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631-271-6200

Project:	06CA21437
File:	MC15211
Date:	10/16/2006
Model:	RZEO6
FCC ID:	QGH-RZE06

# Electromagnetic Compatibility Test Report

For

**LEVITON MFG CO INC**

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Project Number: 06CA21437  
Model Number: RZE06  
FCC ID: QGH-RZE06

File Number MC15211

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## 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 PKY**  
**LITTLE NECK, NY 11362**

Applicant Contact: **Mr. P Patel**  
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Test Report Date: **10/16/2006**

Product Type: **DIMMER**

Product standards **FCC Part 15, Subpart C, 15.249**

Model Number: **RZE06**

Sample Serial Number: **Prototype**

Sample Tag Number: **0788592**

Sample Receive Date: **5/9/2006**

Lab Tracking Number: **06MEL4109**

EUT Category: **Transceiver**

Testing Start Date: **5/9/2006**

Date Testing Complete: **9/5/2006**

**Overall Results: Pass**

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, 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.

\*Signature required for products covered by FCC Declaration of Conformity or Verification in accordance with record retention requirements in FCC Rules 2.955(x) or 2.1057(x).

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## Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
10/16/2006	Original	--	--

### 1.0 G E N E R A L - Product Description

The EUT is a light dimmer switch to control a light fixture for illumination.

The RZE06 is a single pole, 3-way control Dimmer that is designed for control of up 1000W electronic low voltage lighting load.

## 1.1 Device Configuration During Test

The equipment under test was measured at its worst-case orientation during the evaluation.

### 1.1.1 Equipment Used During Test:

Use*	Product Type	Manufacturer	Model	Comments
EUT	Dimmers	Leviton	RZE06	-
ACC	Load	Leviton	-	Incandescent Light bulb

\* Use = EUT - Equipment Under Test, ACC - Accessory (Not Subjected to Test), or SIM - Simulator (Not Subjected to Test)

### 1.1.2 Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m	Cable Shielded	Comments
0	Enclosure	N/E	-	-	None
1	Mains	AC	NO	NO	None

\*AC = AC Power Port      DC = DC Power Port      N/E = Non-Electrical  
I/O = Signal Input or Output Port (Not Involved in Process Control)  
PMC = Process Measurement and Control Port

### 1.1.3 EUT Internal Operating Frequencies:

Frequency (MHz)	Description	Frequency (MHz)	Description
908.42	Fundamental	--	--

### 1.1.4 Power Interface:

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

## 1.2 EUT Operation Modes:

Mode #	Description
1	The EUT was set to transmit at it's maximum allowable power rating at the fundamental frequency of 908.42MHz
2	The EUT was set with the transmitter disable and tested in a receive mode.

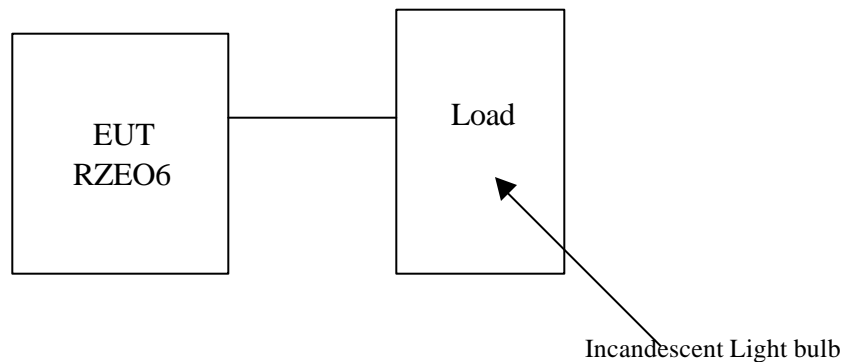
## 1.3 EUT Configuration Modes:

Mode #	Description
1	Transmitter Continuous CW
2	Transmitter Normal operation

"The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report"

## 1.4 Block Diagram:

The diagram below illustrates the configuration of the equipment above.



## 1.5 Deviations from standard test methods.

Not Applicable

## 1.6 Device Modifications Necessary for Compliance

Not Applicable.

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Model Number: RZE06  
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## 1.7 Test Summary

<b>Product Standards</b>	FCC Part 15, Subpart C, 15.207, 15.209, and 15.249
--------------------------	----------------------------------------------------

Summary of EMC Emission Tests	Standard	Test Name	Result
	FCC Part 15.207	Conducted Emissions	1
	FCC Part 15.209	Radiated Emissions	1
	FCC Part 15.249 (d)	Radiated Spurious Emissions	1
	FCC Part 15.249	Occupied Bandwidth	1
	FCC Part 15.31(e)	Tx Versus Output Voltage	1
	FCC Part 15.249(a)	Fundamental Field Strength	1

### Remarks:

- 1) Compliant – Indicates no modifications required for compliance.
- 2) Modifications required to comply as described in Section 1.6



## 2.0 Conclusion:

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.

The equipment under test has met the technical requirements as defined under sections 5.0 and 6.0.

Test Start Date: 09 May 2006  
Test Completion Date: 05 September 2006



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### 3.0 FCC Labeling Information

#### 3.1 Identification.

Devices Subject to Verification

In 47 CFR, Part 2, **§ 2.954**:

“Devices subject only to verification shall be uniquely identified by the person responsible for marketing or importing the equipment within the United States. However, the identification shall not be of a format, which could be confused with the FCC Identifier required on certified, notified or type accepted equipment. The importer or manufacturer shall maintain adequate identification records to facilitate positive identification for each verified device.”

Devices Subject to Declaration of Conformity

In 47 CFR, Part 2, **§ 2.1074**:

“Devices subject only to a Declaration of Conformity shall be uniquely identified by the responsible party. This identification shall not be of a format which could be confused with the FCC Identifier required on certified, notified, type accepted or type approved equipment. The responsible party shall maintain adequate identification records to facilitate positive identification for each device.”

#### 3.2 Compliance information

§ 2.1077 Compliance information.

(a) If a product must be tested and authorized under a Declaration of Conformity, a compliance information statement shall be supplied with the product at the time of marketing or importation, containing the following information:

- (1) Identification of the product, e.g., name and model number;
- (2) A statement, similar to that contained in § 15.19(a)(3) of this chapter, that the product complies with part 15 of this chapters; and
- (3) The identification, by name, address and telephone number, of the responsible party, as defined in § 2.909.

The responsible party for a Declaration of Conformity must be located within the United States.

(c) The compliance information statement shall be included in the user's manual or as a separate sheet.

§ 15.19(a)(3):

“ All other devices shall bear the following statement in a conspicuous location on the device: This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.”

### 3.3 Labeling.

#### Labeling Certification or Verification

In addition to the requirements in Part 2 of this CFR 47 (See **1.6.1 Identification** above), a device subject to certification or verification shall be labeled as follows:

(1) Receivers associated with the operation of a licensed radio service, e.g., FM broadcast under Part 73, land mobile operation under Part 90, etc., shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

(2) A stand-alone cable input selector switch, shall bear the following statement in a conspicuous location on the device:

This device is verified to comply with Part 15 of the FCC Rules for use with cable television service.

(3) All other devices shall bear the following statement in a conspicuous location on the device:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

(4) Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified under paragraph (a) of this section is required to be affixed only to the main control unit.

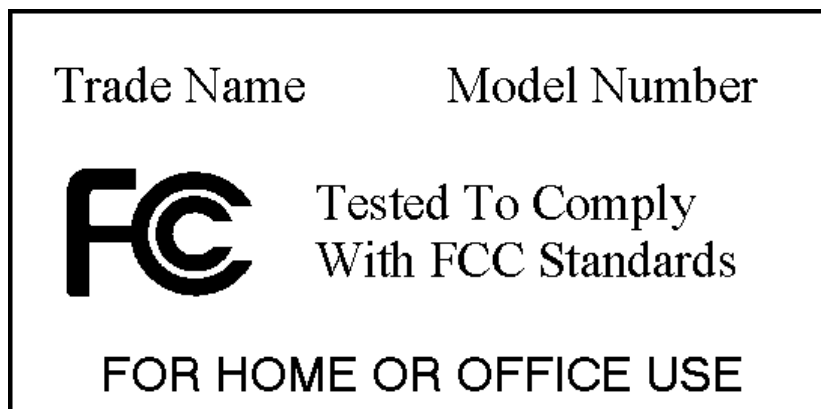
(5) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (a) of this section on it, the information required by this paragraph shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed. However, the FCC identifier or the unique identifier, as appropriate, must be displayed on the device.

#### Declaration of Conformity Labeling

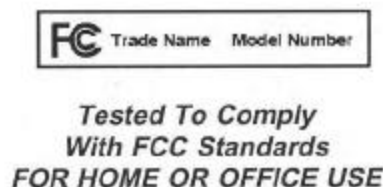
In addition to the requirements in Part 2 of CFR 47 (See **1.6.1 Identification** above), a device subject to authorization under a Declaration of Conformity shall be labeled as follows:

(1) The label shall be located in a conspicuous location on the device and shall contain the unique identification described in Section 2.1074 of this chapter and the following logo:

(i) If the product is authorized based on testing of the product or system:



Alternate label format for small devices:



The text shown in ***bold-face italics*** may be placed in a prominent location in the instruction manual or pamphlet supplied to the user.

- (2) Label text and information should be in a size of type large enough to be readily legible, consistent with the dimensions of the equipment and the label. However, the type size for the text is not required to be larger than eight points.
- (3) When the device is so small or for such use that it is not practicable to place the statement specified under paragraph (b)(1) of this section on it, such as for a CPU board or a plug-in circuit board peripheral device, the text associated with the logo may be placed in a prominent location in the instruction manual or pamphlet supplied to the user. However, the unique identification (trade name and model number) and the logo must be displayed on the device.
- (4) The label shall not be a stick-on, paper label. The label on these products shall be permanently affixed to the product and shall be readily visible to the purchaser at the time of purchase, as described in Section 2.925(d) of this chapter. "Permanently affixed" means that the label is etched, engraved, stamped, silk-screened, indelibly printed, or otherwise permanently marked on a permanently attached part of the equipment or on a nameplate of metal, plastic, or other material fastened to the equipment by welding, riveting, or a permanent adhesive. The label must be designed to last the expected lifetime of the equipment in the environment in which the equipment may be operated and must not be readily detachable.

### 3.4 User information.

In 47 CFR, Part 15, § 15.21 **Information to user:**

“The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.”

In 47 CFR, Part 15, § 15.105 **Information to the user:**

Class A Devices

“(a) For a Class A digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

*NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.”*

Class B Devices

“(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

*NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:*

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help*

“(d) For systems incorporating several digital devices, the statement shown in paragraph (a) or (b) of this section needs to be contained only in the instruction manual for the main control unit.”

### 4.0 Calibration of Equipment Used for Measurement

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is the manufacturer recommends one year or what 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.

# 5.0 EMISSIONS TEST REGULATIONS

The emissions tests were performed according to following regulations:

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

FCC Part 15, Subpart C, 15.207, 15.209, and 15.249	Code of Federal Regulations, Part 15, Subpart C, Radio Frequency Devices: 2006
----------------------------------------------------	--------------------------------------------------------------------------------

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

Ambient Temperature, °C	22.5 ± 2.5	Relative Humidity, %	45 ± 15	Barometric Pressure, mBar	950 ± 150
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TEST TITLE: Conducted Emissions Test – Mains & I/O Lines

#### METHOD

Measurements were made on a ground plane that extends 1-meter minimum beyond all sides of the system under test. For all equipment, except floor-standing equipment, the EUT was located 40cm from a vertical conducting surface. All power was connected to the system through Line Impedance Stabilization Networks (LISN) and distance between the EUT and the LISN was 80cm or more. Conducted voltage measurements on mains lines were made at the output of the LISN. Conducted Current measurements on I/O lines are made with the current probe.

One fully configured sample was scanned over the following frequency range

Frequency range on each side of line	Measurement Point	
150kHz to 30MHz	Voltage	Mains

Mode*		
Power	Operation	Configuration
1	1	1

\*See Power Interface EUT Operating Modes and Configurations for details

Spectrum Analyzer Settings				
Measurement Frequency	Preliminary Peak Scan		Final Detection	
	Resolution Bandwidth	Video Bandwidth	Quasi-Peak Bandwidth	Average Video Bandwidth
9kHz to 150kHz	10kHz	10kHz	200Hz	1Hz
150kHz to 30MHz	100kHz	100kHz	9kHz	1Hz

The following test parameters shall be established prior to test.

Parameter	Value	Units
Laboratory Ambient Temperature	10 to 40	°C
Relative Humidity	10 to 90	%

#### Section 15.207 Limits

Frequency (MHz)	Limit (dBμV)	
	Quasi-Peak	Average
0.15-0.5	66-56	56-46
0.5-5	56	46
5-30	60	50

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## RESULTS

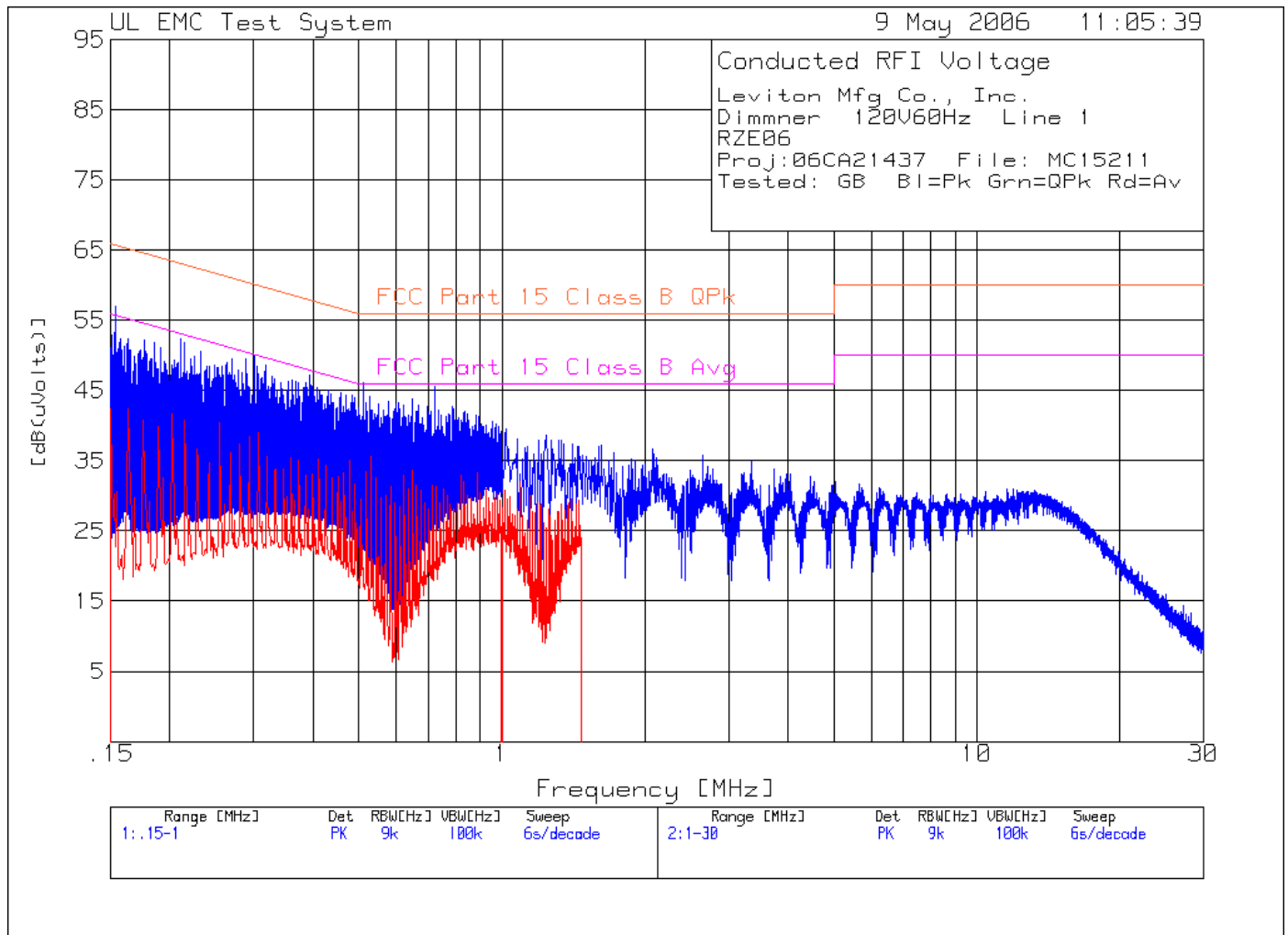
Ambient Conditions at the time of test.	Value	Units
Temperature:	20.0	°C
Humidity:	44	%RH
Pressure:	1013	Mbar
Test Date	09 May 2006	

The results of this test **complied** with the requirements.

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Receiver	Rohde & Schwartz	ESIB 26	ME5B-081	11 Oct 05	31 Oct 06
50Ω LISN	Solar Electronics	9252-50-R-24-BNC	ME5A-636	20 Oct 05	31 Oct 06
Transient Limiter	Hewlett Packard	11947A	ME5A-443	25 Jan 06	31 Jan 07
Hygrometer/Temp/Barometer	Cole -Parmer	99760-00	ME4-268	28 Jun 05	30 Jun 06

Test Accessories Used					
Description	Manufacturer	Model	Identifier	Char/ Valid Date	Due
Measurement Software	UL	UL EMI Software	Version 9.3	01 Feb 06	NA





Leviton Mfg Co., Inc.  
Dimmer 120V60Hz Line 1  
RZE06  
Proj:06CA21437 File: MC15211  
Tested: GB Bl=Pk Grn=QPk Rd=Av

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4
=====									
Range: 1 .15 - 1MHz -----									
1	.15017	41.15 pk	10	0	51.15	66	56	-	-
				Margin [dB]		-14.85	-4.85	-	-
2	.16275	41.69 pk	10	0	51.69	65.3	55.3	-	-
				Margin [dB]		-13.61	-3.61	-	-
3	.17618	39.62 pk	10	0	49.62	64.7	54.7	-	-
				Margin [dB]		-15.08	-5.08	-	-
4	.1891	34.51 pk	10	0	44.51	64.1	54.1	-	-
				Margin [dB]		-19.59	-9.59	-	-
5	.20219	38.58 pk	10	0	48.58	63.5	53.5	-	-
				Margin [dB]		-14.92	-4.92	-	-
6	.2146	41.86 pk	10	0	51.86	63	53	-	-
				Margin [dB]		-11.14	-1.14	-	-
7	.15	32.33 ave	10	0	42.33	66	56	-	-
				Margin [dB]		-23.67	-13.67	-	-
8	.176	30.8 ave	10	0	40.8	64.7	54.7	-	-
				Margin [dB]		-23.9	-13.9	-	-
9	.189	29.82 ave	10	0	39.82	64.1	54.1	-	-
				Margin [dB]		-24.28	-14.28	-	-
10	.202	31.58 ave	10	0	41.58	63.5	53.5	-	-
				Margin [dB]		-21.92	-11.92	-	-
11	.215	30.81 ave	10	0	40.81	63	53	-	-
				Margin [dB]		-22.19	-12.19	-	-
12	.307	28.91 ave	10	0	38.91	60.1	50.1	-	-
				Margin [dB]		-21.19	-11.19	-	-
13	.36	25.47 ave	10	0	35.47	58.7	48.7	-	-
				Margin [dB]		-23.23	-13.23	-	-
14	.412	25.33 ave	10	0	35.33	57.6	47.6	-	-
				Margin [dB]		-22.27	-12.27	-	-
15	.53	25.65 ave	10	0	35.65	56	46	-	-
				Margin [dB]		-20.35	-10.35	-	-
16	.648	23.63 ave	10	0	33.63	56	46	-	-
				Margin [dB]		-22.37	-12.37	-	-

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

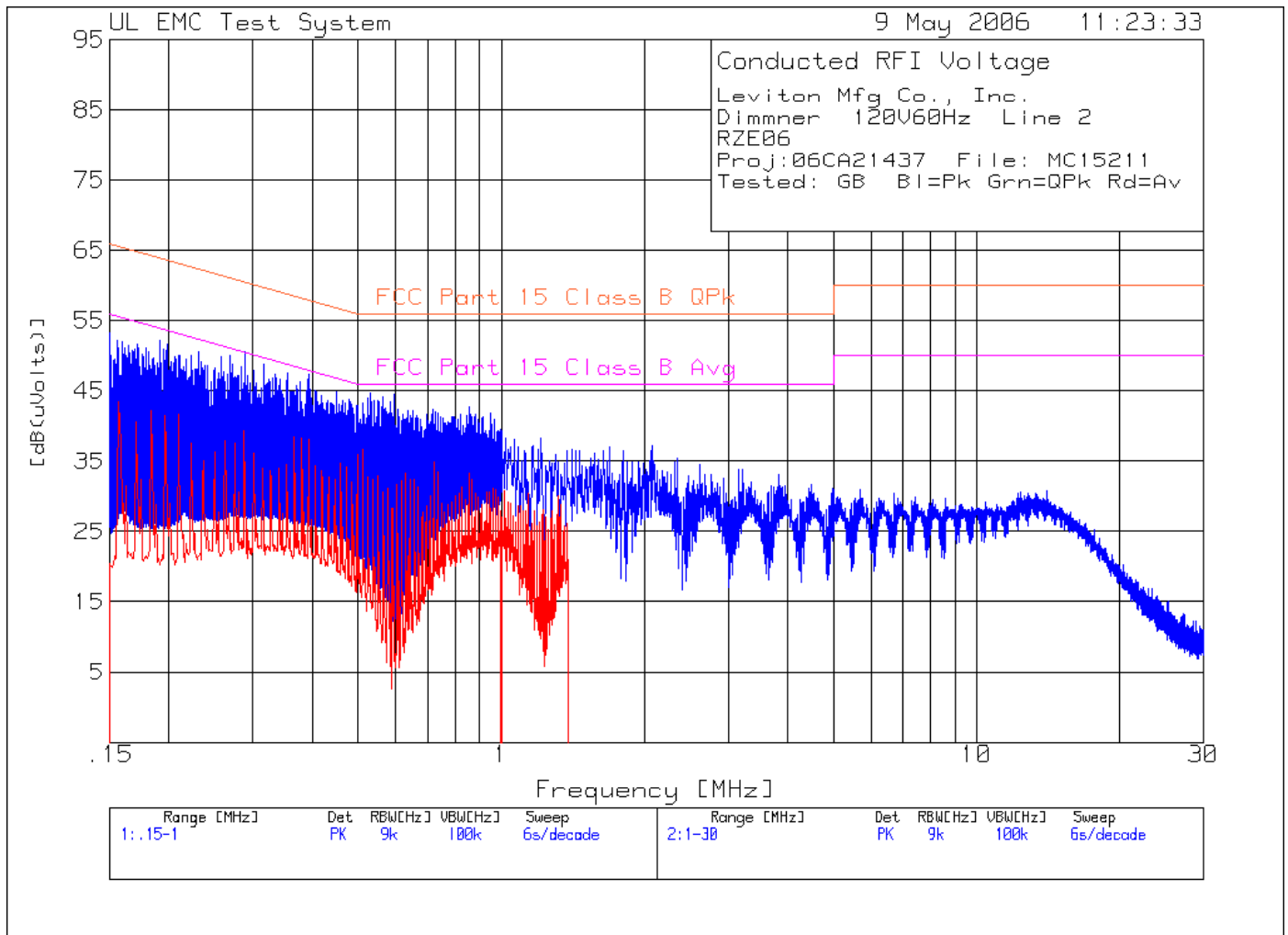
pk - Peak detector  
qp - Quasi-Peak detector  
av - Average detector  
avlg - denotes average log detection  
ave - denotes average detection  
tm - Trace Math Result

Leviton Mfg Co., Inc.  
Dimmer 120V60Hz Line 1  
RZE06  
Proj:06CA21437 File: MC15211  
Tested: GB Bl=Pk Grn=QPk Rd=Av

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4
=====									
Range: 1 .15 - 1MHz -----									
17	.30742	37.42 pk	10	0	47.42	60	50	-	-
				Margin [dB]		-12.58	-2.58	-	-
18	.3591	33.69 pk	10	0	43.69	58.7	48.7	-	-
				Margin [dB]		-15.01	-5.01	-	-
19	.41197	33.63 pk	10	0	43.63	57.6	47.6	-	-
				Margin [dB]		-13.97	-3.97	-	-
20	.52723	34.15 pk	10	0	44.15	56	46	-	-
				Margin [dB]		-11.85	-1.85	-	-
21	.64232	31.24 pk	10	0	41.24	56	46	-	-
				Margin [dB]		-14.76	-4.76	-	-
22	.81929	30.96 pk	9.9	0	40.86	56	46	-	-
				Margin [dB]		-15.14	-5.14	-	-
23	.95359	30.59 pk	10	0	40.59	56	46	-	-
				Margin [dB]		-15.41	-5.41	-	-
24	.819	23.09 ave	9.9	0	32.99	56	46	-	-
				Margin [dB]		-23.01	-13.01	-	-
25	.953	18.94 ave	10	0	28.94	56	46	-	-
				Margin [dB]		-27.06	-17.06	-	-
Range: 1 1 - 30MHz -----									
26	1.093	22.08 ave	9.9	0	31.98	56	46	-	-
				Margin [dB]		-24.02	-14.02	-	-
27	1.186	19.14 ave	9.9	0	29.04	56	46	-	-
				Margin [dB]		-26.96	-16.96	-	-
28	1.331	18.86 ave	9.9	0	28.76	56	46	-	-
				Margin [dB]		-27.24	-17.24	-	-
29	1.09282	23.26 pk	9.9	0	33.16	56	46	-	-
				Margin [dB]		-22.84	-12.84	-	-
30	1.18564	24.86 pk	9.9	0	34.76	56	46	-	-
				Margin [dB]		-21.24	-11.24	-	-
31	1.33067	28.05 pk	9.9	0	37.95	56	46	-	-
				Margin [dB]		-18.05	-8.05	-	-

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 - denotes average log detection  
ave - denotes average detection  
tm - Trace Math Result



Leviton Mfg Co., Inc.  
Dimmer 120V60Hz Line 2  
RZE06  
Proj:06CA21437 File: MC15211  
Tested: GB Bl=Pk Grn=QPk Rd=Av

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4
=====									
Range: 1 .15 - 1MHz -----									
1	.15544	42.18 pk	10	0	52.18	65.7	55.7	-	-
				Margin [dB]		-13.52	-3.52	-	-
2	.19811	41.72 pk	10	0	51.72	63.7	53.7	-	-
				Margin [dB]		-11.98	-1.98	-	-
3	.28923	40.73 pk	9.9	0	50.63	60.5	50.5	-	-
				Margin [dB]		-9.87	.13	-	-
4	.39361	37.34 pk	10	0	47.34	58	48	-	-
				Margin [dB]		-10.66	-.66	-	-
5	.51023	31.64 pk	10	0	41.64	56	46	-	-
				Margin [dB]		-14.36	-4.36	-	-
6	.52893	34.61 pk	10	0	44.61	56	46	-	-
				Margin [dB]		-11.39	-1.39	-	-
7	.59642	34.44 pk	10	0	44.44	56	46	-	-
				Margin [dB]		-11.56	-1.56	-	-
8	.6974	31.77 pk	9.9	0	41.67	56	46	-	-
				Margin [dB]		-14.33	-4.33	-	-
9	.7263	31.99 pk	10	0	41.99	56	46	-	-
				Margin [dB]		-14.01	-4.01	-	-
10	.85533	32.68 pk	10	0	42.68	56	46	-	-
				Margin [dB]		-13.32	-3.32	-	-
11	.96821	31.1 pk	9.9	0	41	56	46	-	-
				Margin [dB]		-15	-5	-	-
Range: 1 1 - 30MHz -----									
12	1.02321	28.43 pk	9.9	0	38.33	56	46	-	-
				Margin [dB]		-17.67	-7.67	-	-
13	1.06381	28.24 pk	9.9	0	38.14	56	46	-	-
				Margin [dB]		-17.86	-7.86	-	-
14	1.16824	27.27 pk	9.9	0	37.17	56	46	-	-
				Margin [dB]		-18.83	-8.83	-	-

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 - denotes average log detection  
ave - denotes average detection  
tm - Trace Math Result

Leviton Mfg Co., Inc.  
Dimmer 120V60Hz Line 2  
RZE06  
Proj:06CA21437 File: MC15211  
Tested: GB Bl=Pk Grn=QPk Rd=Av

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4
15	1.20884	28.43 pk	9.9	0	38.33	56	46	-	-
				Margin [dB]		-17.67	-7.67	-	-
16	1.31907	24.97 pk	9.9	0	34.87	56	46	-	-
				Margin [dB]		-21.13	-11.13	-	-
17	1.017	20.87 ave	9.9	0	30.77	56	46	-	-
				Margin [dB]		-25.23	-15.23	-	-
18	1.057	17.37 ave	9.9	0	27.27	56	46	-	-
				Margin [dB]		-28.73	-18.73	-	-
19	1.175	18.03 ave	9.9	0	27.93	56	46	-	-
				Margin [dB]		-28.07	-18.07	-	-
20	1.215	17.57 ave	9.9	0	27.47	56	46	-	-
				Margin [dB]		-28.53	-18.53	-	-
21	1.32	20.08 ave	9.9	0	29.98	56	46	-	-
				Margin [dB]		-26.02	-16.02	-	-
22	.157	33.46 ave	10	0	43.46	65.6	55.6	-	-
				Margin [dB]		-22.14	-12.14	-	-
23	.183	32.25 ave	10	0	42.25	64.3	54.3	-	-
				Margin [dB]		-22.05	-12.05	-	-
24	.288	29.29 ave	10	0	39.29	60.6	50.6	-	-
				Margin [dB]		-21.31	-11.31	-	-
25	.38	28.27 ave	10	0	38.27	58.3	48.3	-	-
				Margin [dB]		-20.03	-10.03	-	-
26	.511	26.64 ave	10	0	36.64	56	46	-	-
				Margin [dB]		-19.36	-9.36	-	-
27	.511	26.64 ave	10	0	36.64	56	46	-	-
				Margin [dB]		-19.36	-9.36	-	-
28	.603	21.72 ave	10	0	31.72	56	46	-	-
				Margin [dB]		-24.28	-14.28	-	-
29	.668	21.26 ave	10	0	31.26	56	46	-	-
				Margin [dB]		-24.74	-14.74	-	-
30	.721	24.92 ave	10	0	34.92	56	46	-	-
				Margin [dB]		-21.08	-11.08	-	-

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 - denotes average log detection  
ave - denotes average detection  
tm - Trace Math Result

Leviton Mfg Co., Inc.  
Dimmer 120V60Hz Line 2  
RZE06  
Proj:06CA21437 File: MC15211  
Tested: GB Bl=Pk Grn=QPk Rd=Av

Test No.	Meter Frequency [MHz]	Gain/Loss Reading [dB(uV)]	Transducer Factor [dB]	Level Factor [dB]	Limit:1 [dB(uVolts)]	2	3	4
=====								
Range: 1 .15 - 1MHz -----								
31	.854	23.46 ave	9.9	0	33.36	56	46	-
				Margin [dB]		-22.64	-12.64	-
32	.959	21.11 ave	10	0	31.11	56	46	-
				Margin [dB]		-24.89	-14.89	-

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 - denotes average log detection  
ave - denotes average detection  
tm - Trace Math Result

Project Number: 06CA21437  
Model Number: RZE06  
FCC ID: QGH-RZE06

File Number MC15211

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**Model RZE06**

### **Conducted Emissions Test Set-Up**



TEST TITLE: Radiated Emissions Test

## METHOD

Measurements were made in a 10-meter semi-anechoic chamber that complies to 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 1, 2, 3 and 4 meter 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.

One fully configured sample was scanned over the following frequency range:

Electric fields:	30MHz - 1GHz	(3 meter measurement distance)
	1GHz - 10GHz	(3 meter measurement distance)

Mode*		
Power	Operation	Configuration
1	1 & 2	1

\*See Power Interface EUT Operating Modes and Configurations for details

Spectrum Analyzer Settings				
Measurement Frequency	Preliminary Peak Scan		Final Detection	
	Resolution Bandwidth	Video Bandwidth	Quasi-Peak Bandwidth	Average Video Bandwidth
9kHz to 150kHz	10kHz	1MHz	200Hz	1Hz
150kHz to 30MHz	100kHz	1MHz	9kHz	1Hz
30 to 1000MHz	1MHz	1MHz	120kHz	1Hz

The following test parameters shall be established prior to test.

Parameter	Value	Units
Laboratory Ambient Temperature	10 to 40	°C
Relative Humidity	10 to 90	%

## Section 15.209 Limits: Spurious Emissions

Frequency (MHz)	Limit (dBμV/m)	
	Quasi-Peak	Average
30-88	40	-
88-216	43.5	-
216-960	46	-
960-10000	-	54

Project Number: 06CA21437  
 Model Number: RZE06  
 FCC ID: QGH-RZE06

File Number MC15211

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Limits 15.249 (a): Fundamental & Harmonics

Frequency (MHz)	Limit (dB $\mu$ V/m)	
	Quasi-Peak	Average
908.42	94	-
908-1000	54	-
1000-10000	-	54

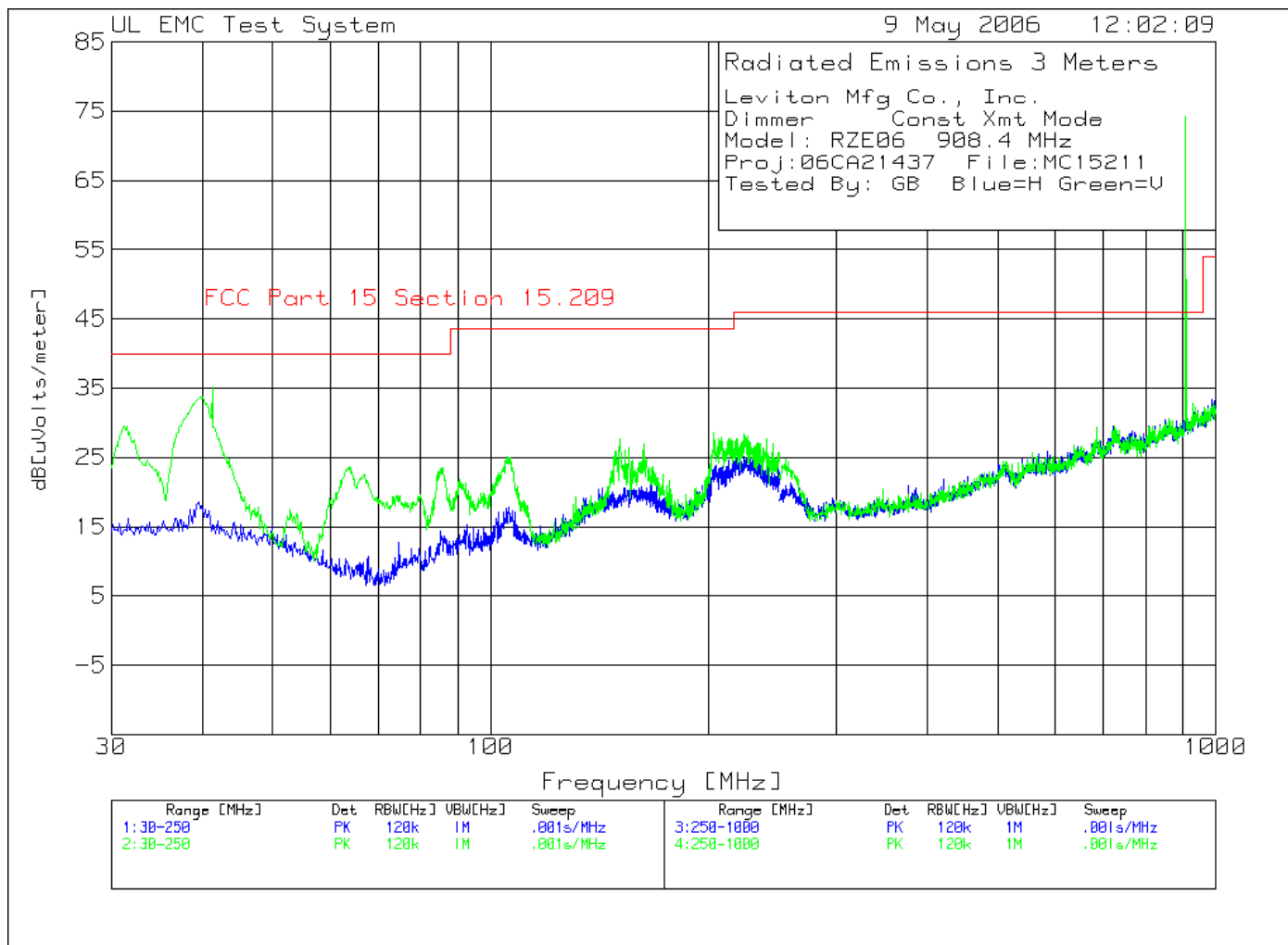
RESULTS

Ambient Conditions at the time of test.	Value	Units
Temperature:	20.0	°C
Humidity:	44	%RH
Pressure:	1013	Mbar
Test Date	09 May 2006	

The results of this test **complied** with the requirements.

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Receiver	Rohde & Schwartz	ESIB 40	34968	28 Nov 05	28 Nov 06
Biconical Antenna	Ailtech	94455-1	ME5-439	14 Dec 05	31 Dec 06
Log Periodic Antenna	EMCO	3146	ME5-451	19 Dec 05	31 Dec 06
Horn Antenna	Electro-metrics	RGA-180	ME5-565	20 Jul 05	31 Jul 06
Hygrometer/Temp/Baro meter	Cole-Parmer	99760-00	ME4-268	28 Jun 05	30 Jun 06

Test Accessories Used					
Description	Manufacturer	Model	Identifier	Char/ Valid Date	Due
1-26GHz Pre-Amp	Hewlett Packard	8449B	ME5-914	12 Sept. 05	30 Sept. 06
Measurement Software	UL	UL EMI Software	Version 9.3	01 Feb 06	NA



Leviton Mfg Co., Inc.  
 Dimmer Const Xmt Mode  
 Model: RZE06 908.4 MHz  
 Proj:06CA21437 File:MC15211  
 Tested By: GB Blue=H Green=V

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4
=====									
Vertical 30 - 250MHz -----									
1	31.4676	15.44 pk	.3	13.8	29.54	40	-	-	-
	Azimuth:86	Height:101	Vert	Margin [dB]		-10.46	-	-	-
2	41.3009	21.32 pk	.3	13.5	35.12	40	-	-	-
	Azimuth:18	Height:101	Vert	Margin [dB]		-4.88	-	-	-
3	105.437	13.65 pk	.8	10.6	25.05	43.5	-	-	-
	Azimuth:43	Height:101	Vert	Margin [dB]		-18.45	-	-	-
4	150.6404	10.55 pk	1	16.2	27.75	43.5	-	-	-
	Azimuth:343	Height:101	Vert	Margin [dB]		-15.75	-	-	-
Horizontal 250 - 1000MHz -----									
5	908.439	45.77 pk	3.5	22.5	71.77	46	94	-	-
	Azimuth:58	Height:247	Horz	Margin [dB]		25.77	-22.23	-	-
Vertical 250 - 1000MHz -----									
6	908.439	48.19 pk	3.5	22.5	74.19	46	94	-	-
	Azimuth:167	Height:101	Vert	Margin [dB]		28.19	-19.81	-	-

LIMIT 1: FCC Part 15 Class B  
 LIMIT 2: FCC Part 15 Section 15.249

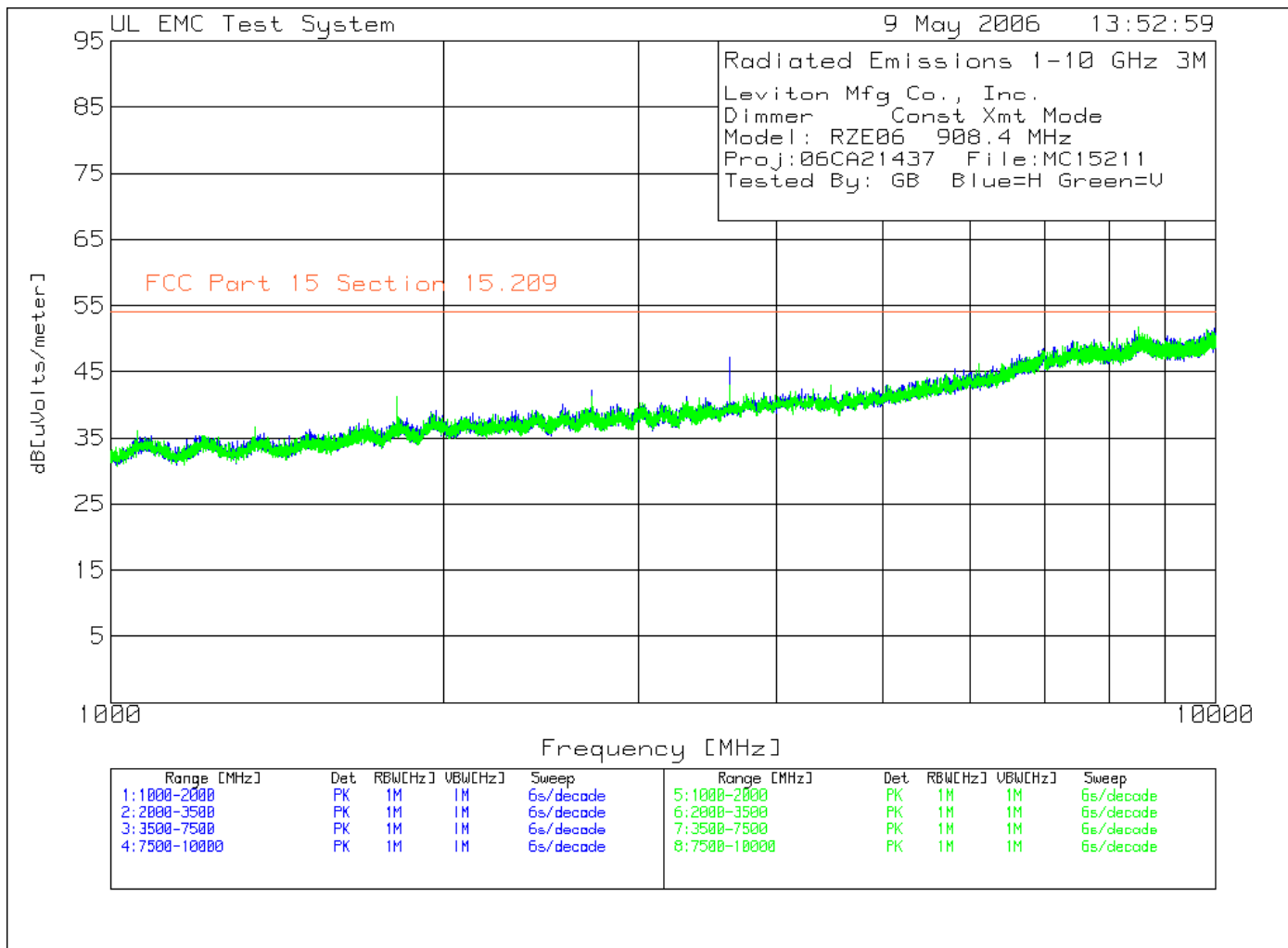
pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector  
 avlg - denotes average log detection  
 ave - denotes average detection  
 tm - Trace Math Result

Leviton Mfg Co., Inc.  
Dimmer Const Xmt Mode  
Model: RZE06 908.4 MHz  
Proj:06CA21437 File:MC15211  
Tested By: GB Blue=H Green=V

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4
Frequency	Reading	Factor	Factor	dB[uVolts/meter]				
[MHz]	[dB(uV)]	[dB]	[dB]					
=====								
Vertical 30 - 250MHz								
41.3	15.19 qp	.3	13.5	28.99	40	-	-	-
Azimuth: 87	Height:103	Vert	Margin [dB]:		-11.01	-	-	-
Vertical 250 - 1000MHz								
908.3893	49.93 qp	3.5	22.5	75.93	46	94	-	-
Azimuth: 328	Height:121	Vert	Margin [dB]:		29.93	-18.07	-	-

LIMIT 1: FCC Part 15 Class B  
LIMIT 1: FCC Part 15 Section 15.249

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



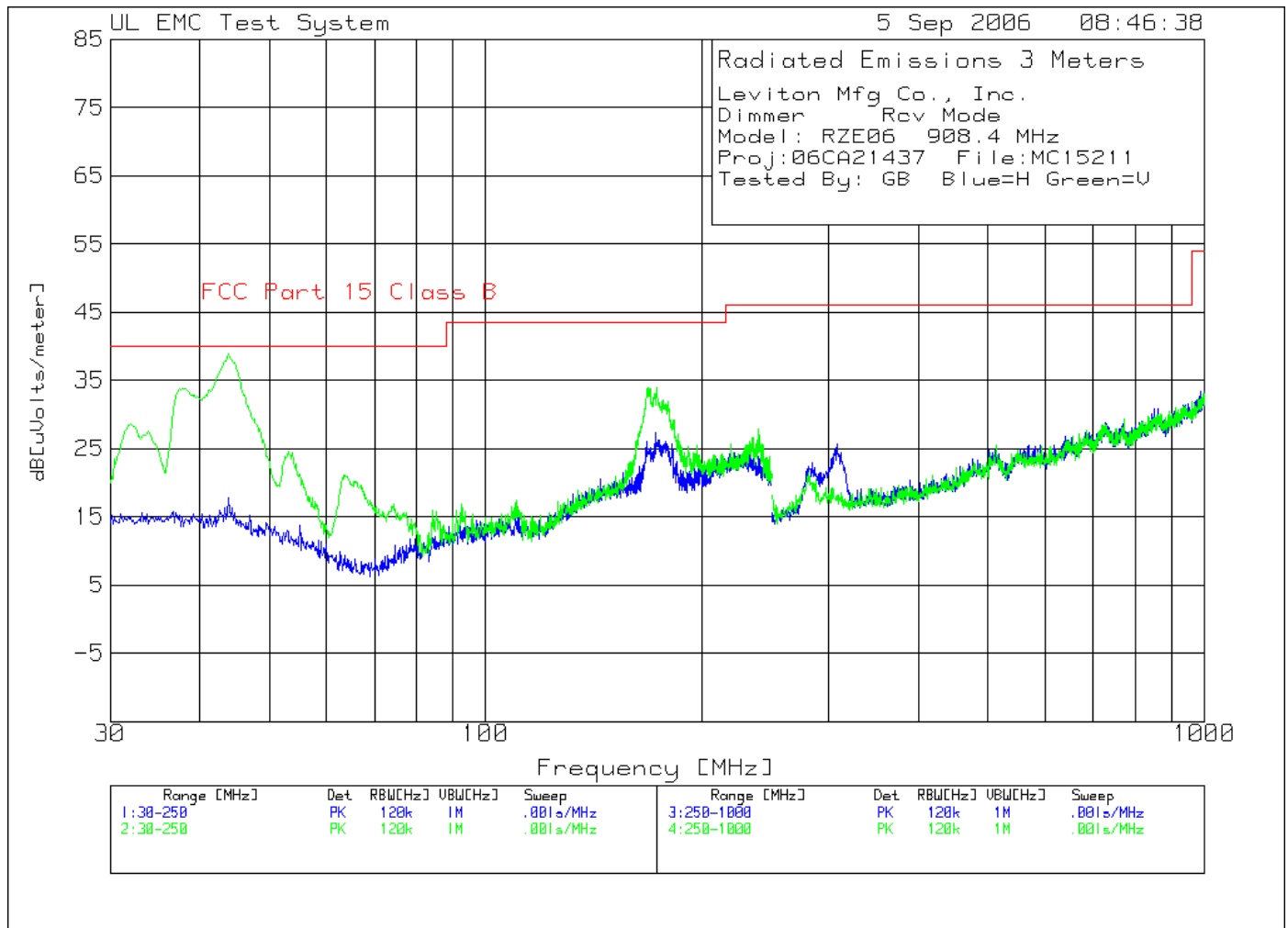
Project Number: 06CA21437 File Number MC15211 Page 31 of 52  
 Model Number: RZE06  
 FCC ID: QGH-RZE06

Leviton Mfg Co., Inc.  
 Dimmer Const Xmt Mode  
 Model: RZE06 908.4 MHz  
 Proj:06CA21437 File:MC15211  
 Tested By: GB Blue=H Green=V

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4
Frequency	Reading	Factor	Factor	dB[uVolts/meter]				
[MHz]	[dB(uV)]	[dB]	[dB]					
=====								
Horizontal 1000 - 2000MHz								
1816.9	38.49 ave	-28.8	26.6	36.29	54	-	-	-
Azimuth: 155	Height:102	Horz	Margin	[dB]:	-17.71	-	-	-
Horizontal 2000 - 3500MHz								
2725.2818	39.1 ave	-27.7	29.3	40.7	54	-	-	-
Azimuth: 4	Height:154	Horz	Margin	[dB]:	-13.3	-	-	-
Horizontal 3500 - 7500MHz								
3633.5949	40.43 ave	-26.6	31.6	45.43	54	-	-	-
Azimuth: 63	Height:122	Horz	Margin	[dB]:	-8.57	-	-	-
Horizontal 7500 - 10000MHz								
8163	26.2 ave	-20	37.1	43.3	54	-	-	-
Azimuth: 202	Height:144	Horz	Margin	[dB]:	-10.7	-	-	-
8437	25.82 ave	-19.1	37.4	44.12	54	-	-	-
Azimuth: 105	Height:162	Horz	Margin	[dB]:	-9.88	-	-	-
Vertical 1000 - 2000MHz								
1816.9	39.5 ave	-28.8	26.6	37.3	54	-	-	-
Azimuth: 233	Height:129	Vert	Margin	[dB]:	-16.7	-	-	-
Vertical 2000 - 3500MHz								
2725.1879	39.65 ave	-27.7	29.3	41.25	54	-	-	-
Azimuth: 323	Height:143	Vert	Margin	[dB]:	-12.75	-	-	-
Vertical 3500 - 7500MHz								
3634	30.96 ave	-26.6	31.6	35.96	54	-	-	-
Azimuth: 4	Height:125	Vert	Margin	[dB]:	-18.04	-	-	-
Vertical 7500 - 10000MHz								
8139	26.15 ave	-20	37.1	43.25	54	-	-	-
Azimuth: 274	Height:119	Vert	Margin	[dB]:	-10.75	-	-	-
8503	26.21 ave	-18.9	37.5	44.81	54	-	-	-
Azimuth: 97	Height:116	Vert	Margin	[dB]:	-9.19	-	-	-

LIMIT 1: FCC Part 15 Section 15.249

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





Leviton Mfg Co., Inc.  
 Dimmer Rcv Mode  
 Model: RZE06 908.4 MHz  
 Proj:06CA21437 File:MC15211  
 Tested By: GB Blue=H Green=V

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4
=====									
Vertical 30 - 250MHz -----									
1	32.0547	14.41 pk	.3	13.9	28.61	40	-	-	-
	Azimuth:190	Height:101	Vert	Margin [dB]		-11.39	-	-	-
2	38.2188	19.72 pk	.3	13.8	33.82	40	-	-	-
	Azimuth:37	Height:101	Vert	Margin [dB]		-6.18	-	-	-
3	43.7959	25.36 pk	.4	13.1	38.86	40	-	-	-
	Azimuth:304	Height:101	Vert	Margin [dB]		-1.14	-	-	-
4	53.042	13.29 pk	.5	10.7	24.49	40	-	-	-
	Azimuth:344	Height:101	Vert	Margin [dB]		-15.51	-	-	-
5	168.1054	17.25 pk	1.1	15.6	33.95	43.5	-	-	-
	Azimuth:66	Height:101	Vert	Margin [dB]		-9.55	-	-	-
6	239.4329	6.65 pk	1.3	19.9	27.85	46	-	-	-
	Azimuth:14	Height:101	Vert	Margin [dB]		-18.15	-	-	-

LIMIT 1: FCC Part 15 Class B

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

Leviton Mfg Co., Inc.  
 Dimmer Rcv Mode  
 Model: RZE06 908.4 MHz  
 Proj:06CA21437 File:MC15211  
 Tested By: GB Blue=H Green=V

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4
Frequency	Reading	Factor	Factor	dB[uVolts/meter]				
[MHz]	[dB(uV)]	[dB]	[dB]					
=====								
Vertical 30 - 250MHz								
43.8309	22.87 qp	.4	13.1	36.37	40	-	-	-
Azimuth: 183	Height:102	Vert	Margin [dB]:		-3.63	-	-	-
38.2	20.63 pk	.3	13.8	34.73	40	-	-	-
Azimuth: 151	Height:109	Vert	Margin [dB]:		-5.27	-	-	-

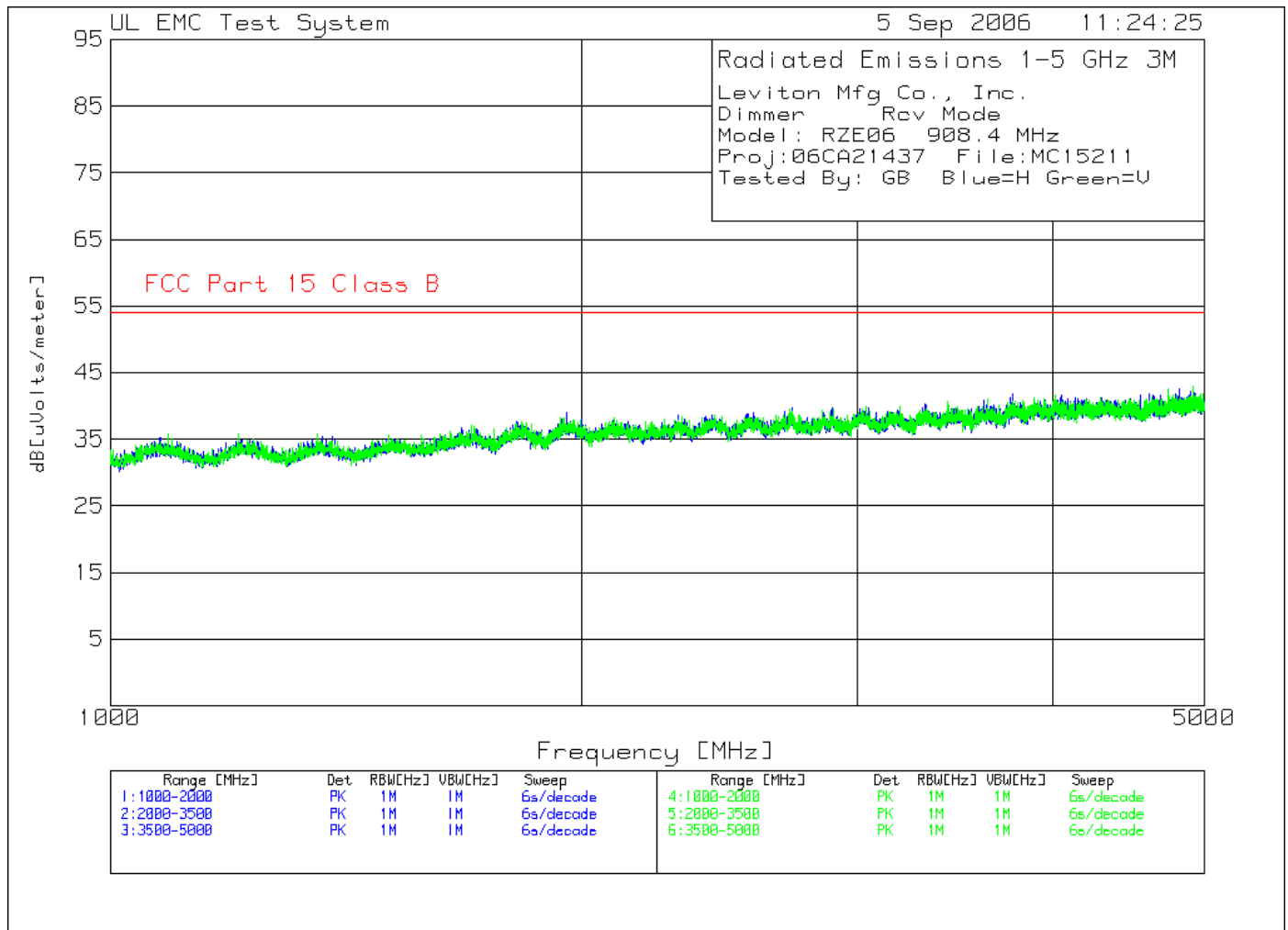
LIMIT 1: FCC Part 15 Class B

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 av - Average detector  
 avlg - Average log detector  
 ave - Average detector

Project Number: 06CA21437  
Model Number: RZE06  
FCC ID: QGH-RZE06

File Number MC15211

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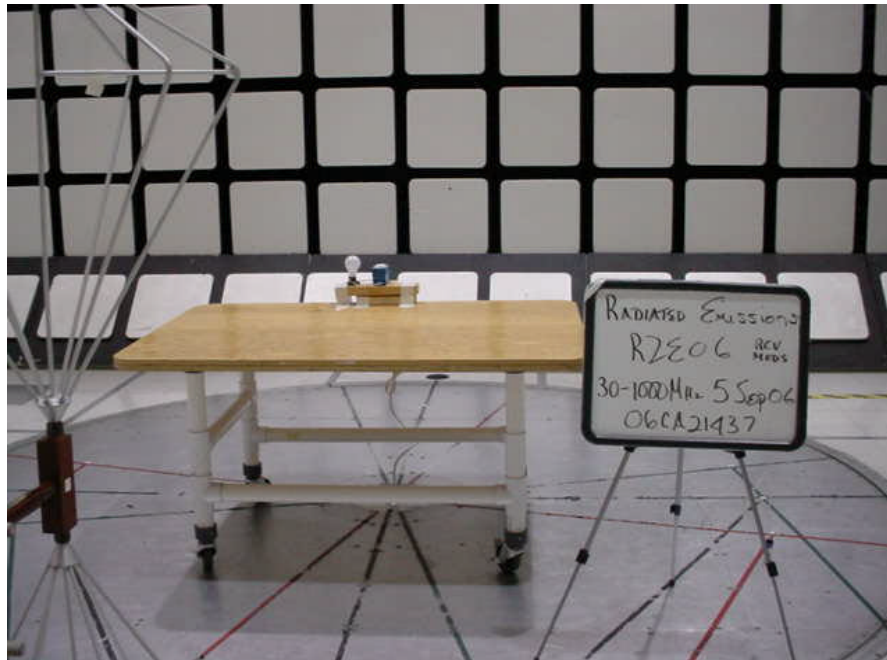
Project Number: 06CA21437 File Number MC15211 Page 36 of 52  
Model Number: RZE06  
FCC ID: QGH-RZE06

Leviton Mfg Co., Inc.  
Dimmer Rcv Mode  
Model: RZE06 908.4 MHz  
Proj:06CA21437 File:MC15211  
Tested By: GB Blue=H Green=V

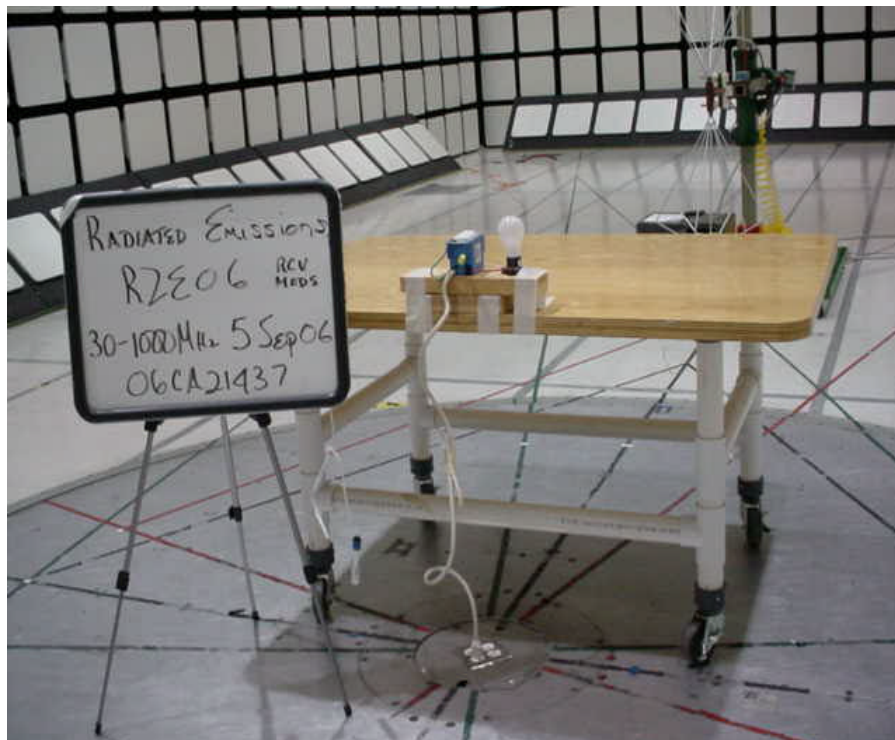
No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4
=====									
Horizontal 1000 - 2000MHz -----									
3	1957.986	40.28 pk	-28.5	27.2	38.98	54	-	-	-
	Azimuth:221	Height:101	Horz	Margin [dB]		-15.02	-	-	-
Horizontal 2000 - 3500MHz -----									
4	2555.685	37.95 pk	-27.9	28.8	38.85	54	-	-	-
	Azimuth:179	Height:101	Horz	Margin [dB]		-15.15	-	-	-
5	2891.297	37.46 pk	-27.6	29.8	39.66	54	-	-	-
	Azimuth:225	Height:101	Horz	Margin [dB]		-14.34	-	-	-
Horizontal 3500 - 5000MHz -----									
6	3770.59	36.06 pk	-26.3	32	41.76	54	-	-	-
	Azimuth:359	Height:101	Horz	Margin [dB]		-12.24	-	-	-
Vertical 1000 - 2000MHz -----									
1	1088.363	42.89 pk	-31.5	24.4	35.79	54	-	-	-
	Azimuth:166	Height:101	Vert	Margin [dB]		-18.21	-	-	-
2	1208.403	42.18 pk	-31	24.6	35.78	54	-	-	-
	Azimuth:17	Height:101	Vert	Margin [dB]		-18.22	-	-	-

LIMIT 1: FCC Part 15 Class B

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av - Average detector  
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ave - denotes average detection  
tm - Trace Math Result

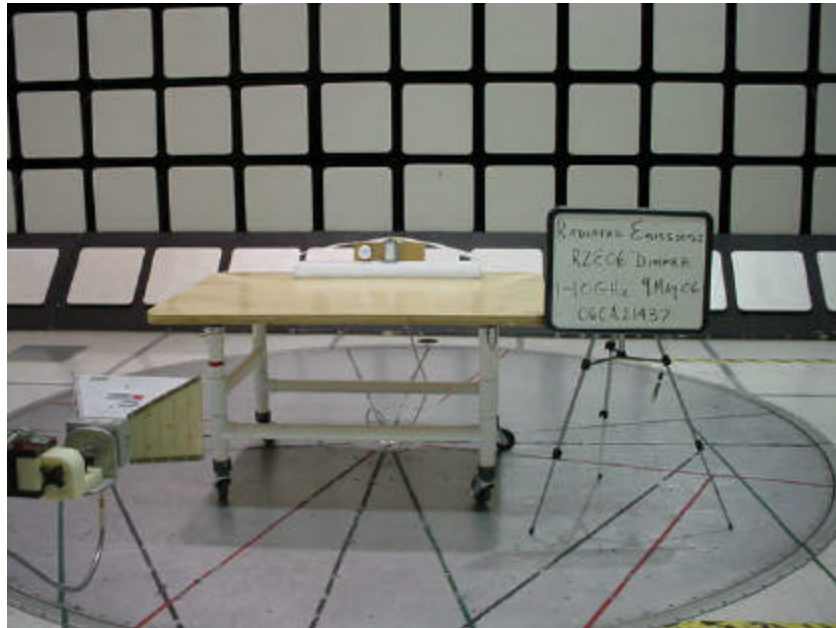


**Model RZE06 – Front View 30-1000MHz**

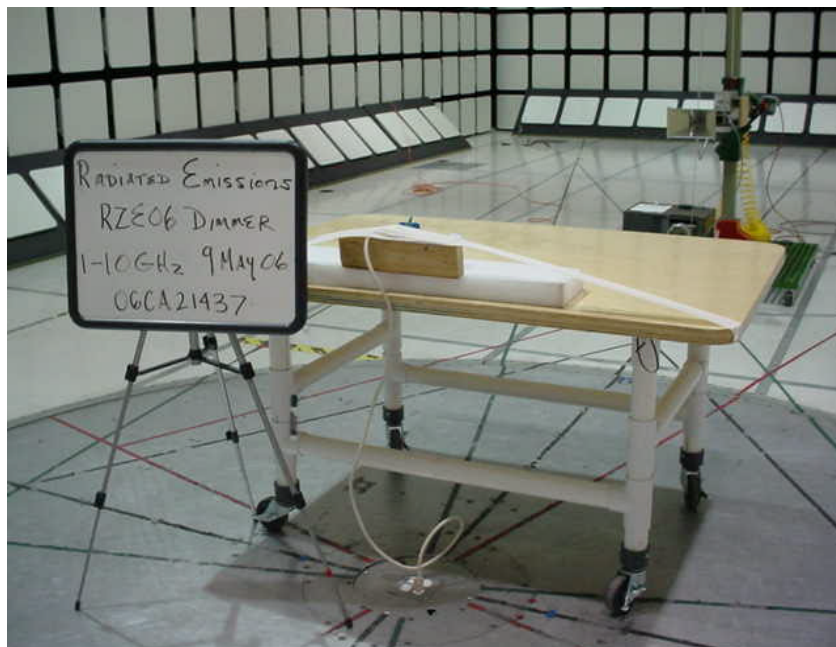


**Model RZE06 – Rear View 30-1000MHz**

**Radiated Emissions Test Set-up**



**Model RZE06 – Front View 1-10GHz**



**Model RZE06 – Rear View 1-10GHz**

**Radiated Emissions Test Set-up**

TEST TITLE: Occupied Bandwidth

METHOD

The bandwidth of the emissions shall be no wider than 0.99% of the center frequency for the devices operating at 908.42 MHz. The bandwidth is determined at the points 20 dB down from the modulated carrier. The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter as either the fundamental frequency or the first order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical. Once the reference level is established, the equipment is conditioned with typical modulating signals to produce the worst-case bandwidth. If no bandwidth requirement is specified by the procuring or regulatory agency, measure the bandwidth at -26 Db with respect to the reference level.

In order to measure the modulated signal properly, a resolution bandwidth that is small compared with the bandwidth required by the procuring or regulatory agency shall be used on the measuring instrument. However, the resolution bandwidth of the measuring instrument shall be set to a value greater than 5% of the bandwidth requirement. When no bandwidth requirements are specified, the minimum resolution bandwidth of the measuring is given in the following table:

Fundamental Frequency	Minimum Resolution Bandwidth
9KHz to 30MHz	1KHz
30 to 1000MHz	10KHz
1000 MHz to 40GHz	100KHz

Bandwidth = (99%) 908.42MHz = 899.3KHz

Mode*		
Power	Operation	Configuration
1	1	1

\*See Power Interface EUT Operating Modes and Configurations for details

The following test parameters shall be established prior to test.

Parameter	Value	Units
Laboratory Ambient Temperature	10 to 40	°C
Relative Humidity	10 to 90	%

Limits		
Frequency (MHz)	Limit KHz	Measured (KHz)
908.42	899.3	462

Results		
Ambient Conditions at the time of test.	Value	Units
Temperature:	20	°C
Humidity:	44	%RH
Pressure:	1012	Mbar
Test Date	10 May 2006	

The results of this test **complied** with the requirements.

Project Number: 06CA21437  
Model Number: RZE06  
FCC ID: QGH-RZE06

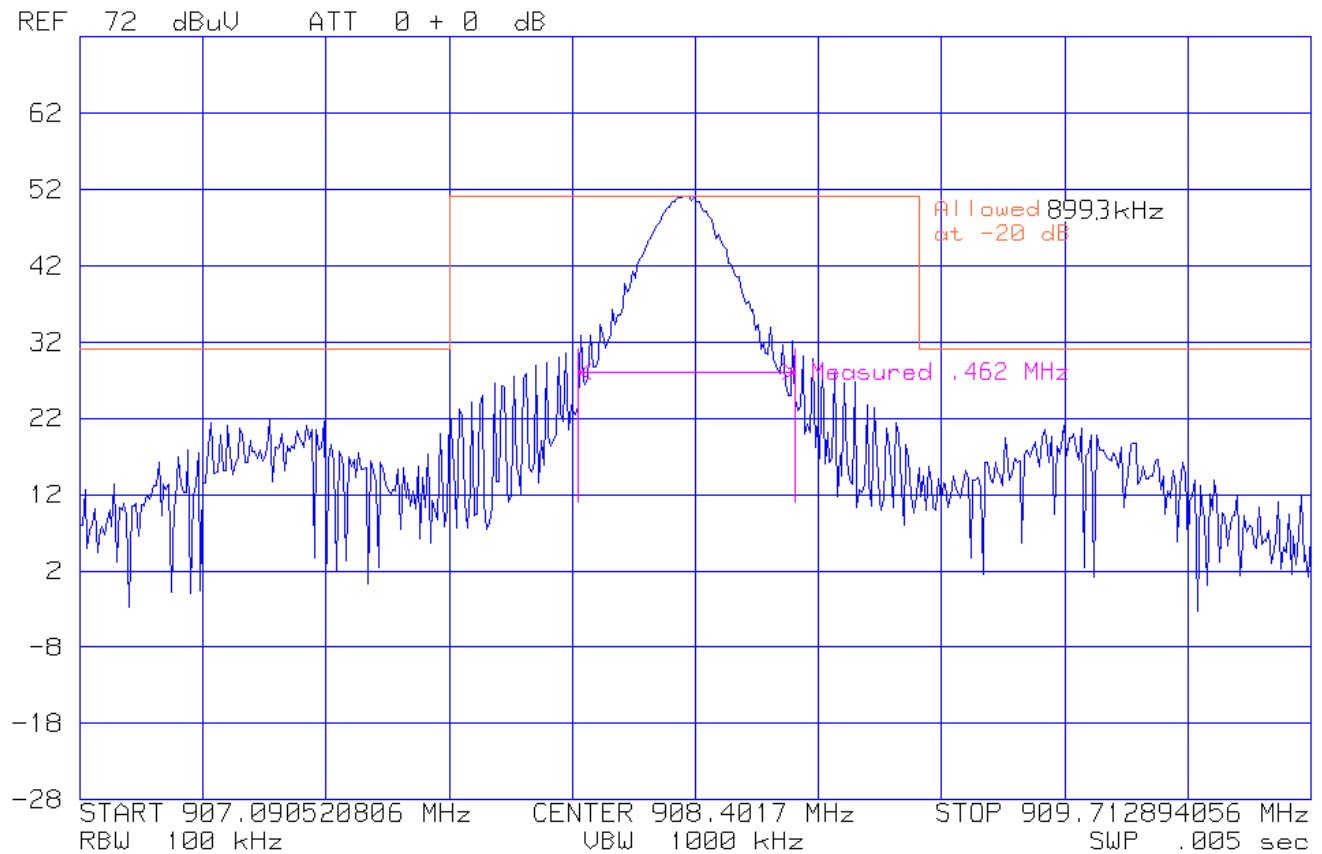
File Number MC15211

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Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Receiver	Rohde & Schwartz	ESIB 26	ME5B-081	11 Oct 05	11 Oct 06
Dipole Antenna	ElectroMetrics	3121C-D134	5751	16 Aug 05	31 Aug 06
Hygrometer/Temp/Barometer	Cole -Parmer	99760-00	ME4-268	28 Jun 05	30 Jun 06

Test Accessories Used					
Description	Manufacturer	Model	Identifier	Char/ Valid Date	Due
Measurement Software	UL	UL EMI Software	Version 9.3	--	NA





### Occupied Bandwidth RZE06



**Model RZE06**

**Occupied Bandwidth Test Set-Up**

TEST TITLE:      Supply Voltage Variation Versus Transmit Output Power

METHOD

For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the minimal rated supply voltage. For battery operated equipment the equipment test shall be performed using a new battery.

Mode*		
Power	Operation	Configuration
1	1	1

\*See Power Interface EUT Operating Modes and Configurations for details

Spectrum Analyzer Settings				
Measurement Frequency	Preliminary Peak Scan		Final Detection	
	Resolution Bandwidth	Video Bandwidth	Quasi-Peak Bandwidth	Average Video Bandwidth
9kHz to 150kHz	10kHz	10kHz	200Hz	1Hz
150kHz to 30MHz	100kHz	100kHz	9kHz	1Hz

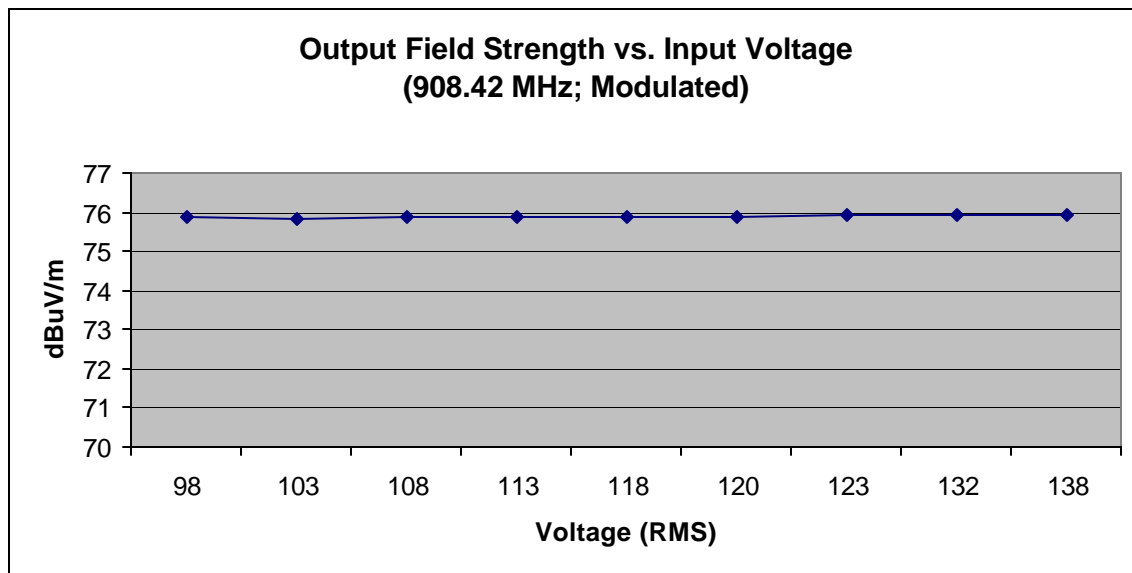
The following test parameters shall be established prior to test.

Parameter	Value	Units
Laboratory Ambient Temperature	10 to 40	°C
Relative Humidity	10 to 90	%

Met the results in FCC Part 2.1055 (4d)

#### 15.249 Limits

Input Voltage Level (RMS) @ 908.42MHz	Measured @ 3 Meters (dB $\mu$ V/m)	Limit @ 3 Meters (dB $\mu$ V/m)	Max Delta @ 3 meters (dB $\mu$ V/m)
98	75.88	94	18.12
103	75.83	94	18.17
108	75.86	94	18.14
113	75.86	94	18.14
118	75.88	94	18.12
120	75.9	94	18.1
123	75.91	94	18.09
132	75.93	94	18.07
138	75.93	94	18.07



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## RESULTS

Ambient Conditions at the time of test.	Value	Units
Temperature:	20	°C
Humidity:	44	%RH
Pressure:	1013	Mbar
Test Date	09 May 2006	

The results of this test **complied** with the requirements.

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Receiver	Rohde & Schwartz	ESIB 40	34968	28 Nov 05	28 Nov 06
Biconical Antenna	Ailtech	94455-1	ME5-439	14 Dec 05	31 Dec 06
Log Periodic Antenna	EMCO	3146	ME5-451	19 Dec 05	31 Dec 06
Horn Antenna	Electro-metrics	RGA-180	ME5-565	20 Jul 05	31 Jul 06
Hygrometer/Temp/Baro meter	Cole-Parmer	99760-00	ME4-268	28 Jun 05	30 Jun 06

Test Accessories Used					
Description	Manufacturer	Model	Identifier	Char/ Valid Date	Due
AC Power Source	Pacific Power	360-AMX	ME7A-626	--	--
1-26GHz Pre-Amp	Hewlett Packard	8449B	ME5-914	12 Sept. 05	30 Sept. 06
Measurement Software	UL	UL EMI Software	Version 9.3	01 Feb 06	NA

TEST TITLE:

Transmission On Time (Duty Cycle)

Paragraph 15.35

METHOD

When the Radiated Limits are expressed in terms of the average value of the emissions, and pulse operation is employed, the pulse measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds (100ms) or in cases where the pulse train exceeds 0.1seconds the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

Mode*		
Power	Operation	Configuration
1	1	1

\*See Power Interface EUT Operating Modes and Configurations for details

Spectrum Analyzer Settings				
Measurement Frequency	Preliminary Peak Scan		Final Detection	
	Resolution Bandwidth	Video Bandwidth	Quasi-Peak Bandwidth	Average Video Bandwidth
9kHz to 150kHz	10kHz	10kHz	200Hz	1Hz
150kHz to 30MHz	100kHz	100kHz	9kHz	1Hz

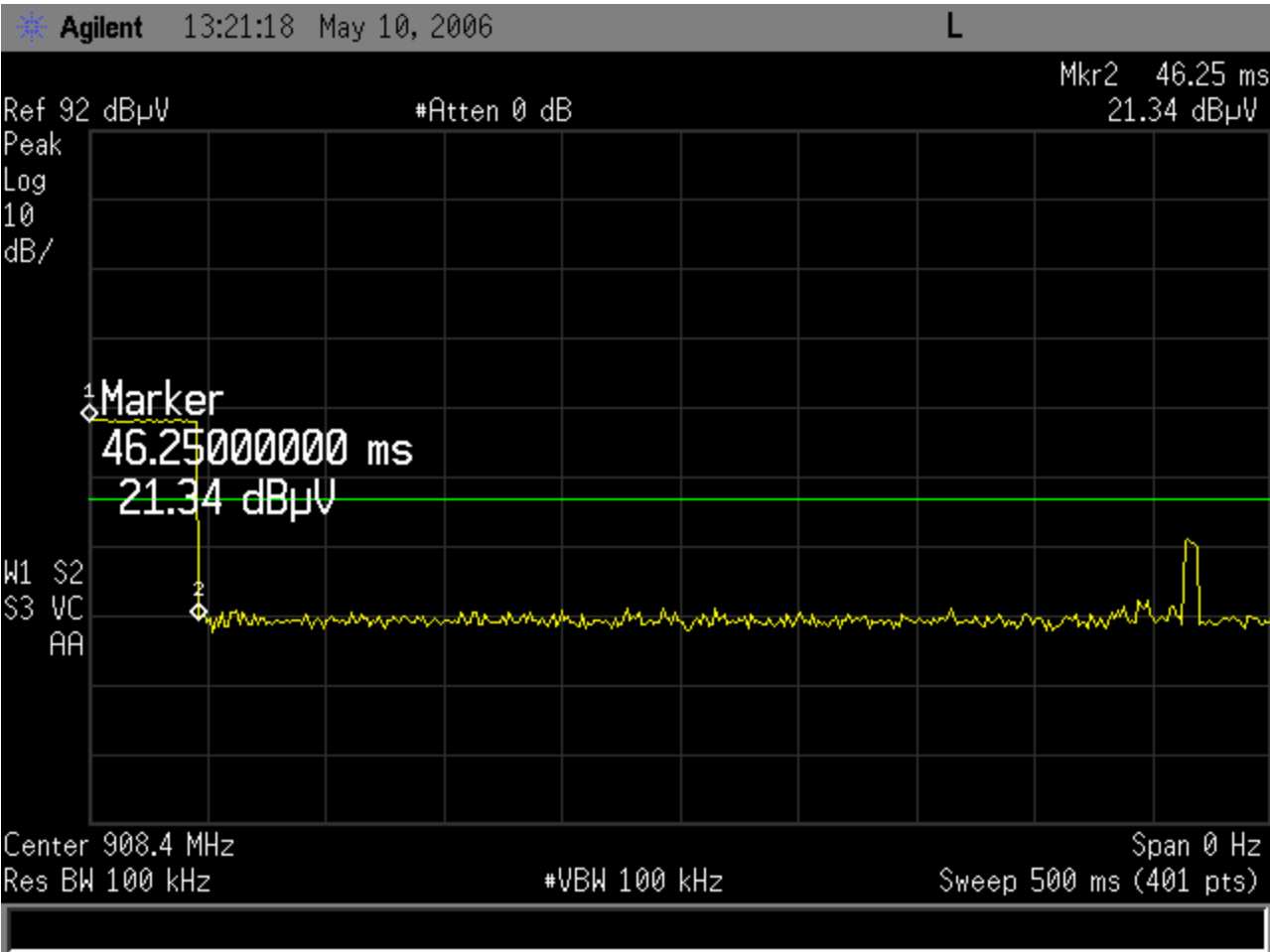
The following test parameters shall be established prior to test.

Parameter	Value	Units
Laboratory Ambient Temperature	10 to 40	°C
Relative Humidity	10 to 90	%

RESULTS

Ambient Conditions at the time of test.	Value	Units
Temperature:	20	°C
Humidity:	44	%RH
Pressure:	1012	Mbar
Test Date	10 May 2006	

The results of this test **complied** with the requirements.



Transmission On Time

Project Number: 06CA21437  
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Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Dipole Antenna	ElectroMetrics	3121C-D134	5751	16 Aug 05	31 Aug 06
EMI Spectrum Analyzer	Agilent Technologies	E7402A	ME5B-123	3 Oct. 05	31 Oct. 06
Hygrometer/Temp/Barometer	Cole-Parmer	99760-00	ME4-268	28 Jun 05	30 Jun 06

Test Accessories Used					
Description	Manufacturer	Model	Identifier	Char/ Valid Date	Due
Measurement Software	UL	UL EMI Software	Version 9.3	-	NA





**Model RZE06**

**Duty Cycle Test Set-Up**

TEST TITLE: Fundamental Frequency and Spurious Emissions Measurement Limit Calculations

#### Limit Calculation

Fundamental Frequency is MHz

Limit =  $20 \cdot \log(\text{mV/m})$

Limit =  $20 \cdot \log(50000)$

Limit = 94dBuV

From table in section 15.209

Limit for Spurious Emissions = 20dB lower then fundamental = dBuV/m

Fundamental Frequency is 902-928MHz

Limit =  $20 \cdot \log(\text{uV/m})$

Limit =  $20 \cdot \log(500)$

Limit = 54dBuV

Limit for Harmonic Emissions = 50dB lower then fundamental = 54dBuV/m

#### ***Radiated Emissions Limit conversion from mV/m to dBmV/m (accordance with paragraph 15.109)***

Radiated Emissions Limit (dBuV/m) =  $20 \cdot \log(\text{uV/m})$

Radiated Emissions Limit (dBuV/m) =  $20 \cdot \log(90)$

Radiated Emissions Limit (dBuV/m) = 39.1

#### ***Radiated Emissions test data obtained during measurements.***

Field Strength (dBuV/m) = Measured field strength (dBuV/m) + Antenna Factor (dB) + Cable Factor (dB)

Field Strength (dBuV/m) = 19.7dBuV/m + 12.5dB + 0.3dB

Field Strength (dBuV/m) = 32.5

#### **Duty Cycle factor calculation.**

Total number of pulses counted in 100ms.

Total time on = 42.25ms

Duty cycle correction factor =  $20 \log(42.25\text{ms} / 100\text{ms})$   
=  $20 \log(0.4225)$   
= - 6.7dB

## 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 and accepted in a letter dated September 24, 1997 (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-160.



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.

U.S. Identifier Number: US0113