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Job Number:	1001083006
Project Number:	09CA09085
File Number:	MC15896
Date:	05 Mar 09
FCC ID:	JPZ0060
IC ID:	2851A-JPZ0060
Model:	QSR4P-3R-XX-YYY

Electromagnetic Compatibility Test Report

For

LUTRON ELECTRONICS INC

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Tel: (631) 271-6200 Fax: (631)439-6095

Job Number: 1001083006 File Number: MC15896 Page 2 of 52
Model Number: QSR4P-3R-XX-YYY FCC ID: JPZ0060
Client Name: LUTRON ELECTRONICS INC IC ID: 2851A-JPZ0060

Test Report Details

Tests Performed By: **Underwriters Laboratories Inc.
1285 Walt Whitman Rd.
Melville, NY 11747**

Tests Performed For: **LUTRON ELECTRONICS INC
7200 SUTTER ROAD
COOPERBURG, PA 18036**

Applicant Contact: **Stuart DeJonge**
Title: **Principal Engineer**
Phone: **(484) 574-7213**
E-mail: **sdejonge@lutron.com**

Test Report Date: **05 Mar 09**

Product Type: **Low Power Transmitter**

Product standards **FCC Part 15, Subpart C, 15.231, RSS-GEN, RSS-210**

Model Number: **QSR4P-3R-XX-YYY**

Sample Serial Number: **Prototype**

EUT Category: **Periodic Low Power Transmitter**

Testing Start Date: **19 Feb 09**

Date Testing Complete: **24 Feb 09**

Overall Results: Compliant

Underwriters Laboratories Inc. reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. Underwriters Laboratories Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from Underwriters Laboratories Inc. issued reports. This report shall not be used to claim, constitute or imply product certification, approval, or endorsement by NVLAP, NIST, A2LA, or any agency of the US government.

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Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
None	Original	-	-

1.0 GENERAL - Product Description

1.1 Equipment Description

The device is a transmitter which can either be handheld, wall-mounted, placed on a table top, which is designed to allow the wireless control of either light dimmers or motorized shades.

The device has 3 types of functions:

- 1) Adjust Raise and Lower – the user can increase or decrease the light level of a light dimmer, or raise or lower a motorized shade
- 2) Open and Close – the user can move the shade to its open or close limit, or turn lights on and off
- 3) Favorite level – the user can move the shade to a set position between open and close, or lights to a level between on and off

For the model number, the designation 'xx' refers to the color and 'yyy' refers to the engraving of the device buttons.

The antenna is a circuit-board printed loop-type antenna, which cannot be modified or replaced by the user.

This product is categorically exempt from Human Exposure requirements.

The version of the software used in this device is 1.

1.2 Equipment Marking Plate



1.3 Device Configuration During Test

1.3.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	FM Transmitter	LUTRON ELECTRONICS INC	QSR4P-3R-XX-YYY	None
Note: EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment, or SIM - Simulator (Not Subjected to Test)				

1.3.2 Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m (Y/N)	Cable Shielded (Y/N)	Comments
0	Enclosure	N/E	—	—	None
Note: AC = AC Power Port DC = DC Power Port N/E = Non-Electrical I/O = Signal Input or Output Port (Not Involved in Process Control) TP = Telecommunication Ports					

1.3.3 EUT Internal Operating Frequencies:

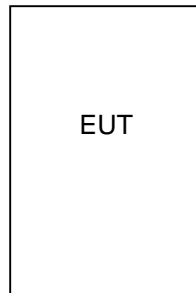
Frequency (MHz)	Description
431	Fundamental – Low Channel
433	Fundamental – Mid Channel
437	Fundamental – High Channel
16	Oscillator
24	Oscillator

1.3.4 Power Interface:

Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
1	Battery Operated	-	-	DC	-	Uses 3Vdc battery

1.4 Block Diagram:

The diagram below illustrates the configuration of the equipment above.



1.5 EUT Configurations

Mode #	Description
1	EUT is a stand-alone device.

Note: Initial measurements were made to determine the worse case orientation (axis) of the EUT. It was in this worse case orientation that all testing was performed. The worse case axis was with the EUT propped up vertically. Refer to setup photos for details.

1.6 EUT Operation Modes

Mode #	Description
1	Constant Transmit Mode – Low Channel
2	Constant Transmit Mode – Mid Channel
3	Constant Transmit Mode – High Channel
4	Normal Operation

Note: The EUT operates as transmit only. There is no receive-mode.

2.0 Summary

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by Underwriters Laboratories Inc. in accordance with the procedures stated in each test requirement and specification. The applicant determined the list of tests performed were applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

2.1 Deviations from standard test methods

None

2.2 Device Modifications Necessary for Compliance

None

2.3 Reference Standards

Standard Number	Standard Name	Standard Date
FCC Part 15, Subpart C, 15.231	Code of Federal Regulations, Part 15, Radio Frequency Devices	2008
FCC Part 15, Subpart B	Code of Federal Regulations, Part 15, Radio Frequency Devices	2008
RSS-GEN, Issue 7	General Requirements and Information for the Certification of Radiocommunication Equipment	2007
RSS-210, Issue 4	Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment	2007
ICES-003, Issue 4	Spectrum Management and Telecommunication Policy Interference-Causing Equipment Standard – Digital Apparatus	2004

2.4 Results Summary

This product is considered Class B

Requirement – Test	Result (Compliant / Non-Compliant)*
Occupied Bandwidth (-20dB)	Compliant
Occupied Bandwidth (99%)	Compliant
Cease Operation	Compliant
Pulse Train - Averaging Factor	Compliant
Pulse Train Measurement	Compliant
General Radiated Emissions	Compliant
Fundamental Radiated Emissions	Compliant
Spurious Radiated Emissions	Compliant

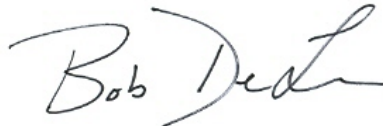
Job Number: 1001083006 File Number: MC15896 Page 9 of 52
Model Number: QSR4P-3R-XX-YYY FCC ID: JPZ0060
Client Name: LUTRON ELECTRONICS INC IC ID: 2851A-JPZ0060

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3.0 Calibration of Equipment Used for Measurement

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is one year or the manufacturers' recommendation, whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST); therefore, all test data recorded in this report is traceable to NIST.

4.0 EMISSIONS TEST RESULTS

The emissions tests were performed according to following regulations:

----- North America -----

Code of Federal Regulations Title 47	Part 15, Subparts B & C, Radio Frequency Devices
Industry Canada	RSS-GEN, RSS-210

Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be verified at the time the test is conducted.

Ambient Temperature, °C	22.5 ± 2.5	Relative Humidity, %	45 ± 15	Barometric Pressure, mBar	950 ± 150
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4.1 Test Conditions and Results – Occupied Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.
Basic Standard	CFR 47, Part 15, Subpart C, Section 15.231; RSS-GEN; RSS-210
Occupied Bandwidth Limits	
0.25% of the Fundamental Frequency	

Table 1 Occupied Bandwidth Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1,2,3
Supplementary information: None		

Table 2 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth (MHz)	Occupied Bandwidth Requirements	
	dBc	%
1% of the Span	-20	99
Supplementary information: None		

Table 3 Occupied Bandwidth Test Results

Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
431	0.458	0.380
433	0.448	0.376
437	0.429	0.394

Table 4 Occupied Bandwidth Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Dipole Antenna	EMCO	3121C	3359
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
Measurement Software	UL	Version 9.3	44740

Figure 1 Test Setup for Occupied Bandwidth

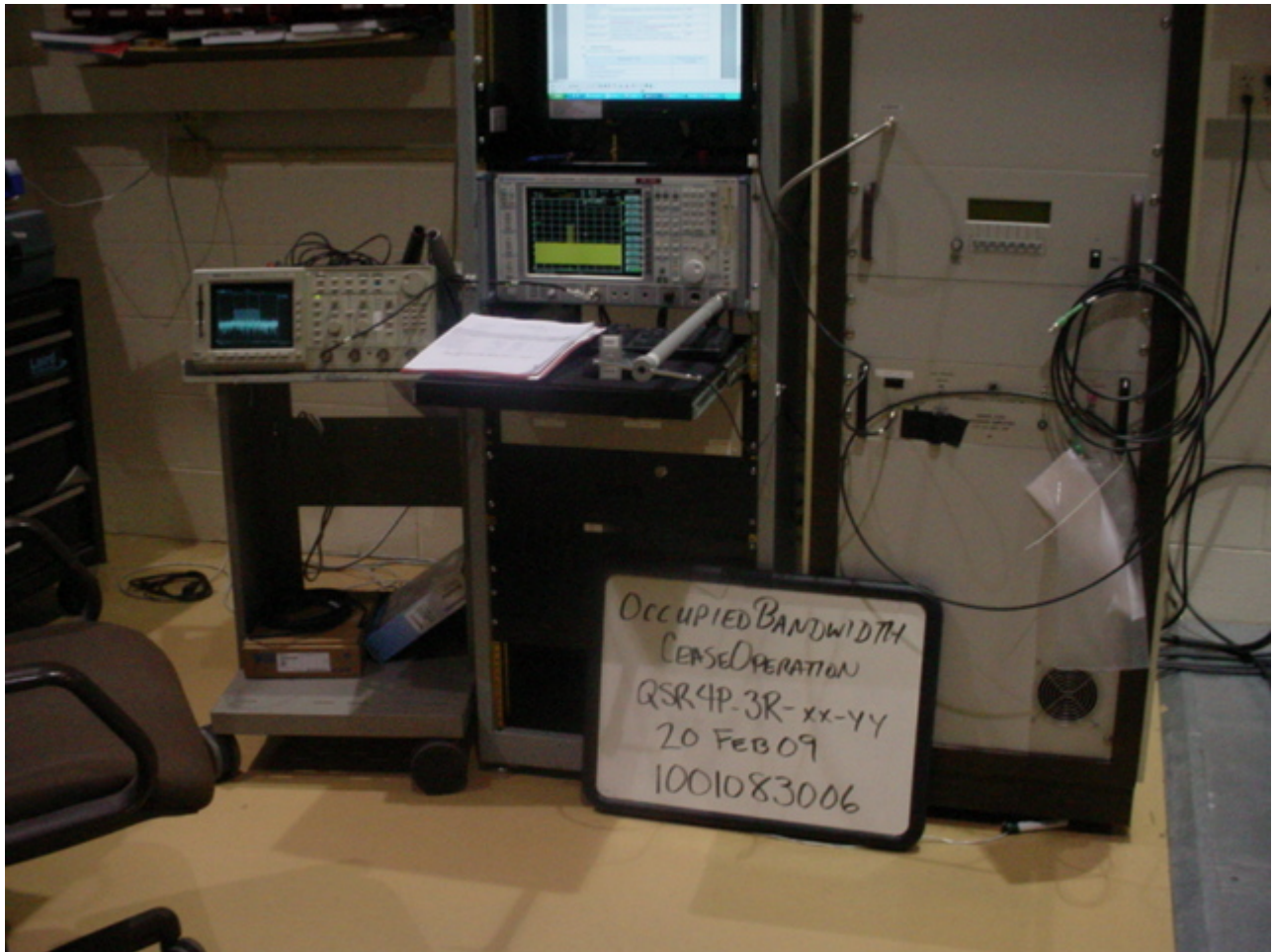
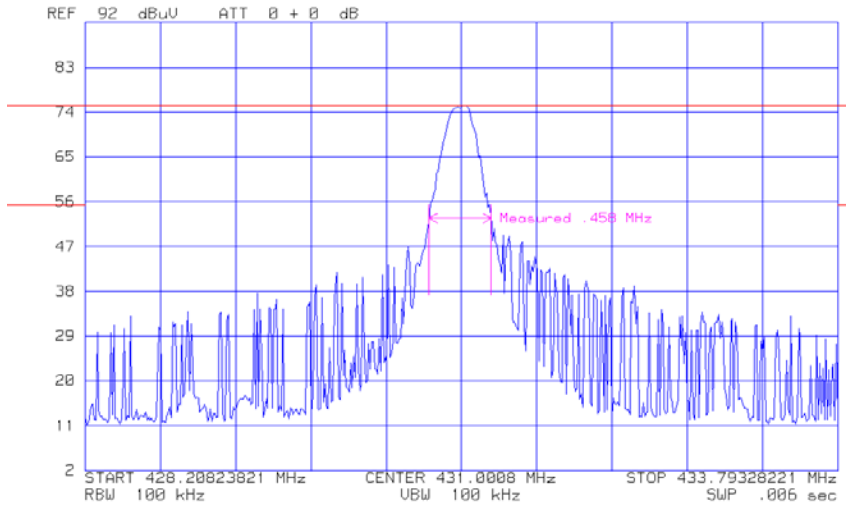
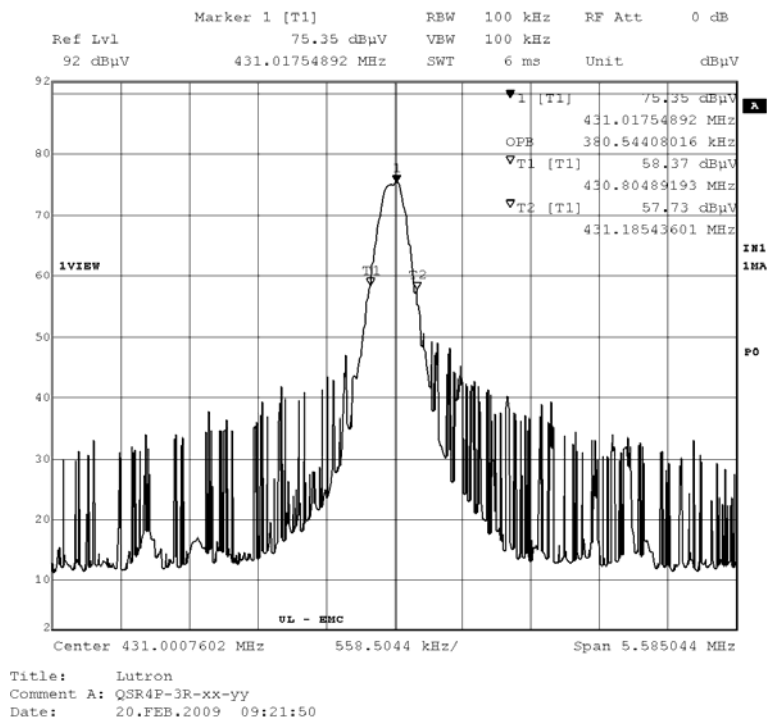


Figure 2 Occupied Bandwidth Graphs (431MHz)

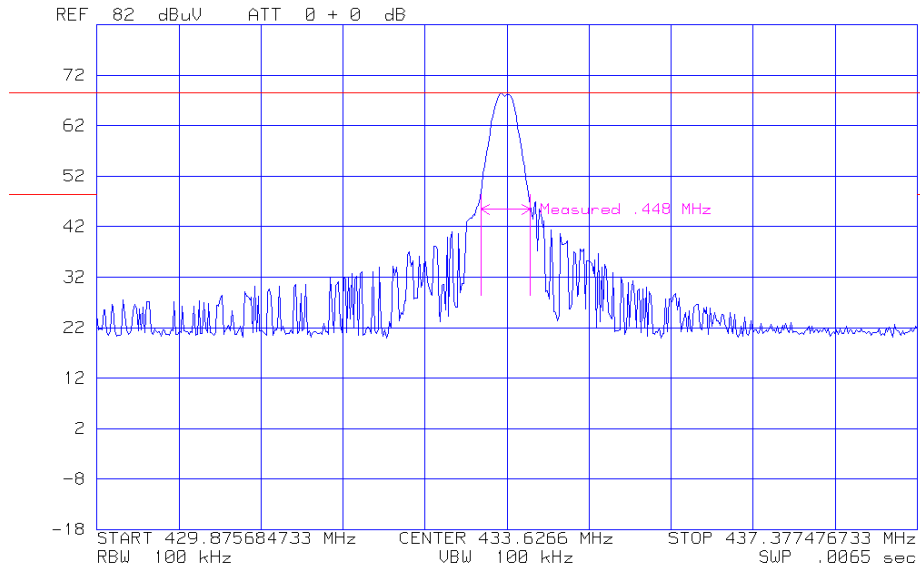


-20dB Bandwidth

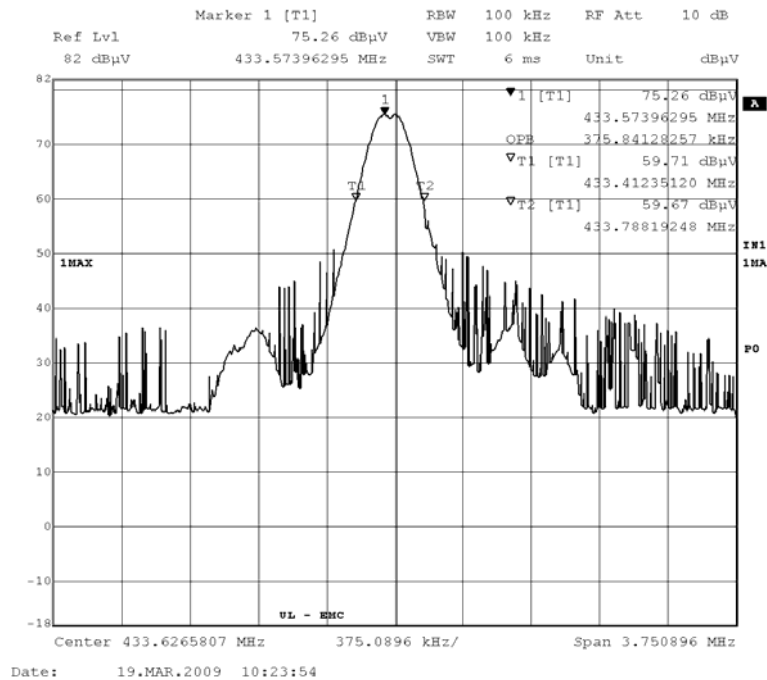


99% Bandwidth

Figure 3 Occupied Bandwidth Graphs (433MHz)

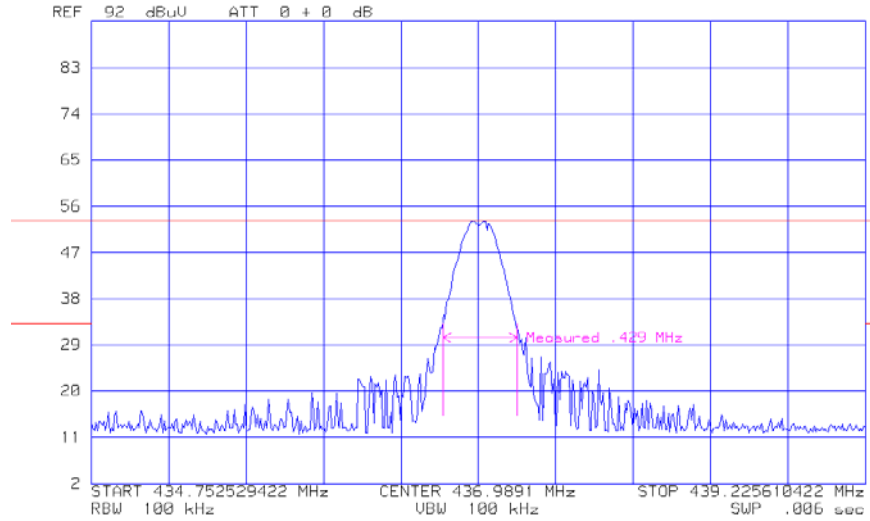


-20dB Bandwidth

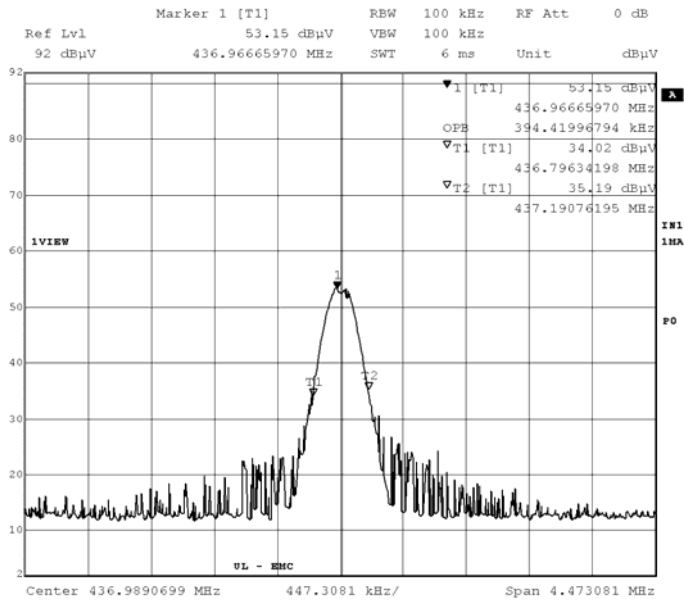


99% Bandwidth

Figure 4 Occupied Bandwidth Graphs (437MHz)



-20dB Bandwidth



99% Bandwidth

4.2 Test Conditions and Results – Cease Operation

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the transmission time measured with the spectrum analyzer set to zero span at the fundamental frequency.
Basic Standard	CFR 47, Part 15, Subpart C, Section 15.231; RSS-GEN; RSS-210
Cease Operation Limits	
The transmissions shall stop within 5 seconds of either a button being released or if automatically controlled transmissions shall be stopped 5 seconds after transmissions begin.	

Table 5 Cease Operation Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	4
Supplementary information: None		

Table 6 Cease Operation Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Dipole Antenna	EMCO	3121C	3359
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
Measurement Software	UL	Version 9.3	44740

Figure 5 Test Setup for Cease Operation

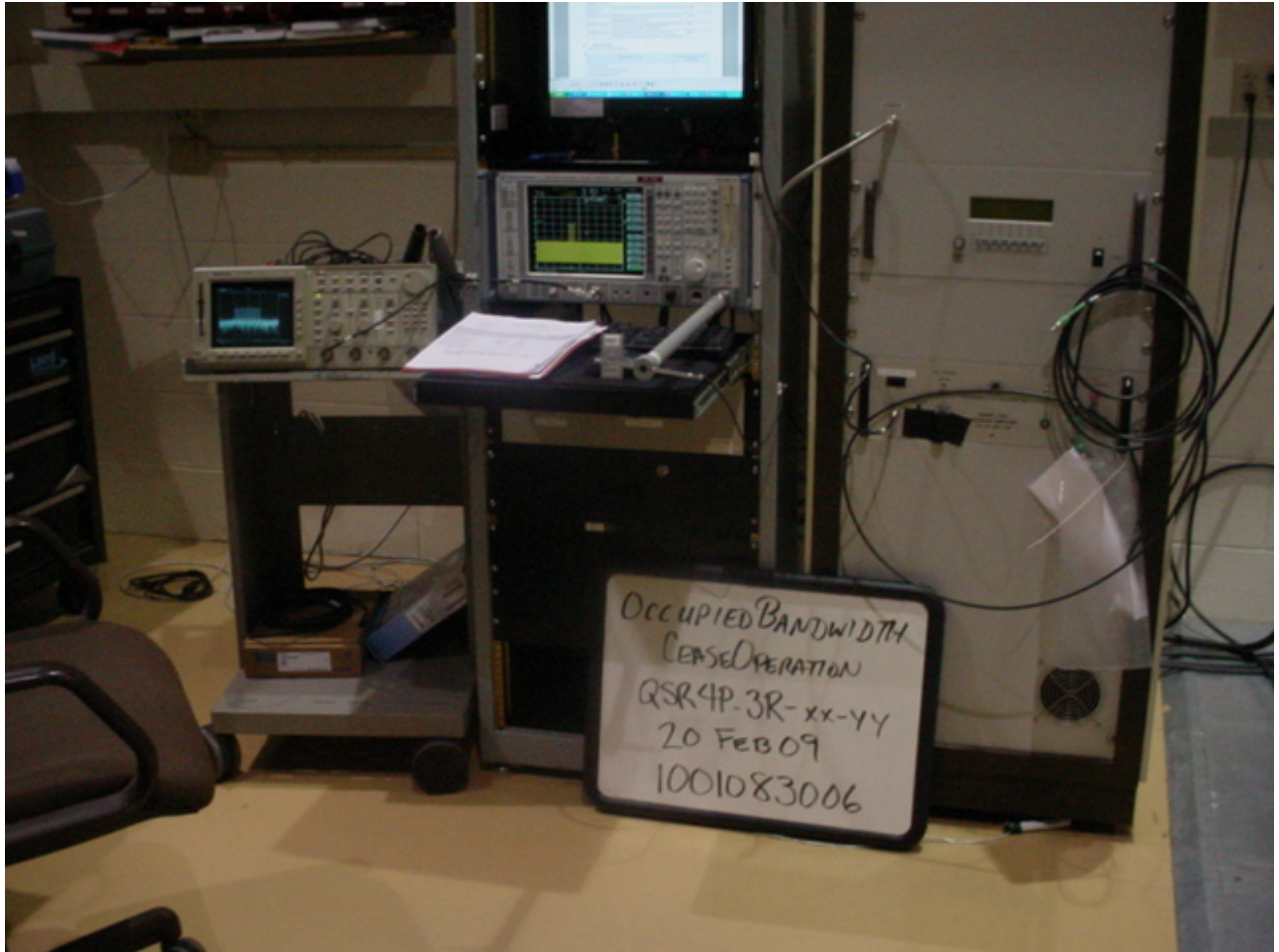
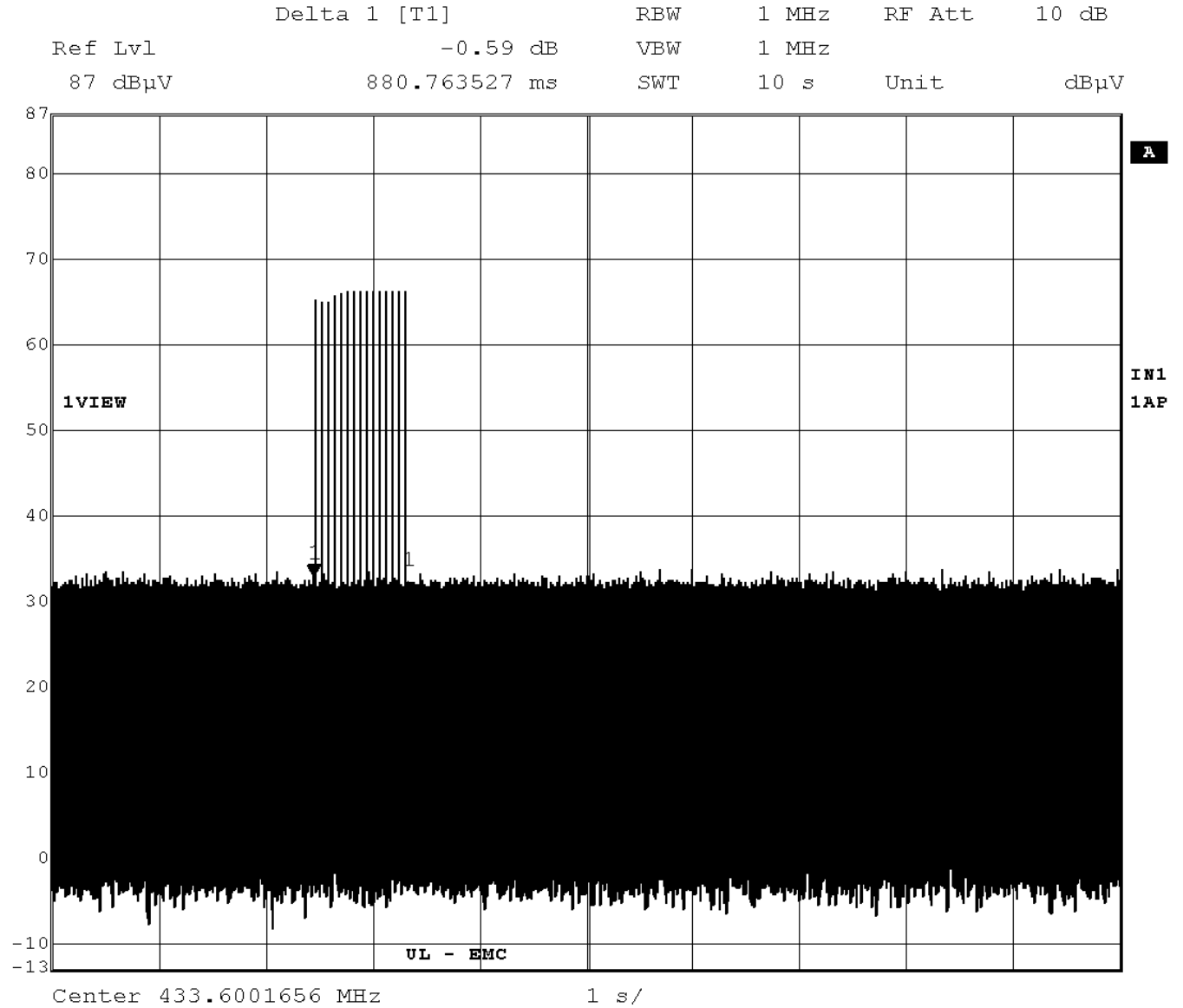


Figure 6 Cease Operation Graph



Title: Lutron
 Comment A: Cease Operation
 Date: 24.FEB.2009 08:28:22

4.3 Test Conditions and Results – Pulse Train

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The pulse train was measured with the spectrum analyzer set to zero span at the fundamental frequency.
Basic Standard	FCC Part 15 Subpart A, 15.35
Pulse Train Limits	
There are no limits for this test. This data is used to calculate the averaging correction factor that is applied to the measured peak radiated emissions results.	

Table 7 Pulse Train Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	4
Supplementary information: None		

Table 8 Pulse Train Calculation

Pulse Width (ms)	Total Transmission time or 100ms which ever is lesser	Average Correction Factor (dB)
10.4	100	$20 \log \left(\frac{PulseWidth}{TotalTransmissionTime} \right)$ -19.6

Table 9 Pulse Train Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Oscilloscope	Tektronix	TDS 680B	ME5A-258
Dipole Antenna	EMCO	3121C	3359
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
Measurement Software	UL	Version 9.3	44740

Figure 7 Test Setup for Pulse Train

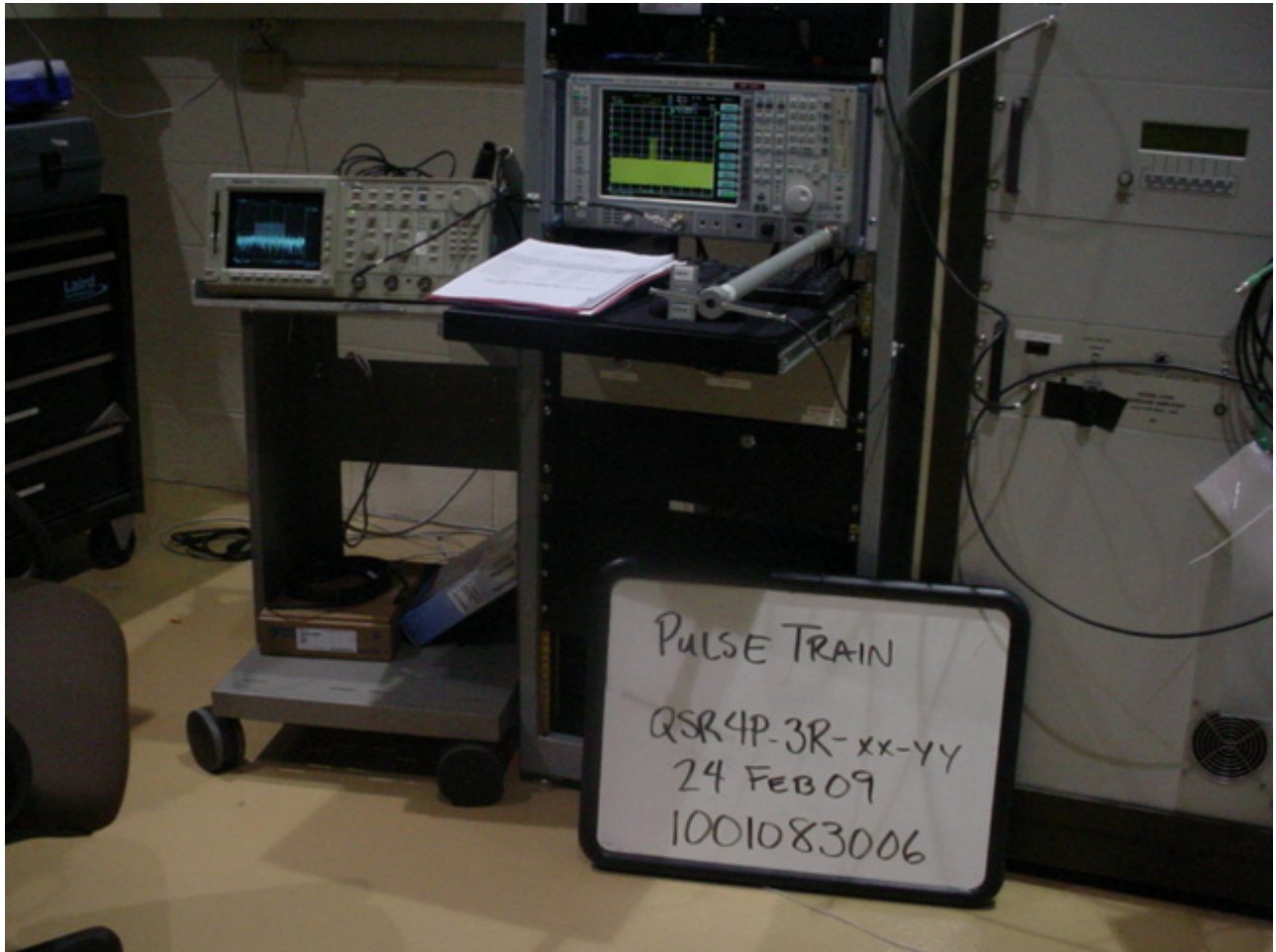
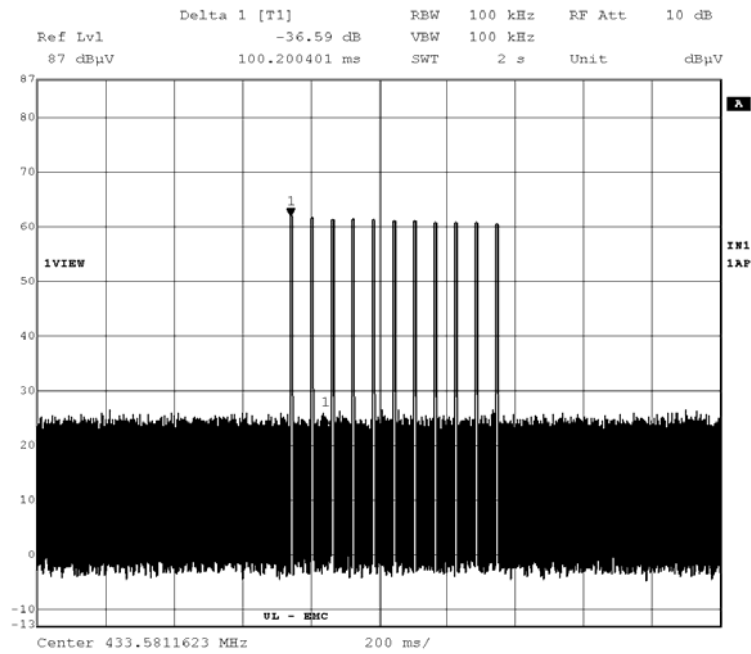
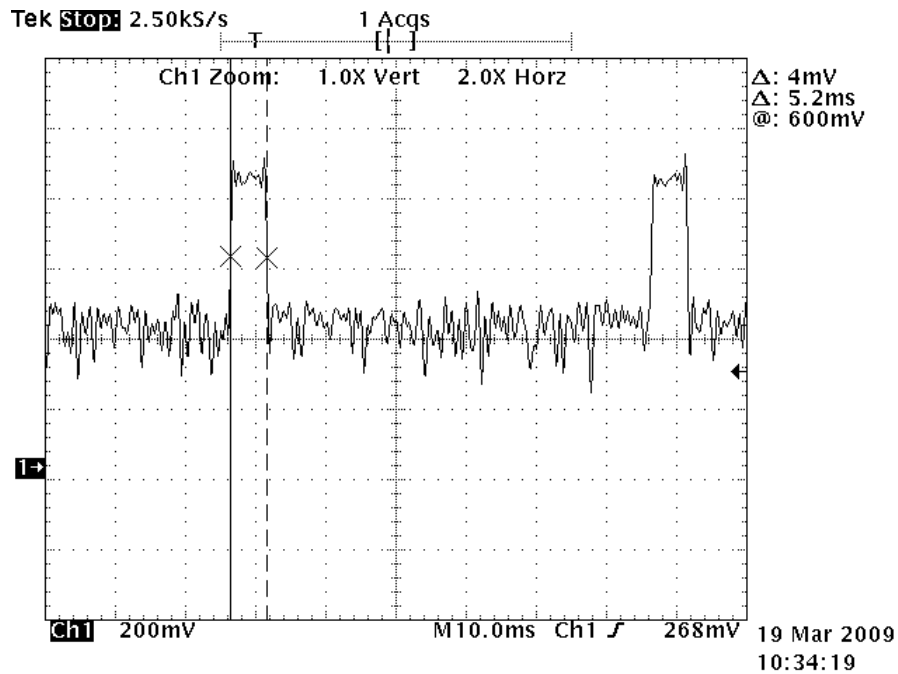


Figure 8 Pulse Train Graph



Complete Pulse Train, showing only 2 pulses of "On-Time" within a 100ms window



Single Pulse = 5.2 ms

Total Transmission Time in a 100ms window = (5.2ms)*(2) = 10.4ms

4.4 Test Conditions and Results – Radiated Emissions

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3-meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.		
Basic Standard	CFR 47, Part 15, Subpart C, Section 15.231; RSS-GEN; RSS-210		
UL LPG	80-EM-S0029		
	Frequency range	Measurement Point	
Fully configured sample scanned over the following frequency range	0.009MHz – 5GHz	(3 meter measurement distance)	
Limits			
Frequency (MHz)	Limit (dBµV/m)		
	Quasi-Peak	Average	
	General Emissions	Fundamental	Spurious
0.009 – 0.490	128.5 – 93.8	-	-
0.490 – 1.705	73.8 – 63	-	-
1.705 – 30	69.5	-	-
30 – 88	40	-	-
88 – 216	43.5	-	-
216-960	46	-	-
960-1000	54	-	-
1000-5000	-	-	54
431	-	80.73	-
433	-	80.79	-
437	-	80.92	-
All 431MHz Harmonics	-	-	60.73
All 433MHz Harmonics	-	-	60.79
All 437MHz Harmonics	-	-	60.92
Supplementary information: Spurious limits are only applied against products of the transmitter. All other emissions must meet the general limits. Testing below 30MHz performed at only one operating frequency since the fundamental does not operate in this range.			

Table 10 Radiated Emissions EUT Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1,2,3
Supplementary information: None		

Table 11 Radiated Emissions Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
9kHz-30MHz			
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Active Loop Antenna	EMCO	6507	ME5A-288
Switch Driver	HP	11713A	ME7A-627
System Controller	Sunol Sciences	SC99V	44396
Camera Controller	Panasonic	WV-CU254	44395
RF Switch Box	UL	1	44398
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
30-1000MHz			
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Bicon Antenna	Schaffner	VBA6106A	43441
Log-P Antenna	Schaffner	UPA6109	44067
Switch Driver	HP	11713A	ME7A-627
System Controller	Sunol Sciences	SC99V	44396
Camera Controller	Panasonic	WV-CU254	44395
RF Switch Box	UL	1	44398
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
Above 1GHz (Band Optimized System)			
Spectrum Analyzer	Agilent	E7405A	19695
Horn Antenna (1-2 GHz)	ETS	3161-01	51442
Horn Antenna (2-4 GHz)	ETS	3161-02	48107
Horn Antenna (4-8 GHz)	ETS	3161-03	48106
Signal Path Controller	HP	11713A	50250
Gain Controller	HP	11713A	50251
RF Switch / Preamp Fixture	UL	BOMS1	50249
System Controller	UL	BOMS2	50252
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268

Figure 9 Test setup for Radiated Emissions



Figure 10 Radiated Emissions Graph

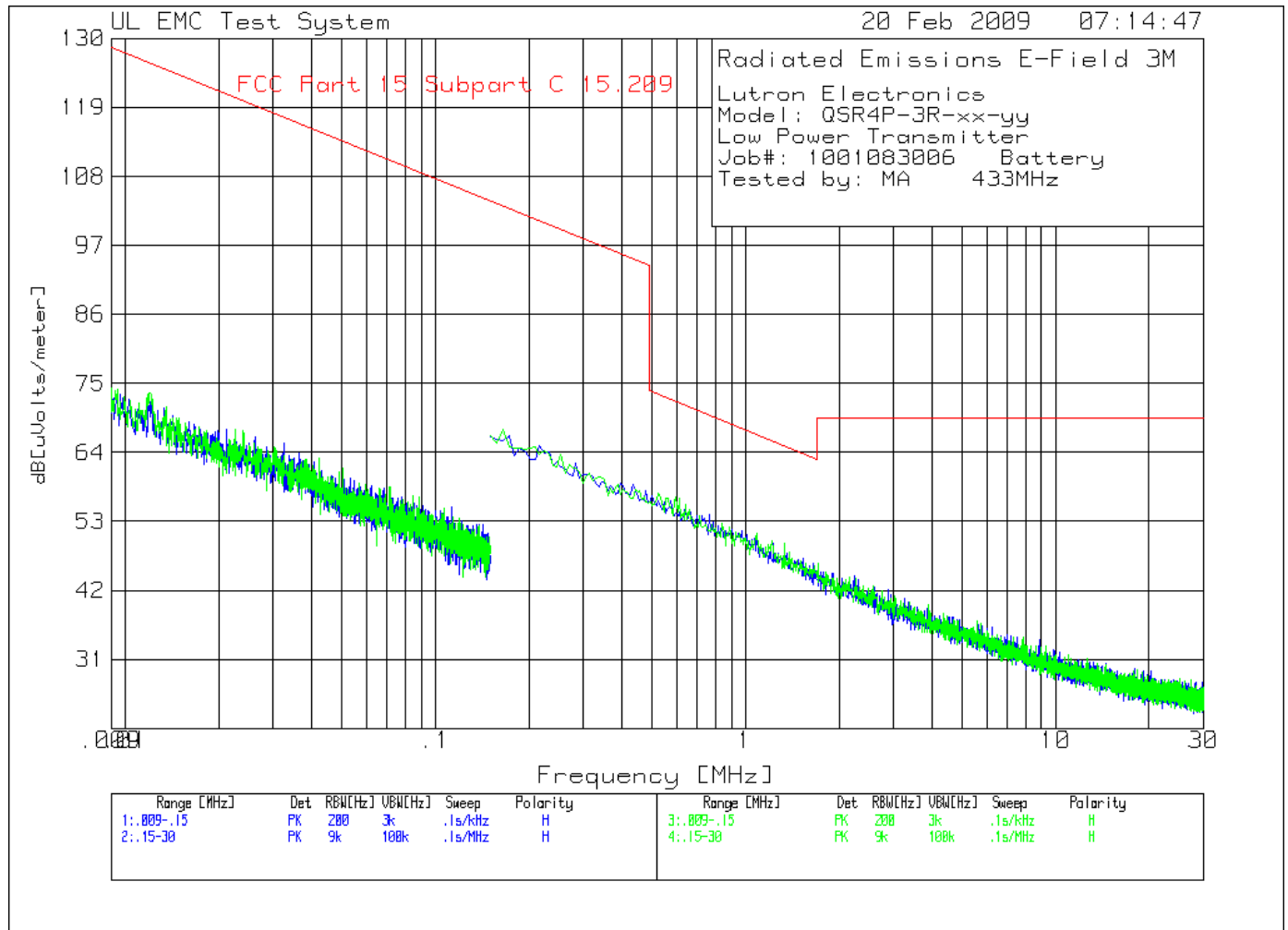


Table 12 Radiated Emissions Data Points

Lutron Electronics
 Model: QSR4P-3R-xx-yy
 Low Power Transmitter
 Job#: 1001083006 Battery
 Tested by: MA 433MHz

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Vertical .009 - .15MHz -----											
1	.01216	44.58 pk	.1	27.9	72.58	125.9	-	-	-	-	-
	Azimuth:6	Height:100	Horz	Margin [dB]		-53.32	-	-	-	-	-
2	.02621	44.27 pk	0	22.2	66.47	119.2	-	-	-	-	-
	Azimuth:209	Height:100	Horz	Margin [dB]		-52.73	-	-	-	-	-
Vertical .15 - 30MHz -----											
3	.17239	50.88 pk	0	15.7	66.58	102.9	-	-	-	-	-
	Azimuth:174	Height:100	Horz	Margin [dB]		-36.32	-	-	-	-	-
4	.64265	39.4 pk	0	15.5	54.9	71.4	-	-	-	-	-
	Azimuth:6	Height:100	Horz	Margin [dB]		-16.5	-	-	-	-	-
5	6.25585	20.15 pk	.2	15.7	36.05	69.5	-	-	-	-	-
	Azimuth:6	Height:100	Horz	Margin [dB]		-33.45	-	-	-	-	-
6	8.85345	18.26 pk	.2	15.7	34.16	69.5	-	-	-	-	-
	Azimuth:303	Height:100	Horz	Margin [dB]		-35.34	-	-	-	-	-
7	20.32618	13.21 pk	.3	15.6	29.11	69.5	-	-	-	-	-
	Azimuth:145	Height:100	Horz	Margin [dB]		-40.39	-	-	-	-	-
Horizontal .009 - .15MHz -----											
8	.00906	43.18 pk	.8	30.2	74.18	128.4	-	-	-	-	-
	Azimuth:159	Height:100	Horz	Margin [dB]		-54.22	-	-	-	-	-
9	.01199	45.22 pk	.2	28	73.42	126	-	-	-	-	-
	Azimuth:84	Height:100	Horz	Margin [dB]		-52.58	-	-	-	-	-
10	.02407	44.81 pk	0	22.6	67.41	120	-	-	-	-	-
	Azimuth:309	Height:100	Horz	Margin [dB]		-52.59	-	-	-	-	-
Horizontal .15 - 30MHz -----											
11	.16493	51.98 pk	0	15.7	67.68	103.3	-	-	-	-	-
	Azimuth:322	Height:100	Horz	Margin [dB]		-35.62	-	-	-	-	-
12	1.2174	34.25 pk	.1	15.5	49.85	65.9	-	-	-	-	-
	Azimuth:48	Height:100	Horz	Margin [dB]		-16.05	-	-	-	-	-
13	5.58406	21.22 pk	.1	15.7	37.02	69.5	-	-	-	-	-
	Azimuth:342	Height:100	Horz	Margin [dB]		-32.48	-	-	-	-	-
14	20.99051	11.6 pk	.3	15.6	27.5	69.5	-	-	-	-	-
	Azimuth:5	Height:100	Horz	Margin [dB]		-42	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: NONE
 LIMIT 3: NONE
 LIMIT 4: NONE
 LIMIT 5: NONE
 LIMIT 6: NONE

Figure 11 Test setup for Radiated Emissions

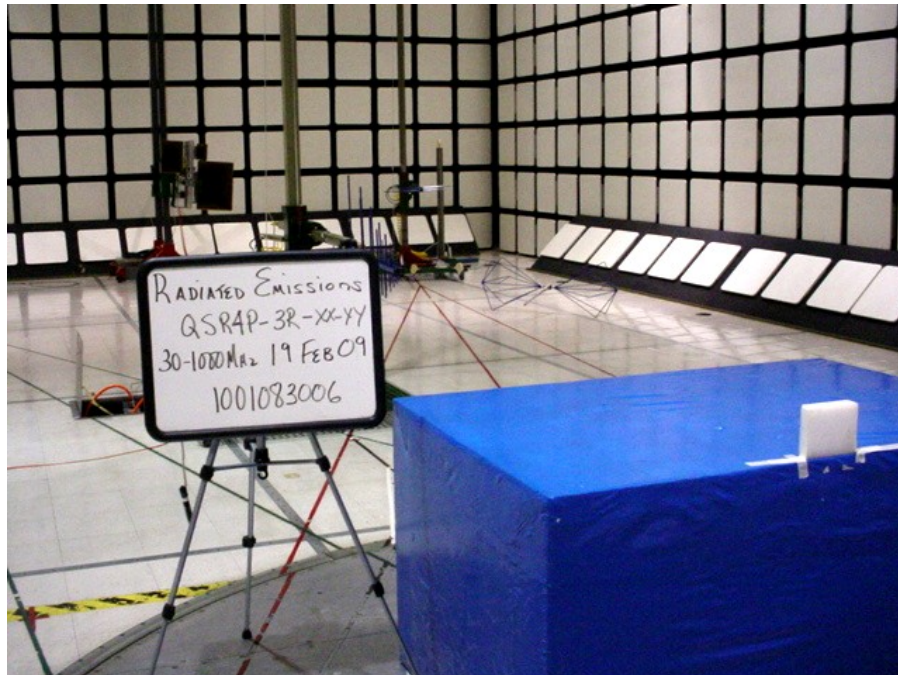
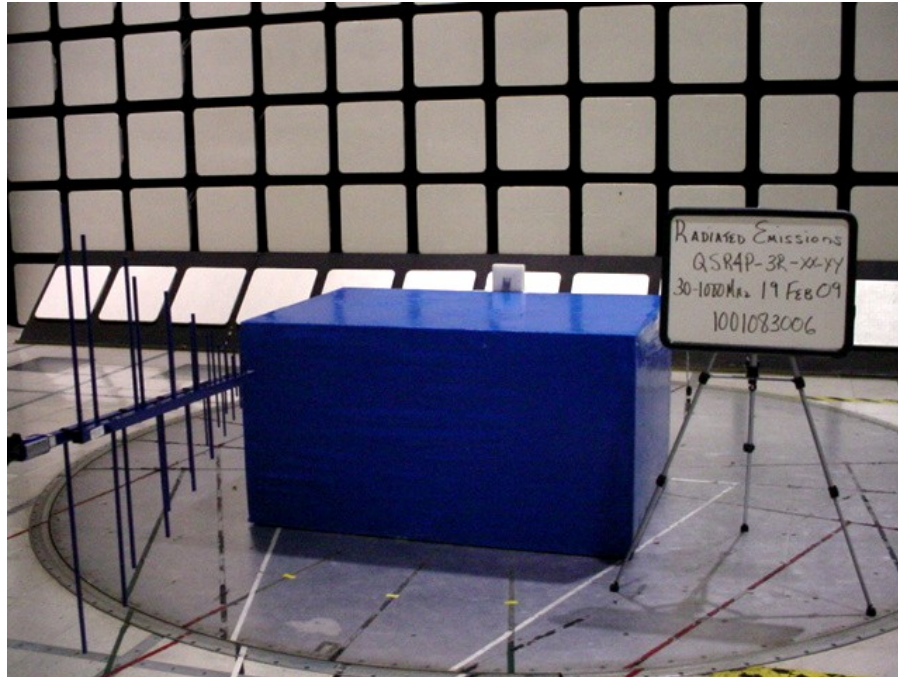


Figure 12 Radiated Emissions Graph

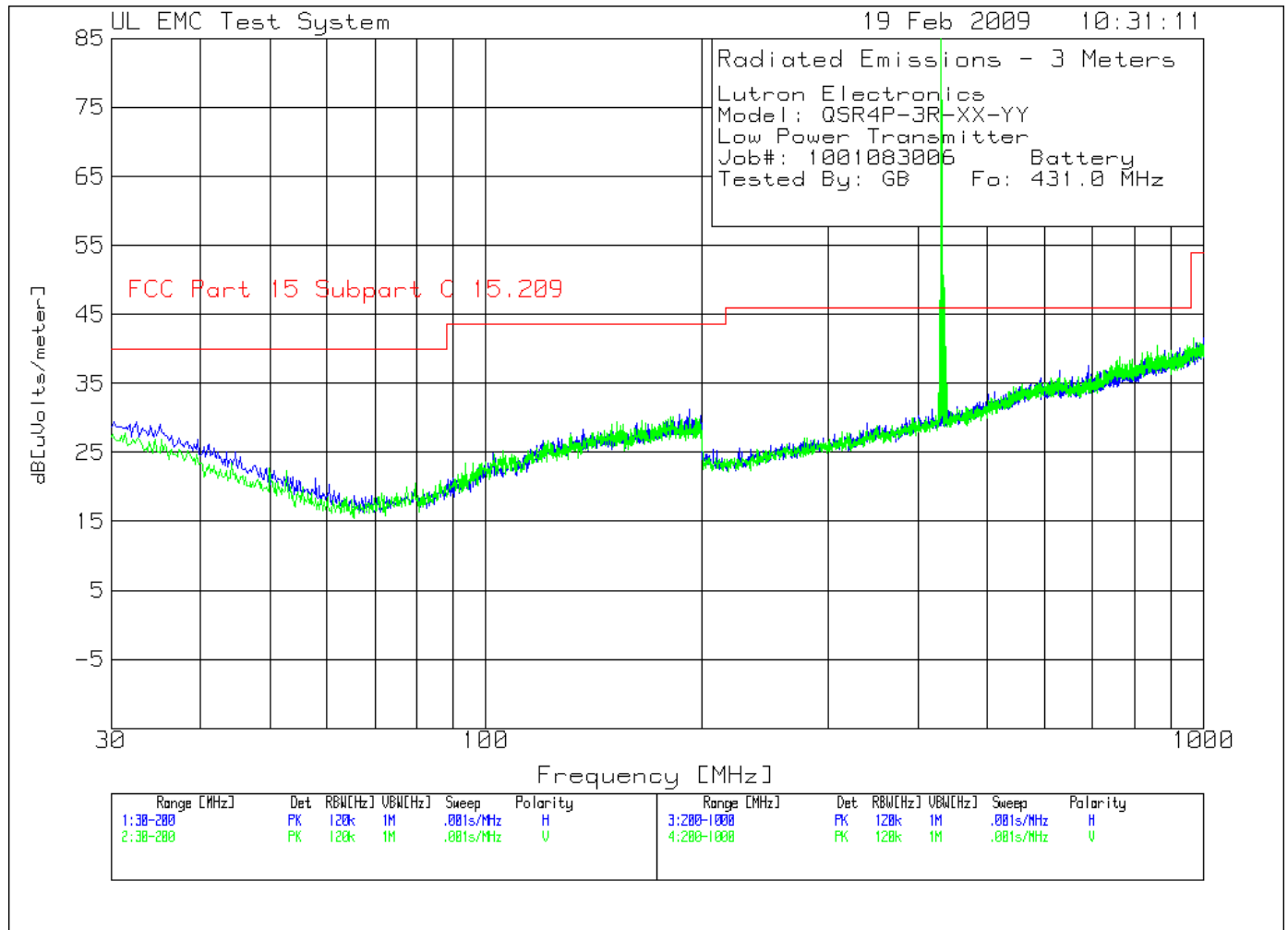


Table 13 Radiated Emissions Data Points

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job#: 1001083006 Battery
 Tested By: GB Fo: 431.0 MHz

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6

Horizontal 200 - 1000MHz -----											
1	429.7149	29.72 pk	1.3	16.6	47.62	46	-	-	-	-	-
	Azimuth:75	Height:149	Horz	Margin [dB]	1.62	46	-	-	-	-	-
2	430.9155	55.22 pk	1.3	16.6	73.12	46	-	-	-	-	-
	Azimuth:18	Height:199	Horz	Margin [dB]	27.12	46	-	-	-	-	-

Vertical 200 - 1000MHz -----											
3	428.9145	29.5 pk	1.3	16.3	47.1	46	-	-	-	-	-
	Azimuth:75	Height:98	Vert	Margin [dB]	1.1	46	-	-	-	-	-
4	430.9155	71.94 pk	1.3	16.3	89.54	46	-	-	-	-	-
	Azimuth:156	Height:149	Vert	Margin [dB]	43.54	46	-	-	-	-	-
5	432.9165	32.9 pk	1.3	16.4	50.6	46	-	-	-	-	-
	Azimuth:156	Height:149	Vert	Margin [dB]	4.6	46	-	-	-	-	-
6	434.9175	31.19 pk	1.3	16.4	48.89	46	-	-	-	-	-
	Azimuth:75	Height:149	Vert	Margin [dB]	2.89	46	-	-	-	-	-
7	437.7189	22.58 pk	1.3	16.5	40.38	46	-	-	-	-	-
	Azimuth:358	Height:149	Vert	Margin [dB]	-5.62	46	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: NONE
 LIMIT 3: NONE
 LIMIT 4: NONE
 LIMIT 5: NONE
 LIMIT 6: NONE

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - denotes average log detection

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job#: 1001083006 Battery
 Tested By: GB Fo: 431.0 MHz

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Correction Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4
Horizontal 200 - 1000MHz									
431	67.62 pk*	1.3	16.6	-19.6	65.92	-	80.73	-	-
Azimuth: 344		Height:168	Horz Margin [dB]:			-	-14.81	-	-
429.7	16.48 qp	1.3	16.6		34.38	46	-	-	-
Azimuth: 183		Height:233	Horz Margin [dB]:			-11.62	-	-	-
Vertical 200 - 1000MHz									
430.9394	74.21 pk*	1.3	16.3	-19.6	72.21	-	80.73	-	-
Azimuth: 279		Height:130	Vert Margin [dB]:			-	-8.52	-	-
434.15	26.98 qp	1.3	16.4		44.68	46	-	-	-
Azimuth: 78		Height:104	Vert Margin [dB]:			-1.32	-	-	-
432.9	27.17 qp	1.3	16.4		44.87	46	-	-	-
Azimuth: 119		Height:139	Vert Margin [dB]:			-1.13	-	-	-
428.9	27.11 qp	1.3	16.3		44.71	46	-	-	-
Azimuth: 72		Height:123	Vert Margin [dB]:			-1.29	-	-	-
437.7	27.04 qp	1.3	16.5		44.84	46	-	-	-
Azimuth: 148		Height:112	Vert Margin [dB]:			-1.16	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: FCC Part 15 Subpart C 15.231 (Fundamental)
 LIMIT 3: NONE
 LIMIT 4: NONE

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - Average log detector
 ave - Average detector

NOTE: Correction factor applied only to the fundamental.

* - Represents maximized peak measurement.

Figure 13 Radiated Emissions Graph

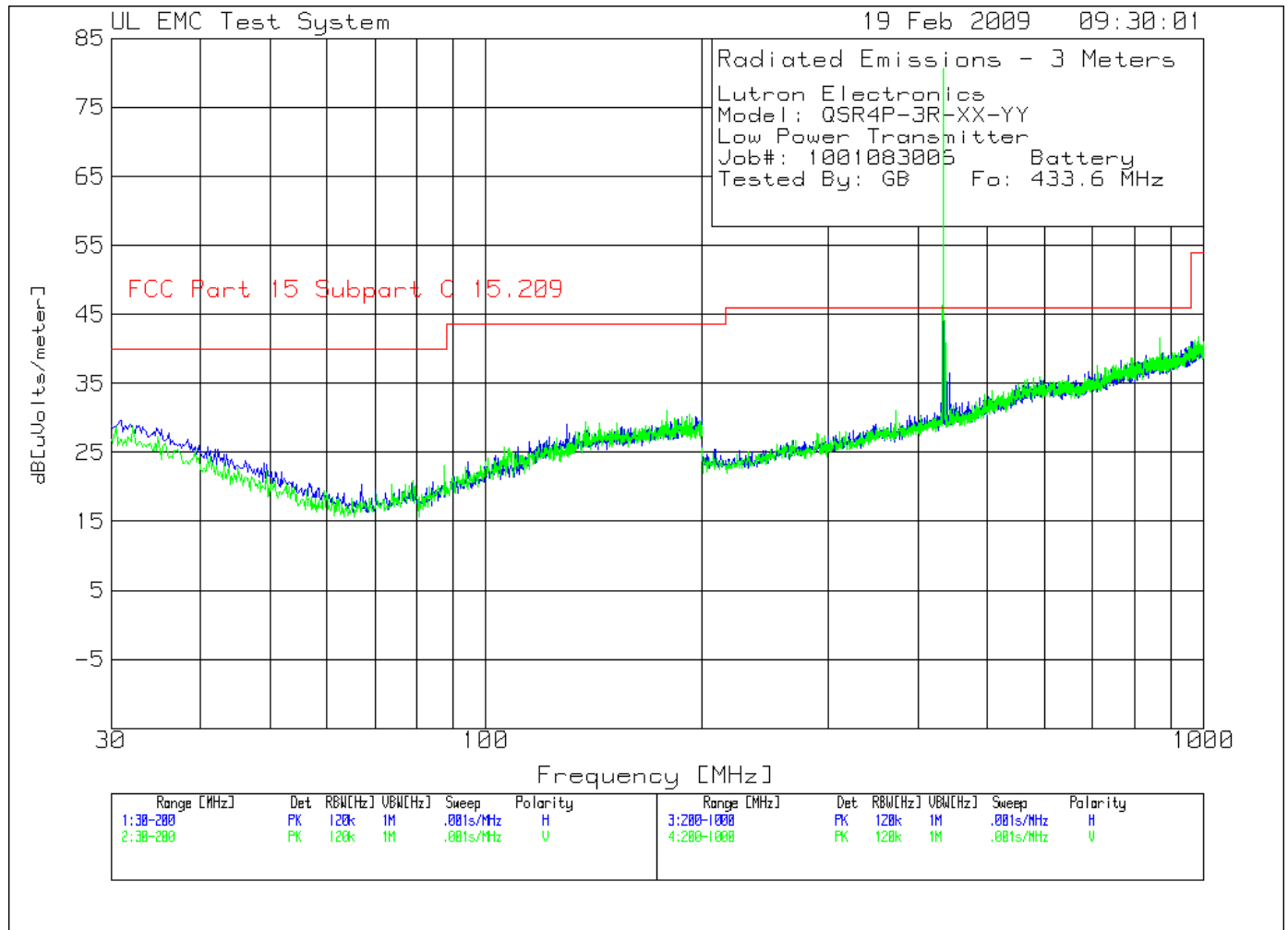


Table 14 Radiated Emissions Data Points

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job#: 1001083006 Battery
 Tested By: GB Fo: 433.6 MHz

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Horizontal 200 - 1000MHz -----											
1	433.3167	45.93 pk	1.3	16.7	63.93	46	-	-	-	-	-
	Azimuth:245	Height:99	Horz	Margin [dB]	17.93	46	-	-	-	-	-
2	438.1191	17.11 pk	1.3	16.9	35.31	46	-	-	-	-	-
	Azimuth:343	Height:201	Horz	Margin [dB]	-10.69	46	-	-	-	-	-
3	442.9215	18.17 pk	1.3	17.1	36.57	46	-	-	-	-	-
	Azimuth:326	Height:201	Horz	Margin [dB]	-9.43	46	-	-	-	-	-
Vertical 200 - 1000MHz -----											
4	433.7169	62.86 pk	1.3	16.4	80.56	46	-	-	-	-	-
	Azimuth:204	Height:201	Vert	Margin [dB]	34.56	46	-	-	-	-	-
5	435.3177	12.04 pk	1.3	16.4	29.74	46	-	-	-	-	-
	Azimuth:245	Height:201	Vert	Margin [dB]	-16.26	46	-	-	-	-	-
6	436.5183	23.11 pk	1.3	16.4	40.81	46	-	-	-	-	-
	Azimuth:82	Height:201	Vert	Margin [dB]	-5.19	46	-	-	-	-	-
7	867.5338	16.7 pk	1.7	23.2	41.6	46	-	-	-	-	-
	Azimuth:128	Height:151	Vert	Margin [dB]	-4.4	46	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: NONE
 LIMIT 3: NONE
 LIMIT 4: NONE
 LIMIT 5: NONE
 LIMIT 6: NONE

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - denotes average log detection

Job Number: 1001083006 File Number: MC15896 Page 33 of 52
 Model Number: QSR4P-3R-XX-YYY FCC ID: JPZ0060
 Client Name: LUTRON ELECTRONICS INC IC ID: 2851A-JPZ0060

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter

Job#: 1001083006 Battery
 Tested By: GB Fo: 433.6 MHz

Test	Meter	Gain/Loss	Transducer	Correction	Level	Limit:1	2	3	4
Frequency	Reading	Factor	Factor	Factor	dB[uVolts/meter]				
[MHz]	[dB(uV)]	[dB]	[dB]	[dB]					
=====									
Horizontal 200 - 1000MHz									
433.5812	56.6 pk*	1.3	16.7	-19.6	55.0	-	80.79	-	-
Azimuth: 310 Height:167 Horz					Margin [dB]: - -25.79 - -				
Vertical 200 - 1000MHz									
433.5812	67.46 pk*	1.3	16.4	-19.6	65.56	-	80.79	-	-
Azimuth: 89 Height:144 Vert					Margin [dB]: - -15.23 - -				
436.5	16.48 qp	1.3	16.4		34.18	46	-	-	-
Azimuth: 61 Height:127 Vert					Margin [dB]: -11.82 - - -				
867.5	18.59 qp	1.7	23.2		43.49	46	-	-	-
Azimuth: 8 Height:100 Vert					Margin [dB]: -2.51 - - -				

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: FCC Part 15 Subpart C 15.231 (Fundamental)
 LIMIT 3: NONE
 LIMIT 4: NONE

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - Average log detector
 ave - Average detector

NOTE: Correction factor applied only to the fundamental.

* - Represents maximized peak measurement.

Figure 14 Radiated Emissions Graph

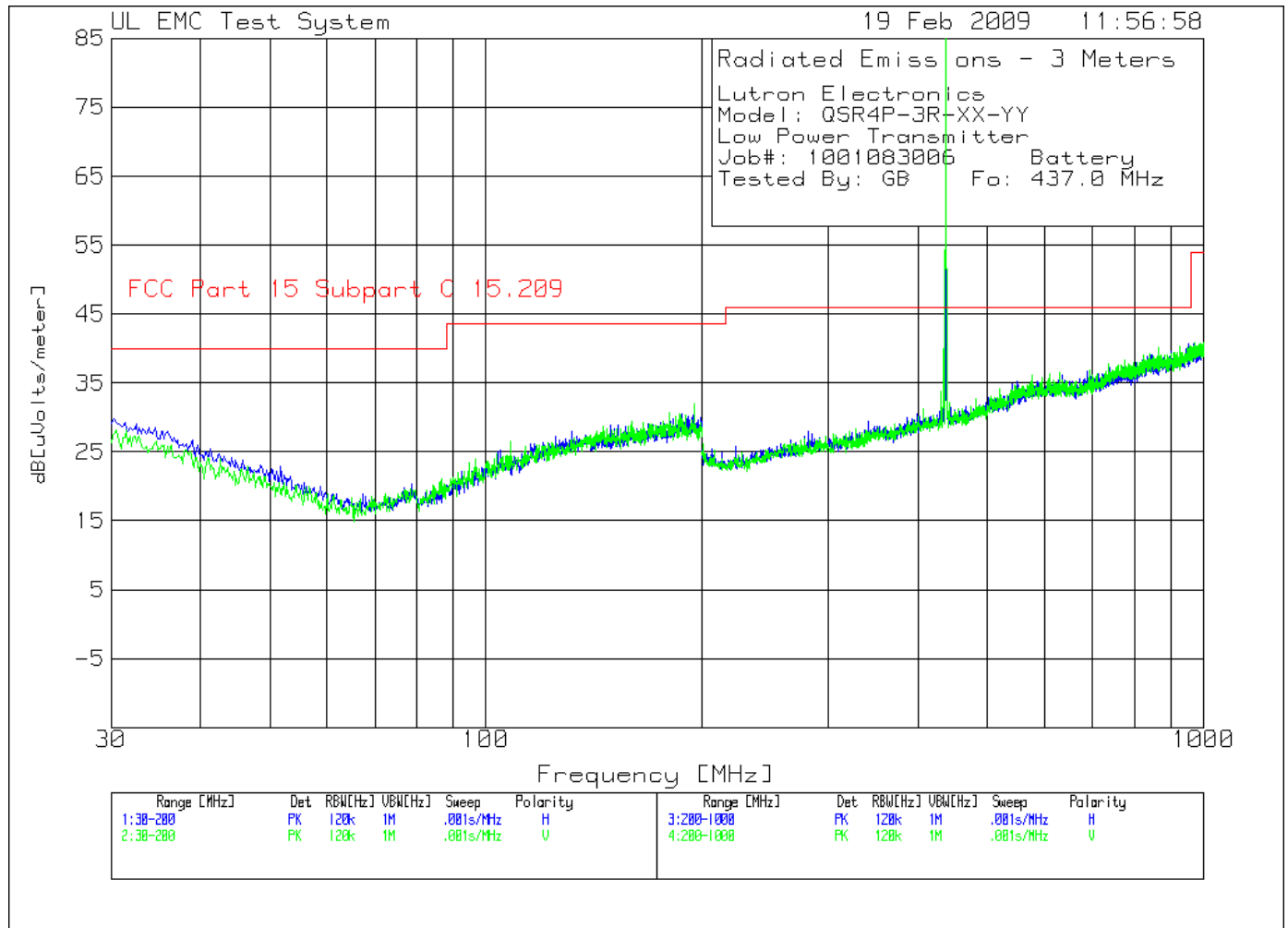


Table 15 Radiated Emissions Data Points

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job#: 1001083006 Battery
 Tested By: GB Fo: 437.0 MHz

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
Horizontal 200 - 1000MHz -----										
1	436.9185	64.69 pk	1.3	16.9	82.89	46	-	-	-	-
	Azimuth:123	Height:149	Horz	Margin [dB]	36.89	-	-	-	-	-
2	434.1171	19.38 pk	1.3	16.8	37.48	46	-	-	-	-
	Azimuth:245	Height:149	Horz	Margin [dB]	-8.52	-	-	-	-	-
3	438.5193	18.28 pk	1.3	16.9	36.48	46	-	-	-	-
	Azimuth:18	Height:98	Horz	Margin [dB]	-9.52	-	-	-	-	-
Vertical 200 - 1000MHz -----										
4	436.9185	69.66 pk	1.3	16.4	87.36	46	-	-	-	-
	Azimuth:82	Height:149	Vert	Margin [dB]	41.36	-	-	-	-	-
5	434.1171	22.28 pk	1.3	16.4	39.98	46	-	-	-	-
	Azimuth:122	Height:98	Vert	Margin [dB]	-6.02	-	-	-	-	-
6	435.3177	28.75 pk	1.3	16.4	46.45	46	-	-	-	-
	Azimuth:122	Height:149	Vert	Margin [dB]	.45	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: NONE
 LIMIT 3: NONE
 LIMIT 4: NONE
 LIMIT 5: NONE
 LIMIT 6: NONE

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - denotes average log detection

Job Number: 1001083006 File Number: MC15896 Page 36 of 52
 Model Number: QSR4P-3R-XX-YYY FCC ID: JPZ0060
 Client Name: LUTRON ELECTRONICS INC IC ID: 2851A-JPZ0060

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job#: 1001083006 Battery
 Tested By: GB Fo: 437.0 MHz

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Correction Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4
Horizontal 200 - 1000MHz									
436.9556	65.4 pk*	1.3	16.9	-19.6	64.0	-	80.92	-	-
Azimuth: 360 Height:174 Horz Margin [dB]:						-	-16.92	-	-
Vertical 200 - 1000MHz									
436.9532	72.73 pk*	1.3	16.4	-19.6	70.83	-	80.92	-	-
Azimuth: 281 Height:126 Vert Margin [dB]:						-	-10.09	-	-
434.1	27.11 qp	1.3	16.4		44.81	46	-	-	-
Azimuth: 281 Height:128 Vert Margin [dB]:						-1.19	-	-	-
435.3	27.11 qp	1.3	16.4		44.81	46	-	-	-
Azimuth: 64 Height:132 Vert Margin [dB]:						-1.19	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: FCC Part 15 Subpart C 15.231 (Fundamental)
 LIMIT 3: NONE
 LIMIT 4: NONE

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector
 avlg - Average log detector
 ave - Average detector

NOTE: Correction factor applied only to the fundamental.

* - Represents maximized peak measurement.

Figure 15 Test setup for Radiated Emissions

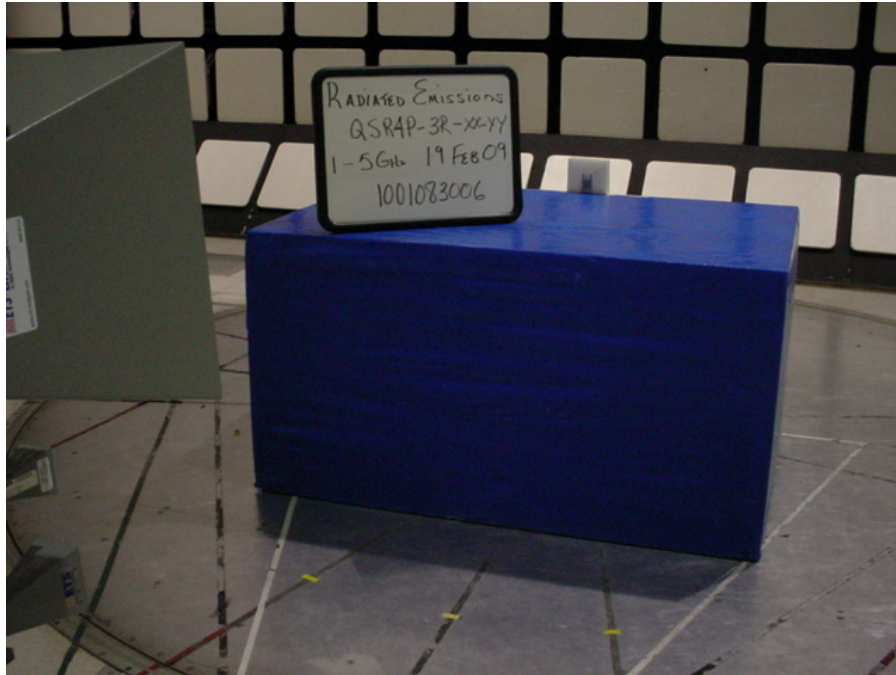


Figure 16 Radiated Emissions Graph

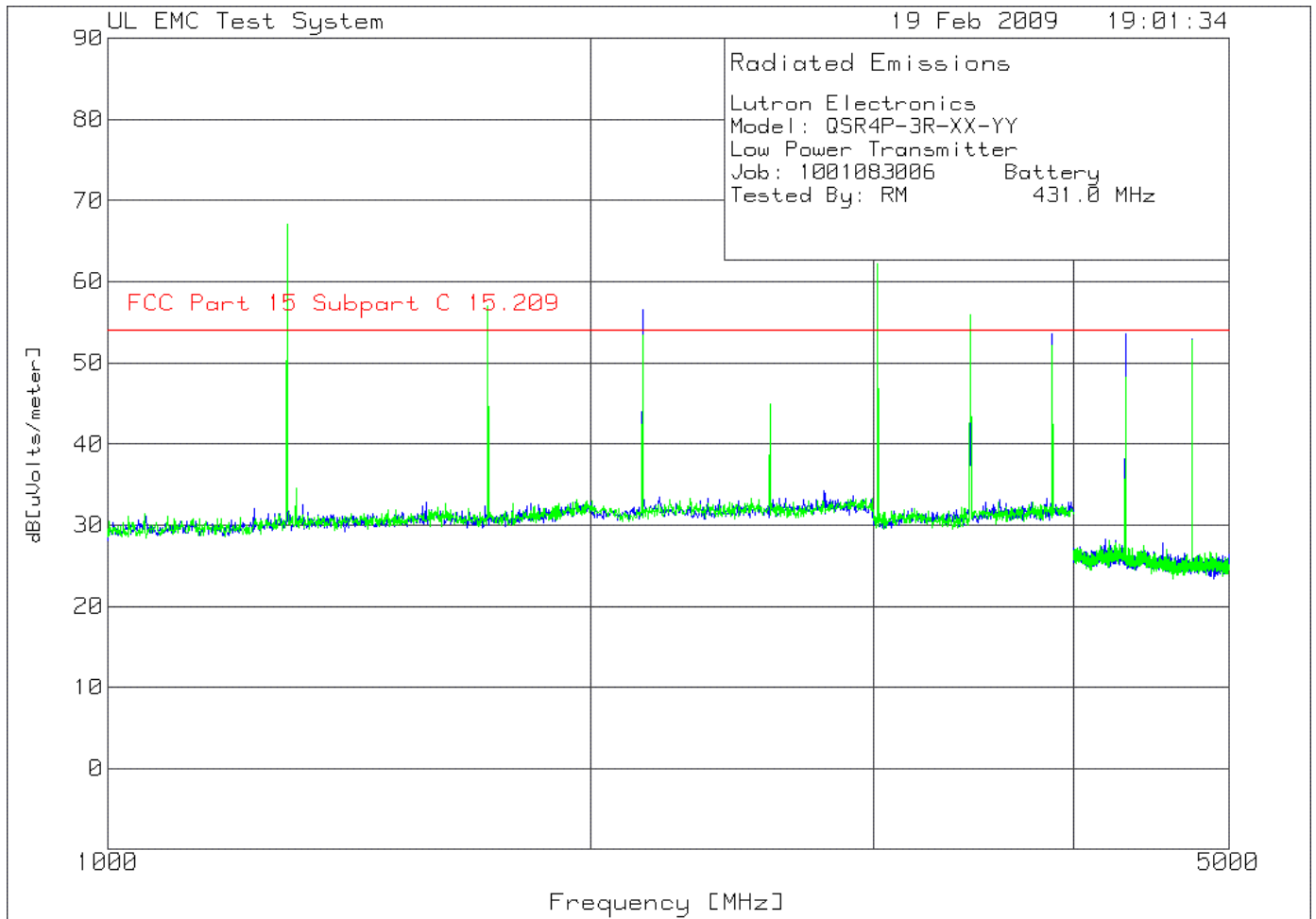


Table 16 Radiated Emissions Data Points

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job: 1001083006 Battery
 Tested By: RM 431.0 MHz

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6

1 -	2GHz 1000 -	2000MHz	-----								
1	1293.383	81.11 pk	-45.59	20.5	56.02	54	-	-	-	-	-
		Height:149	Horz	Margin [dB]		2.02	-	-	-	-	-
2	1725.343	66.48 pk	-45.07	20.8	42.21	54	-	-	-	-	-
		Height:149	Horz	Margin [dB]		-11.79	-	-	-	-	-

2 -	4GHz 2000 -	4000MHz	-----								
3	2154.806	79.04 pk	-43.92	21.4	56.52	54	-	-	-	-	-
		Height:101	Horz	Margin [dB]		2.52	-	-	-	-	-
4	2586.767	60.57 pk	-43.55	21.3	38.32	54	-	-	-	-	-
		Height:101	Horz	Margin [dB]		-15.68	-	-	-	-	-
5	3018.727	79.92 pk	-42.88	21.5	58.54	54	-	-	-	-	-
		Height:199	Horz	Margin [dB]		4.54	-	-	-	-	-
6	3450.687	64.54 pk	-42.81	22.2	43.93	54	-	-	-	-	-
		Height:199	Horz	Margin [dB]		-10.07	-	-	-	-	-
7	3880.15	73.92 pk	-42.9	22.6	53.62	54	-	-	-	-	-
		Height:199	Horz	Margin [dB]		-.38	-	-	-	-	-

4 -	8GHz 4000 -	5000MHz	-----								
8	4309.484	79.22 pk	-53.3	27.7	53.62	54	-	-	-	-	-
		Height:149	Horz	Margin [dB]		-.38	-	-	-	-	-
9	4741.265	80.27 pk	-54.49	27.2	52.98	54	-	-	-	-	-
		Height:149	Horz	Margin [dB]		-1.02	-	-	-	-	-

1 -	2GHz 1000 -	2000MHz	-----								
10	1293.383	92.1 pk	-45.59	20.5	67.01	54	-	-	-	-	-
		Height:149	Vert	Margin [dB]		13.01	-	-	-	-	-
11	1725.343	81.27 pk	-45.07	20.8	57	54	-	-	-	-	-
		Height:101	Vert	Margin [dB]		3	-	-	-	-	-

2 -	4GHz 2000 -	4000MHz	-----								
12	2154.806	76.35 pk	-43.92	21	53.43	54	-	-	-	-	-
		Height:101	Vert	Margin [dB]		-.57	-	-	-	-	-
13	2586.767	66.9 pk	-43.55	21.5	44.85	54	-	-	-	-	-
		Height:149	Vert	Margin [dB]		-9.15	-	-	-	-	-
14	3018.727	83.42 pk	-42.88	21.7	62.24	54	-	-	-	-	-
		Height:149	Vert	Margin [dB]		8.24	-	-	-	-	-
15	3450.687	76.49 pk	-42.81	22.2	55.88	54	-	-	-	-	-
		Height:149	Vert	Margin [dB]		1.88	-	-	-	-	-
16	3880.15	72.42 pk	-42.9	22.6	52.12	54	-	-	-	-	-
		Height:199	Vert	Margin [dB]		-1.88	-	-	-	-	-

4 -	8GHz 4000 -	5000MHz	-----								
17	4309.484	73.8 pk	-53.3	27.8	48.3	54	-	-	-	-	-
		Height:199	Vert	Margin [dB]		-5.7	-	-	-	-	-
18	4742.097	80.19 pk	-54.47	27.1	52.82	54	-	-	-	-	-
		Height:101	Vert	Margin [dB]		-1.18	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: NONE
 LIMIT 3: NONE

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job: 1001083006 Battery
 Tested By: RM 431.0 MHz

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4	5	6
Frequency	Reading	Factor	Factor	dB[uVolts/meter]						
[MHz]	[dB(uV)]	[dB]	[dB]							
=====										
1 - 2GHz	1000 - 2000MHz									
1292.908	79.82 pk	-45.6	20.5	54.72	54	60.73	-	-	-	-
Azimuth: 126	Height:159	Horz		Margin [dB]:	.72	-6.01	-	-	-	-
1723.843	65.05 pk	-45.14	20.8	40.71	54	60.73	-	-	-	-
Azimuth: 118	Height:240	Horz		Margin [dB]:	-13.29	-20.02	-	-	-	-
=====										
2 - 4GHz	2000 - 4000MHz									
2154.831	81.65 pk	-43.92	21.4	59.13	54	60.73	-	-	-	-
Azimuth: 315	Height:238	Horz		Margin [dB]:	5.13	-1.6	-	-	-	-
2585.7545	64.47 pk	-43.55	21.3	42.22	54	60.73	-	-	-	-
Azimuth: 183	Height:228	Horz		Margin [dB]:	-11.78	-18.51	-	-	-	-
3016.752	80.78 pk	-42.91	21.5	59.37	54	60.73	-	-	-	-
Azimuth: 353	Height:208	Horz		Margin [dB]:	5.37	-1.36	-	-	-	-
3448.212	68.81 pk	-42.83	22.1	48.08	54	60.73	-	-	-	-
Azimuth: 210	Height:245	Horz		Margin [dB]:	-5.92	-12.65	-	-	-	-
3879.2625	73.89 pk	-42.91	22.6	53.58	54	60.73	-	-	-	-
Azimuth: 4	Height:156	Horz		Margin [dB]:	-.42	-7.15	-	-	-	-
=====										
4 - 8GHz	4000 - 5000MHz									
4309.6215	80.59 pk	-53.31	27.7	35.38*	54	60.73	-	-	-	-
Azimuth: 184	Height:192	Horz		Margin [dB]:	-18.62	-25.35	-	-	-	-
4740.6025	82.04 pk	-54.5	27.2	35.14*	54	60.73	-	-	-	-
Azimuth: 360	Height:127	Horz		Margin [dB]:	-18.86	-25.59	-	-	-	-
=====										
1 - 2GHz	1000 - 2000MHz									
1293.083	91.87 pk	-45.6	20.5	47.17*	54	60.73	-	-	-	-
Azimuth: 207	Height:148	Vert		Margin [dB]:	-6.83	-13.56	-	-	-	-
1723.868	77.09 pk	-45.14	20.8	52.75	54	60.73	-	-	-	-
Azimuth: 332	Height:107	Vert		Margin [dB]:	-1.25	-7.98	-	-	-	-
=====										
2 - 4GHz	2000 - 4000MHz									
2154.806	74.2 pk	-43.92	21	51.28	54	60.73	-	-	-	-
Azimuth: 228	Height:224	Vert		Margin [dB]:	-2.72	-9.45	-	-	-	-
2586.1795	68.84 pk	-43.55	21.5	46.79	54	60.73	-	-	-	-
Azimuth: 177	Height:207	Vert		Margin [dB]:	-7.21	-13.94	-	-	-	-
3016.752	83.54 pk	-42.91	21.7	42.73*	54	60.73	-	-	-	-
Azimuth: 193	Height:197	Vert		Margin [dB]:	-11.27	-18	-	-	-	-
3447.712	78.08 pk	-42.83	22.2	57.45	54	60.73	-	-	-	-
Azimuth: 92	Height:181	Vert		Margin [dB]:	3.45	-3.28	-	-	-	-
3878.6625	71.22 pk	-42.93	22.6	50.89	54	60.73	-	-	-	-
Azimuth: 153	Height:200	Vert		Margin [dB]:	-3.11	-9.84	-	-	-	-

Job Number: 1001083006 File Number: MC15896 Page 41 of 52
Model Number: QSR4P-3R-XX-YYY FCC ID: JPZ0060
Client Name: LUTRON ELECTRONICS INC IC ID: 2851A-JPZ0060

4 - 8GHz 4000 - 5000MHz										
4309.6465	73.28	pk	-53.31	27.8	47.77	54	60.73	-	-	-
Azimuth: 264		Height:166		Vert		Margin [dB]:	-6.23	-12.96	-	-
4740.6095 83.02 pk -54.5 27.1 36.02* 54 60.73 - - - -										
Azimuth: 93		Height:244		Vert		Margin [dB]:	-17.98	-24.71	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 (Harmonics)
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

* - A correction factor of -19.6dB was applied (Refer to Section 4.3 for correction factor calculation)

pk - Peak detector (Maximized)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

Figure 17 Radiated Emissions Graph

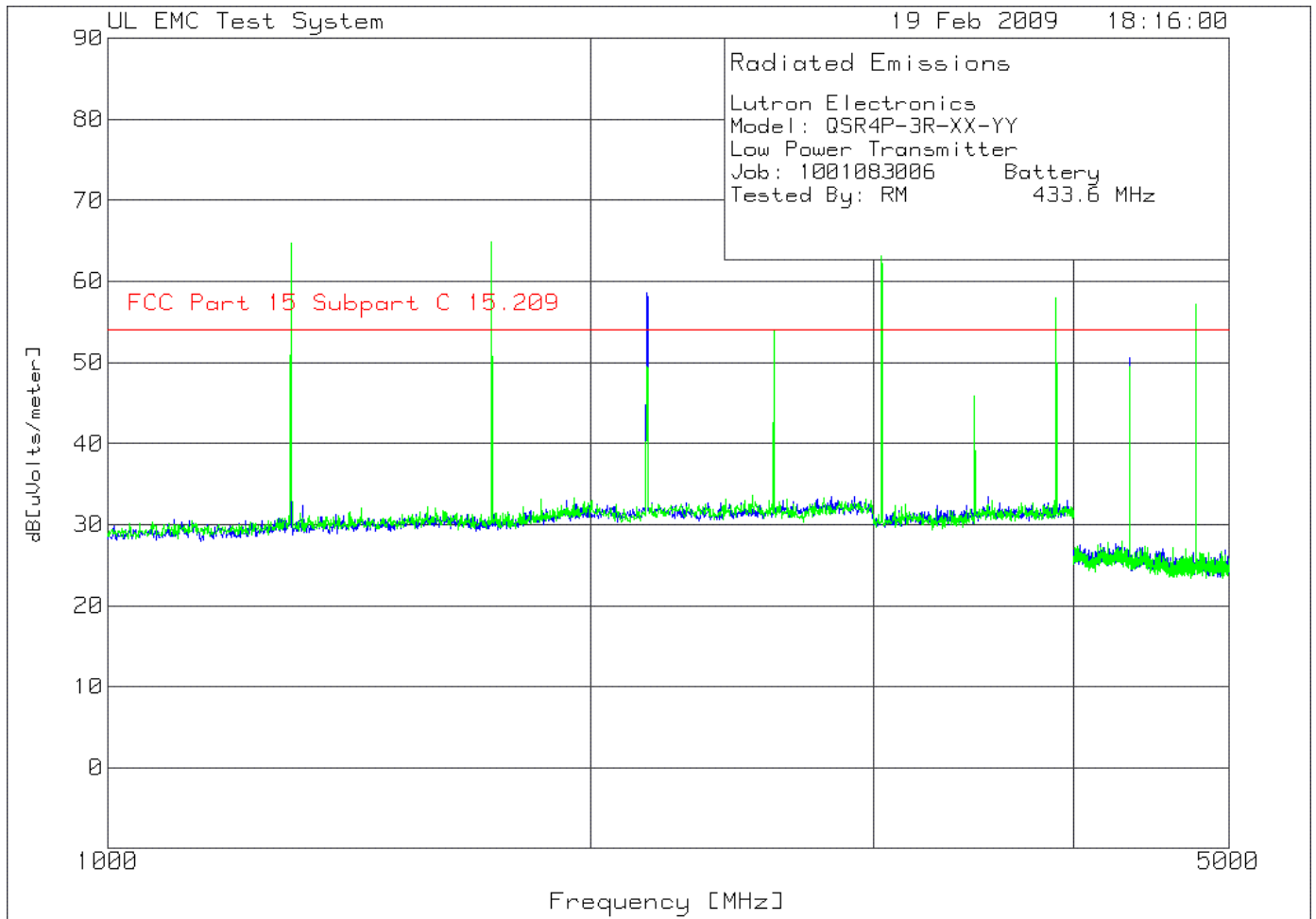


Table 17 Radiated Emissions Data Points

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job: 1001083006 Battery
 Tested By: RM 433.6 MHz

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1 [dB]	2	3	4	5	6

1 -	2GHz 1000	-	2000MHz	-----							
1	1300.874	78.03 pk	-45.59	20.5	52.94	54	-	-	-	-	-
		Height:149	Horz	Margin [dB]		-1.06	-	-	-	-	-
2	1735.331	71.56 pk	-45.1	20.8	47.26	54	-	-	-	-	-
		Height:199	Horz	Margin [dB]		-6.74	-	-	-	-	-

2 -	4GHz 2000	-	4000MHz	-----							
3	2167.291	81.14 pk	-43.99	21.4	58.55	54	-	-	-	-	-
		Height:99	Horz	Margin [dB]		4.55	-	-	-	-	-
4	2601.748	65.29 pk	-43.33	21.3	43.26	54	-	-	-	-	-
		Height:99	Horz	Margin [dB]		-10.74	-	-	-	-	-
5	3036.205	80.86 pk	-42.91	21.6	59.55	54	-	-	-	-	-
		Height:99	Horz	Margin [dB]		5.55	-	-	-	-	-
6	3470.662	65.47 pk	-42.83	22.2	44.84	54	-	-	-	-	-
		Height:199	Horz	Margin [dB]		-9.16	-	-	-	-	-
7	3902.622	77.15 pk	-42.78	22.6	56.97	54	-	-	-	-	-
		Height:99	Horz	Margin [dB]		2.97	-	-	-	-	-

4 -	8GHz 4000	-	5000MHz	-----							
8	4336.106	76.24 pk	-53.43	27.7	50.51	54	-	-	-	-	-
		Height:149	Horz	Margin [dB]		-3.49	-	-	-	-	-
9	4770.383	80.36 pk	-54.22	27.1	53.24	54	-	-	-	-	-
		Height:149	Horz	Margin [dB]		-.76	-	-	-	-	-

1 -	2GHz 1000	-	2000MHz	-----							
10	1300.874	89.83 pk	-45.59	20.5	64.74	54	-	-	-	-	-
		Height:149	Vert	Margin [dB]		10.74	-	-	-	-	-
11	1735.331	89.16 pk	-45.1	20.8	64.86	54	-	-	-	-	-
		Height:101	Vert	Margin [dB]		10.86	-	-	-	-	-

2 -	4GHz 2000	-	4000MHz	-----							
12	2167.291	72.41 pk	-43.99	21.1	49.52	54	-	-	-	-	-
		Height:149	Vert	Margin [dB]		-4.48	-	-	-	-	-
13	2601.748	75.76 pk	-43.33	21.5	53.93	54	-	-	-	-	-
		Height:149	Vert	Margin [dB]		-.07	-	-	-	-	-
14	3036.205	84.42 pk	-42.91	21.7	63.21	54	-	-	-	-	-
		Height:199	Vert	Margin [dB]		9.21	-	-	-	-	-
15	3470.662	66.43 pk	-42.83	22.3	45.9	54	-	-	-	-	-
		Height:149	Vert	Margin [dB]		-8.1	-	-	-	-	-
16	3902.622	78.1 pk	-42.78	22.6	57.92	54	-	-	-	-	-
		Height:199	Vert	Margin [dB]		3.92	-	-	-	-	-

4 -	8GHz 4000	-	5000MHz	-----							
17	4336.106	75.18 pk	-53.43	27.8	49.55	54	-	-	-	-	-
		Height:199	Vert	Margin [dB]		-4.45	-	-	-	-	-
18	4769.551	84.23 pk	-54.24	27.2	57.19	54	-	-	-	-	-
		Height:149	Vert	Margin [dB]		3.19	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: NONE
 LIMIT 3: NONE

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job: 1001083006 Battery
 Tested By: RM 431.0 MHz

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4	5	6
Frequency	Reading	Factor	Factor	dB[uVolts/meter]						
[MHz]	[dB(uV)]	[dB]	[dB]							
=====										
1 - 2GHz	1000 - 2000MHz									
1300.67	79.31 pk	-45.6	20.5	34.61*	54	60.79	-	-	-	-
Azimuth: 145	Height:151	Horz	Margin [dB]:	-19.39		-26.18	-	-	-	-
1734.255	71.86 pk	-45.02	20.8	47.64	54	60.79	-	-	-	-
Azimuth: 161	Height:240	Horz	Margin [dB]:	-6.36		-13.15	-	-	-	-
2 - 4GHz	2000 - 4000MHz									
2168.14	80.66 pk	-43.97	21.4	58.09	54	60.79	-	-	-	-
Azimuth: 343	Height:153	Horz	Margin [dB]:	4.09		-2.7	-	-	-	-
2601.3605	68.42 pk	-43.34	21.3	46.38	54	60.79	-	-	-	-
Azimuth: 351	Height:230	Horz	Margin [dB]:	-7.62		-14.41	-	-	-	-
3034.955	82.33 pk	-42.87	21.6	41.46*	54	60.79	-	-	-	-
Azimuth: 1	Height:212	Horz	Margin [dB]:	-12.54		-19.33	-	-	-	-
3468.487	68.54 pk	-42.88	22.2	47.86	54	60.79	-	-	-	-
Azimuth: 160	Height:234	Horz	Margin [dB]:	-6.14		-12.93	-	-	-	-
3902.0595	78.44 pk	-42.8	22.6	38.64*	54	60.79	-	-	-	-
Azimuth: 340	Height:202	Horz	Margin [dB]:	-15.36		-22.15	-	-	-	-
4 - 8GHz	4000 - 5000MHz									
4335.6435	75.54 pk	-53.41	27.7	49.83	54	60.79	-	-	-	-
Azimuth: 191	Height:126	Horz	Margin [dB]:	-4.17		-10.96	-	-	-	-
4769.1955	80.2 pk	-54.25	27.1	53.05	54	60.79	-	-	-	-
Azimuth: 328	Height:120	Horz	Margin [dB]:	-.95		-7.74	-	-	-	-
1 - 2GHz	1000 - 2000MHz									
1300.6865	92.94 pk	-45.6	20.5	48.24*	54	60.79	-	-	-	-
Azimuth: 224	Height:237	Vert	Margin [dB]:	-5.76		-12.55	-	-	-	-
1734.4935	88.06 pk	-45.04	20.8	44.22*	54	60.79	-	-	-	-
Azimuth: 88	Height:179	Vert	Margin [dB]:	-9.78		-16.57	-	-	-	-
2 - 4GHz	2000 - 4000MHz									
2168.116	74.3 pk	-43.98	21.1	51.42	54	60.79	-	-	-	-
Azimuth: 45	Height:238	Vert	Margin [dB]:	-2.58		-9.37	-	-	-	-
2601.3605	74.28 pk	-43.34	21.5	52.44	54	60.79	-	-	-	-
Azimuth: 147	Height:235	Vert	Margin [dB]:	-1.56		-8.35	-	-	-	-
3034.955	83.73 pk	-42.87	21.7	42.96	54	60.79	-	-	-	-
Azimuth: 236	Height:198	Vert	Margin [dB]:	-11.04		-17.83	-	-	-	-
3468.4995	69.19 pk	-42.88	22.3	48.61	54	60.79	-	-	-	-
Azimuth: 119	Height:184	Vert	Margin [dB]:	-5.39		-12.18	-	-	-	-
3902.072	81.38 pk	-42.8	22.6	41.58*	54	60.79	-	-	-	-
Azimuth: 153	Height:245	Vert	Margin [dB]:	-12.42		-19.21	-	-	-	-

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Model Number: QSR4P-3R-XX-YYY FCC ID: JPZ0060
Client Name: LUTRON ELECTRONICS INC IC ID: 2851A-JPZ0060

4 - 8GHz	4000 - 5000MHz									
4335.631	77.07 pk	-53.41	27.8	51.46	54	60.79	-	-	-	-
Azimuth: 242	Height:234	Vert	Margin [dB]:	-2.54		-9.33	-	-	-	-
4769.8885	83.54 pk	-54.23	27.2	36.91*	54	60.79	-	-	-	-
Azimuth: 292	Height:236	Vert	Margin [dB]:	-17.09		-23.88	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 (Harmonics)
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

* - A correction factor of -19.6dB was applied (Refer to Section 4.3 for correction factor calculation)

pk - Peak detector (Maximized)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

Figure 18 Radiated Emissions Graph

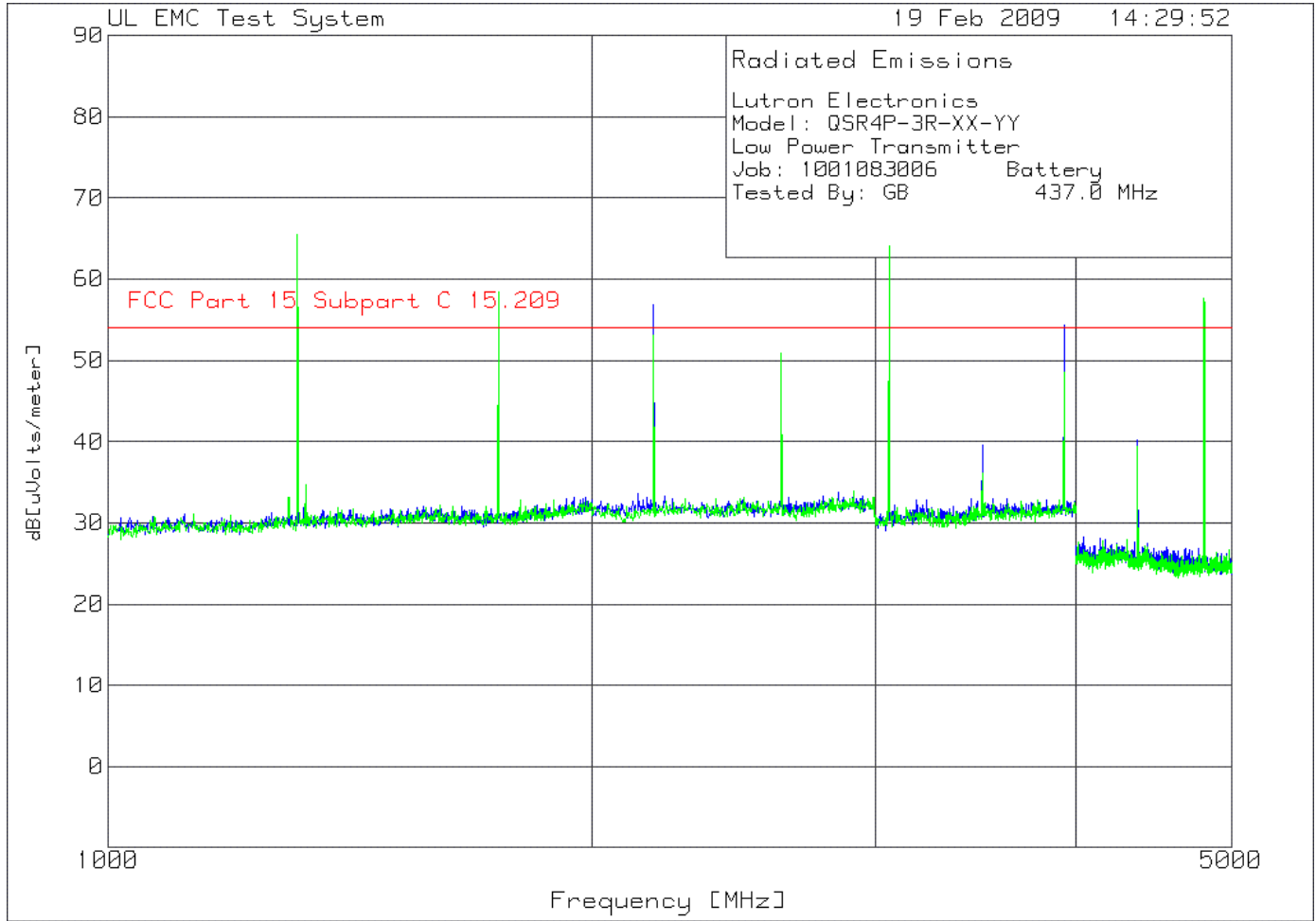


Table 18 Radiated Emissions Data Points

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job: 1001083006 Battery
 Tested By: GB 437.0 MHz

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6

1 - 2GHz 1000	- 2000MHz -----										
1	1310.861	78.11 pk	-45.73	20.5	52.88	54	-	-	-	-	-
		Height:149 Horz		Margin [dB]		-1.12	-	-	-	-	-
2 - 4GHz 2000	- 4000MHz -----										
2	2184.769	79.4 pk	-44.02	21.5	56.88	54	-	-	-	-	-
		Height:150 Horz		Margin [dB]		2.88	-	-	-	-	-
3	3061.174	81.76 pk	-42.93	21.6	60.43	54	-	-	-	-	-
		Height:100 Horz		Margin [dB]		6.43	-	-	-	-	-
4	3935.081	74.52 pk	-42.8	22.7	54.42	54	-	-	-	-	-
		Height:100 Horz		Margin [dB]		.42	-	-	-	-	-
13	3498.127	60.17 pk	-42.85	22.2	39.52	54	-	-	-	-	-
		Height:100 Horz		Margin [dB]		-14.48	-	-	-	-	-
4 - 8GHz 4000	- 5000MHz -----										
5	4806.988	83.93 pk	-54.34	27.1	56.69	54	-	-	-	-	-
		Height:99 Horz		Margin [dB]		2.69	-	-	-	-	-
15	4370.216	66.34 pk	-53.68	27.6	40.26	54	-	-	-	-	-
		Height:150 Horz		Margin [dB]		-13.74	-	-	-	-	-
1 - 2GHz 1000	- 2000MHz -----										
6	1310.861	90.78 pk	-45.73	20.5	65.55	54	-	-	-	-	-
		Height:149 Vert		Margin [dB]		11.55	-	-	-	-	-
7	1749.064	82.58 pk	-45.01	20.8	58.37	54	-	-	-	-	-
		Height:99 Vert		Margin [dB]		4.37	-	-	-	-	-
2 - 4GHz 2000	- 4000MHz -----										
8	2184.769	75.88 pk	-44.02	21.2	53.06	54	-	-	-	-	-
		Height:99 Vert		Margin [dB]		-.94	-	-	-	-	-
9	2621.723	72.91 pk	-43.42	21.4	50.89	54	-	-	-	-	-
		Height:99 Vert		Margin [dB]		-3.11	-	-	-	-	-
10	3061.174	85.25 pk	-42.93	21.8	64.12	54	-	-	-	-	-
		Height:99 Vert		Margin [dB]		10.12	-	-	-	-	-
11	3932.584	68.58 pk	-42.76	22.7	48.52	54	-	-	-	-	-
		Height:99 Vert		Margin [dB]		-5.48	-	-	-	-	-
4 - 8GHz 4000	- 5000MHz -----										
12	4806.988	84.74 pk	-54.34	27.3	57.7	54	-	-	-	-	-
		Height:150 Vert		Margin [dB]		3.7	-	-	-	-	-
14	4370.216	65.37 pk	-53.68	27.7	39.39	54	-	-	-	-	-
		Height:150 Vert		Margin [dB]		-14.61	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
 LIMIT 2: NONE
 LIMIT 3: NONE

Lutron Electronics
 Model: QSR4P-3R-XX-YY
 Low Power Transmitter
 Job: 1001083006 Battery
 Tested By: GB 437.0 MHz

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4	5	6
Frequency	Reading	Factor	Factor	dB[uVolts/meter]						
[MHz]	[dB(uV)]	[dB]	[dB]							
=====										
1 - 2GHz	1000 - 2000MHz									
1310.9	78.72 pk	-45.73	20.5	53.49	54	60.92	-	-	-	-
Azimuth: 0	Height:161	Horz		Margin [dB]:	-0.51	-7.43	-	-	-	-
2 - 4GHz	2000 - 4000MHz									
2185.15	81.38 pk	-44.02	21.5	58.86	54	60.92	-	-	-	-
Azimuth: 0	Height:101	Horz		Margin [dB]:	4.86	-2.06	-	-	-	-
3059.23	80.6 pk	-42.95	21.6	59.25	54	60.92	-	-	-	-
Azimuth: 0	Height:101	Horz		Margin [dB]:	5.25	-1.67	-	-	-	-
3933.275	73.25 pk	-42.77	22.7	53.18	54	60.92	-	-	-	-
Azimuth: 5	Height:124	Horz		Margin [dB]:	-0.82	-7.74	-	-	-	-
3495.735	64.93 pk	-42.87	22.2	44.26	54	60.92	-	-	-	-
Azimuth: 185	Height:103	Horz		Margin [dB]:	-9.74	-16.66	-	-	-	-
4 - 8GHz	4000 - 5000MHz									
4369.641	62.61 pk	-53.69	27.6	36.52	54	60.92	-	-	-	-
Azimuth: 100	Height:238	Horz		Margin [dB]:	-17.48	-24.4	-	-	-	-
4806.6356	70.37 pk	-54.33	27.1	43.14	54	60.92	-	-	-	-
Azimuth: 149	Height:121	Horz		Margin [dB]:	-10.86	-17.78	-	-	-	-
1 - 2GHz	1000 - 2000MHz									
1311.0975	90.74 pk	-45.74	20.5	45.9*	54	60.92	-	-	-	-
Azimuth: 0	Height:128	Vert		Margin [dB]:	-8.1	-15.02	-	-	-	-
1747.86	81.25 pk	-45.07	20.8	56.98	54	60.92	-	-	-	-
Azimuth: 187	Height:237	Vert		Margin [dB]:	2.98	-3.94	-	-	-	-
2 - 4GHz	2000 - 4000MHz									
2185.1475	73.26 pk	-44.02	21.2	50.44	54	60.92	-	-	-	-
Azimuth: 212	Height:124	Vert		Margin [dB]:	-3.56	-10.48	-	-	-	-
2621.7825	70.34 pk	-43.42	21.4	48.32	54	60.92	-	-	-	-
Azimuth: 13	Height:248	Vert		Margin [dB]:	-5.68	-12.6	-	-	-	-
3058.7575	86.86 pk	-42.95	21.8	46.11*	54	60.92	-	-	-	-
Azimuth: 158	Height:149	Vert		Margin [dB]:	-7.89	-14.81	-	-	-	-
3932.6965	68.97 pk	-42.76	22.7	48.91	54	60.92	-	-	-	-
Azimuth: 32	Height:175	Vert		Margin [dB]:	-5.09	-12.01	-	-	-	-
4 - 8GHz	4000 - 5000MHz									
4807.313	75.04 pk	-54.35	27.3	47.99	54	60.92	-	-	-	-
Azimuth: 1	Height:103	Vert		Margin [dB]:	-6.01	-12.93	-	-	-	-
4369.641	61.2 pk	-53.69	27.7	35.21	54	60.92	-	-	-	-
Azimuth: 150	Height:103	Vert		Margin [dB]:	-18.79	-25.71	-	-	-	-

Job Number: 1001083006 File Number: MC15896 Page 49 of 52
Model Number: QSR4P-3R-XX-YYY FCC ID: JPZ0060
Client Name: LUTRON ELECTRONICS INC IC ID: 2851A-JPZ0060

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 (Harmonics)
LIMIT 3: NONE
LIMIT 4: NONE
LIMIT 5: NONE
LIMIT 6: NONE

* - A correction factor of -19.6dB was applied (Refer to Section 4.3 for correction factor calculation)

pk - Peak detector (Maximized)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

Job Number: 1001083006 File Number: MC15896 Page 50 of 52
Model Number: QSR4P-3R-XX-YYY FCC ID: JPZ0060
Client Name: LUTRON ELECTRONICS INC IC ID: 2851A-JPZ0060

5.0 IMMUNITY TEST RESULTS

Not Applicable

Appendix A

Accreditations and Authorizations



NVLAP Lab code: 100255-0

NVLAP: The National Institute of Standards and Technology (NIST) administers the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP is comprised of laboratory accreditation programs (LAPs) which are established on the basis of requests and demonstrated need. Each LAP includes specific calibration and/or test standards and related methods and protocols assembled to satisfy the unique needs for accreditation in a field of testing or calibration. NVLAP accredits public and private laboratories based on evaluation of their technical qualifications and competence to carry out specific calibrations or tests. Accreditation criteria are established in accordance with the U.S. Code of Federal Regulations (CFR, Title 15, Part 285), NVLAP Procedures and General Requirements, and encompass the requirements of ISO/IEC 17025. For a full scope listing see <http://ts.nist.gov/ts/htdocs/210/214/scopes/1002550.htm>



FCC: Details of the measurement facilities used for these tests have been filed with the Federal Communications Commission's Laboratory in Columbia, Maryland (Ref. No. 91040).



Industry Canada Industrie Canada

Industry of Canada: Accredited by Industry Canada for performance of radiated measurements. Our test site complies with RSP 100, Issue 7, Section 3.3. File #: IC 2181



VCCI: Accepted as an Associate Member to the VCCI. The measurement facilities detailed in this test report have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. Registration Nos.: (Radiated Emissions) R-797, (Conducted Emissions) C-832, C-833, C-834 and (Conducted Emissions - Telecommunications Ports) T-267.



ICASA: ICASA (Independent Communications Authority of South Africa) has appointed UL as a Designated Test Laboratory to test Telecommunications equipment for type approval in compliance with CISPR 22 to assist in fulfilling its mandate under section 54(1) of the Telecommunications Act, 1996 (Act 103 of 1996).



NIST/CAB: Validated by the European Commission as a U.S. Conformity Assessment Body (CAB) of the U.S.-EU Mutual Recognition Agreement (MRA) for the Electromagnetic Compatibility - Council Directive 89/336/EEC, Article 10 (2). Also validated for the Telecommunication Equipment-Council Directive 99/5/EC, Annex III and IV, Identification Number: 0983.

NIST/CAB: Provisioned to act as a U.S. Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the Asia Pacific Economic Cooperation (APEC) MRA between the American Institute in Taiwan (AIT) and the United States. Our laboratory is considered qualified to test equipment subject to the applicable EMC regulations of the Chinese Taipei Bureau of Standards, Metrology and Inspection (BSMI) which require testing to CNS 13438 (CISPR 22).

NIST/CAB: Recognized by the Infocomm Development Authority of Singapore (IDA) under the Asia Pacific Economic Cooperation Mutual Recognition Agreement (APEC MRA). Our laboratory is provisionally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA. Our scope of designation includes IDA TS EMC (CISPR 22), IEC 61000-4-2, -4-3, -4-4, -4-5, and -4-6