



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

www.ul.com/emc
(631) 271-6200

Job Number:	1001078022
Project Number:	09CA10881
File Number:	MC15211
Date:	8 April 2009
Model:	VRCZ4, VRCS4, VRCS2
FCC ID	QGH-VRSDC
Industry Canada ID:	2473A-VRSDC

Electromagnetic Compatibility Test Report

For

Leviton Mfg. Co. Inc.

Copyright © 2007 Underwriters Laboratories Inc.

Underwriters Laboratories Inc. authorizes the above-named company to reproduce this Report provided it is reproduced in its entirety.

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

**A not-for-profit organization dedicated
to public safety and committed to
quality service for over 100 years**

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

Job Number:	1001078022	File Number:	MC15211	Page	2 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Test Report Details

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

Tests Performed For: **Leviton Mfg. Co. Inc.**
59-25 Little Neck Parkway
Little Neck, NY 11362-2591

Applicant Contact: **Parimal Patel**
Title: **Senior Electronics Engineer**
Phone: **(718) 281-6437**
Fax: **(718) 281-6419**
E-mail: **ppatel@leviton.com**

Test Report Date: **8 April 2009**
Reference Test Report Date: **5 August 2008**
Reference UL Project Number: **08ME06443**

Product Type: **Dimmers**

Product standards **FCC Part 15, Subpart C, 15.249, RSS-210, RSS-GEN, Permissive II change**

Model Numbers: **VRCZ4, VRCS4, VRCS2**

EUT Category: **Periodic Low Power Transmitter**

Testing Start Date: **27 March 2009**

Date Testing Complete: **31 March 2009**

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.

Job Number:	1001078022	File Number:	MC15211	Page	3 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Report Directory

1.0	GENERAL - Product Description	4
1.1	Equipment Description	4
1.2	Equipment Marking Plate	4
1.3	Device Configuration During Test.....	5
1.3.1	Equipment Used During Test:.....	5
1.3.2	Input/Output Ports:.....	5
1.3.3	EUT Internal Operating Frequencies:	5
1.3.4	Power Interface:	6
1.4	Block Diagram:	6
1.5	EUT Configurations.....	7
1.6	EUT Operation Modes	7
2.0	Summary	7
2.1	Deviations from standard test methods.....	7
2.2	Device Modifications Necessary for Compliance	7
2.3	Reference Standards	8
2.4	Results Summary	8
3.0	Calibration of Equipment Used for Measurement	9
4.0	EMISSIONS TEST RESULTS	9
4.1	Test Conditions and Results – MAINS TERMINAL – CONDUCTED EMISSIONS	10
4.2	Test Conditions and Results – RADIATED EMISSIONS TRANSMIT MODE	19
4.3	Test Conditions and Results – RADIATED EMISSIONS RECEIVE MODE (STANDBY)	52
Appendix A.....		74
	Accreditations and Authorizations	74

Job Number:	1001078022	File Number:	MC15211	Page	4 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

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

Electronic Low Voltage Scene Capable Dimmer for single pole, 3-way or more applications, with LED locator and brightness display. White face assembled on device, ivory and almond faces included.

VRCS2 has an identical RF circuit as used in product listed under QGH-VRSDC FCC ID and 2473A-VRSDC IC ID. It also uses same physical RF MODULE (ZM3102), which includes RF circuit. It use a modified power supply PCB for two relay control instead of one relay control.

VRCS4/VRCZ4:

VRCS4/VRCZ4 has an identical RF circuit as used in product listed under QGH-VRSDC FCC ID and 2473A-VRSDC IC ID. It also uses same physical RF MODULE (ZM3102), which includes RF circuit. It use modified power PCB for few component placement change and modify logic PCB for addition of few tactile switches.

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 Provided

Job Number:	1001078022	File Number:	MC15211	Page	5 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

1.3 Device Configuration During Test

1.3.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	Dimmer	Leviton Mfg. Co. Inc.	VRCZ4	None
EUT	Dimmer	Leviton Mfg. Co. Inc.	VRCS4	None
EUT	Dimmer	Leviton Mfg. Co. Inc.	VRCS2	None
AE	Load	Leviton	-	Incandescent Light bulb

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	NO	NO	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
908.42	Fundamental
32	Crystal

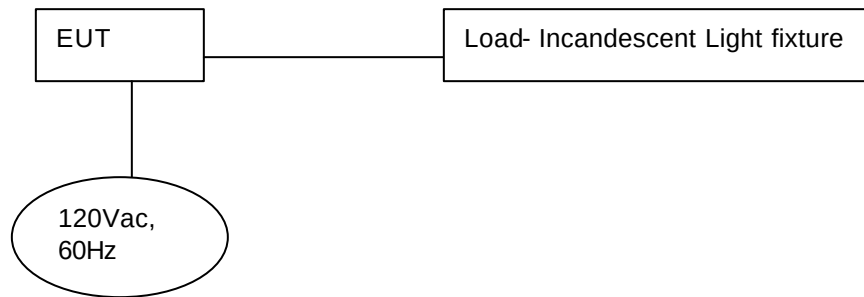
Job Number:	1001078022	File Number:	MC15211	Page	6 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

1.3.4 Power Interface:

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

1.4 Block Diagram:

The diagram below illustrates the configuration of the equipment above.



Job Number:	1001078022	File Number:	MC15211	Page	7 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

1.5 EUT Configurations

Mode #	Description
1	The EUT (equipment under test) was set to transmit at its maximum allowable power rating at the fundamental frequency of 908.42MHz. The dimmer was mounted in a typically outlet box while terminated with a Incandescent Light bulb

1.6 EUT Operation Modes

Mode #	Description
1	Transmitter Continuous CW
2	Standby (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

Job Number:	1001078022	File Number:	MC15211	Page	8 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

2.3 Reference Standards

Standard Number	Standard Name	Standard Date
CFR 47	FCC Part 15, Subpart C, 15.31, 15.35, 15.207 & 15.209, & 15.249	2008
CFR 47	FCC Part 15, Subpart B, Class B Radio Frequency Devices	2008
ICES-003, Issue 4	Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard: Digital Apparatus	2003
RSS- 210, Issue 7	Low-power License-exempt Radio communications Devices (All Frequency Bands): Category I Equipment sets out certification requirements for low-power license- exempt radio communication devices that are Category I equipment.	2007
RSS-GEN, Issue 2	General Requirements and Information for the Certification of Radio communication equipment.	2007

2.4 Results Summary

This product is considered Class B

Requirement – Test	Result (Compliant / Non-Compliant)*
Fundamental Radiated Emissions	Compliant
Spurious Radiated Emissions	Compliant
General Radiated Emissions	Compliant
Conducted Emissions - Mains	Compliant

Test Engineer:



Joe Danisi (Ext.23055)
Lead Engineering Associate
International EMC Services
Conformity Assessment Services -

Reviewer:



Bob DeLisi (Ext.22452)
Senior Staff 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.

Job Number:	1001078022	File Number:	MC15211	Page	9 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

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:

----- United States -----

FCC Part 15, Subpart C, 15.207, 15.209, 15.215 & 15.249.	Code of Federal Regulations, Part 15, and Subpart C, Radio Frequency Devices: 2008.
FCC Part 15, Subpart B, 15.107 & 15.109	Code of Federal Regulations, Part 15, and Subpart B, Radio Frequency Devices: 2008.

----- Industry Canada -----

Radio Standards Specification 210, Issue 7	Low-power License-exempt Radio communications Devices (All Frequency Bands): Category I Equipment sets out certification requirements for low-power license- exempt radio communication devices that are Category I equipment. 2007
RSS-GEN, Issue 2	General Requirements and Information for the Certification of Radio communication Equipment.
ICES-003, Issue 4	Spectrum Management and Telecommunications Policy Interference-Causing Equipment Standard: Digital Apparatus. 2004

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
-------------------------	------------	----------------------	---------	---------------------------	-----------

Job Number:	1001078022	File Number:	MC15211	Page	10 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

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 C, 15.207	
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 - Class 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	EUT Configurations Mode	EUT Operation Mode
1	1	1 & 2
Supplementary information: The set up photos and plots indicate a typo in the model number the correct model number is outlined under the set up photo and graph.		

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	83III	ME5B-306

Job Number:	1001078022	File Number:	MC15211	Page	11 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 1 Test Setup for Conducted Emissions



Model: VRCZ4



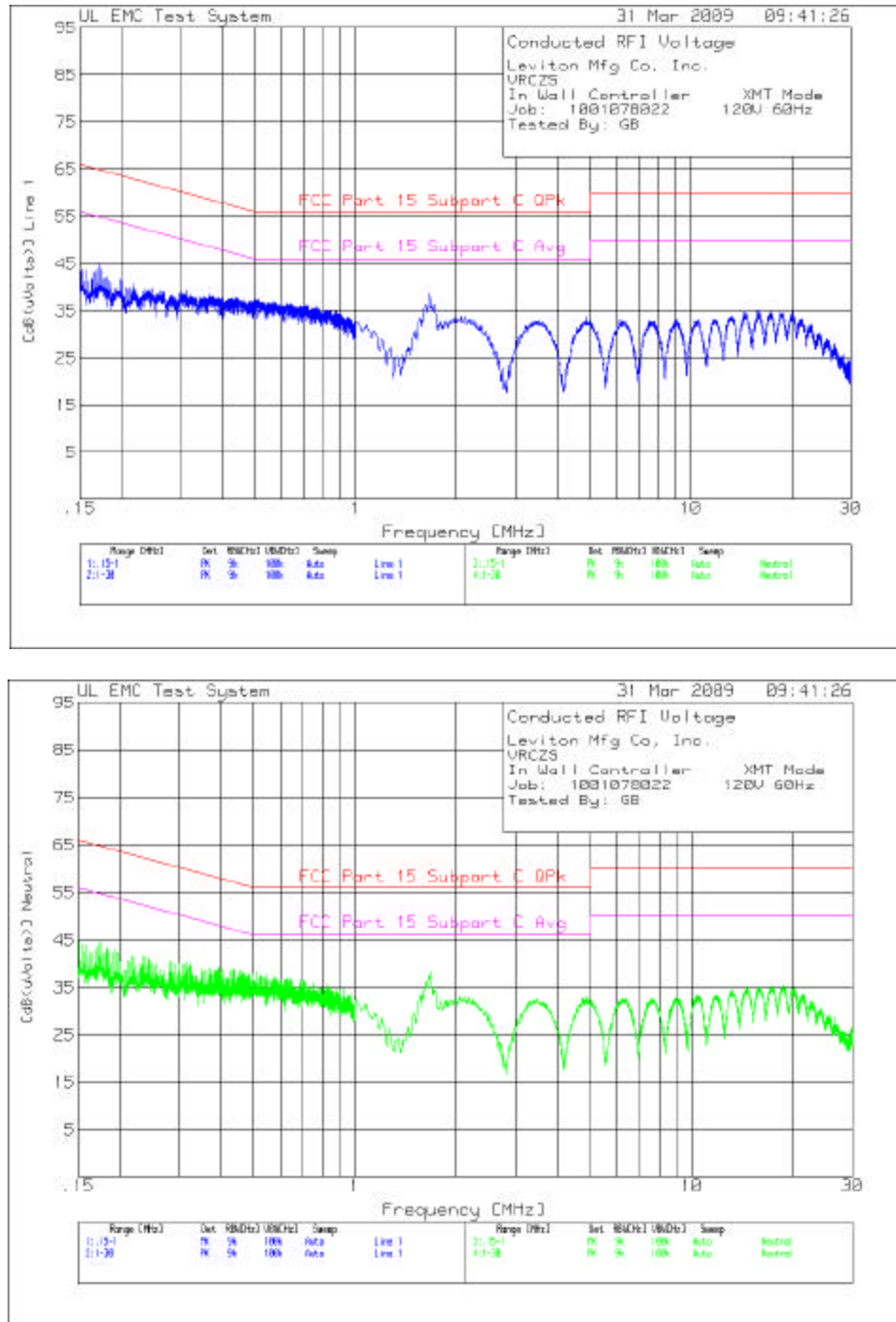
Model: VRCS4



Model: VRCS2

Job Number:	1001078022	File Number:	MC15211	Page	12 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 2 Conducted Emissions Graph



VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	13 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 3 Conducted Emissions Data Points

Leviton Mfg Co, Inc.
VRCZ4
In Wall Controller XMT Mode
Job: 1001078022 120V 60Hz
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 1 .15 - 1MHz -----											
1	.17296	32.89 pk	11.8	0	44.69	64.8	54.8	-	-	-	-
				Margin [dB]		-20.11	-10.11	-	-	-	-
2	.19948	30.22 pk	11.5	0	41.72	63.6	53.6	-	-	-	-
				Margin [dB]		-21.88	-11.88	-	-	-	-
3	.34401	27.15 pk	10.8	0	37.95	59.1	49.1	-	-	-	-
				Margin [dB]		-21.15	-11.15	-	-	-	-
4	.5756	26.29 pk	10.5	0	36.79	56	46	-	-	-	-
				Margin [dB]		-19.21	-9.21	-	-	-	-
Line 1 1 - 30MHz -----											
5	1.66133	28.26 pk	10.4	0	38.66	56	46	-	-	-	-
				Margin [dB]		-17.34	-7.34	-	-	-	-
6	18.80376	23.46 pk	10.9	0	34.36	60	50	-	-	-	-
				Margin [dB]		-25.64	-15.64	-	-	-	-
Neutral .15 - 1MHz -----											
7	.17313	32.73 pk	11.8	0	44.53	64.8	54.8	-	-	-	-
				Margin [dB]		-20.27	-10.27	-	-	-	-
8	.23791	30.21 pk	11.2	0	41.41	62.2	52.2	-	-	-	-
				Margin [dB]		-20.79	-10.79	-	-	-	-
9	.30575	28.84 pk	10.9	0	39.74	60.1	50.1	-	-	-	-
				Margin [dB]		-20.36	-10.36	-	-	-	-
10	.58563	26.52 pk	10.5	0	37.02	56	46	-	-	-	-
				Margin [dB]		-18.98	-8.98	-	-	-	-
Neutral 1 - 30MHz -----											
11	1.67294	27.94 pk	10.4	0	38.34	56	46	-	-	-	-
				Margin [dB]		-17.66	-7.66	-	-	-	-
12	19.89438	24.01 pk	10.8	0	34.81	60	50	-	-	-	-
				Margin [dB]		-25.19	-15.19	-	-	-	-

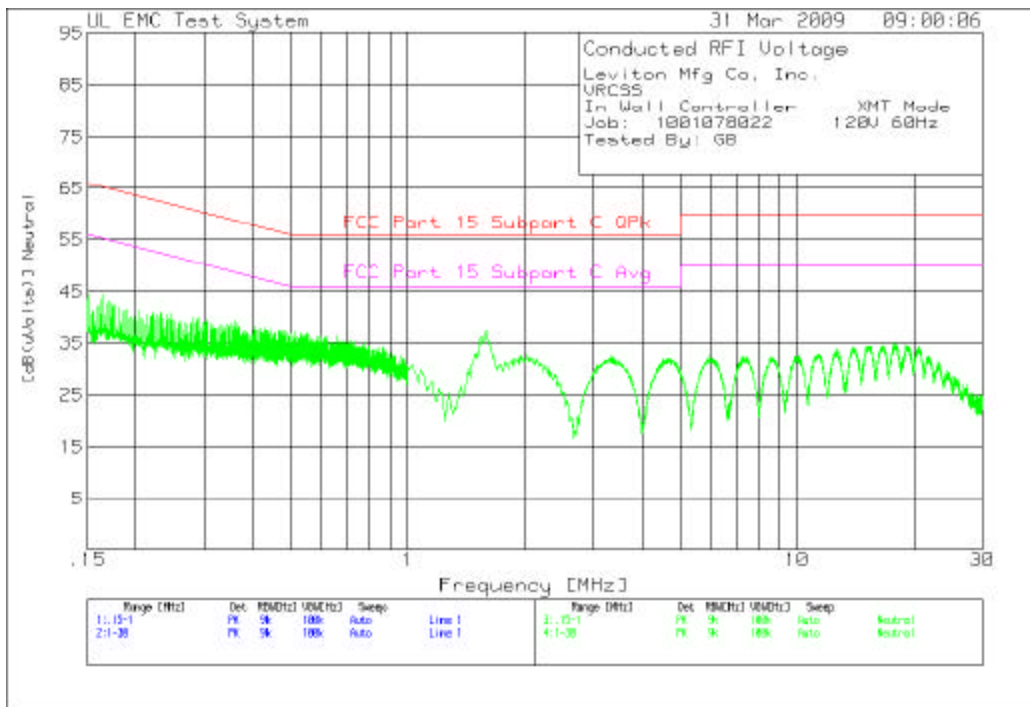
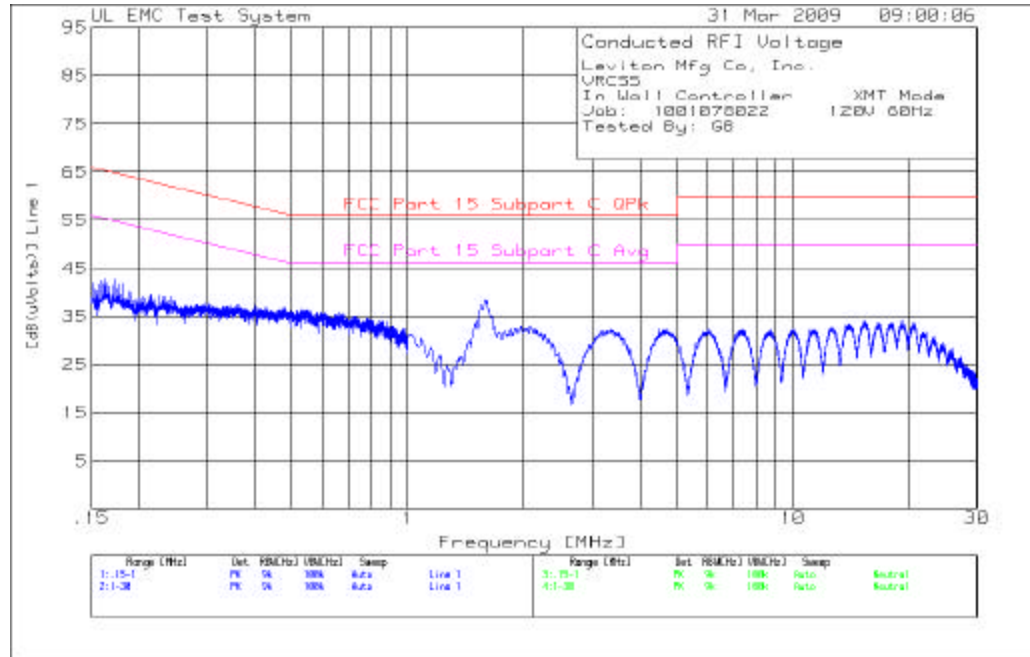
LIMIT 1: FCC Part 15 Subpart C QPk

LIMIT 2: FCC Part 15 Subpart C Avg

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

Job Number:	1001078022	File Number:	MC15211	Page	14 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 3 Conducted Emissions Graph



VRCS4

Job Number:	1001078022	File Number:	MC15211	Page	15 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 4 Conducted Emissions Data Points

Leviton Mfg Co, Inc.
VRCS4
In Wall Controller XMT Mode
Job: 1001078022 120V 60Hz
Tested By: GB

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 1 .15 - 1MHz -----											
1	.16309	30.87 pk	12	0	42.87	65.3	55.3	-	-	-	-
				Margin [dB]		-22.43	-12.43	-	-	-	-
2	.2141	28.19 pk	11.4	0	39.59	63	53	-	-	-	-
				Margin [dB]		-23.41	-13.41	-	-	-	-
3	.36118	26.87 pk	10.7	0	37.57	58.7	48.7	-	-	-	-
				Margin [dB]		-21.13	-11.13	-	-	-	-
Line 1 1 - 30MHz -----											
4	1.58592	28.04 pk	10.4	0	38.44	56	46	-	-	-	-
				Margin [dB]		-17.56	-7.56	-	-	-	-
5	12.68354	22.06 pk	10.8	0	32.86	60	50	-	-	-	-
				Margin [dB]		-27.14	-17.14	-	-	-	-
6	18.06121	22.94 pk	10.7	0	33.64	60	50	-	-	-	-
				Margin [dB]		-26.36	-16.36	-	-	-	-
Neutral .15 - 1MHz -----											
7	.16462	32.49 pk	12	0	44.49	65.2	55.2	-	-	-	-
				Margin [dB]		-20.71	-10.71	-	-	-	-
8	.20356	29.76 pk	11.5	0	41.26	63.5	53.5	-	-	-	-
				Margin [dB]		-22.24	-12.24	-	-	-	-
9	.35557	27.71 pk	10.8	0	38.51	58.8	48.8	-	-	-	-
				Margin [dB]		-20.29	-10.29	-	-	-	-
Neutral 1 - 30MHz -----											
10	1.59172	27.08 pk	10.4	0	37.48	56	46	-	-	-	-
				Margin [dB]		-18.52	-8.52	-	-	-	-
11	12.64293	23.22 pk	10.8	0	34.02	60	50	-	-	-	-
				Margin [dB]		-25.98	-15.98	-	-	-	-
12	18.0032	24.11 pk	10.7	0	34.81	60	50	-	-	-	-
				Margin [dB]		-25.19	-15.19	-	-	-	-

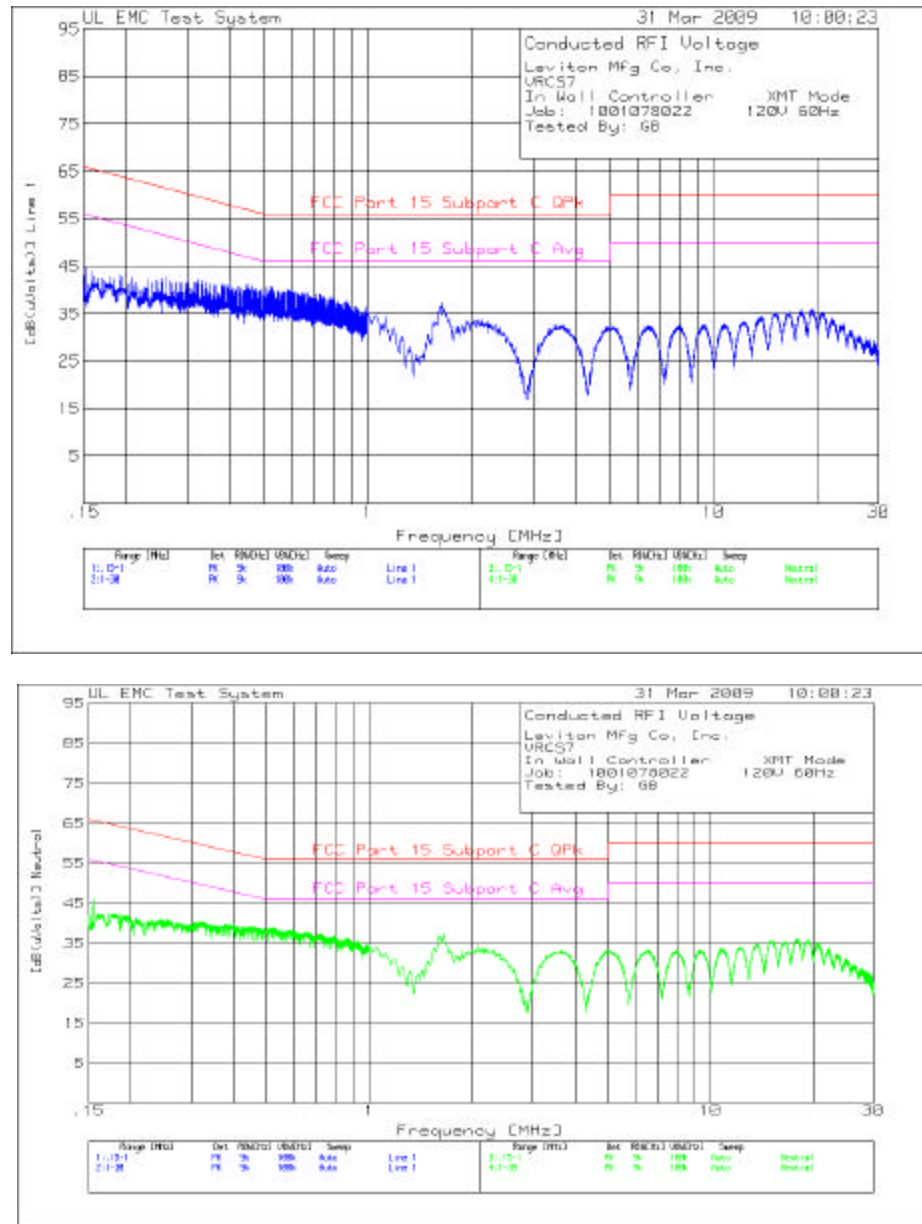
LIMIT 1: FCC Part 15 Subpart C QPk

LIMIT 2: FCC Part 15 Subpart C Avg

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

Job Number:	1001078022	File Number:	MC15211	Page	16 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 4 Conducted Emissions Graph



VRCS2

Job Number:	1001078022	File Number:	MC15211	Page	17 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 5 Conducted Emissions Data Points

Leviton Mfg Co, Inc.
VRCS2
In Wall Controller XMT Mode
Job: 1001078022 120V 60Hz
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 1 .15 - 1MHz -----											
1	.15833	31.99 pk	12	0	43.99	65.6	55.6	-	-	-	-
				Margin [dB]		-21.61	-11.61	-	-	-	-
2	.2544	31.32 pk	11.1	0	42.42	61.6	51.6	-	-	-	-
				Margin [dB]		-19.18	-9.18	-	-	-	-
3	.3821	30.57 pk	10.7	0	41.27	58.2	48.2	-	-	-	-
				Margin [dB]		-16.93	-6.93	-	-	-	-
4	.52357	30.19 pk	10.5	0	40.69	56	46	-	-	-	-
				Margin [dB]		-15.31	-5.31	-	-	-	-

Line 1 1 - 30MHz -----											
5	1.64393	26.86 pk	10.4	0	37.26	56	46	-	-	-	-
				Margin [dB]		-18.74	-8.74	-	-	-	-
6	18.009	25.16 pk	10.7	0	35.86	60	50	-	-	-	-
				Margin [dB]		-24.14	-14.14	-	-	-	-

Neutral .15 - 1MHz -----											
7	.15578	33.94 pk	12.1	0	46.04	65.7	55.7	-	-	-	-
				Margin [dB]		-19.66	-9.66	-	-	-	-
8	.19013	30.39 pk	11.6	0	41.99	64	54	-	-	-	-
				Margin [dB]		-22.01	-12.01	-	-	-	-
9	.32871	29.44 pk	10.8	0	40.24	59.5	49.5	-	-	-	-
				Margin [dB]		-19.26	-9.26	-	-	-	-
10	.51795	28.11 pk	10.6	0	38.71	56	46	-	-	-	-
				Margin [dB]		-17.29	-7.29	-	-	-	-

Neutral 1 - 30MHz -----											
11	1.65553	27.21 pk	10.4	0	37.61	56	46	-	-	-	-
				Margin [dB]		-18.39	-8.39	-	-	-	-
12	17.76535	25.38 pk	10.7	0	36.08	60	50	-	-	-	-
				Margin [dB]		-23.92	-13.92	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C QPk

LIMIT 2: FCC Part 15 Subpart C Avg

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

Job Number:	1001078022	File Number:	MC15211	Page	18 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Leviton Mfg Co, Inc.
VRCS2
In Wall Controller XMT Mode
Job: 1001078022 120V 60Hz
Tested By: GB

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 1 .15 - 1MHz										
.52508	21.26 ave	10.5	0	31.76	56	46	-	-	-	-
			Margin [dB]:		-24.24	-14.24	-	-	-	-
Neutral .15 - 1MHz										
.51636	22.62 ave	10.6	0	33.22	56	46	-	-	-	-
			Margin [dB]:		-22.78	-12.78	-	-	-	-

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

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

Job Number:	1001078022	File Number:	MC15211	Page	19 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

4.2 Test Conditions and Results – RADIATED EMISSIONS TRANSMIT MODE

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 & 15.249	
UL LPG		80-EM-S0029	
	Frequency range	Measurement Point	
Fully configured sample scanned over the following frequency range	0.009 MHz – 1GHz	(3 meter measurement distance)	
Fully configured sample scanned over the following frequency range	1GHz – 10 GHz	(3 meter measurement distance)	
Limits			
Frequency (MHz)	Limit (dBµV/m)		
	Quasi-Peak	Average	
	General Emissions	Fundamental	Spurious
0.009 – 0.490	128.5 – 93.8	-	-
0.490 – 1.705	73.8 – 63	-	-
1.705 – 30	69.5	-	-
30 – 88	40	-	-
88 – 216	43.5	-	-
216-960	46	-	-
1000-10000	54	-	-
908.42	-	94	
All > 908.42 Spurious	-	-	54
Supplementary information: Spurious limits are only applied against products of the transmitter. All other emissions must meet the general limits. Portable transmitters are to be checked in 3 orthogonal axis.			
The set up photos and plots indicate a typo in the model number the correct model number is outlined under the set up photo and graph. Also, the transmitter does not operate under 30MHz			

Job Number:	1001078022	File Number:	MC15211	Page	20 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 6 Radiated Emissions EUT Configuration Settings

Power Interface	EUT Configurations	EUT Operation Mode
1	1	1 & 2
Supplementary information:		

Table 7 Radiated Emissions Test Equipment

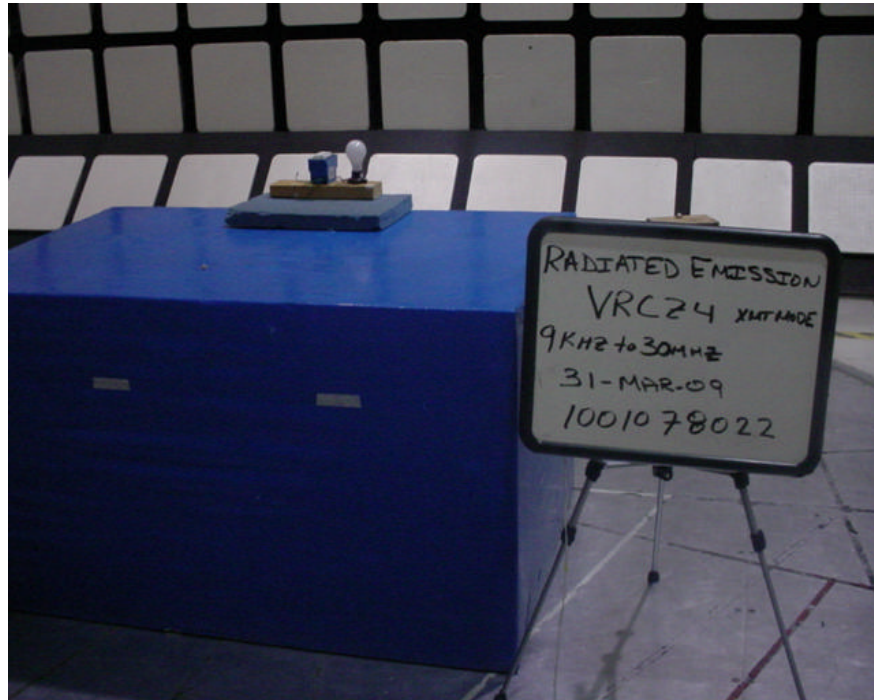
Test Equipment Used			
Description	Manufacturer	Model	Identifier
60Hz-30MHz			
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Active Loop Antenna	EMCO	6507	ME5A-288
Switch Driver	HP	11713A	ME7A-627
System Controller	Sunol Sciences	SC99V	44396
Camera Controller	Panasonic	WV-CU254	44395
RF Switch Box	UL	1	44398
Measurement Software	UL	Version 9.3	44740
Temp/Humidity/Pressure Meter	Cole Parmer	99760-00	4268
Multimeter	Fluke	83III	ME5B-306
30-1000MHz			
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Bicon Antenna	Schaffner	VBA6106A	54
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

Job Number:	1001078022	File Number:	MC15211	Page	21 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Above 1GHz (Band Optimized System)			
Spectrum Analyzer	Agilent	E7405A	19695
Horn Antenna (1-2 GHz)	ETS	3161-01	51442
Horn Antenna (2-4 GHz)	ETS	3161-02	48107
Horn Antenna (4-8 GHz)	ETS	3161-03	48106
Horn Antenna (8-12 GHz)	ETS	3160-07	8933
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

Job Number:	1001078022	File Number:	MC15211	Page	22 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 5 Test setup for Radiated Emissions

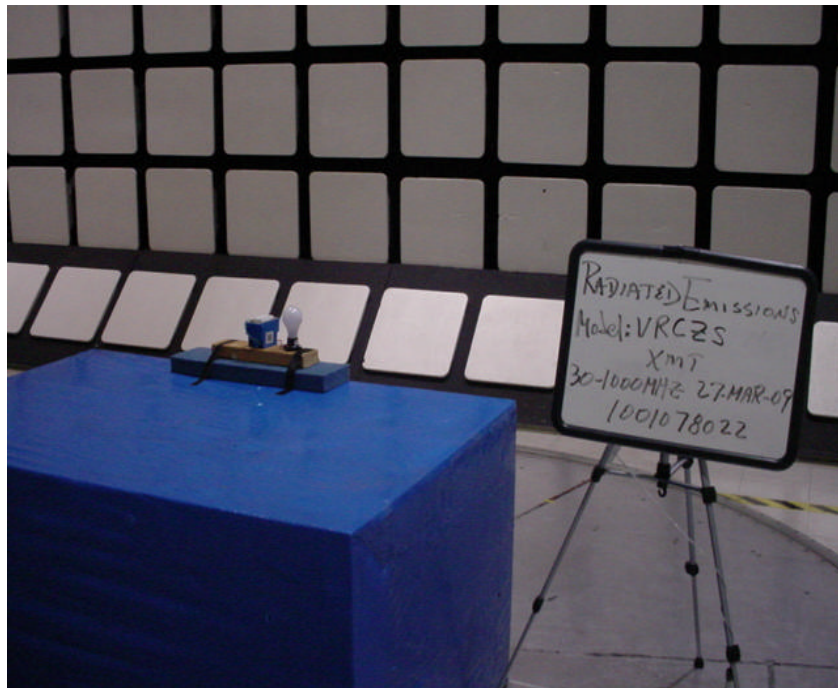


VRCZ4



VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	23 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

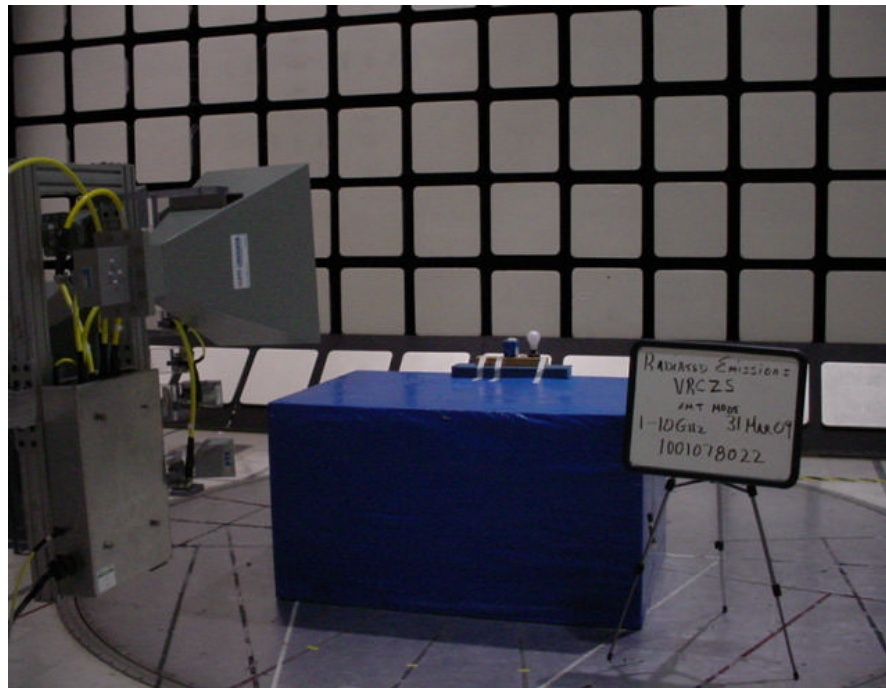


VRCZ4

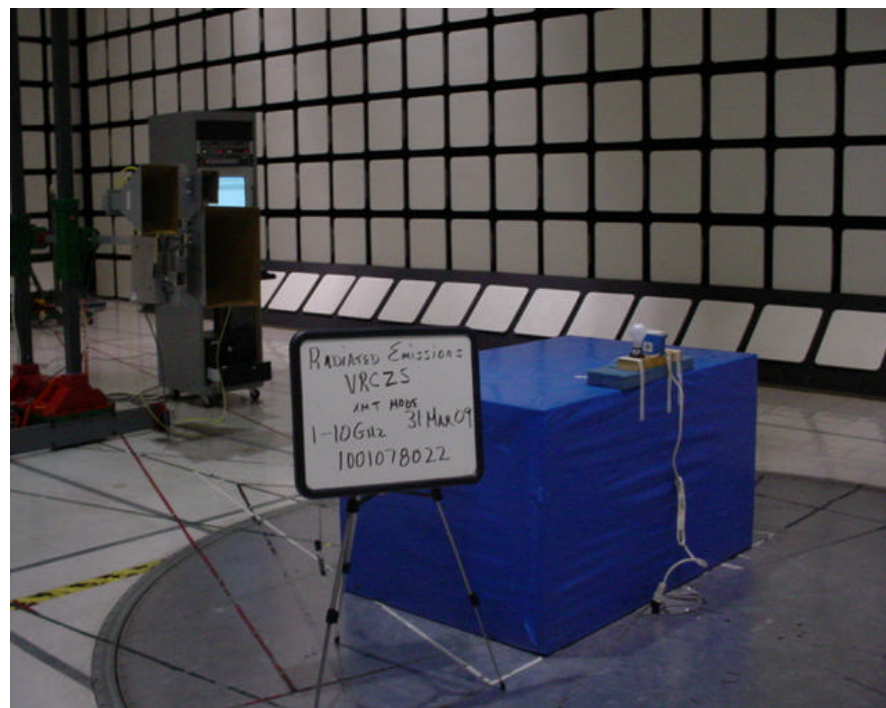


VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	24 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

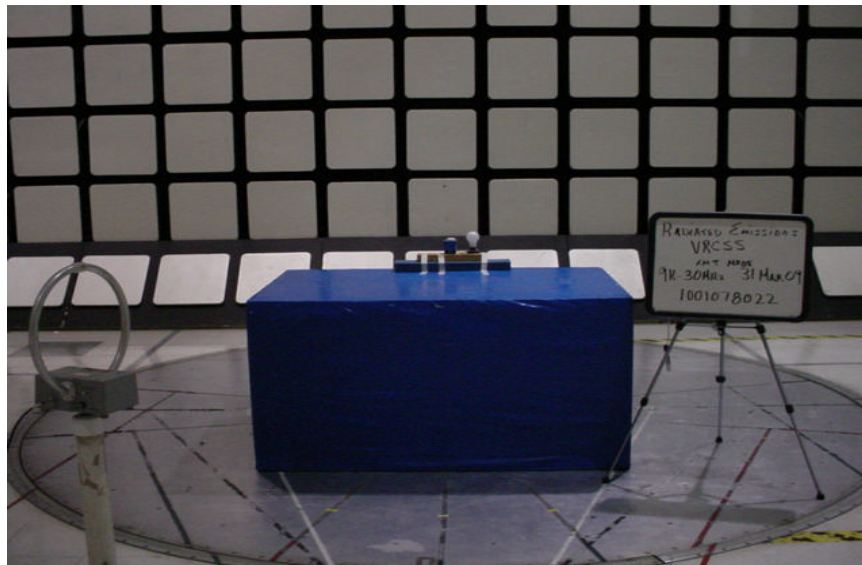


VRCZ4

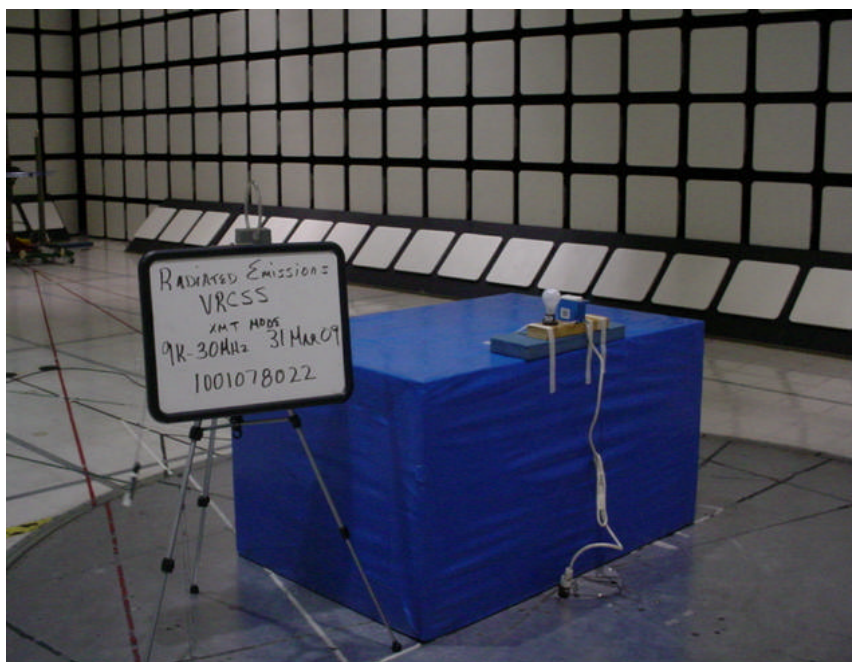


VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	25 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

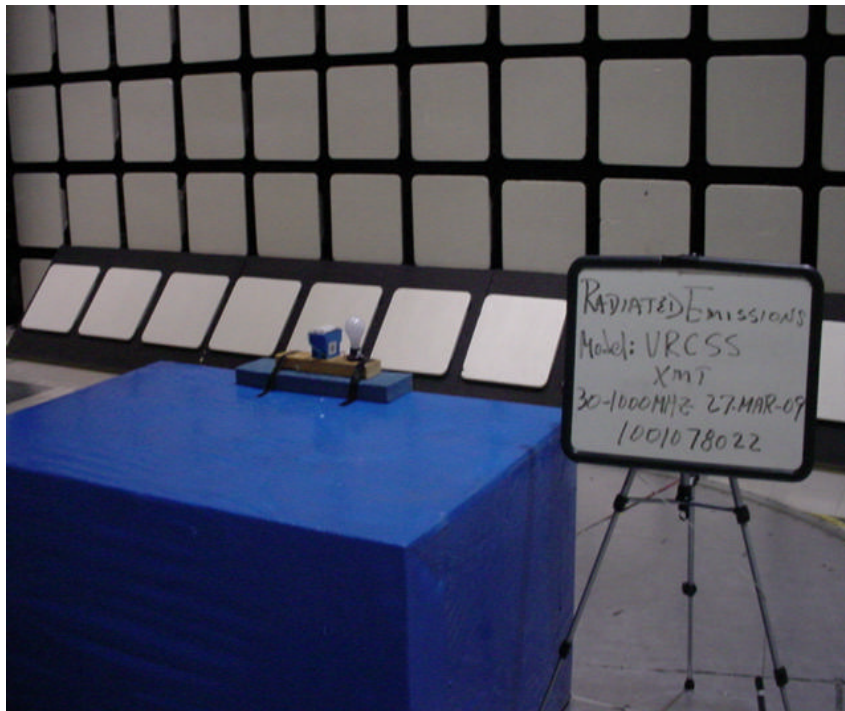


VRCS4



VRCS4

Job Number:	1001078022	File Number:	MC15211	Page	26 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

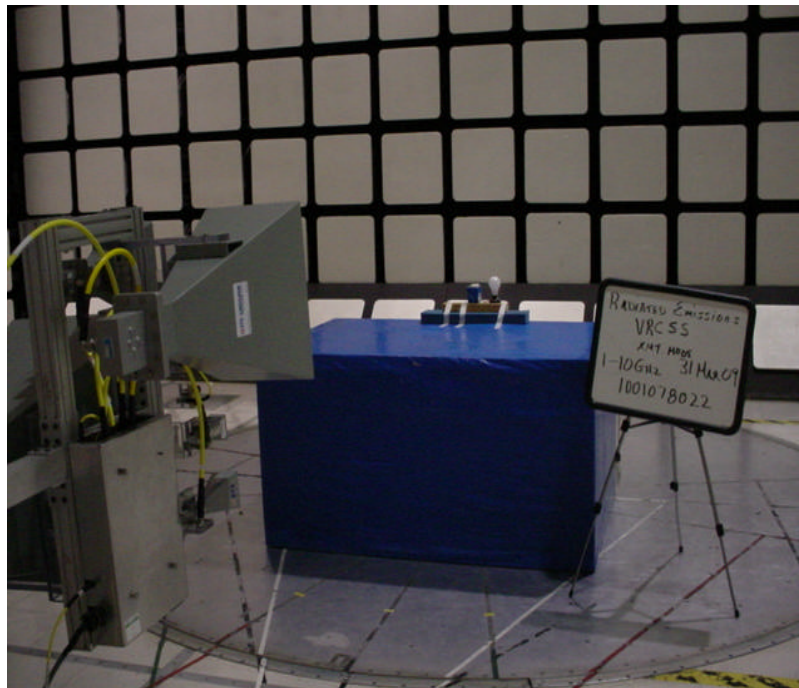


VRCS4

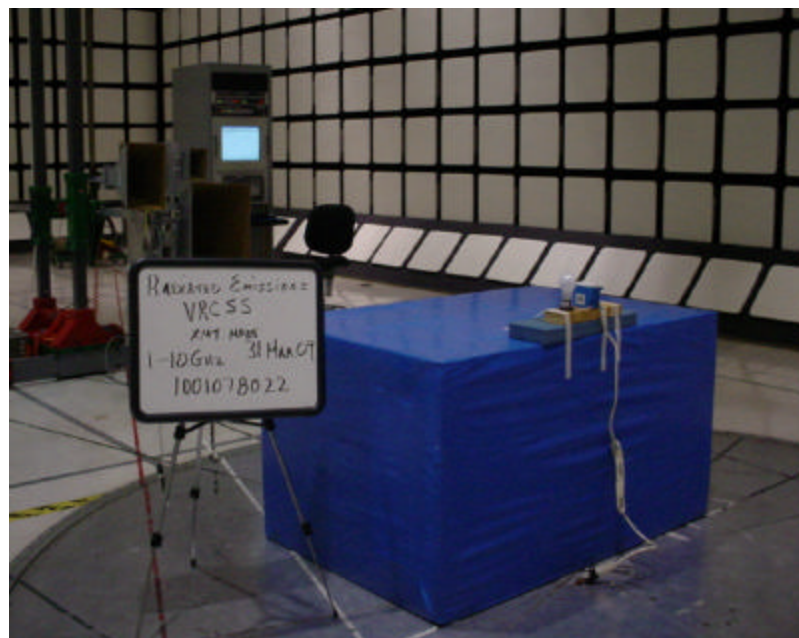


VRCS4

Job Number:	1001078022	File Number:	MC15211	Page	27 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				



VRCS4

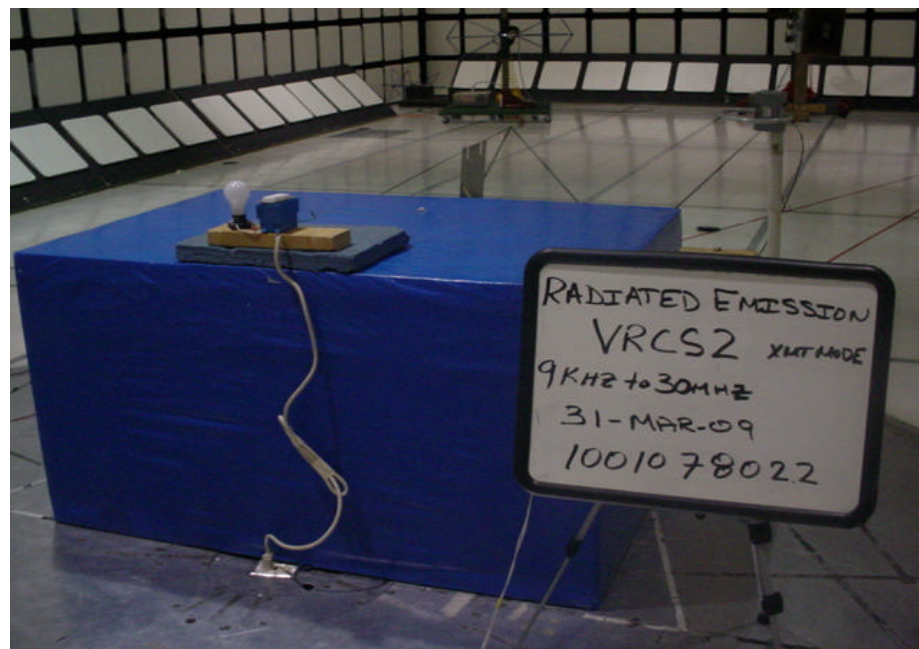


VRCS4

Job Number:	1001078022	File Number:	MC15211	Page	28 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				



VRCS2



VRCS2

Job Number:	1001078022	File Number:	MC15211	Page	29 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

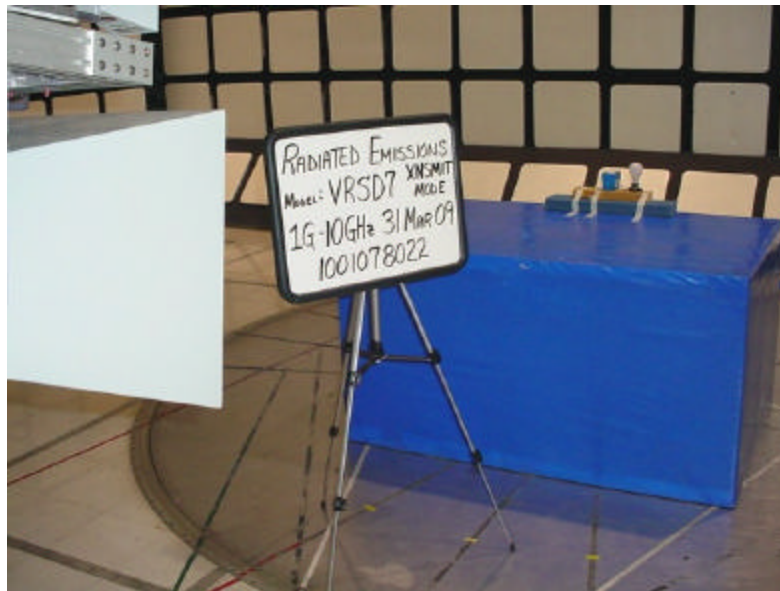


VRCS2

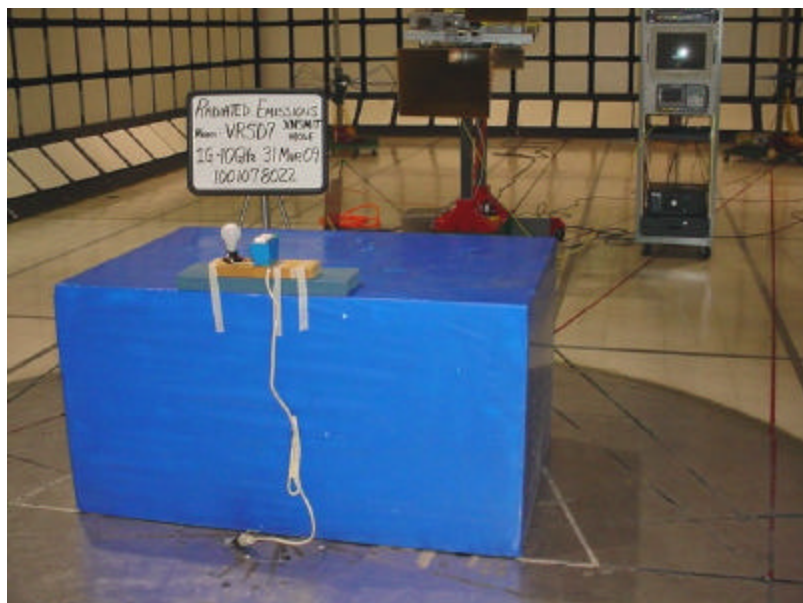


VRCS2

Job Number:	1001078022	File Number:	MC15211	Page	30 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				



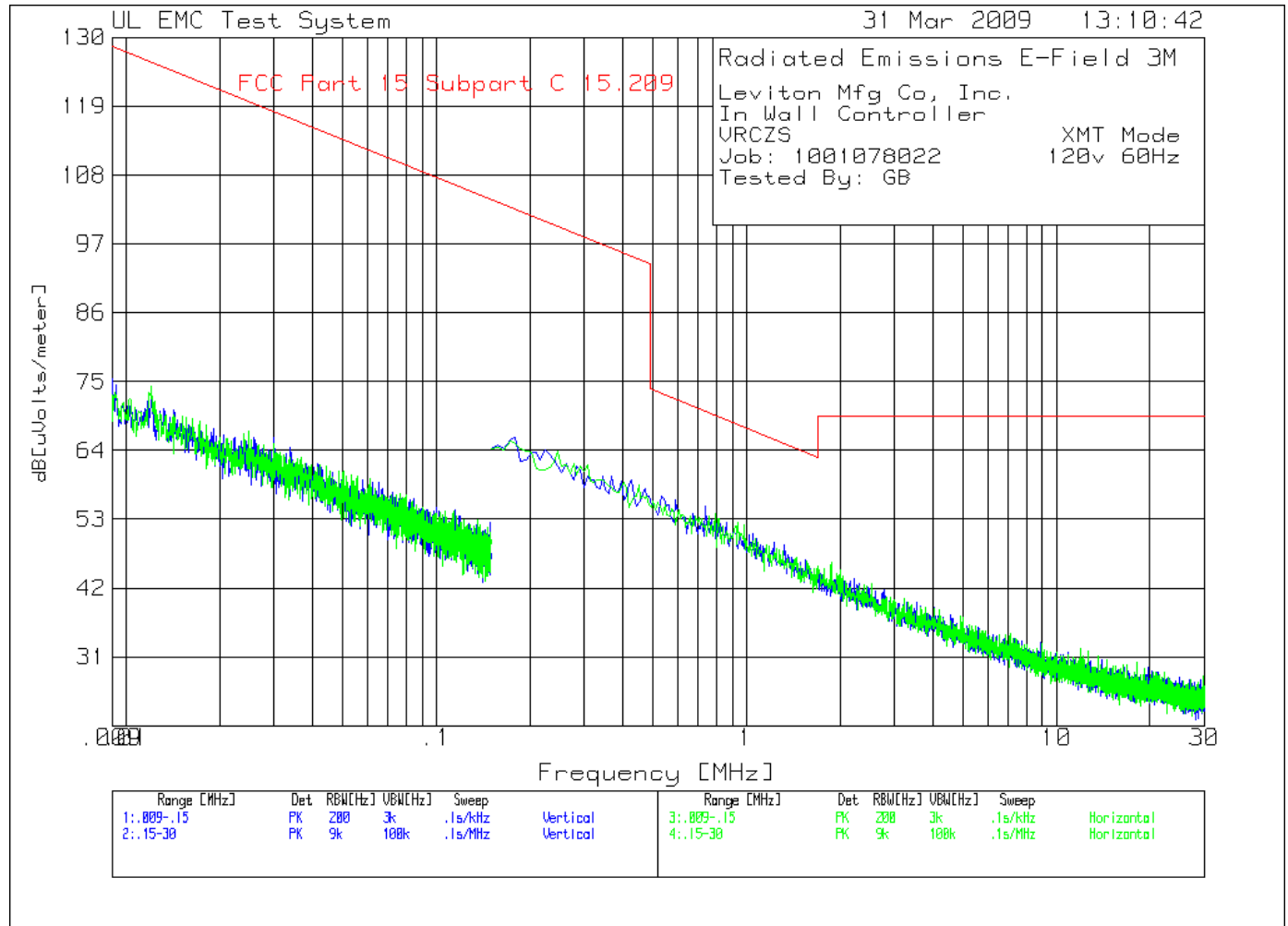
VRCS2



VRCS2

Job Number:	1001078022	File Number:	MC15211	Page	31 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 6 Radiated Emissions Graph



VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	32 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 8 Radiated Emissions Data Points

Leviton Mfg Co, Inc.

In Wall Controller

VRCZ4 XMT Mode

Job: 1001078022 120v 60Hz

Tested By: GB

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
=====										
Vertical .009 - .15MHz -----										
1	.009	44.29 pk	.9	30.2	75.39 128.5	-	-	-	-	-
	Azimuth:6	Height:100	Horz	Margin [dB]	-53.11	-	-	-	-	-
2	.01205	44.05 pk	.2	28	72.25 126	-	-	-	-	-
	Azimuth:353	Height:100	Horz	Margin [dB]	-53.75	-	-	-	-	-
3	.02576	43.68 pk	0	22.3	65.98 119.4	-	-	-	-	-
	Azimuth:1	Height:100	Horz	Margin [dB]	-53.42	-	-	-	-	-
4	.03383	43.59 pk	0	20.8	64.39 117	-	-	-	-	-
	Azimuth:353	Height:100	Horz	Margin [dB]	-52.61	-	-	-	-	-
Vertical .15 - 30MHz -----										
5	.17986	50.34 pk	0	15.7	66.04 102.5	-	-	-	-	-
	Azimuth:7	Height:100	Horz	Margin [dB]	-36.46	-	-	-	-	-
6	.5904	40.66 pk	0	15.5	56.16 72.2	-	-	-	-	-
	Azimuth:7	Height:100	Horz	Margin [dB]	-16.04	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

pk - Peak detector

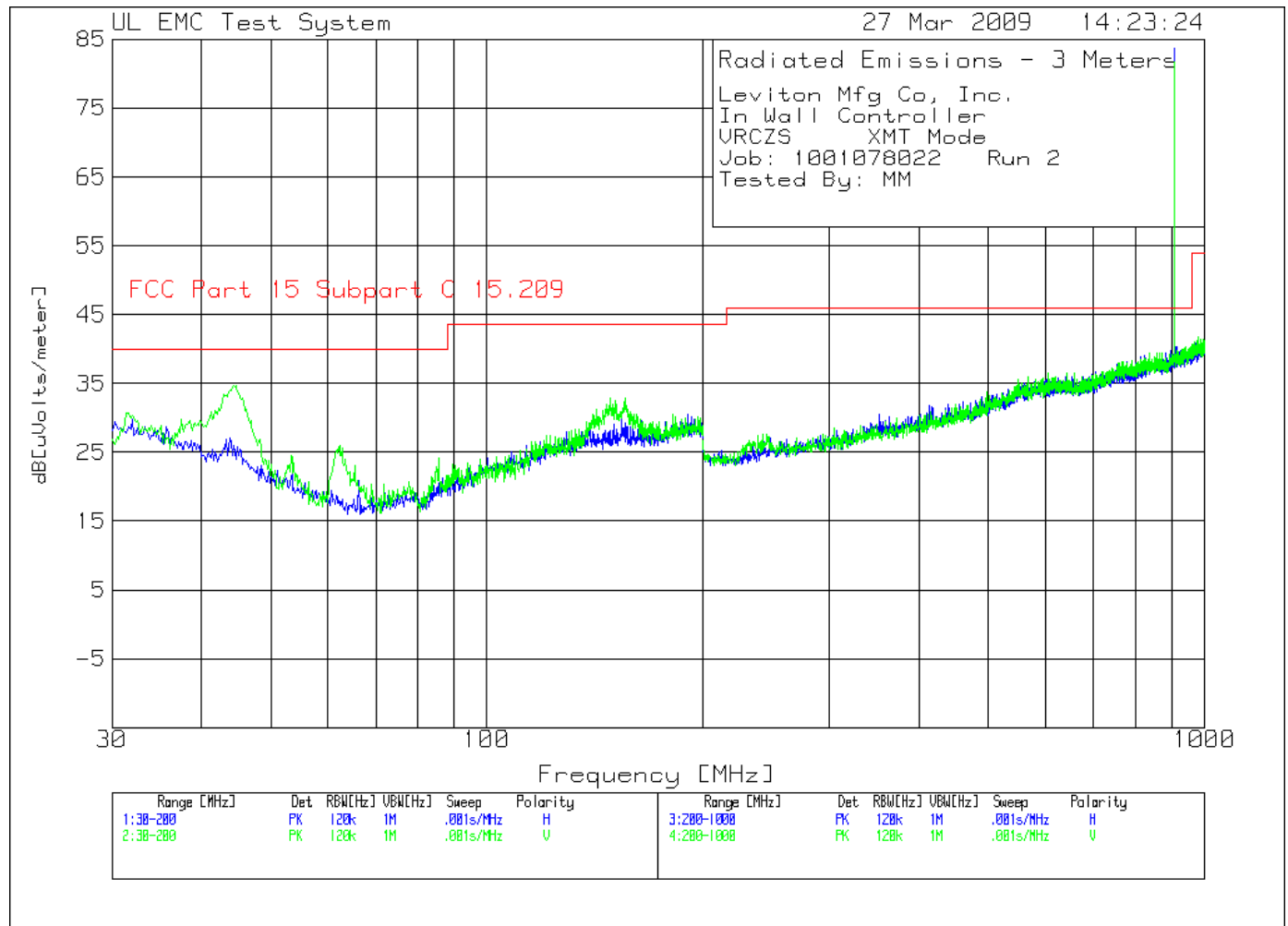
qp - Quasi-Peak detector

av - Average detector

avlg - denotes average log detection

Job Number:	1001078022	File Number:	MC15211	Page	33 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 7 Radiated Emissions Graph



VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	34 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 9 Radiated Emissions Data Points

Leviton Mfg Co, Inc.
In Wall Controller
VRCZ4 XMT Mode
Job: 1001078022
Tested By: MM

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	44.6346	23.08 pk	.4	11.2	34.68	40	-	-	-	-	-
	Azimuth:177	Height:101	Vert	Margin [dB]		-5.32	-	-	-	-	-
2	62.5025	19.36 pk	.5	6.1	25.96	40	-	-	-	-	-
	Azimuth:18	Height:101	Vert	Margin [dB]		-14.04	-	-	-	-	-
3	85.6456	14.61 pk	.6	8.9	24.11	40	-	-	-	-	-
	Azimuth:31	Height:101	Vert	Margin [dB]		-15.89	-	-	-	-	-
4	148.6086	16.95 pk	.7	15.2	32.85	43.5	-	-	-	-	-
	Azimuth:140	Height:101	Vert	Margin [dB]		-10.65	-	-	-	-	-
Horizontal 200 - 1000MHz -----											
6	908.3542	58.39 pk	2	23.3	83.69	46	94	-	-	-	-
	Azimuth:102	Height:201	Horz	Margin [dB]		37.69	-10.31	-	-	-	-
Vertical 200 - 1000MHz -----											
5	908.3542	56.35 pk	2	23.4	81.75	46	94	-	-	-	-
	Azimuth:315	Height:99	Vert	Margin [dB]		35.75	-12.25	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.249

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

Job Number:	1001078022	File Number:	MC15211	Page	35 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Leviton Mfg Co, Inc.
In Wall Controller
VRCZ4 XMT Mode
Job: 1001078022
Tested By: MM

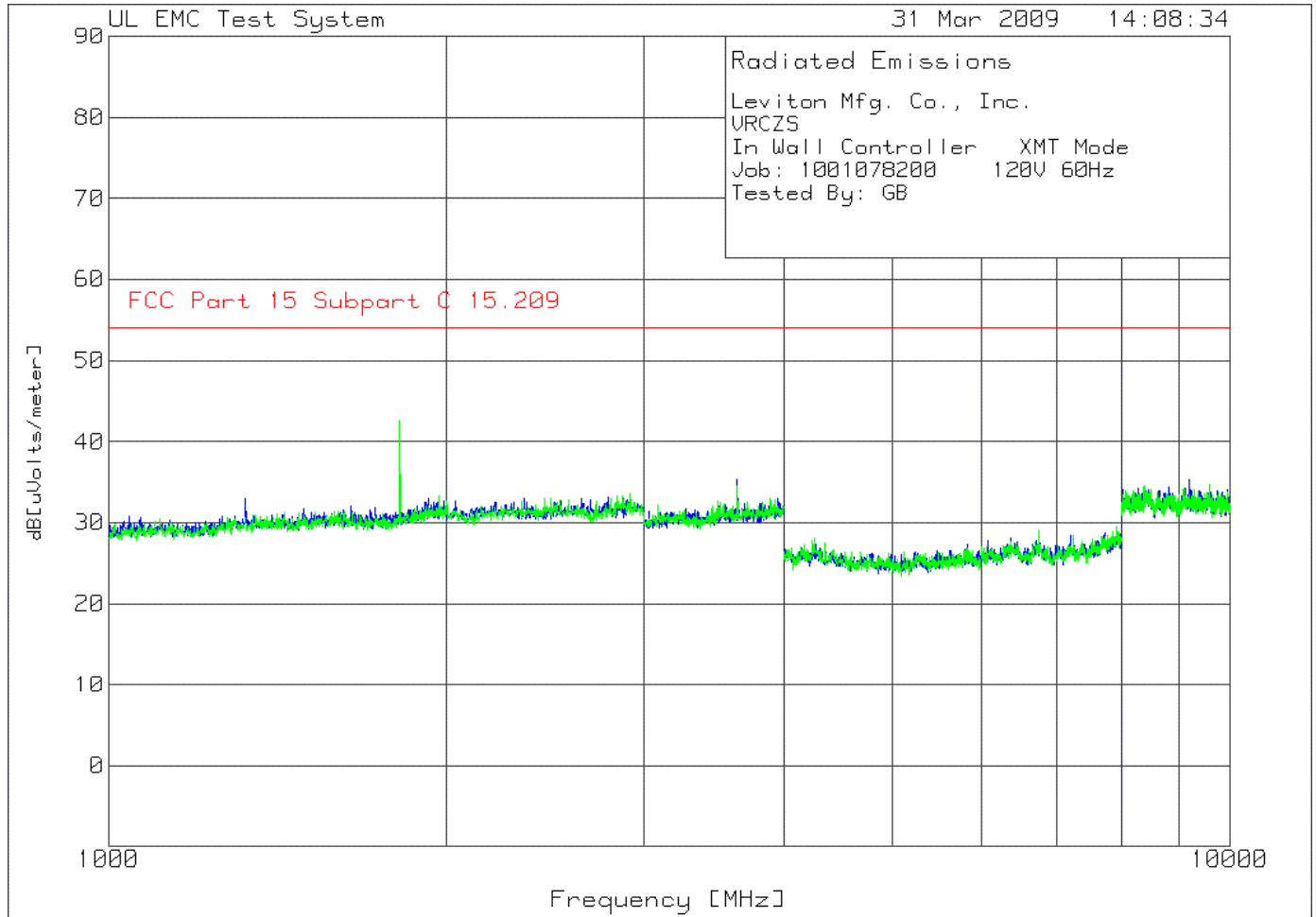
Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
=====										
Vertical 30 - 200MHz										
44.2492	20.75 qp	.4	11.3	32.45	40	-	-	-	-	-
Azimuth: 299 Height:102 Vert			Margin [dB]:		-7.55	-	-	-	-	-
908.3925	62.87 qp	2	23.3	88.17	46	94	-	-	-	-
Azimuth: 277 Height:218 Horz			Margin [dB]:		42.17	-5.83	-	-	-	-
Vertical 200 - 1000MHz										
908.3987	54.93 qp	2	23.4	80.33	46	94	-	-	-	-
Azimuth: 90 Height:117 Vert			Margin [dB]:		34.33	-13.67	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.249

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

Job Number:	1001078022	File Number:	MC15211	Page	36 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 8 Radiated Emissions Graph



VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	37 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 10 Radiated Emissions Data Points

Leviton Mfg. Co., Inc.
VRCZ4
In Wall Controller XMT Mode
Job: 1001078200 120V 60Hz
Tested By: GB

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

1 - 2GHz 1000 - 2000MHz										
1	1323.346	58.13 pk	-45.61	20.5	33.02	54	-	-	-	-
		Height:100 Horz		Margin [dB]		-20.98	-	-	-	-
2	1817.728	63.96 pk	-44.88	21.1	40.18	54	-	-	-	-
		Height:100 Horz		Margin [dB]		-13.82	-	-	-	-

2 - 4GHz 2000 - 4000MHz										
3	3635.456	55.72 pk	-42.74	22.4	35.38	54	-	-	-	-
		Height:200 Horz		Margin [dB]		-18.62	-	-	-	-

8 - 12GHz 8000 - 10000MHz										
5	9198.003	53.17 pk	-51.18	33.4	35.39	54	-	-	-	-
		Height:99 Horz		Margin [dB]		-18.61	-	-	-	-

2 - 4GHz 2000 - 4000MHz										
4	3635.456	55.12 pk	-42.74	22.2	34.58	54	-	-	-	-
		Height:149 Vert		Margin [dB]		-19.42	-	-	-	-

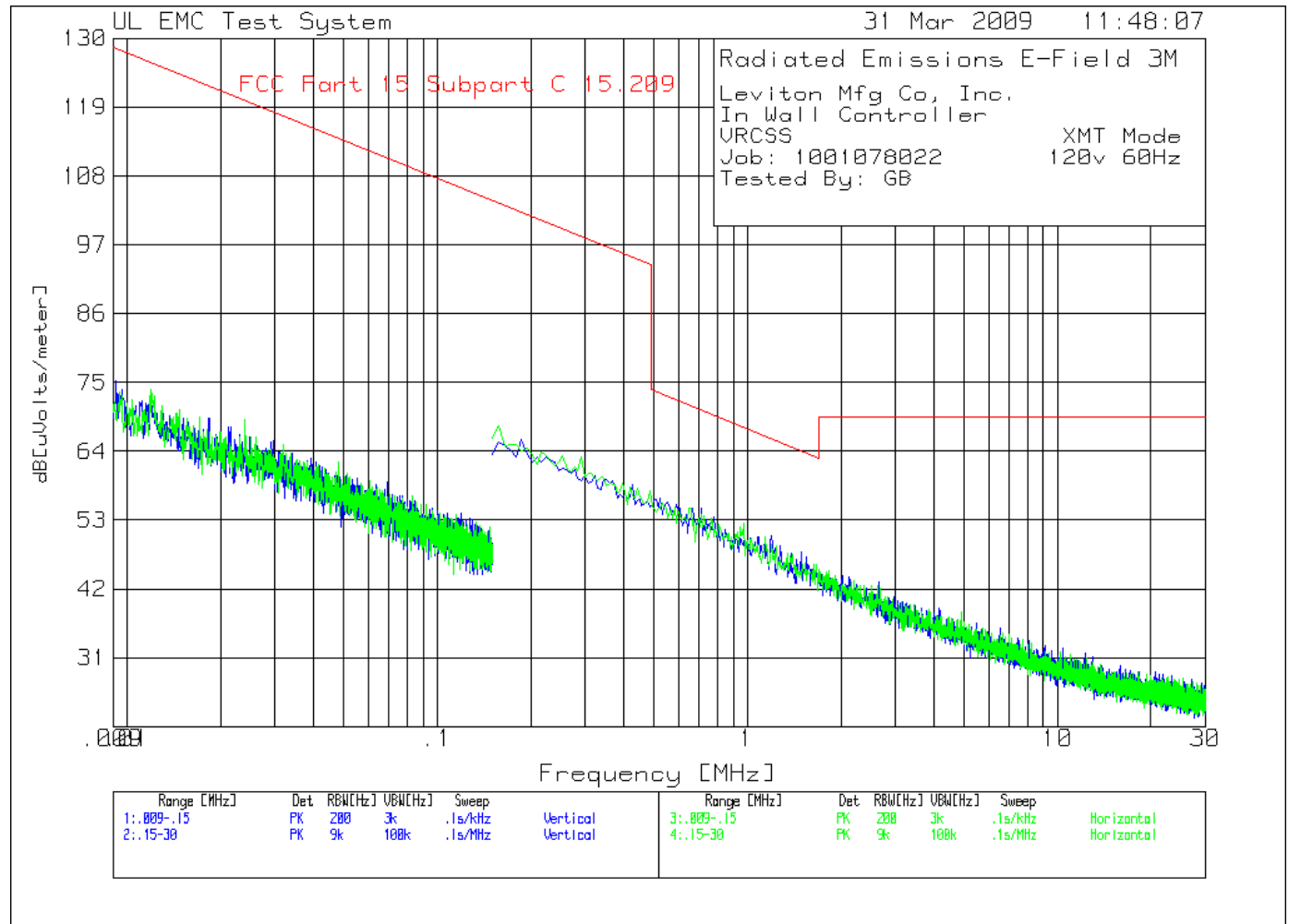
8 - 12GHz 8000 - 10000MHz										
6	9580.699	52.05 pk	-50.77	33.4	34.68	54	-	-	-	-
		Height:99 Vert		Margin [dB]		-19.32	-	-	-	-

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

Job Number:	1001078022	File Number:	MC15211	Page	38 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 9 Radiated Emissions Graph



VRCS4

Job Number:	1001078022	File Number:	MC15211	Page	39 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 11 Radiated Emissions Data Points

Leviton Mfg Co, Inc.

In Wall Controller

VRCS4 XMT Mode

Job: 1001078022 120v 60Hz

Tested By: GB

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
Vertical .009 - .15MHz -----										
1	.00923	44.46 pk	.7	30	75.16	128.3	-	-	-	-
	Azimuth:353	Height:100	Horz	Margin [dB]	-53.14	-	-	-	-	-
2	.01842	45.05 pk	0	24.3	69.35	122.3	-	-	-	-
	Azimuth:7	Height:100	Horz	Margin [dB]	-52.95	-	-	-	-	-
3	.0213	44.75 pk	0	23.1	67.85	121	-	-	-	-
	Azimuth:7	Height:100	Horz	Margin [dB]	-53.15	-	-	-	-	-
4	.02959	44.09 pk	0	21.6	65.69	118.2	-	-	-	-
	Azimuth:1	Height:100	Horz	Margin [dB]	-52.51	-	-	-	-	-
Vertical .15 - 30MHz -----										
5	.18732	50.19 pk	0	15.6	65.79	102.1	-	-	-	-
	Azimuth:7	Height:100	Horz	Margin [dB]	-36.31	-	-	-	-	-
6	.32168	44.54 pk	0	15.6	60.14	97.5	-	-	-	-
	Azimuth:7	Height:100	Horz	Margin [dB]	-37.36	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

pk - Peak detector

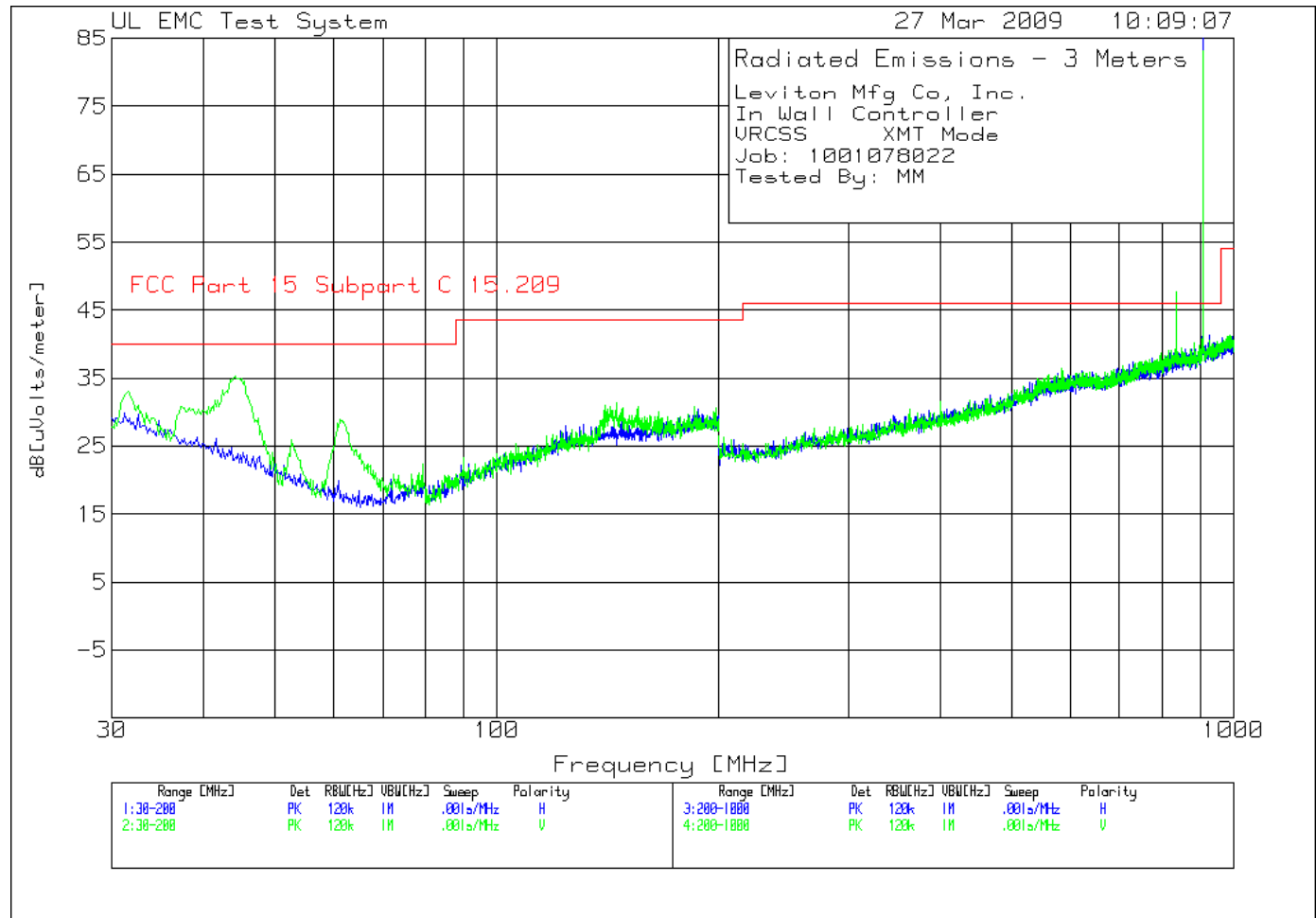
qp - Quasi-Peak detector

av - Average detector

avlg - denotes average log detection

Job Number:	1001078022	File Number:	MC15211	Page	40 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 10 Radiated Emissions Graph



VRCS4

Job Number:	1001078022	File Number:	MC15211	Page	41 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 12 Radiated Emissions Data Points

Leviton Mfg Co, Inc.
In Wall Controller
VRCS4 XMT Mode
Job: 1001078022
Tested By: MM

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	44.1241	23.58 pk	.4	11.3	35.28	40	-	-	-	-	-
	Azimuth:2	Height:102	Vert	Margin [dB]		-4.72	-	-	-	-	-
2	61.3113	22.15 pk	.5	6.3	28.95	40	-	-	-	-	-
	Azimuth:181	Height:102	Vert	Margin [dB]		-11.05	-	-	-	-	-
3	155.2452	14.46 pk	.8	15.5	30.76	43.5	-	-	-	-	-
	Azimuth:289	Height:102	Vert	Margin [dB]		-12.74	-	-	-	-	-
5	52.6326	16.65 pk	.5	8.7	25.85	40	-	-	-	-	-
	Azimuth:289	Height:102	Vert	Margin [dB]		-14.15	-	-	-	-	-
Horizontal 200 - 1000MHz -----											
6	908.3542	59.82 pk	2	23.3	85.12	46	94	-	-	-	-
	Azimuth:86	Height:201	Horz	Margin [dB]		39.12	-8.88	-	-	-	-
Vertical 200 - 1000MHz -----											
4	908.7544	57.69 pk	2	23.4	83.09	46	94	-	-	-	-
	Azimuth:256	Height:201	Vert	Margin [dB]		37.09	-10.91	-	-	-	-
7	837.1186	22.53 pk	1.8	23.3	47.63	46	-	-	-	-	-
	Azimuth:15	Height:151	Vert	Margin [dB]		1.63	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

LIMIT 2: FCC Part 15 Subpart C 15.249

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

Job Number:	1001078022	File Number:	MC15211	Page	42 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Leviton Mfg Co, Inc.
In Wall Controller
VRCS4 XMT Mode
Job: 1001078022
Tested By: MM

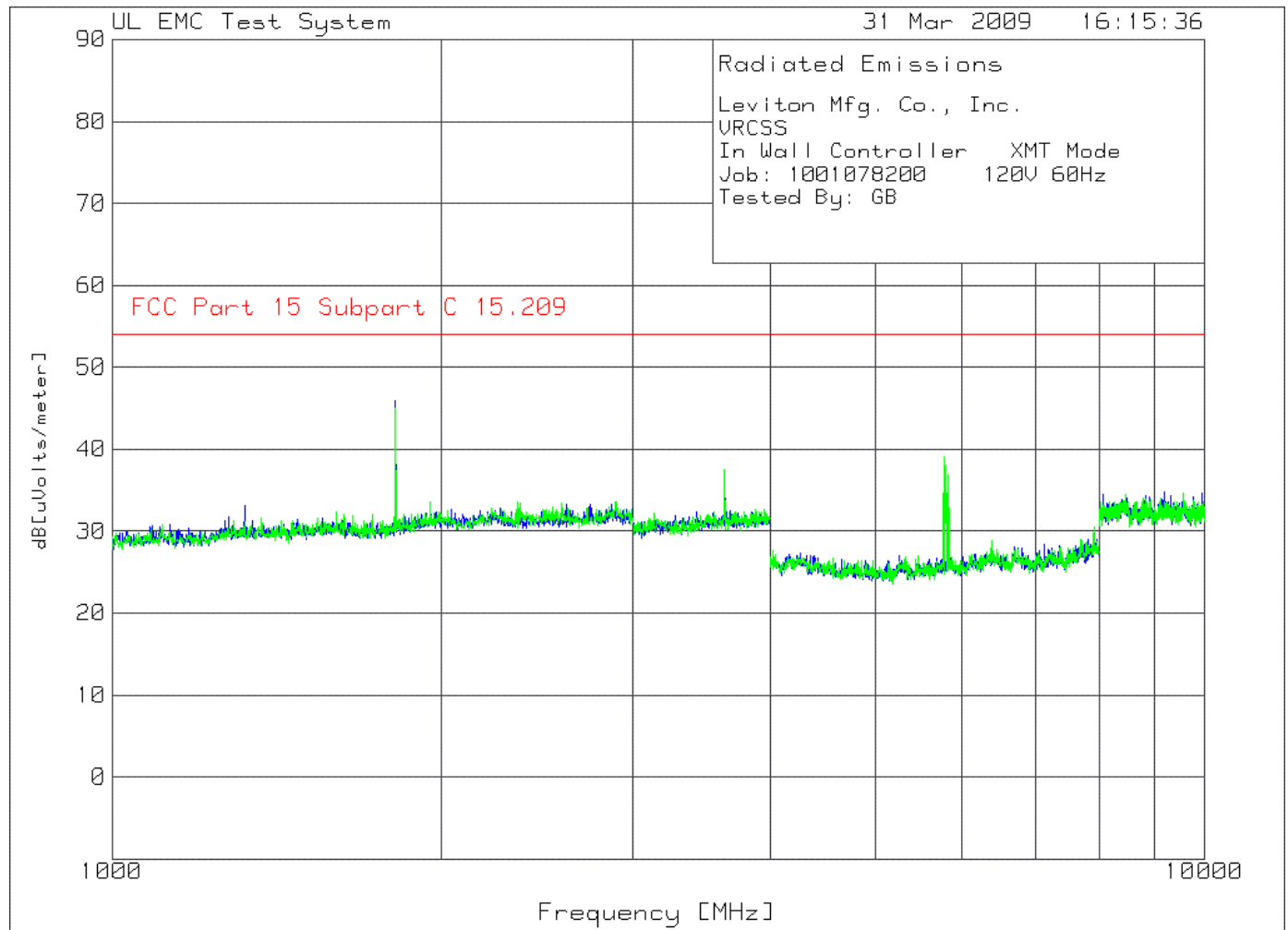
Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
=====									
Vertical 30 - 200MHz									
44.7743	22.82 qp	.4	11.2	34.42	40	-	-	-	-
Azimuth: 15 Height:100 Vert					Margin [dB]:	-5.58	-	-	-
Vertical 200 - 1000MHz									
837.12	8.52 qp	1.8	23.3	33.62	46	-	-	-	-
Azimuth: 104 Height:109 Vert					Margin [dB]:	-12.38	-	-	-
908.3925	62.87 qp	2	23.3	88.17	46	94	-	-	-
Azimuth: 277 Height:218 Horz					Margin [dB]:	42.17	-5.83	-	-
Vertical 200 - 1000MHz									
908.3987	54.93 qp	2	23.4	80.33	46	94	-	-	-
Azimuth: 90 Height:117 Vert					Margin [dB]:	34.33	-13.67	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.249

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

Job Number:	1001078022	File Number:	MC15211	Page	43 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 11 Radiated Emissions Graph



VRCS4

Job Number:	1001078022	File Number:	MC15211	Page	44 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 13 Radiated Emissions Data Points

Leviton Mfg. Co., Inc.
VRCS4
In Wall Controller XMT Mode
Job: 1001078200 120V 60Hz
Tested By: GB

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

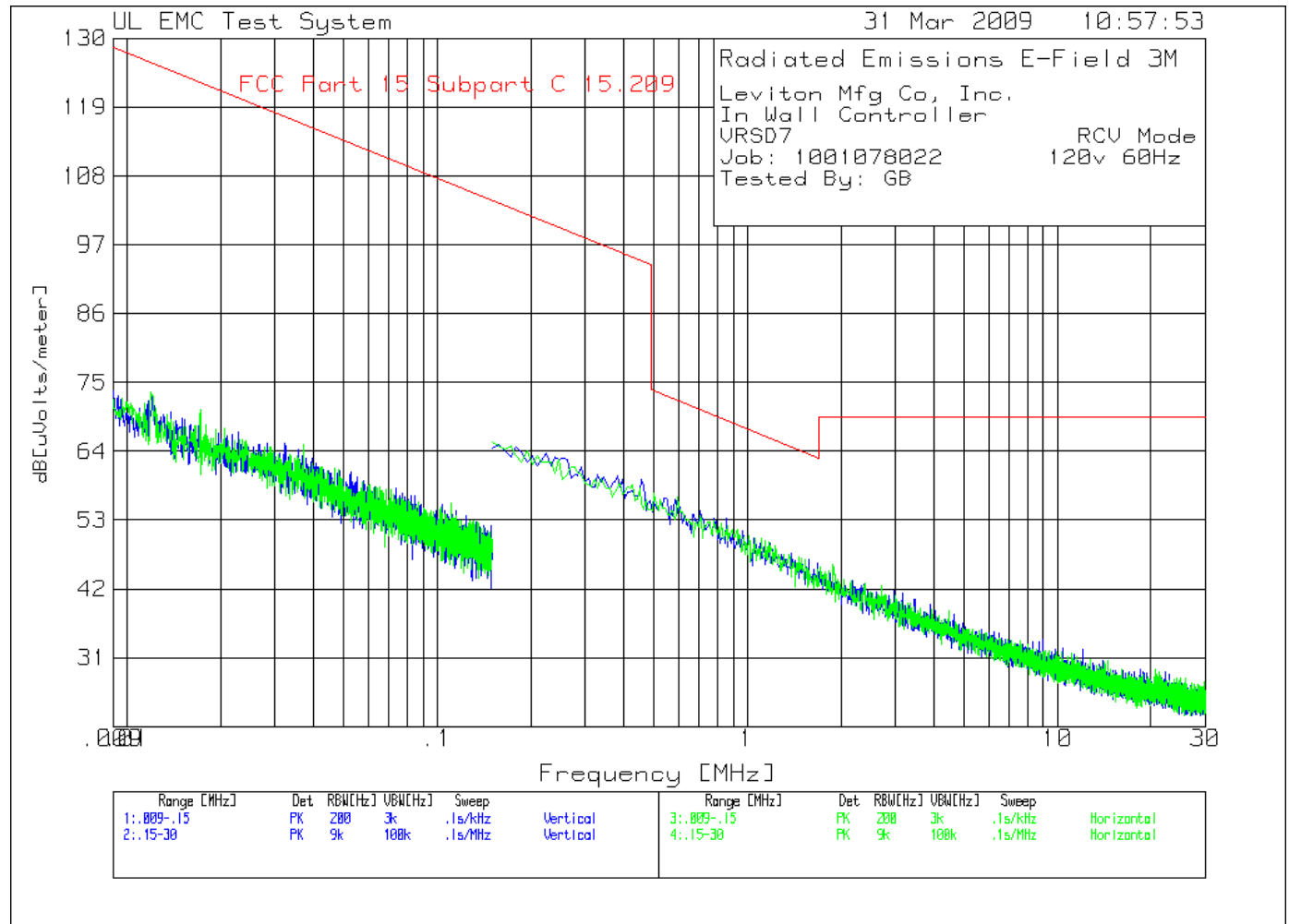
1	2GHz 1000 - 2000MHz	-----								
1	1817.728	69.76 pk	-44.88	21.1	45.98	54	-	-	-	-
		Height:199 Horz		Margin [dB]		-8.02	-	-	-	-
2	4GHz 2000 - 4000MHz	-----								
2	3635.456	56.2 pk	-42.74	22.4	35.86	54	-	-	-	-
		Height:199 Horz		Margin [dB]		-18.14	-	-	-	-
4	8GHz 4000 - 8000MHz	-----								
3	5840.266	53.26 pk	-53.44	27.6	27.42	54	-	-	-	-
		Height:101 Horz		Margin [dB]		-26.58	-	-	-	-
8	12GHz 8000 - 10000MHz	-----								
4	9183.028	52.72 pk	-51.39	33.4	34.73	54	-	-	-	-
		Height:199 Horz		Margin [dB]		-19.27	-	-	-	-
1	2GHz 1000 - 2000MHz	-----								
5	1817.728	68.83 pk	-44.88	21.1	45.05	54	-	-	-	-
		Height:199 Vert		Margin [dB]		-8.95	-	-	-	-
2	4GHz 2000 - 4000MHz	-----								
6	3635.456	58.03 pk	-42.74	22.2	37.49	54	-	-	-	-
		Height:149 Vert		Margin [dB]		-16.51	-	-	-	-
4	8GHz 4000 - 8000MHz	-----								
7	5770.383	65.64 pk	-54.19	27.6	39.05	54	-	-	-	-
		Height:99 Vert		Margin [dB]		-14.95	-	-	-	-
8	12GHz 8000 - 10000MHz	-----								
8	9564.06	51.84 pk	-50.65	33.4	34.59	54	-	-	-	-
		Height:149 Vert		Margin [dB]		-19.41	-	-	-	-
1	2GHz 1000 - 2000MHz	-----								
	1816.8	66.72 pk	-44.94	21.1	42.88	54	-	-	-	-
	Azimuth: 287	Height:106 Horz		Margin [dB]:		-11.12	-	-	-	-
1	2GHz 1000 - 2000MHz	-----								
	1816.805	66.7 pk	-44.94	21.1	42.86	54	-	-	-	-
	Azimuth: 166	Height:215 Vert		Margin [dB]:		-11.14	-	-	-	-

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

Job Number:	1001078022	File Number:	MC15211	Page	45 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 12 Radiated Emissions Graph



VRCS2

Job Number:	1001078022	File Number:	MC15211	Page	46 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 14 Radiated Emissions Data Points

Leviton Mfg Co, Inc.

In Wall Controller

VRCS2

TX Mode

Job: 1001078022

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 .009 - .15MHz -----											
1	.0121	44.89 pk	.1	28	72.99	125.9	-	-	-	-	-
	Azimuth:353	Height:100	Horz	Margin [dB]		-52.91	-	-	-	-	-
2	.01391	43.38 pk	0	26.9	70.28	124.7	-	-	-	-	-
	Azimuth:136	Height:100	Horz	Margin [dB]		-54.42	-	-	-	-	-
3	.03236	44.08 pk	0	21.1	65.18	117.4	-	-	-	-	-
	Azimuth:7	Height:100	Horz	Margin [dB]		-52.22	-	-	-	-	-
4	.05278	43.02 pk	0	17.7	60.72	113.1	-	-	-	-	-
	Azimuth:353	Height:100	Horz	Margin [dB]		-52.38	-	-	-	-	-
Vertical .15 - 30MHz -----											
5	.22464	47.99 pk	0	15.6	63.59	100.6	-	-	-	-	-
	Azimuth:183	Height:100	Horz	Margin [dB]		-37.01	-	-	-	-	-
6	.45604	43.9 pk	0	15.5	59.4	94.4	-	-	-	-	-
	Azimuth:92	Height:100	Horz	Margin [dB]		-35	-	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209

pk - Peak detector

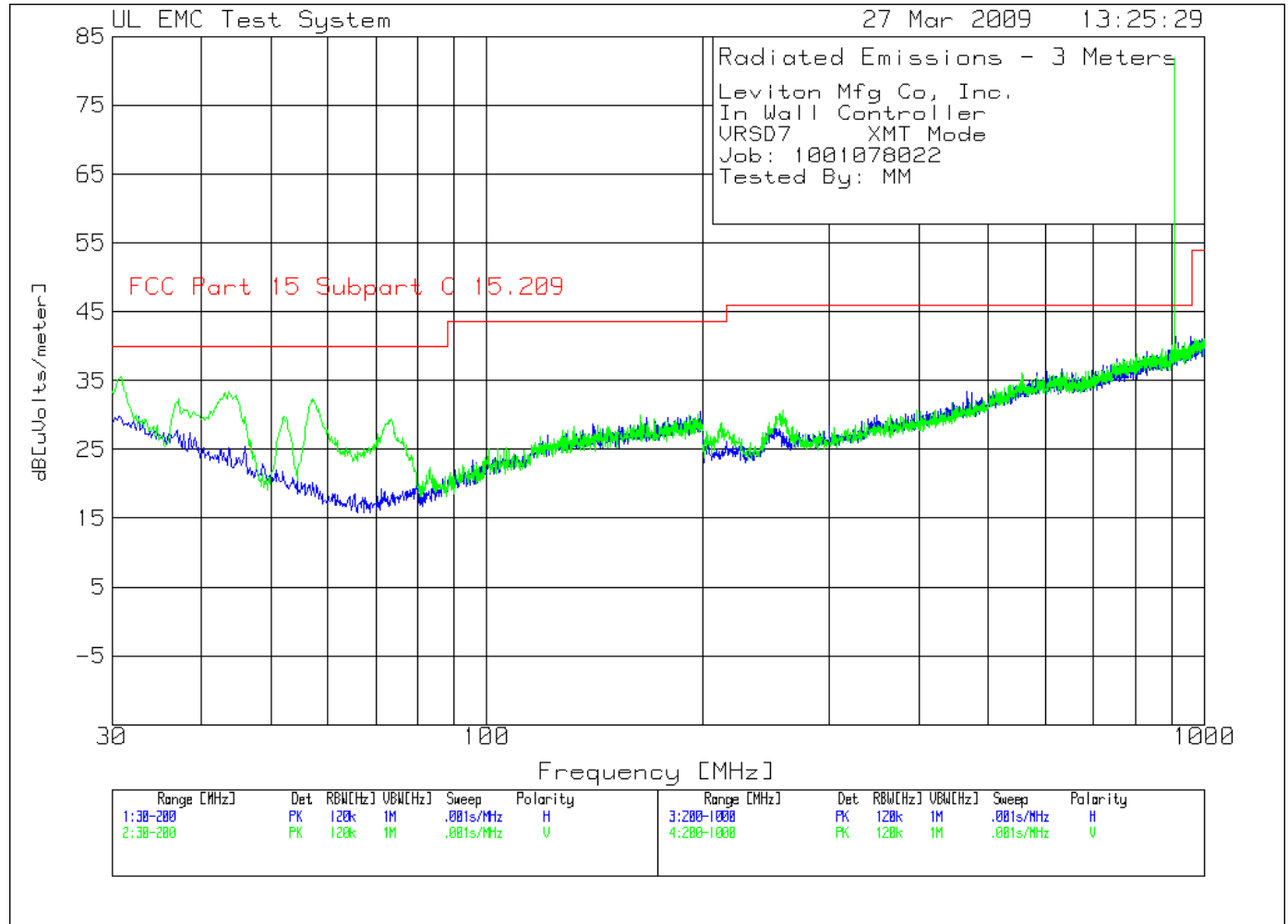
qp - Quasi-Peak detector

av - Average detector

avlg - denotes average log detection

Job Number:	1001078022	File Number:	MC15211	Page	47 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 13 Radiated Emissions Graph



VRCS2

Job Number:	1001078022	File Number:	MC15211	Page	48 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 15 Radiated Emissions Data Points

Leviton Mfg Co, Inc.
In Wall Controller
VRCS2 XMT Mode
Job: 1001078022
Tested By: MM

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	30.8509	18.47 pk	.4	16.8	35.67	40	-	-	-	-	-
	Azimuth:146	Height:101 Vert		Margin [dB]		-4.33	-	-	-	-	-
2	43.6136	21.53 pk	.4	11.5	33.43	40	-	-	-	-	-
	Azimuth:358	Height:101 Vert		Margin [dB]		-6.57	-	-	-	-	-
3	57.0571	24.34 pk	.5	7.5	32.34	40	-	-	-	-	-
	Azimuth:111	Height:101 Vert		Margin [dB]		-7.66	-	-	-	-	-
4	73.5636	22.59 pk	.6	6.2	29.39	40	-	-	-	-	-
	Azimuth:5	Height:101 Vert		Margin [dB]		-10.61	-	-	-	-	-
Horizontal 200 - 1000MHz -----											
5	908.7544	53.38 pk	2	23.4	78.78	46	94	-	-	-	-
	Azimuth:146	Height:101 Horz		Margin [dB]		32.78	-15.22	-	-	-	-
Vertical 200 - 1000MHz -----											
6	908.3542	56.49 pk	2	23.4	81.89	46	94	-	-	-	-
	Azimuth:315	Height:99 Vert		Margin [dB]		35.89	-12.11	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.249

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

Job Number:	1001078022	File Number:	MC15211	Page	49 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Leviton Mfg Co, Inc.
In Wall Controller
VRCS2 XMT Mode
Job: 1001078022
Tested By: MM

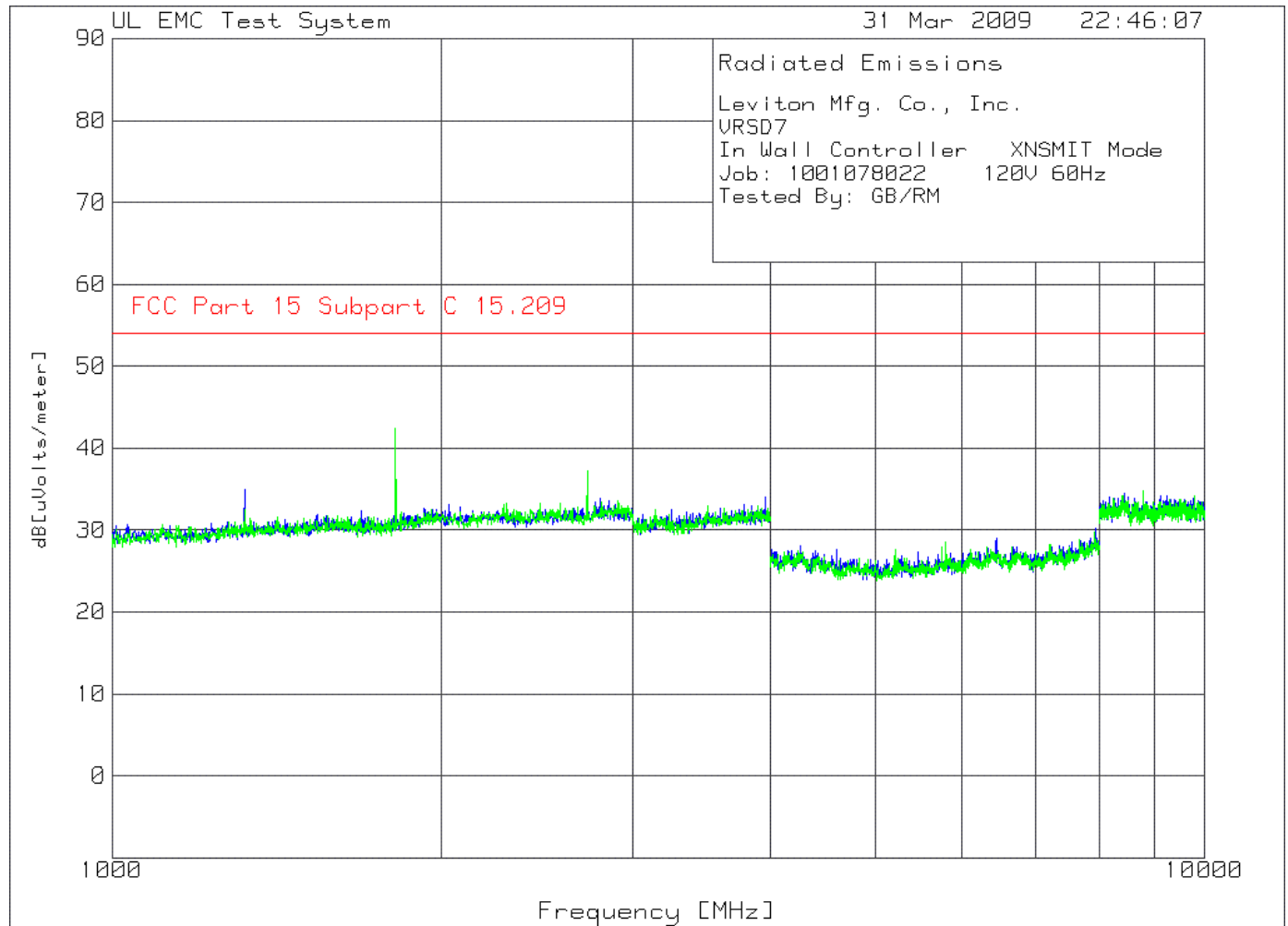
Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
=====									
Vertical 30 - 200MHz									
31.0003	17.9 qp	.4	16.7	35 40	-	-	-	-	-
Azimuth: 12	Height:101	Vert	Margin [dB]:	-5	-	-	-	-	-
908.3925	62.87 qp	2	23.3	88.17 46	94	-	-	-	-
Azimuth: 277	Height:218	Horz	Margin [dB]:	42.17	-5.83	-	-	-	-
Vertical 200 - 1000MHz									
908.3987	54.93 qp	2	23.4	80.33 46	94	-	-	-	-
Azimuth: 90	Height:117	Vert	Margin [dB]:	34.33	-13.67	-	-	-	-

LIMIT 1: FCC Part 15 Subpart C 15.209
LIMIT 2: FCC Part 15 Subpart C 15.249

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

Job Number:	1001078022	File Number:	MC15211	Page	50 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 14 Radiated Emissions Graph



VRCS2

Job Number:	1001078022	File Number:	MC15211	Page	51 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 16 Radiated Emissions Data Points

Leviton Mfg. Co., Inc.
VRCS2
In Wall Controller XNSMIT Mode
Job: 1001078022 120V 60Hz
Tested By: GB/RM

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

1 - 2GHz 1000 - 2000MHz										
1	1323.346	60.06 pk	-45.61	20.5	34.95 54	-	-	-	-	-
		Height:101 Horz		Margin [dB]	-19.05	-	-	-	-	-
2	1817.728	60.83 pk	-44.88	21.1	37.05 54	-	-	-	-	-
		Height:101 Horz		Margin [dB]	-16.95	-	-	-	-	-

2 - 4GHz 2000 - 4000MHz										
3	2724.095	57.38 pk	-43.52	21.6	35.46 54	-	-	-	-	-
		Height:199 Horz		Margin [dB]	-18.54	-	-	-	-	-
4	3960.05	54.26 pk	-42.98	22.8	34.08 54	-	-	-	-	-
		Height:149 Horz		Margin [dB]	-19.92	-	-	-	-	-

4 - 8GHz 4000 - 8000MHz										
5	6445.923	53.37 pk	-52.31	27.9	28.96 54	-	-	-	-	-
		Height:199 Horz		Margin [dB]	-25.04	-	-	-	-	-

8 - 12GHz 8000 - 10000MHz										
6	8447.587	53.81 pk	-52.59	33.2	34.42 54	-	-	-	-	-
		Height:149 Horz		Margin [dB]	-19.58	-	-	-	-	-

1 - 2GHz 1000 - 2000MHz										
7	1817.728	66.19 pk	-44.88	21.1	42.41 54	-	-	-	-	-
		Height:199 Vert		Margin [dB]	-11.59	-	-	-	-	-

2 - 4GHz 2000 - 4000MHz										
8	2724.095	59.52 pk	-43.52	21.2	37.2 54	-	-	-	-	-
		Height:149 Vert		Margin [dB]	-16.8	-	-	-	-	-

4 - 8GHz 4000 - 8000MHz										
9	5797.005	54.45 pk	-53.6	27.7	28.55 54	-	-	-	-	-
		Height:199 Vert		Margin [dB]	-25.45	-	-	-	-	-

8 - 12GHz 8000 - 10000MHz										
10	8787.022	53.17 pk	-51.49	33.1	34.78 54	-	-	-	-	-
		Height:149 Vert		Margin [dB]	-19.22	-	-	-	-	-

1 - 2GHz 1000 - 2000MHz										
1816.8025	66.43 pk	-44.94	21.1	42.59 54	-	-	-	-	-	-
	Azimuth: 310 Height:238 Horz			Margin [dB]:	-11.41	-	-	-	-	-

1 - 2GHz 1000 - 2000MHz										
1816.8	68.21 pk	-44.94	21.1	44.37 54	-	-	-	-	-	-
	Azimuth: 164 Height:206 Vert			Margin [dB]:	-9.63	-	-	-	-	-

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

Job Number:	1001078022	File Number:	MC15211	Page	52 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

4.3 Test Conditions and Results – RADIATED EMISSIONS RECEIVE MODE (STANDBY)

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 B, 15.109	
UL LPG	80-EM-S0029	
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	30MHz – 1GHz	(3 meter measurement distance)
	1GHz – 5GHz	(3 meter measurement distance)
Limits - Class B		
Frequency (MHz)	Limit (dBµV/m)	
	Quasi-Peak	Average
30-88	40	-
88-216	43.5	-
216-960	46	-
960-1000	54	-
1000-5000	-	54
Supplementary information: None		

Table 17 Radiated Emissions EUT Configuration Settings

Power Interface	EUT Configurations	EUT Operation Mode
1	1	1 & 2
Supplementary information: The set up photos and plots indicate a typo in the model number the correct model number is outlined under the set up photo and graph.		

Job Number:	1001078022	File Number:	MC15211	Page	53 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 18 Radiated Emissions Test Equipment

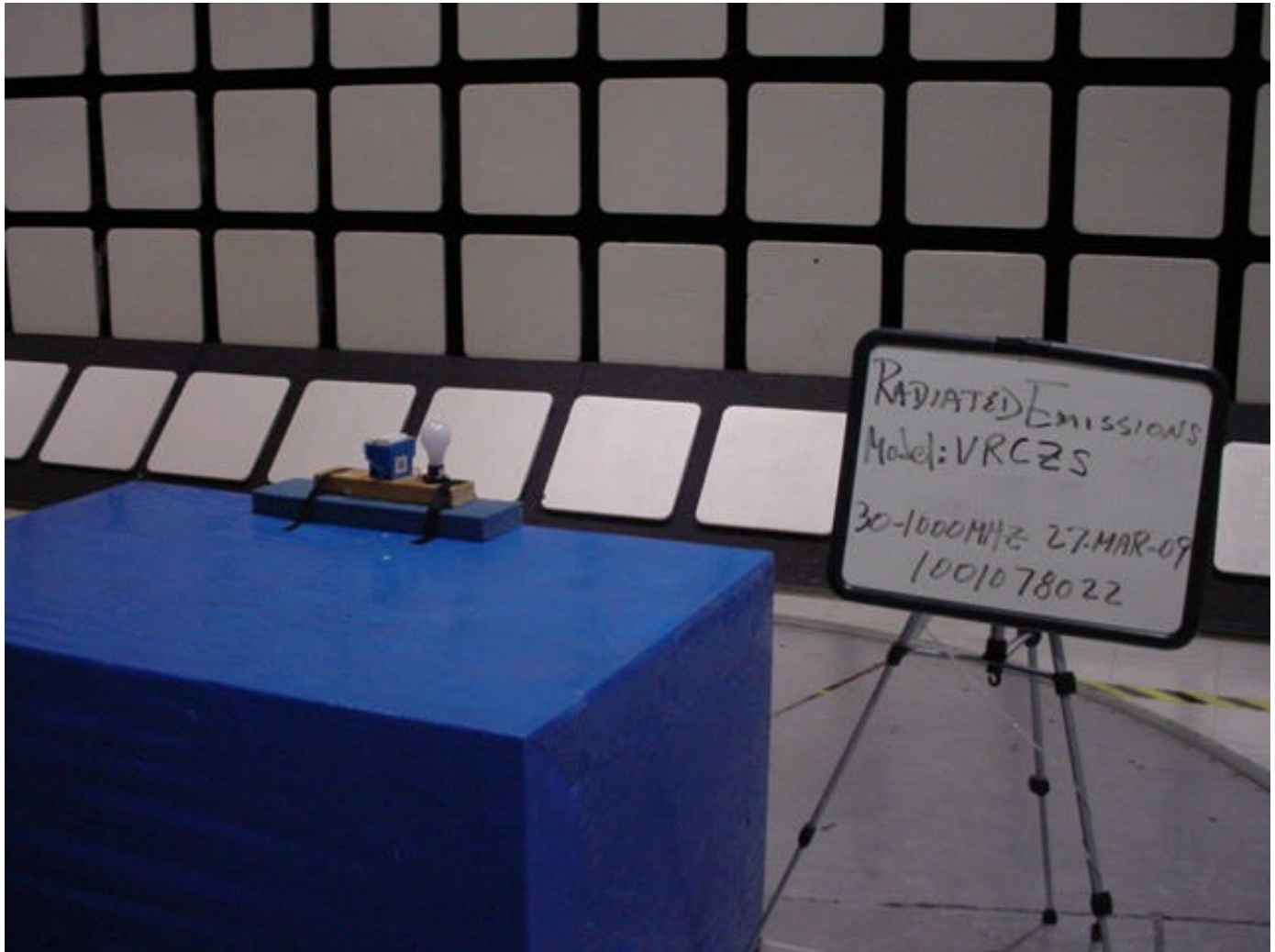
Test Equipment Used			
Description	Manufacturer	Model	Identifier
30-1000MHz			
EMI Receiver	Rohde & Schwarz	ESIB40	34968
Bicon Antenna	Schaffner	VBA6106A	54
Log-P Antenna	Schaffner	UPA6109	44067
Bias Tee	Miteq	AM-1523-7687	44392
Bias Tee	Miteq	AM-1523-7687	44393
Preamp	Miteq	AM-3A-000110-7687	44391
Preamp	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

Job Number:	1001078022	File Number:	MC15211	Page	54 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Above 1GHz (Band Optimized System)			
EMI Receiver	Rohde & Schwarz	ESIB40	34968
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
Horn Antenna (8-12 GHz)	ETS	3160-07	8933
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

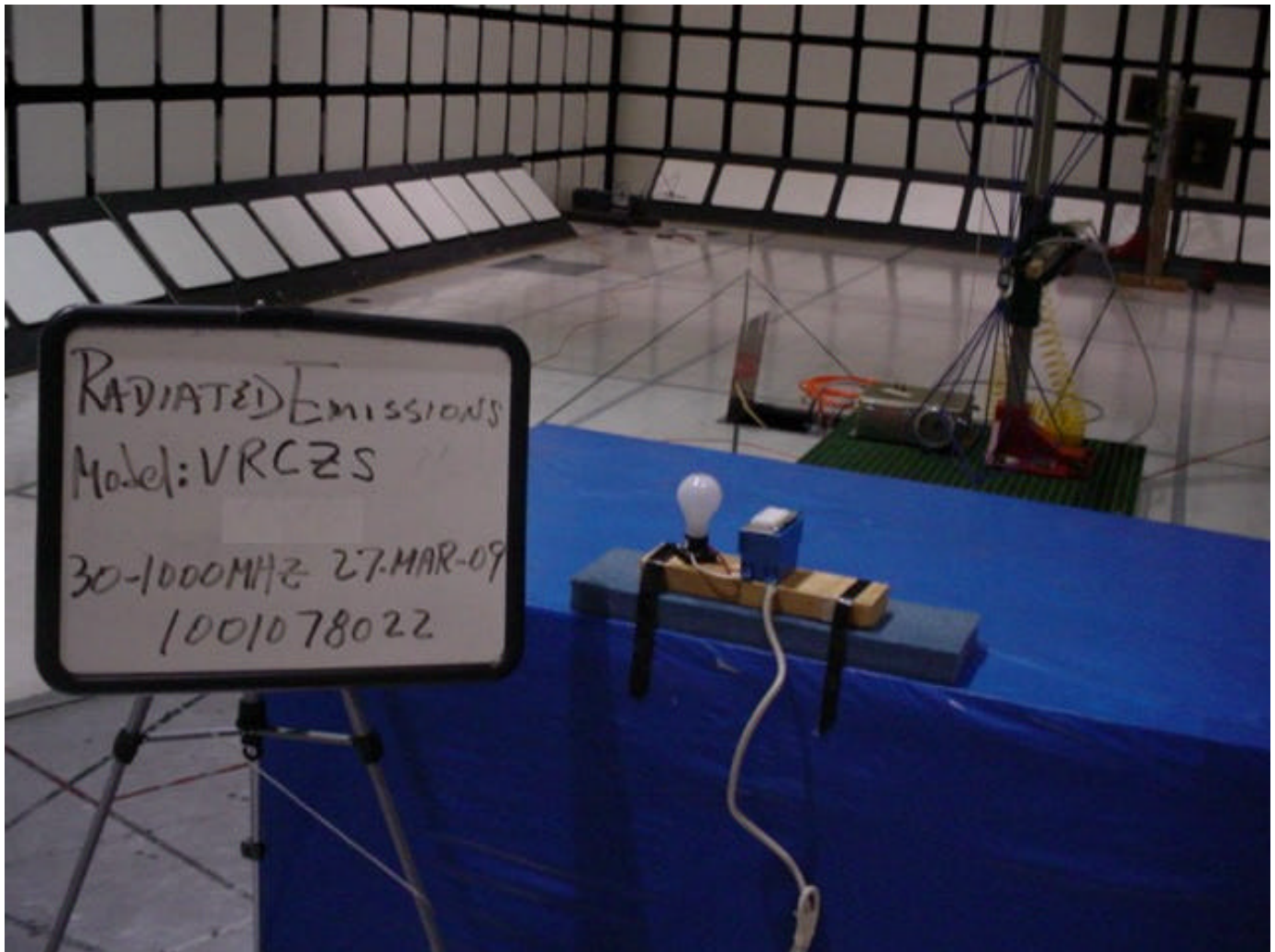
Job Number:	1001078022	File Number:	MC15211	Page	55 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 15 Test setup for Radiated Emissions



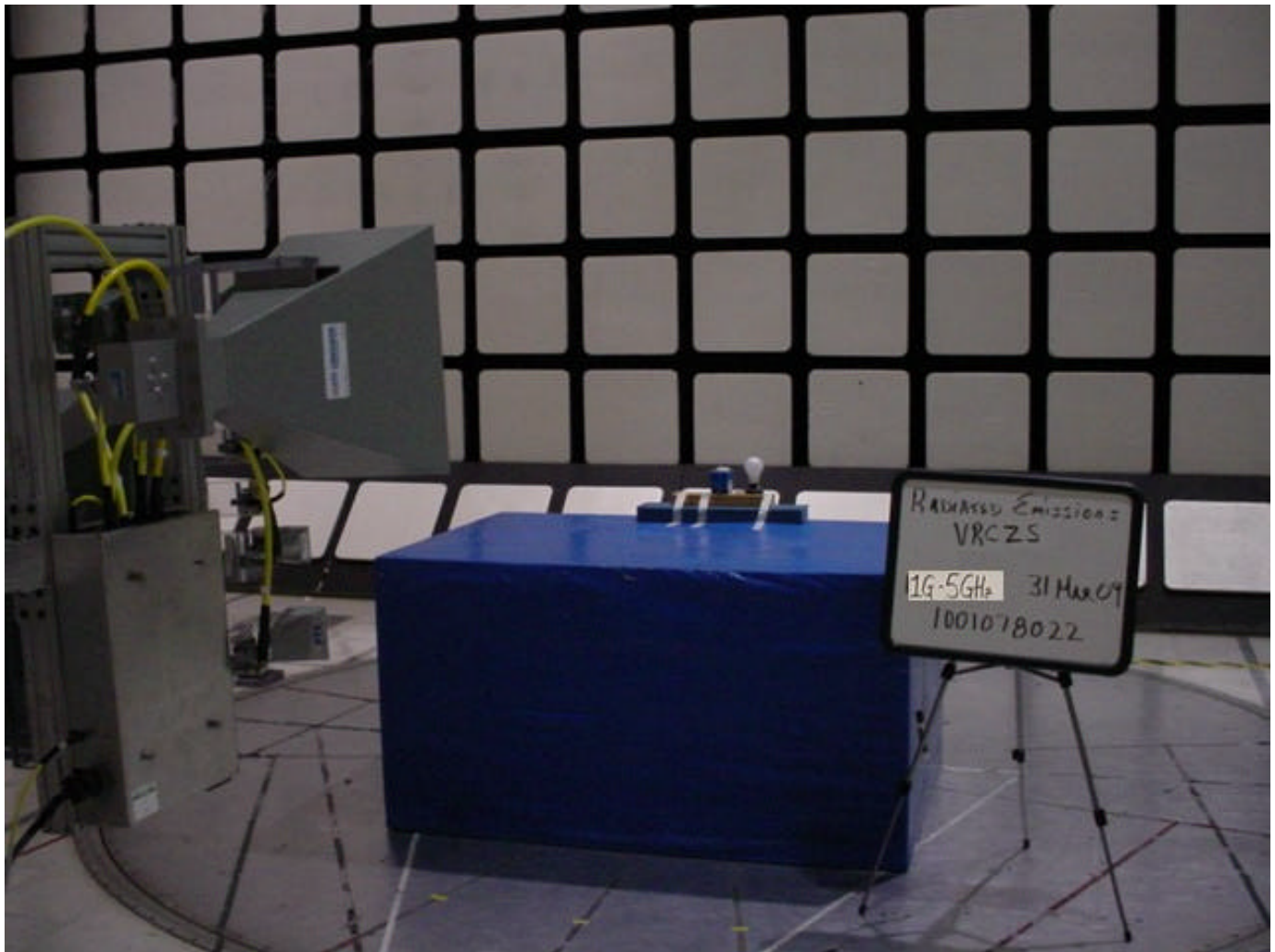
VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	56 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				



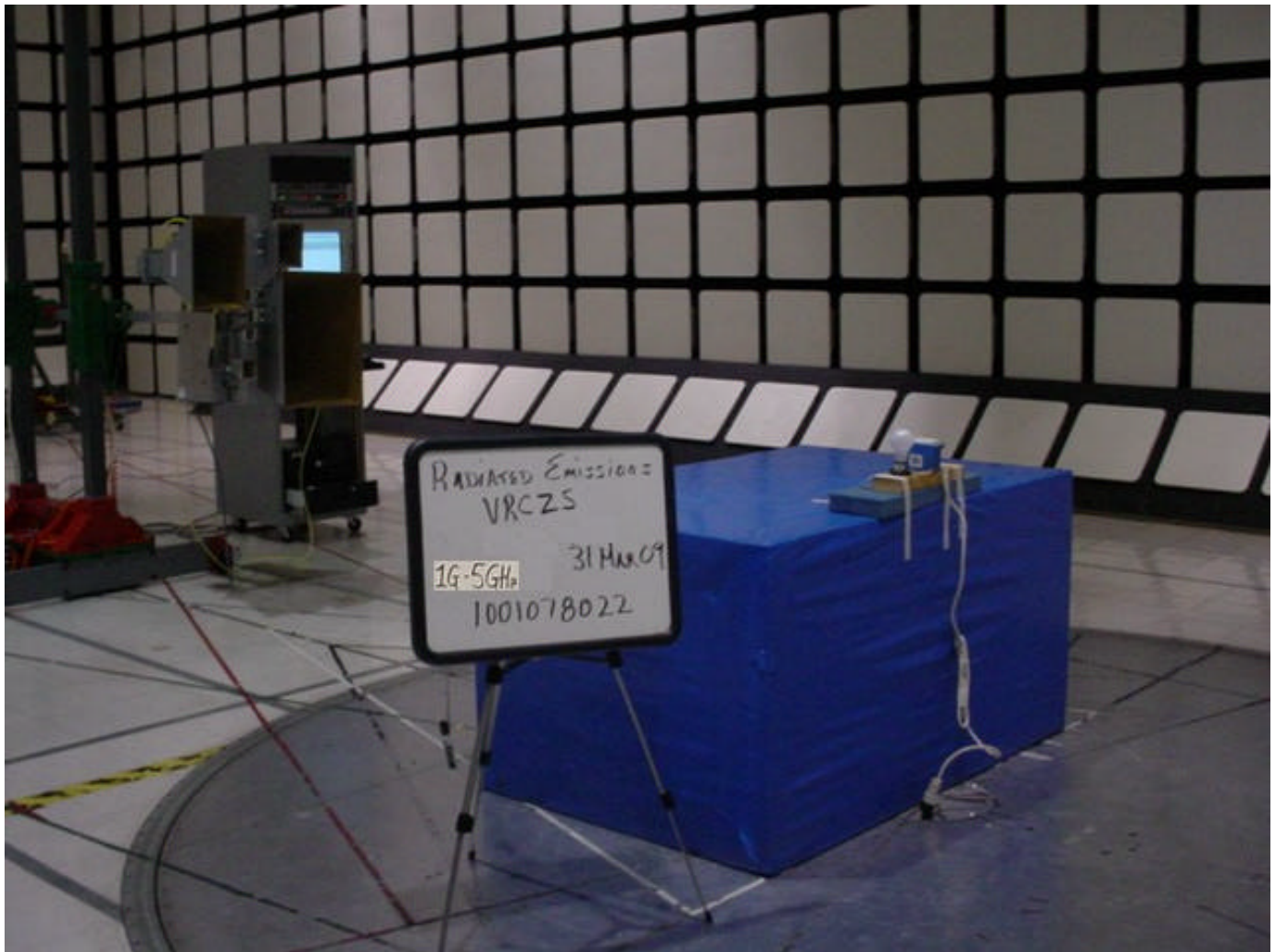
VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	57 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				



VRCZ4

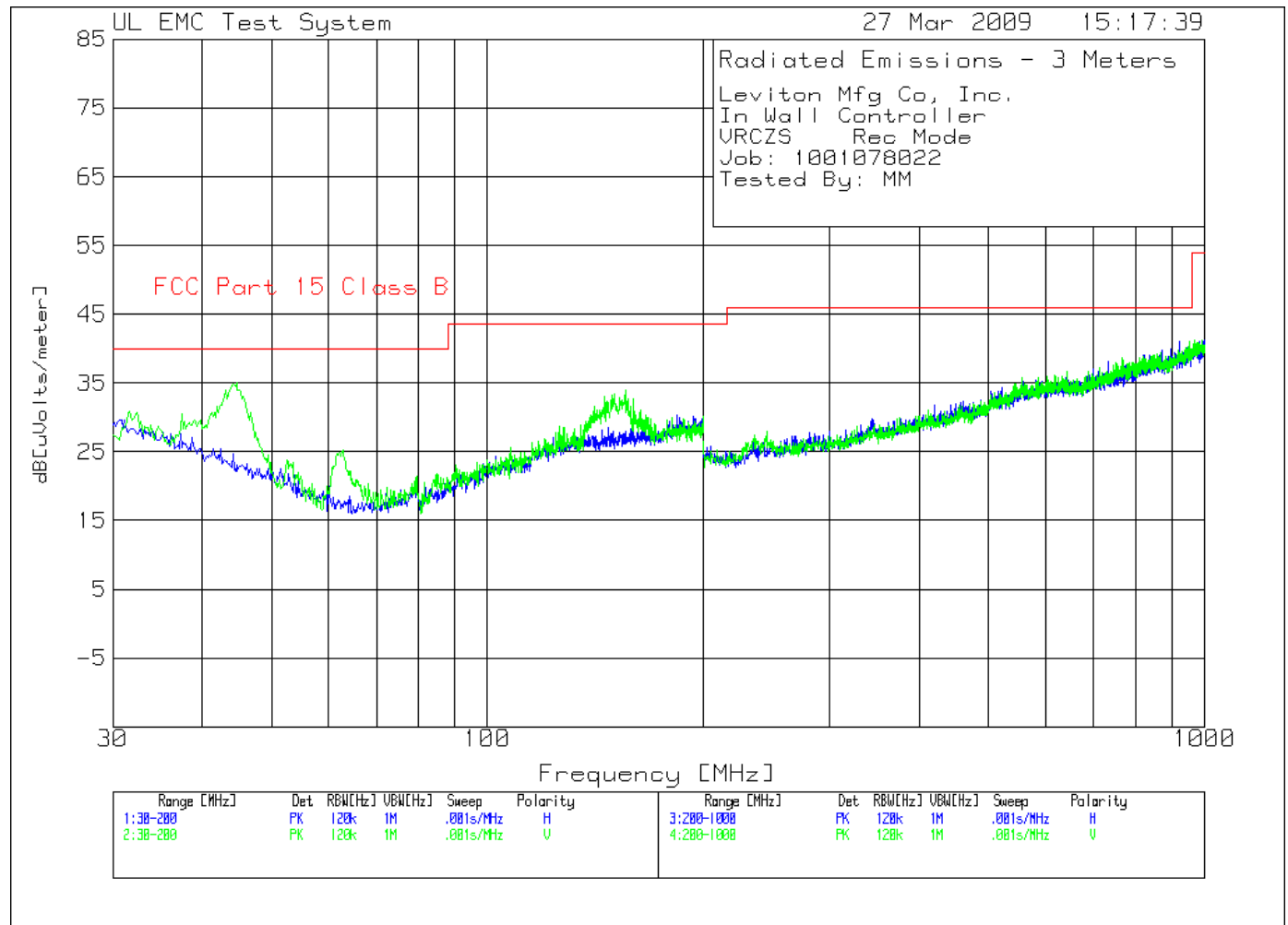
Job Number:	1001078022	File Number:	MC15211	Page	58 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				



VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	59 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 16 Radiated Emissions Graph



VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	60 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 19 Radiated Emissions Data Points

Leviton Mfg Co, Inc.
In Wall Controller
VRCZ4 Rec Mode
Job: 1001078022
Tested By: MM

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
=====										
Vertical 30 - 200MHz -----										
1	44.6346	23.29 pk	.5	11.2	34.99	40	-	-	-	-
	Azimuth:147	Height:101 Vert		Margin [dB]		-5.01	-	-	-	-
2	62.8428	18.79 pk	.5	6	25.29	40	-	-	-	-
	Azimuth:220	Height:101 Vert		Margin [dB]		-14.71	-	-	-	-
3	126.1461	14.25 pk	.7	13.7	28.65	43.5	-	-	-	-
	Azimuth:19	Height:101 Vert		Margin [dB]		-14.85	-	-	-	-
4	150.1401	17.34 pk	.8	15.2	33.34	43.5	-	-	-	-
	Azimuth:110	Height:101 Vert		Margin [dB]		-10.16	-	-	-	-
Vertical 200 - 1000MHz -----										
5	542.5713	13.76 pk	1.4	19.8	34.96	46	-	-	-	-
	Azimuth:341	Height:251 Vert		Margin [dB]		-11.04	-	-	-	-
6	765.4827	14.84 pk	1.6	22.2	38.64	46	-	-	-	-
	Azimuth:341	Height:201 Vert		Margin [dB]		-7.36	-	-	-	-

LIMIT 1: FCC Part 15 Class B

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

Job Number:	1001078022	File Number:	MC15211	Page	61 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Leviton Mfg Co, Inc.
In Wall Controller
VRCZ4 Rec Mode
Job: 1001078022
Tested By: MM

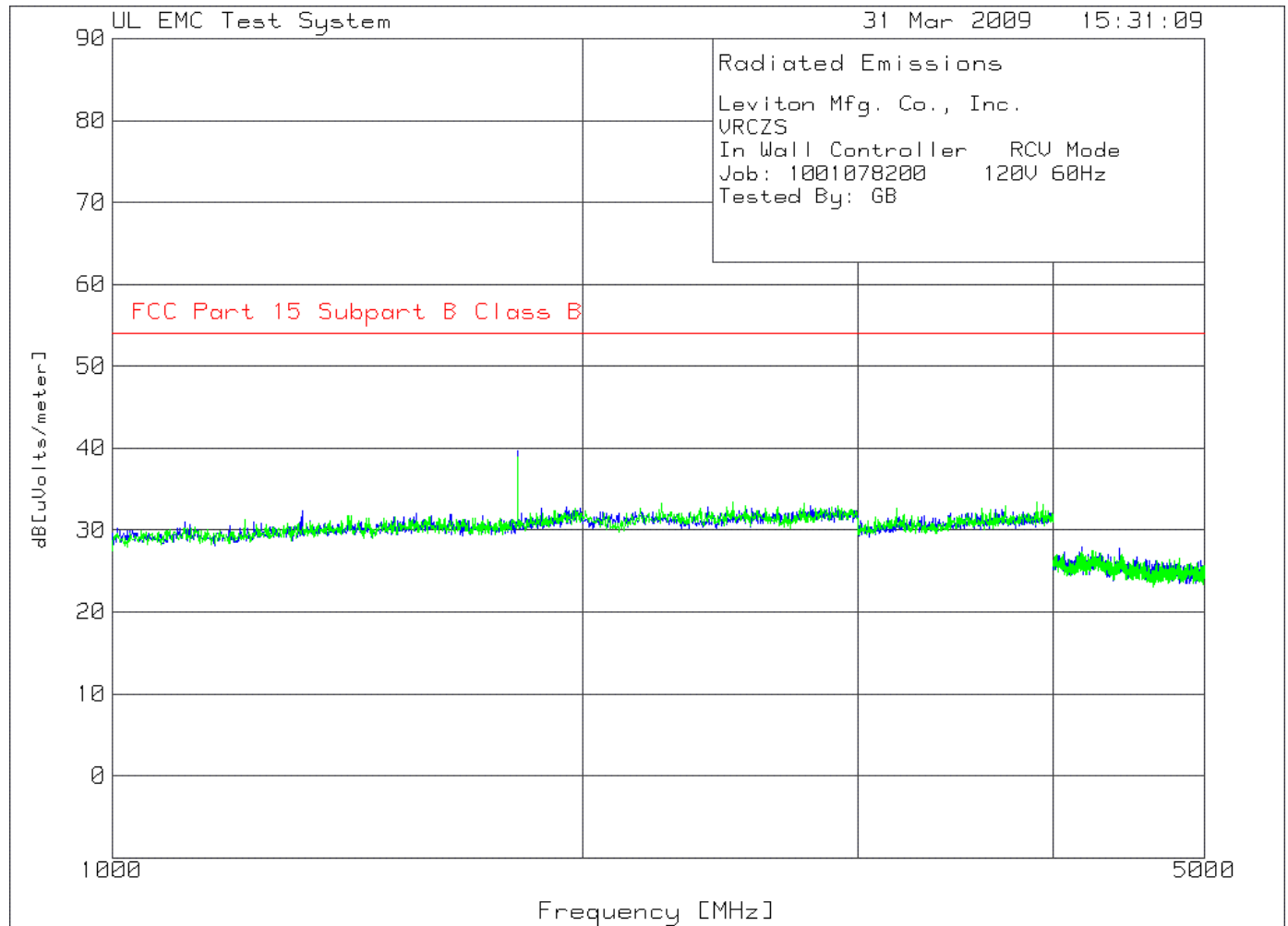
Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
=====										
Vertical 30 - 200MHz										
44.6901	21.46 qp	.5	11.2	33.16	40	-	-	-	-	-
Azimuth: 46 Height:105 Vert					Margin [dB]:	-6.84	-	-	-	-

LIMIT 1: FCC Part 15 Class B

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

Job Number:	1001078022	File Number:	MC15211	Page	62 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 17 Radiated Emissions Graph



VRCZ4

Job Number:	1001078022	File Number:	MC15211	Page	63 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 20 Radiated Emissions Data Points

Leviton Mfg. Co., Inc.
VRCZ4
In Wall Controller RCV Mode
Job: 1001078200 120V 60Hz
Tested By: GB

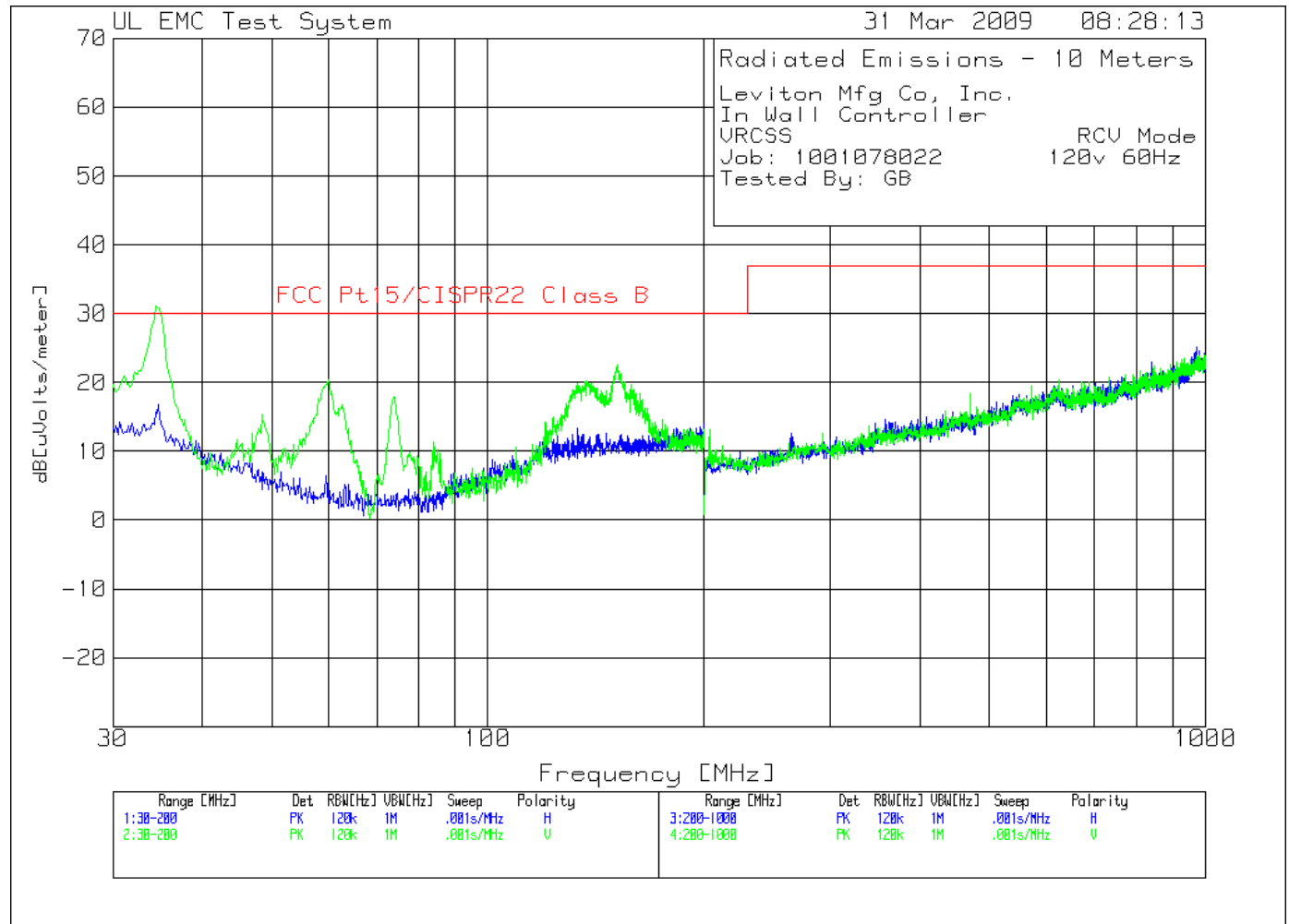
Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
=====										
1 - 2GHz 1000 - 2000MHz										
1	1323.346	57.41 pk	-45.61	20.5	32.3	54	-	-	-	-
		Height:101 Horz		Margin [dB]		-21.7	-	-	-	-
2	1817.728	63.46 pk	-44.88	21.1	39.68	54	-	-	-	-
		Height:101 Horz		Margin [dB]		-14.32	-	-	-	-
=====										
1 - 2GHz 1000 - 2000MHz										
3	1817.728	62.63 pk	-44.88	21.1	38.85	54	-	-	-	-
		Height:149 Vert		Margin [dB]		-15.15	-	-	-	-
=====										
2 - 4GHz 2000 - 4000MHz										
4	2494.382	55.38 pk	-43.69	21.7	33.39	54	-	-	-	-
		Height:199 Vert		Margin [dB]		-20.61	-	-	-	-
5	3176.03	53.94 pk	-43.33	22.1	32.71	54	-	-	-	-
		Height:199 Vert		Margin [dB]		-21.29	-	-	-	-
6	3907.615	53.66 pk	-42.85	22.6	33.41	54	-	-	-	-
		Height:199 Vert		Margin [dB]		-20.59	-	-	-	-

LIMIT 1: FCC Part 15 Subpart B Class B

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

Job Number:	1001078022	File Number:	MC15211	Page	64 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 18 Radiated Emissions Graph



VRCS4

Job Number:	1001078022	File Number:	MC15211	Page	65 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 21 Radiated Emissions Data Points

Leviton Mfg Co, Inc.
In Wall Controller
VRCS4 RCV Mode
Job: 1001078022 120v 60Hz
Tested By: GB

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
=====										
Vertical 30 - 200MHz -----										
1	34.4244	50.4 pk	-34.7	15.4	31.1 30	-	-	-	-	-
	Azimuth:224	Height:100 Vert		Margin [dB]	1.1	-	-	-	-	-
2	48.3784	39.07 pk	-34.7	10.9	15.27 30	-	-	-	-	-
	Azimuth:17	Height:100 Vert		Margin [dB]	-14.73	-	-	-	-	-
3	59.95	48.79 pk	-35.1	6.8	20.49 30	-	-	-	-	-
	Azimuth:89	Height:100 Vert		Margin [dB]	-9.51	-	-	-	-	-
4	74.0741	46.35 pk	-35	6.6	17.95 30	-	-	-	-	-
	Azimuth:89	Height:100 Vert		Margin [dB]	-12.05	-	-	-	-	-
5	136.8669	41.93 pk	-35.2	13.5	20.23 30	-	-	-	-	-
	Azimuth:17	Height:100 Vert		Margin [dB]	-9.77	-	-	-	-	-
6	151.6717	43.51 pk	-35.2	14.3	22.61 30	-	-	-	-	-
	Azimuth:89	Height:100 Vert		Margin [dB]	-7.39	-	-	-	-	-

LIMIT 1: FCC Pt15/CISPR22 Class B

pk - Peak detector
qp - Quasi-Peak detector
av - Average detector
avlg - denotes average log detection
ave - denotes average detection
tm - Trace Math Result

Job Number:	1001078022	File Number:	MC15211	Page	66 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Leviton Mfg Co, Inc.

In Wall Controller

VRCS4

RCV Mode

Job: 1001078022

120v 60Hz

Tested By: GB

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										
34.5782	48.37 qp	-34.7	15.3	28.97	30	-	-	-	-	-
Azimuth: 7	Height:104	Vert		Margin [dB]:	-1.03	-	-	-	-	-

LIMIT 1: FCC Pt15/CISPR22 Class B

pk - Peak detector

qp - Quasi-Peak detector

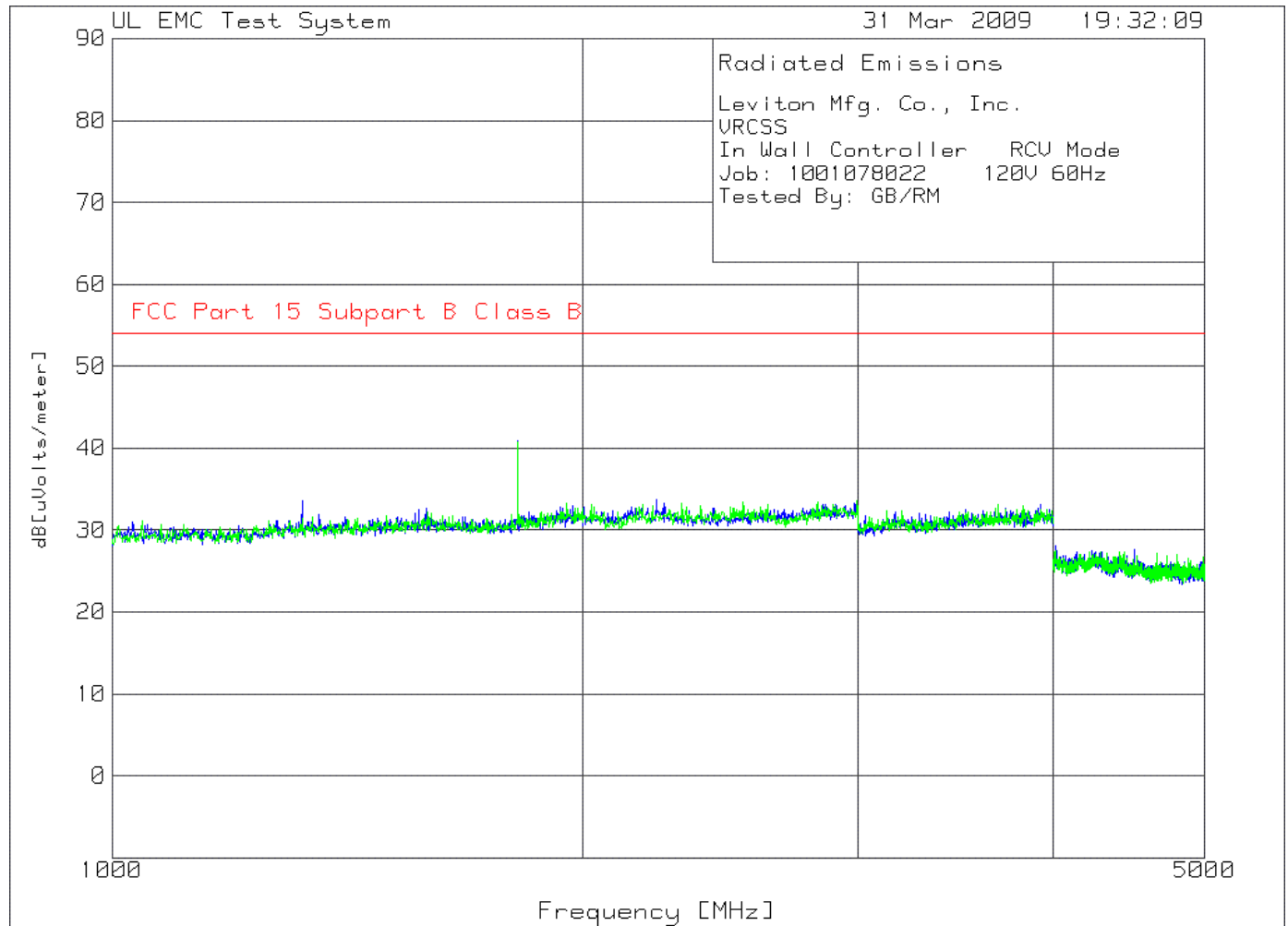
av - Average detector

avlg - Average log detector

ave - Average detector

Job Number:	1001078022	File Number:	MC15211	Page	67 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 19 Radiated Emissions Graph



VRCS4

Job Number:	1001078022	File Number:	MC15211	Page	68 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 22 Radiated Emissions Data Points

Leviton Mfg. Co., Inc.
VRCS4
In Wall Controller RCV Mode
Job: 1001078022 120V 60Hz
Tested By: GB/RM

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

1	2GHz 1000 - 2000MHz	-----								
1	1323.346	58.72 pk	-45.61	20.5	33.61	54	-	-	-	-
		Height:101	Horz	Margin [dB]		-20.39	-	-	-	-
2	1590.512	56.72 pk	-45.3	21.2	32.62	54	-	-	-	-
		Height:101	Horz	Margin [dB]		-21.38	-	-	-	-
3	1817.728	64.61 pk	-44.88	21.1	40.83	54	-	-	-	-
		Height:149	Horz	Margin [dB]		-13.17	-	-	-	-

2	4GHz 2000 - 4000MHz	-----								
4	2229.713	56.16 pk	-43.85	21.4	33.71	54	-	-	-	-
		Height:101	Horz	Margin [dB]		-20.29	-	-	-	-
5	3927.591	53.45 pk	-42.99	22.7	33.16	54	-	-	-	-
		Height:199	Horz	Margin [dB]		-20.84	-	-	-	-

4	8GHz 4000 - 5000MHz	-----								
6	4506.656	54.46 pk	-54.29	27.4	27.57	54	-	-	-	-
		Height:149	Horz	Margin [dB]		-26.43	-	-	-	-

1	2GHz 1000 - 2000MHz	-----								
7	1817.728	64.44 pk	-44.88	21.1	40.66	54	-	-	-	-
		Height:199	Vert	Margin [dB]		-13.34	-	-	-	-
8	1955.056	56.1 pk	-44.7	21.9	33.3	54	-	-	-	-
		Height:199	Vert	Margin [dB]		-20.7	-	-	-	-

2	4GHz 2000 - 4000MHz	-----								
9	2531.835	55.47 pk	-43.6	21.6	33.47	54	-	-	-	-
		Height:199	Vert	Margin [dB]		-20.53	-	-	-	-

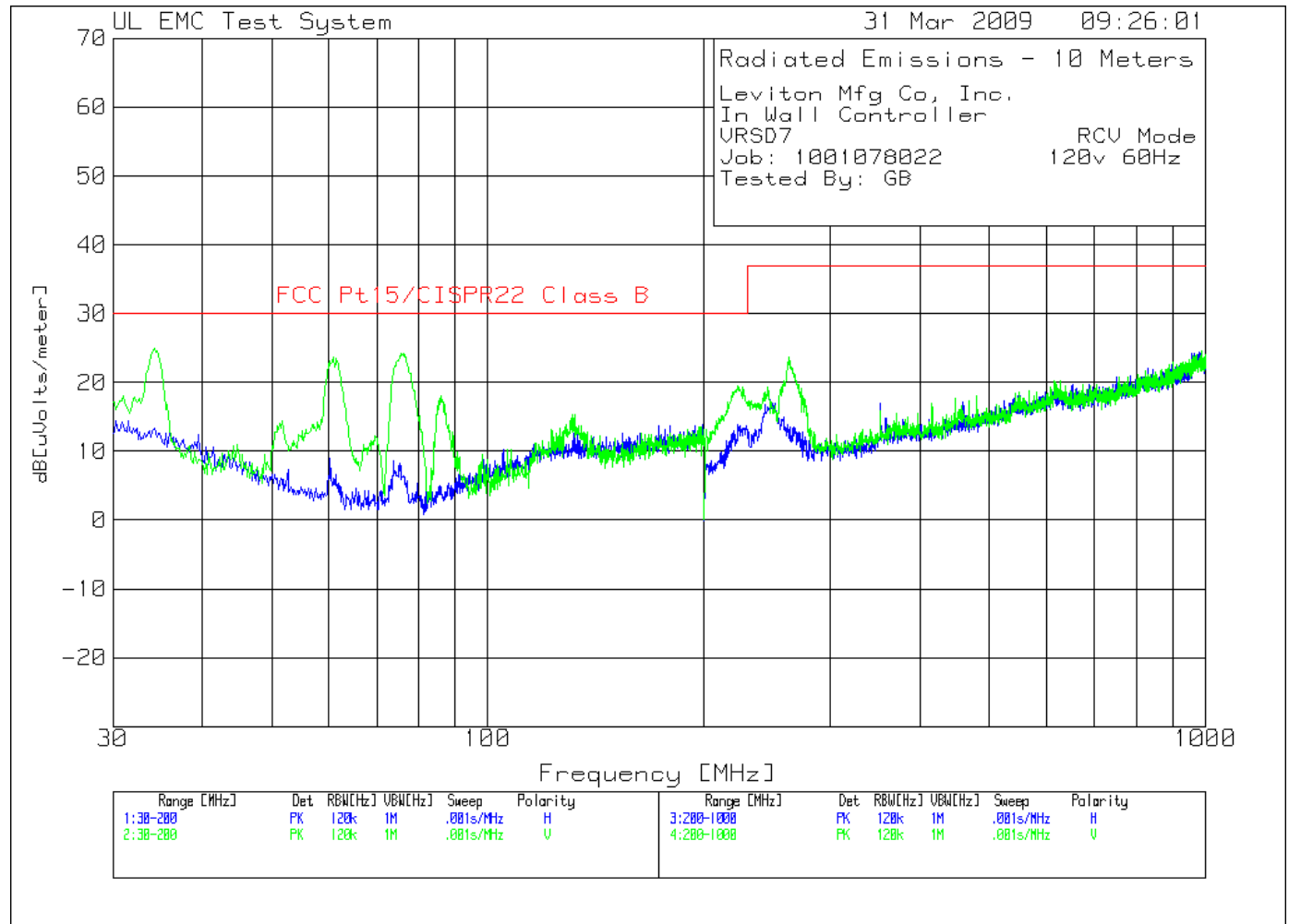
4	8GHz 4000 - 5000MHz	-----								
10	4725.458	54.16 pk	-54.26	27	26.9	54	-	-	-	-
		Height:199	Vert	Margin [dB]		-27.1	-	-	-	-

LIMIT 1: FCC Part 15 Subpart B Class B

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

Job Number:	1001078022	File Number:	MC15211	Page	69 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 20 Radiated Emissions Graph



VRCS2

Job Number:	1001078022	File Number:	MC15211	Page	70 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 23 Radiated Emissions Data Points

Leviton Mfg Co, Inc.

In Wall Controller

VRCS2 RCV Mode

Job: 1001078022 120v 60Hz

Tested By: GB

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
=====										
Vertical 30 - 200MHz -----										
1	34.2543	44.18 pk	-34.7	15.4	24.88 30	-	-	-	-	-
	Azimuth:223	Height:100 Vert		Margin [dB]	-5.12	-	-	-	-	-
2	60.8008	51.96 pk	-35	6.7	23.66 30	-	-	-	-	-
	Azimuth:89	Height:100 Vert		Margin [dB]	-6.34	-	-	-	-	-
3	75.7758	52.22 pk	-35.1	7.1	24.22 30	-	-	-	-	-
	Azimuth:357	Height:100 Vert		Margin [dB]	-5.78	-	-	-	-	-
Vertical 200 - 1000MHz -----										
4	222.4112	42.44 pk	-34.2	11.2	19.44 30	-	-	-	-	-
	Azimuth:358	Height:300 Vert		Margin [dB]	-10.56	-	-	-	-	-
5	262.8314	44.93 pk	-34.1	12.8	23.63 37	-	-	-	-	-
	Azimuth:342	Height:101 Vert		Margin [dB]	-13.37	-	-	-	-	-

LIMIT 1: FCC Pt15/CISPR22 Class B

pk - Peak detector

qp - Quasi-Peak detector

av - Average detector

avlg - denotes average log detection

Job Number:	1001078022	File Number:	MC15211	Page	71 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Leviton Mfg Co, Inc.

In Wall Controller

VRCS2 RCV Mode

Job: 1001078022 120v 60Hz

Tested By: GB

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level Limit:1 dB[uVolts/meter]	2	3	4	5	6
=====									
Vertical 30 - 200MHz									
34.3497	42.07 qp	-34.7	15.4	22.77 30	-	-	-	-	-
Azimuth: 21	Height:174	Vert	Margin	[dB]: -7.23	-	-	-	-	-
60.8	51.29 qp	-35	6.7	22.99 30	-	-	-	-	-
Azimuth: 354	Height:247	Vert	Margin	[dB]: -7.01	-	-	-	-	-
75.69	50.65 qp	-35.1	7.1	22.65 30	-	-	-	-	-
Azimuth: 320	Height:162	Vert	Margin	[dB]: -7.35	-	-	-	-	-

LIMIT 1: FCC Pt15/CISPR22 Class B

pk - Peak detector

qp - Quasi-Peak detector

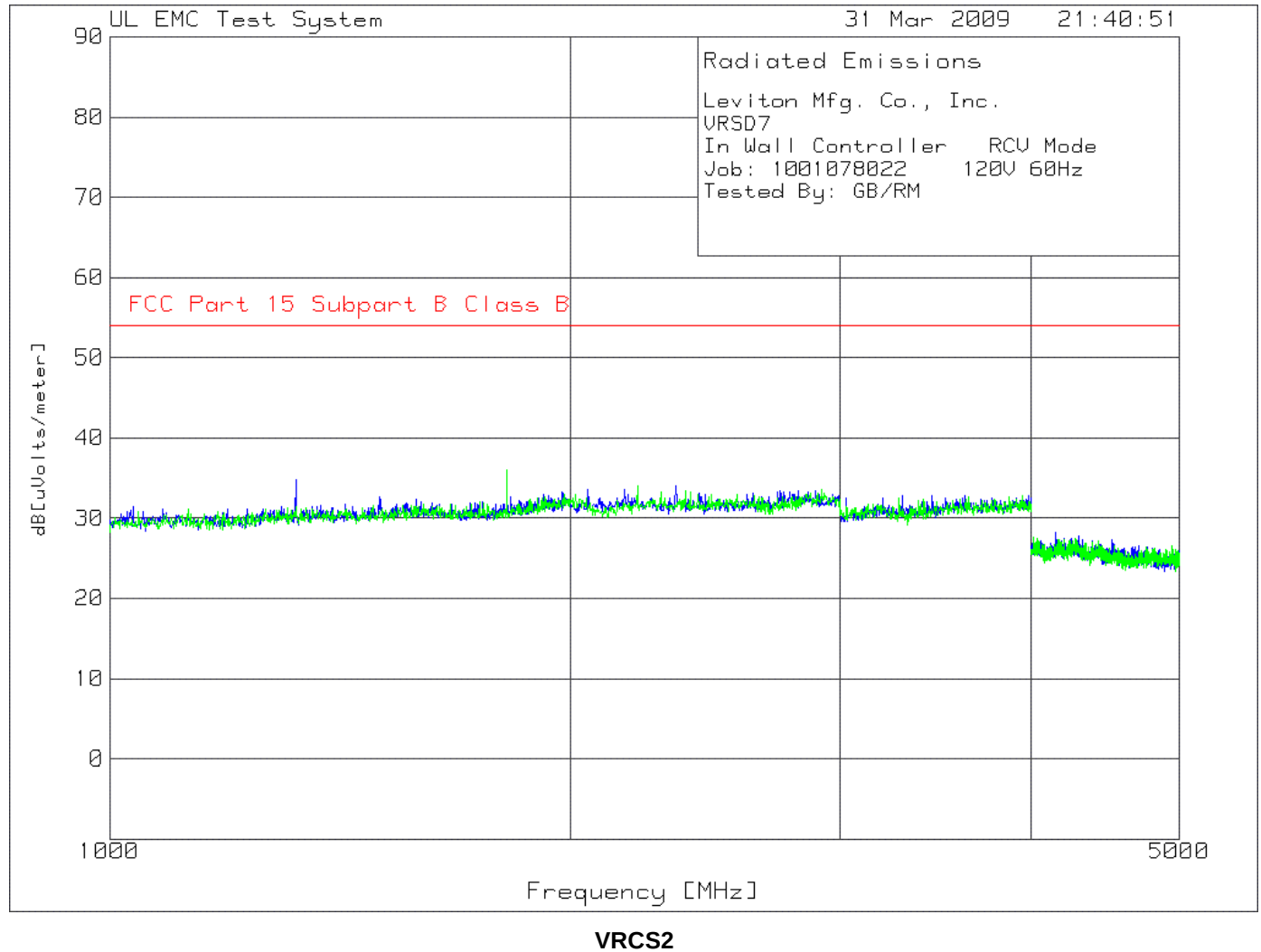
av - Average detector

avlg - Average log detector

ave - Average detector

Job Number:	1001078022	File Number:	MC15211	Page	72 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Figure 21 Radiated Emissions Graph



Job Number:	1001078022	File Number:	MC15211	Page	73 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Table 24 Radiated Emissions Data Points

Leviton Mfg. Co., Inc.
VRCS2
In Wall Controller RCV Mode
Job: 1001078022 120V 60Hz
Tested By: GB/RM

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

1 - 2GHz 1000	1323.346	2000MHz								
1	1323.346	59.9 pk	-45.61	20.5	34.79	54	-	-	-	-
		Height:101 Horz		Margin [dB]		-19.21	-	-	-	-
2	1817.728	57.03 pk	-44.88	21.1	33.25	54	-	-	-	-
		Height:149 Horz		Margin [dB]		-20.75	-	-	-	-

2 - 4GHz 2000	2344.569	4000MHz								
3	2344.569	56.56 pk	-43.68	21.1	33.98	54	-	-	-	-
		Height:149 Horz		Margin [dB]		-20.02	-	-	-	-
4	2744.07	55.07 pk	-43.41	21.7	33.36	54	-	-	-	-
		Height:199 Horz		Margin [dB]		-20.64	-	-	-	-
5	3448.19	53.5 pk	-42.83	22.1	32.77	54	-	-	-	-
		Height:199 Horz		Margin [dB]		-21.23	-	-	-	-

4 - 8GHz 4000	4514.975	5000MHz								
6	4514.975	54.29 pk	-54.39	27.4	27.3	54	-	-	-	-
		Height:101 Horz		Margin [dB]		-26.7	-	-	-	-

1 - 2GHz 1000	1817.728	2000MHz								
7	1817.728	59.72 pk	-44.88	21.1	35.94	54	-	-	-	-
		Height:199 Vert		Margin [dB]		-18.06	-	-	-	-

2 - 4GHz 2000	2212.235	4000MHz								
8	2212.235	56.64 pk	-43.93	21.3	34.01	54	-	-	-	-
		Height:101 Vert		Margin [dB]		-19.99	-	-	-	-
9	3278.402	53.62 pk	-42.99	21.9	32.53	54	-	-	-	-
		Height:101 Vert		Margin [dB]		-21.47	-	-	-	-

4 - 8GHz 4000	4276.206	5000MHz								
10	4276.206	53.08 pk	-53.48	27.8	27.4	54	-	-	-	-
		Height:101 Vert		Margin [dB]		-26.6	-	-	-	-

LIMIT 1: FCC Part 15 Subpart B Class B

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

Job Number:	1001078022	File Number:	MC15211	Page	74 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				

Appendix A

Accreditations and Authorizations



NVLAP Lab code: 100255-0

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



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



Industry Canada Industrie Canada

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



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

Job Number:	1001078022	File Number:	MC15211	Page	75 of 75
Model Number:	VRCZ4, VRCS4, & VRCS2				
Client Name:	Leviton Mfg. Co. Inc.				
FCC ID:	QGH-VRSDC				
Industry Canada ID:	2473A-VRSDC				



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

Compliance Certificate

Company Name and Location: Leviton Mfg. Co. Inc.
59-25 Little Neck Parkway, Little Neck, NY 11362-2591

File Number: MC15211

Date of Report: 8 April 2009

Product Description: Dimmers

Investigated in accordance with FCC Part 15, Subpart C, 15.231(2007)

Model Designation: VRCZ4, VRCS4, VRCS2

Serial Number: Not Provided

Job Number: 1001078022

Project Number: 09CA10881

A sample of the product described above has been investigated by Underwriters Laboratories Inc. in accordance with the requirements indicated above and has been found in compliance with those requirements as shown in the Test Report Ref. No. 1001078022 which forms part of this Certificate. It is the responsibility of the company shown above that the products it produces are in compliance with the applicable requirements.

The name of Underwriters Laboratories (UL), any abbreviation thereof, or any symbol shall not be used on or in connection with the product unless and until specifically authorized by UL.

Tested by:



Reviewed by:



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