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Job Number:	1001228033
Project Number:	10CA18152
File Number:	MC15832
Date:	28 April 2010
Model:	SZ-CI-USB
FCC ID:	JPZ0070
IC Number:	2851A-JPZ0070

## Electromagnetic Compatibility Test Report

For

### LUTRON ELECTRONICS INC

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Underwriters Laboratories Inc.  
1285 Walt Whitman Rd.  
Melville, NY 11747

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quality service for over 100 years**

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

Job Number: 1001228033 File Number: MC15832 Page 2 of 73  
Model Number: SZ-CI-USB  
Client Name: LUTRON ELECTRONICS INC  
FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

## 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: **Dan Mitchell**  
Phone: **610-282-5370**  
E-mail: **dmitchell@lutron.com**

Test Report Date: **28 April 2010**

Product Type: **Low Power Transceiver**

Product standards **FCC Part 15, Subpart C, 15.231**

Model Number: **SZ-CI-USB**

Sample Serial Number: **Non-serialized Production Unit**

EUT Category: **Periodic Low Power Transmitter**

Testing Start Date: **08 April 2010**

Date Testing Complete: **12 April 2010**

**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.

This report may contain test results that are not covered by the NVLAP or A2LA accreditation. The scope of accreditation is limited to the specific tests that are listed on the NVLAP and/or A2LA websites referenced at the end of this report.

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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 SZ-CI-USB is an USB interface. It contains an FM transceiver and an antenna, which is not accessible to the user. It is used as part of an integrated lighting control system. The purpose of the RF communication is to transmit and receive command signals. Transmitted commands allow the triggering of system events. Received commands allow for feedback to user software on PC for system status.

Per FCC Part 2.1093 (C) this device is not required to undergo testing for radio-frequency radiation exposure.

Antenna description: Permanently attached to the RF circuit board and the transmit antenna type is a wire antenna

**1.2 Equipment Marking Plate**

Not Available

**1.3 Device Configuration During Test**

**1.3.1 Equipment Used During Test:**

Use	Product Type	Manufacturer	Model	Comments
EUT	Low Power Transceiver	LUTRON ELECTRONICS INC	SZ-CI-USB	None
SIM	Laptop	IBM	X31	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
1	Mains	AC	Y	N	Laptop Mains
2	USB	DC	N	Y	EUT Mains

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:**

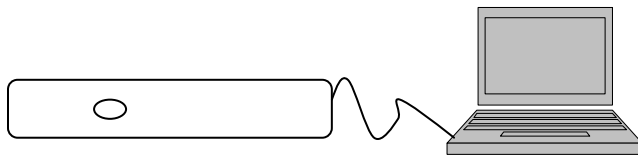
Frequency (MHz)	Description
0.031	Digital Modulation Data Shaping
0.031	Digital Demodulation Image Suppression Channel Filtering
0.302	Receiver filter section
26	Microcontroller
431 – 437	Transmit channel frequency range

**1.3.4 Power Interface:**

Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
Rated	5	-	-	DC	-	EUT Power
1	120	-	-	AC -60Hz	1	Laptop power used to power EUT

**1.4 Block Diagram:**

The diagram below illustrates the configuration of the equipment above.



**1.5 EUT Configurations**

Mode #	Description
1	USB Dongle connected to a laptop for power and communications.

**1.6 EUT Operation Modes**

Mode #	Description
1	Constantly transmitting with modulation at 431MHz
2	Constantly transmitting with modulation at 437MHz
3	Receive Mode at 431MHz
4	Receive Mode at 437MHz
5	Normal operation at 431MHz (sending packets when button is pressed)



## 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
47 CFR Part 15, Subpart B	Code of Federal Regulations, Part 15, Radio Frequency Devices	2009
47 CFR Part 15, Subpart C	Code of Federal Regulations, Part 15, Radio Frequency Devices	2009
RSS-GEN, Issue 7	General Requirements and Information for the Certification of Radiocommunication Equipment	2007
RSS-210, Issue 2	Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment	2007

**2.4 Results Summary**

This product is considered Class B receiver and a Periodic Transmitter

Requirement – Test	Result (Compliant / Non-Compliant)*
Conducted Emissions - Mains	Compliant
Radiated Emissions – Transmit Mode	Compliant
Radiated Emissions - Unintentional	Compliant
Cease Operation	Compliant
Occupied Bandwidth – 20dB	Compliant
Occupied Bandwidth – 99%	Compliant
Pulse Train Measurement	Compliant

Test Engineer:



Bob DeLisi (Ext.22452)  
 Senior Staff Engineer  
 International EMC Services  
 Conformity Assessment Services-

Reviewer:



Michael Antola (Ext. 23053)  
 Senior Project Engineer  
 International EMC Services  
 Conformity Assessment Services

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

### 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, Subpart B, Radio Frequency Devices
Code of Federal Regulations Title 47	Part 15, Subpart 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 – MAINS TERMINAL – CONDUCTED EMISSIONS**

Test Description	Measurements were made on a ground plane. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN.	
Basic Standard	FCC Part 15, Subpart B, 15.107, FCC Part 15, Subpart C, 15.207, RSS-GEN, RSS-210	
UL LPG	80-EM-S0026	
	Frequency range on each side of line	Measurement Point
Fully configured sample scanned over the following frequency range	150kHz to 30MHz	Mains
<b>Limits</b>		
Frequency (MHz)	Limit (dBµV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Supplementary information: None		

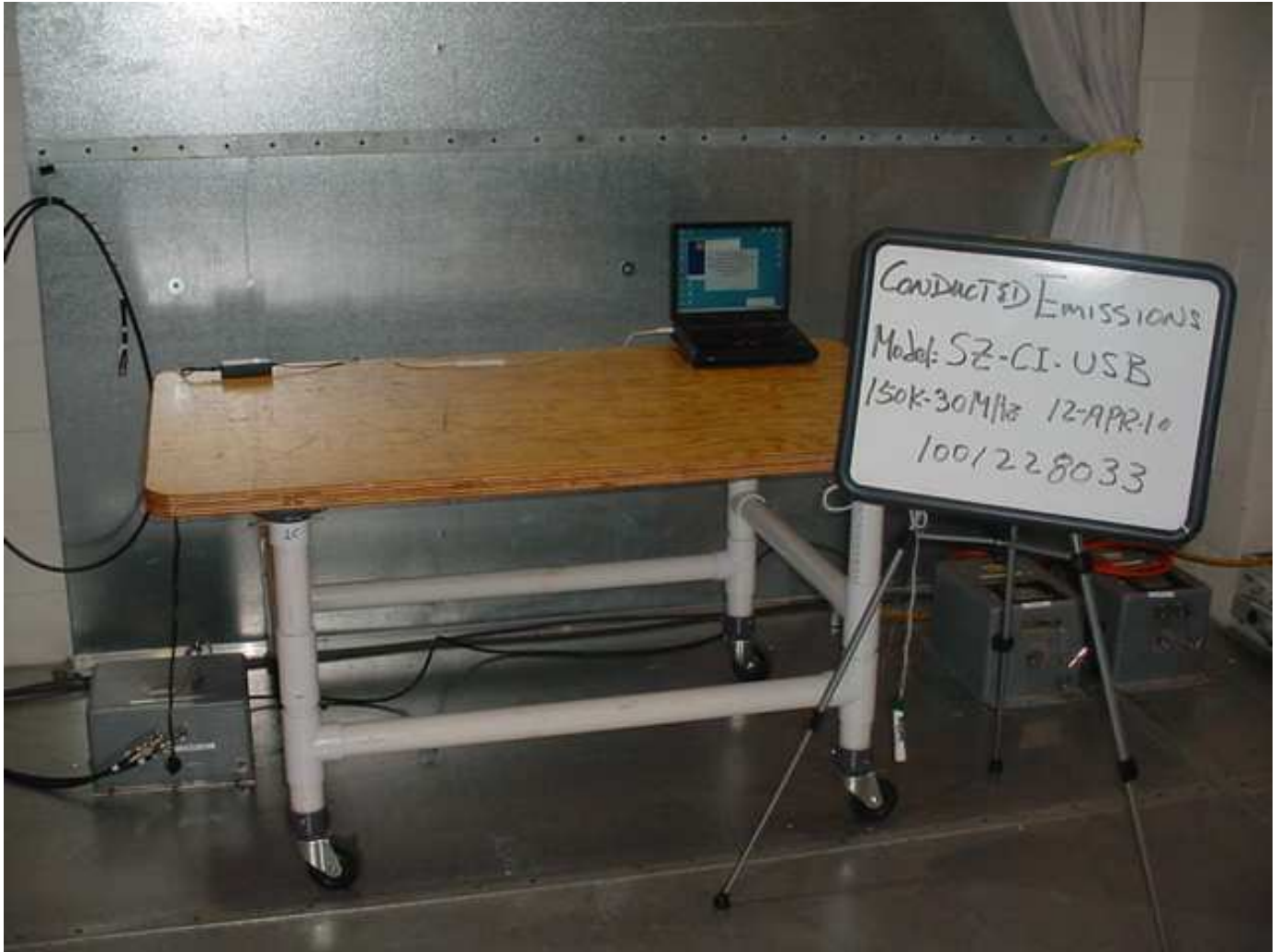
**Table 1 Conducted Emissions EUT Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1
1	1	2
1	1	3
1	1	4
Supplementary information: None		

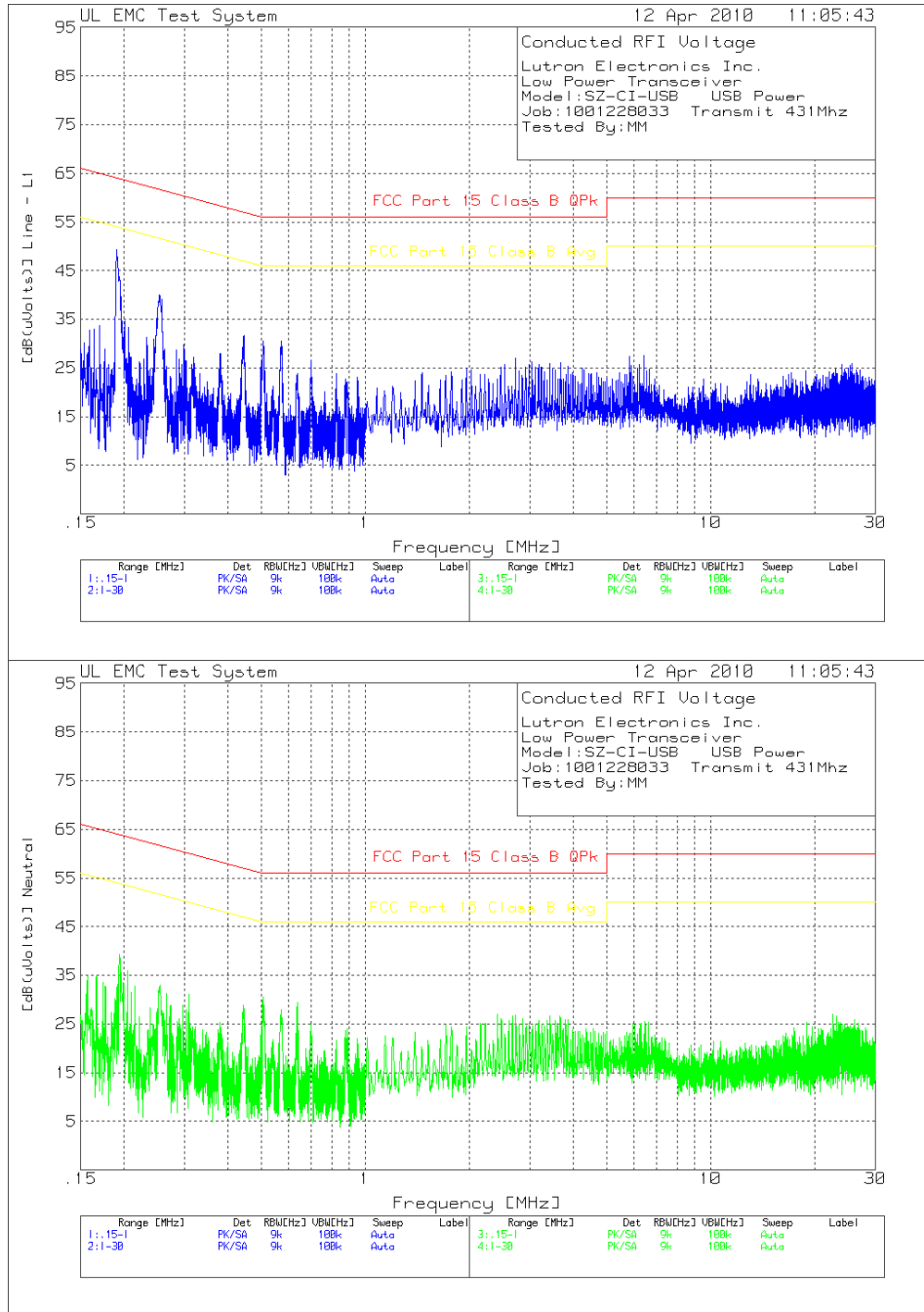
**Table 2 Conducted Emissions Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
Conducted Emissions – GP 1			
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
LISN	Solar	9252-50-R-24-BNC	ME5A-636
Switch Driver	HP	11713A	44397
RF Switch Box	UL	4	44404
Measurement Software	UL	Version 9.3	44736
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	43734
Multimeter	Fluke	87V	64386

**Figure 1 Test Setup for Conducted Emissions**



**Figure 2 Conducted Emissions Graph**



Note: The limits shown are identical to 15.207.

**Table 3 Conducted Emissions Data Points**

Lutron Electronics Inc.  
 Low Power Transceiver  
 Model:SZ-CI-USB USB Power  
 Job:1001228033 Transmit 431Mhz  
 Tested By:MM

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
-----											
Line - L1 .15 - 1MHz -----											
1	.19132	39.4 pk	10	0	49.4	64	54	-	-	-	-
					Margin [dB]	-14.6	-4.6	-	-	-	-
2	.25423	30 pk	10	0	40	61.6	51.6	-	-	-	-
					Margin [dB]	-21.6	-11.6	-	-	-	-
3	.44603	21.76 pk	10	0	31.76	56.9	46.9	-	-	-	-
					Margin [dB]	-25.14	-15.14	-	-	-	-
4	.50707	19.09 pk	10	0	29.09	56	46	-	-	-	-
					Margin [dB]	-26.91	-16.91	-	-	-	-
5	.56998	19.3 pk	10	0	29.3	56	46	-	-	-	-
					Margin [dB]	-26.7	-16.7	-	-	-	-
-----											
Line - L1 1 - 30MHz -----											
6	5.83817	17.18 pk	10.2	0	27.38	60	50	-	-	-	-
					Margin [dB]	-32.62	-22.62	-	-	-	-
-----											
Neutral .15 - 1MHz -----											
7	.19489	29.28 pk	10	0	39.28	63.8	53.8	-	-	-	-
					Margin [dB]	-24.52	-14.52	-	-	-	-
8	.25474	22.85 pk	10.1	0	32.95	61.6	51.6	-	-	-	-
					Margin [dB]	-28.65	-18.65	-	-	-	-
9	.44484	18.86 pk	10.1	0	28.96	57	47	-	-	-	-
					Margin [dB]	-28.04	-18.04	-	-	-	-
10	.50588	20.47 pk	10.1	0	30.57	56	46	-	-	-	-
					Margin [dB]	-25.43	-15.43	-	-	-	-
11	.56828	16.17 pk	10.1	0	26.27	56	46	-	-	-	-
					Margin [dB]	-29.73	-19.73	-	-	-	-
12	.63681	19.29 pk	10.1	0	29.39	56	46	-	-	-	-
					Margin [dB]	-26.61	-16.61	-	-	-	-

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - average log detection  
 AV - average detection  
 CAV - CISPR average detection  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg  
 LIMIT 3: NONE  
 LIMIT 4: NONE  
 LIMIT 5: NONE  
 LIMIT 6: NONE



Lutron Electronics Inc.  
 Low Power Transceiver  
 Model:SZ-CI-USB USB Power  
 Job:1001228033 Transmit 431Mhz  
 Tested By:MM

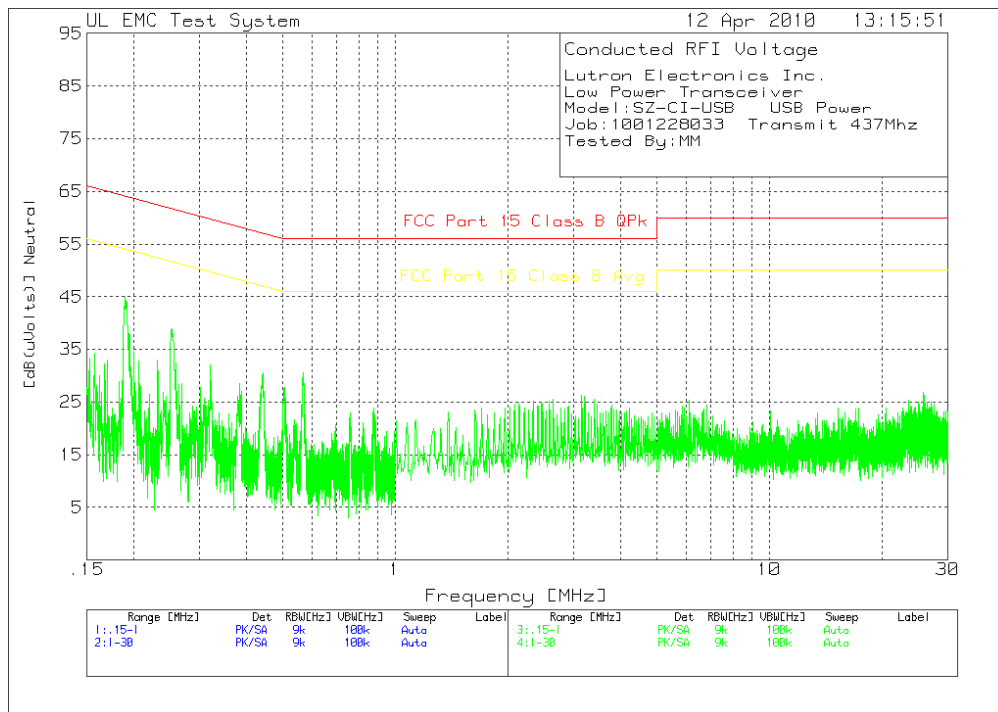
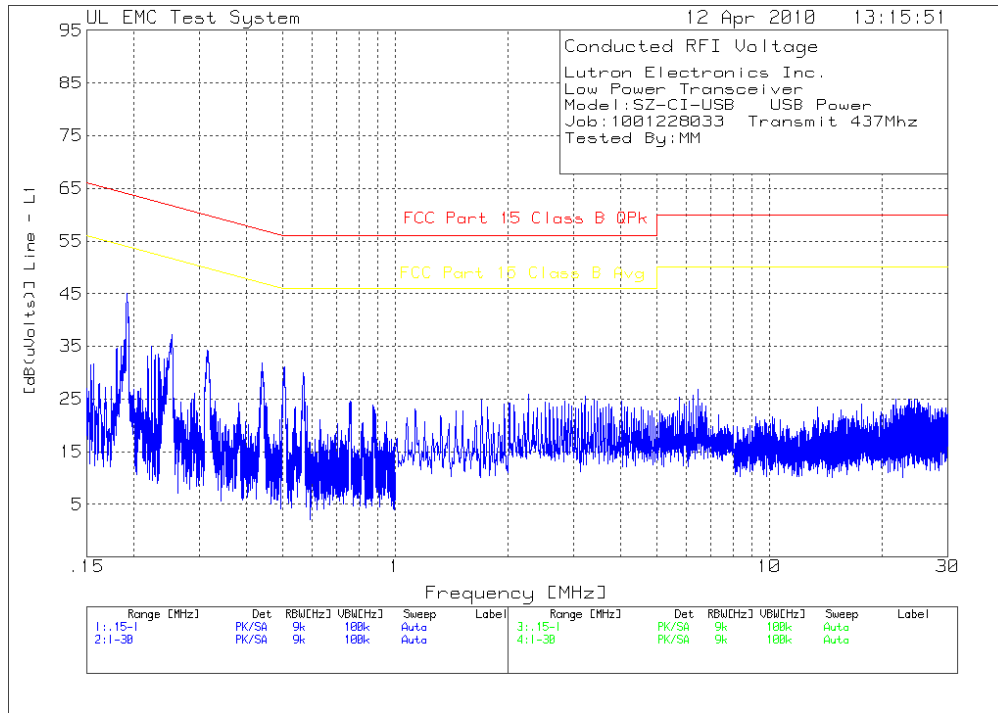
Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
=====										
Line - L1 .15 - 1MHz										
.19081	28.85 AV	10	0	38.85	64	54	-	-	-	-
			Margin [dB]:		-25.15	-15.15	-	-	-	-
.25373	22.49 AV	10	0	32.49	61.6	51.6	-	-	-	-
			Margin [dB]:		-29.11	-19.11	-	-	-	-
.44528	20.67 AV	10	0	30.67	57	47	-	-	-	-
			Margin [dB]:		-26.33	-16.33	-	-	-	-
.5075	19.12 AV	10	0	29.12	56	46	-	-	-	-
			Margin [dB]:		-26.88	-16.88	-	-	-	-
.57065	17.43 AV	10	0	27.43	56	46	-	-	-	-
			Margin [dB]:		-28.57	-18.57	-	-	-	-
Line - L1 1 - 30MHz										
5.83802	6.17 AV	10.2	0	16.37	60	50	-	-	-	-
			Margin [dB]:		-43.63	-33.63	-	-	-	-
Neutral .15 - 1MHz										
.19448	25.35 AV	10	0	35.35	63.8	53.8	-	-	-	-
			Margin [dB]:		-28.45	-18.45	-	-	-	-
.2541	21.73 AV	10.1	0	31.83	61.6	51.6	-	-	-	-
			Margin [dB]:		-29.77	-19.77	-	-	-	-
.44431	20.07 AV	10.1	0	30.17	57	47	-	-	-	-
			Margin [dB]:		-26.83	-16.83	-	-	-	-
.50569	15.55 AV	10.1	0	25.65	56	46	-	-	-	-
			Margin [dB]:		-30.35	-20.35	-	-	-	-
.56814	18.43 AV	10.1	0	28.53	56	46	-	-	-	-
			Margin [dB]:		-27.47	-17.47	-	-	-	-
.63614	-.22 AV	10.1	0	9.88	56	46	-	-	-	-
			Margin [dB]:		-46.12	-36.12	-	-	-	-

NOTE: "+" - Indicates an emission level in excess of the applicable limit (s).

- PK - Peak detector
- QP - Quasi-Peak detector
- av - Linear average detector
- avlg - average log detection
- AV - average detection
- CAV - CISPR average detection
- RMS - RMS detection
- CRMS - CISPR RMS detection

- LIMIT 1: FCC Part 15 Class B QPk
- LIMIT 2: FCC Part 15 Class B Avg
- LIMIT 3: NONE
- LIMIT 4: NONE
- LIMIT 5: NONE
- LIMIT 6: NONE

**Figure 3 Conducted Emissions Graph**



Note: The limits shown are identical to 15.207.

**Table 4 Conducted Emissions Data Points**

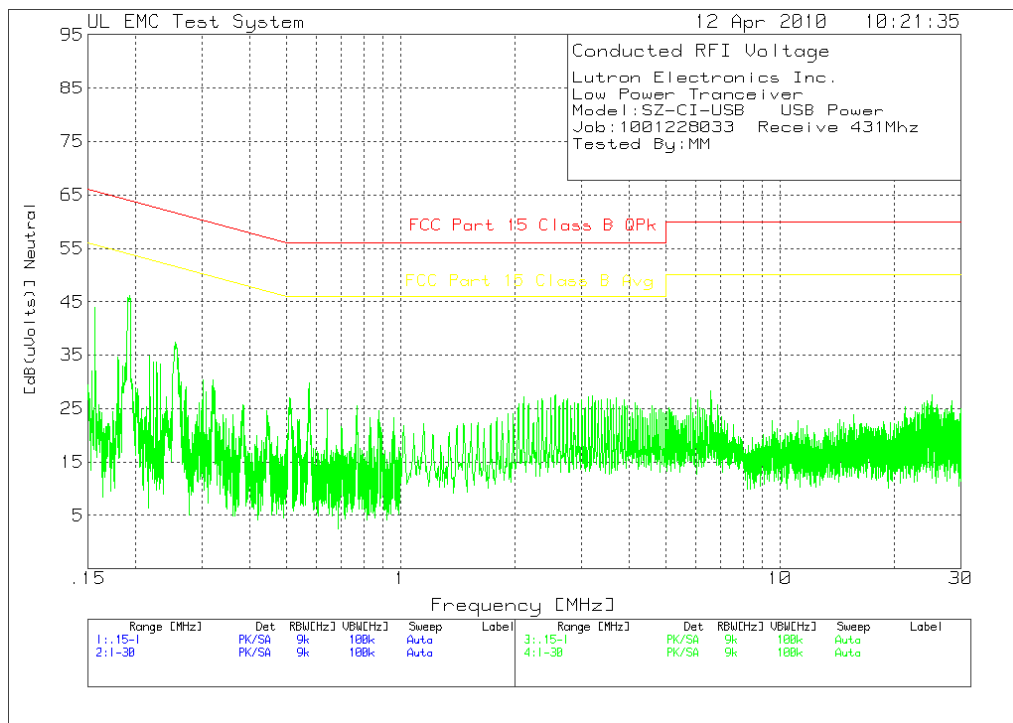
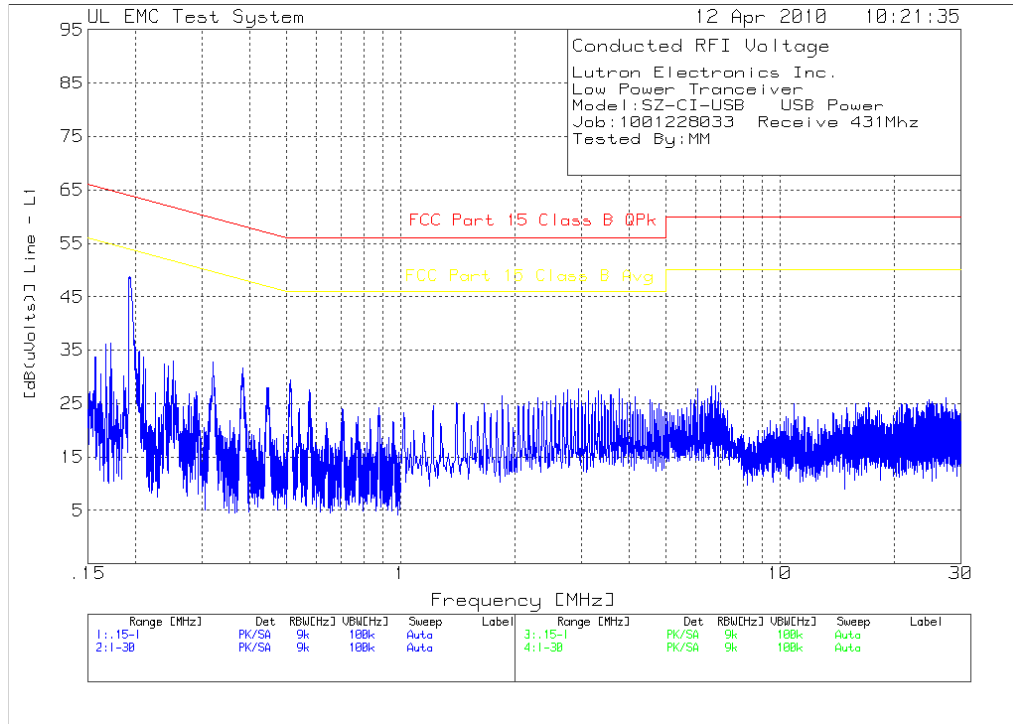
Lutron Electronics Inc.  
 Low Power Transceiver  
 Model:SZ-CI-USB USB Power  
 Job:1001228033 Transmit 437Mhz  
 Tested By:MM

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
-----											
Line - L1 .15 - 1MHz											
1	.19217	35.07 pk	10	0	45.07	63.9	53.9	-	-	-	-
					Margin [dB]	-18.83	-8.83	-	-	-	-
2	.25406	27.25 pk	10	0	37.25	61.6	51.6	-	-	-	-
					Margin [dB]	-24.35	-14.35	-	-	-	-
3	.31561	24.26 pk	10	0	34.26	59.8	49.8	-	-	-	-
					Margin [dB]	-25.54	-15.54	-	-	-	-
4	.44093	21.79 pk	10	0	31.79	57	47	-	-	-	-
					Margin [dB]	-25.21	-15.21	-	-	-	-
5	.50163	17.69 pk	10	0	27.69	56	46	-	-	-	-
					Margin [dB]	-28.31	-18.31	-	-	-	-
-----											
Line - L1 1 - 30MHz											
6	6.47049	16.69 pk	10.2	0	26.89	60	50	-	-	-	-
					Margin [dB]	-33.11	-23.11	-	-	-	-
-----											
Neutral .15 - 1MHz											
7	.19021	35.08 pk	10	0	45.08	64	54	-	-	-	-
					Margin [dB]	-18.92	-8.92	-	-	-	-
8	.25321	28.83 pk	10.1	0	38.93	61.7	51.7	-	-	-	-
					Margin [dB]	-22.77	-12.77	-	-	-	-
9	.32037	21.92 pk	10.1	0	32.02	59.7	49.7	-	-	-	-
					Margin [dB]	-27.68	-17.68	-	-	-	-
10	.43906	17.13 pk	10.1	0	27.23	57.1	47.1	-	-	-	-
					Margin [dB]	-29.87	-19.87	-	-	-	-
11	.56777	20.52 pk	10.1	0	30.62	56	46	-	-	-	-
					Margin [dB]	-25.38	-15.38	-	-	-	-
-----											
Neutral 1 - 30MHz											
12	3.15803	16.13 pk	10.2	0	26.33	56	46	-	-	-	-
					Margin [dB]	-29.67	-19.67	-	-	-	-

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - average log detection  
 AV - average detection  
 CAV - CISPR average detection  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg  
 LIMIT 3: NONE  
 LIMIT 4: NONE  
 LIMIT 5: NONE  
 LIMIT 6: NONE

**Figure 4 Conducted Emissions Graph**



**Table 5 Conducted Emissions Data Points**

Lutron Electronics Inc.  
 Low Power Tranceiver  
 Model:SZ-CI-USB USB Power  
 Job:1001228033 Receive 431Mhz  
 Tested By:MM

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
-----											
Line - L1 .15 - 1MHz											
1	.1937	38.85 pk	10	0	48.85	63.9	53.9	-	-	-	-
					Margin [dB]	-15.05	-5.05	-	-	-	-
2	.32088	22.84 pk	10	0	32.84	59.7	49.7	-	-	-	-
					Margin [dB]	-26.86	-16.86	-	-	-	-
3	.38295	19.6 pk	10	0	29.6	58.2	48.2	-	-	-	-
					Margin [dB]	-28.6	-18.6	-	-	-	-
4	.51234	19.41 pk	10	0	29.41	56	46	-	-	-	-
					Margin [dB]	-26.59	-16.59	-	-	-	-
-----											
Line - L1 1 - 30MHz											
5	3.77876	17.64 pk	10.1	0	27.74	56	46	-	-	-	-
					Margin [dB]	-28.26	-18.26	-	-	-	-
6	6.78376	18.16 pk	10.2	0	28.36	60	50	-	-	-	-
					Margin [dB]	-31.64	-21.64	-	-	-	-
-----											
Neutral .15 - 1MHz											
7	.15663	33.8 pk	10.1	0	43.9	65.6	55.6	-	-	-	-
					Margin [dB]	-21.7	-11.7	-	-	-	-
8	.19387	36.11 pk	10	0	46.11	63.9	53.9	-	-	-	-
					Margin [dB]	-17.79	-7.79	-	-	-	-
9	.25576	27.25 pk	10.1	0	37.35	61.6	51.6	-	-	-	-
					Margin [dB]	-24.25	-14.25	-	-	-	-
10	.32037	20.34 pk	10.1	0	30.44	59.7	49.7	-	-	-	-
					Margin [dB]	-29.26	-19.26	-	-	-	-
11	.57492	19.78 pk	10.1	0	29.88	56	46	-	-	-	-
					Margin [dB]	-26.12	-16.12	-	-	-	-
-----											
Neutral 1 - 30MHz											
12	2.75195	16.71 pk	10.2	0	26.91	56	46	-	-	-	-
					Margin [dB]	-29.09	-19.09	-	-	-	-

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - average log detection  
 AV - average detection  
 CAV - CISPR average detection  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg  
 LIMIT 3: NONE  
 LIMIT 4: NONE  
 LIMIT 5: NONE  
 LIMIT 6: NONE

Job Number: 1001228033 File Number: MC15832 Page 22 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

Lutron Electronics Inc.  
 Low Power Transceiver  
 Model:SZ-CI-USB USB Power  
 Job:1001228033 Receive 431Mhz  
 Tested By:MM

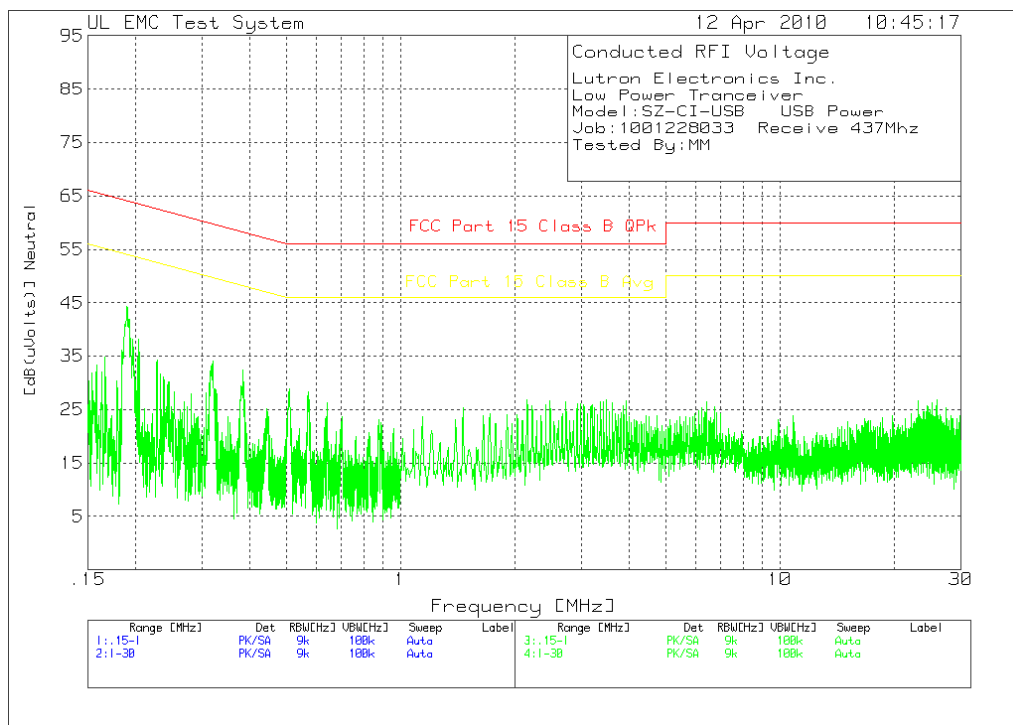
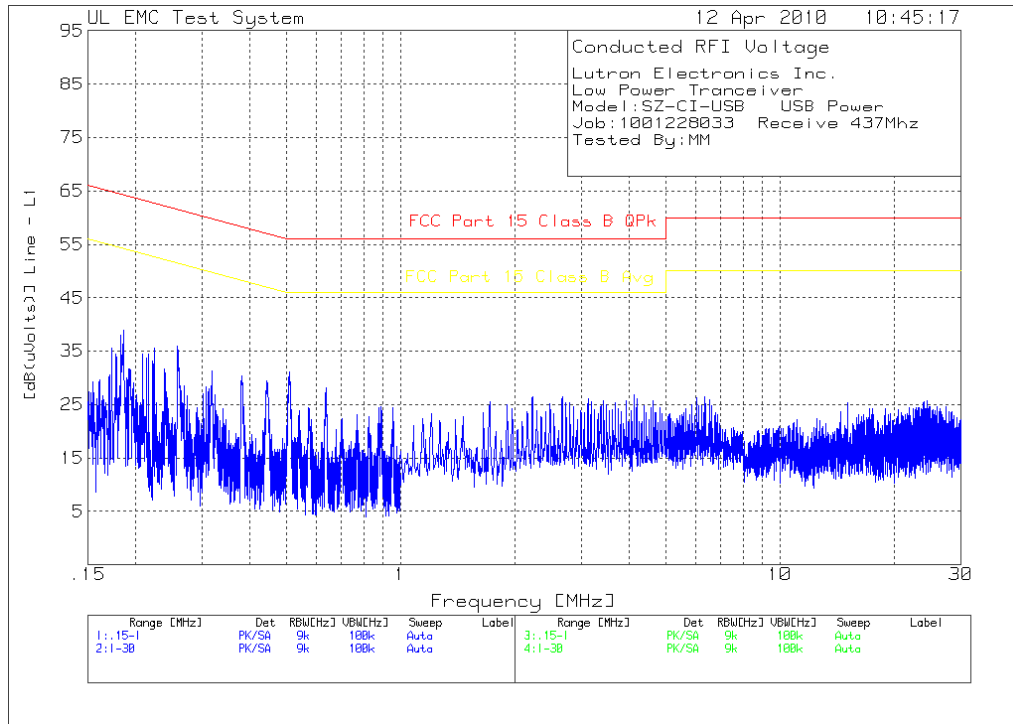
Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
=====										
Line - L1 .15 - 1MHz										
.1932	28.06 AV	10	0	38.06	63.9	53.9	-	-	-	-
			Margin [dB]:		-25.84	-15.84	-	-	-	-
.32053	16.43 AV	10	0	26.43	59.7	49.7	-	-	-	-
			Margin [dB]:		-33.27	-23.27	-	-	-	-
.38257	19.81 AV	10	0	29.81	58.2	48.2	-	-	-	-
			Margin [dB]:		-28.39	-18.39	-	-	-	-
.51204	18.22 AV	10	0	28.22	56	46	-	-	-	-
			Margin [dB]:		-27.78	-17.78	-	-	-	-
Line - L1 1 - 30MHz										
3.77938	-1.3 AV	10.1	0	8.8	56	46	-	-	-	-
			Margin [dB]:		-47.2	-37.2	-	-	-	-
6.78321	-3.33 AV	10.2	0	6.87	60	50	-	-	-	-
			Margin [dB]:		-53.13	-43.13	-	-	-	-
Neutral .15 - 1MHz										
.15725	13.49 AV	10.1	0	23.59	65.6	55.6	-	-	-	-
			Margin [dB]:		-42.01	-32.01	-	-	-	-
.19329	28.8 AV	10	0	38.8	63.9	53.9	-	-	-	-
			Margin [dB]:		-25.1	-15.1	-	-	-	-
.25548	20.17 AV	10.1	0	30.27	61.6	51.6	-	-	-	-
			Margin [dB]:		-31.33	-21.33	-	-	-	-
.32031	16.32 AV	10.1	0	26.42	59.7	49.7	-	-	-	-
			Margin [dB]:		-33.28	-23.28	-	-	-	-
.57479	11.41 AV	10.1	0	21.51	56	46	-	-	-	-
			Margin [dB]:		-34.49	-24.49	-	-	-	-
Neutral 1 - 30MHz										
2.7519	-2.18 AV	10.2	0	8.02	56	46	-	-	-	-
			Margin [dB]:		-47.98	-37.98	-	-	-	-

NOTE: "+" - Indicates an emission level in excess of the applicable limit (s).

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - average log detection  
 AV - average detection  
 CAV - CISPR average detection  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg  
 LIMIT 3: NONE  
 LIMIT 4: NONE  
 LIMIT 5: NONE  
 LIMIT 6: NONE

**Figure 5 Conducted Emissions Graph**



**Table 6 Conducted Emissions Data Points**

Lutron Electronics Inc.  
 Low Power Tranceiver  
 Model:SZ-CI-USB USB Power  
 Job:1001228033 Receive 437Mhz  
 Tested By:MM

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
-----											
Line - L1 .15 - 1MHz											
1	.18333	27.96 pk	10	0	37.96	64.3	54.3	-	-	-	-
				Margin [dB]		-26.34	-16.34	-	-	-	-
2	.25814	25.98 pk	10	0	35.98	61.5	51.5	-	-	-	-
				Margin [dB]		-25.52	-15.52	-	-	-	-
3	.50962	21.08 pk	10	0	31.08	56	46	-	-	-	-
				Margin [dB]		-24.92	-14.92	-	-	-	-
-----											
Line - L1 1 - 30MHz											
4	2.67073	16.39 pk	10.1	0	26.49	56	46	-	-	-	-
				Margin [dB]		-29.51	-19.51	-	-	-	-
5	4.13263	16.59 pk	10.2	0	26.79	56	46	-	-	-	-
				Margin [dB]		-29.21	-19.21	-	-	-	-
6	6.35447	16.26 pk	10.2	0	26.46	60	50	-	-	-	-
				Margin [dB]		-33.54	-23.54	-	-	-	-
-----											
Neutral .15 - 1MHz											
7	.19047	34.4 pk	10	0	44.4	64	54	-	-	-	-
				Margin [dB]		-19.6	-9.6	-	-	-	-
8	.32003	24.04 pk	10.1	0	34.14	59.7	49.7	-	-	-	-
				Margin [dB]		-25.56	-15.56	-	-	-	-
9	.3849	22.41 pk	10.1	0	32.51	58.2	48.2	-	-	-	-
				Margin [dB]		-25.69	-15.69	-	-	-	-
10	.64021	15.38 pk	10.1	0	25.48	56	46	-	-	-	-
				Margin [dB]		-30.52	-20.52	-	-	-	-
-----											
Neutral 1 - 30MHz											
11	2.16023	16.69 pk	10.1	0	26.79	56	46	-	-	-	-
				Margin [dB]		-29.21	-19.21	-	-	-	-
12	26.003	15.2 pk	11.7	0	26.9	60	50	-	-	-	-
				Margin [dB]		-33.1	-23.1	-	-	-	-

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - average log detection  
 AV - average detection  
 CAV - CISPR average detection  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

LIMIT 1: FCC Part 15 Class B QPk  
 LIMIT 2: FCC Part 15 Class B Avg  
 LIMIT 3: NONE  
 LIMIT 4: NONE  
 LIMIT 5: NONE  
 LIMIT 6: NONE



**4.2 Test Conditions and Results – Occupied Bandwidth**

Test Description	Measurements were made in the laboratory environment. A Dipole 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	FCC Part 15, Subpart C, 15.231, RSS-GEN, RSS-210	
<b>Occupied Bandwidth Limits</b>		
0.25% of the Fundamental Frequency		

**Table 7 Occupied Bandwidth Configuration Settings**

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

**Table 8 Occupied Bandwidth Spectrum Analyzer Settings**

Resolution Bandwidth (MHz)	Occupied Bandwidth Requirements	
	dBc	%
10kHz	-20	99
Supplementary information: Span shall be wide enough to capture all products of the modulation process.		

**Table 9 Occupied Bandwidth Test Equipment**

<b>Test Equipment Used</b>			
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
Multimeter	Fluke	83III	ME5B-305

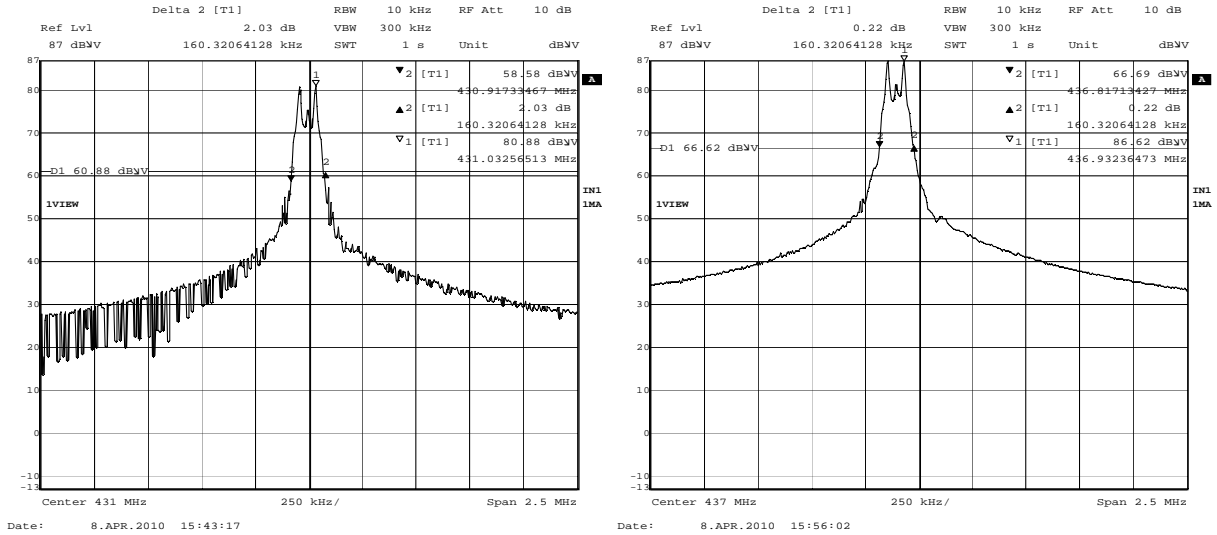
**Figure 6 Test Setup for Occupied Bandwidth**



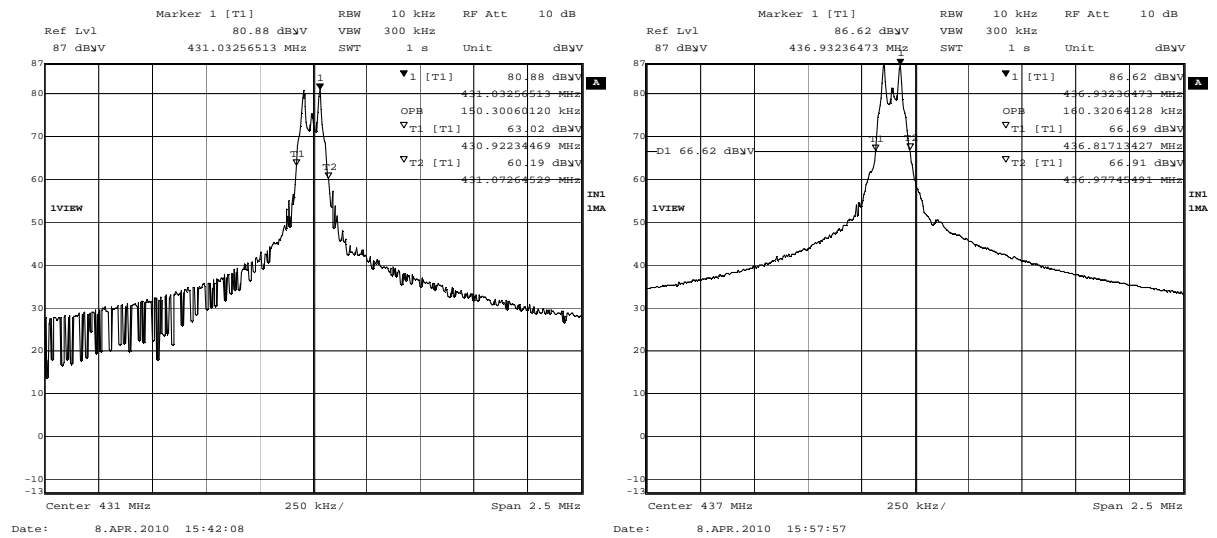
**Table 10 Occupied Bandwidth Test Results**

Frequency (MHz)	20dB OBW	99% OBW	Limit (MHz)	Result
431	160.3kHz	150.3kHz	1.08	Pass
437	160.3kHz	160.3kHz	1.09	Pass

**Figure 7 Occupied Bandwidth Graph (20dB Bandwidth)**



**Figure 8 Occupied Bandwidth Graph (99% Power Bandwidth)**



**4.3 Test Conditions and Results – Cease Operation**

Test Description	Measurements were made in the laboratory environment. A Dipole 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	FCC Part 15, Subpart C, 15.231, RSS-GEN, RSS-210
<b>Cease Operation Limits</b>	
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 11 Cease Operation Configuration Settings**

Power Interface Mode	EUT Configurations Mode	EUT Operation Mode
1	1	5
Supplementary information: Same timing circuitry used for all channels. Only 431MHz used for compliance		

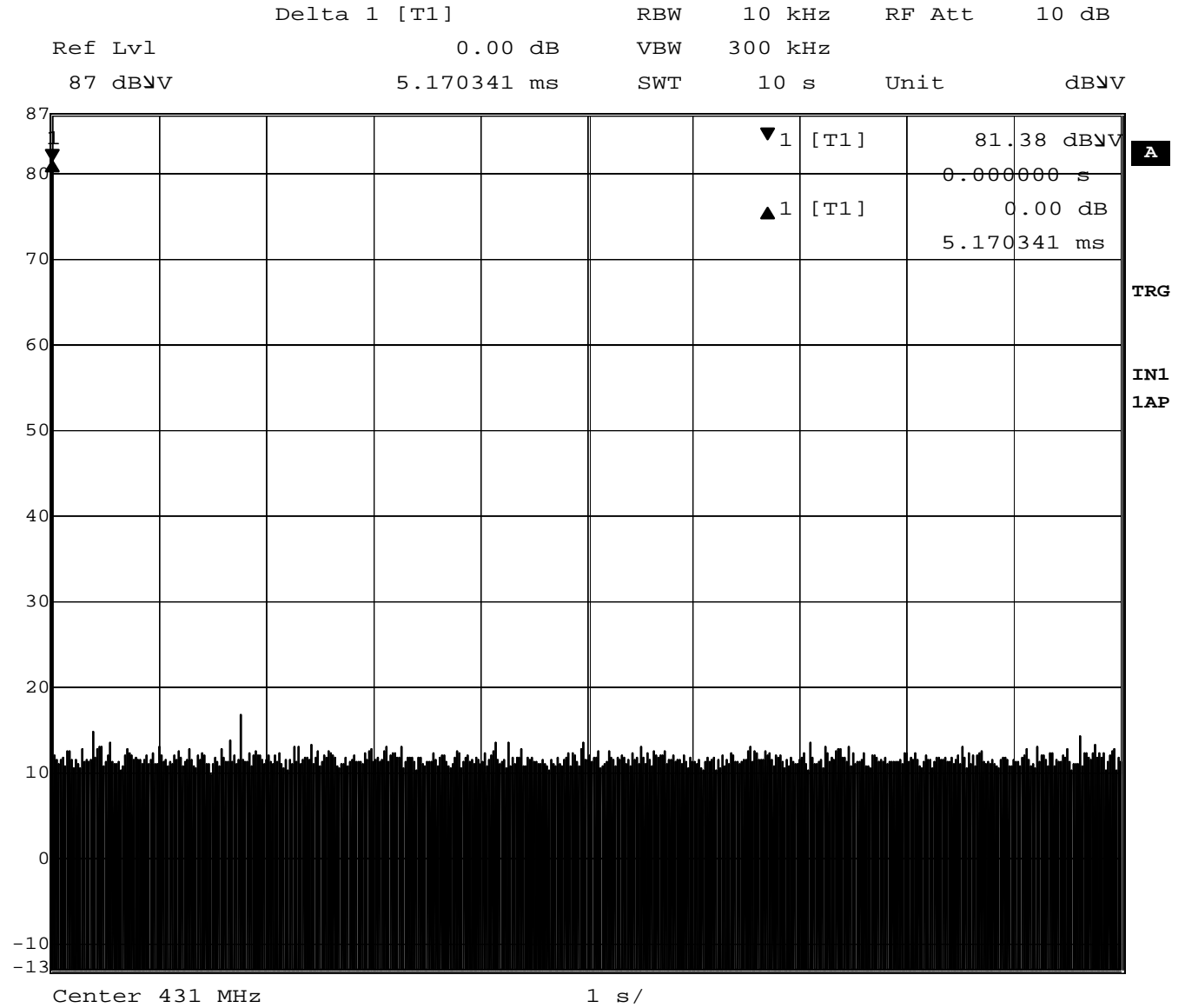
**Table 12 Cease Operation Test Equipment**

<b>Test Equipment Used</b>			
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
Multimeter	Fluke	83III	ME5B-305

**Figure 9 Test Setup for Cease Operation**



**Figure 10 Cease Operation Graph**



Date: 8.APR.2010 16:07:52

**4.4 Test Conditions and Results – Pulse Train**

Test Description	Measurements were made in the laboratory environment. A Dipole 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
<b>Pulse Train Limits</b>	
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 13 Pulse Train Configuration Settings**

Power Interface Mode	EUT Configurations Mode	EUT Operation Mode
1	1	5
Supplementary information: Same timing circuitry used for all channels. Only 431MHz used for compliance		

**Table 14 Pulse Train Calculation**

Pulse Width (mS)	Total Transmission time or 100ms which ever is lesser	Average Correction Factor (dB)
5.01	100	-26.0

$$20 \log \left( \frac{PulseWidth}{TotalTransmissionTime} \right)$$

**Table 15 Pulse Train Test Equipment**

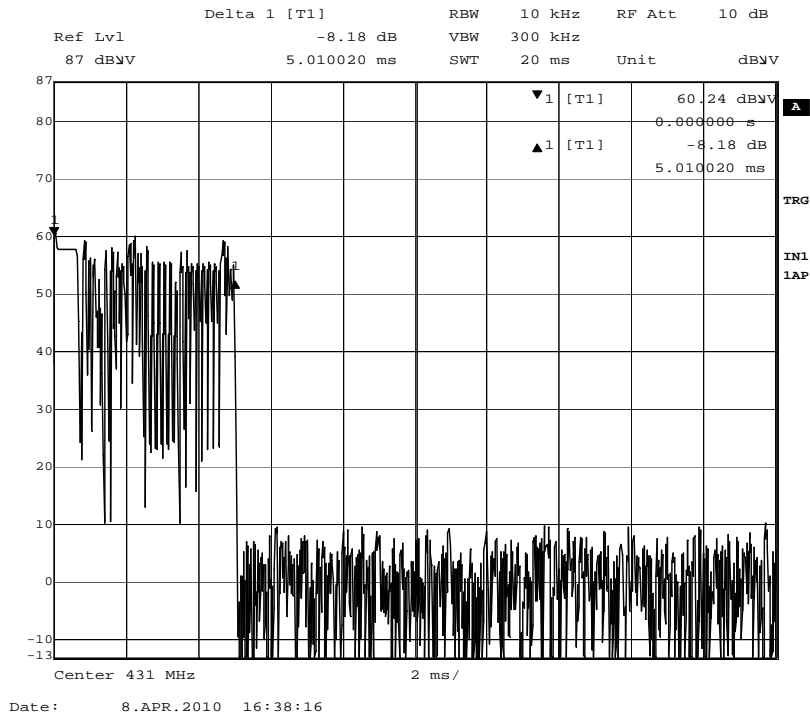
<b>Test Equipment Used</b>			
Description	Manufacturer	Model	Identifier
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
Dipole Antenna	EMCO	3121C	3359
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
Multimeter	Fluke	83III	ME5B-305

Figure 11 Test Setup for Pulse Train

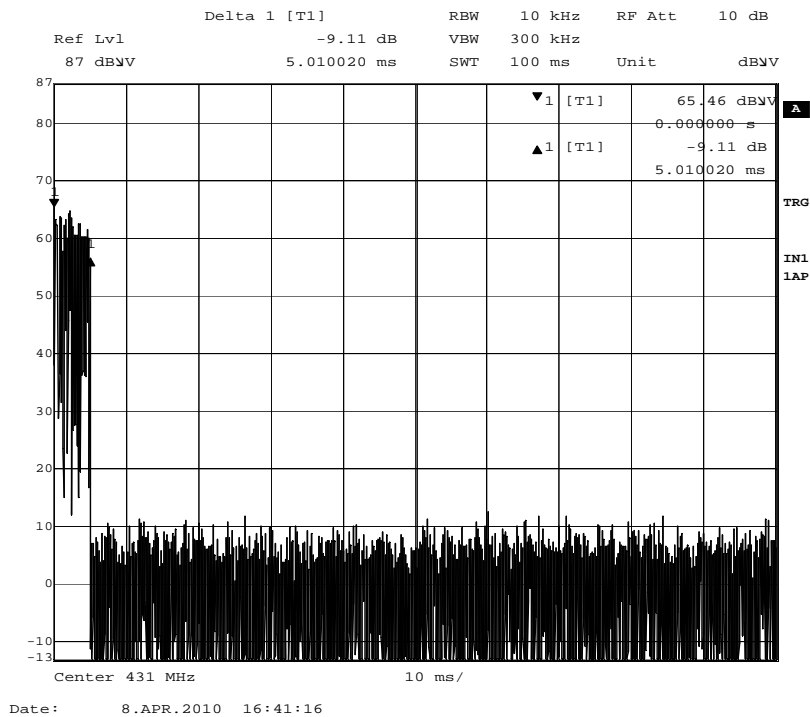




**Figure 12 Pulse Train Graph**



**Individual Pulse**



**Worst case over 100mS**

**4.5 Test Conditions and Results – RADIATED EMISSIONS (INTENTIONAL)**

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	FCC Part 15, Subpart C, 15.209 & 15.231, RSS-GEN, RSS-210		
UL LPG	80-EM-S0029		
	Frequency range	Measurement Point	
Fully configured sample scanned over the following frequency range	0.009 MHz – 5GHz	(3 meter measurement distance)	
<b>Limits</b>			
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	-	-
1000-10000	-	-	54
431	-	80.7	-
437	-	80.9	-
Harmonics of the Fundamental 431	-	-	60.7
Harmonics of the Fundamental 437	-	-	60.9
Supplementary information: Spurious limits are only applied against products of the transmitter. All other emissions must meet the general limits.			
For the range 9kHz to 30MHz, only one channel is tested (431MHz) since the transmitter does not operate in that range.			

**Table 16 Radiated Emissions EUT Configuration Settings**

Power Interface Mode	EUT Configurations Mode	EUT Operation Mode
1	1	1
1	1	2
Supplementary information: All orientations were investigated and the worst case orientation is reported.		

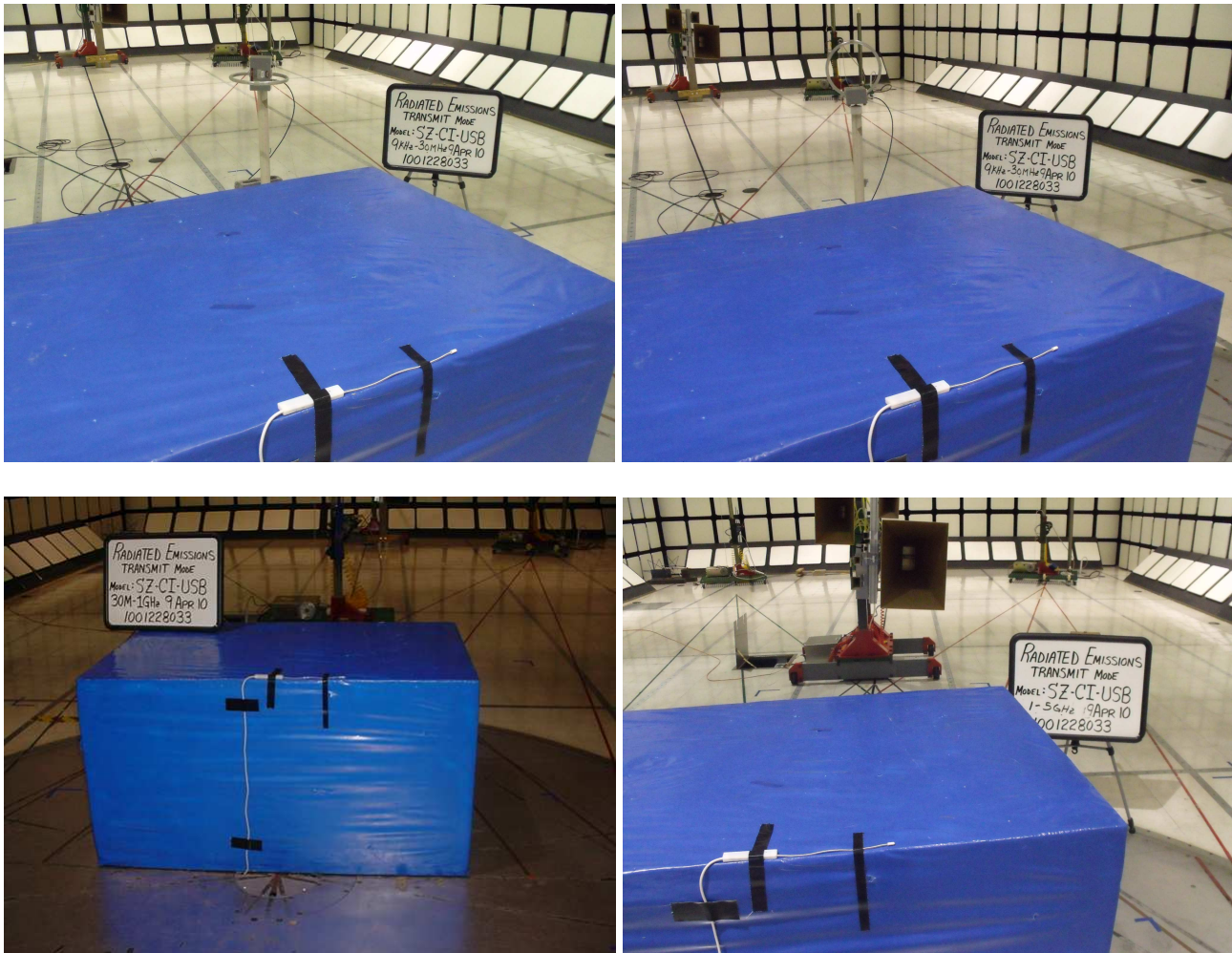
**Table 17 Radiated Emissions Test Equipment**

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
Multimeter	Fluke	83V	43443
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
Multimeter	Fluke	83V	43443
Above 1GHz (Band Optimized System)			
EMI Receiver	Rohde & Schwarz	ESIB26	ME5B-081
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

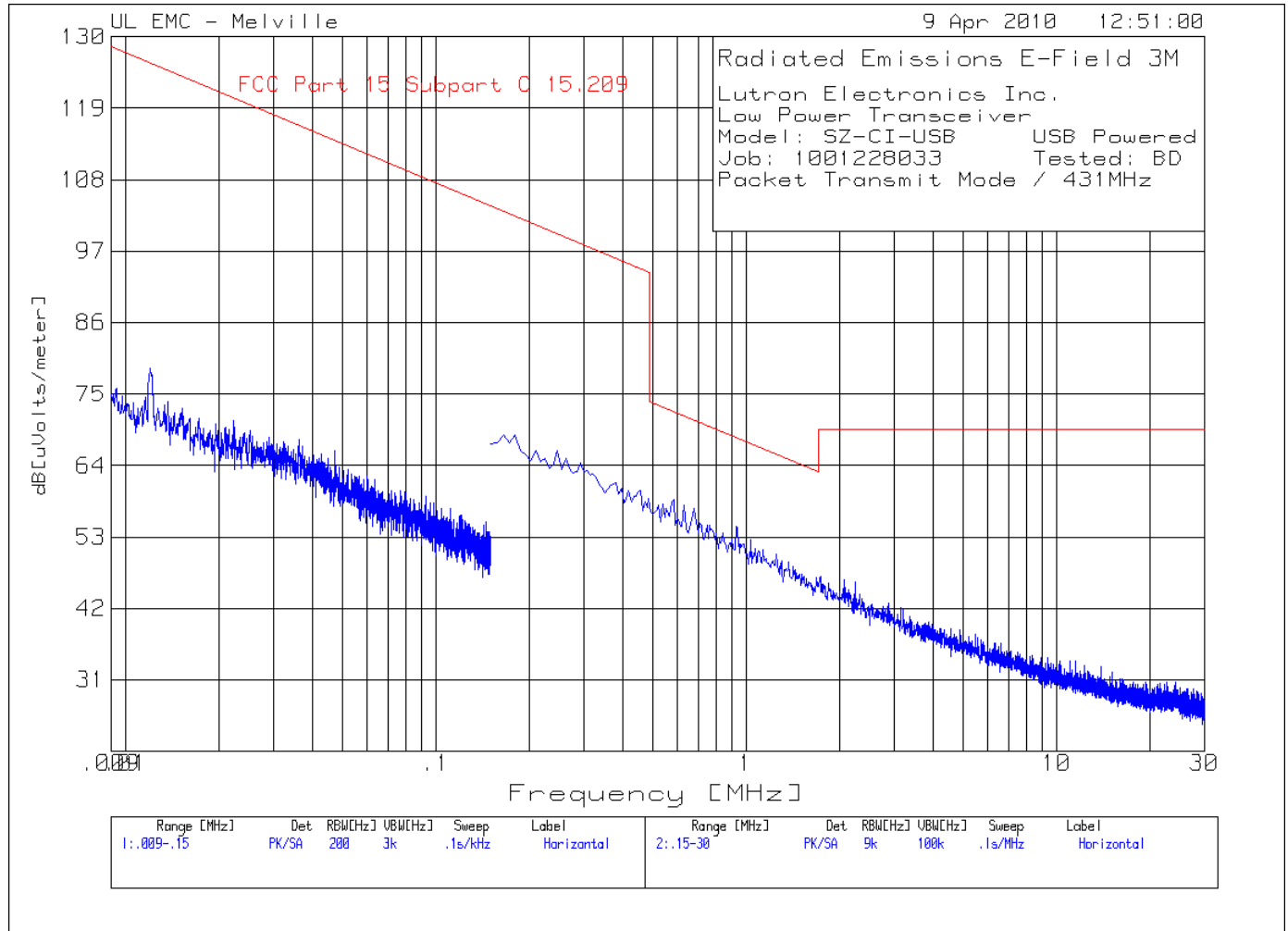
Job Number: 1001228033 File Number: MC15832 Page 36 of 73  
Model Number: SZ-CI-USB  
Client Name: LUTRON ELECTRONICS INC  
FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

<b>Test Equipment Used</b>			
Description	Manufacturer	Model	Identifier
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
Multimeter	Fluke	83V	43443

Figure 13 Test setup for Radiated Emissions



**Figure 14 Radiated Emissions Graph**



**Table 18 Radiated Emissions Data Points**

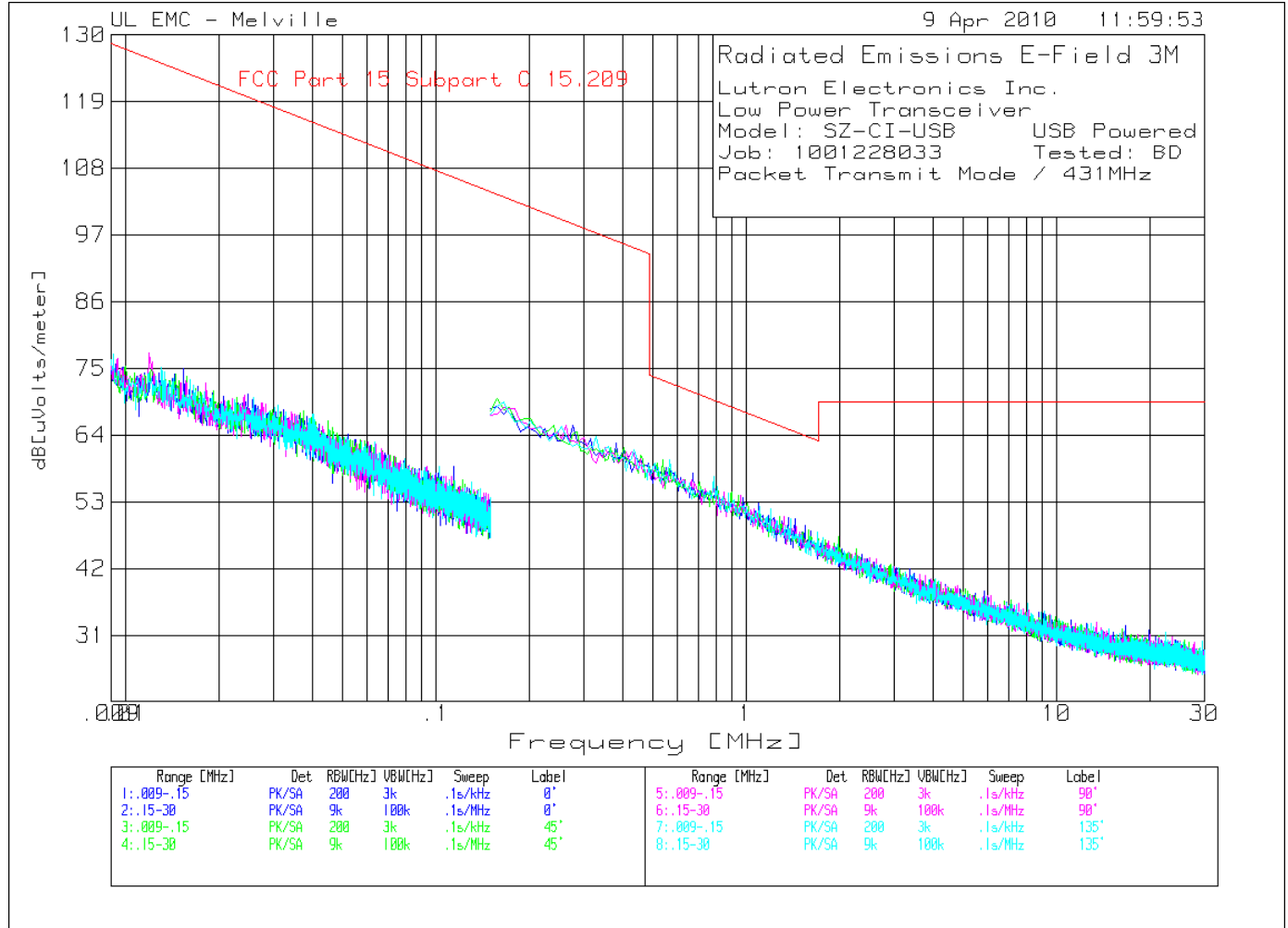
Lutron Electronics Inc.  
 Low Power Transceiver  
 Model: SZ-CI-USB USB Powered  
 Job: 1001228033 Tested: BD  
 Packet Transmit Mode / 431MHz

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 .009 - .15MHz -----											
1	.01199	48.82 pk	.2	30	79.02	126	-	-	-	-	-
	Azimuth:290			Margin [dB]		-46.98	-	-	-	-	-
2	.04782	43.07 pk	0	20.9	63.97	114	-	-	-	-	-
	Azimuth:334			Margin [dB]		-50.03	-	-	-	-	-
-----											
Horizontal .15 - 30MHz -----											
3	.17986	51.34 pk	0	17.4	68.74	102.5	-	-	-	-	-
	Azimuth:256			Margin [dB]		-33.76	-	-	-	-	-
4	.92629	37.92 pk	0	16.8	54.72	68.3	-	-	-	-	-
	Azimuth:130			Margin [dB]		-13.58	-	-	-	-	-
5	4.86748	21.43 pk	.1	17.1	38.63	69.5	-	-	-	-	-
	Azimuth:134			Margin [dB]		-30.87	-	-	-	-	-
6	15.99685	13.39 pk	.2	17.6	31.19	69.5	-	-	-	-	-
	Azimuth:270			Margin [dB]		-38.31	-	-	-	-	-

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

**Figure 15 Radiated Emissions Graph**





**Table 19 Radiated Emissions Data Points**

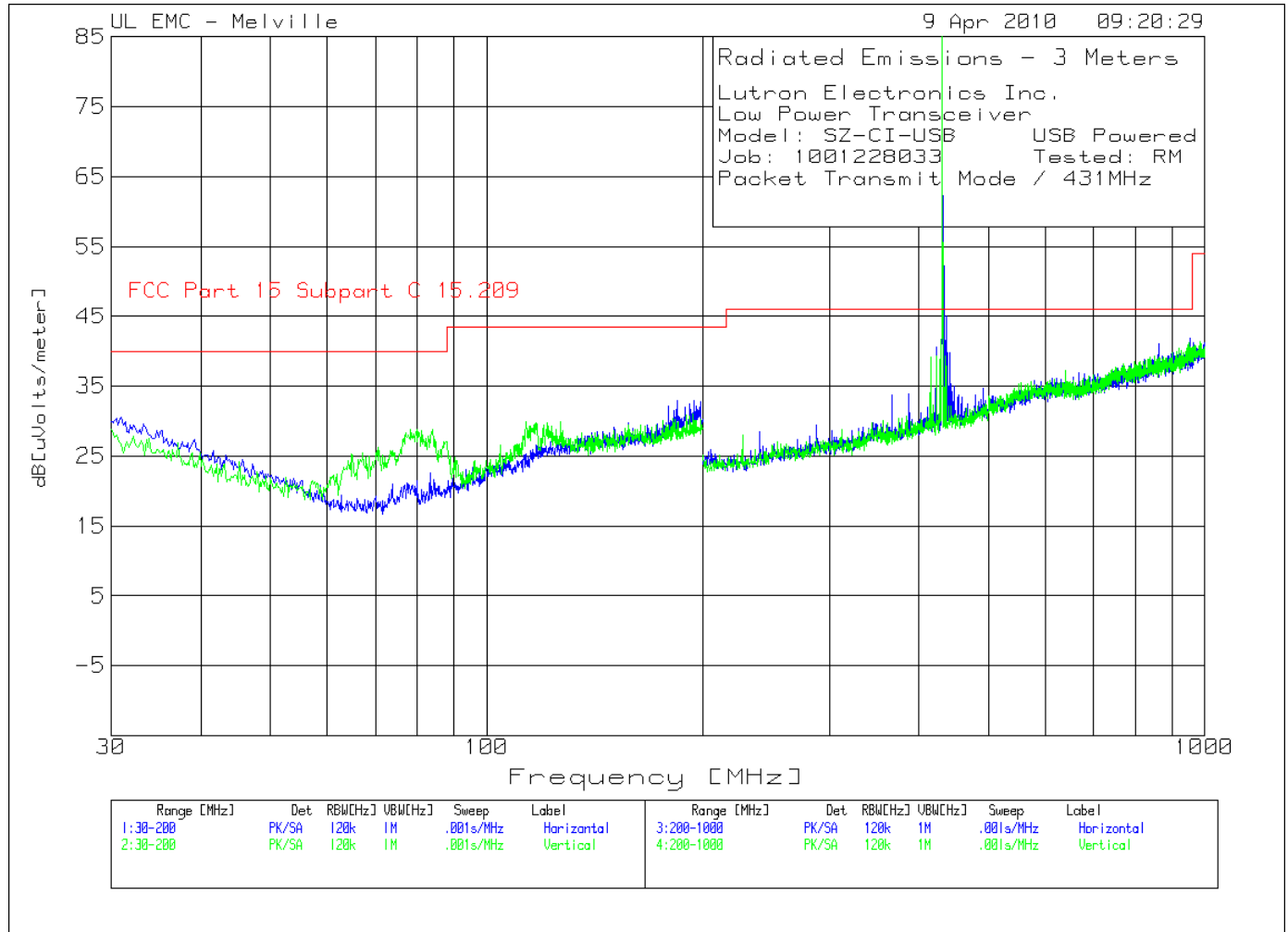
Lutron Electronics Inc.  
 Low Power Transceiver  
 Model: SZ-CI-USB USB Powered  
 Job: 1001228033 Tested: BD  
 Packet Transmit Mode / 431MHz

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
-----											
0°	.009 - .15MHz	-----									
1	.02491	45.77 pk	0	24.9	70.67	119.7	-	-	-	-	-
	Azimuth:6	Height:104	Horz	Margin [dB]	-49.03	-	-	-	-	-	-
0°	.15 - 30MHz	-----									
5	.15746	51.07 pk	0	17.6	68.67	103.7	-	-	-	-	-
	Azimuth:157	Height:100	Horz	Margin [dB]	-35.03	-	-	-	-	-	-
45°	.009 - .15MHz	-----									
2	.0318	44.12 pk	0	23.7	67.82	117.5	-	-	-	-	-
	Azimuth:7	Height:121	Horz	Margin [dB]	-49.68	-	-	-	-	-	-
45°	.15 - 30MHz	-----									
6	.56801	41.4 pk	0	17.1	58.5	72.5	-	-	-	-	-
	Azimuth:179	Height:121	Horz	Margin [dB]	-14	-	-	-	-	-	-
90°	.009 - .15MHz	-----									
3	.01193	47.31 pk	.2	30.1	77.61	126.1	-	-	-	-	-
	Azimuth:290	Height:141	Horz	Margin [dB]	-48.49	-	-	-	-	-	-
135°	.009 - .15MHz	-----									
4	.06035	42.04 pk	0	20	62.04	112	-	-	-	-	-
	Azimuth:153	Height:160	Horz	Margin [dB]	-49.96	-	-	-	-	-	-

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

**Figure 16 Radiated Emissions Graph**



**Table 20 Radiated Emissions Data Points**

Lutron Electronics Inc.  
 Low Power Transceiver  
 Model: SZ-CI-USB USB Powered  
 Job: 1001228033 Tested: RM  
 Packet Transmit Mode / 431MHz

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 -----											
2	422.5113	22.63 pk	1.3	16.6	40.53	46	-	-	-	-	-
	Azimuth:343	Height:200	Horz	Margin [dB]		-5.47	-	-	-	-	-
3	430.9155	76.24 pk	1.3	16.7	94.24	46	-	-	-	-	-
	Azimuth:358	Height:102	Horz	Margin [dB]		48.24	-	-	-	-	-
4	430.9155	76.24 pk	1.3	16.7	94.24	46	-	-	-	-	-
	Azimuth:358	Height:102	Horz	Margin [dB]		48.24	-	-	-	-	-
5	432.9165	37.44 pk	1.3	16.8	55.54	46	-	-	-	-	-
	Azimuth:111	Height:102	Horz	Margin [dB]		9.54	-	-	-	-	-
6	434.5173	29.53 pk	1.3	16.9	47.73	46	-	-	-	-	-
	Azimuth:358	Height:102	Horz	Margin [dB]		1.73	-	-	-	-	-
7	436.9185	26.69 pk	1.3	17	44.99	46	-	-	-	-	-
	Azimuth:235	Height:102	Horz	Margin [dB]		-1.01	-	-	-	-	-
8	440.9205	21.46 pk	1.3	17.1	39.86	46	-	-	-	-	-
	Azimuth:358	Height:200	Horz	Margin [dB]		-6.14	-	-	-	-	-
-----											
Vertical 200 - 1000MHz -----											
9	423.3117	21.67 pk	1.3	16.4	39.37	46	-	-	-	-	-
	Azimuth:350	Height:300	Vert	Margin [dB]		-6.63	-	-	-	-	-
10	428.1141	21.13 pk	1.3	16.4	38.83	46	-	-	-	-	-
	Azimuth:235	Height:400	Vert	Margin [dB]		-7.17	-	-	-	-	-
11	430.9155	68.86 pk	1.3	16.4	86.56	46	-	-	-	-	-
	Azimuth:357	Height:300	Vert	Margin [dB]		40.56	-	-	-	-	-
12	432.5163	34.02 pk	1.3	16.5	51.82	46	-	-	-	-	-
	Azimuth:18	Height:100	Vert	Margin [dB]		5.82	-	-	-	-	-
13	434.9175	21.47 pk	1.3	16.5	39.27	46	-	-	-	-	-
	Azimuth:342	Height:100	Vert	Margin [dB]		-6.73	-	-	-	-	-
14	436.9185	20.16 pk	1.3	16.5	37.96	46	-	-	-	-	-
	Azimuth:357	Height:100	Vert	Margin [dB]		-8.04	-	-	-	-	-

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Job Number: 1001228033 File Number: MC15832 Page 44 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

Lutron Electronics Inc.  
 Low Power Transceiver  
 Model: SZ-CI-USB USB Powered  
 Job: 1001228033 Tested: RM  
 Packet Transmit Mode / 431MHz

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]							
-----										
Horizontal 200 - 1000MHz										
424.4289	16.48 QP	1.3	16.6	34.38	46	-	-	-	-	-
Azimuth: 0 Height:100 Horz					Margin [dB]:	-11.62	-	-	-	-
431.0265	77.38 PK	1.3	16.7	69.38*	-	80.7	-	-	-	-
Azimuth: 183 Height:226 Horz					Margin [dB]:	-	-11.32	-	-	-
432.6289	23.52 QP	1.3	16.8	41.62	46	-	-	-	-	-
Azimuth: 347 Height:194 Horz					Margin [dB]:	-4.38	-	-	-	-
434.2253	17.88 QP	1.3	16.9	36.08	46	-	-	-	-	-
Azimuth: 337 Height:185 Horz					Margin [dB]:	-9.92	-	-	-	-
436.6385	16.69 QP	1.3	17	34.99	46	-	-	-	-	-
Azimuth: 4 Height:158 Horz					Margin [dB]:	-11.01	-	-	-	-
440.7503	16.48 QP	1.3	17.1	34.88	46	-	-	-	-	-
Azimuth: 1 Height:100 Horz					Margin [dB]:	-11.12	-	-	-	-

\*Duty Cycle Correction Factor Applied. See Section 4.4 for calculation

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

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Job Number: 1001228033 File Number: MC15832 Page 45 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

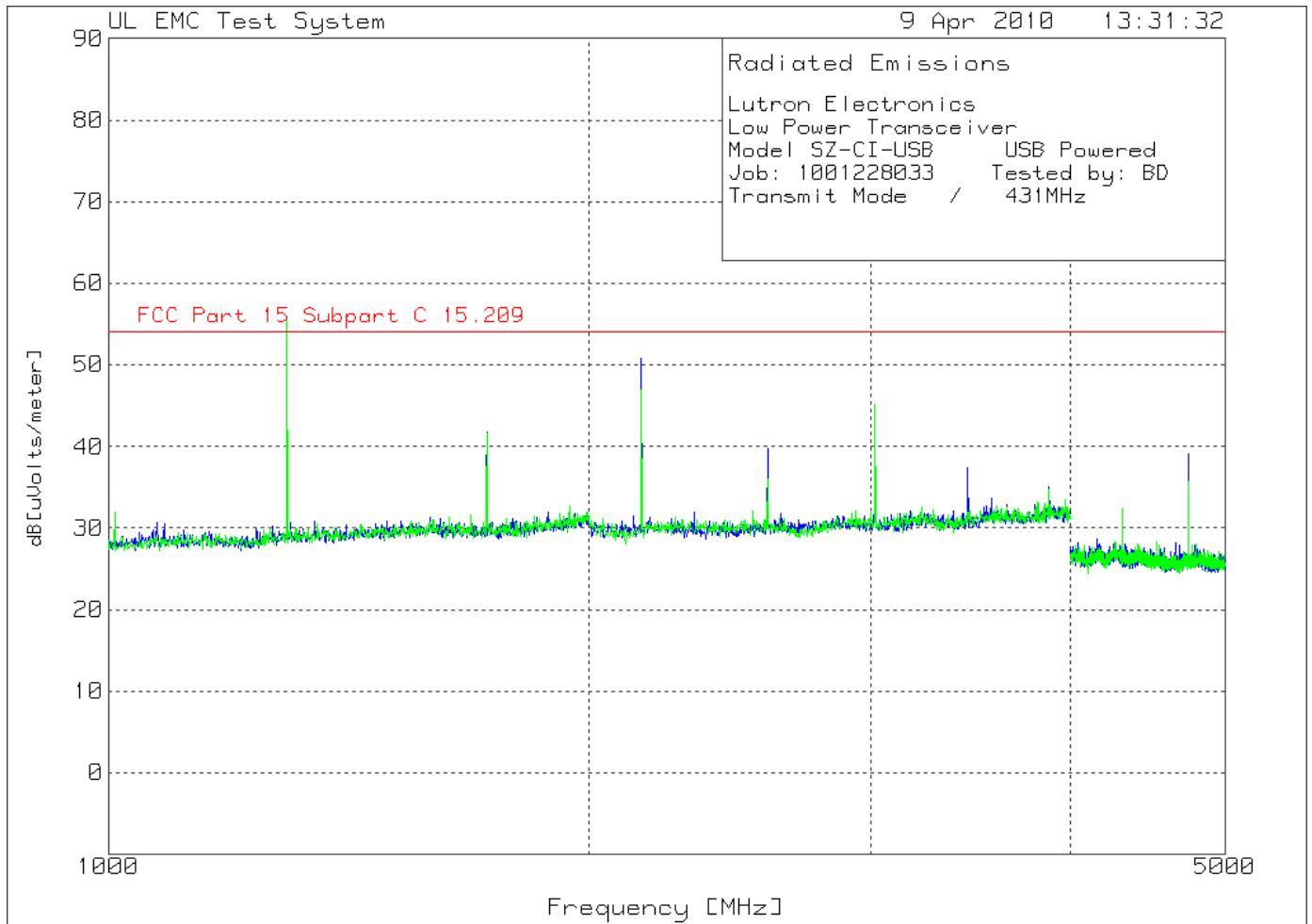
Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4	5	6
Frequency	Reading	Factor	Factor	dB[uVolts/meter]						
[MHz]	[dB(uV)]	[dB]	[dB]							
-----										
Vertical	200 - 1000MHz									
424.0138	16.26 QP	1.3	16.4	33.96	46	-	-	-	-	-
Azimuth: 0	Height:105	Vert	Margin [dB]:	-12.04		-	-	-	-	-
430.9519	74.94 PK	1.3	16.4	66.64*	-	80.7	-	-	-	-
Azimuth: 93	Height:102	Vert	Margin [dB]:	-		-14.06	-	-	-	-
432.2036	21.58 QP	1.3	16.4	39.28	46	-	-	-	-	-
Azimuth: 91	Height:102	Vert	Margin [dB]:	-6.72		-	-	-	-	-
434.6445	16.9 QP	1.3	16.5	34.7	46	-	-	-	-	-
Azimuth: 42	Height:102	Vert	Margin [dB]:	-11.3		-	-	-	-	-
436.6926	16.48 QP	1.3	16.5	34.28	46	-	-	-	-	-
Azimuth: 40	Height:102	Vert	Margin [dB]:	-11.72		-	-	-	-	-

**\*Duty Cycle Correction Factor Applied. See Section 4.4 for calculation**

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

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

**Figure 17 Radiated Emissions Graph**



**Table 21 Radiated Emissions Data Points**

Lutron Electronics  
 Low Power Transceiver  
 Model SZ-CI-USB USB Powered  
 Job: 1001228033 Tested by: BD  
 Transmit Mode / 431MHz

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 1000 - 2000MHz -----											
1	1293.383	78.56 pk	-45.16	20.5	53.9	54	-	-	-	-	-
		Height:250	Horz	Margin [dB]		-.1	-	-	-	-	-
2	1725.343	65.26 pk	-44.36	20.8	41.7	54	-	-	-	-	-
		Height:250	Horz	Margin [dB]		-12.3	-	-	-	-	-
-----											
Horizontal 2000 - 4000MHz -----											
3	2154.806	73.62 pk	-44.21	21.4	50.81	54	-	-	-	-	-
		Height:249	Horz	Margin [dB]		-3.19	-	-	-	-	-
4	2586.767	61.87 pk	-43.49	21.3	39.68	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-14.32	-	-	-	-	-
5	3018.727	66.54 pk	-42.94	21.5	45.1	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-8.9	-	-	-	-	-
6	3450.687	58.05 pk	-42.91	22.2	37.34	54	-	-	-	-	-
		Height:249	Horz	Margin [dB]		-16.66	-	-	-	-	-
-----											
Horizontal 4000 - 5000MHz -----											
7	4742.097	65.12 pk	-53.29	27.2	39.03	54	-	-	-	-	-
		Height:250	Horz	Margin [dB]		-14.97	-	-	-	-	-

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Job Number: 1001228033 File Number: MC15832 Page 48 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

Vertical 1000 - 2000MHz -----										
8	1293.383	80.59 pk	-45.16	20.5	55.93	54	-	-	-	-
		Height:100 Vert		Margin [dB]		1.93	-	-	-	-
9	1725.343	65.11 pk	-44.36	20.8	41.55	54	-	-	-	-
		Height:100 Vert		Margin [dB]		-12.45	-	-	-	-
Vertical 2000 - 4000MHz -----										
10	2154.806	70.1 pk	-44.21	21	46.89	54	-	-	-	-
		Height:250 Vert		Margin [dB]		-7.11	-	-	-	-
11	2586.767	57.93 pk	-43.49	21.5	35.94	54	-	-	-	-
		Height:250 Vert		Margin [dB]		-18.06	-	-	-	-
12	3018.727	66.36 pk	-42.94	21.7	45.12	54	-	-	-	-
		Height:250 Vert		Margin [dB]		-8.88	-	-	-	-
Vertical 4000 - 5000MHz -----										
13	4742.097	61.8 pk	-53.29	27.1	35.61	54	-	-	-	-
		Height:249 Vert		Margin [dB]		-18.39	-	-	-	-

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection



Job Number: 1001228033 File Number: MC15832 Page 49 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

Lutron Electronics  
 Low Power Transceiver  
 Model SZ-CI-USB USB Powered  
 Job: 1001228033 Tested by: BD  
 Transmit Mode / 431MHz

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]							
-----										
Horizontal 1000 - 2000MHz										
1292.8755	80.06 PK	-45.15	20.5	55.41	-	60.7	-	-	-	-
Azimuth: 48	Height:137	Horz	Margin [dB]:	-	-5.29	-	-	-	-	-
1723.8413	68.67 PK	-44.39	20.8	45.08	54	-	-	-	-	-
Azimuth: 68	Height:163	Horz	Margin [dB]:	-8.92	-	-	-	-	-	-
Horizontal 2000 - 4000MHz										
2155.1635	72.4 PK	-44.21	21.4	49.59	54	-	-	-	-	-
Azimuth: 18	Height:160	Horz	Margin [dB]:	-4.41	-	-	-	-	-	-
2585.7425	63.22 PK	-43.5	21.3	41.02	54	-	-	-	-	-
Azimuth: 16	Height:284	Horz	Margin [dB]:	-12.98	-	-	-	-	-	-
3016.717	67.72 PK	-42.93	21.5	46.29	54	-	-	-	-	-
Azimuth: 249	Height:111	Horz	Margin [dB]:	-7.71	-	-	-	-	-	-
Horizontal 4000 - 5000MHz										
4740.5375	68.54 PK	-53.29	27.2	42.45	54	-	-	-	-	-
Azimuth: 321	Height:274	Horz	Margin [dB]:	-11.55	-	-	-	-	-	-

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

PK - Peak detector (maximized)  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

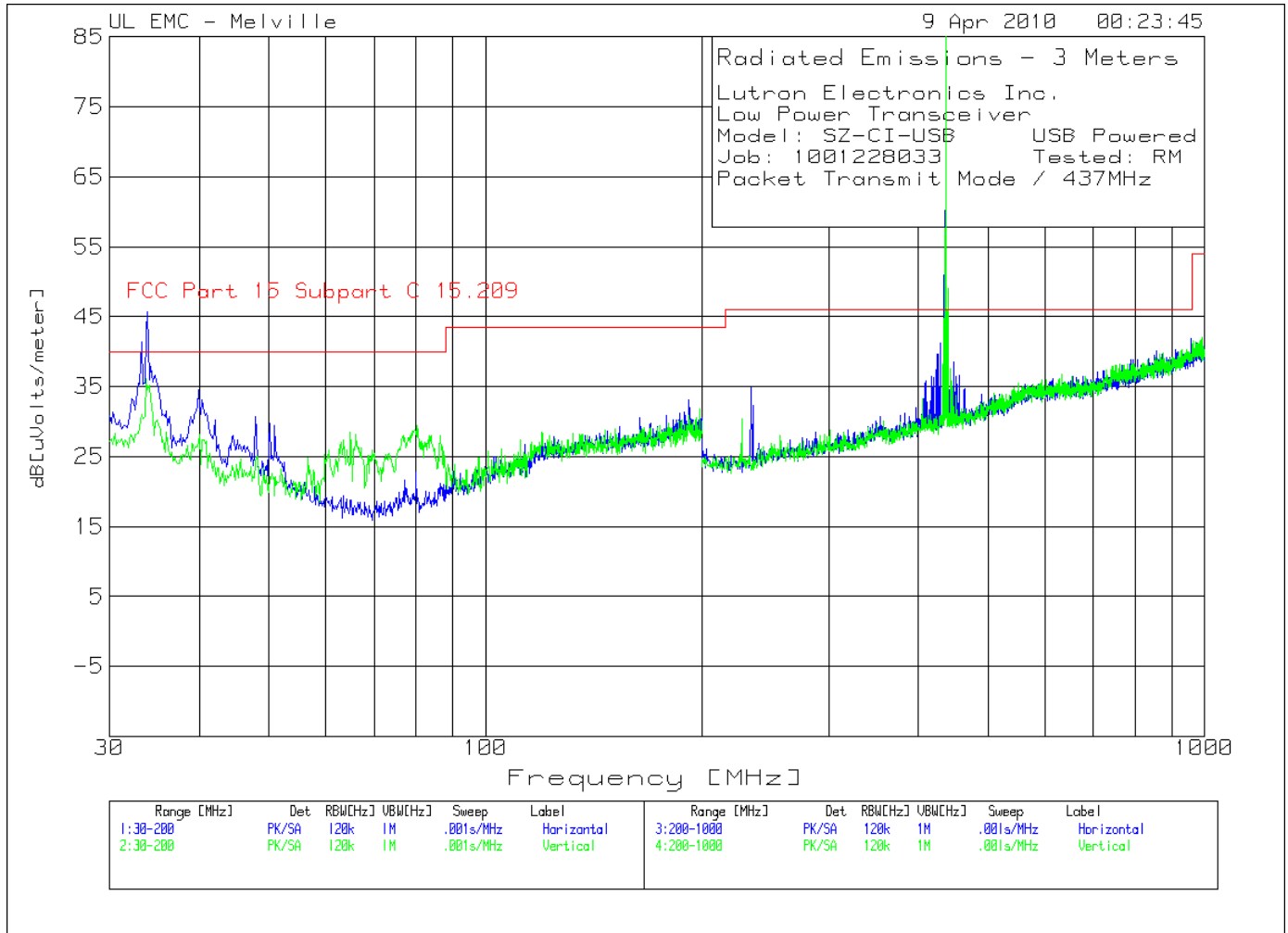
Job Number: 1001228033 File Number: MC15832 Page 50 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

Vertical 1000 - 2000MHz										
1293.1075	81.91	PK	-45.16	20.5	57.25	-	60.7	-	-	-
Azimuth: 163 Height:390 Vert			Margin [dB]:		-	-3.45	-	-	-	-
1723.825	65.91	PK	-44.39	20.8	42.32	54	-	-	-	-
Azimuth: 84 Height:398 Vert			Margin [dB]:		-11.68	-	-	-	-	-
Vertical 2000 - 4000MHz										
2154.8	72.21	PK	-44.21	21	49	54	-	-	-	-
Azimuth: 289 Height:386 Vert			Margin [dB]:		-5	-	-	-	-	-
2585.825	65.14	PK	-43.49	21.5	43.15	54	-	-	-	-
Azimuth: 194 Height:399 Vert			Margin [dB]:		-10.85	-	-	-	-	-
3017.15	70.66	PK	-42.94	21.7	49.42	54	-	-	-	-
Azimuth: 285 Height:257 Vert			Margin [dB]:		-4.58	-	-	-	-	-
Vertical 4000 - 5000MHz										
4741.3625	69.03	PK	-53.29	27.1	42.84	54	-	-	-	-
Azimuth: 13 Height:373 Vert			Margin [dB]:		-11.16	-	-	-	-	-

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

PK - Peak detector (maximized)  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

**Figure 18 Radiated Emissions Graph**



**Table 22 Radiated Emissions Data Points**

Lutron Electronics Inc.  
 Low Power Transceiver  
 Model: SZ-CI-USB USB Powered  
 Job: 1001228033 Tested: RM  
 Packet Transmit Mode / 437MHz

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 30 - 200MHz											
1	33.2332	23.45 pk	.4	17.5	41.35	40	-	-	-	-	-
	Azimuth:342	Height:100	Horz	Margin [dB]	1.35	-	-	-	-	-	-
2	33.9139	28.14 pk	.4	17.1	45.64	40	-	-	-	-	-
	Azimuth:2	Height:300	Horz	Margin [dB]	5.64	-	-	-	-	-	-
3	39.8699	19.43 pk	.4	14.7	34.53	40	-	-	-	-	-
	Azimuth:244	Height:200	Horz	Margin [dB]	-5.47	-	-	-	-	-	-
4	47.8679	18.87 pk	.4	11.5	30.77	40	-	-	-	-	-
	Azimuth:18	Height:300	Horz	Margin [dB]	-9.23	-	-	-	-	-	-
-----											
Vertical 30 - 200MHz											
5	33.7437	20.1 pk	.4	15.7	36.2	40	-	-	-	-	-
	Azimuth:5	Height:100	Vert	Margin [dB]	-3.8	-	-	-	-	-	-
-----											
Horizontal 200 - 1000MHz											
6	428.9145	23.28 pk	1.3	16.7	41.28	46	-	-	-	-	-
	Azimuth:249	Height:300	Horz	Margin [dB]	-4.72	-	-	-	-	-	-
7	433.7169	32.42 pk	1.3	16.8	50.52	46	-	-	-	-	-
	Azimuth:342	Height:200	Horz	Margin [dB]	4.52	-	-	-	-	-	-
8	436.9185	76.68 pk	1.3	17	94.98	46	-	-	-	-	-
	Azimuth:125	Height:200	Horz	Margin [dB]	48.98	-	-	-	-	-	-
9	438.9195	24.35 pk	1.3	17.1	42.75	46	-	-	-	-	-
	Azimuth:18	Height:400	Horz	Margin [dB]	-3.25	-	-	-	-	-	-
10	440.1201	30.39 pk	1.3	17.1	48.79	46	-	-	-	-	-
	Azimuth:125	Height:200	Horz	Margin [dB]	2.79	-	-	-	-	-	-
11	957.979	16.12 pk	1.9	23.8	41.82	46	-	-	-	-	-
	Azimuth:126	Height:100	Horz	Margin [dB]	-4.18	-	-	-	-	-	-
12	874.7374	14.65 pk	1.7	23	39.35	46	-	-	-	-	-
	Azimuth:2	Height:300	Horz	Margin [dB]	-6.65	-	-	-	-	-	-

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Job Number: 1001228033 File Number: MC15832 Page 53 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

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 200 - 1000MHz -----											
13	434.5173	26.9 pk	1.3	16.5	44.7	46	-	-	-	-	-
	Azimuth:125	Height:300	Vert	Margin [dB]		-1.3	-	-	-	-	-
14	435.3177	34.7 pk	1.3	16.5	52.5	46	-	-	-	-	-
	Azimuth:2	Height:100	Vert	Margin [dB]		6.5	-	-	-	-	-
15	438.5193	27.91 pk	1.3	16.6	45.81	46	-	-	-	-	-
	Azimuth:249	Height:300	Vert	Margin [dB]		-.19	-	-	-	-	-
16	439.3197	31.06 pk	1.3	16.6	48.96	46	-	-	-	-	-
	Azimuth:10	Height:100	Vert	Margin [dB]		2.96	-	-	-	-	-
17	875.938	14.94 pk	1.7	23.2	39.84	46	-	-	-	-	-
	Azimuth:2	Height:200	Vert	Margin [dB]		-6.16	-	-	-	-	-
18	959.98	14.8 pk	1.9	24.4	41.1	46	-	-	-	-	-
	Azimuth:12	Height:100	Vert	Margin [dB]		-4.9	-	-	-	-	-
19	436.9185	68.29 pk	1.3	16.5	86.09	46	-	-	-	-	-
	Azimuth:249	Height:300	Vert	Margin [dB]		40.09	-	-	-	-	-

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Job Number: 1001228033 File Number: MC15832 Page 54 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

Lutron Electronics Inc.  
 Low Power Transceiver  
 Model: SZ-CI-USB USB Powered  
 Job: 1001228033 Tested: RM  
 Packet Transmit Mode / 437MHz

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]							
-----										
Horizontal 30 - 200MHz										
33.8517	12.53 QP	.4	17.1	30.03	40	-	-	-	-	-
Azimuth: 11	Height:100	Horz	Margin [dB]:	-9.97		-	-	-	-	-
33.9139	12.9 QP	.4	17.1	30.4	40	-	-	-	-	-
Azimuth: 7	Height:100	Horz	Margin [dB]:	-9.6		-	-	-	-	-
33.2332	9.87 QP	.4	17.5	27.77	40	-	-	-	-	-
Azimuth: 0	Height:100	Horz	Margin [dB]:	-12.23		-	-	-	-	-
40.0182	11.4 QP	.4	14.6	26.4	40	-	-	-	-	-
Azimuth: 0	Height:132	Horz	Margin [dB]:	-13.6		-	-	-	-	-
40.0182	11.36 QP	.4	14.6	26.36	40	-	-	-	-	-
Azimuth: 0	Height:132	Horz	Margin [dB]:	-13.64		-	-	-	-	-
Vertical 30 - 200MHz										
34.1445	11.24 QP	.4	15.5	27.14	40	-	-	-	-	-
Azimuth: 3	Height:236	Vert	Margin [dB]:	-12.86		-	-	-	-	-
Horizontal 200 - 1000MHz										
436.9389	77.1 PK	1.3	17	69.4*	-	80.9	-	-	-	-
Azimuth: 164	Height:264	Horz	Margin [dB]:	-		-11.5	-	-	-	-
874	9.04 QP	1.7	23	33.74	46	-	-	-	-	-
Azimuth: 156	Height:100	Horz	Margin [dB]:	-12.26		-	-	-	-	-
428.9145	8.52 QP	1.3	16.7	26.52	46	-	-	-	-	-
Azimuth: 0	Height:100	Horz	Margin [dB]:	-19.48		-	-	-	-	-
433.7169	11.28 QP	1.3	16.8	29.38	46	-	-	-	-	-
Azimuth: 0	Height:100	Horz	Margin [dB]:	-16.62		-	-	-	-	-

**\*Duty Cycle Correction Factor Applied. See Section 4.4 for calculation**

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Job Number: 1001228033 File Number: MC15832 Page 55 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

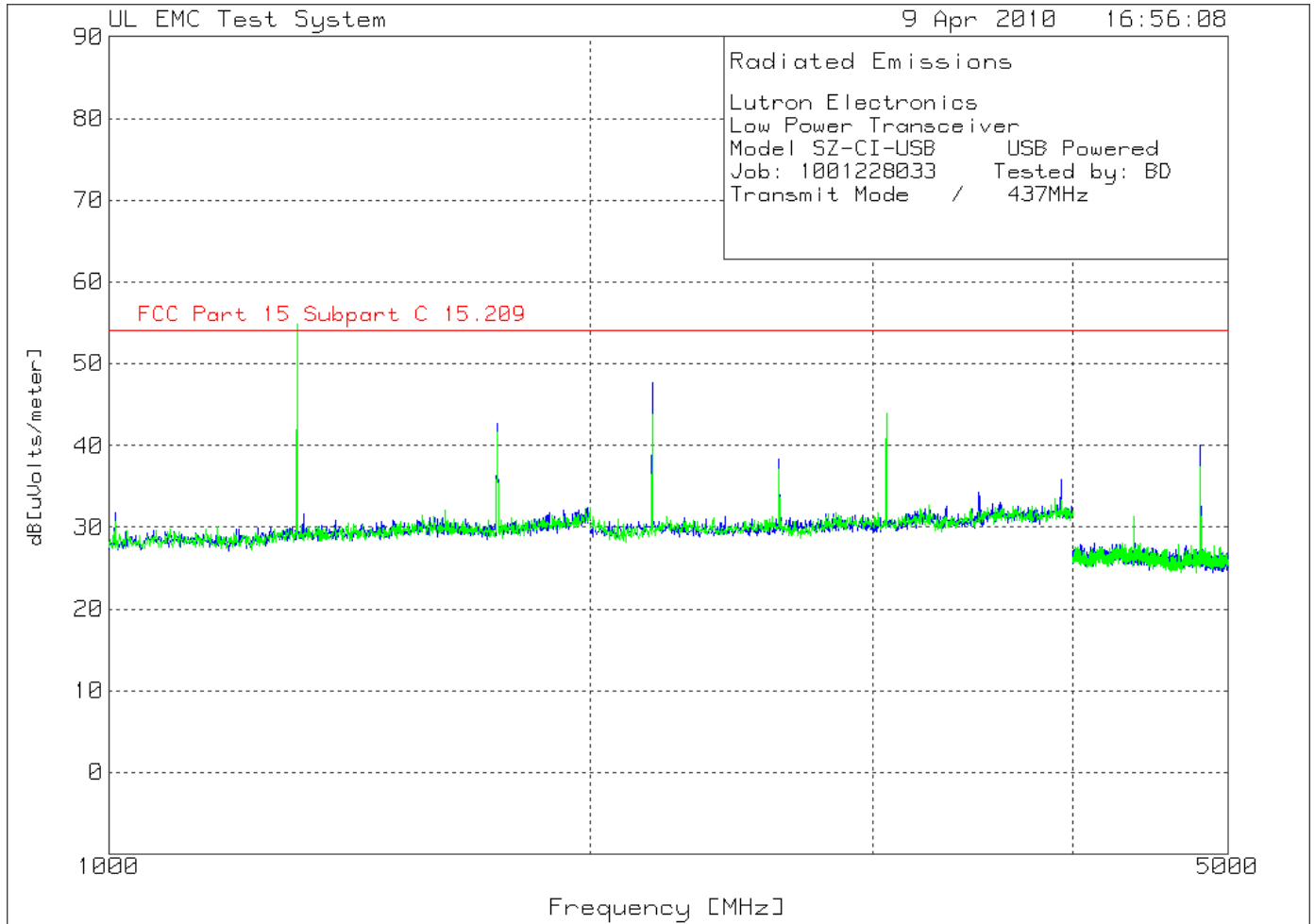
Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4	5	6
Frequency	Reading	Factor	Factor	dB[uVolts/meter]						
[MHz]	[dB(uV)]	[dB]	[dB]							
-----										
Horizontal 200 - 1000MHz										
438.9195	20.21 QP	1.3	17.1	38.61	46	-	-	-	-	-
Azimuth: 175 Height:238 Horz					Margin [dB]:	-7.39	-	-	-	-
440.1201	15.09 QP	1.3	17.1	33.49	46	-	-	-	-	-
Azimuth: 0 Height:234 Horz					Margin [dB]:	-12.51	-	-	-	-
957.979	9.25 QP	1.9	23.8	34.95	46	-	-	-	-	-
Azimuth: 3 Height:100 Horz					Margin [dB]:	-11.05	-	-	-	-
Vertical 200 - 1000MHz										
436.8602	74.75 PK	1.3	16.5	66.55*	-	80.9	-	-	-	-
Azimuth: 50 Height:109 Vert					Margin [dB]:	-14.35	-	-	-	-
874	9.04 QP	1.7	23.2	33.94	46	-	-	-	-	-
Azimuth: 326 Height:268 Vert					Margin [dB]:	-12.06	-	-	-	-
435.3177	12.83 QP	1.3	16.5	30.63	46	-	-	-	-	-
Azimuth: 22 Height:100 Vert					Margin [dB]:	-15.37	-	-	-	-
434.5173	11.59 QP	1.3	16.5	29.39	46	-	-	-	-	-
Azimuth: 70 Height:100 Vert					Margin [dB]:	-16.61	-	-	-	-
438.5193	18.64 QP	1.3	16.6	36.54	46	-	-	-	-	-
Azimuth: 70 Height:102 Vert					Margin [dB]:	-9.46	-	-	-	-
439.3197	15.01 QP	1.3	16.6	32.91	46	-	-	-	-	-
Azimuth: 51 Height:102 Vert					Margin [dB]:	-13.09	-	-	-	-
959.98	9.34 QP	1.9	24.4	35.64	46	-	-	-	-	-
Azimuth: 49 Height:102 Vert					Margin [dB]:	-10.36	-	-	-	-

**\*Duty Cycle Correction Factor Applied. See Section 4.4 for calculation**

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Figure 19 Radiated Emissions Graph





**Table 23 Radiated Emissions Data Points**

Lutron Electronics  
 Low Power Transceiver  
 Model SZ-CI-USB USB Powered  
 Job: 1001228033 Tested by: BD  
 Transmit Mode / 437MHz

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 1000 - 2000MHz											
1	1310.861	78.85 pk	-45.09	20.5	54.26	54	-	-	-	-	-
		Height:249	Horz	Margin [dB]		.26	-	-	-	-	-
2	1749.064	66.15 pk	-44.33	20.8	42.62	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-11.38	-	-	-	-	-
-----											
Horizontal 2000 - 4000MHz											
3	2184.769	70.11 pk	-44	21.5	47.61	54	-	-	-	-	-
		Height:249	Horz	Margin [dB]		-6.39	-	-	-	-	-
4	2621.723	60.5 pk	-43.56	21.4	38.34	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-15.66	-	-	-	-	-
5	3061.174	64.78 pk	-42.99	21.6	43.39	54	-	-	-	-	-
		Height:249	Horz	Margin [dB]		-10.61	-	-	-	-	-
-----											
Horizontal 4000 - 5000MHz											
6	4806.988	66.53 pk	-53.55	27.1	40.08	54	-	-	-	-	-
		Height:250	Horz	Margin [dB]		-13.92	-	-	-	-	-

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Job Number: 1001228033 File Number: MC15832 Page 58 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

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 1000 - 2000MHz -----											
7	1310.861	79.39 pk	-45.09	20.5	54.8	54	-	-	-	-	-
		Height:100 Vert		Margin [dB]		.8	-	-	-	-	-
8	1747.815	65.19 pk	-44.35	20.8	41.64	54	-	-	-	-	-
		Height:100 Vert		Margin [dB]		-12.36	-	-	-	-	-
-----											
Vertical 2000 - 4000MHz -----											
9	2184.769	66.63 pk	-44	21.2	43.83	54	-	-	-	-	-
		Height:100 Vert		Margin [dB]		-10.17	-	-	-	-	-
10	2621.723	59.26 pk	-43.56	21.4	37.1	54	-	-	-	-	-
		Height:249 Vert		Margin [dB]		-16.9	-	-	-	-	-
11	3061.174	65.06 pk	-42.99	21.8	43.87	54	-	-	-	-	-
		Height:249 Vert		Margin [dB]		-10.13	-	-	-	-	-
-----											
Vertical 4000 - 5000MHz -----											
12	4806.156	63.65 pk	-53.55	27.3	37.4	54	-	-	-	-	-
		Height:250 Vert		Margin [dB]		-16.6	-	-	-	-	-

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 - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Job Number: 1001228033 File Number: MC15832 Page 59 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

Lutron Electronics  
 Low Power Transceiver  
 Model SZ-CI-USB USB Powered  
 Job: 1001228033 Tested by: BD  
 Transmit Mode / 437MHz

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]							
-----										
Horizontal 1000 - 2000MHz										
1310.5725	79.65 PK	-45.08	20.5	29.07*	54	-	-	-	-	-
Azimuth: 5 Height:397 Horz					Margin [dB]:	-24.93	-	-	-	-
1747.7188	71.08 PK	-44.35	20.8	47.53	54	-	-	-	-	-
Azimuth: 19 Height:347 Horz					Margin [dB]:	-6.47	-	-	-	-
Horizontal 2000 - 4000MHz										
2184.465	70.49 PK	-44.01	21.5	47.98	54	-	-	-	-	-
Azimuth: 39 Height:306 Horz					Margin [dB]:	-6.02	-	-	-	-
2621.5	62.16 PK	-43.56	21.4	40	54	-	-	-	-	-
Azimuth: 29 Height:368 Horz					Margin [dB]:	-14	-	-	-	-
3058.515	69.06 PK	-42.92	21.6	47.74	54	-	-	-	-	-
Azimuth: 220 Height:226 Horz					Margin [dB]:	-6.26	-	-	-	-
Horizontal 4000 - 5000MHz										
4806.265	70.45 PK	-53.55	27.1	44	54	-	-	-	-	-
Azimuth: 37 Height:310 Horz					Margin [dB]:	-10	-	-	-	-

**\*Duty Cycle Correction Factor Applied. See Section 4.4 for calculation**

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

PK - Peak detector (Maximized)  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Job Number: 1001228033 File Number: MC15832 Page 60 of 73  
 Model Number: SZ-CI-USB  
 Client Name: LUTRON ELECTRONICS INC  
 FCC ID: JPZ0070 IC Number: 2851A-JPZ0070

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]							
-----										
Vertical 1000 - 2000MHz										
1310.7988	80.39 PK	-45.09	20.5	29.8*	54	-	-	-	-	-
Azimuth: 75 Height:315 Vert					Margin [dB]:	-24.2	-	-	-	-
1747.61	68.41 PK	-44.35	20.8	44.86	54	-	-	-	-	-
Azimuth: 296 Height:290 Vert					Margin [dB]:	-9.14	-	-	-	-
Vertical 2000 - 4000MHz										
2184.662	71.77 PK	-44.01	21.2	48.96	54	-	-	-	-	-
Azimuth: 127 Height:304 Vert					Margin [dB]:	-5.04	-	-	-	-
2621.132	62.16 PK	-43.56	21.4	40	54	-	-	-	-	-
Azimuth: 261 Height:386 Vert					Margin [dB]:	-14	-	-	-	-
3058.5496	68.25 PK	-42.92	21.8	47.13	54	-	-	-	-	-
Azimuth: 286 Height:325 Vert					Margin [dB]:	-6.87	-	-	-	-
Vertical 4000 - 5000MHz										
4806.2641	68.22 PK	-53.55	27.3	41.97	54	-	-	-	-	-
Azimuth: 19 Height:243 Vert					Margin [dB]:	-12.03	-	-	-	-

**\*Duty Cycle Correction Factor Applied. See Section 4.4 for calculation**

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

PK - Peak detector (Maximized)  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

**4.6 Test Conditions and Results – RADIATED EMISSIONS (UNINTENTIONAL)**

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 10-meter below 1GHz and 3-meter above 1GHz. 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	FCC Part 15, Subpart B, 15.109	
UL LPG	80-EM-S0029	
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	30MHz – 1GHz	(10 meter measurement distance)
Fully configured sample scanned over the following frequency range	1GHz – 2GHz	(3 meter measurement distance)
<b>Limits - Class B</b>		
Frequency (MHz)	Limit (dBµV/m)	
	Quasi-Peak	Average
30-230	30	NA
230-1000	37	NA
1000 - 2000	NA	54 (at 3-meter)
Supplementary information: None		

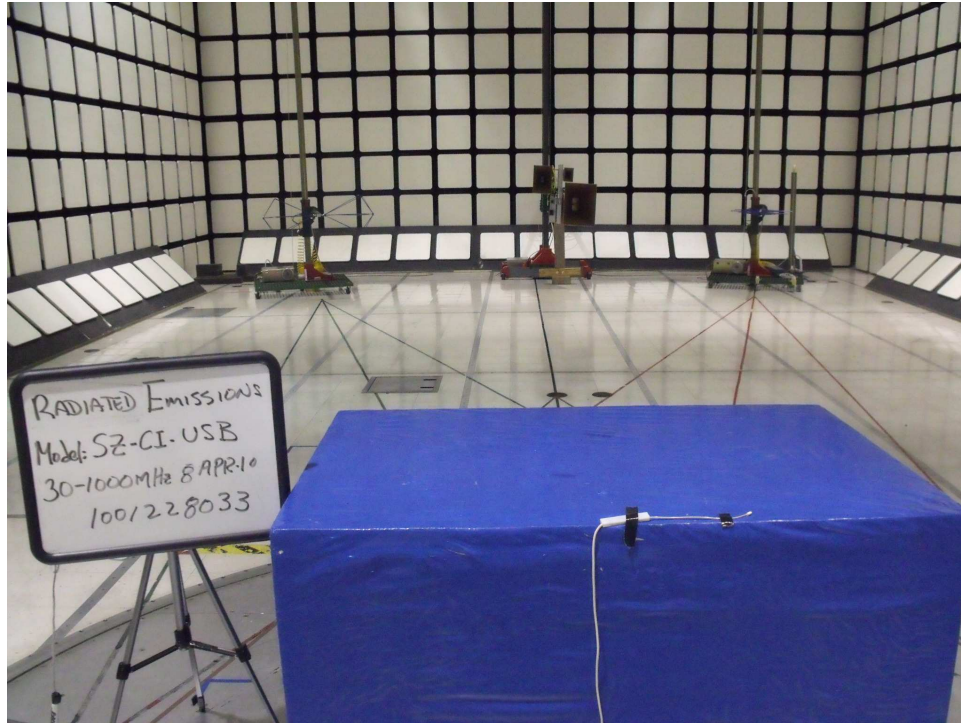
**Table 24 Radiated Emissions EUT Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	3
1	1	4
Supplementary information: None		

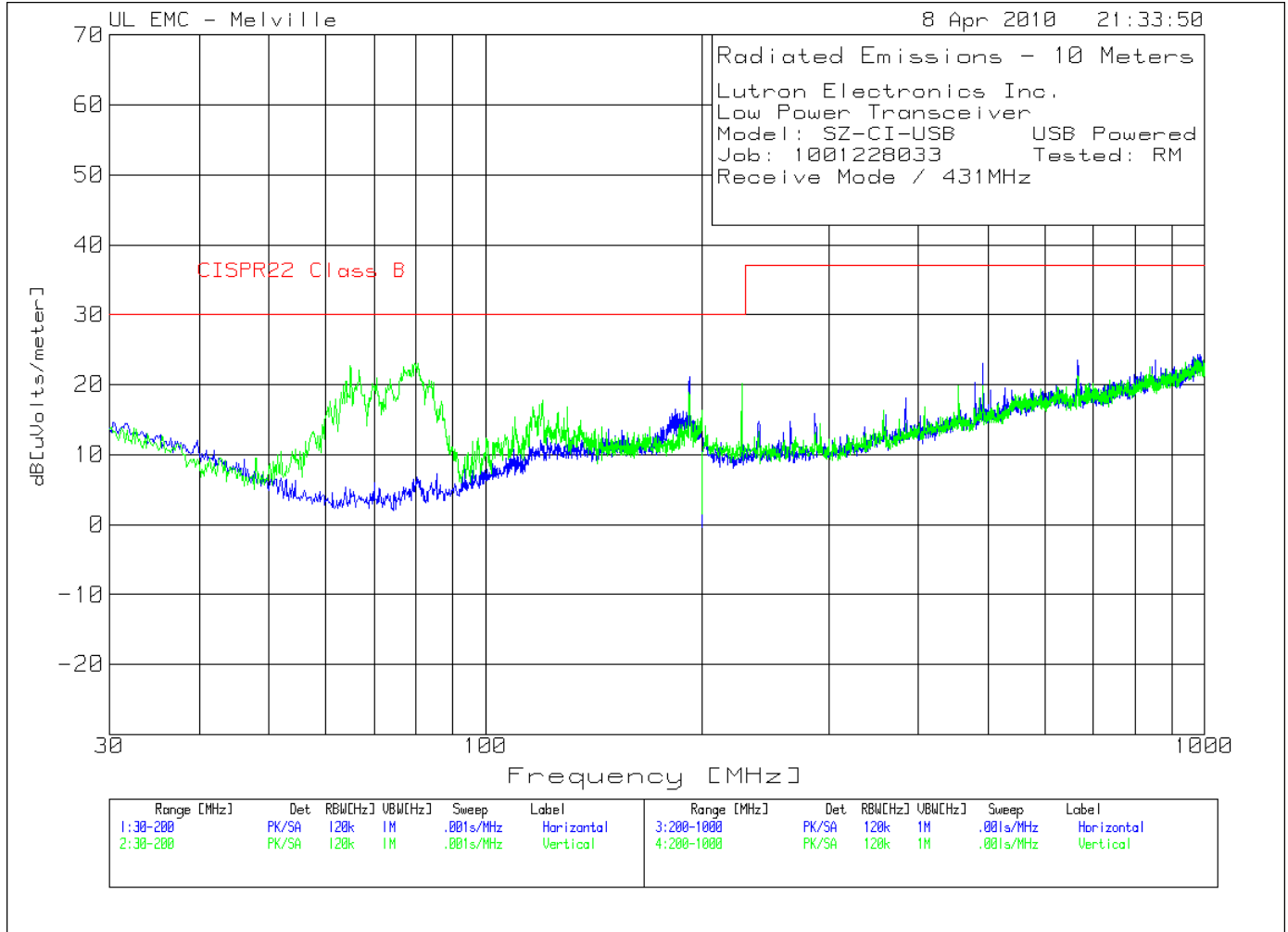
**Table 25 Radiated Emissions Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
30-1000MHz			
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Bicon Antenna	Schaffner	VBA6106A	43441
Log-P Antenna	Schaffner	UPA6109	44067
Bias Tee	Miteq	AM-1523-7687	44392
Bias Tee	Miteq	AM-1523-7687	44393
Preamp	Miteq	AM-3A-000110-7687	44391
Preamp	Miteq	AM-3A-000110-7687	44394
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
Multimeter	Fluke	83V	43443
Above 1GHz (Band Optimized System)			
Spectrum Analyzer	Agilent	E7405A	19695
Horn Antenna (1-2 GHz)	ETS	3161-01	51442
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
Multimeter	Fluke	83V	43443

Figure 20 Test setup for Radiated Emissions



**Figure 21 Radiated Emissions Graph**





**Table 26 Radiated Emissions Data Points**

Lutron Electronics Inc.  
 Low Power Transceiver  
 Model: SZ-CI-USB USB Powered  
 Job: 1001228033 Tested: RM  
 Receive Mode / 431MHz

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 30 - 200MHz -----											
1	192.1722	40.82 pk	-35.3	15.6	21.12	30	-	-	-	-	-
	Azimuth:343	Height:399	Horz	Margin [dB]		-8.88	-	-	-	-	-
-----											
Vertical 30 - 200MHz -----											
2	64.8849	52.21 pk	-35.7	6.2	22.71	30	-	-	-	-	-
	Azimuth:10	Height:100	Vert	Margin [dB]		-7.29	-	-	-	-	-
3	79.6897	50.91 pk	-35.8	8	23.11	30	-	-	-	-	-
	Azimuth:343	Height:100	Vert	Margin [dB]		-6.89	-	-	-	-	-
-----											
Horizontal 200 - 1000MHz -----											
4	492.1461	38.23 pk	-32.7	17.5	23.03	37	-	-	-	-	-
	Azimuth:2	Height:300	Horz	Margin [dB]		-13.97	-	-	-	-	-
5	664.6323	35.02 pk	-31.8	20.3	23.52	37	-	-	-	-	-
	Azimuth:233	Height:100	Horz	Margin [dB]		-13.48	-	-	-	-	-
-----											
Vertical 200 - 1000MHz -----											
6	227.2136	44.13 pk	-34.5	10.5	20.13	30	-	-	-	-	-
	Azimuth:13	Height:299	Vert	Margin [dB]		-9.87	-	-	-	-	-

LIMIT 1: CISPR22 Class B  
 LIMIT 2: NONE  
 LIMIT 3: NONE  
 LIMIT 4: NONE  
 LIMIT 5: NONE  
 LIMIT 6: NONE

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Figure 22 Radiated Emissions Graph



**Table 27 Radiated Emissions Data Points**

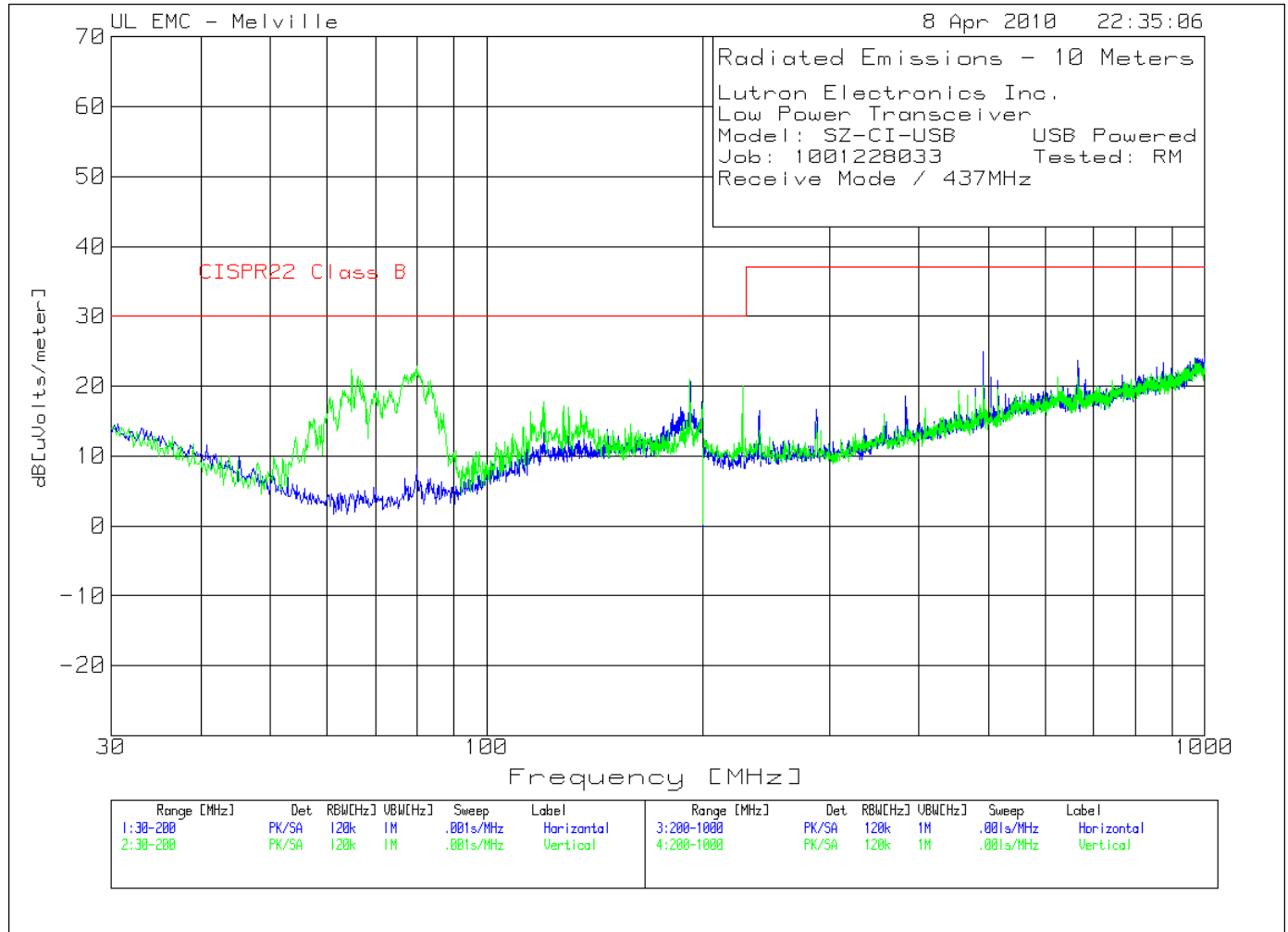
Lutron Electronics  
 Low Power Transceiver  
 Model SZ-CI-USB USB Powered  
 Job: 1001228033 Tested by: BD  
 Rcv Mode / 431MHz

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 1000 - 2000MHz -----											
1	1323.346	56.87 pk	-45.1	20.5	32.27	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-21.73	-	-	-	-	-
2	1521.848	55.42 pk	-44.71	20.9	31.61	54	-	-	-	-	-
		Height:250	Horz	Margin [dB]		-22.39	-	-	-	-	-
3	1843.945	54.73 pk	-44.14	21.3	31.89	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-22.11	-	-	-	-	-
-----											
Vertical 1000 - 2000MHz -----											
4	1199.75	59.78 pk	-45.12	19.8	34.46	54	-	-	-	-	-
		Height:250	Vert	Margin [dB]		-19.54	-	-	-	-	-
5	1383.271	55.24 pk	-45.05	20.7	30.89	54	-	-	-	-	-
		Height:250	Vert	Margin [dB]		-23.11	-	-	-	-	-
6	1655.431	53.81 pk	-44.44	20.9	30.27	54	-	-	-	-	-
		Height:100	Vert	Margin [dB]		-23.73	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart B Class B  
 LIMIT 2: NONE  
 LIMIT 3: NONE  
 LIMIT 4: NONE  
 LIMIT 5: NONE  
 LIMIT 6: NONE

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

**Figure 23 Radiated Emissions Graph**



**Table 28 Radiated Emissions Data Points**

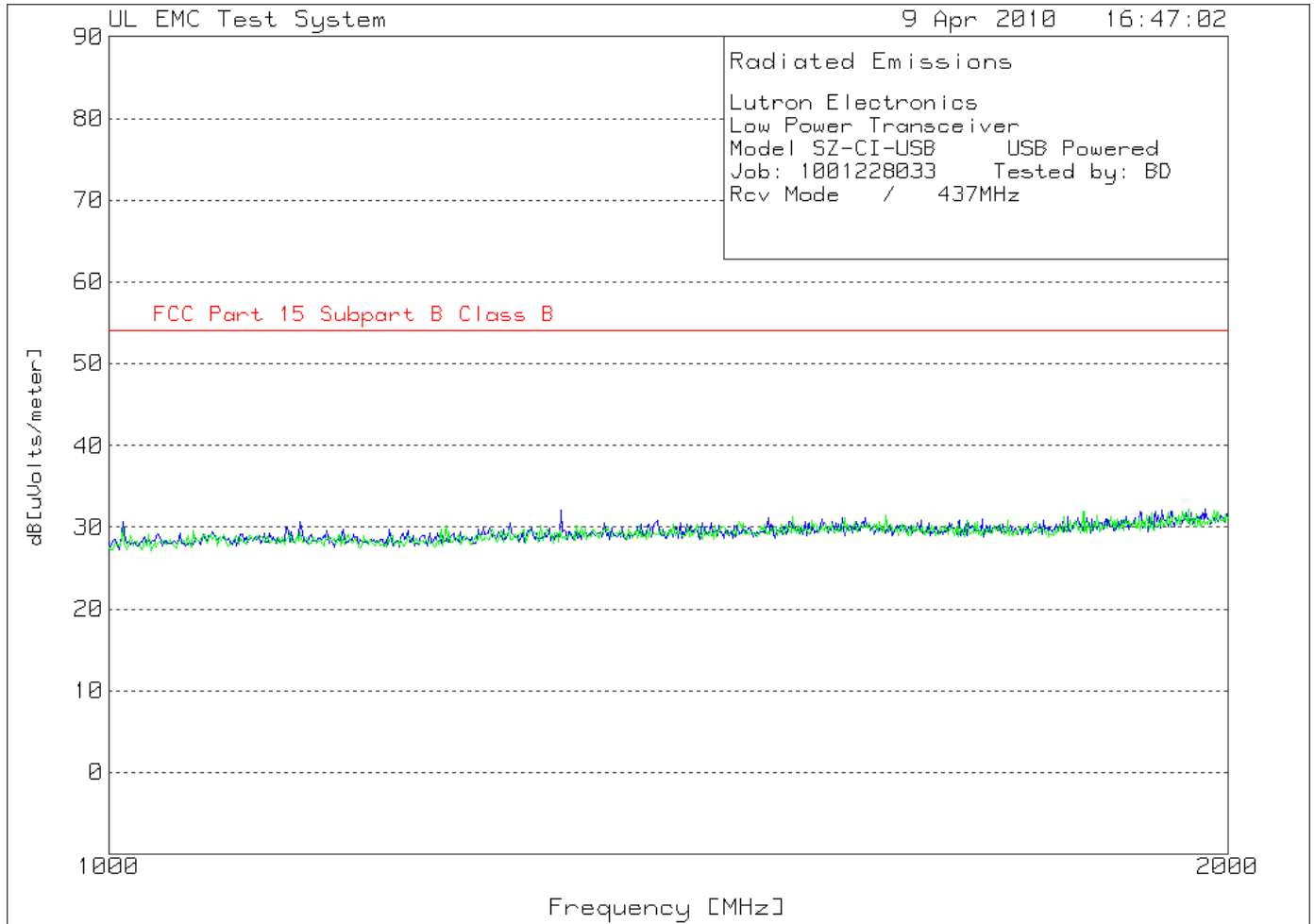
Lutron Electronics Inc.  
 Low Power Transceiver  
 Model: SZ-CI-USB USB Powered  
 Job: 1001228033 Tested: RM  
 Receive Mode / 437MHz

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 30 - 200MHz -----											
1	192.002	40.54 pk	-35.3	15.6	20.84	30	-	-	-	-	-
	Azimuth:343	Height:399	Horz	Margin [dB]		-9.16	-	-	-	-	-
-----											
Vertical 30 - 200MHz -----											
2	64.8849	51.92 pk	-35.7	6.2	22.42	30	-	-	-	-	-
	Azimuth:10	Height:100	Vert	Margin [dB]		-7.58	-	-	-	-	-
3	79.8599	50.54 pk	-35.7	8.1	22.94	30	-	-	-	-	-
	Azimuth:249	Height:100	Vert	Margin [dB]		-7.06	-	-	-	-	-
4	191.8318	39.71 pk	-35.3	16.6	21.01	30	-	-	-	-	-
	Azimuth:17	Height:100	Vert	Margin [dB]		-8.99	-	-	-	-	-
-----											
Horizontal 200 - 1000MHz -----											
5	492.1461	40.17 pk	-32.7	17.5	24.97	37	-	-	-	-	-
	Azimuth:253	Height:200	Horz	Margin [dB]		-12.03	-	-	-	-	-
6	665.0325	35.19 pk	-31.8	20.3	23.69	37	-	-	-	-	-
	Azimuth:232	Height:99	Horz	Margin [dB]		-13.31	-	-	-	-	-
-----											
Vertical 200 - 1000MHz -----											
7	227.2136	44.01 pk	-34.5	10.5	20.01	30	-	-	-	-	-
	Azimuth:2	Height:200	Vert	Margin [dB]		-9.99	-	-	-	-	-
8	454.9275	35.3 pk	-32.8	16.8	19.3	37	-	-	-	-	-
	Azimuth:13	Height:101	Vert	Margin [dB]		-17.7	-	-	-	-	-

LIMIT 1: CISPR22 Class B  
 LIMIT 2: NONE  
 LIMIT 3: NONE  
 LIMIT 4: NONE  
 LIMIT 5: NONE  
 LIMIT 6: NONE

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

Figure 24 Radiated Emissions Graph



**Table 29 Radiated Emissions Data Points**

Lutron Electronics  
 Low Power Transceiver  
 Model SZ-CI-USB USB Powered  
 Job: 1001228033 Tested by: BD  
 Rcv Mode / 437MHz

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 1000 - 2000MHz -----											
1	1008.739	56.61 pk	-45.27	19.4	30.74	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-23.26	-	-	-	-	-
2	1323.346	56.75 pk	-45.1	20.5	32.15	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-21.85	-	-	-	-	-
3	1920.1	54.41 pk	-44.08	21.7	32.03	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-21.97	-	-	-	-	-
-----											
Vertical 1000 - 2000MHz -----											
4	1118.602	54.54 pk	-45.2	20	29.34	54	-	-	-	-	-
		Height:100	Vert	Margin [dB]		-24.66	-	-	-	-	-
5	1293.383	54.34 pk	-45.16	20.5	29.68	54	-	-	-	-	-
		Height:250	Vert	Margin [dB]		-24.32	-	-	-	-	-
6	1827.715	55.05 pk	-44.25	21.2	32	54	-	-	-	-	-
		Height:250	Vert	Margin [dB]		-22	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart B Class B  
 LIMIT 2: NONE  
 LIMIT 3: NONE  
 LIMIT 4: NONE  
 LIMIT 5: NONE  
 LIMIT 6: NONE

PK - Peak detector  
 QP - Quasi-Peak detector  
 av - Linear average detector  
 avlg - Average log detector  
 AV - Average detector  
 CAV - CISPR Average detector  
 RMS - RMS detection  
 CRMS - CISPR RMS detection

## 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-83400, and C-81879 and (Conducted Emissions - Telecommunications Ports) T-1582 and T-1583.



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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

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