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Job Number:	952983
Project Number:	08CA15832
File Number:	MC15896
Date:	29 Jul 2008
Model:	SZ-1SD
FCC ID:	JPZ0056
Industry Canada ID:	2851A-JPZ0056

Electromagnetic Compatibility Test Report

For

LUTRON ELECTRONICS INC

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: Phone: E-mail:	**BOB SPEHALSKI (610) 282-7424 RSPEHALSKI@LUTRON.COM**
Test Report Date:	**29 Jul 2008**
Product Type:	**Lamp Dimmer Module**
Product standards	**FCC Part 15, Subpart C, RSS-GEN, RSS-210**
Model Number:	**SZ-1SD**
Sample Serial Number:	**Non-Serialized Demonstration Unit**
EUT Category:	**Periodic Low Power Transmitter**
Testing Start Date:	**16 Jul 2008**
Date Testing Complete:	**28 Jul 2008**

Overall Results: **Compliant**

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Report Revision History

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

1.0 G E N E R A L - Product Description

1.1 Equipment Description

Description
The Stanza system is an easy-to-install and easy-to-use lighting control system designed especially for hotel guest rooms and similar applications. The system consists of wallbox dimmers, wallbox switches, line-voltage wallbox keypads, low-voltage interfaces, and lamp socket dimmer/switches. All of these devices communicate via radio frequency (RF) within each individual guest room. Stanza lamp socket dimmer/switches allow guests to control a local lamp by rotating the knob at the socket. They can be controlled remotely via other Stanza components.

Features

• Fits standard Edison medium-bore (E26) lamps.
• Allows local dimming control of halogen and incandescent lamps, and switching (toggle On/Off) control of compact fluorescent lamps.
• Light level can also be adjusted, if addressed as part of a Stanza lighting control system, via an RF command from a keypad or integration device.
• Provides auditory feedback when knob is rotated.
• Lamp harp locking mechanism (provided) deters theft.
• Large knob designed with ADA and Universal Design considerations.

Design Considerations

• The lamp socket dimmer/switch cannot be used on lamps with integrated dimmers or switches.
• The lamp socket dimmer/switch should be used only with lamps that have no integral power switch, or lamps that have their power switch left in the On position and disabled.
• Ensure that proper space exists in the lamp harp and shade of the lamp being used.

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

Antenna description: It is a permanently attached to the RF circuit board and the transmit antenna type is a PCB trace antenna.

The transmitter circuitry is regulated and therefore frequency stability with varied input voltages was not required.

1.2 Equipment Marking Plate

Not applicable.

1.3 Device Configuration During Test

1.3.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	Lamp Dimmer Module	LUTRON ELECTRONICS INC	SZ-1SD	None
AE	Light bulb	GE	100W	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	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:

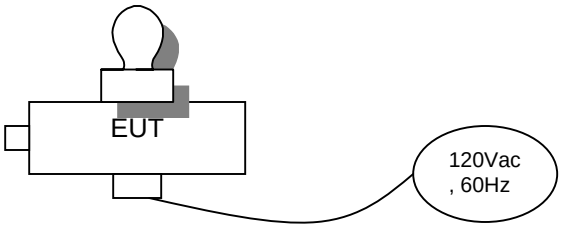
Frequency (MHz)	Description
431	Fundamental Frequency
434	Fundamental Frequency
437	Fundamental Frequency
0.3072	IF
16	Microcontroller
32	Microcontroller

1.3.4 Power Interface:

Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
Rated	120Vac	—	—	60Hz	1	None
1	120Vac	—	—	60Hz	1	None

1.4 Block Diagram:

The diagram below illustrates the configuration of the equipment above.



1.5 EUT Configurations

Mode #	Description
1	Stand-alone with lamp for a load

1.6 EUT Operation Modes

Mode #	Description
1	Continuously transmitting 431MHz
2	Continuously transmitting 434 MHz
3	Continuously transmitting 437 MHz
4	Receive

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	2007
47 CFR Part 15, Subpart C	Code of Federal Regulations, Part 15, Radio Frequency Devices	2007
RSS-GEN, Issue 7	General Requirements and Information for the Certification of Radiocommunication Equipment	2007
RSS-210, Issue 4	Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment	2007

2.4 Results Summary

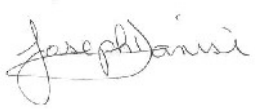
This product is considered Class B and a Periodic Transmitter

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:



Joe Danisi(Ext.23055)
Lead Engineering Associate
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
Industry Canada	RSS-GEN, Issue 4, RSS-210, Issue 7

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

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
Limits			
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	EMCO	3825/2R	ME5-790
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	44547

Figure 1 Test Setup for Conducted Emissions

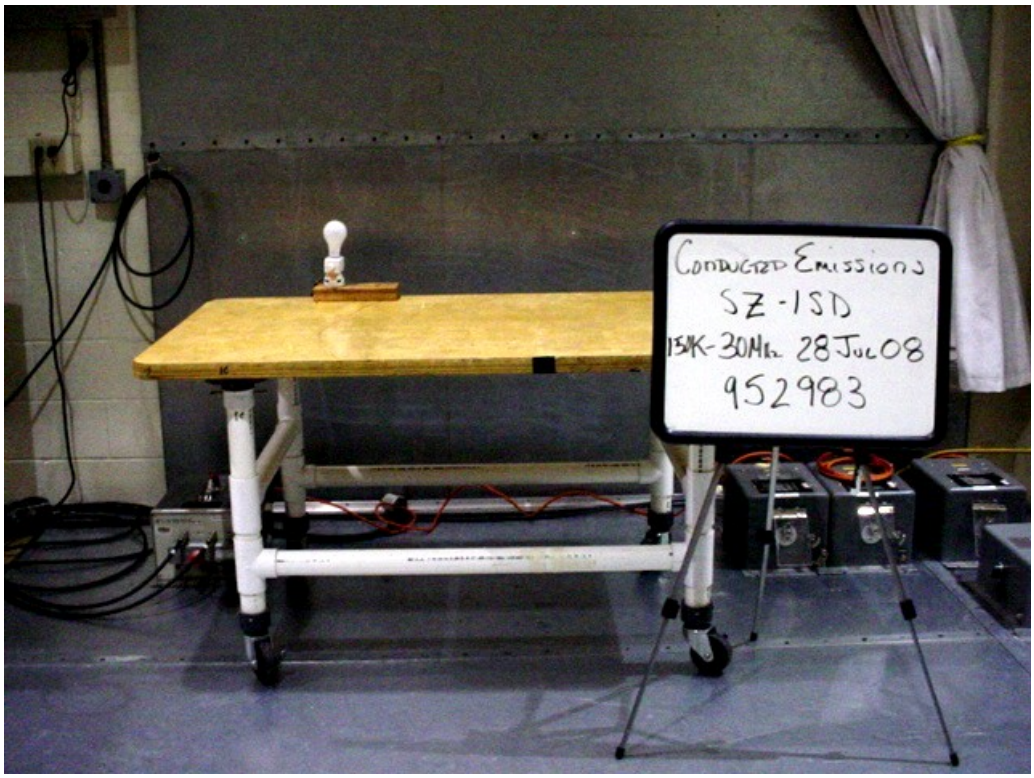
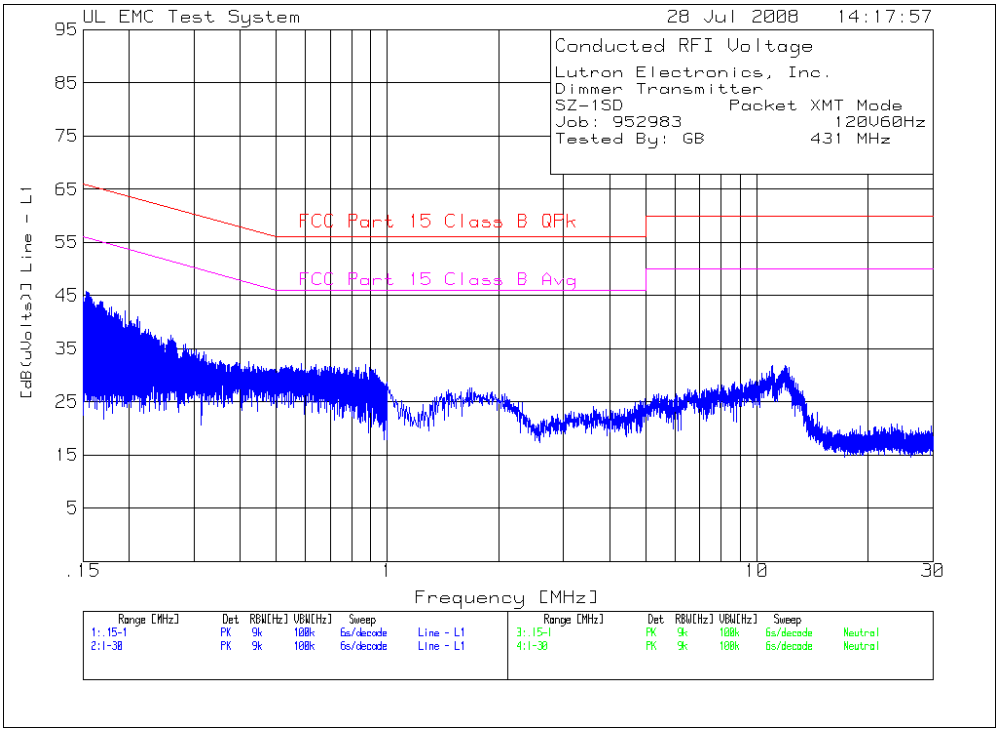


Figure 2 Conducted Emissions Graph



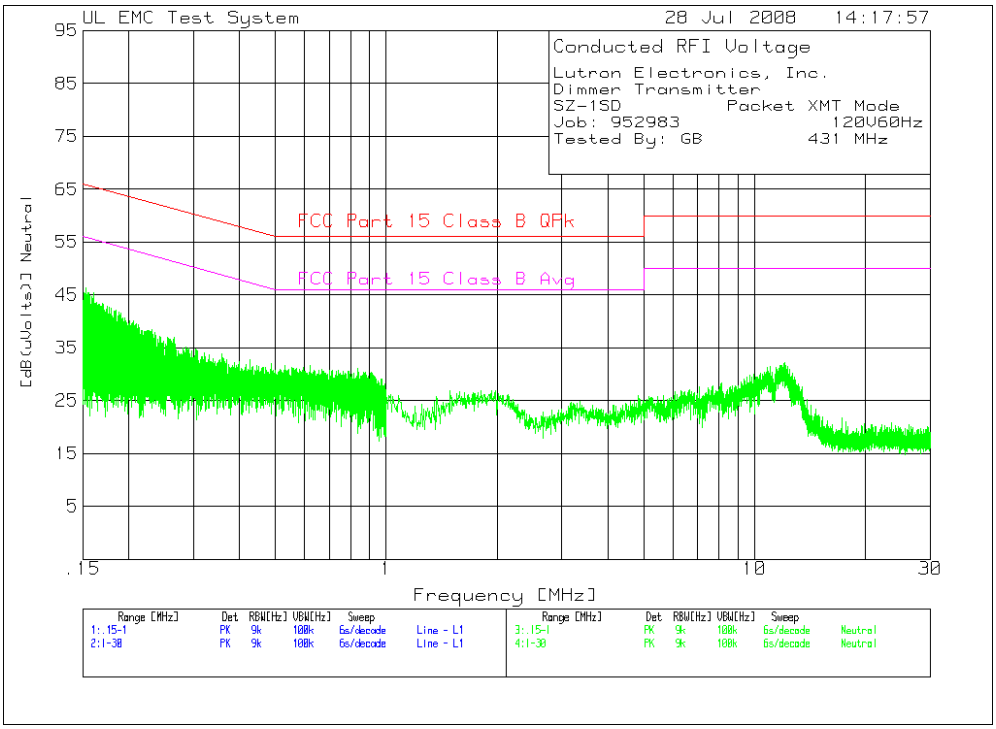


Table 3 Conducted Emissions Data Points

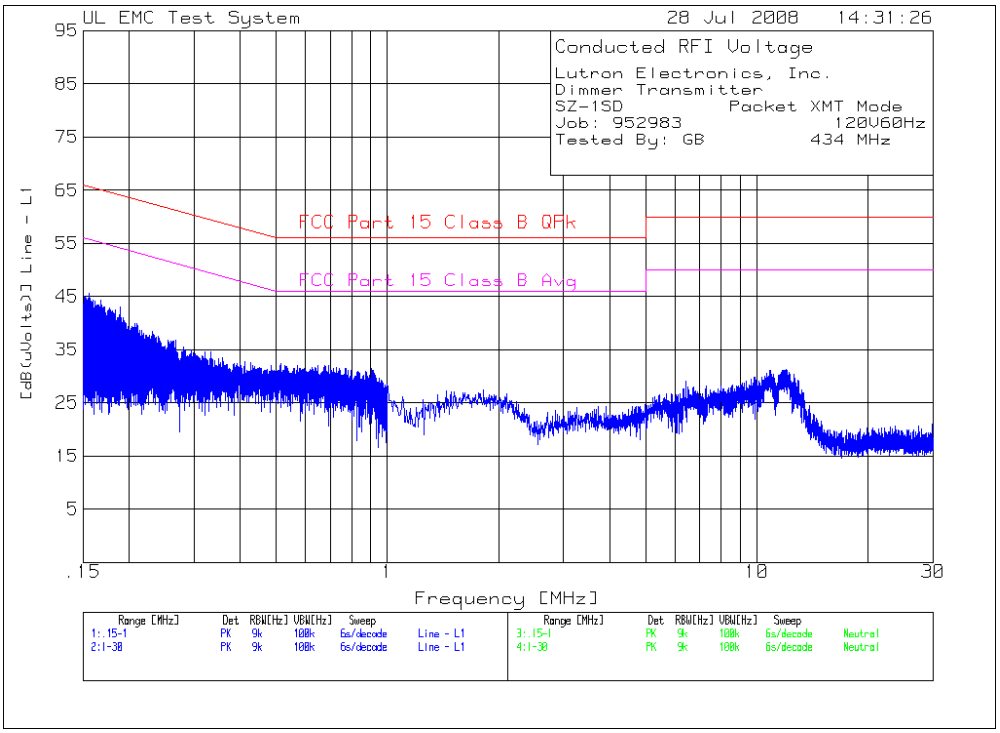
Lutron Electronics, Inc.
Dimmer Transmitter
SZ-1SD Packet XMT Mode
Job: 952983 120V60Hz
Tested By: GB 431 MHz

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	.15357	33.7 pk	12	0	45.7	65.8	55.8	-	-	-	-
				Margin [dB]		-20.1	-10.1	-	-	-	-
2	.16819	32.18 pk	11.8	0	43.98	65	55	-	-	-	-
				Margin [dB]		-21.02	-11.02	-	-	-	-
3	.19523	30.57 pk	11.5	0	42.07	63.8	53.8	-	-	-	-
				Margin [dB]		-21.73	-11.73	-	-	-	-
4	.21087	29.7 pk	11.3	0	41	63.2	53.2	-	-	-	-
				Margin [dB]		-22.2	-12.2	-	-	-	-
Line - L1 1 - 30MHz											
5	10.93739	20.96 pk	10.6	0	31.56	60	50	-	-	-	-
				Margin [dB]		-28.44	-18.44	-	-	-	-
6	11.91198	21.22 pk	10.6	0	31.82	60	50	-	-	-	-
				Margin [dB]		-28.18	-18.18	-	-	-	-
Neutral .15 - 1MHz											
7	.15476	33.41 pk	12	0	45.41	65.7	55.7	-	-	-	-
				Margin [dB]		-20.29	-10.29	-	-	-	-
8	.16088	33.43 pk	11.9	0	45.33	65.4	55.4	-	-	-	-
				Margin [dB]		-20.07	-10.07	-	-	-	-
9	.17976	30.79 pk	11.7	0	42.49	64.5	54.5	-	-	-	-
				Margin [dB]		-22.01	-12.01	-	-	-	-
10	.23077	27.27 pk	11.2	0	38.47	62.4	52.4	-	-	-	-
				Margin [dB]		-23.93	-13.93	-	-	-	-
Neutral 1 - 30MHz											
11	11.04181	20.79 pk	10.7	0	31.49	60	50	-	-	-	-
				Margin [dB]		-28.51	-18.51	-	-	-	-
12	12.03961	21.42 pk	10.8	0	32.22	60	50	-	-	-	-
				Margin [dB]		-27.78	-17.78	-	-	-	-

LIMIT 1: FCC Part 15 Class B QPk
LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector
qp - Quasi-Peak detector
av - average detector
avlg - average log detection
ave - average detection
cav - CISPR average detection

Figure 3 Conducted Emissions Graph



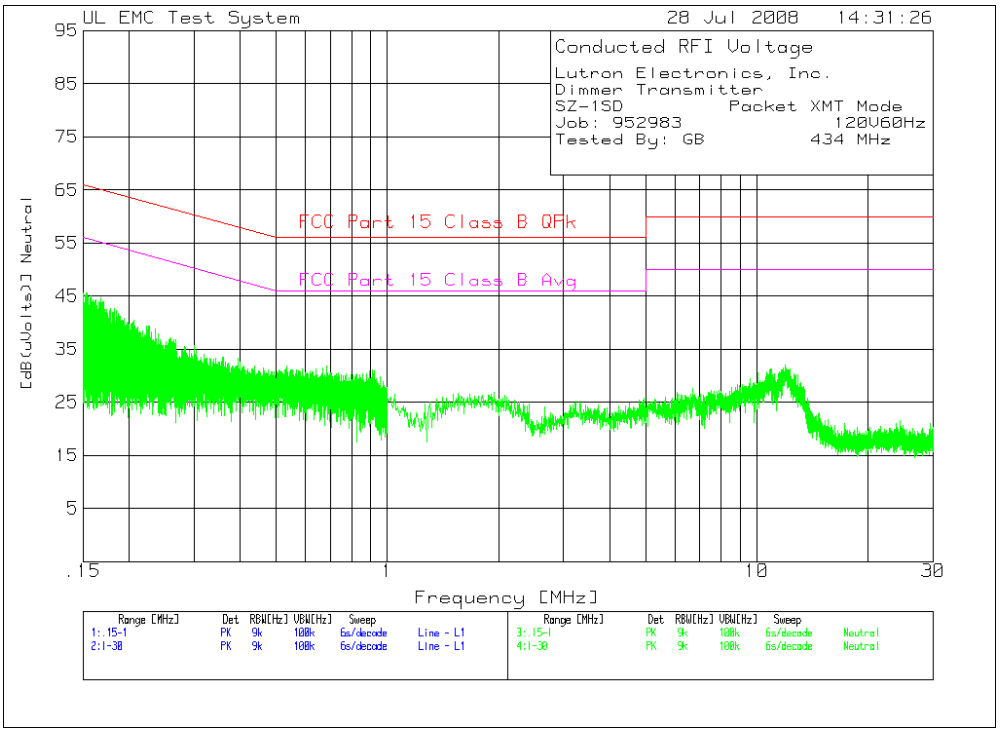


Table 4 Conducted Emissions Data Points

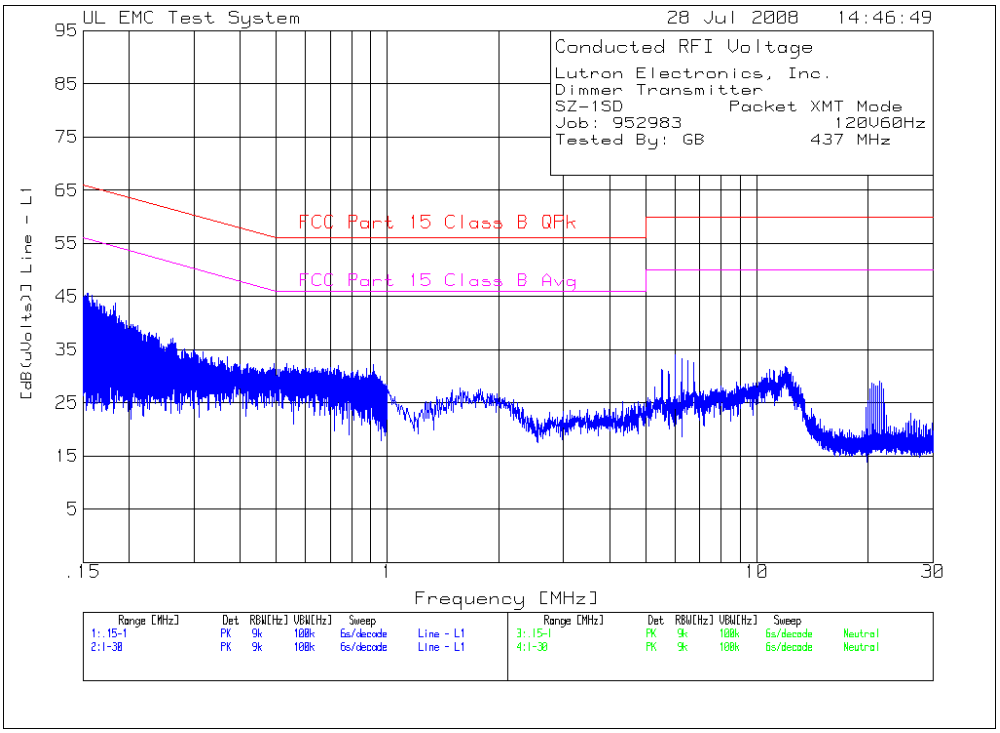
Lutron Electronics, Inc.
Dimmer Transmitter
SZ-1SD Packet XMT Mode
Job: 952983 120V60Hz
Tested By: GB 434 MHz

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	.15612	33.51 pk	12	0	45.51	65.7	55.7	-	-	-	-
				Margin [dB]		-20.19	-10.19	-	-	-	-
2	.17193	31.21 pk	11.8	0	43.01	64.9	54.9	-	-	-	-
				Margin [dB]		-21.89	-11.89	-	-	-	-
3	.18911	31.49 pk	11.5	0	42.99	64.1	54.1	-	-	-	-
				Margin [dB]		-21.11	-11.11	-	-	-	-
4	.23128	27.2 pk	11.2	0	38.4	62.4	52.4	-	-	-	-
				Margin [dB]		-24	-14	-	-	-	-
Line - L1 1 - 30MHz											
5	6.41828	18.64 pk	10.5	0	29.14	60	50	-	-	-	-
				Margin [dB]		-30.86	-20.86	-	-	-	-
6	11.79596	20.54 pk	10.6	0	31.14	60	50	-	-	-	-
				Margin [dB]		-28.86	-18.86	-	-	-	-
Neutral .15 - 1MHz											
7	.15442	33.66 pk	12	0	45.66	65.8	55.8	-	-	-	-
				Margin [dB]		-20.14	-10.14	-	-	-	-
8	.17006	32.11 pk	11.8	0	43.91	65	55	-	-	-	-
				Margin [dB]		-21.09	-11.09	-	-	-	-
9	.19404	29.38 pk	11.5	0	40.88	63.9	53.9	-	-	-	-
				Margin [dB]		-23.02	-13.02	-	-	-	-
10	.22737	28.12 pk	11.2	0	39.32	62.5	52.5	-	-	-	-
				Margin [dB]		-23.18	-13.18	-	-	-	-
Neutral 1 - 30MHz											
11	10.83297	20.43 pk	10.6	0	31.03	60	50	-	-	-	-
				Margin [dB]		-28.97	-18.97	-	-	-	-
12	12.32387	20.66 pk	10.7	0	31.36	60	50	-	-	-	-
				Margin [dB]		-28.64	-18.64	-	-	-	-

LIMIT 1: FCC Part 15 Class B QPk
LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector
qp - Quasi-Peak detector
av - average detector
avlg - average log detection
ave - average detection
cav - CISPR average detection

Figure 4 Conducted Emissions Graph



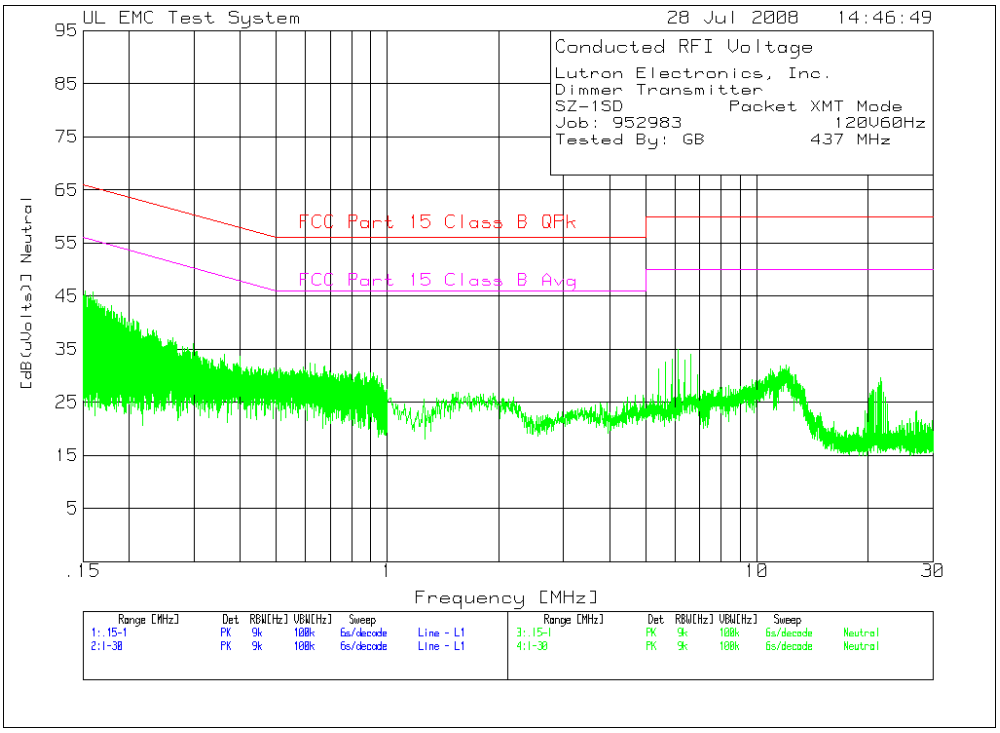


Table 5 Conducted Emissions Data Points

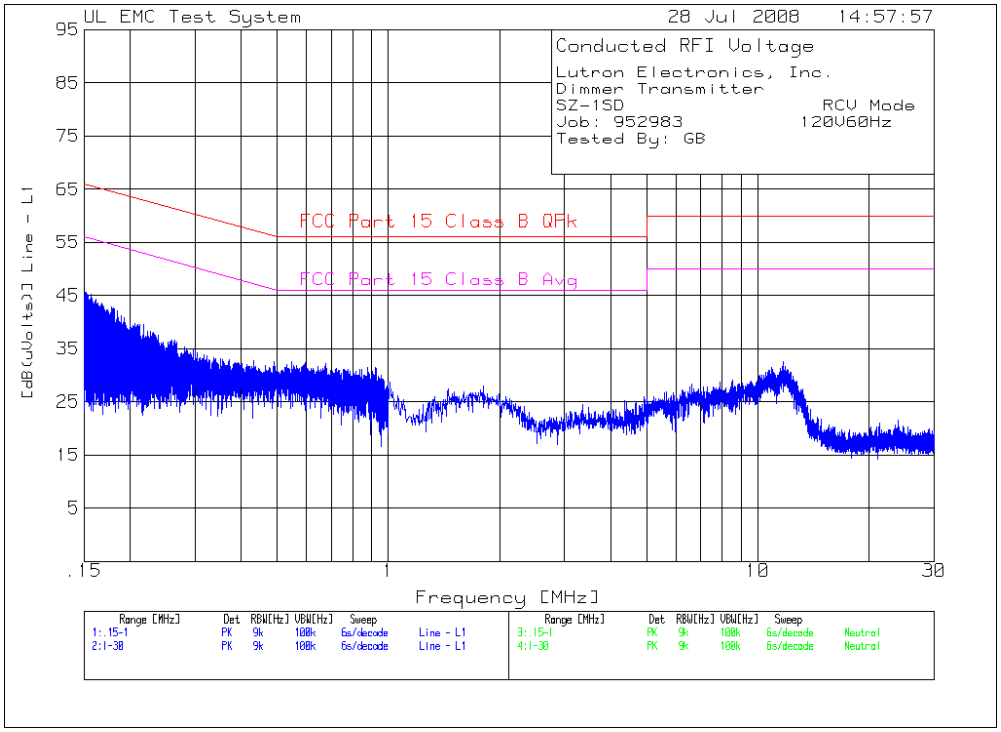
Lutron Electronics, Inc.
Dimmer Transmitter
SZ-1SD Packet XMT Mode
Job: 952983 120V60Hz
Tested By: GB 437 MHz

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	.15544	33.64 pk	12	0	45.64	65.7	55.7	-	-	-	-
				Margin [dB]		-20.06	-10.06	-	-	-	-
2	.18367	32.23 pk	11.6	0	43.83	64.3	54.3	-	-	-	-
				Margin [dB]		-20.47	-10.47	-	-	-	-
3	.22941	26.59 pk	11.2	0	37.79	62.5	52.5	-	-	-	-
				Margin [dB]		-24.71	-14.71	-	-	-	-
Line - L1 1 - 30MHz											
4	6.25585	22.77 pk	10.5	0	33.27	60	50	-	-	-	-
				Margin [dB]		-26.73	-16.73	-	-	-	-
5	11.94099	21.15 pk	10.6	0	31.75	60	50	-	-	-	-
				Margin [dB]		-28.25	-18.25	-	-	-	-
6	21.70434	17.89 pk	10.9	0	28.79	60	50	-	-	-	-
				Margin [dB]		-31.21	-21.21	-	-	-	-
Neutral .15 - 1MHz											
7	.15935	33.75 pk	12	0	45.75	65.5	55.5	-	-	-	-
				Margin [dB]		-19.75	-9.75	-	-	-	-
8	.17959	31.45 pk	11.7	0	43.15	64.5	54.5	-	-	-	-
				Margin [dB]		-21.35	-11.35	-	-	-	-
9	.19472	29.4 pk	11.5	0	40.9	63.8	53.8	-	-	-	-
				Margin [dB]		-22.9	-12.9	-	-	-	-
Neutral 1 - 30MHz											
10	6.13403	24.46 pk	10.5	0	34.96	60	50	-	-	-	-
				Margin [dB]		-25.04	-15.04	-	-	-	-
11	12.0106	21.25 pk	10.8	0	32.05	60	50	-	-	-	-
				Margin [dB]		-27.95	-17.95	-	-	-	-
12	21.53611	18.35 pk	11.2	0	29.55	60	50	-	-	-	-
				Margin [dB]		-30.45	-20.45	-	-	-	-

LIMIT 1: FCC Part 15 Class B QPk
LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector
qp - Quasi-Peak detector
av - average detector
avlg - average log detection
ave - average detection
cav - CISPR average detection

Figure 5 Conducted Emissions Graph (Receive Mode)



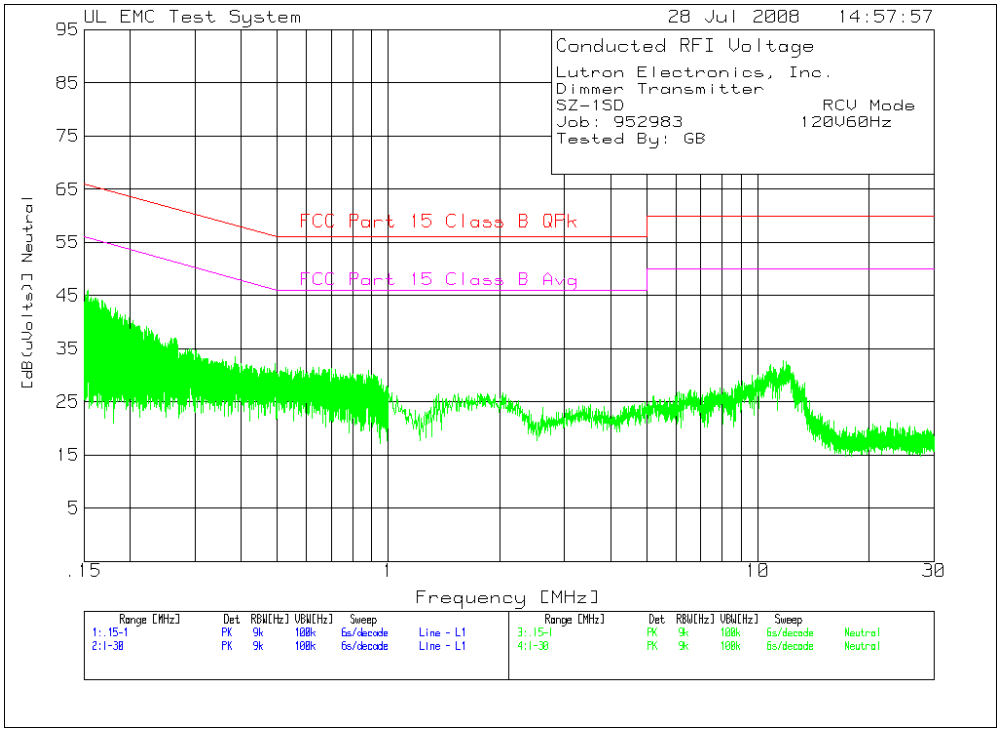


Table 6 Conducted Emissions Data Points (Receive Mode)

Lutron Electronics, Inc.
Dimmer Transmitter
SZ-1SD RCV Mode
Job: 952983 120V60Hz
Tested By: GB

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	.15204	33.53 pk	12.1	0	45.63	65.9	55.9	-	-	-	-
				Margin [dB]		-20.27	-10.27	-	-	-	-
2	.1687	31.32 pk	11.8	0	43.12	65	55	-	-	-	-
				Margin [dB]		-21.88	-11.88	-	-	-	-
3	.19948	28.23 pk	11.4	0	39.63	63.6	53.6	-	-	-	-
				Margin [dB]		-23.97	-13.97	-	-	-	-
4	.26375	25.51 pk	11	0	36.51	61.3	51.3	-	-	-	-
				Margin [dB]		-24.79	-14.79	-	-	-	-
Line - L1 1 - 30MHz											
5	10.71114	20.25 pk	10.6	0	30.85	60	50	-	-	-	-
				Margin [dB]		-29.15	-19.15	-	-	-	-
6	11.9874	20.53 pk	10.6	0	31.13	60	50	-	-	-	-
				Margin [dB]		-28.87	-18.87	-	-	-	-
Neutral .15 - 1MHz											
7	.15374	33.82 pk	12.1	0	45.92	65.8	55.8	-	-	-	-
				Margin [dB]		-19.88	-9.88	-	-	-	-
8	.16785	32.35 pk	11.8	0	44.15	65.1	55.1	-	-	-	-
				Margin [dB]		-20.95	-10.95	-	-	-	-
9	.19897	29.45 pk	11.4	0	40.85	63.7	53.7	-	-	-	-
				Margin [dB]		-22.85	-12.85	-	-	-	-
10	.26545	26.02 pk	11	0	37.02	61.3	51.3	-	-	-	-
				Margin [dB]		-24.28	-14.28	-	-	-	-
Neutral 1 - 30MHz											
11	10.85037	21.44 pk	10.6	0	32.04	60	50	-	-	-	-
				Margin [dB]		-27.96	-17.96	-	-	-	-
12	11.90618	21.77 pk	10.8	0	32.57	60	50	-	-	-	-
				Margin [dB]		-27.43	-17.43	-	-	-	-

LIMIT 1: FCC Part 15 Class B QPk
LIMIT 2: FCC Part 15 Class B Avg

pk - Peak detector
qp - Quasi-Peak detector
av - average detector
avlg - average log detection
ave - average detection
cav - CISPR average detection

4.2 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. The video bandwidth is set to a minimum of 3 times the selected resolution bandwidth.
Basic Standard	FCC Part 15, Subpart C, 15.231, RSS-GEN, RSS-210
Occupied Bandwidth Limits	
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
1	1	3
Supplementary information: None		

Table 8 Occupied Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth (MHz)	Occupied Bandwidth Requirements	
	dBc	%
>1% of the Span	-20	99
Supplementary information: Span shall be wide enough to capture all products of the modulation process.		

Table 9 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
Multimeter	Fluke	83III	ME5B-305

Figure 6 Test Setup for Occupied Bandwidth

Figure 7 Occupied Bandwidth Graph (431MHz 20dB)

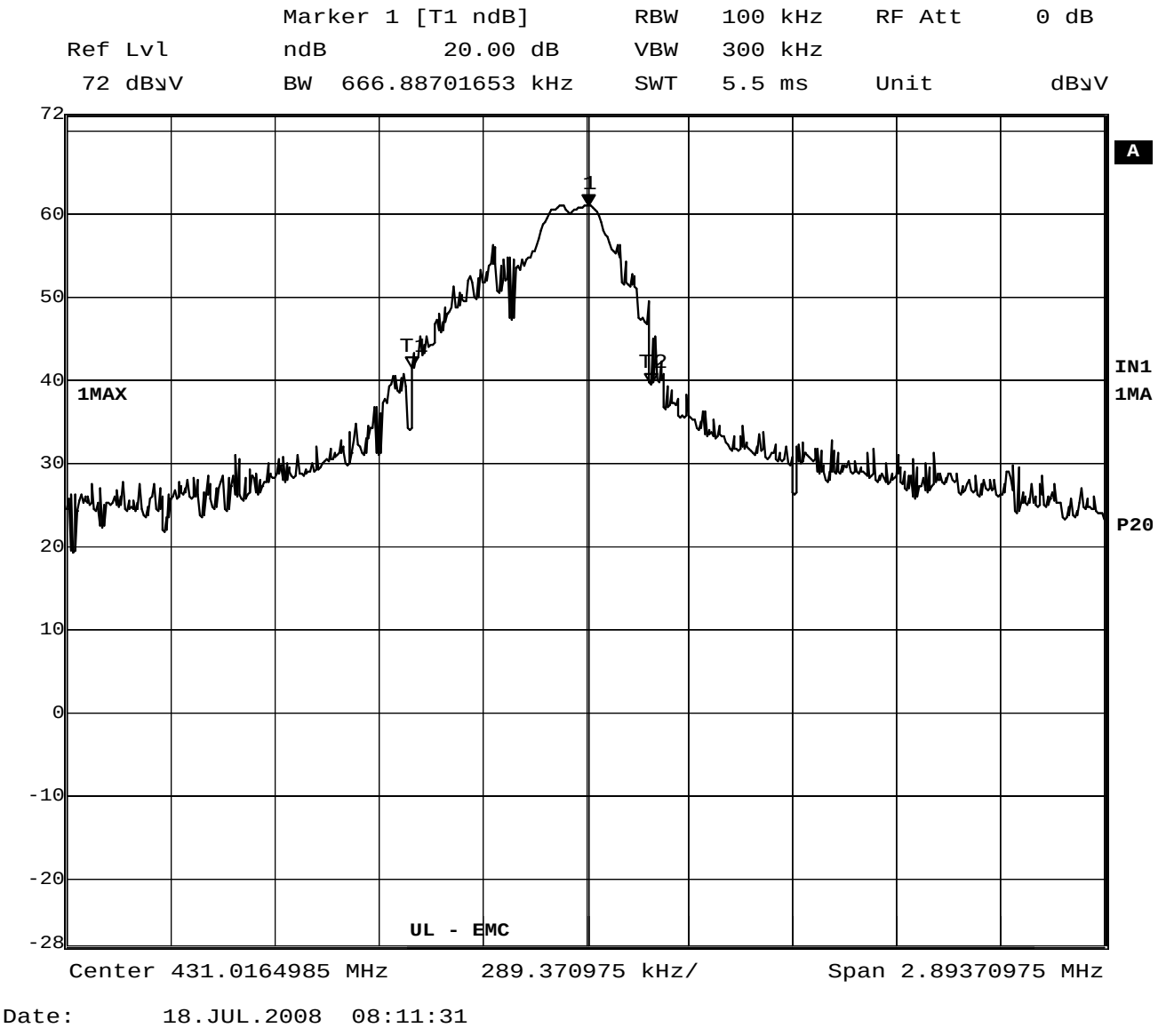


Figure 8 Occupied Bandwidth Graph (431MHz 99%)

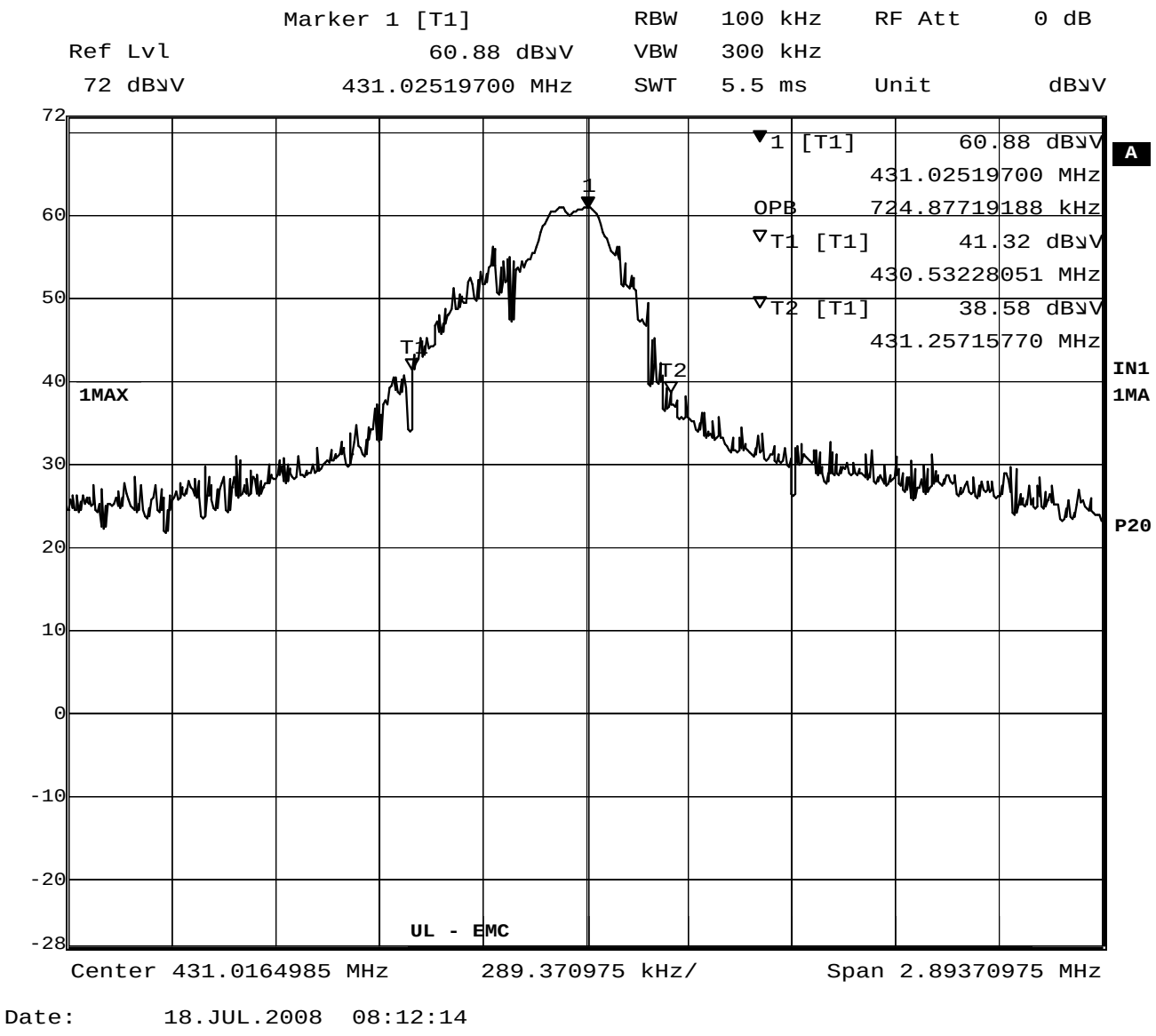


Figure 9 Occupied Bandwidth Graph (434MHz 20dB)

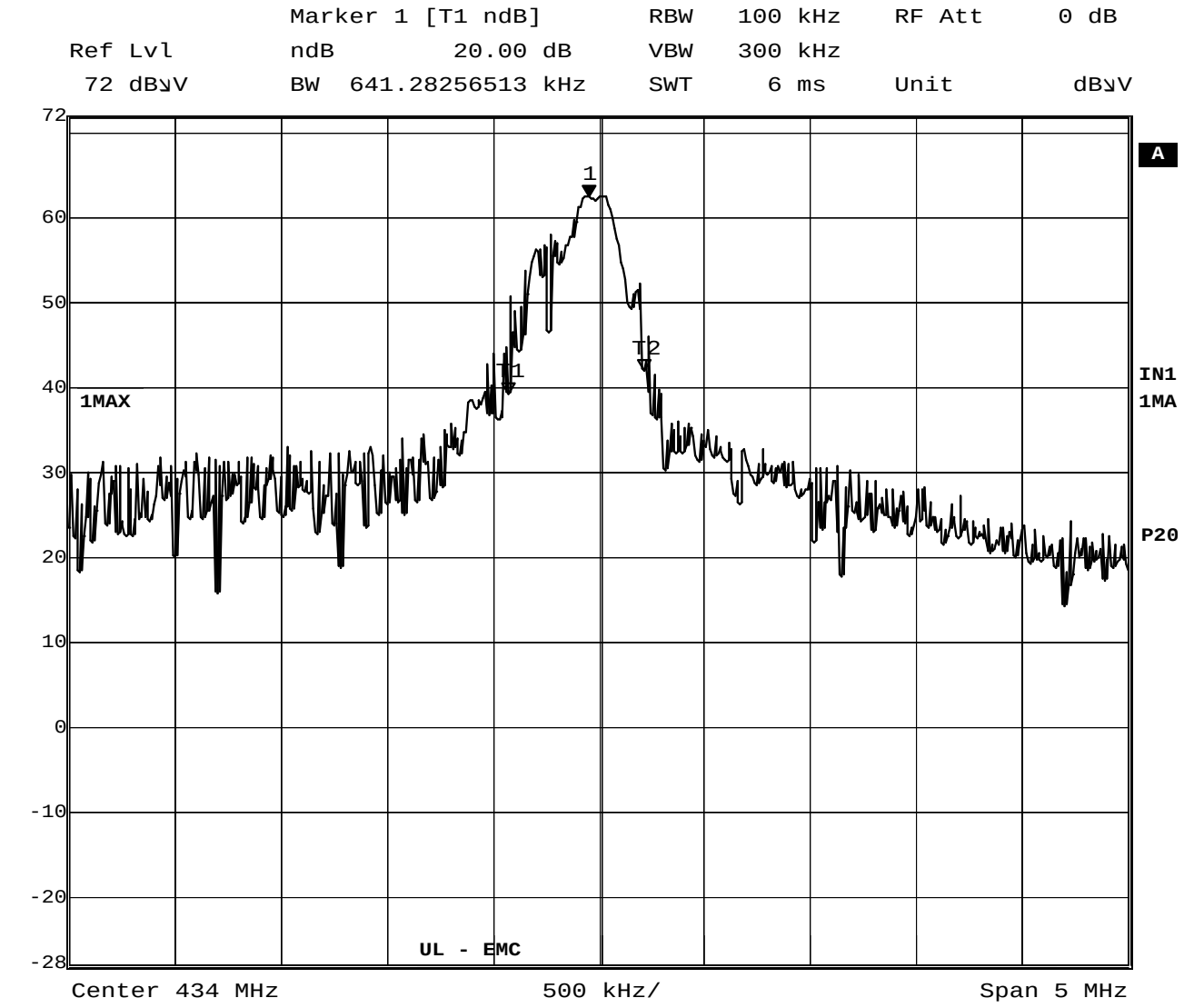


Figure 10 Occupied Bandwidth Graph (434MHz 99%)

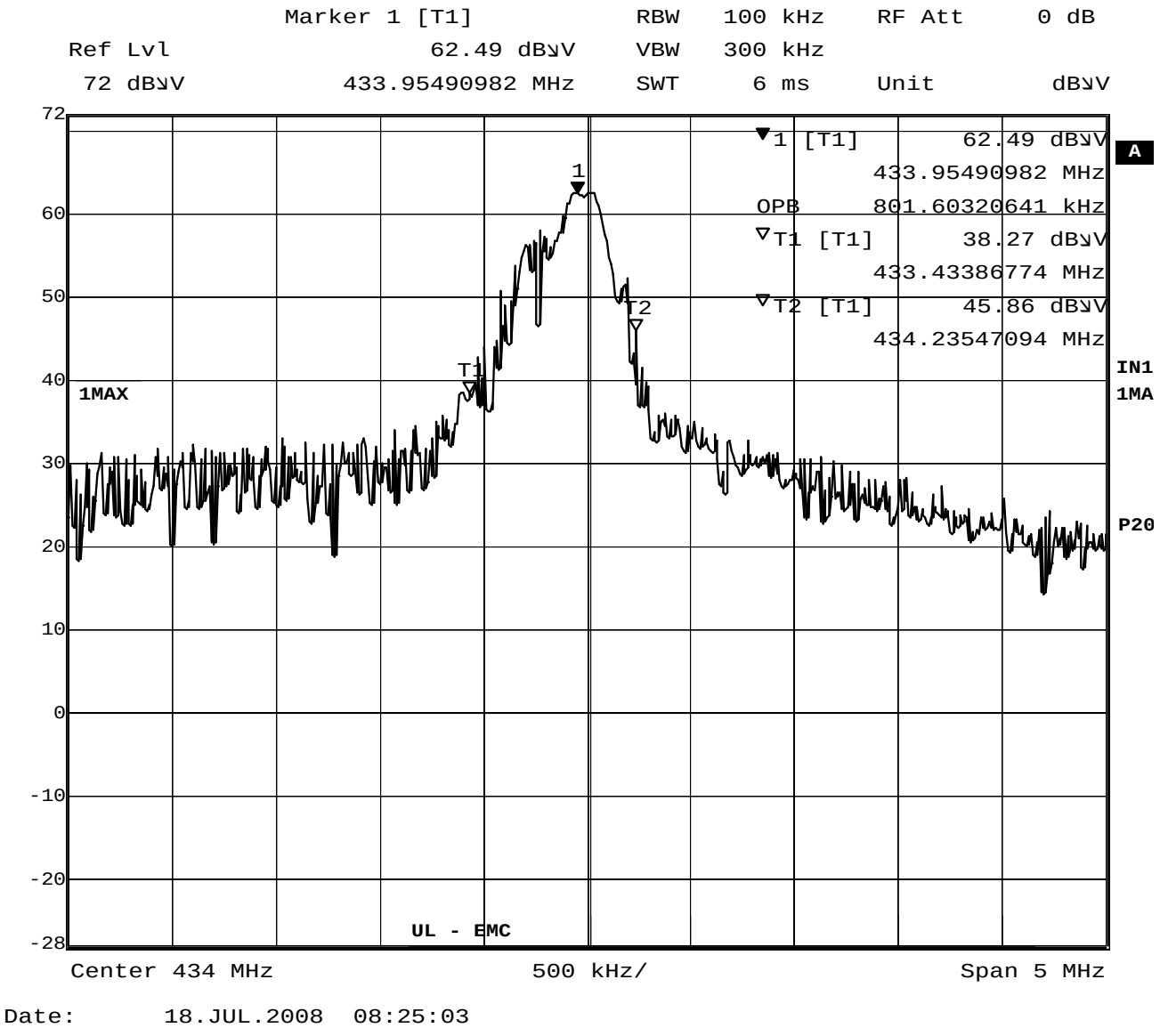


Figure 11 Occupied Bandwidth Graph (437MHz 20dB)

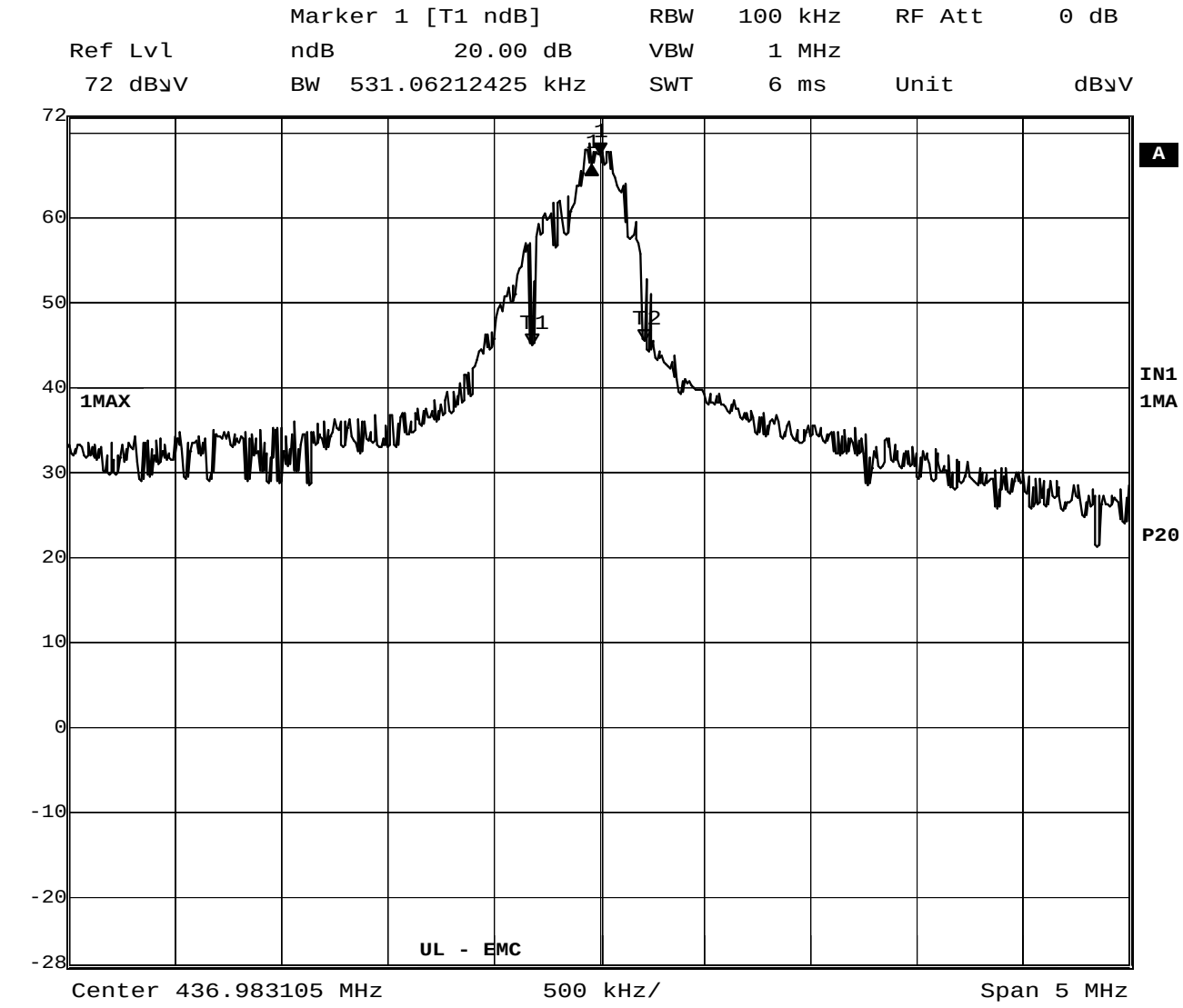
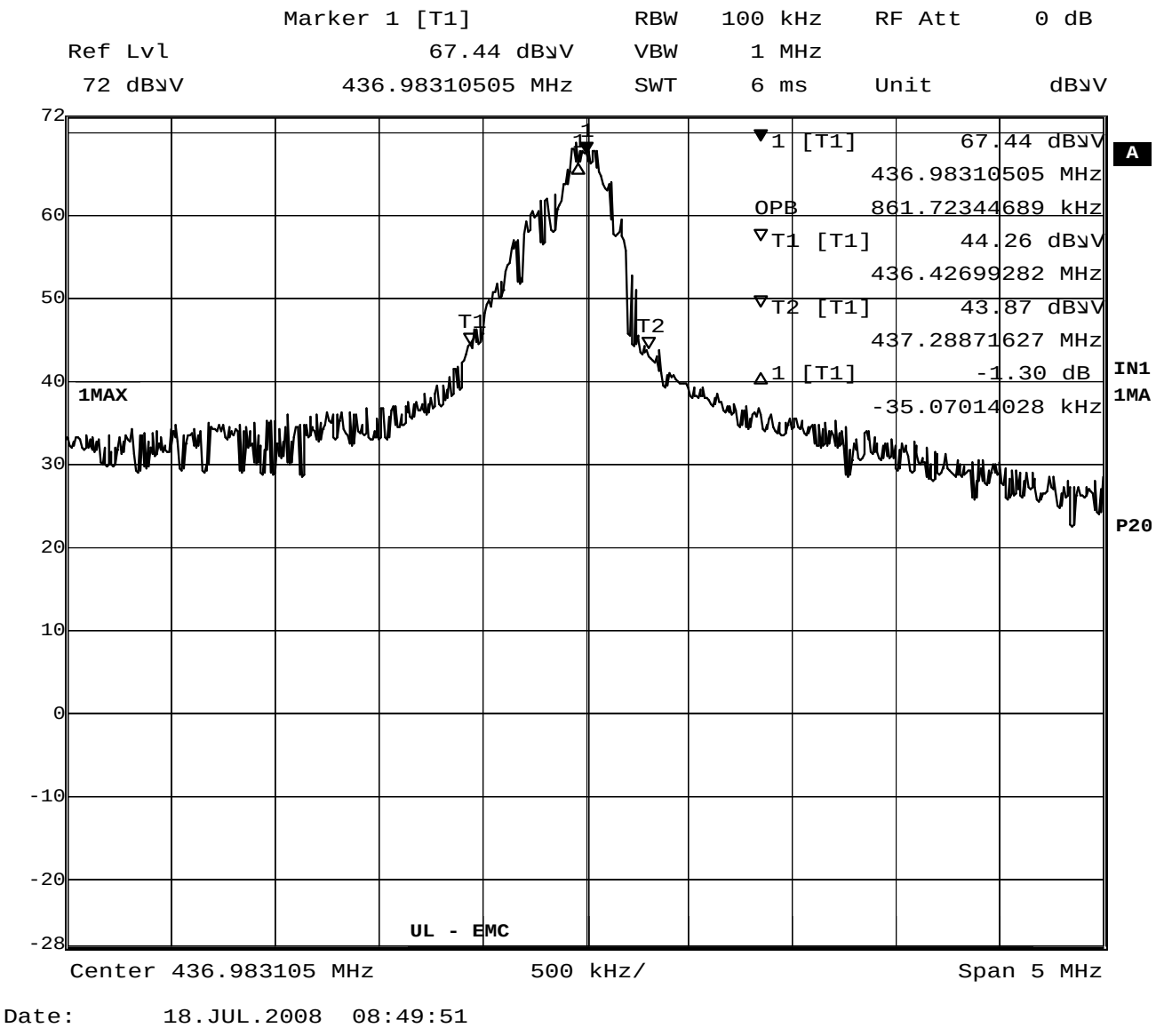


Figure 12 Occupied Bandwidth Graph (437MHz 99%)



4.3 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	FCC Part 15, Subpart C, 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 10 Cease Operation Configuration Settings

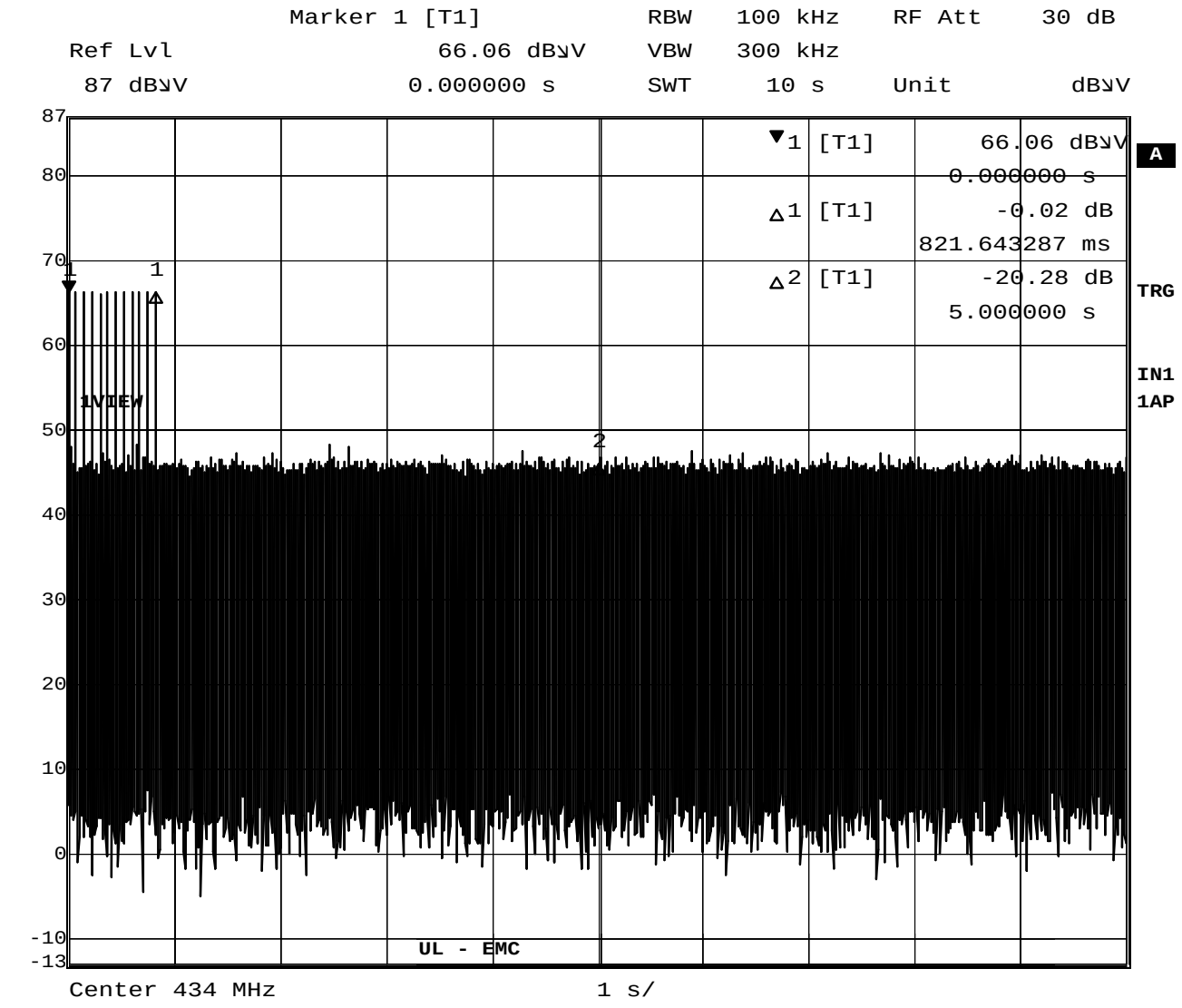
Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	2
Supplementary information: Since the same circuitry for cease operation is used for all frequencies, only the mid channel was tested.		

Table 11 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
Multimeter	Fluke	83III	ME5B-305

Figure 13 Test Setup for Cease Operation

Figure 14 Cease Operation Graph



4.4 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 12 Pulse Train Configuration Settings

Power Interface Mode # (See Section 1.3.4)	EUT Configurations Mode # (See Section 1.6)	EUT Operation Mode # (See 1.5)
1	1	1
1	1	2
1	1	3
Supplementary information: None		

Table 13 Pulse Train Calculation

Pulse Width (mS)	Total Transmission time or 100ms which ever is lesser	Average Correction Factor (dB) $20\log\left(\frac{PulseWidth}{TotalTransmissionTime}\right)$
4.81	75.2	-23.88

Table 14 Pulse Train 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
Multimeter	Fluke	83III	ME5B-305

Figure 15 Test Setup for Pulse Train

Figure 16 Pulse Train Graph (431MHz)

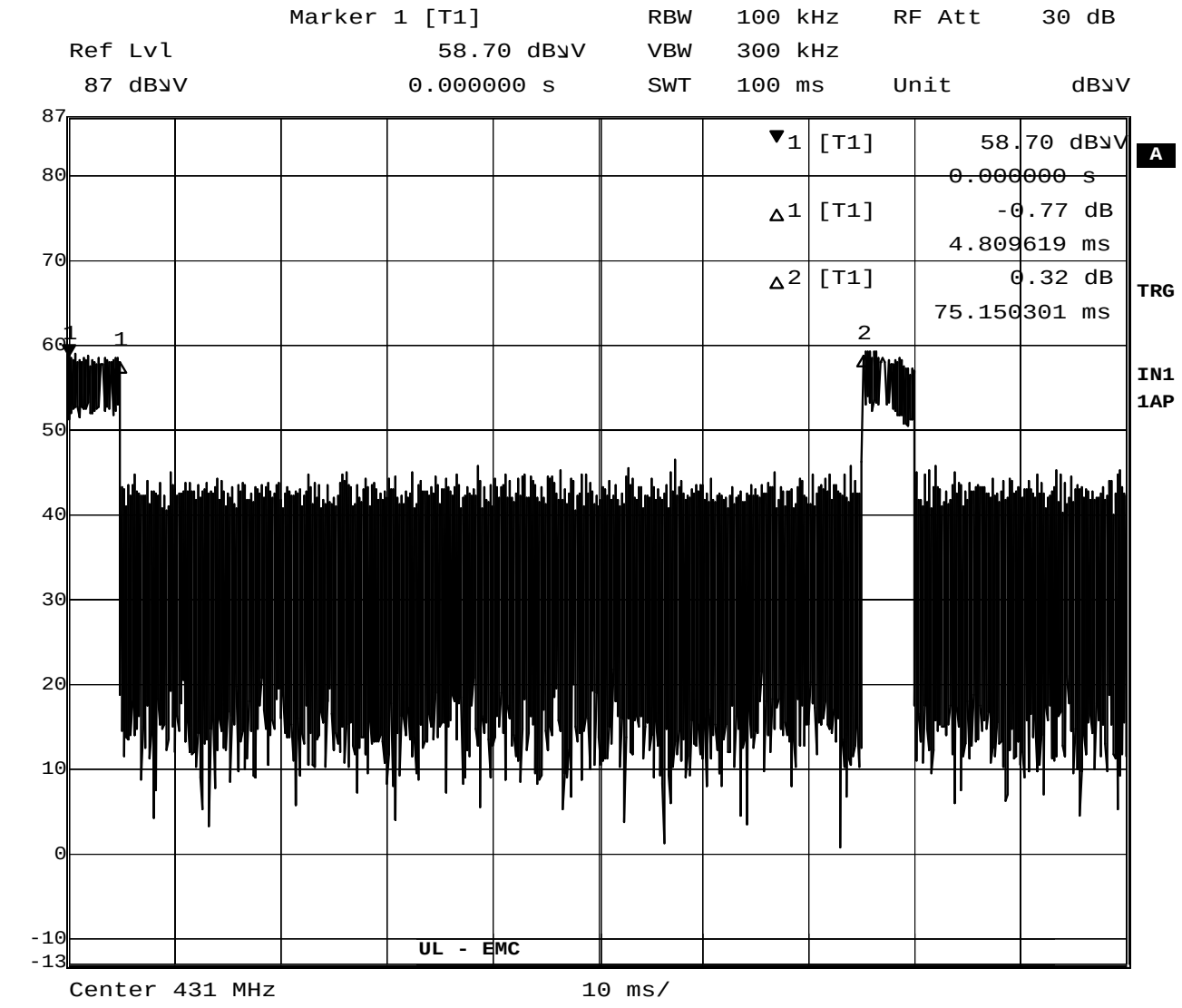


Figure 17 Pulse Train Graph (434MHz)

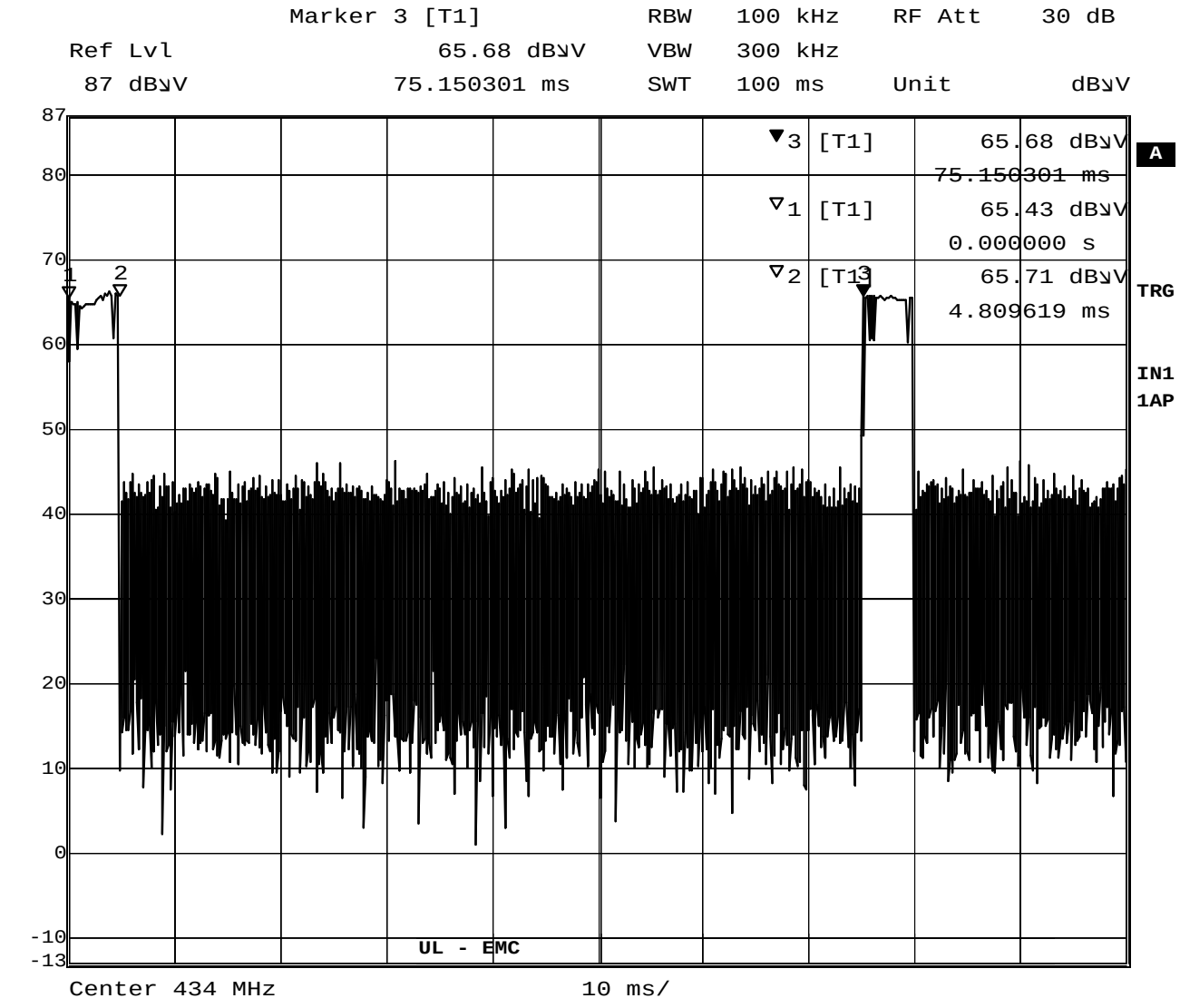
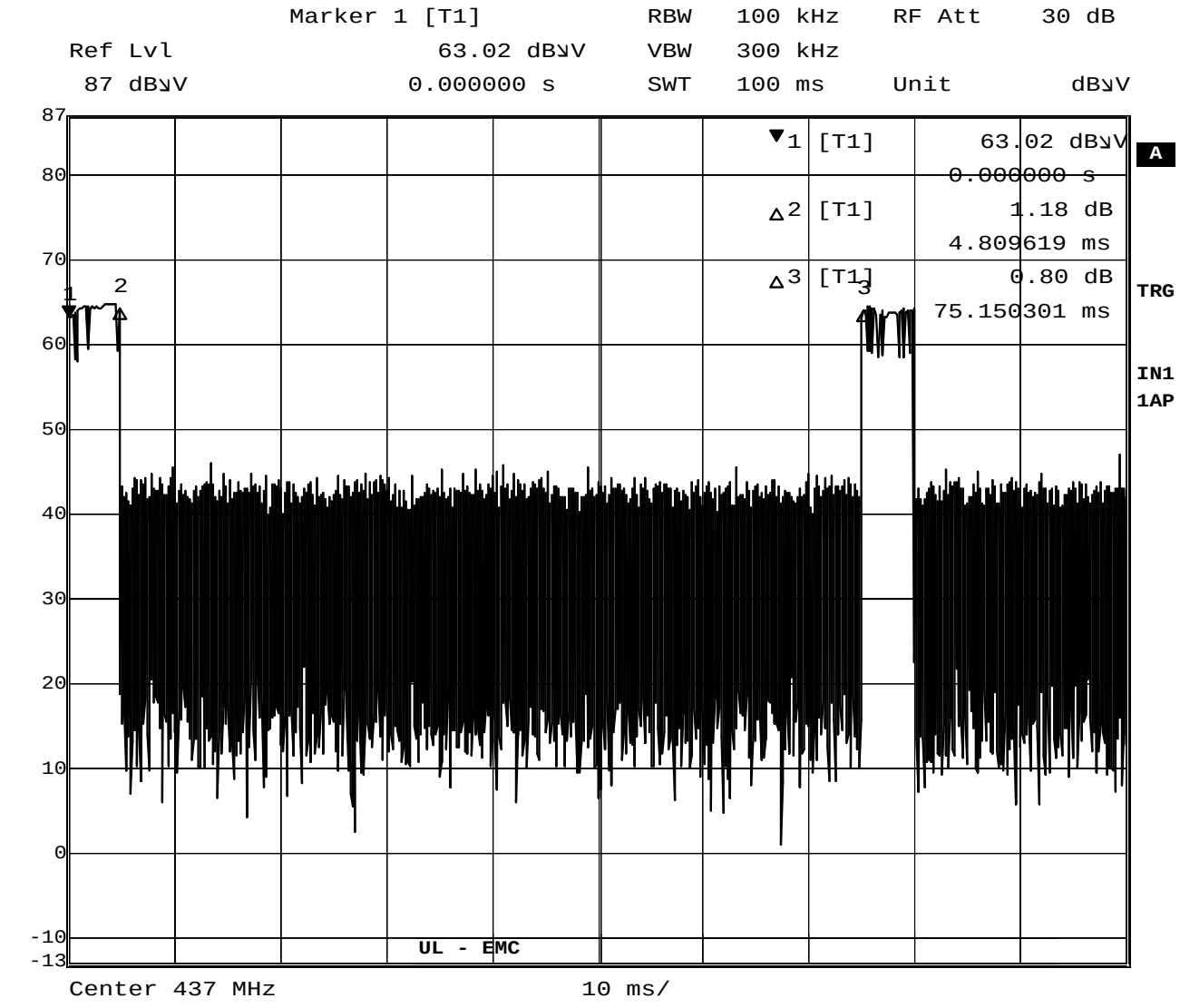


Figure 18 Pulse Train Graph (437MHz)



Date: 18.JUL.2008 10:08:22

4.5 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	FCC Part 15, Subpart C, 15.231, 15.209, RSS-GEN, RSS-210	
UL LPG	80-EM-S0029	
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	0.009MHz – 1GHz	(3 meter measurement distance)
Fully configured sample scanned over the following frequency range	1GHz – 5 GHz	(3 meter measurement distance)

Limits

Frequency (MHz)	Limit (dBµV/m)		
	Quasi-Peak	Average	
	General Emissions	Fundamental	Spurious/ Unintentional
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	-
434	-	80.8	-
437	-	80.9	-
Harmonics of the Fundamental 431	-	-	60.7
Harmonics of the Fundamental 434	-	-	60.8
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.

Table 15 Radiated Emissions EUT Configuration Settings

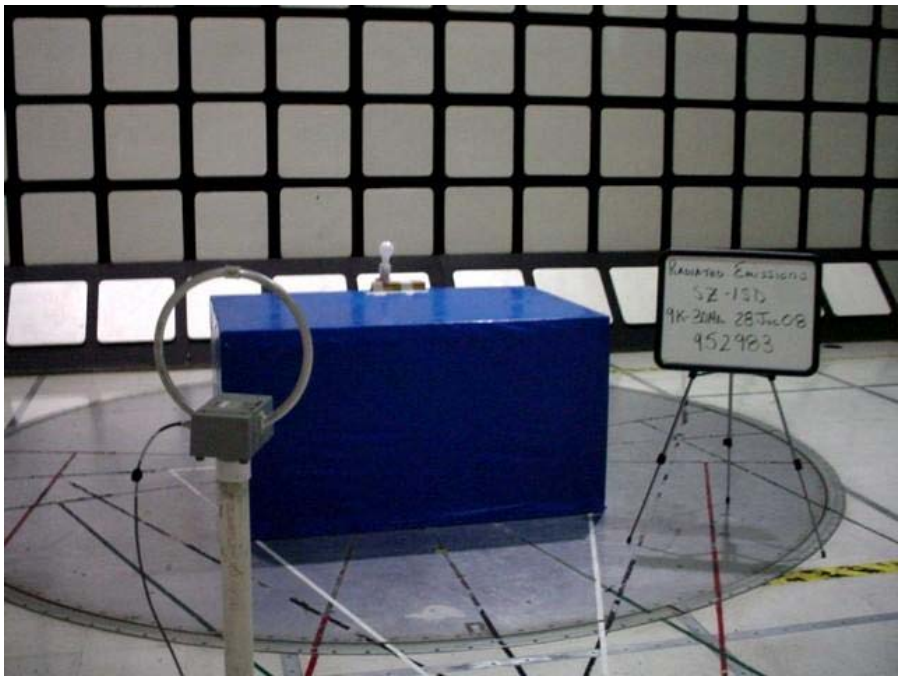
Power Interface Mode # (See Section 1.3.4)	EUT Configurations Mode # (See Section 1.6)	EUT Operation Mode # (See 1.5)
1	1	1
1	1	2
1	1	3
1	1	4
Supplementary information: Since no product of the fundamental is contained below 30MHz, only the mid channel was tested from 9kHz to 30MHz (Mode 2)		

Table 16 Radiated Emissions Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
9kHz-30MHz			
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Spectrum Analyzer	Agilent	E7405A	19695
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	87V	44547
30-1000MHz			
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Bicon Antenna	Schaffner	VBA6106A	54
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	83III	ME5B-305
Above 1GHz			

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Horn Antenna	Electro-Metrics	RGA-180	ME5-565
Preamp (1 - 26GHz)	HP	8449B	ME5-914
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	83III	ME5B-305

Figure 19 Test setup for Radiated Emissions (9kHz – 30MHz Transmit Mode)



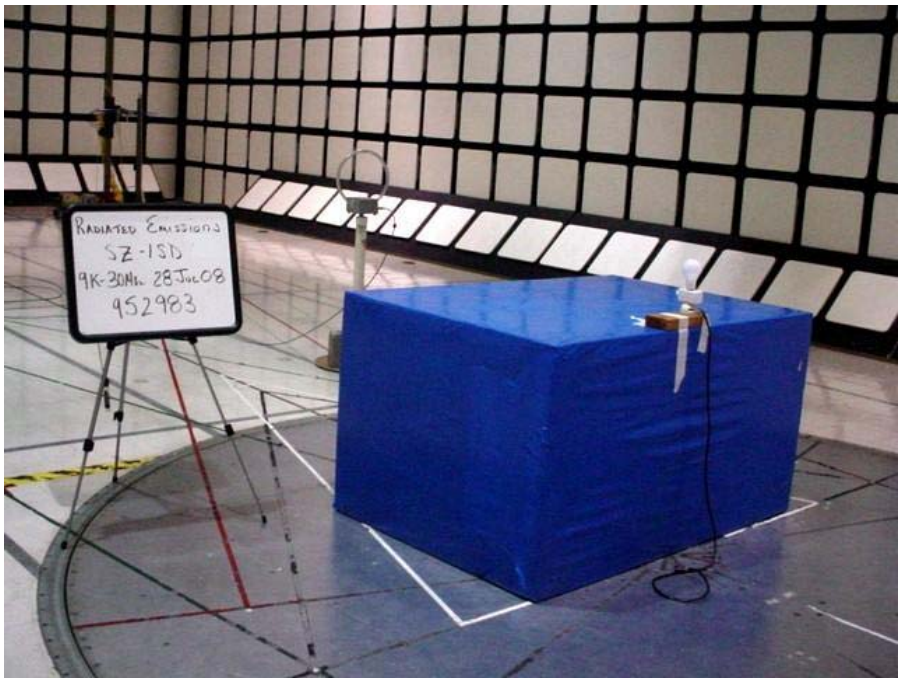
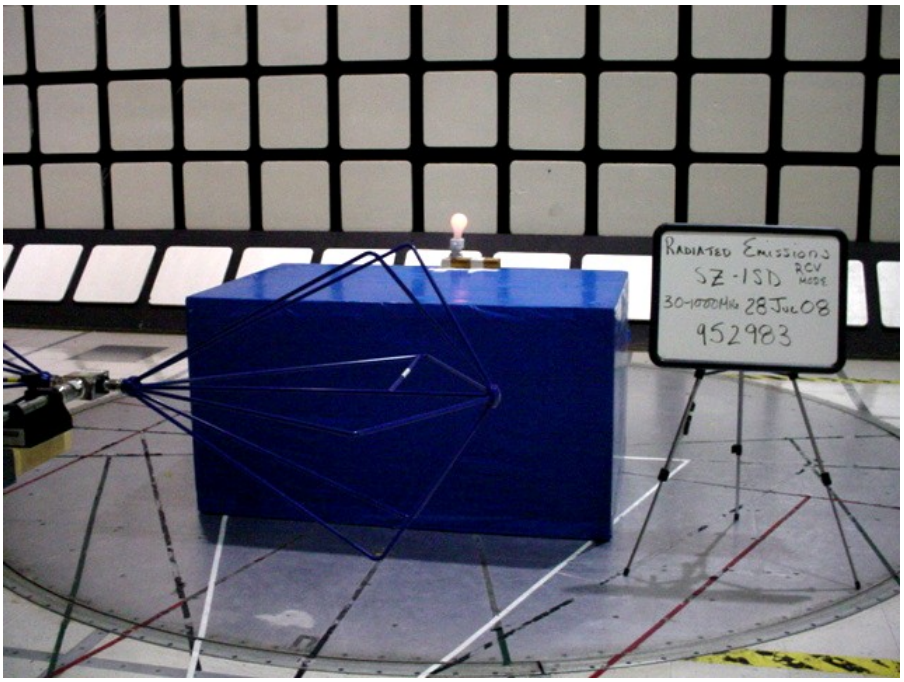


Figure 20 Test setup for Radiated Emissions (30-1000MHz Transmit Mode)

Figure 21 Test setup for Radiated Emissions (30-1000MHz Receive Mode)



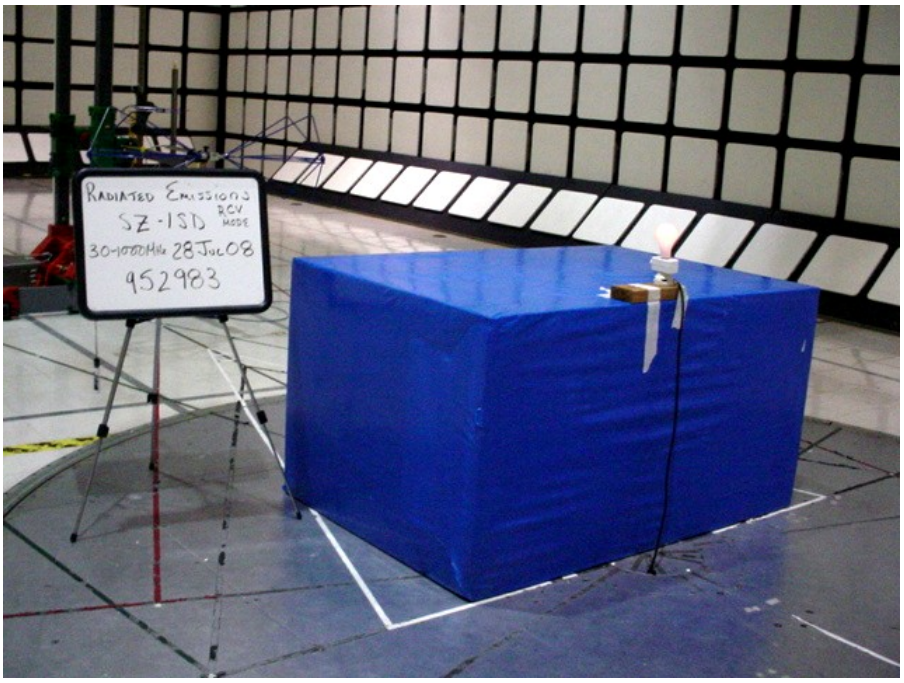
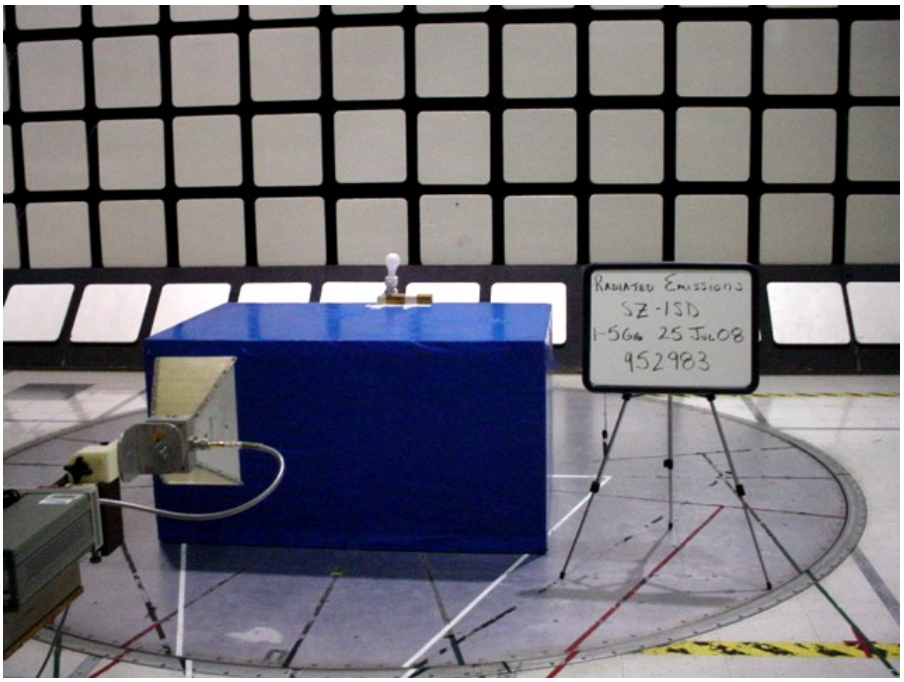


Figure 22 Test setup for Radiated Emissions (1-5GHz Transmit Mode)



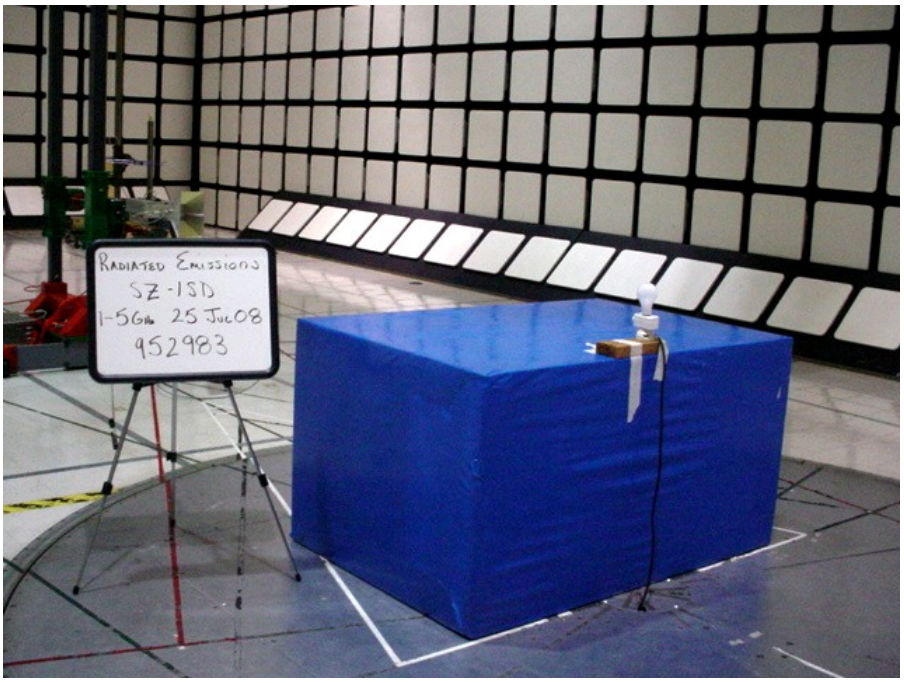
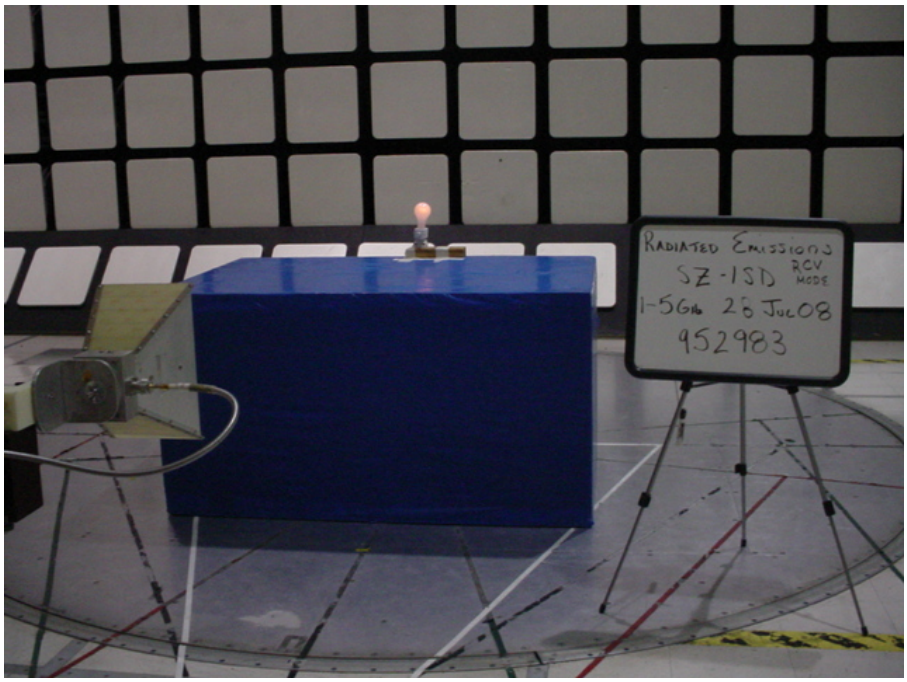


Figure 23 Test setup for Radiated Emissions (1-5GHz Receive Mode)



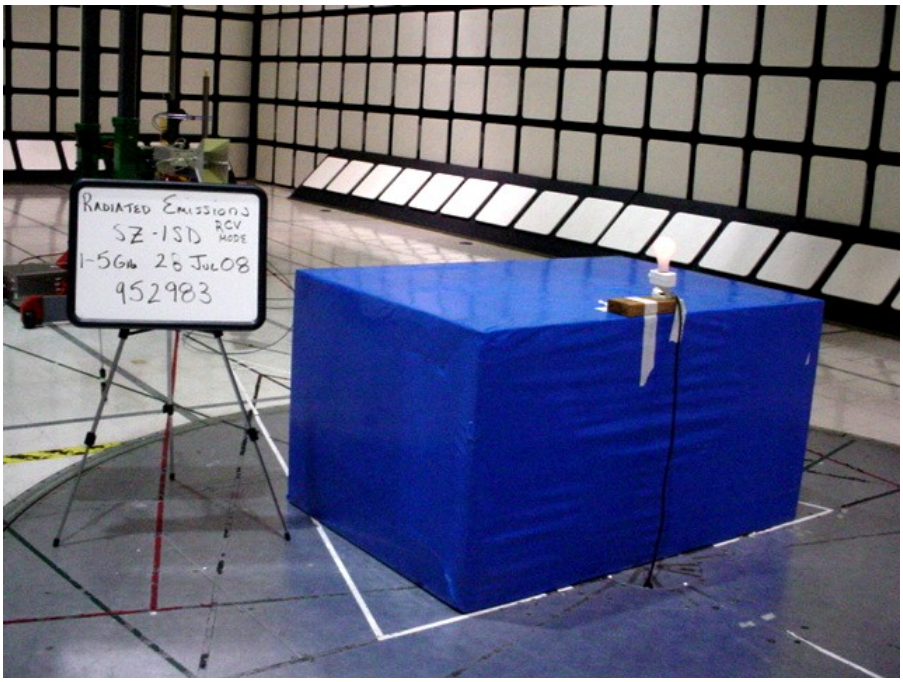


Figure 24 Radiated Emissions Graph

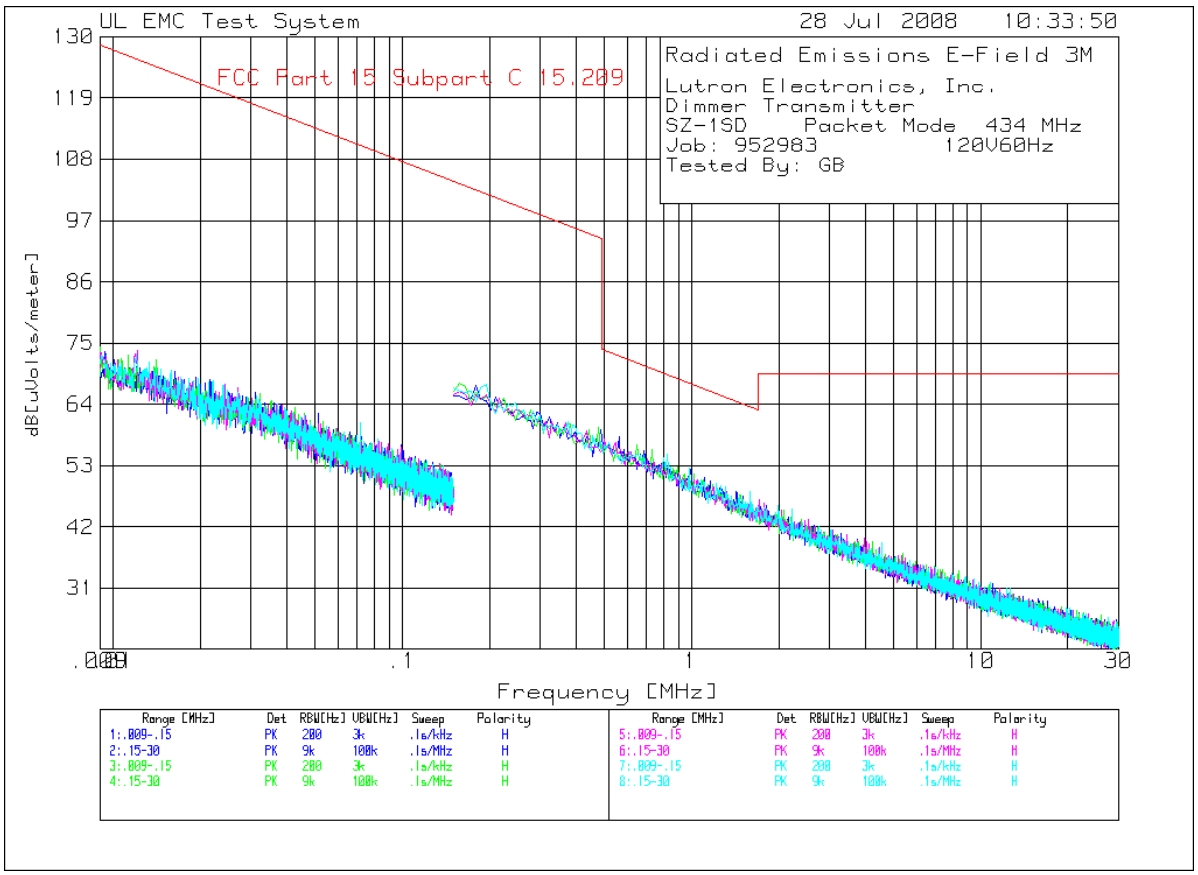


Table 17 Radiated Emissions Data Points

Lutron Electronics, Inc.
Dimmer Transmitter
SZ-1SD Packet Mode 434 MHz
Job: 952983 120V60Hz
Tested By: GB

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° .15 - 30MHz ----------											
5	.17986	51.67 pk	0	15.7	67.37	102.5	-	-	-	-	-
	Azimuth:69	Height:101 Horz		Margin [dB]		-35.13	-	-	-	-	-
6	.4859	44.01 pk	0	15.5	59.51	93.9	-	-	-	-	-
	Azimuth:2	Height:101 Horz		Margin [dB]		-34.39	-	-	-	-	-
45° .009 - .15MHz ----------											
2	.01408	45.14 pk	0	26.8	71.94	124.6	-	-	-	-	-
	Azimuth:6	Height:120 Horz		Margin [dB]		-52.66	-	-	-	-	-
90° .009 - .15MHz ----------											
1	.01216	45.62 pk	.1	27.9	73.62	125.9	-	-	-	-	-
	Azimuth:227	Height:139 Horz		Margin [dB]		-52.28	-	-	-	-	-
135° .009 - .15MHz ----------											
3	.02215	45.2 pk	0	23	68.2	120.7	-	-	-	-	-
	Azimuth:6	Height:159 Horz		Margin [dB]		-52.5	-	-	-	-	-
4	.07174	43.84 pk	0	16.8	60.64	110.5	-	-	-	-	-
	Azimuth:133	Height:159 Horz		Margin [dB]		-49.86	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

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

Figure 25 Radiated Emissions Graph

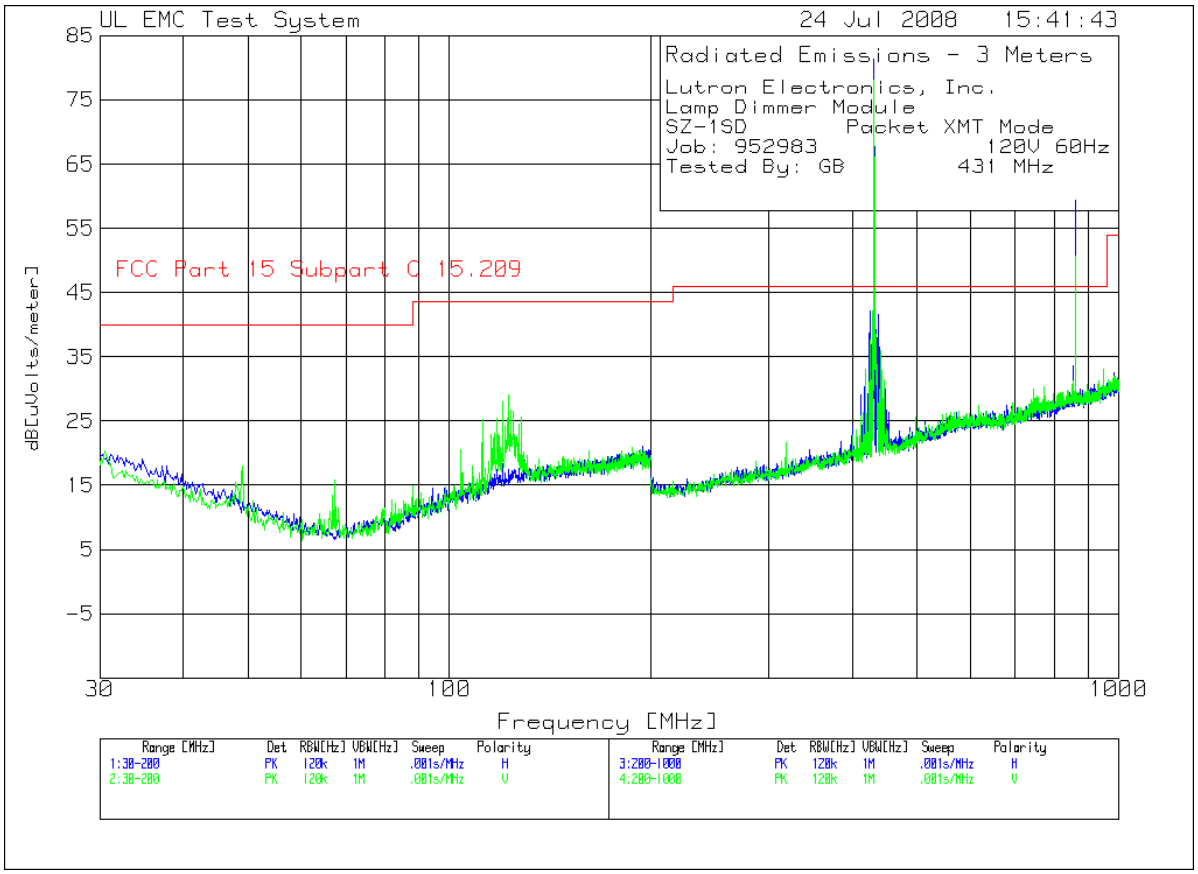


Table 18 Radiated Emissions Data Points

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 431 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	425.7129	24.31 pk	1.3	16.6	42.21	46	-	-	-	-	-
	Azimuth:102	Height:199 Horz	Margin [dB]			-3.79	-	-	-	-	-
2	429.3147	26.65 pk	1.3	16.6	44.55	46	-	-	-	-	-
	Azimuth:145	Height:101 Horz	Margin [dB]			-1.45	-	-	-	-	-
3	430.9155	63.52 pk	1.3	16.6	81.42	46	-	-	-	-	-
	Azimuth:358	Height:101 Horz	Margin [dB]			35.42	-	-	-	-	-
4	432.1161	27.13 pk	1.3	16.7	45.13	46	-	-	-	-	-
	Azimuth:145	Height:101 Horz	Margin [dB]			-.87	-	-	-	-	-
5	436.5183	23.43 pk	1.3	16.9	41.63	46	-	-	-	-	-
	Azimuth:188	Height:299 Horz	Margin [dB]			-4.37	-	-	-	-	-
10	861.931	34.82 pk	1.7	22.9	59.42	46	-	-	-	-	-
	Azimuth:109	Height:199 Horz	Margin [dB]			13.42	-	-	-	-	-
Vertical 200 - 1000MHz											
6	427.7139	24.53 pk	1.3	16.3	42.13	46	-	-	-	-	-
	Azimuth:16	Height:299 Vert	Margin [dB]			-3.87	-	-	-	-	-
7	430.9155	60.45 pk	1.3	16.3	78.05	46	-	-	-	-	-
	Azimuth:357	Height:299 Vert	Margin [dB]			32.05	-	-	-	-	-
8	432.1161	25.59 pk	1.3	16.3	43.19	46	-	-	-	-	-
	Azimuth:60	Height:299 Vert	Margin [dB]			-2.81	-	-	-	-	-
9	862.3312	25.74 pk	1.7	23.2	50.64	46	-	-	-	-	-
	Azimuth:192	Height:199 Vert	Margin [dB]			4.64	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

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

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 431 MHz

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										
425.7	8.3 qp	1.3	16.6	26.2	46	-	-	-	-	-
Azimuth: 105	Height:101 Horz		Margin [dB]:	-19.8		-	-	-	-	-
428.8918	15.66 qp	1.3	16.6	33.56	46	-	-	-	-	-
Azimuth: 51	Height:222 Horz		Margin [dB]:	-12.44		-	-	-	-	-
429.3147	14.09 qp	1.3	16.6	31.99	46	-	-	-	-	-
Azimuth: 70	Height:250 Horz		Margin [dB]:	-14.01		-	-	-	-	-
431.9939	16.1 qp	1.3	16.7	34.1	46	-	-	-	-	-
Azimuth: 59	Height:235 Horz		Margin [dB]:	-11.9		-	-	-	-	-
432.1161	15.01 qp	1.3	16.7	33.01	46	-	-	-	-	-
Azimuth: 64	Height:237 Horz		Margin [dB]:	-12.99		-	-	-	-	-
436.8951	13.71 qp	1.3	16.9	31.91	46	-	-	-	-	-
Azimuth: 74	Height:242 Horz		Margin [dB]:	-14.09		-	-	-	-	-
436.5183	8.62 qp	1.3	16.9	26.82	46	-	-	-	-	-
Azimuth: 80	Height:253 Horz		Margin [dB]:	-19.18		-	-	-	-	-
430.9507	69.97 pk	1.3	16.6	63.99*	-	80.7	-	-	-	-
Azimuth: 86	Height:246 Horz		Margin [dB]:	-16.61		-	-	-	-	-
862.0523	43.89 pk	1.7	22.9	44.65*	-	-	60.7	-	-	-
Azimuth: 313	Height:180 Horz		Margin [dB]:	-15.99		-	-	-	-	-

*Average Correction Factor applied.

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 Fundamental
LIMIT 3: FCC Part 15 Subpart C 15.231 Spurious

pk - Peak detector (maximized peak signal)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

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										
430.9579	69.99 pk	1.3	16.3	63.71*	-	80.7	-	-	-	-
Azimuth: 128	Height:108	Vert	Margin [dB]:	-16.89	-	-	-	-	-	
862.0456	31.58 pk	1.7	23.2	32.60*	-	-	60.7	-	-	-
Azimuth: 39	Height:245	Vert	Margin [dB]:	-28	-	-	-	-	-	
427.4734	8.89 qp	1.3	16.3	26.49	46	-	-	-	-	-
Azimuth: 28	Height:283	Vert	Margin [dB]:	-19.51	-	-	-	-	-	
427.7139	9.04 qp	1.3	16.3	26.64	46	-	-	-	-	-
Azimuth: 343	Height:287	Vert	Margin [dB]:	-19.36	-	-	-	-	-	
432.0029	12.04 qp	1.3	16.3	29.64	46	-	-	-	-	-
Azimuth: 13	Height:286	Vert	Margin [dB]:	-16.36	-	-	-	-	-	
432.1161	10.28 qp	1.3	16.3	27.88	46	-	-	-	-	-
Azimuth: 56	Height:273	Vert	Margin [dB]:	-18.12	-	-	-	-	-	

*Average Correction Factor applied.

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 Fundamental
LIMIT 3: FCC Part 15 Subpart C 15.231 Spurious

pk - Peak detector (maximized peak signal)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

Figure 26 Radiated Emissions Graph

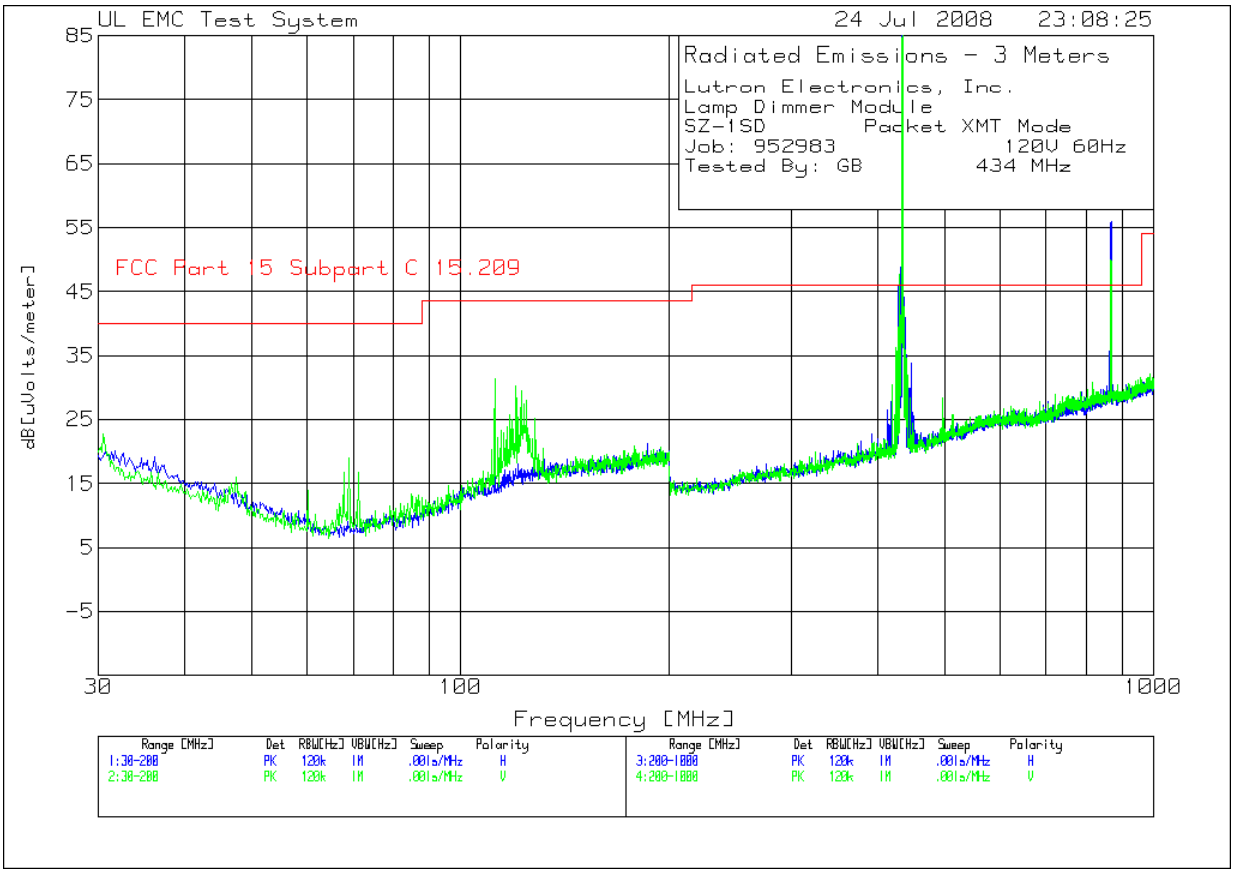


Table 19 Radiated Emissions Data Points

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 434 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 30 - 200MHz											
1	36.1261	3.08 pk	.4	15.8	19.28	40	-	-	-	-	-
	Azimuth:208	Height:100 Horz		Margin [dB]		-20.72	-	-	-	-	-
Vertical 30 - 200MHz											
2	112.022	17.68 pk	.7	13	31.38	43.5	-	-	-	-	-
	Azimuth:134	Height:101 Vert		Margin [dB]		-12.12	-	-	-	-	-
Horizontal 200 - 1000MHz											
3	428.1141	27.96 pk	1.3	16.6	45.86	46	-	-	-	-	-
	Azimuth:317	Height:299 Horz		Margin [dB]		-.14	-	-	-	-	-
4	430.1151	25.35 pk	1.3	16.6	43.25	46	-	-	-	-	-
	Azimuth:358	Height:199 Horz		Margin [dB]		-2.75	-	-	-	-	-
5	432.5163	32.21 pk	1.3	16.7	50.21	46	-	-	-	-	-
	Azimuth:317	Height:299 Horz		Margin [dB]		4.21	-	-	-	-	-
6	433.7169	68.17 pk	1.3	16.7	86.17	46	-	-	-	-	-
	Azimuth:358	Height:199 Horz		Margin [dB]		40.17	-	-	-	-	-
7	434.9175	30.6 pk	1.3	16.8	48.7	46	-	-	-	-	-
	Azimuth:188	Height:199 Horz		Margin [dB]		2.7	-	-	-	-	-
8	436.1181	26.11 pk	1.3	16.8	44.21	46	-	-	-	-	-
	Azimuth:358	Height:299 Horz		Margin [dB]		-1.79	-	-	-	-	-
9	438.5193	22.73 pk	1.3	16.9	40.93	46	-	-	-	-	-
	Azimuth:317	Height:199 Horz		Margin [dB]		-5.07	-	-	-	-	-
10	866.7334	15.51 pk	1.7	22.9	40.11	46	-	-	-	-	-
	Azimuth:359	Height:299 Horz		Margin [dB]		-5.89	-	-	-	-	-
11	868.3342	31.35 pk	1.7	22.9	55.95	46	-	-	-	-	-
	Azimuth:30	Height:199 Horz		Margin [dB]		9.95	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

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

Vertical 200 - 1000MHz ----------

12	428.1141	21.84 pk	1.3	16.3	39.44	46	-	-	-	-	-
	Azimuth:71	Height:299 Vert	Margin [dB]			-6.56	-	-	-	-	-
13	429.7149	30.09 pk	1.3	16.3	47.69	46	-	-	-	-	-
	Azimuth:71	Height:299 Vert	Margin [dB]			1.69	-	-	-	-	-
14	432.1161	23.73 pk	1.3	16.3	41.33	46	-	-	-	-	-
	Azimuth:71	Height:399 Vert	Margin [dB]			-4.67	-	-	-	-	-
15	432.9165	27.11 pk	1.3	16.4	44.81	46	-	-	-	-	-
	Azimuth:29	Height:299 Vert	Margin [dB]			-1.19	-	-	-	-	-
16	434.1171	67.56 pk	1.3	16.4	85.26	46	-	-	-	-	-
	Azimuth:201	Height:299 Vert	Margin [dB]			39.26	-	-	-	-	-
17	435.3177	22.51 pk	1.3	16.4	40.21	46	-	-	-	-	-
	Azimuth:201	Height:199 Vert	Margin [dB]			-5.79	-	-	-	-	-
18	436.1181	24.97 pk	1.3	16.4	42.67	46	-	-	-	-	-
	Azimuth:201	Height:101 Vert	Margin [dB]			-3.33	-	-	-	-	-
19	438.9195	18.08 pk	1.3	16.5	35.88	46	-	-	-	-	-
	Azimuth:201	Height:399 Vert	Margin [dB]			-10.12	-	-	-	-	-
20	868.3342	24.85 pk	1.7	23.2	49.75	46	-	-	-	-	-
	Azimuth:16	Height:299 Vert	Margin [dB]			3.75	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

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

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 434 MHz

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										
434.0258	69.69 pk	1.3	16.8	63.91*	-	80.8	-	-	-	-
Azimuth: 83	Height:268 Horz		Margin [dB]:	-16.79	-	-	-	-	-	
868.0405	44.43 pk	1.7	22.9	45.15*	-	-	60.8	-	-	-
Azimuth: 312	Height:155 Horz		Margin [dB]:	-15.45	-	-	-	-	-	
427.9237	9.15 qp	1.3	16.6	27.05	46	-	-	-	-	-
Azimuth: 103	Height:334 Horz		Margin [dB]:	-18.95	-	-	-	-	-	
428.1141	9.87 qp	1.3	16.6	27.77	46	-	-	-	-	-
Azimuth: 72	Height:246 Horz		Margin [dB]:	-18.23	-	-	-	-	-	
430.0087	14.83 qp	1.3	16.6	32.73	46	-	-	-	-	-
Azimuth: 84	Height:259 Horz		Margin [dB]:	-13.27	-	-	-	-	-	
430.1151	13.06 qp	1.3	16.6	30.96	46	-	-	-	-	-
Azimuth: 80	Height:250 Horz		Margin [dB]:	-15.04	-	-	-	-	-	
432.014	16.82 qp	1.3	16.7	34.82	46	-	-	-	-	-
Azimuth: 64	Height:254 Horz		Margin [dB]:	-11.18	-	-	-	-	-	
432.5163	15.19 qp	1.3	16.7	33.19	46	-	-	-	-	-
Azimuth: 83	Height:237 Horz		Margin [dB]:	-12.81	-	-	-	-	-	
434.8403	17.67 qp	1.3	16.8	35.77	46	-	-	-	-	-
Azimuth: 71	Height:262 Horz		Margin [dB]:	-10.23	-	-	-	-	-	
434.9175	16.14 qp	1.3	16.8	34.24	46	-	-	-	-	-
Azimuth: 64	Height:214 Horz		Margin [dB]:	-11.76	-	-	-	-	-	

*Average Correction Factor applied.

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 Fundamental
LIMIT 3: FCC Part 15 Subpart C 15.231 Spurious

pk - Peak detector (maximized peak signal)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

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										
436.0469	17.02 qp	1.3	16.8	35.12	46	-	-	-	-	-
Azimuth: 62	Height:239 Horz		Margin [dB]:	-10.88		-	-	-	-	-
436.1181	13.03 qp	1.3	16.8	31.13	46	-	-	-	-	-
Azimuth: 62	Height:241 Horz		Margin [dB]:	-14.87		-	-	-	-	-
438.0691	14.88 qp	1.3	16.9	33.08	46	-	-	-	-	-
Azimuth: 63	Height:233 Horz		Margin [dB]:	-12.92		-	-	-	-	-
438.5193	9.39 qp	1.3	16.9	27.59	46	-	-	-	-	-
Azimuth: 61	Height:240 Horz		Margin [dB]:	-18.41		-	-	-	-	-
866.7334	8.89 qp	1.7	22.9	33.49	46	-	-	-	-	-
Azimuth: 350	Height:232 Horz		Margin [dB]:	-12.51		-	-	-	-	-
Vertical 200 - 1000MHz										
433.9529	68.69 pk	1.3	16.4	63.05*	-	80.8	-	-	-	-
Azimuth: 150	Height:127 Vert		Margin [dB]:	-17.68		-	-	-	-	-
868.0515	31.34 pk	1.7	23.2	32.36*	-	-	60.8	-	-	-
Azimuth: 67	Height:142 Vert		Margin [dB]:	-28.34		-	-	-	-	-
429.7149	8.73 qp	1.3	16.3	26.33	46	-	-	-	-	-
Azimuth: 117	Height:110 Vert		Margin [dB]:	-19.67		-	-	-	-	-
429.9915	12.87 qp	1.3	16.3	30.47	46	-	-	-	-	-
Azimuth: 154	Height:114 Vert		Margin [dB]:	-15.53		-	-	-	-	-
431.9887	15.12 qp	1.3	16.3	32.72	46	-	-	-	-	-
Azimuth: 151	Height:104 Vert		Margin [dB]:	-13.28		-	-	-	-	-
432.1161	12.87 qp	1.3	16.3	30.47	46	-	-	-	-	-
Azimuth: 126	Height:112 Vert		Margin [dB]:	-15.53		-	-	-	-	-
432.9611	11.56 qp	1.3	16.4	29.26	46	-	-	-	-	-
Azimuth: 298	Height:290 Vert		Margin [dB]:	-16.74		-	-	-	-	-
432.9165	9.73 qp	1.3	16.4	27.43	46	-	-	-	-	-
Azimuth: 72	Height:326 Vert		Margin [dB]:	-18.57		-	-	-	-	-

*Average Correction Factor applied.

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 Fundamental
LIMIT 3: FCC Part 15 Subpart C 15.231 Spurious

pk - Peak detector (maximized peak signal)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

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										
435.0582	13.77 qp	1.3	16.4	31.47	46	-	-	-	-	-
Azimuth: 115	Height:115 Vert		Margin [dB]:	-14.53		-	-	-	-	-
435.3177	8.84 qp	1.3	16.4	26.54	46	-	-	-	-	-
Azimuth: 282	Height:266 Vert		Margin [dB]:	-19.46		-	-	-	-	-
435.9386	12.25 qp	1.3	16.4	29.95	46	-	-	-	-	-
Azimuth: 34	Height:266 Vert		Margin [dB]:	-16.05		-	-	-	-	-
436.1181	8.84 qp	1.3	16.4	26.54	46	-	-	-	-	-
Azimuth: 22	Height:246 Vert		Margin [dB]:	-19.46		-	-	-	-	-

*Average Correction Factor applied.

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 Fundamental
LIMIT 3: FCC Part 15 Subpart C 15.231 Spurious

pk - Peak detector (maximized peak signal)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

Figure 27 Radiated Emissions Graph

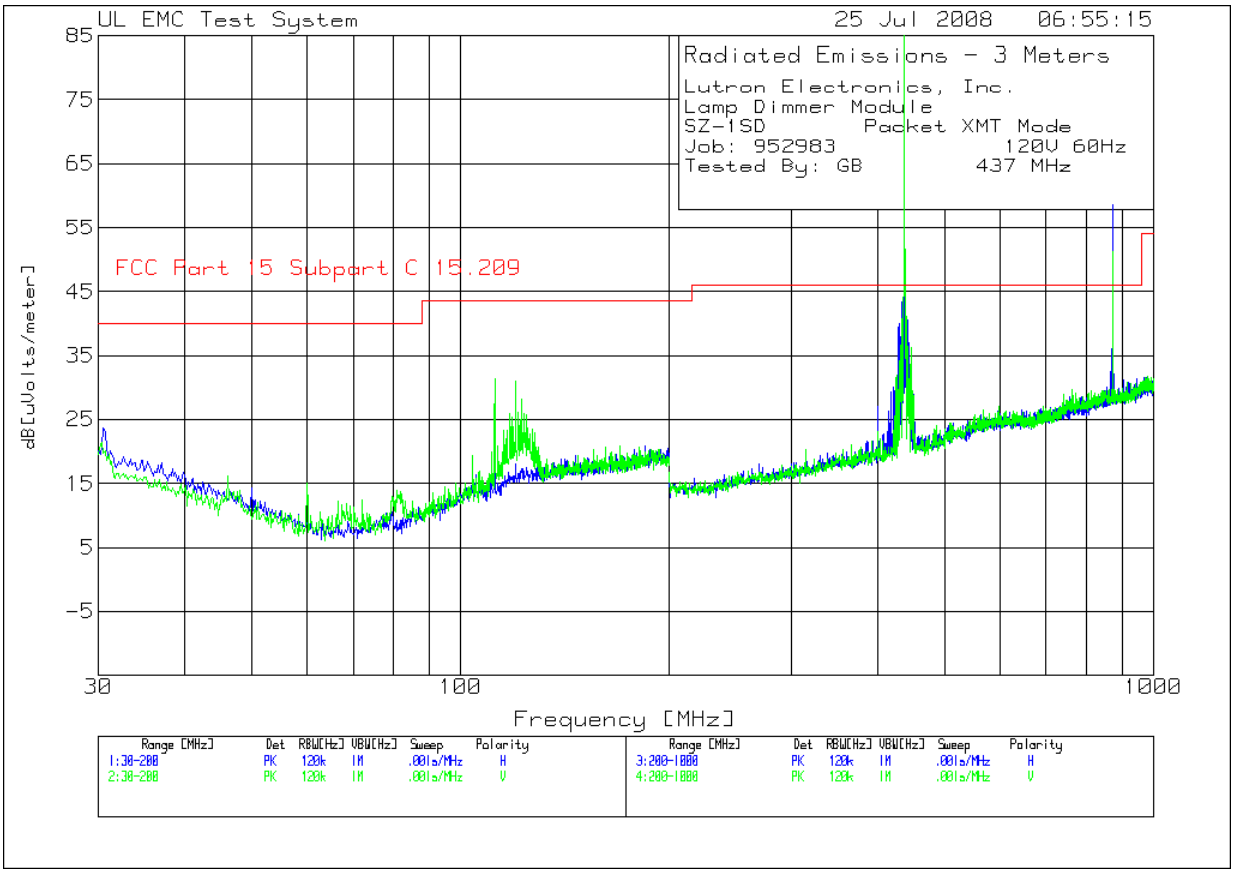


Table 20 Radiated Emissions Data Points

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 437 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	427.7139	21.56 pk	1.3	16.6	39.46	46	-	-	-	-	-
	Azimuth:317	Height:300 Horz		Margin [dB]		-6.54	-	-	-	-	-
2	430.1151	22.1 pk	1.3	16.6	40	46	-	-	-	-	-
	Azimuth:18	Height:100 Horz		Margin [dB]		-6	-	-	-	-	-
3	432.5163	25.33 pk	1.3	16.7	43.33	46	-	-	-	-	-
	Azimuth:231	Height:200 Horz		Margin [dB]		-2.67	-	-	-	-	-
4	434.5173	23.68 pk	1.3	16.8	41.78	46	-	-	-	-	-
	Azimuth:231	Height:100 Horz		Margin [dB]		-4.22	-	-	-	-	-
5	436.9185	63.7 pk	1.3	16.9	81.9	46	-	-	-	-	-
	Azimuth:274	Height:200 Horz		Margin [dB]		35.9	-	-	-	-	-
6	438.1191	22.97 pk	1.3	16.9	41.17	46	-	-	-	-	-
	Azimuth:16	Height:300 Horz		Margin [dB]		-4.83	-	-	-	-	-
7	440.9205	22.79 pk	1.3	17	41.09	46	-	-	-	-	-
	Azimuth:274	Height:200 Horz		Margin [dB]		-4.91	-	-	-	-	-
13	873.937	33.84 pk	1.7	23	58.54	46	-	-	-	-	-
	Azimuth:347	Height:100 Horz		Margin [dB]		12.54	-	-	-	-	-
Vertical 200 - 1000MHz											
8	432.5163	23 pk	1.3	16.4	40.7	46	-	-	-	-	-
	Azimuth:145	Height:400 Vert		Margin [dB]		-5.3	-	-	-	-	-
9	435.7179	32.92 pk	1.3	16.4	50.62	46	-	-	-	-	-
	Azimuth:145	Height:200 Vert		Margin [dB]		4.62	-	-	-	-	-
10	436.9185	67.24 pk	1.3	16.4	84.94	46	-	-	-	-	-
	Azimuth:145	Height:200 Vert		Margin [dB]		38.94	-	-	-	-	-
11	440.9205	23.39 pk	1.3	16.5	41.19	46	-	-	-	-	-
	Azimuth:230	Height:100 Vert		Margin [dB]		-4.81	-	-	-	-	-
12	874.3372	26.35 pk	1.7	23.2	51.25	46	-	-	-	-	-
	Azimuth:107	Height:200 Vert		Margin [dB]		5.25	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

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

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 437 MHz

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										
437	60.36 pk	1.3	16.9	54.48*	-	80.9	-	-	-	-
Azimuth: 200	Height:164 Horz		Margin [dB]:		-26.32	-	-	-	-	-
434.5	8.57 qp	1.3	16.8	26.67	46	-	-	-	-	-
Azimuth: 3	Height:178 Horz		Margin [dB]:		-19.33	-	-	-	-	-
432.7292	10.01 qp	1.3	16.7	28.01	46	-	-	-	-	-
Azimuth: 60	Height:274 Horz		Margin [dB]:		-17.99	-	-	-	-	-
430.1	8.3 qp	1.3	16.6	26.2	46	-	-	-	-	-
Azimuth: 16	Height:260 Horz		Margin [dB]:		-19.8	-	-	-	-	-
427.8	8.13 qp	1.3	16.6	26.03	46	-	-	-	-	-
Azimuth: 74	Height:238 Horz		Margin [dB]:		-19.97	-	-	-	-	-
438.1	8.84 qp	1.3	16.9	27.04	46	-	-	-	-	-
Azimuth: 250	Height:164 Horz		Margin [dB]:		-18.96	-	-	-	-	-
440.9	9.25 qp	1.3	17	27.55	46	-	-	-	-	-
Azimuth: 14	Height:183 Horz		Margin [dB]:		-18.45	-	-	-	-	-
874	32.95 pk	1.7	23	33.77*	-	-	60.9	-	-	-
Azimuth: 283	Height:280 Horz		Margin [dB]:		-27.03	-	-	-	-	-

*Average Correction Factor applied.

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 Fundamental
LIMIT 3: FCC Part 15 Subpart C 15.231 Spurious

pk - Peak detector (maximized peak signal)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

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										
432.5	8.07 qp	1.3	16.4	25.77	46	-	-	-	-	-
Azimuth: 325	Height:201 Vert		Margin [dB]:	-20.23						
435.7	9.3 qp	1.3	16.4	27	46	-	-	-	-	-
Azimuth: 1	Height:336 Vert		Margin [dB]:	-19						
436.9451	59.66 pk	1.3	16.4	77.36	46	-	-	-	-	-
Azimuth: 1	Height:100 Vert		Margin [dB]:	31.36						
436.9451	58.42 qp	1.3	16.4	76.12	46	-	-	-	-	-
Azimuth: 1	Height:100 Vert		Margin [dB]:	30.12						
440.9	8.78 qp	1.3	16.5	26.58	46	-	-	-	-	-
Azimuth: 185	Height:128 Vert		Margin [dB]:	-19.42						
440.9	8.84 qp	1.3	16.5	26.64	46	-	-	-	-	-
Azimuth: 185	Height:128 Vert		Margin [dB]:	-19.36						
874.0413	27.42 pk	1.7	23.2	28.44*	-	-	60.9	-	-	-
Azimuth: 1	Height:100 Vert		Margin [dB]:	-32.36						

*Average Correction Factor applied.

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 Fundamental
LIMIT 3: FCC Part 15 Subpart C 15.231 Spurious

pk - Peak detector (maximized peak signal)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

Figure 28 Radiated Emissions Graph

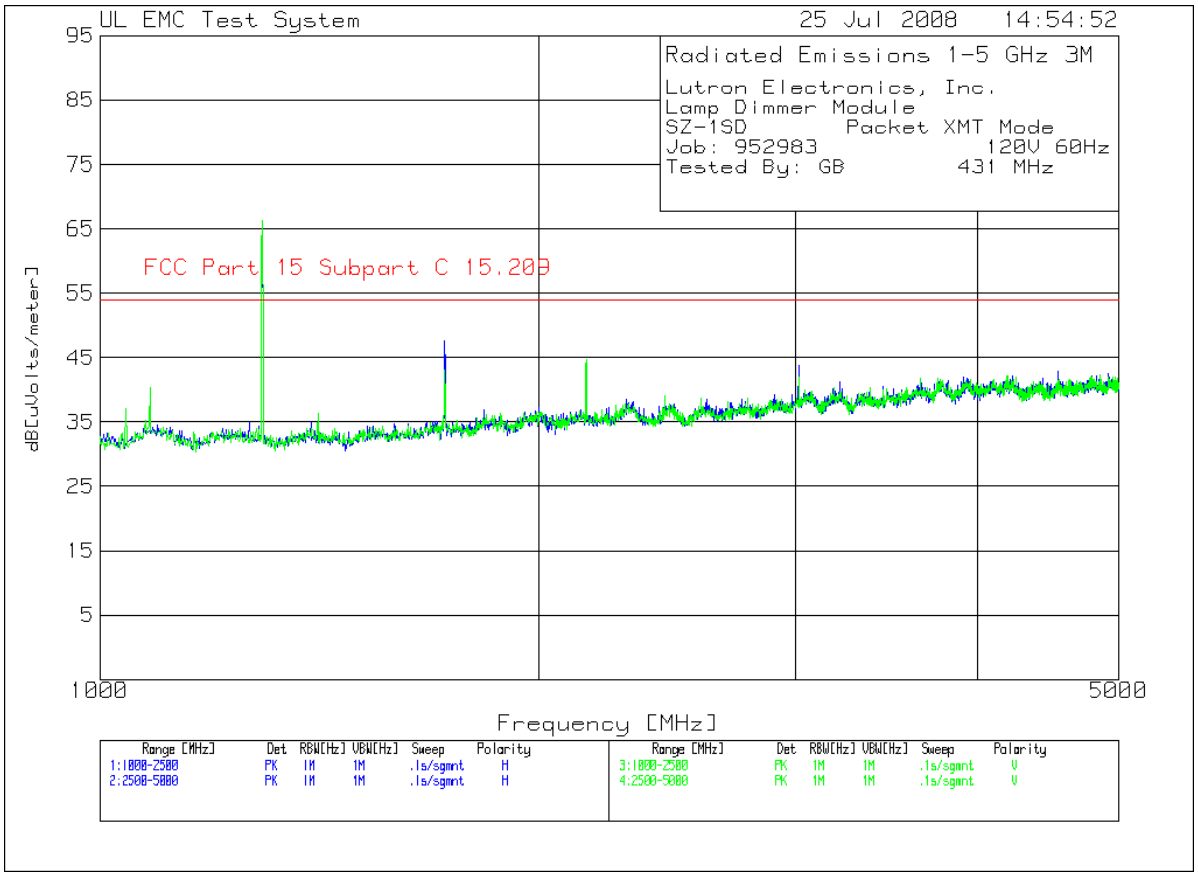


Table 21 Radiated Emissions Data Points

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 431 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 1000 - 2500MHz											
1	1292.793	72.41 pk	-31.7	25.1	65.81	54	-	-	-	-	-
	Azimuth:275	Height:100 Horz		Margin [dB]		11.81	-	-	-	-	-
2	1723.724	51.73 pk	-30.4	26.3	47.63	54	-	-	-	-	-
	Azimuth:354	Height:200 Horz		Margin [dB]		-6.37	-	-	-	-	-
3	2154.655	39.35 pk	-29.5	28.1	37.95	54	-	-	-	-	-
	Azimuth:220	Height:100 Horz		Margin [dB]		-16.05	-	-	-	-	-
Horizontal 2500 - 5000MHz											
11	3017.011	41.33 pk	-27.8	30.3	43.83	54	-	-	-	-	-
	Azimuth:276	Height:100 Horz		Margin [dB]		-10.17	-	-	-	-	-
12	4543.029	35.3 pk	-25	32.6	42.9	54	-	-	-	-	-
	Azimuth:137	Height:200 Horz		Margin [dB]		-11.1	-	-	-	-	-
Vertical 1000 - 2500MHz											
4	1042.042	44.74 pk	-32.7	25	37.04	54	-	-	-	-	-
	Azimuth:165	Height:100 Vert		Margin [dB]		-16.96	-	-	-	-	-
5	1082.583	47.56 pk	-32.3	25	40.26	54	-	-	-	-	-
	Azimuth:109	Height:100 Vert		Margin [dB]		-13.74	-	-	-	-	-
6	1292.793	72.9 pk	-31.7	25.1	66.3	54	-	-	-	-	-
	Azimuth:276	Height:200 Vert		Margin [dB]		12.3	-	-	-	-	-
7	1723.724	47.2 pk	-30.4	26.3	43.1	54	-	-	-	-	-
	Azimuth:54	Height:200 Vert		Margin [dB]		-10.9	-	-	-	-	-
8	2156.156	46.32 pk	-29.6	28	44.72	54	-	-	-	-	-
	Azimuth:354	Height:100 Vert		Margin [dB]		-9.28	-	-	-	-	-
9	1411.411	42.37 pk	-31.2	25.1	36.27	54	-	-	-	-	-
	Azimuth:304	Height:200 Vert		Margin [dB]		-17.73	-	-	-	-	-
10	2441.441	39.75 pk	-29.2	28.5	39.05	54	-	-	-	-	-
	Azimuth:276	Height:200 Vert		Margin [dB]		-14.95	-	-	-	-	-
Vertical 2500 - 5000MHz											
13	3017.011	39.5 pk	-27.8	30.2	41.9	54	-	-	-	-	-
	Azimuth:6	Height:100 Vert		Margin [dB]		-12.1	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

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

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 431 MHz

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 1000 - 2500MHz										
1292.7	80.99 pk	-31.7	25.1	51.05*	-	-	60.7	-	-	-
Azimuth: 273	Height:183 Horz		Margin [dB]:	-9.55	-	-	-	-	-	
1723.9856	56.03 pk	-30.4	26.3	51.93	54	-	-	-	-	-
Azimuth: 298	Height:183 Horz		Margin [dB]:	-2.07	-	-	-	-	-	
2154.9387	46.31 pk	-29.5	28.1	44.91	54	-	-	-	-	-
Azimuth: 80	Height:123 Horz		Margin [dB]:	-9.09	-	-	-	-	-	
Horizontal 2500 - 5000MHz										
3017	42.1 pk	-27.8	30.3	44.6	54	-	-	-	-	-
Azimuth: 114	Height:109 Horz		Margin [dB]:	-9.4	-	-	-	-	-	
Vertical 1000 - 2500MHz										
1292	67.31 pk	-31.7	25.1	36.83*	-	-	60.7	-	-	-
Azimuth: 290	Height:148 Vert		Margin [dB]:	-23.77	-	-	-	-	-	
1723.9369	55.45 pk	-30.4	26.3	51.35	54	-	-	-	-	-
Azimuth: 272	Height:163 Vert		Margin [dB]:	-2.65	-	-	-	-	-	
2155.2159	48.09 pk	-29.5	28	46.59	54	-	-	-	-	-
Azimuth: 69	Height:152 Vert		Margin [dB]:	-7.41	-	-	-	-	-	
Vertical 2500 - 5000MHz										
3017	39.73 pk	-27.8	30.2	42.13	54	-	-	-	-	-
Azimuth: 213	Height:148 Vert		Margin [dB]:	-11.87	-	-	-	-	-	

*Average Correction Factor applied.

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 Fundamental
LIMIT 3: FCC Part 15 Subpart C 15.231 Spurious

pk - Peak detector (maximized peak signal)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

Note: Other than 1292MHz, all other spurious emissions maximized peak were below the general limits so no additional correction factors were applied.

Figure 29 Radiated Emissions Graph

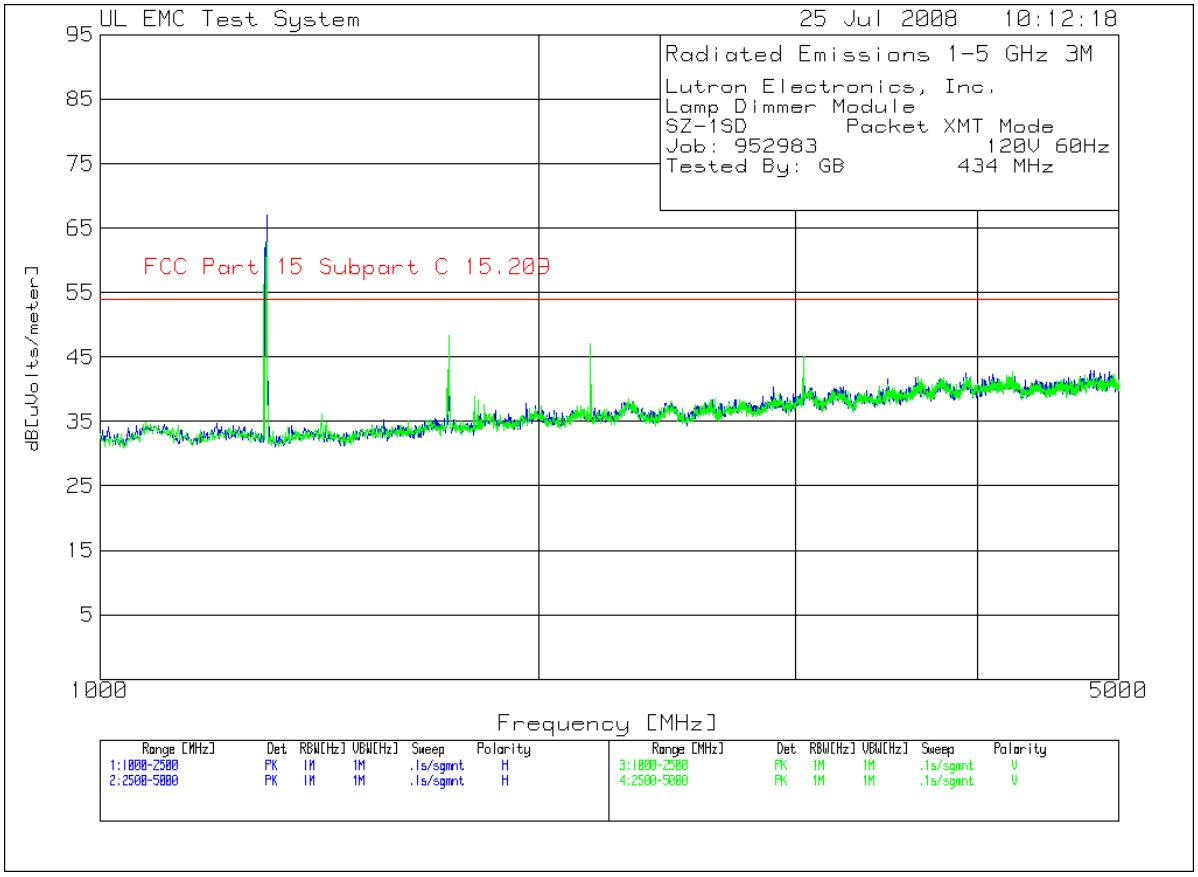


Table 22 Radiated Emissions Data Points

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 434 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 1000 - 2500MHz											
1	1301.802	73.46 pk	-31.6	25.1	66.96	54	-	-	-	-	-
	Azimuth:53	Height:200 Horz		Margin [dB]		12.96	-	-	-	-	-
4	1735.736	47.91 pk	-30.5	26.3	43.71	54	-	-	-	-	-
	Azimuth:137	Height:200 Horz		Margin [dB]		-10.29	-	-	-	-	-
5	2171.171	42.87 pk	-29.5	28.1	41.47	54	-	-	-	-	-
	Azimuth:358	Height:200 Horz		Margin [dB]		-12.53	-	-	-	-	-
13	1960.961	40.32 pk	-30.1	27.6	37.82	54	-	-	-	-	-
	Azimuth:6	Height:99 Horz		Margin [dB]		-16.18	-	-	-	-	-
Horizontal 2500 - 5000MHz											
14	2895.264	38.7 pk	-28.3	30	40.4	54	-	-	-	-	-
	Azimuth:331	Height:200 Horz		Margin [dB]		-13.6	-	-	-	-	-
15	3472.315	37.47 pk	-27	31.2	41.67	54	-	-	-	-	-
	Azimuth:334	Height:100 Horz		Margin [dB]		-12.33	-	-	-	-	-
Vertical 1000 - 2500MHz											
2	1301.802	69.26 pk	-31.6	25.1	62.76	54	-	-	-	-	-
	Azimuth:359	Height:100 Vert		Margin [dB]		8.76	-	-	-	-	-
3	1735.736	52.48 pk	-30.5	26.4	48.38	54	-	-	-	-	-
	Azimuth:2	Height:200 Vert		Margin [dB]		-5.62	-	-	-	-	-
6	2169.67	48.5 pk	-29.5	28.1	47.1	54	-	-	-	-	-
	Azimuth:2	Height:100 Vert		Margin [dB]		-6.9	-	-	-	-	-
8	1420.42	42.17 pk	-31.2	25.1	36.07	54	-	-	-	-	-
	Azimuth:2	Height:200 Vert		Margin [dB]		-17.93	-	-	-	-	-
9	1807.808	42.62 pk	-30.5	26.8	38.92	54	-	-	-	-	-
	Azimuth:165	Height:200 Vert		Margin [dB]		-15.08	-	-	-	-	-
10	1816.817	42.07 pk	-30.5	26.8	38.37	54	-	-	-	-	-
	Azimuth:359	Height:100 Vert		Margin [dB]		-15.63	-	-	-	-	-
11	1836.336	41.04 pk	-30.3	26.9	37.64	54	-	-	-	-	-
	Azimuth:137	Height:200 Vert		Margin [dB]		-16.36	-	-	-	-	-
12	1731.231	44.34 pk	-30.5	26.3	40.14	54	-	-	-	-	-
	Azimuth:109	Height:200 Vert		Margin [dB]		-13.86	-	-	-	-	-
Vertical 2500 - 5000MHz											
7	3037.025	42.32 pk	-27.5	30.3	45.12	54	-	-	-	-	-
	Azimuth:81	Height:200 Vert		Margin [dB]		-8.88	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

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

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 434 MHz

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 1000 - 2500MHz										
1302.0271	81.18 pk	-31.6	25.1	50.80*	-	-	60.8	-	-	-
Azimuth: 285	Height:102 Horz		Margin [dB]:	-9.9	-	-	-	-	-	
Horizontal 2500 - 5000MHz										
2895.2	27.3 ave	-28.3	30	29	54	-	-	-	-	-
Azimuth: 274	Height:174 Horz		Margin [dB]:	-25	-	-	-	-	-	
3471.819	44.41 pk	-27	31.1	48.51	54	-	-	-	-	-
Azimuth: 33	Height:106 Horz		Margin [dB]:	-5.49	-	-	-	-	-	
Vertical 1000 - 2500MHz										
1301.8	73.5 pk	-31.6	25.1	43.12*	-	-	60.8	-	-	-
Azimuth: 274	Height:149 Vert		Margin [dB]:	-17.58	-	-	-	-	-	
1735.9104	56.22 pk	-30.5	26.4	52.12	54	-	-	-	-	-
Azimuth: 323	Height:150 Vert		Margin [dB]:	-1.88	-	-	-	-	-	
2169.9705	44.63 pk	-29.5	28.1	43.23	54	-	-	-	-	-
Azimuth: 67	Height:184 Vert		Margin [dB]:	-10.77	-	-	-	-	-	

*Average Correction Factor applied.

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.231 Fundamental
LIMIT 3: FCC Part 15 Subpart C 15.231 Spurious

pk - Peak detector (maximized peak signal)
qp - Quasi-Peak detector
av - Average detector
avlg - Average log detector
ave - Average detector

Note: Other than 1302MHz, all other spurious emissions maximized peak were below the general limits so no additional correction factors were applied.

Figure 30 Radiated Emissions Graph

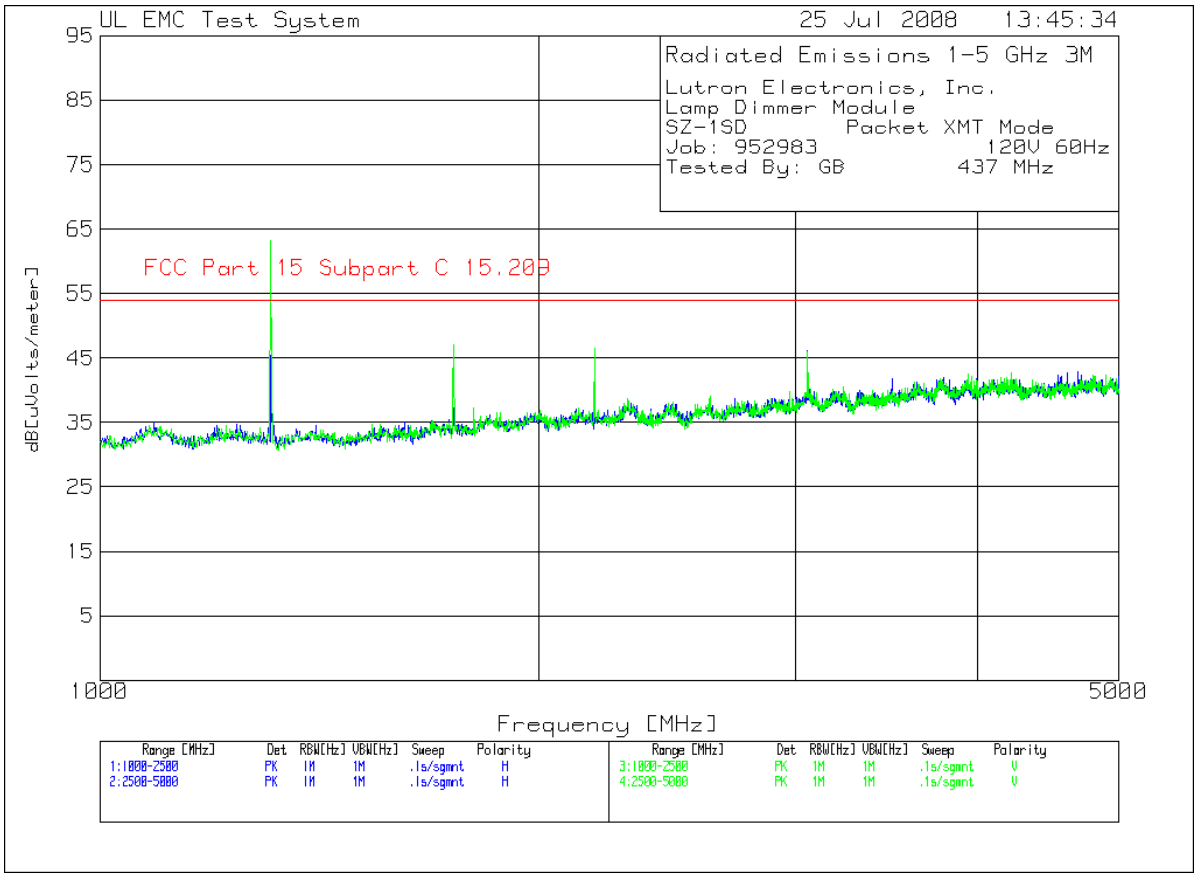


Table 23 Radiated Emissions Data Points

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 437 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 1000 - 2500MHz											
1	1309.309	51.86 pk	-31.6	25.1	45.36	54	-	-	-	-	-
	Azimuth:354	Height:100 Horz		Margin [dB]		-8.64	-	-	-	-	-
2	1747.748	41.37 pk	-30.5	26.4	37.27	54	-	-	-	-	-
	Azimuth:112	Height:200 Horz		Margin [dB]		-16.73	-	-	-	-	-
3	2186.186	41.75 pk	-29.4	28.2	40.55	54	-	-	-	-	-
	Azimuth:334	Height:100 Horz		Margin [dB]		-13.45	-	-	-	-	-
Horizontal 2500 - 5000MHz											
8	3058.706	43.16 pk	-27.5	30.4	46.06	54	-	-	-	-	-
	Azimuth:57	Height:100 Horz		Margin [dB]		-7.94	-	-	-	-	-
9	3493.996	37.53 pk	-26.9	31.2	41.83	54	-	-	-	-	-
	Azimuth:54	Height:100 Horz		Margin [dB]		-12.17	-	-	-	-	-
Vertical 1000 - 2500MHz											
4	1310.811	69.73 pk	-31.6	25.1	63.23	54	-	-	-	-	-
	Azimuth:57	Height:100 Vert		Margin [dB]		9.23	-	-	-	-	-
5	1747.748	51.22 pk	-30.5	26.4	47.12	54	-	-	-	-	-
	Azimuth:113	Height:200 Vert		Margin [dB]		-6.88	-	-	-	-	-
6	2184.685	47.79 pk	-29.4	28.1	46.49	54	-	-	-	-	-
	Azimuth:2	Height:100 Vert		Margin [dB]		-7.51	-	-	-	-	-
7	1806.306	40.86 pk	-30.5	26.8	37.16	54	-	-	-	-	-
	Azimuth:196	Height:200 Vert		Margin [dB]		-16.84	-	-	-	-	-
Vertical 2500 - 5000MHz											
10	3058.706	43.1 pk	-27.5	30.3	45.9	54	-	-	-	-	-
	Azimuth:112	Height:100 Vert		Margin [dB]		-8.1	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

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

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Packet XMT Mode
Job: 952983 120V 60Hz
Tested By: GB 437 MHz

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 1000 - 2500MHz										
1310.5531	78.28 pk	-31.6	25.1	47.90*	-	-	60.9	-	-	-
Azimuth: 303	Height:110 Horz		Margin [dB]:	-12.9	-	-	-	-	-	
Horizontal 2500 - 5000MHz										
3058.9068	46.86 pk	-27.5	30.4	49.76	54	-	-	-	-	-
Azimuth: 253	Height:169 Horz		Margin [dB]:	-4.24	-	-	-	-	-	
Vertical 1000 - 2500MHz										
1310.8	74.16 pk	-31.6	25.1	43.78*	-	-	60.9	-	-	-
Azimuth: 147	Height:166 Vert		Margin [dB]:	-17.02	-	-	-	-	-	
1747.8912	50.84 pk	-30.5	26.4	46.74	54	-	-	-	-	-
Azimuth: 218	Height:176 Vert		Margin [dB]:	-7.26	-	-	-	-	-	
2184.8229	51.29 pk	-29.4	28.1	49.99	54	-	-	-	-	-
Azimuth: 58	Height:139 Vert		Margin [dB]:	-4.01	-	-	-	-	-	

LIMIT 1: FCC Part 15 Subpart C 15.209

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

Figure 31 Radiated Emissions Graph

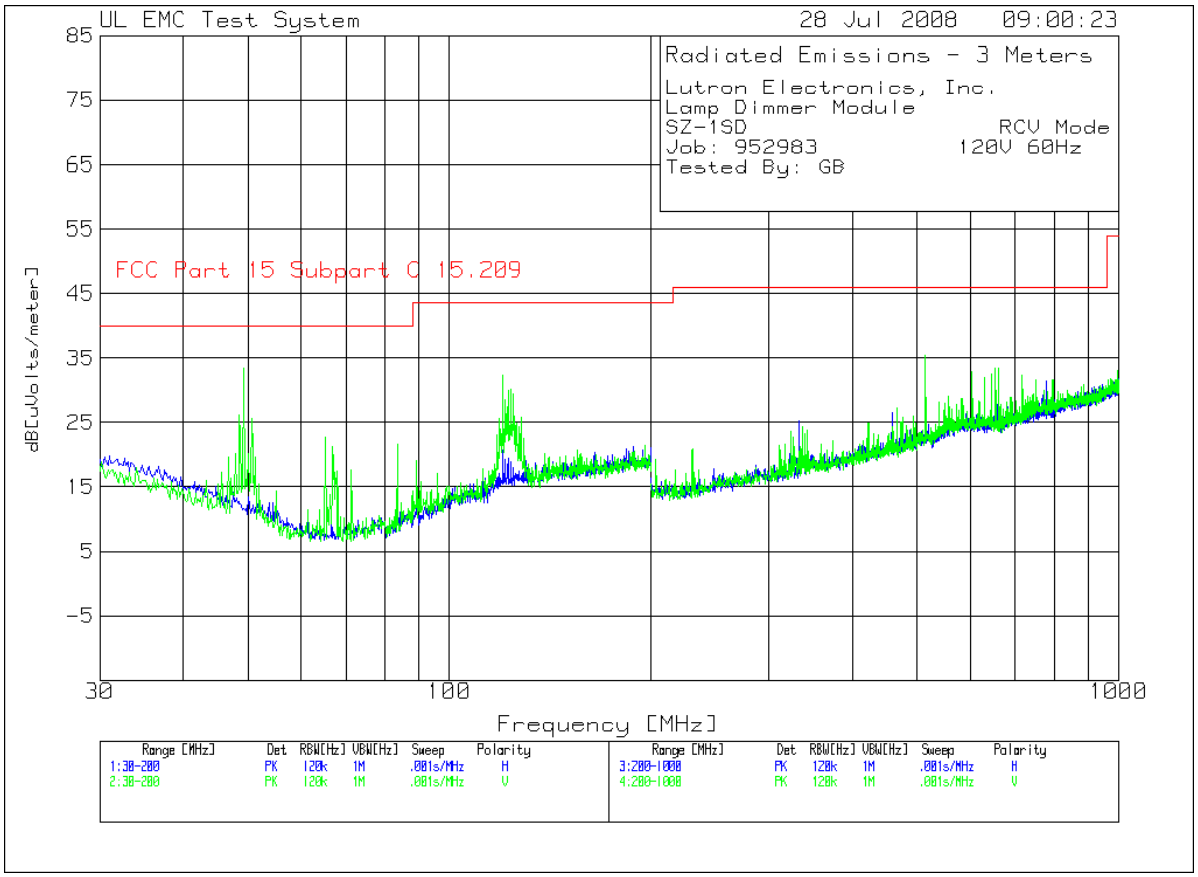


Table 24 Radiated Emissions Data Points

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD RCV Mode
Job: 952983 120V 60Hz
Tested By: GB

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 30 - 200MHz											
1	49.2292	23.31 pk	.5	9.6	33.41	40	-	-	-	-	-
	Azimuth:26	Height:100 Vert		Margin [dB]		-6.59	-	-	-	-	-
2	65.2252	16.6 pk	.6	5.5	22.7	40	-	-	-	-	-
	Azimuth:26	Height:100 Vert		Margin [dB]		-17.3	-	-	-	-	-
3	120.02	18.01 pk	.7	13.6	32.31	43.5	-	-	-	-	-
	Azimuth:285	Height:100 Vert		Margin [dB]		-11.19	-	-	-	-	-
Vertical 200 - 1000MHz											
4	514.1571	15.71 pk	1.4	18.3	35.41	46	-	-	-	-	-
	Azimuth:317	Height:100 Vert		Margin [dB]		-10.59	-	-	-	-	-
5	603.0015	11.43 pk	1.6	19.8	32.83	46	-	-	-	-	-
	Azimuth:344	Height:300 Vert		Margin [dB]		-13.17	-	-	-	-	-
6	653.0265	11.51 pk	1.6	20.3	33.41	46	-	-	-	-	-
	Azimuth:128	Height:100 Vert		Margin [dB]		-12.59	-	-	-	-	-

	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 30 - 200MHz											
49	16.69 qp	.5	9.7	26.89	40	-	-	-	-	-	
Azimuth: 94	Height:101 Vert		Margin [dB]:		-13.11	-	-	-	-	-	

LIMIT 1: FCC Part 15 Subpart C 15.209

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

Figure 32 Radiated Emissions Graph

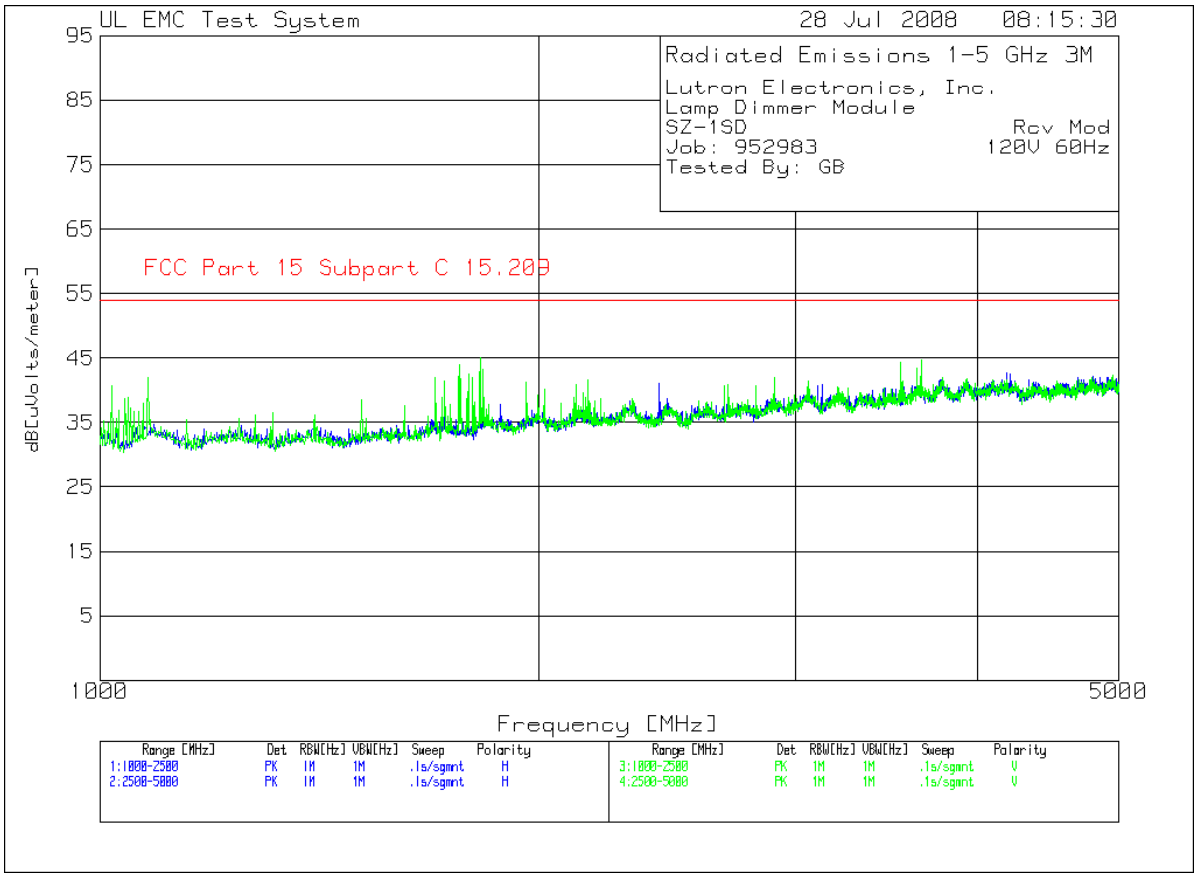


Table 25 Radiated Emissions Data Points

Lutron Electronics, Inc.
Lamp Dimmer Module
SZ-1SD Rcv Mod
Job: 952983 120V 60Hz
Tested By: GB

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 - 2500MHz											
1	1019.52	48.31 pk	-32.6	25	40.71	54	-	-	-	-	-
	Azimuth:1	Height:100 Vert		Margin [dB]		-13.29	-	-	-	-	-
2	1079.58	49.24 pk	-32.3	25	41.94	54	-	-	-	-	-
	Azimuth:139	Height:200 Vert		Margin [dB]		-12.06	-	-	-	-	-
3	1699.7	46.22 pk	-30.4	26.2	42.02	54	-	-	-	-	-
	Azimuth:277	Height:200 Vert		Margin [dB]		-11.98	-	-	-	-	-
4	1764.264	47.91 pk	-30.4	26.5	44.01	54	-	-	-	-	-
	Azimuth:166	Height:200 Vert		Margin [dB]		-9.99	-	-	-	-	-
5	1824.324	48.61 pk	-30.4	26.9	45.11	54	-	-	-	-	-
	Azimuth:56	Height:200 Vert		Margin [dB]		-8.89	-	-	-	-	-
Vertical 2500 - 5000MHz											
6	3659.106	39.1 pk	-26	31.6	44.7	54	-	-	-	-	-
	Azimuth:111	Height:100 Vert		Margin [dB]		-9.3	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

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

5.0 Fundamental Frequency and Spurious Emissions Measurement Limit Calculations

Limit Calculation
Limit in uV/m at 3 meters = 41.6667(F) - 7083.3333
F is the fundamental frequency in MHz

Fundamental Frequency is 431MHz
Limit = 41.6667(431)-7083.3333
Limit = 10875.0144

Limit In dBuV/m = 20log(limit in uV)
Limit in dBuV/m = 20log(10875.0144)
Limit in dBuV/m = 80.7

From table in section 15.231
Limit for Spurious Emissions = 20dB lower then fundamental

Fundamental Frequency is 431MHz
Limit = Fundemental Limit – 20dB
Limit = 80.7dBuV/m – 20dB
Limit = 60.7dBuV/m

Radiated Emissions Limit conversion from μV/m to dBμV/m (accordance with paragraph 15.109)

Radiated Emissions Limit (dBμV/m) = 20*log (μV/m)
Radiated Emissions Limit (dBμV/m) = 20 * log (90)
Radiated Emissions Limit (dBμV/m) = 39.1

Radiated Emissions test data obtained during measurements.

Field Strength (dBμV/m) = Measured field strength (dBμV) + Antenna Factor (dB/m) + Cable Factor (dB)
Field Strength (dBμV/m) = 16.13dBμV + 16.4dB/m + 1.3dB
Field Strength (dBμV/m) = 33.84

Duty Cycle Correction Factor

DCF = 20log(On Time / Total Transmission Time)
DCF = 20log(4.81/75.2) = -23.88

Appendix A

Accreditations and Authorizations

NVLAP Lab code: 100255-0

NVLAP: Recognized under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC EN17025 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. 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