FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

WIRELESS LAMP

MODEL NUMBER: LED12BR30/827INT and LED12BR30/827TEL

FCC ID: PUU94440

REPORT NUMBER: R10238242-RF

ISSUE DATE: 2014-04-24

Prepared for
GE LIGHTING SOLUTIONS, INC.
1975 NOBLE RD.
BLDG 338E
CLEVELAND, OH 44112-1719, USA

Prepared by

UL LLC
12 LABORATORY DR.
RESEARCH TRIANGLE PARK, NC 27709 USA
TEL: (919) 549-1400

NVLAP LAB CODE 200246-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	2014-04-18	Initial Issue	Jeff Moser
1	2014-04-22	Added radio model and manufacturer (Page 6)	Jeff Moser
2	2014-04-24	Revised report based on TCB reviewer feedback.	Jeff Moser

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: GE LIGHTING SOLUTIONS, INC.
1975 NOBLE RD., BLDG 338E
CLEVELAND, OH 44112-1719, USA

EUT DESCRIPTION: WIRELESS LAMP

MODEL: LED12BR30/827INT and LED12BR30/827TEL

SERIAL NUMBER: Non-serialized Unit.

DATE TESTED: 2014-03-04 through 2014-03-06, 2014-04-23

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. 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:

Mike Antola
EMC Lead Engineer
UL - Consumer Technology Division

Prepared By:

Jeff Moser
EMC Program Manager

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 12 Laboratory Dr., Research Triangle Park, NC 27709, USA.

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/2002460.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	±2.5 dB
Radiated Disturbance, 30 to 1000 MHz	±3.4 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a transceiver used for lighting applications and dimming control of LED drivers. The transceiver operates between 431MHz and 437MHz. The transceiver is a Lutron, Model PJ2-3BRL.

The only difference between the LED12BR30/827INT and LED12BR30/827TEL is shipping packaging. The physical units are the same.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an integral wire antenna.

5.3. SOFTWARE AND FIRMWARE

The firmware and driver software installed in the EUT during testing was 0795203, rev. A.

The test utility software used during testing was 0795410, rev. A.

5.4. WORST-CASE CONFIGURATION AND MODE

The device was oriented to produce the highest emission at the device's fundamental operating frequency. The worst-case orientation was investigated over three orthogonal orientations of the device. The upright orientation (Y orientation presented in the SETUP PHOTOS section of this report) proved to be the worst-case orientation.

5.5. MODIFICATIONS

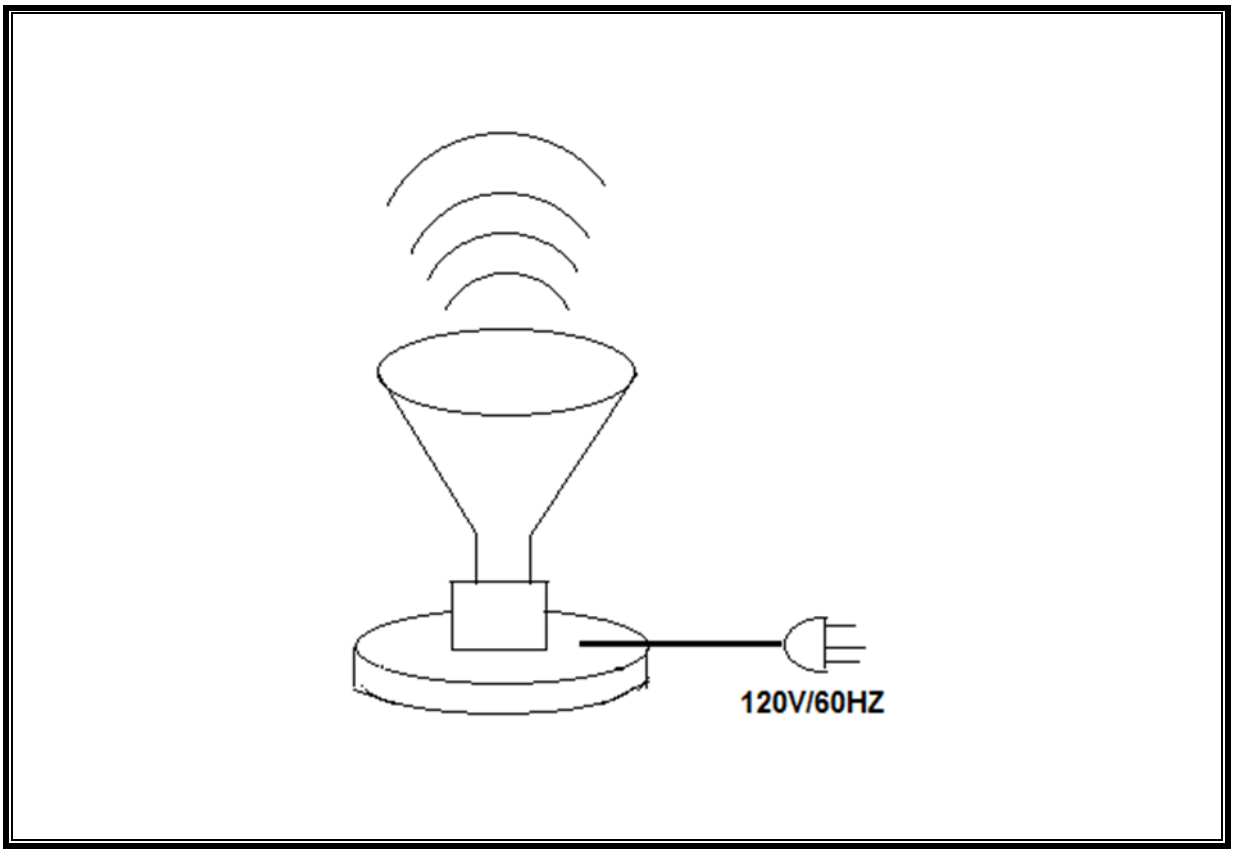
No modifications were made during testing.

5.6. DESCRIPTION OF TEST SETUP

TEST SETUP

The EUT was placed on a standard test table.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Common Equipment				
SA0016	Spectrum Analyzer	Agilent Technologies	N9030A	2013-09-04	2014-09-30

Radiated Disturbance Emissions (E-field)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	<30 MHz (E-field)				
AT0037	Loop Antenna (Low Range)	Electro-Metrics	EM-6871	2013-12-02	2014-12-31
AT0036	Loop Antenna (High Range)	Electro-Metrics	EM-6872	2013-12-02	2014-12-31
	30-1000 MHz Range				
AT0025	Biconical Antenna, 30 to 300 MHz	Schaffner-Chase EMC Ltd.	VBA6106A	2013-06-14	2014-06-30
AT0030	Log-periodic Antenna, 200 MHz to 1000 MHz	Schaffner	UPA6109	2013-06-12	2014-06-30
	1-5 GHz				
AT0062	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2013-08-27	2014-08-31
	Gain-Loss Chains				
SAC_C (Biconical 3m location)	Gain-Loss string for biconical antenna at 3m	Various	Various	2013-09-06	2014-09-30
SAC_D (Log-Periodic 3m location)	Gain-Loss string for log-periodic antenna at 3m	Various	Various	2013-09-06	2014-09-30
SAC_E_LR (Loop & Rod 3m location)	Gain-Loss string for loop/rod antenna at 3m	Various	Various	2013-09-06	2014-09-30
SAC_E_HORN	Gain-Loss string for horn antenna at 3m	Various	Various	2013-09-06	2014-09-30
	Receiver & Software				
SAR003	Spectrum Analyzer / Receiver	Rohde & Schwarz	ESIB40 (1088.7490.40)	2013-09-03	2014-09-30
SA0016	Spectrum Analyzer	Agilent	N9030A	2013-09-04	2014-09-30

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
	RF Amp (>1GHz)				
AMP011	RF Amp, 1-20GHz	Miteq	AMF-6D-01002000-22-10P	2013-09-04	2014-09-30
	Additional Equipment used				
HI0034	Temp/Humid/Pressure Meter	Cole-Parmer	99760-00	2014-02-19	2015-02-28
CBL252980-001	Cable	Huber and Shuner	84203450	2013-11-09	2014-11-30

Conducted Disturbance Emissions - Voltage

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Equipment – Ground Plane E				
SA0015	EMI Test Receiver 9kHz-7GHz	Rohde & Schwarz	ESCI 7	2013-09-04	2014-09-30
ATA016	Coaxial cable, 20 ft., BNC -male to BNC-male	UL	RG-223	2013-09-05	2014-09-30
HI0069	Temp/Humid/Pressure Meter	Cole-Parmer	99760-00	2013-06-17	2014-06-30
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
	Transient Limiter				
ATA222	Transient Limiter, 0.009 to 100 MHz	Electro-Metrics	EM-7600	2013-09-06	2014-09-30
	LISN (FCC & CISPR testing)				
LISN003	LISN, 50-ohm/50-uH, 2-conductor, 25A	Fischer Custom Com.	FCC-LISN-50-25-2-01-550V	2013-09-03	2014-09-30

7. ANTENNA PORT TEST RESULTS

Note: Given that the EUT had an imbedded antenna with not accessible antenna port, the following tests were performed over the air via a receive antenna.

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 100 KHz. The VBW is set to 300 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)
436.853	386	1092.1325	-706.1325

99% Bandwidth

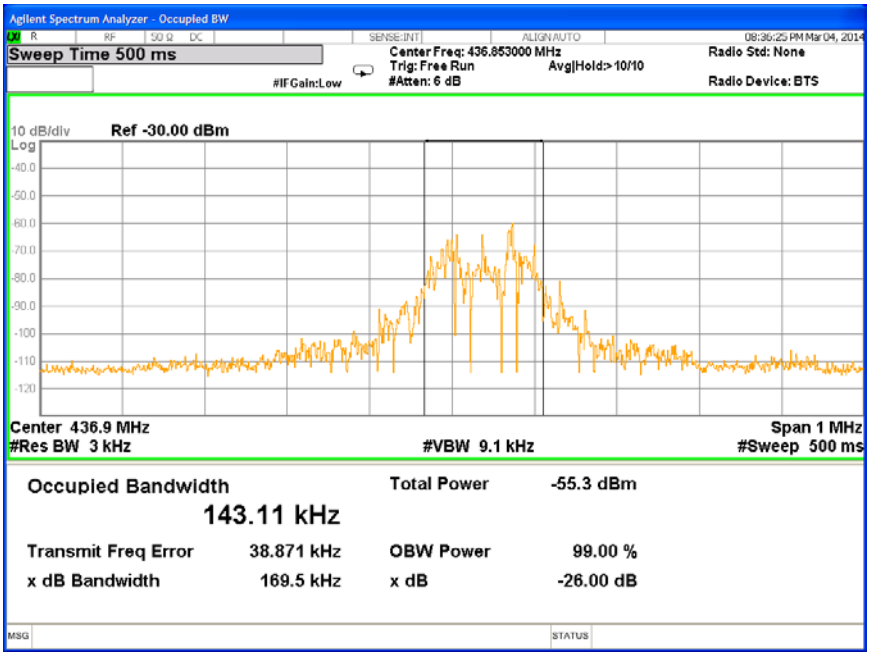
Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)	Margin (kHz)
436.9	143.11	1092.25	-949.14

20dB BANDWIDTH

20dB BANDWIDTH

99% 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 100 kHz and the VBW is set to 100 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	4.98	2	0.100	-20.03

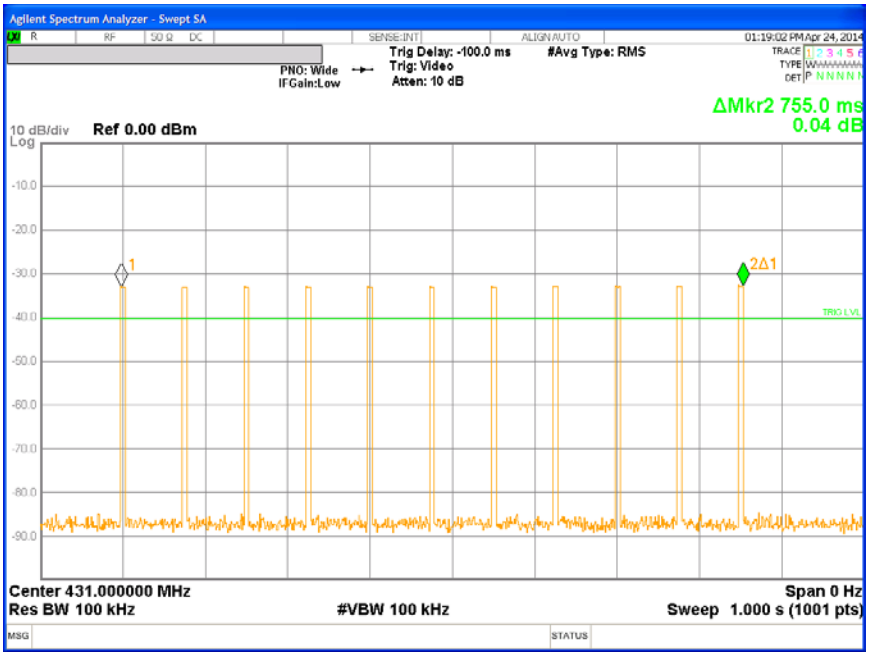
Note: The 100ms averaging window was used per paragraph (c) of Section 15.35 where it says

> 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.

As can be seen in the following screenshot, the transmission lasts longer than 100ms and no more than two pulses are in a 100ms window. Also, all the pulses are of the same duration.

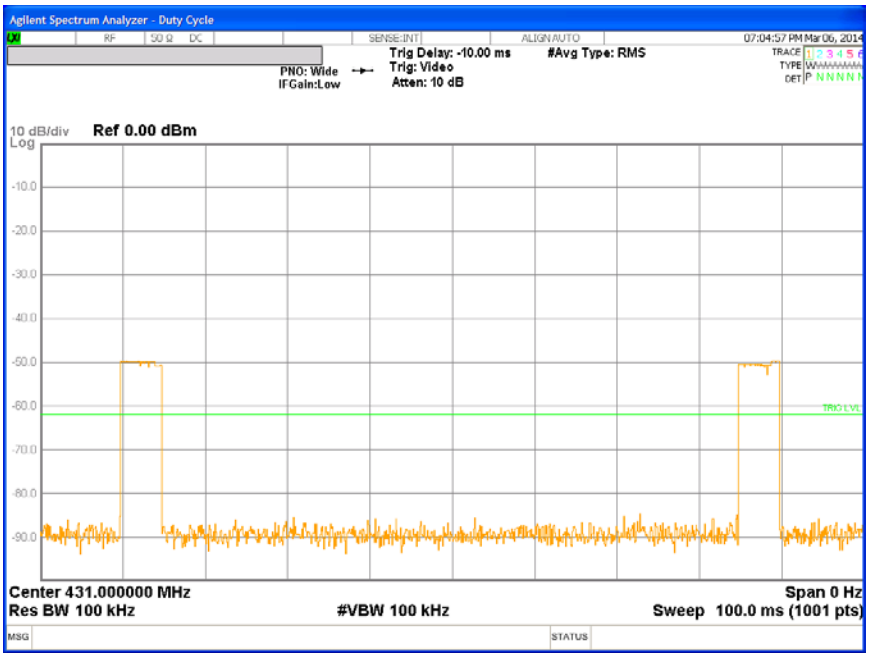
PULSE TRAIN

PULSE TRAIN



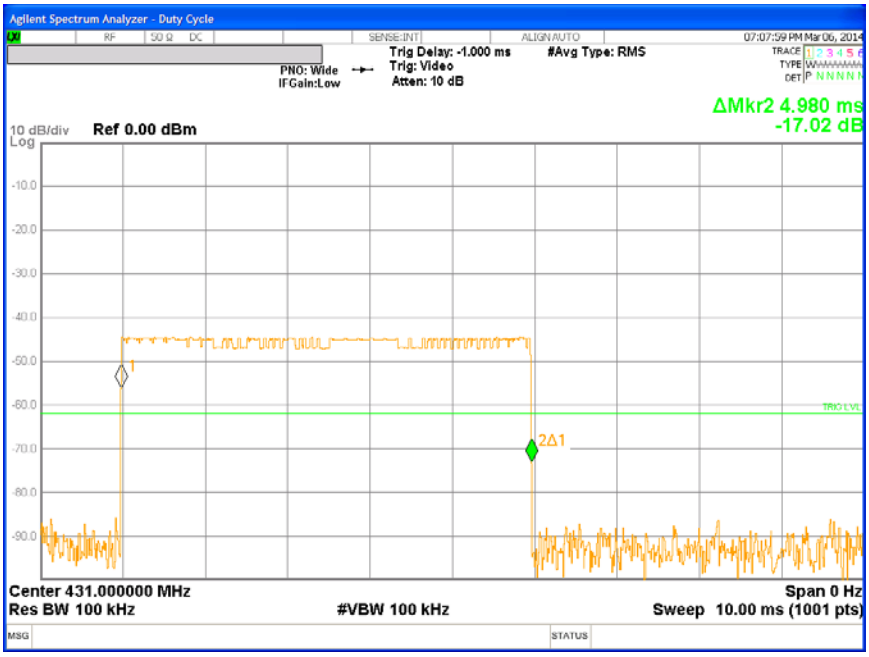
100ms AVERAING WINDOW

100ms AVERAGING WINDOW



PULSE WIDTH

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 100 kHz and the VBW is set to 100 kHz. 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

8. RADIATED EMISSION TEST RESULTS

8.1. TX RADIATED SPURIOUS EMISSION

LIMITS

FCC §15.231 (a)
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:

TABLE (1)

Fundamental frequency (MHz)	Field strength of fundamental (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	*125 to 375
174-260	3,750	375
260-470	*3,750 to 12500	*375 to 1,250
Above 470	12,500	1,250

* Linear interpolations.

§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 Note
0.490 - 1.705	24000/F(kHz)	30 Note
1.705 - 30	30	30 Note
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.

Note – The limit was adjusted by 40 dB/decade (40*log[X/3], where x is measurement distance above)

§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.

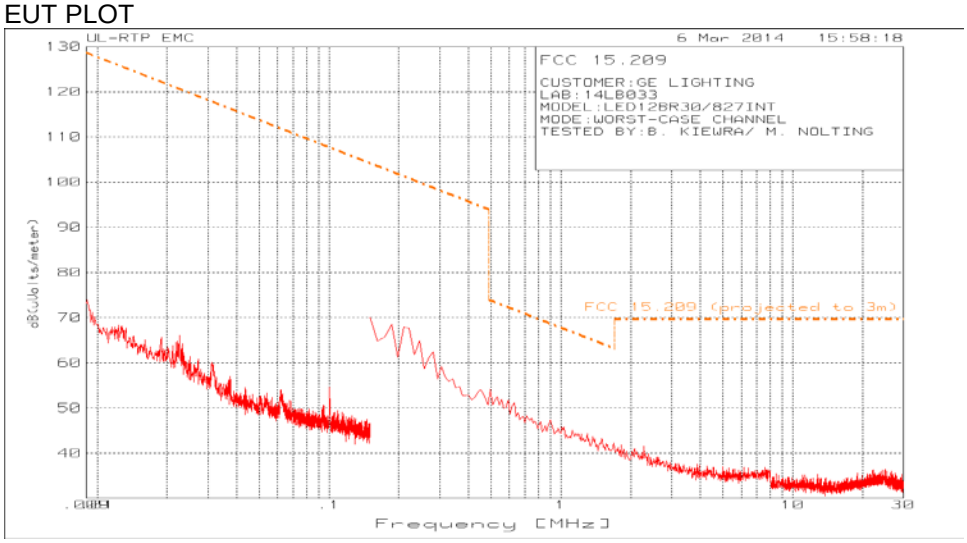
RESULTS

No non-compliance noted:

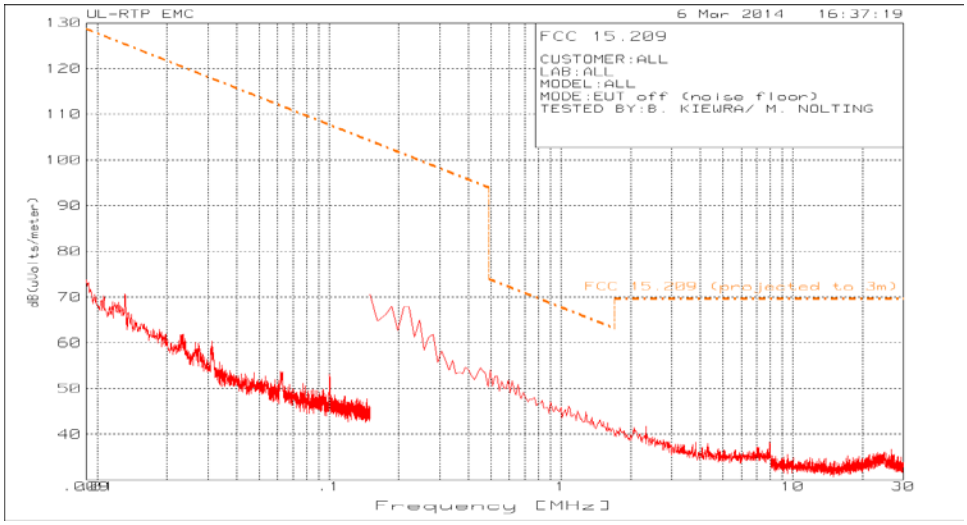
TX SPURIOUS EMISSIONS (BELOW 30 MHz)

Note: All measurements were made at a test distance of 3 m. The limits in the plots and tabular data are the FCC/IC limits extrapolated from the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz-30 MHz) to the measurement distance to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were 40*Log (specification distance / test distance).

EUT PLOT

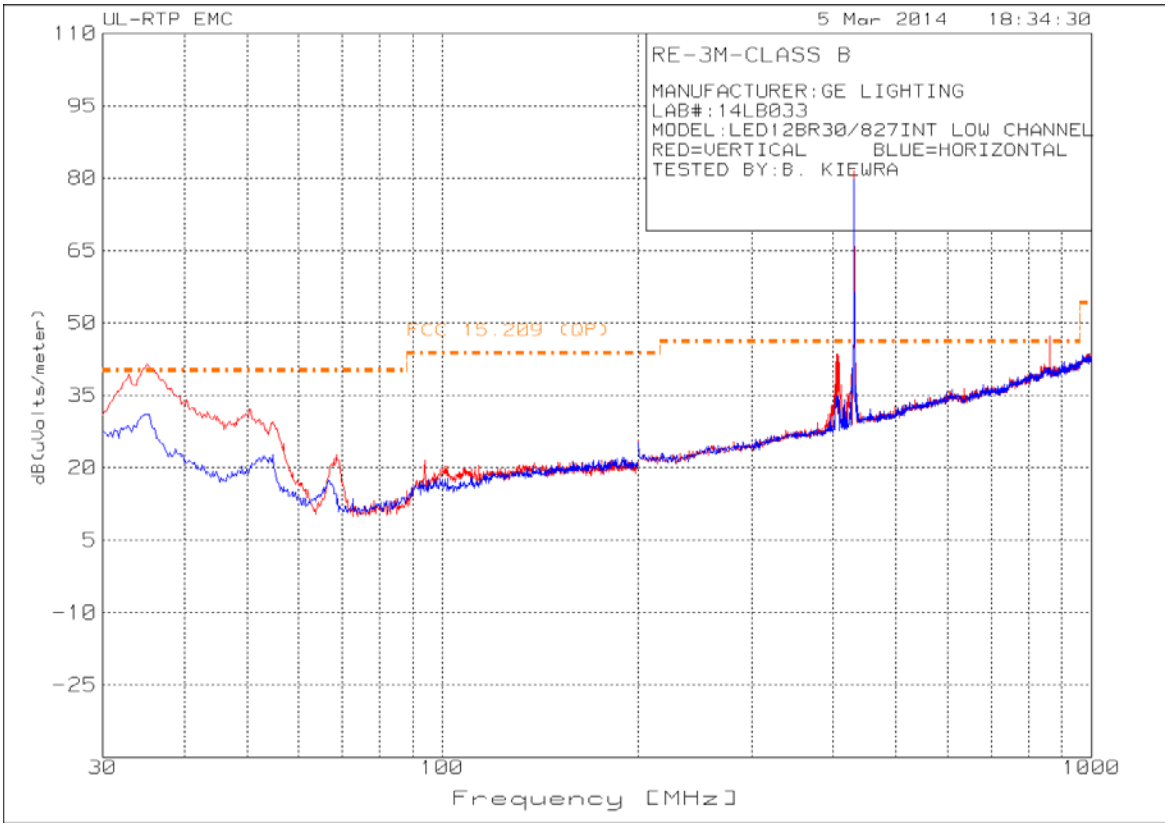


NOISE-FLOOR PLOT



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

PLOT – LOW CHANNEL



TABULAR DATA – LOW CHANNEL

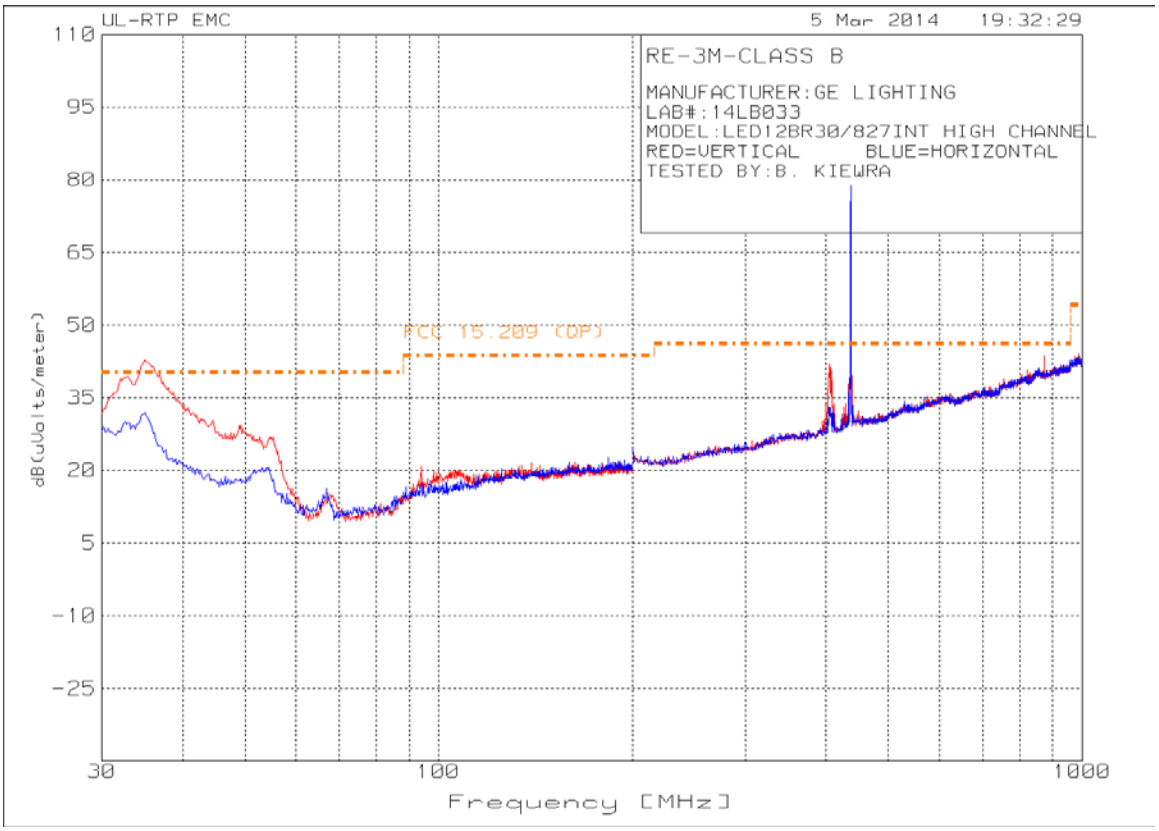
MANUFACTURER:GE LIGHTING
LAB#:14LB033
MODEL:LED12BR30/827INT LOW CHANNEL
RED=VERTICAL BLUE=HORIZONTAL
TESTED BY:B. KIEWRA

Test Frequency [MHz]	Meter Reading [dBuV]	Detector*	Antenna [dB/m]	Gain/ Loss [dB]	Field Strength [dBuV/m]	FCC 15.209 QP Limit [dBuV/m]	Margin [dB]	FCC 15.231 Peak Limit [dBuV/m]	Margin [dB]	DCF (dB)	Average Field Strength [dBuV/m]	FCC 15.231 Average Limit [dBuV/m]	Margin [dB]	Polarity	Restricted Band? Y/N
32.893	47.1	PK	16.6	-24.2	39.5	--	--	80.7	-41.3	-20.0	19.4	60.7	-41.3	Vert	N
35.105	50.1	PK	15.6	-24.2	41.5	--	--	80.7	-39.2	-20.0	21.5	60.7	-39.2	Vert	N
40.380	45.0	PK	13.4	-24.2	34.2	--	--	80.7	-46.6	-20.0	14.1	60.7	-46.6	Vert	N
405.556	34.3	QP	15.8	-27.0	23.1	46.0	-22.9	--	--	--	--	--	--	Vert	Y
430.989	100.2	PK	16.4	-26.8	89.8	--	--	100.7	-10.9	-20.0	69.8	80.7	-10.9	Vert	N
861.775	51.4	PK	22.6	-26.7	47.3	--	--	80.7	-33.4	-20.0	27.3	60.7	-33.5	Vert	N
430.990	97.9	PK	16.4	-26.8	87.5	--	--	100.7	-13.2	-20.0	67.5	80.7	-13.3	Horz	N

*PK = Peak, QP = Quasi-Peak, AV = Average.

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

PLOT – HIGH CHANNEL



TABULAR DATA – HIGH CHANNEL

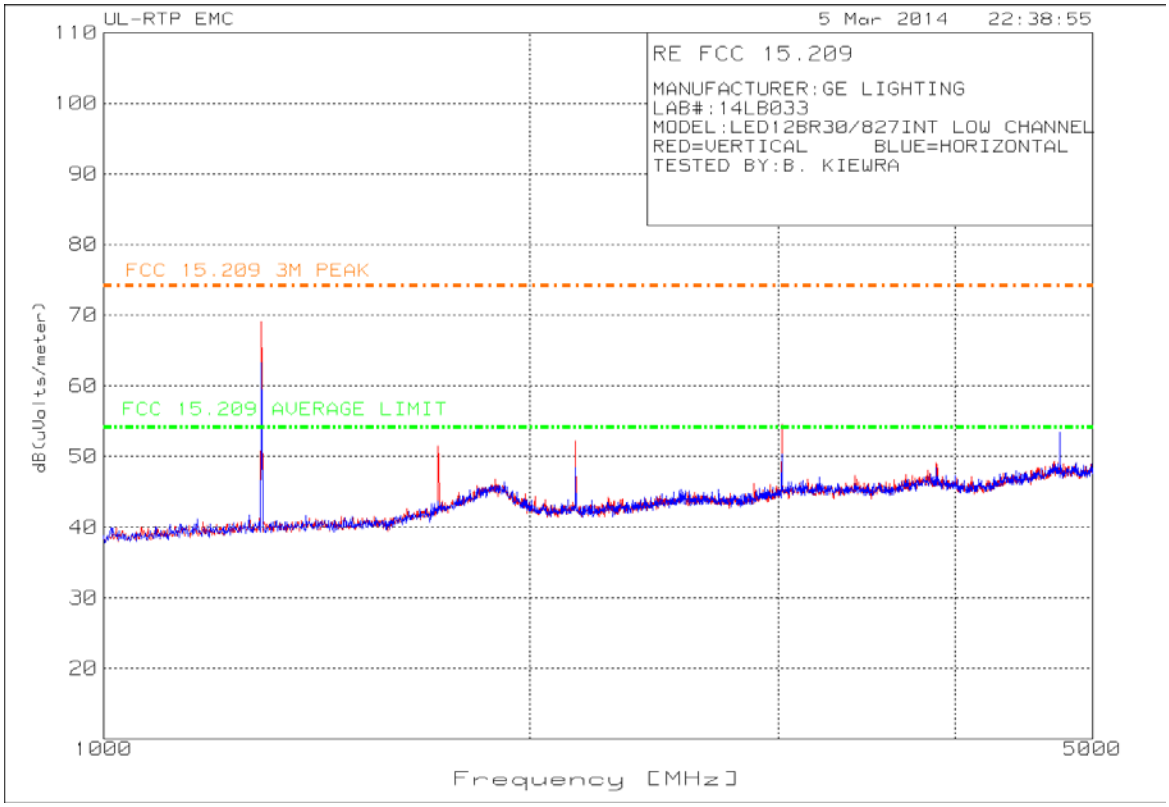
MANUFACTURER:GE LIGHTING
LAB#:14LB033
MODEL:LED12BR30/827INT HIGH CHANNEL
RED=VERTICAL BLUE=HORIZONTAL
TESTED BY:B. KIEWRA

Test Frequency [MHz]	Meter Reading [dBuV]	Detector*	Antenna [dB/m]	Gain/ Loss [dB]	Field Strength [dBuV/m]	FCC 15.209 QP Limit [dBuV/m]	Margin [dB]	FCC 15.231 Peak Limit [dBuV/m]	Margin [dB]	DCF (dB)	Average Field Strength [dBuV/m]	FCC 15.231 Average Limit [dBuV/m]	Margin [dB]	Polarity	Restricted Band? Y/N
32.893	47.0	PK	16.6	-24.2	39.4	--	--	80.9	-41.5	-20.0	19.4	60.9	-41.6	Vert	N
34.935	51.3	PK	15.7	-24.2	42.8	--	--	80.9	-38.1	-20.0	22.8	60.9	-38.1	Vert	N
39.189	45.2	PK	14.0	-24.3	34.9	--	--	80.9	-46.0	-20.0	14.9	60.9	-46.0	Vert	N
404.146	34.3	QP	15.8	-27.0	23.1	46.0	-22.9	--	--	--	--	--	--	Vert	Y
436.989	100.1	PK	16.7	-26.9	89.9	--	--	100.9	-11.1	-20.0	69.8	80.9	-11.1	Vert	N
874.049	48.1	PK	22.5	-26.8	43.8	--	--	80.9	-37.1	-20.0	23.8	60.9	-37.2	Vert	N
436.990	95.4	PK	16.7	-26.9	85.2	--	--	100.9	-15.7	-20.0	65.2	80.9	-15.8	Horz	N

*PK = Peak, QP = Quasi-Peak, AV = Average.

HARMONICS AND TX SPURIOUS EMISSIONS ABOVE 1GHz - Low Channel

PLOT – LOW CHANNEL



TABULAR DATA – LOW CHANNEL

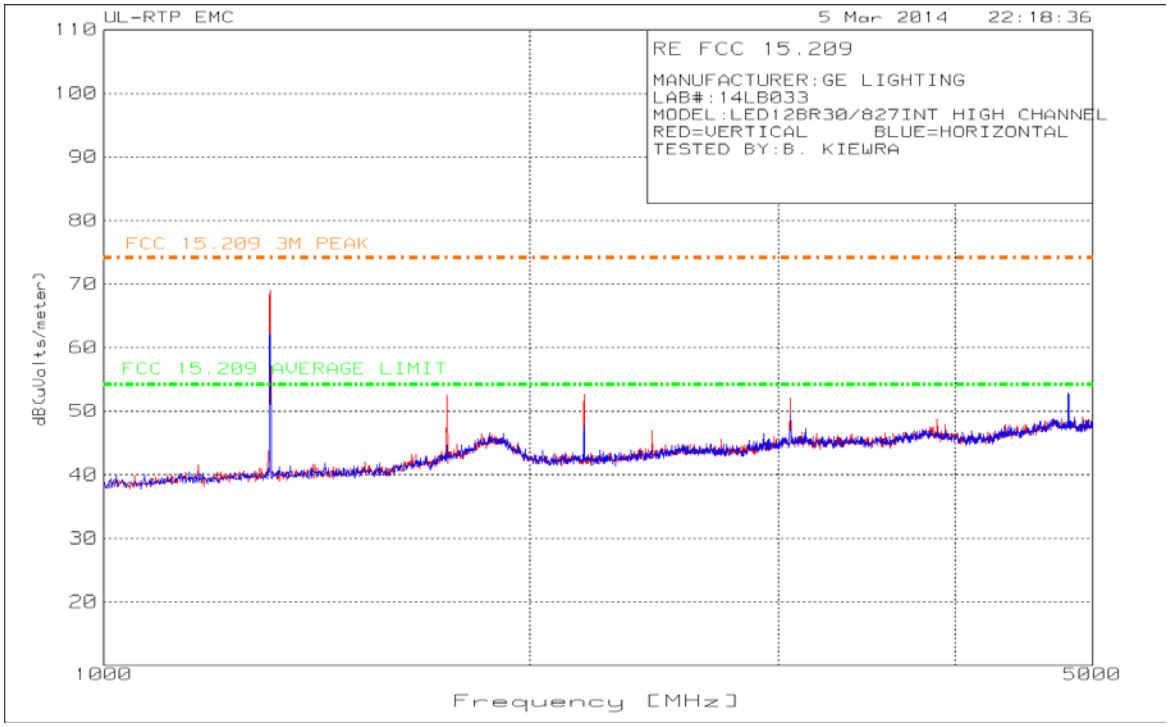
MANUFACTURER:GE LIGHTING
LAB#:14LB033
MODEL:LED12BR30/827INT LOW CHANNEL
RED=VERTICAL BLUE=HORIZONTAL
TESTED BY:B. KIEWRA

Test Frequency [MHz]	Meter Reading [dBuV]	Detector*	Antenna [dB/m]	Gain/ Loss [dB]	ATA174 (dB)	Field Strength [dBuV/m]	FCC 15.231 Peak Limit [dBuV/m]	Margin [dB]	DCF (dB)	Average Field Strength [dBuV/m]	FCC 15.231 Average Limit [dBuV/m]	Margin [dB]	Polarity	Restricted Band? Y/N
1292.195	67.7	PK	25.2	-33.8	10.0	69.1	80.73	-11.7	-20.03	49.0	60.73	-11.7	Vert	N
1723.149	47.2	PK	26.4	-32.1	10.0	51.5	80.73	-29.2	-20.03	31.5	60.73	-29.3	Vert	N
2154.103	47.7	PK	27.6	-33.1	10.0	52.2	80.73	-28.5	-20.03	32.2	60.73	-28.6	Vert	N
3014.014	46.5	PK	30.3	-33.0	10.0	53.8	80.73	-26.9	-20.03	33.8	60.73	-27.0	Vert	N
1292.195	62.0	PK	25.2	-33.8	10.0	63.4	80.73	-17.4	-20.03	43.3	60.73	-17.4	Horz	N
2155.437	42.9	PK	27.6	-33.1	10.0	47.4	80.73	-33.4	-20.03	27.3	60.73	-33.4	Horz	N
3016.016	42.5	PK	30.3	-33.0	10.0	49.8	80.73	-30.9	-20.03	29.8	60.73	-31.0	Horz	N
4739.740	41.7	PK	32.7	-31.0	10.0	53.4	74.0	-20.6	-20.03	33.4	54.00	-20.6	Horz	Y

*PK = Peak, QP = Quasi-Peak, AV = Average.

HARMONICS AND TX SPURIOUS EMISSIONS ABOVE 1GHz - High Channel

PLOT – HIGH CHANNEL



PLOT – HIGH CHANNEL

MANUFACTURER:GE LIGHTING
LAB#:14LB033
MODEL:LED12BR30/827INT HIGH CHANNEL
RED=VERTICAL BLUE=HORIZONTAL
TESTED BY:B. KIEWRA

Test Frequency [MHz]	Meter Reading [dBuV]	Detector*	Antenna [dB/m]	Gain/ Loss [dB]	ATA174 (dB)	Field Strength [dBuV/m]	FCC 15.231 Peak Limit [dBuV/m]	Margin [dB]	DCF (dB)	Average Field Strength [dBuV/m]	FCC 15.231 Average Limit [dBuV/m]	Margin [dB]	Polarity	Restricted Band? Y/N
1310.874	67.6	PK	25.2	-33.8	10.0	69.0	74.00	-5.1	-20.03	48.9	54.00	-5.1	Vert	Y
1747.165	47.7	PK	26.5	-31.7	10.0	52.5	80.93	-28.5	-20.03	32.5	60.93	-28.5	Vert	N
2184.790	48.2	PK	27.6	-33.2	10.0	52.6	80.93	-28.4	-20.03	32.6	60.93	-28.4	Vert	N
3058.058	44.5	PK	30.4	-32.8	10.0	52.1	80.93	-28.9	-20.03	32.0	60.93	-28.9	Vert	N
4807.808	38.6	PK	32.8	-30.9	10.0	50.5	74.00	-23.5	-20.03	30.5	54.00	-23.5	Vert	Y
1309.540	60.8	PK	25.2	-33.8	10.0	62.2	74.00	-11.8	-20.03	42.2	54.00	-11.8	Horz	Y
2184.790	43.5	PK	27.6	-33.2	10.0	47.9	80.93	-33.0	-20.03	27.9	60.93	-33.1	Horz	N
3056.056	41.1	PK	30.4	-32.8	10.0	48.7	80.93	-32.2	-20.03	28.7	60.93	-32.2	Horz	N
4805.806	41.0	PK	32.8	-30.9	10.0	52.9	74.00	-21.2	-20.03	32.8	54.00	-21.2	Horz	Y
*PK = Peak, QP = Quasi-Peak, AV = Average.														

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

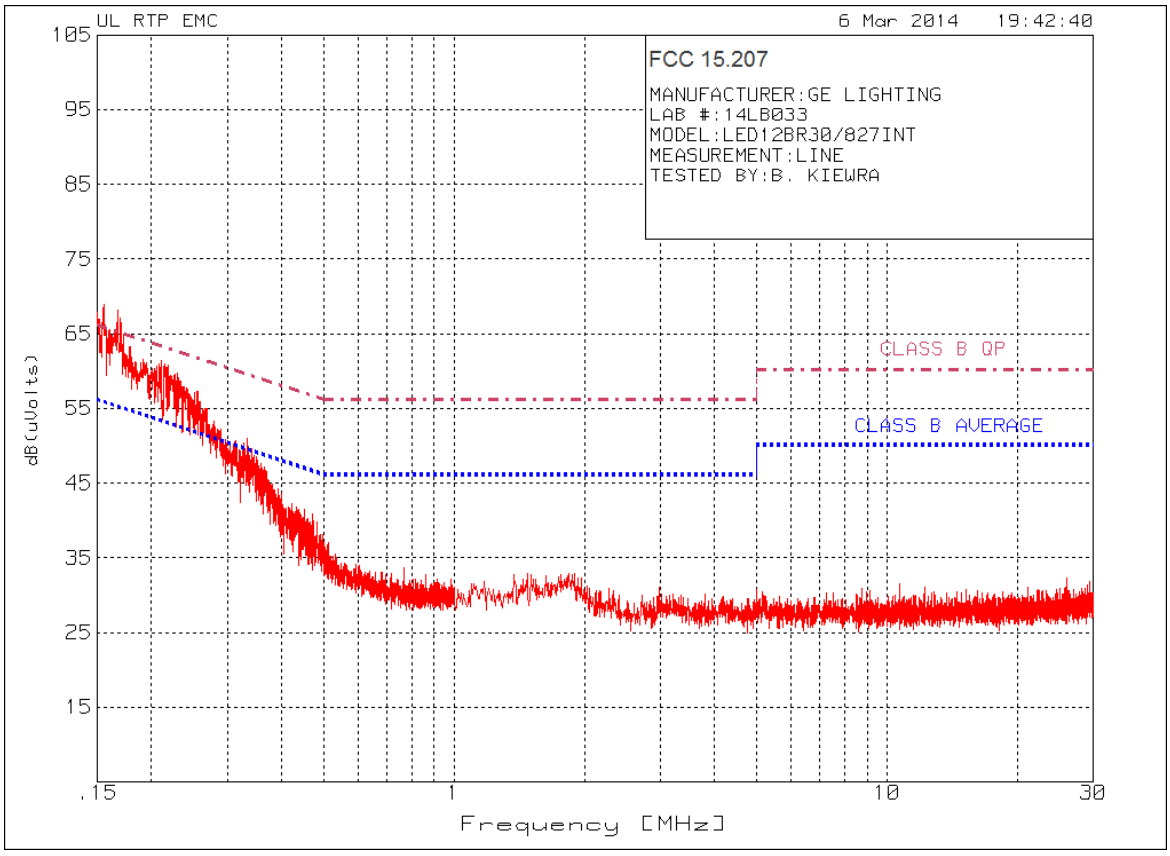
ANSI C63.4

RESULTS

No non-compliance noted. Measurements made with worst-case channel transmitting.

LINE 1 RESULTS

PLOT – LINE



TABULAR DATA – LINE

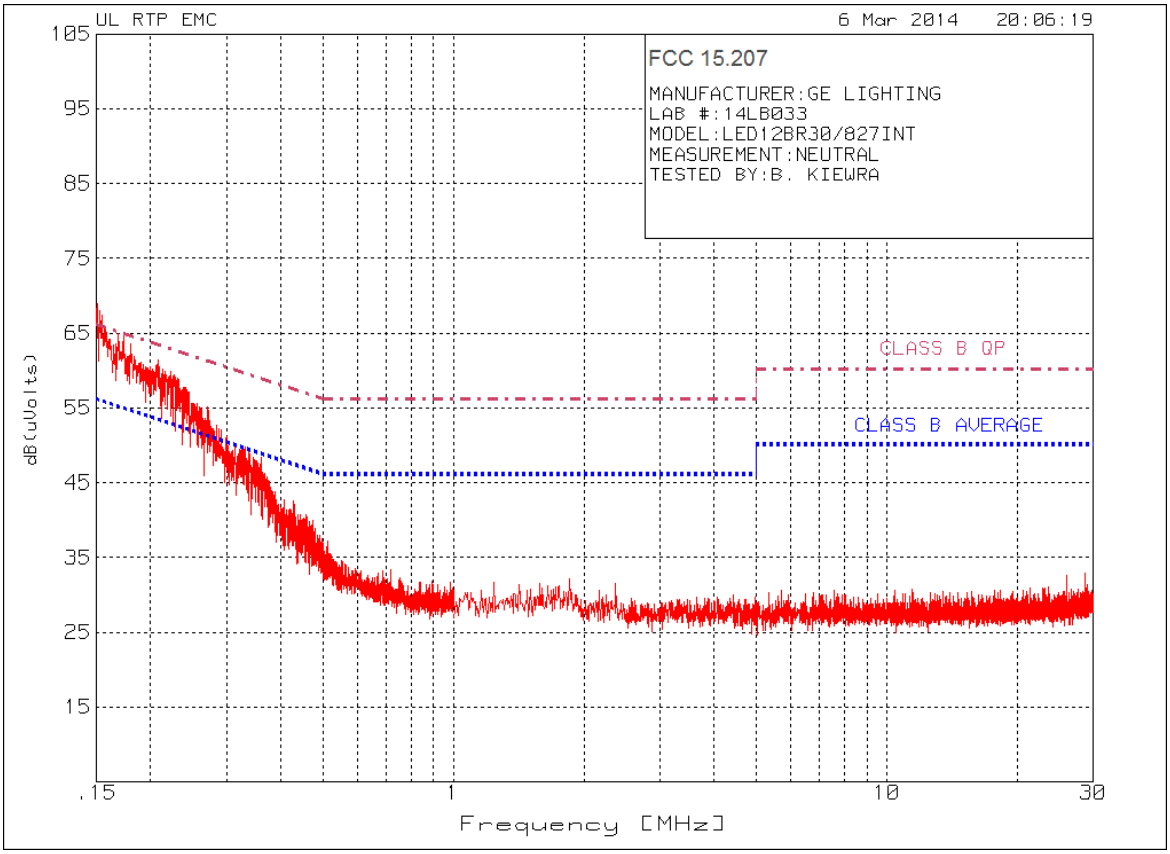
MANUFACTURER:GE LIGHTING
LAB #:14LB033
MODEL:LED12BR30/827INT
MEASUREMENT:LINE
TESTED BY:B. KIEWRA

Test Frequency [MHz]	Meter Reading [dBuV]	Detector*	LISN [dB]	Cable Loss [dB]	RF Line Voltage [dBuV]	FCC 15.207 (QP) [dBuV]	Margin [dB]	FCC 15.207 (AV) [dBuV]	Margin [dB]
0.154	50.4	QP	0.4	9.3	60.1	65.8	-5.7	--	--
0.163	47.9	QP	0.4	9.3	57.6	65.3	-7.7	--	--
0.171	47.1	QP	0.3	9.3	56.7	64.9	-8.3	--	--
0.189	44.6	QP	0.3	9.3	54.2	64.1	-9.9	--	--
0.204	43.1	QP	0.2	9.3	52.6	63.4	-10.8	--	--
0.224	41.3	QP	0.2	9.3	50.8	62.7	-11.9	--	--
0.255	38.4	QP	0.2	9.3	47.9	61.6	-13.7	--	--
0.154	28.61	CAV	0.4	9.3	38.31	--	--	55.8	-17.49
0.163	26.85	CAV	0.4	9.3	36.55	--	--	55.3	-18.76
0.171	26.67	CAV	0.3	9.3	36.27	--	--	54.9	-18.66
0.189	24.79	CAV	0.3	9.3	34.39	--	--	54.1	-19.71
0.204	22.17	CAV	0.2	9.3	31.67	--	--	53.4	-21.76
0.224	21.74	CAV	0.2	9.3	31.24	--	--	52.7	-21.41
0.255	19.78	CAV	0.2	9.3	29.28	--	--	51.6	-22.31
0.264	19.32	CAV	0.2	9.3	28.82	--	--	51.3	-22.48
0.277	17.62	CAV	0.1	9.3	27.02	--	--	50.9	-23.88
0.305	18.57	CAV	0.1	9.3	27.97	--	--	50.1	-22.14
0.330	18.72	CAV	0.1	9.3	28.12	--	--	49.5	-21.33
0.346	18.2	CAV	0.1	9.3	27.6	--	--	49.1	-21.5
0.372	17.0	CAV	0.1	9.3	26.4	--	--	48.5	-22.0
0.394	14.2	CAV	0.1	9.3	23.6	--	--	48.0	-24.4
0.417	13.6	CAV	0.1	9.3	23.0	--	--	47.5	-24.5

*PK = Peak, QP = Quasi-Peak, Av = Average

LINE 2 RESULTS

PLOT – NEUTRAL



TABULAR DATA – NEUTRAL

MANUFACTURER:GE LIGHTING
LAB #:14LB033
MODEL:LED12BR30/827INT
MEASUREMENT:NEUTRAL
TESTED BY:B. KIEWRA

Test Frequency [MHz]	Meter Reading [dBuV]	Detector*	LISN [dB]	Cable Loss [dB]	RF Line Voltage [dBuV]	FCC 15.207 (QP) [dBuV]	Margin [dB]	FCC 15.207 (AV) [dBuV]	Margin [dB]
0.1544	49.48	QP	0.4	9.3	59.18	65.8	-6.58	--	--
0.1555	49.22	QP	0.4	9.3	58.92	65.7	-6.78	--	--
0.1661	46.94	QP	0.3	9.3	56.54	65.2	-8.61	--	--
0.1780	44.67	QP	0.3	9.3	54.27	64.6	-10.31	--	--
0.1903	43.51	QP	0.3	9.3	53.11	64.0	-10.91	--	--
0.2042	42.59	QP	0.2	9.3	52.09	63.4	-11.35	--	--
0.2172	41.77	QP	0.2	9.3	51.27	62.9	-11.66	--	--
0.2333	40.06	QP	0.2	9.3	49.56	62.3	-12.77	--	--
0.2515	38.09	QP	0.2	9.3	47.59	61.7	-14.12	--	--
0.2670	36.22	QP	0.2	9.3	45.72	61.2	-15.49	--	--
0.1544	28.04	CAV	0.4	9.3	37.74	--	--	55.8	-18.02
0.1555	27.68	CAV	0.4	9.3	37.38	--	--	55.7	-18.32
0.1661	26.28	CAV	0.3	9.3	35.88	--	--	55.2	-19.27
0.1780	24.62	CAV	0.3	9.3	34.22	--	--	54.6	-20.36
0.1903	24.44	CAV	0.3	9.3	34.04	--	--	54.0	-19.98
0.2042	21.70	CAV	0.2	9.3	31.20	--	--	53.4	-22.24
0.2172	22.58	CAV	0.2	9.3	32.08	--	--	52.9	-20.85
0.2333	20.49	CAV	0.2	9.3	29.99	--	--	52.3	-22.34
0.2515	19.61	CAV	0.2	9.3	29.11	--	--	51.7	-22.60
0.2670	18.74	CAV	0.2	9.3	28.24	--	--	51.2	-22.97
0.2811	17.28	CAV	0.1	9.3	26.68	--	--	50.8	-24.10
0.296	19.2	CAV	0.1	9.3	28.6	--	--	50.4	-21.8
0.324	18.7	CAV	0.1	9.3	28.1	--	--	49.6	-21.5
0.359	16.7	CAV	0.1	9.3	26.1	--	--	48.8	-22.7
0.377	16.4	CAV	0.1	9.3	25.8	--	--	48.4	-22.6
0.421	13.1	CAV	0.1	9.3	22.5	--	--	47.4	-24.9
*PK = Peak, QP = Quasi-Peak, Av = Average									

END OF REPORT