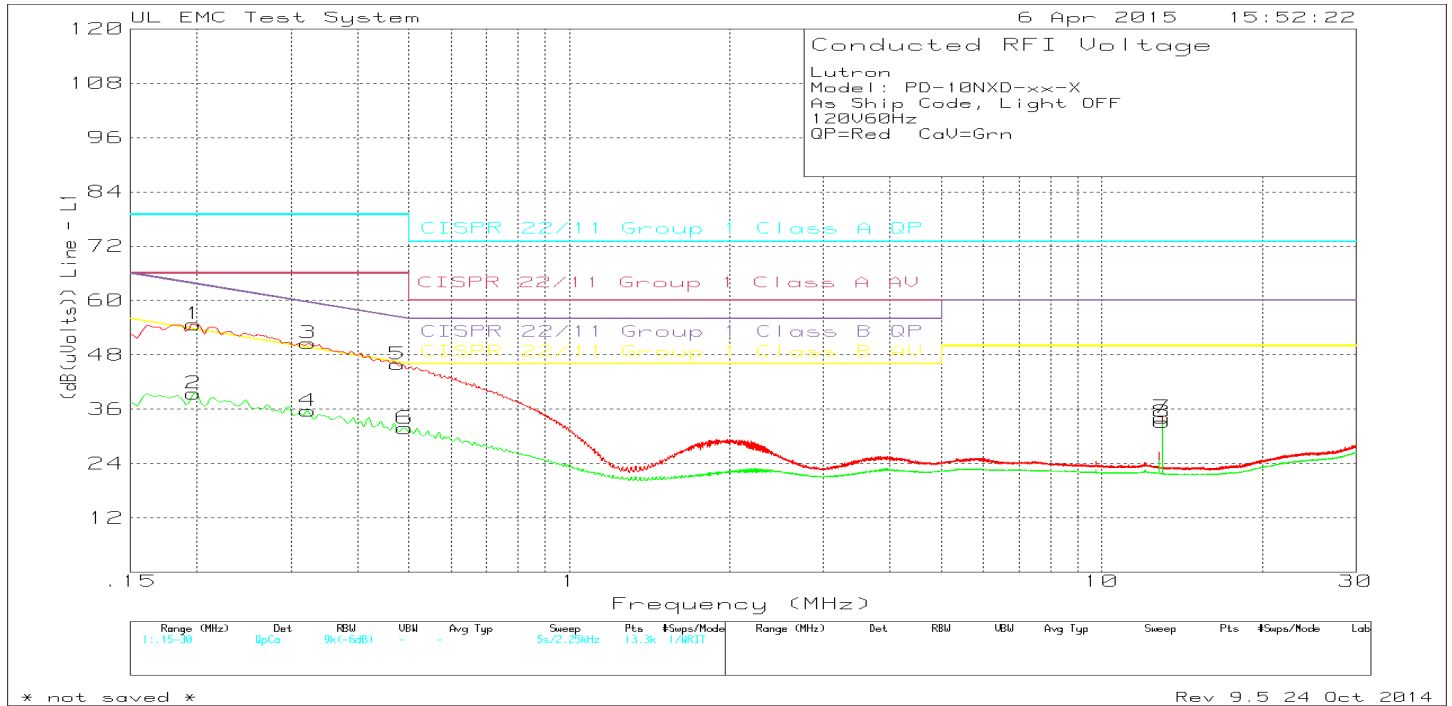
Trace Markers	Test	Meter	Transducer	Gain/Loss	Corrected	Limit:1	2	3	4	5	6
No.	Frequency (MHz)	Reading	Factor (dB)	Factor (dB)	Reading (dB(uVolts))						
=====											
Line - L1 .15 -	30MHz	-----									
1 .20175	47.86dBuV Qp	.1	11.4	59.36	79	-	63.54	-	-	-	-
				Margin (dB)	-19.64	-	-4.18	-	-	-	-
2 .20175	32.95dBuV Ca	.1	11.4	44.45	-	66	53.54	-	-	-	-
				Margin (dB)	-	-21.55	-9.09	-	-	-	-
3 .26475	45.71dBuV Qp	.1	11.1	56.91	79	-	61.28	-	-	-	-
				Margin (dB)	-22.09	-	-4.37	-	-	-	-
4 .26925	30.17dBuV Ca	.1	11	41.27	-	66	51.14	-	-	-	-
				Margin (dB)	-	-24.73	-9.87	-	-	-	-
5 .33	43.78dBuV Qp	.1	10.8	54.68	79	-	59.45	-	-	-	-
				Margin (dB)	-24.32	-	-4.77	-	-	-	-
6 .3345	27.76dBuV Ca	.1	10.8	38.66	-	66	49.34	-	-	-	-
				Margin (dB)	-	-27.34	-10.68	-	-	-	-
7 .3975	41.83dBuV Qp	.1	10.7	52.63	79	-	57.91	-	-	-	-
				Margin (dB)	-26.37	-	-5.28	-	-	-	-
8 .39975	25.79dBuV Ca	.1	10.7	36.59	-	66	47.86	-	-	-	-
				Margin (dB)	-	-29.41	-11.27	-	-	-	-
9 .4695	39.77dBuV Qp	.1	10.7	50.57	79	-	56.52	-	-	-	-
				Margin (dB)	-28.43	-	-5.95	-	-	-	-
10 .465	24.18dBuV Ca	.1	10.7	34.98	-	66	46.6	-	-	-	-
				Margin (dB)	-	-31.02	-11.62	-	-	-	-
11 .537	37.97dBuV Qp	.1	10.6	48.67	73	-	56	-	-	-	-
				Margin (dB)	-24.33	-	-7.33	-	-	-	-
12 .528	23.13dBuV Ca	.1	10.6	33.83	-	60	46	-	-	-	-
				Margin (dB)	-	-26.17	-12.17	-	-	-	-
13 .6045	36.18dBuV Qp	.1	10.6	46.88	73	-	56	-	-	-	-
				Margin (dB)	-26.12	-	-9.12	-	-	-	-
14 .59325	22.03dBuV Ca	.1	10.6	32.73	-	60	46	-	-	-	-
				Margin (dB)	-	-27.27	-13.27	-	-	-	-
15 .672	34.45dBuV Qp	.1	10.6	45.15	73	-	56	-	-	-	-
				Margin (dB)	-27.85	-	-10.85	-	-	-	-
16 .6675	20.26dBuV Ca	.1	10.6	30.96	-	60	46	-	-	-	-
				Margin (dB)	-	-29.04	-15.04	-	-	-	-
=====											
Line - L2 .15 -	30MHz	-----									
17 .1995	47.78dBuV Qp	.1	11.5	59.38	79	-	63.63	-	-	-	-
				Margin (dB)	-19.62	-	-4.25	-	-	-	-
18 .20175	32.79dBuV Ca	.1	11.5	44.39	-	66	53.54	-	-	-	-
				Margin (dB)	-	-21.61	-9.15	-	-	-	-
19 .26475	45.7dBuV Qp	.1	11.2	57	79	-	61.28	-	-	-	-
				Margin (dB)	-22	-	-4.28	-	-	-	-
20 .26925	30.03dBuV Ca	.1	11.1	41.23	-	66	51.14	-	-	-	-
				Margin (dB)	-	-24.77	-9.91	-	-	-	-
21 .33	43.72dBuV Qp	.1	10.9	54.72	79	-	59.45	-	-	-	-
				Margin (dB)	-24.28	-	-4.73	-	-	-	-
22 .3345	27.49dBuV Ca	.1	10.9	38.49	-	66	49.34	-	-	-	-
				Margin (dB)	-	-27.51	-10.85	-	-	-	-
23 .39525	41.66dBuV Qp	.1	10.8	52.56	79	-	57.95	-	-	-	-
				Margin (dB)	-26.44	-	-5.39	-	-	-	-
24 .39975	25.25dBuV Ca	.1	10.8	36.15	-	66	47.86	-	-	-	-
				Margin (dB)	-	-29.85	-11.71	-	-	-	-
25 .46275	39.57dBuV Qp	.1	10.8	50.47	79	-	56.64	-	-	-	-
				Margin (dB)	-28.53	-	-6.17	-	-	-	-
26 .46275	23.58dBuV Ca	.1	10.8	34.48	-	66	46.64	-	-	-	-
				Margin (dB)	-	-31.52	-12.16	-	-	-	-
27 .52912	37.68dBuV Qp	.1	10.7	48.48	73	-	56	-	-	-	-
				Margin (dB)	-24.52	-	-7.52	-	-	-	-
28 .528	22.54dBuV Ca	.1	10.7	33.34	-	60	46	-	-	-	-
				Margin (dB)	-	-26.66	-12.66	-	-	-	-
29 .6135	35.31dBuV Qp	.1	10.7	46.11	73	-	56	-	-	-	-
				Margin (dB)	-26.89	-	-9.89	-	-	-	-
30 .618	20.23dBuV Ca	.1	10.7	31.03	-	60	46	-	-	-	-
				Margin (dB)	-	-28.97	-14.97	-	-	-	-
31 .663	34.1dBuV Qp	.1	10.7	44.9	73	-	56	-	-	-	-
				Margin (dB)	-28.1	-	-11.1	-	-	-	-
32 .663	19.98dBuV Ca	.1	10.7	30.78	-	60	46	-	-	-	-
				Margin (dB)	-	-29.22	-15.22	-	-	-	-

LIMIT 1: CISPR 22/11 Group 1 Class A QP
LIMIT 2: CISPR 22/11 Group 1 Class A AV
LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

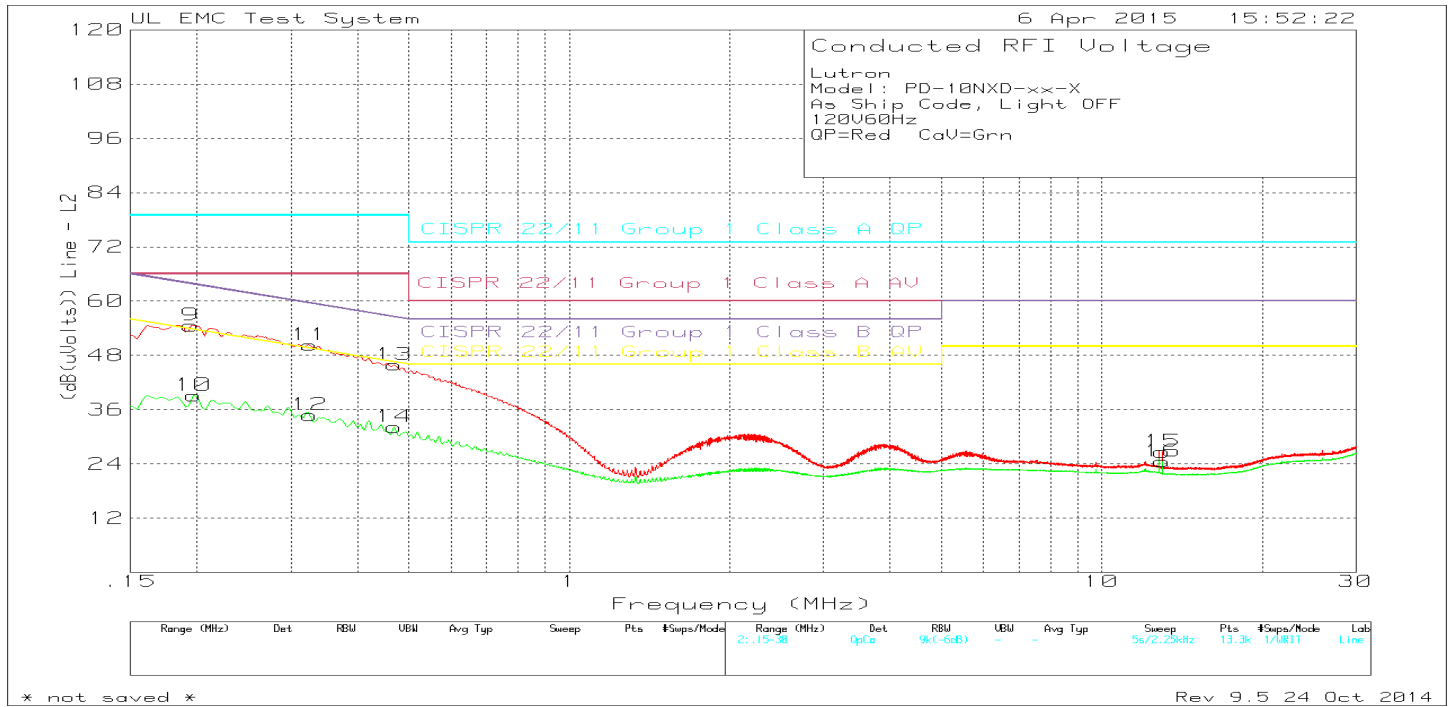
Qp - Quasi-Peak detector
Ca - CISPR Average detection

Conducted Emissions Scan – Digital

Line



Neutral



Conducted Emissions Data

Lutron
Model: PD-10NXD-xx-X
As Ship Code, Light OFF
120V60Hz
QP=Red CaV=Grn

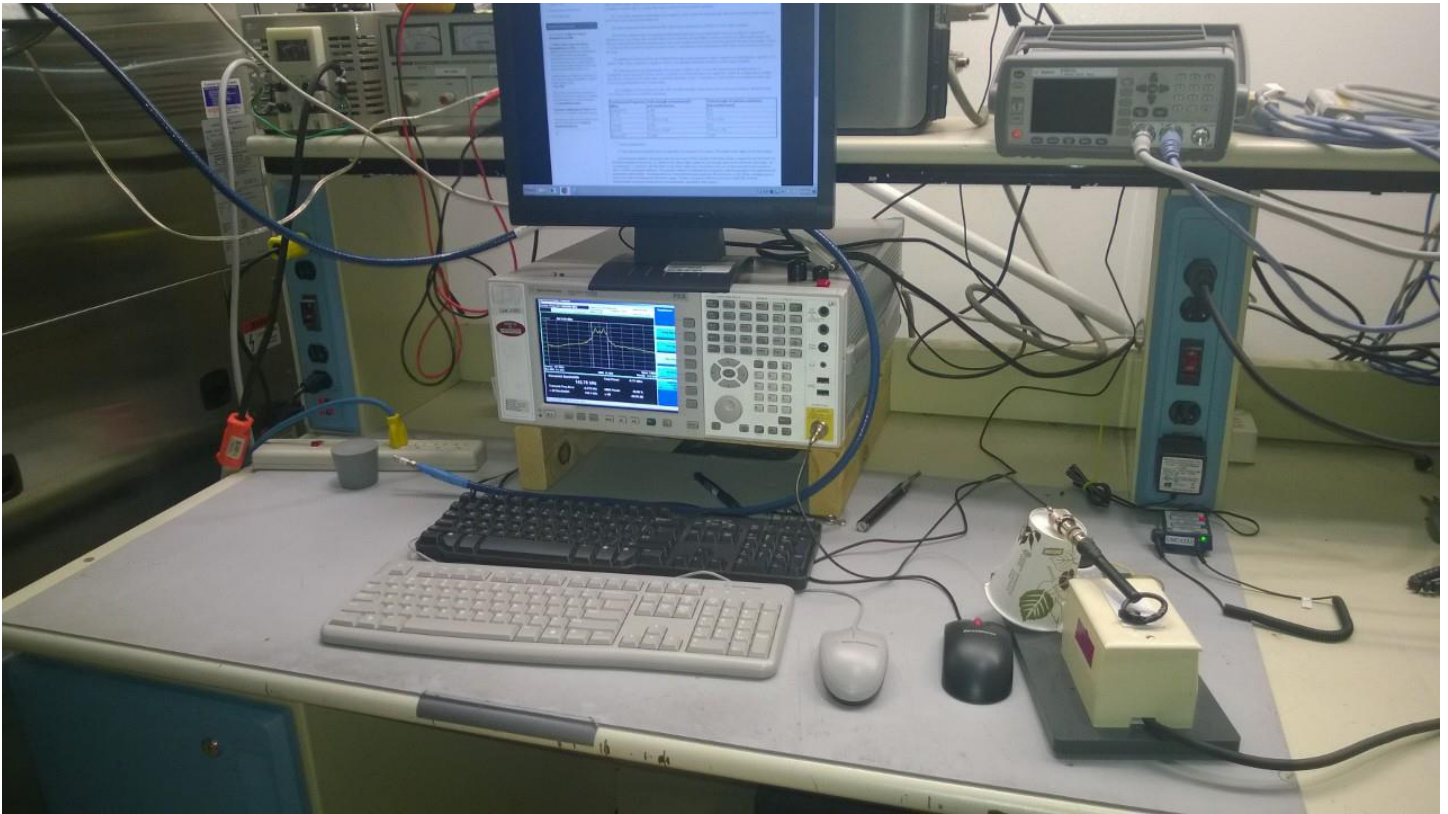
Trace Markers											
No.	Test Frequency (MHz)	Meter Reading	Transducer Factor (dB)	Gain/Loss Factor (dB)	Corrected Reading (dB(uVolts))	Limit:1	2	3	4	5	6
=====											
Line - L1 .15 - 30MHz -----											
1	.19725	43.27dBuV Qp	.1	11.4	54.77	79	-	63.73	-	-	-
					Margin (dB)	-24.23	-	-8.96	-	-	-
2	.19725	28dBuV Ca	.1	11.4	39.5	-	66	-	53.73	-	-
					Margin (dB)	-	-26.5	-	-14.23	-	-
3	.32325	39.73dBuV Qp	.1	10.8	50.63	79	-	59.62	-	-	-
					Margin (dB)	-28.37	-	-8.99	-	-	-
4	.32325	24.76dBuV Ca	.1	10.8	35.66	-	66	-	49.62	-	-
					Margin (dB)	-	-30.34	-	-13.96	-	-
5	.47625	35.12dBuV Qp	.1	10.7	45.92	79	-	56.4	-	-	-
					Margin (dB)	-33.08	-	-10.48	-	-	-
6	.492	21.11dBuV Ca	.1	10.6	31.81	-	66	-	46.13	-	-
					Margin (dB)	-	-34.19	-	-14.32	-	-
7	12.99975	22.54dBuV Qp	.5	11.1	34.14	73	-	60	-	-	-
					Margin (dB)	-38.86	-	-25.86	-	-	-
8	12.99975	21.56dBuV Ca	.5	11.1	33.16	-	60	-	50	-	-
					Margin (dB)	-	-26.84	-	-16.84	-	-
Line - L2 .15 - 30MHz -----											
9	.195	42.91dBuV Qp	.1	11.6	54.61	79	-	63.82	-	-	-
					Margin (dB)	-24.39	-	-9.21	-	-	-
10	.19725	27.51dBuV Ca	.1	11.5	39.11	-	66	-	53.73	-	-
					Margin (dB)	-	-26.89	-	-14.62	-	-
11	.3255	39.28dBuV Qp	.1	10.9	50.28	79	-	59.57	-	-	-
					Margin (dB)	-28.72	-	-9.29	-	-	-
12	.3255	23.82dBuV Ca	.1	10.9	34.82	-	66	-	49.57	-	-
					Margin (dB)	-	-31.18	-	-14.75	-	-
13	.4695	35.04dBuV Qp	.1	10.8	45.94	79	-	56.52	-	-	-
					Margin (dB)	-33.06	-	-10.58	-	-	-
14	.4695	21.26dBuV Ca	.1	10.8	32.16	-	66	-	46.52	-	-
					Margin (dB)	-	-33.84	-	-14.36	-	-
15	12.99975	15dBuV Qp	.5	11.2	26.7	73	-	60	-	-	-
					Margin (dB)	-46.3	-	-33.3	-	-	-
16	12.99975	12.85dBuV Ca	.5	11.2	24.55	-	60	-	50	-	-
					Margin (dB)	-	-35.45	-	-25.45	-	-

LIMIT 1: CISPR 22/11 Group 1 Class A QP
LIMIT 2: CISPR 22/11 Group 1 Class A AV
LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

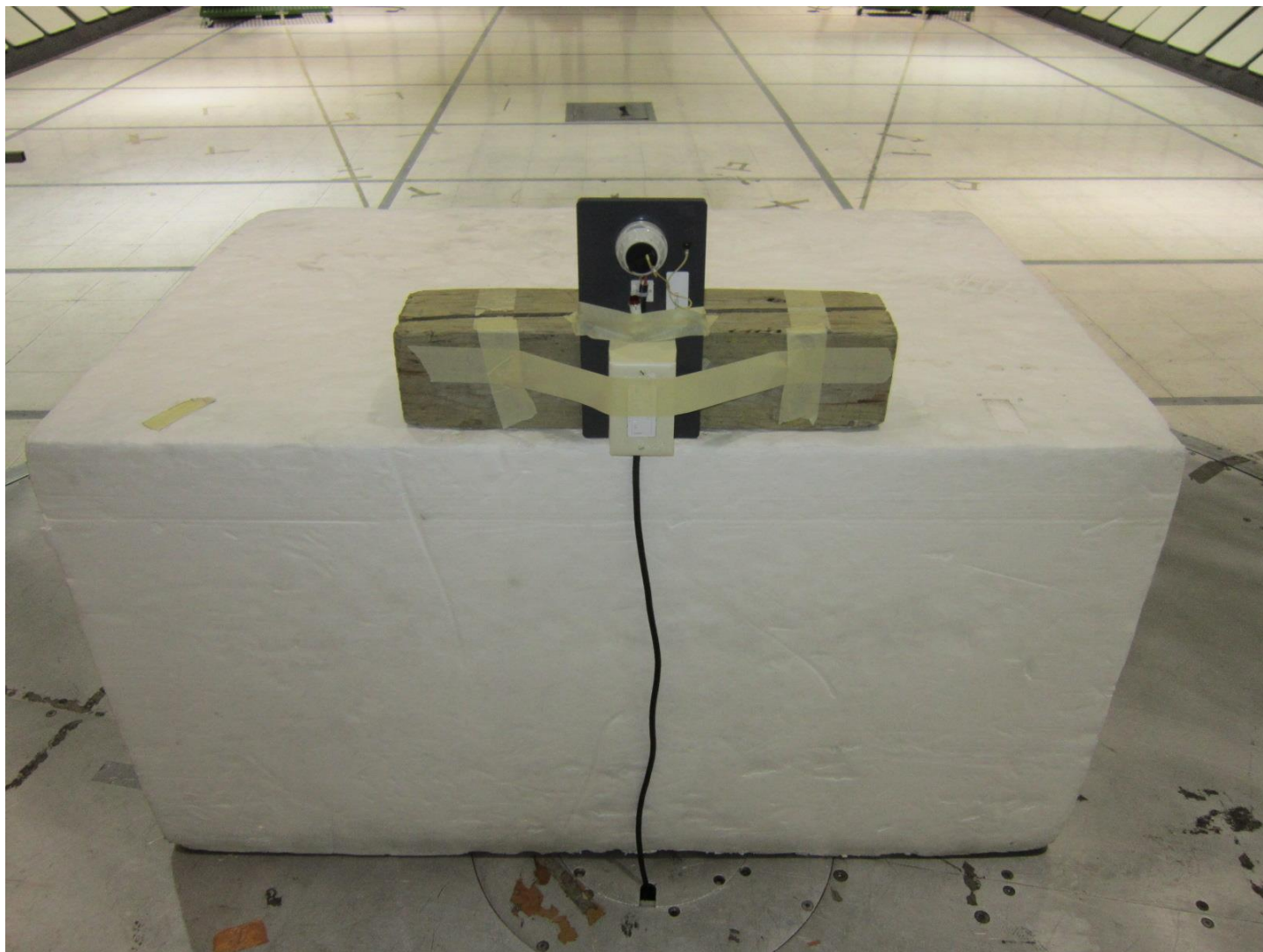
Qp - Quasi-Peak detector
Ca - CISPR Average detection

10. SETUP PHOTOS

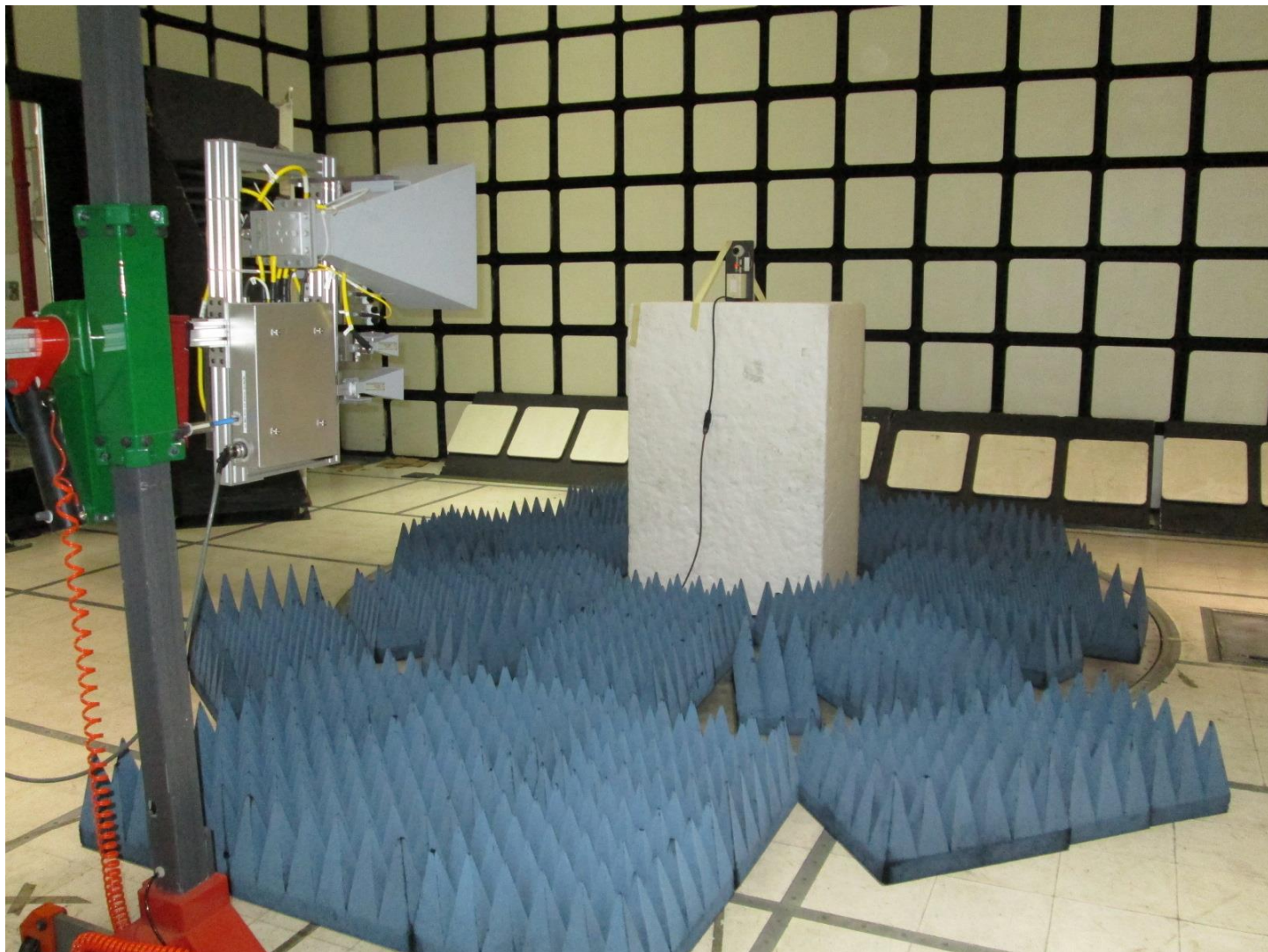
NEAR FILED MEASUREMENTS



RADIATED EMISSION CONFIGURATION BELOW 1GHz



RADIATED EMISSION CONFIGURATION ABOVE 1GHz



Conducted Emissions



END OF REPORT