SmartLabs, Inc.

ADDENDUM TO TEST REPORT 90598-3

INSTEON USB RF Dongle, 2448A7

Tested To The Following Standards:

FCC Part 15 Subpart C Sections 15.207, 15.249
&
RSS-210 Version 7

Report No.: 90598-3A

Date of issue: June 8, 2010

ACCREDITED

TESTING
CERT #803.01, 803.02, 803.05, 803.06

This test report bears the accreditation symbol indicating that the testing performed herein meets the test and reporting requirements of ISO/IEC 17025 under the applicable scope of EMC testing for CKC Laboratories, Inc.

We strive to create long-term, trust based relationships by providing sound, adaptive, customer first testing services. We embrace each of our customers' unique EMC challenges, not as an interruption to set processes, but rather as the reason we are in business.

TABLE OF CONTENTS

ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

SmartLabs, Inc.
16542 Millikan Ave.
Irvine, CA 92606

REPRESENTATIVE: John Lockyer
Customer Reference Number: 10-3JL0319-01

REPORT PREPARED BY:

Dianne Dudley
CKC Laboratories, Inc.
5046 Sierra Pines Drive
Mariposa, CA 95338

Project Number: 90598

DATE OF EQUIPMENT RECEIPT: April 9, 2010
DATE(S) OF TESTING: April 9- 28, 2010 - June 7, 2010

Revision History

Original: To perform testing of the INSTEON USB RF Dongle, 2448A7, with the requirements for FCC Part 15 Subpart C Sections 15.249 and RSS – 210.
Addendum A: To add testing of the INSTEON USB RF Dongle, 2448A7, with the requirements for FCC Part 15 Subpart C Section 15.207.

Report Authorization

The test data contained in this report documents the observed testing parameters pertaining to and are relevant for only the sample equipment tested in the agreed upon operational mode(s) and configuration(s) as identified herein. Compliance assessment remains the client's responsibility. This report may not be used to claim product endorsement by A2LA or any government agencies. This test report has been authorized for release under quality control from CKC Laboratories, Inc.

Steve Behm
Director of Quality Assurance & Engineering Services
CKC Laboratories, Inc.

Test Facility Information

Our laboratories are configured to effectively test a wide variety of product types. CKC utilizes first class test equipment, anechoic chambers, data acquisition and information services to create accurate, repeatable and affordable test results.

TEST LOCATION(S):
CKC Laboratories, Inc.
110 Olinda Place
Brea, CA 92823

Site Registration & Accreditation Information

Location	JAPAN	CANADA	FCC
Brea A	R-301, C-314 & T-1572	3082D-1	90473

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C

Description	Test Procedure/Method	Results
Conducted Emissions AC Mains	FCC Part 15 Subpart C Section 15.207	Pass
Field Strength of Fundamental	FCC Part 15 Subpart C Section 15.249(a)	Pass
Field Strength of Harmonics	FCC Part 15 Subpart C Section 15.249(a)	Pass
Field Strength of Spurious Emissions	FCC Part 15 Subpart C Section 15.249(d)	Pass
Occupied Bandwidth	-20 dBc / RSS-210	Pass
Bandedge		Pass

Conditions During Testing

This list is a summary of the conditions noted for or modifications made to the equipment during testing.

Summary of Conditions
None

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

INSTEON USB RF Dongle
Manuf: SmartLabs, Inc.
Model: 2448A7
Serial: NA

PERIPHERAL DEVICES

The EUT was tested with following peripheral device:

Laptop
Manuf: Lenovo
Model: T60 Type 2623
Serial: L3-AV583-06/12

FCC PART 15 SUBPART C

This report contains EMC emissions test results under United States Federal Communications Commission (FCC) 47 CFR 15C requirements for Unlicensed Radio Frequency Devices, Subpart C - Intentional Radiators.

Temperature and Humidity During Testing
The temperature during testing was within +15°C and + 35°C.
The relative humidity was between 20% and 75%.

15.31(e) Voltage Variations
No variation in Fundamental emission was observed with AC voltage varied +- 15%.

15.33(a) Frequency Ranges Tested
15.209/15.249 Radiated Emissions: 9 kHz – 10GHz

EUT Operating Frequency
The EUT was operating at 914.9 to 915.1 MHz.

15.207 AC Conducted Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer:	**SmartLabs, Inc.**		
Specification:	**15.207 AC Mains - Average**		
Work Order #:	**90598**	Date:	6/7/2010
Test Type:	**Conducted Emissions**	Time:	13:23:21
Equipment:	**INSTEON USB RF Dongle**	Sequence#:	7
Manufacturer:	SmartLabs, Inc.	Tested By:	E. Wong
Model:	2448A7		110V 60Hz
S/N:	NA		

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	7/23/2008	7/23/2010
T1	ANP05613	Attenuator	50FHC-006-10BNC	3/10/2009	3/10/2011
T2	ANP04358	Cable	RG142	5/7/2010	5/7/2012
T3	AN02610	High Pass Filter	HE9615-150K-50-720B	11/16/2009	11/16/2011
T4	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/9/2008	12/9/2010
	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/9/2008	12/9/2010

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
INSTEON USB RF Dongle*	SmartLabs, Inc.	2448A7	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Lenovo	T60	L3-AV583-06/12

Test Conditions / Notes:

The EUT is inserted in the USB slot of a support laptop placed on the wooden table.
Connected to the laptop is a section of unterminated UTP.
The emission profile of the EUT installed in the Horizontal USB slots is evaluated.
The EUT is set in constant transmit.
TX=915MHz.
19°C, 77% Relative Humidity

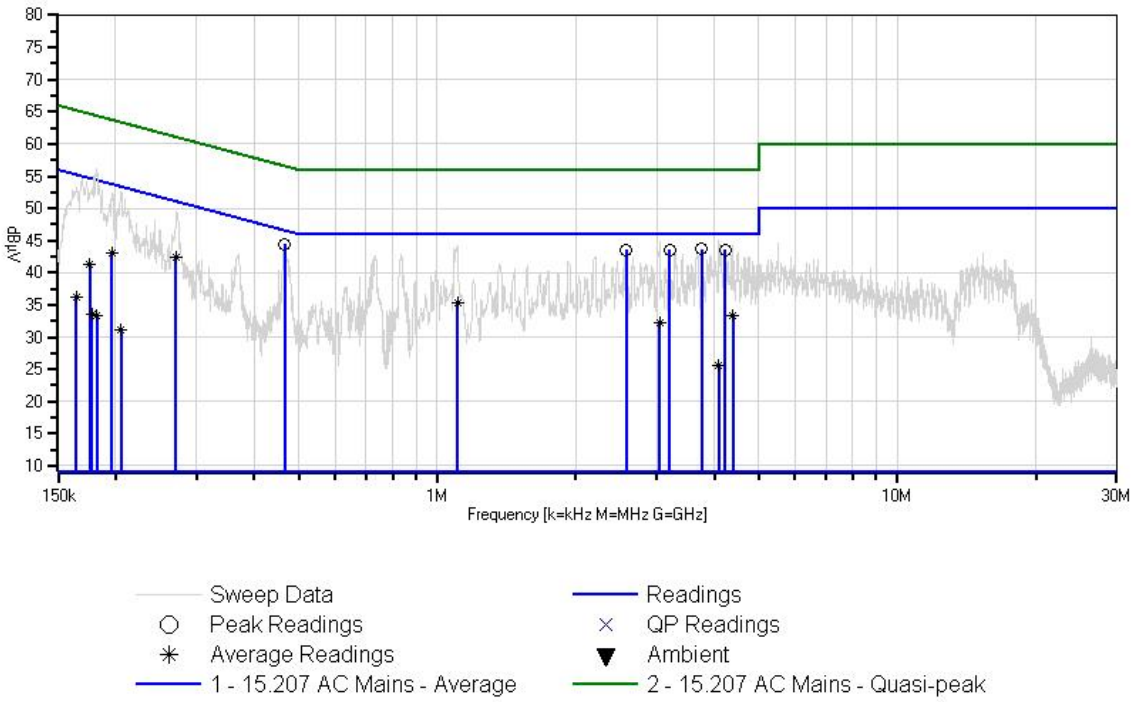
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: Black

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	467.062k	38.4	+5.7	+0.1	+0.3	+0.0	+0.0	44.5	46.6	-2.1	Black
2	3.756M	37.7	+5.6	+0.2	+0.1	+0.1	+0.0	43.7	46.0	-2.3	Black
3	4.233M	37.6	+5.6	+0.2	+0.1	+0.1	+0.0	43.6	46.0	-2.4	Black
4	2.578M	37.6	+5.6	+0.2	+0.1	+0.1	+0.0	43.6	46.0	-2.4	Black
5	3.195M	37.6	+5.6	+0.2	+0.1	+0.1	+0.0	43.6	46.0	-2.4	Black
6 Ave	270.716k	36.4	+5.6	+0.1	+0.3	+0.0	+0.0	42.4	51.1	-8.7	Black
^	270.716k	43.5	+5.6	+0.1	+0.3	+0.0	+0.0	49.5	51.1	-1.6	Black
8 Ave	196.003k	37.1	+5.6	+0.1	+0.3	+0.0	+0.0	43.1	53.8	-10.7	Black
^	197.268k	46.5	+5.6	+0.1	+0.3	+0.0	+0.0	52.5	53.7	-1.2	Black
10 Ave	1.107M	29.4	+5.6	+0.1	+0.2	+0.0	+0.0	35.3	46.0	-10.7	Black
^	1.107M	38.3	+5.6	+0.1	+0.2	+0.0	+0.0	44.2	46.0	-1.8	Black
12 Ave	4.390M	27.4	+5.6	+0.2	+0.1	+0.1	+0.0	33.4	46.0	-12.6	Black
^	4.390M	38.1	+5.6	+0.2	+0.1	+0.1	+0.0	44.1	46.0	-1.9	Black
14 Ave	175.767k	35.2	+5.6	+0.1	+0.3	+0.0	+0.0	41.2	54.7	-13.5	Black
15 Ave	3.046M	26.3	+5.6	+0.2	+0.1	+0.1	+0.0	32.3	46.0	-13.7	Black
^	3.046M	38.9	+5.6	+0.2	+0.1	+0.1	+0.0	44.9	46.0	-1.1	Black
17 Ave	164.544k	30.1	+5.6	+0.1	+0.4	+0.0	+0.0	36.2	55.2	-19.0	Black
^	164.544k	47.2	+5.6	+0.1	+0.4	+0.0	+0.0	53.3	55.2	-1.9	Black
19 Ave	4.097M	19.6	+5.6	+0.2	+0.1	+0.1	+0.0	25.6	46.0	-20.4	Black
^	4.097M	39.1	+5.6	+0.2	+0.1	+0.1	+0.0	45.1	46.0	-0.9	Black
21 Ave	177.391k	27.6	+5.6	+0.1	+0.3	+0.0	+0.0	33.6	54.6	-21.0	Black

22 Ave	181.997k	27.5	+5.6	+0.1	+0.2	+0.0	+0.0	33.4	54.4	-21.0	Black
^	181.997k	50.2	+5.6	+0.1	+0.2	+0.0	+0.0	56.1	54.4	+1.7	Black
^	179.088k	49.2	+5.6	+0.1	+0.2	+0.0	+0.0	55.1	54.5	+0.6	Black
25 Ave	205.268k	25.1	+5.6	+0.1	+0.3	+0.0	+0.0	31.1	53.4	-22.3	Black
^	205.268k	46.6	+5.6	+0.1	+0.3	+0.0	+0.0	52.6	53.4	-0.8	Black

CKC Laboratories, Inc. Date: 6/7/2010 Time: 13:23:21 SmartLabs, Inc. WO#: 90598
15.207 AC Mains - Average Test Lead: Black 110V 60Hz Sequence#: 7
2448A7



Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **90598** Date: 6/7/2010
Test Type: **Conducted Emissions** Time: 13:13:22
Equipment: **INSTEON USB RF Dongle** Sequence#: 6
Manufacturer: SmartLabs, Inc. Tested By: E. Wong
Model: 2448A7 110V 60Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	7/23/2008	7/23/2010
T1	ANP05613	Attenuator	50FHC-006-10BNC	3/10/2009	3/10/2011
T2	ANP04358	Cable	RG142	5/7/2010	5/7/2012
T3	AN02610	High Pass Filter	HE9615-150K-50-720B	11/16/2009	11/16/2011
T4	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/9/2008	12/9/2010
	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/9/2008	12/9/2010

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
INSTEON USB RF Dongle*	SmartLabs, Inc.	2448A7	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Lenovo	T60	L3-AV583-06/12

Test Conditions / Notes:

The EUT is inserted in the USB slot of a support laptop placed on the wooden table.
Connected to the laptop is a section of unterminated UTP.
The emission profile of the EUT installed in the Horizontal USB slots is evaluated.
The EUT is set in constant transmit.
TX=915MHz.
19°C, 77% Relative Humidity

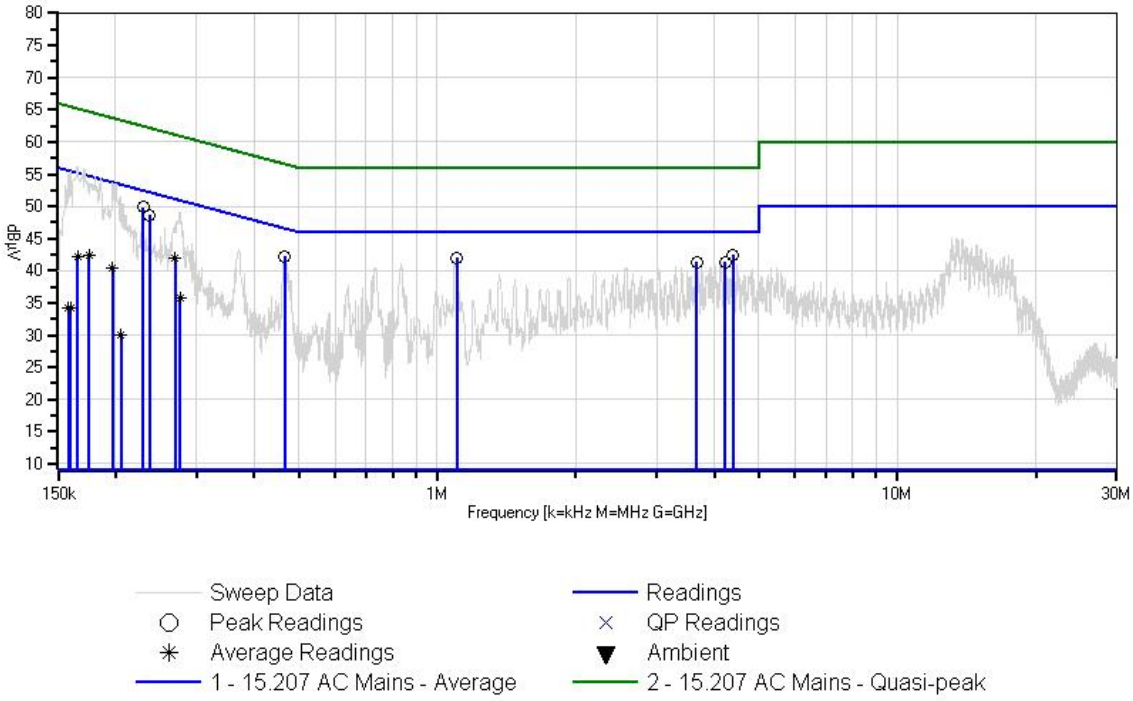
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: White

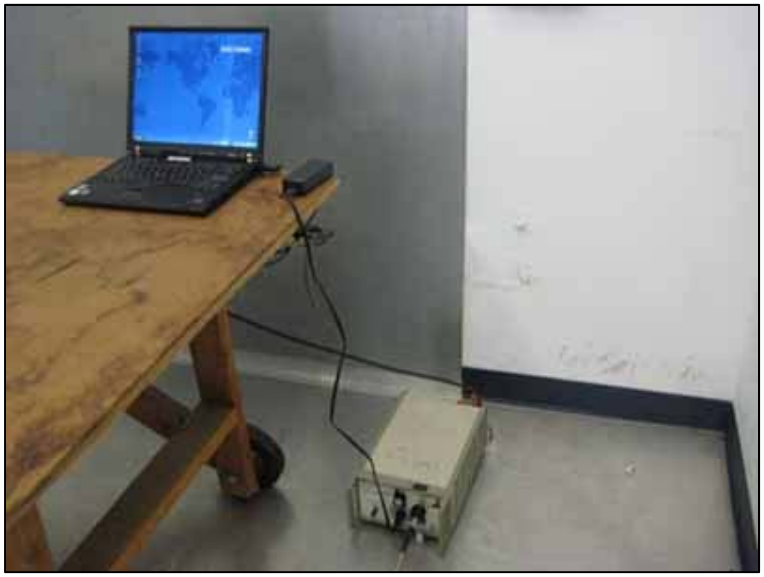
#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	229.265k	43.9	+5.6	+0.1	+0.3	+0.0	+0.0	49.9	52.5	-2.6	White
2	237.265k	42.7	+5.6	+0.1	+0.3	+0.0	+0.0	48.7	52.2	-3.5	White
3	4.390M	36.5	+5.6	+0.2	+0.1	+0.1	+0.0	42.5	46.0	-3.5	White
4	1.103M	36.1	+5.6	+0.1	+0.2	+0.0	+0.0	42.0	46.0	-4.0	White
5	466.335k	36.1	+5.7	+0.1	+0.3	+0.0	+0.0	42.2	46.6	-4.4	White
6	3.663M	35.4	+5.6	+0.2	+0.1	+0.1	+0.0	41.4	46.0	-4.6	White
7	4.233M	35.3	+5.6	+0.2	+0.1	+0.1	+0.0	41.3	46.0	-4.7	White

8 Ave	269.307k	36.0	+5.6	+0.1	+0.3	+0.0	+0.0	42.0	51.1	-9.1	White
9 Ave	174.893k	36.3	+5.6	+0.1	+0.3	+0.0	+0.0	42.3	54.7	-12.4	White
10 Ave	165.271k	36.0	+5.6	+0.1	+0.4	+0.0	+0.0	42.1	55.2	-13.1	White
^	165.271k	50.2	+5.6	+0.1	+0.4	+0.0	+0.0	56.3	55.2	+1.1	White
12 Ave	197.268k	34.5	+5.6	+0.1	+0.3	+0.0	+0.0	40.5	53.7	-13.2	White
^	197.268k	47.7	+5.6	+0.1	+0.3	+0.0	+0.0	53.7	53.7	+0.0	White
14 Ave	275.807k	29.8	+5.6	+0.1	+0.3	+0.0	+0.0	35.8	50.9	-15.1	White
^	275.807k	43.1	+5.6	+0.1	+0.3	+0.0	+0.0	49.1	50.9	-1.8	White
16 Ave	159.454k	28.1	+5.6	+0.1	+0.5	+0.0	+0.0	34.3	55.5	-21.2	White
17 Ave	157.999k	27.8	+5.6	+0.1	+0.7	+0.0	+0.0	34.2	55.6	-21.4	White
^	159.454k	49.4	+5.6	+0.1	+0.5	+0.0	+0.0	55.6	55.5	+0.1	White
^	157.999k	48.4	+5.6	+0.1	+0.7	+0.0	+0.0	54.8	55.6	-0.8	White
^	155.818k	46.5	+5.6	+0.1	+1.1	+0.0	+0.0	53.3	55.7	-2.4	White
21 Ave	205.268k	24.1	+5.6	+0.1	+0.3	+0.0	+0.0	30.1	53.4	-23.3	White
^	205.268k	45.5	+5.6	+0.1	+0.3	+0.0	+0.0	51.5	53.4	-1.9	White
^	207.449k	44.4	+5.6	+0.1	+0.3	+0.0	+0.0	50.4	53.3	-2.9	White

CKC Laboratories, Inc. Date: 6/7/2010 Time: 13:13:22 SmartLabs, Inc. WO#: 90598
15.207 AC Mains - Average Test Lead: White 110V 60Hz Sequence#: 6
2448A7



Test Setup Photos



15.249(a) Field Strength of Fundamental and Harmonics

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 255 1476

Customer: **SmartLabs, Inc.**
Specification: **15.249 Field Strength of Fundamental and Harmonics**
Work Order #: **90598** Date: 4/28/2010
Test Type: **Radiated Scan** Time: 16:11:39
Equipment: **INSTEON USB RF Dongle** Sequence#: 1
Manufacturer: SmartLabs, Inc. Tested By: S.Hundal
Model: 2448A7
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	5/2/2008	5/2/2010
T2	AN01995	Biconilog Antenna	CBL6111C	3/8/2010	3/8/2012
T3	ANP05050	Cable	RG223/U	4/16/2009	4/16/2011
T4	ANP05198	Cable	8268	1/5/2009	1/5/2011
T5	AN00786	Preamp	83017A	7/28/2008	7/28/2010
T6	AN02948	Cable	32022-2-2909K-24TC	9/21/2009	9/21/2011
T7	ANP05565	Cable	ANDL-1-PNMN-54	9/4/2008	9/4/2010
T8	AN01646	Horn Antenna	3115	6/6/2008	6/6/2010
T9	AN02749	High Pass Filter	9SH10-1000/T10000-O/O	11/20/2009	11/20/2011
	AN00314	Loop Antenna	6502	6/16/2008	6/16/2010

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
INSTEON USB RF Dongle*	SmartLabs, Inc.	2448A7	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Lenovo	T60	L3-AV583-06/12

Test Conditions / Notes:

15.245(a) Field strength of Fundamental and Harmonics.
The EUT is inserted in the USB slot of a support laptop placed on the wooden table lined with Styrofoam of 5 cm in thickness. Connected to the laptop is a section of unterminated UTP.
The emission profile of the EUT installed in both Vertical and Horizontal USB slots is evaluated.
The EUT is set in constant transmit mode.
TX=915MHz.
15.31(e) No variation in Fundamental emission was observed with AC voltage varied +- 15%.
Frequency range of measurement = 9 kHz- 10 GHz.
Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz- 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz- 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz-10,000 MHz RBW=1 MHz, VBW=1 MHz.
21ºC, 42% Relative Humidity

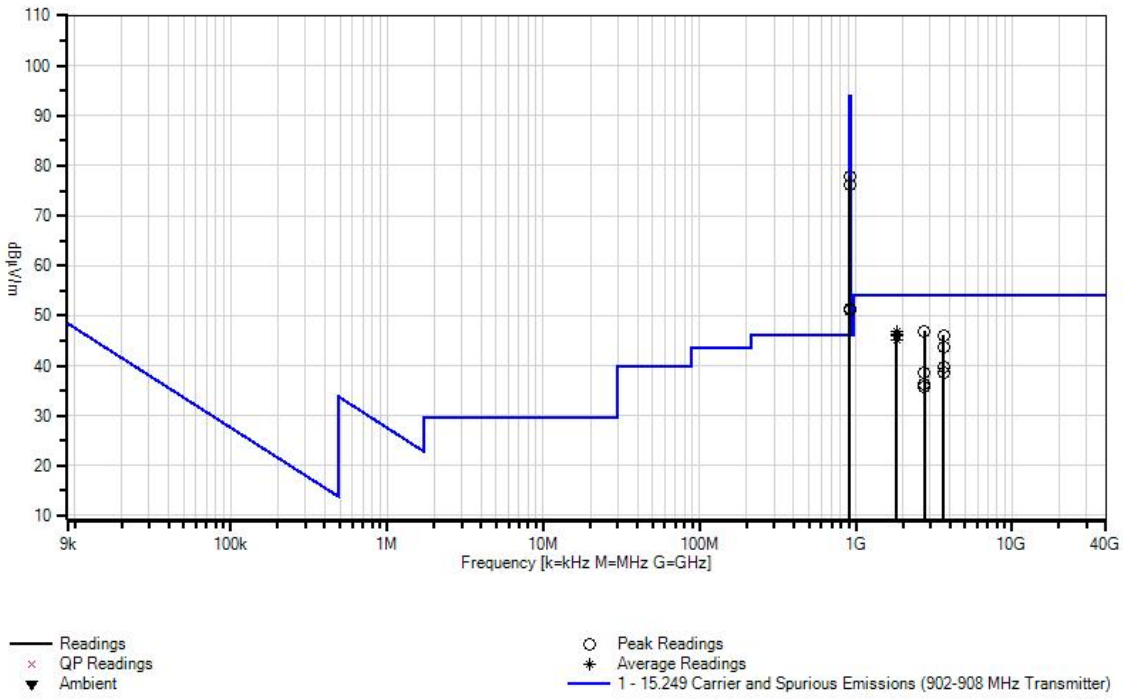
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9	T2 T6	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2744.712M	50.3	+0.0 -37.8 +0.6	+0.0 +0.5	+0.0 +4.1	+0.0 +29.2	+0.0	46.9	54.0 Hort Orientation	-7.1	Horiz
2	1829.810M Ave	54.1	+0.0 -38.0 +0.4	+0.0 +0.4	+0.0 +3.2	+0.0 +26.6	+0.0	46.7	54.0 Vert Orientation	-7.3	Vert
^	1829.810M	60.6	+0.0 -38.0 +0.4	+0.0 +0.4	+0.0 +3.2	+0.0 +26.6	+0.0	53.2	54.0 Vert Orientation	-0.8	Vert
4	1830.120M Ave	53.7	+0.0 -38.0 +0.4	+0.0 +0.4	+0.0 +3.2	+0.0 +26.6	+0.0	46.3	54.0 Vert Orientation	-7.7	Horiz
^	1830.120M	60.9	+0.0 -38.0 +0.4	+0.0 +0.4	+0.0 +3.2	+0.0 +26.6	+0.0	53.5	54.0 Vert Orientation	-0.5	Horiz
6	3659.616M	46.9	+0.0 -37.3 +0.4	+0.0 +0.6	+0.0 +4.8	+0.0 +30.7	+0.0	46.1	54.0 Hort Orientation	-7.9	Horiz
7	1829.811M Ave	53.3	+0.0 -38.0 +0.4	+0.0 +0.4	+0.0 +3.2	+0.0 +26.6	+0.0	45.9	54.0 Hort Orientation	-8.1	Horiz
^	1829.811M	59.6	+0.0 -38.0 +0.4	+0.0 +0.4	+0.0 +3.2	+0.0 +26.6	+0.0	52.2	54.0 Hort Orientation	-1.8	Horiz
9	1830.123M Ave	52.4	+0.0 -38.0 +0.4	+0.0 +0.4	+0.0 +3.2	+0.0 +26.6	+0.0	45.0	54.0 Hort Orientation	-9.0	Vert
^	1830.123M	59.1	+0.0 -38.0 +0.4	+0.0 +0.4	+0.0 +3.2	+0.0 +26.6	+0.0	51.7	54.0 Hort Orientation	-2.3	Vert
11	3660.216M	44.6	+0.0 -37.3 +0.4	+0.0 +0.6	+0.0 +4.8	+0.0 +30.7	+0.0	43.8	54.0 Vert Orientation	-10.2	Horiz
12	3660.216M	40.4	+0.0 -37.3 +0.4	+0.0 +0.6	+0.0 +4.8	+0.0 +30.7	+0.0	39.6	54.0 Vert Orientation	-14.4	Vert
13	2744.712M	42.1	+0.0 -37.8 +0.6	+0.0 +0.5	+0.0 +4.1	+0.0 +29.2	+0.0	38.7	54.0 Hort Orientation	-15.3	Vert
14	3659.616M	39.2	+0.0 -37.3 +0.4	+0.0 +0.6	+0.0 +4.8	+0.0 +30.7	+0.0	38.4	54.0 Hort Orientation	-15.6	Vert
15	914.900M	75.0	-27.2 +0.0 +0.0	+23.6 +0.0	+0.7 +0.0	+5.8 +0.0	+0.0	77.9	94.0 Vert Orientation	-16.1	Horiz

16	2745.182M	39.7	+0.0 -37.8 +0.6	+0.0 +0.5	+0.0 +4.1	+0.0 +29.2	+0.0	36.3	54.0 Vert Orientation	-17.7	Vert
17	914.900M	73.2	-27.2 +0.0 +0.0	+23.6 +0.0	+0.7 +0.0	+5.8 +0.0	+0.0	76.1	94.0 Vert Orientation	-17.9	Vert
18	2745.182M	39.0	+0.0 -37.8 +0.6	+0.0 +0.5	+0.0 +4.1	+0.0 +29.2	+0.0	35.6	54.0 Vert Orientation	-18.4	Horiz
19	915.050M	77.6	+0.0 -41.1 +12.2	+0.0 +0.3	+0.0 +2.3	+0.0 +0.0	+0.0	51.3	94.0 Hort Orientation	-42.7	Horiz
20	915.050M	77.4	+0.0 -41.1 +12.2	+0.0 +0.3	+0.0 +2.3	+0.0 +0.0	+0.0	51.1	94.0 Hort Orientation	-42.9	Vert

CKC Laboratories, Inc. Date: 4/28/2010 Time: 16:11:39 SmartLabs, Inc. WO#: 90598
15.249 Carrier and Spurious Emissions (902-908 MHz Transmitter) Test Distance: 3 Meters Sequence#: 1 Ext
ATTN: 0 dB



Test Setup Photos

15.249(d) Field Strength of Spurious Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110. N. Olinda Place. • Brea, CA 92821 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **FCC 15.249(d) / 15.209**
Work Order #: **90598** Date: 4/9/2010
Test Type: **Radiated Scan** Time: 10:55:57
Equipment: **INSTEON USB RF Dongle** Sequence#: 2
Manufacturer: SmartLabs, Inc. Tested By: E. Wong
Model: 2448A7
S/N: NA

***Test Equipment*:**

Function	S/N	Calibration Date	Cal Due Date	Asset #
Spectrum Analyzer	US44300438	07/23/2008	07/23/2010	02672
Bilog Antenna	2451	03/08/2010	03/08/2012	01995
Pre amp to SA Cable	Cable #10	04/16/2009	04/16/2011	P05050
Cable	Cable15	01/05/2009	01/05/2011	P05198
Pre Amp	1937A02548	05/02/2008	05/02/2010	00309
Horn Antenna	6246	06/06/2008	06/06/2010	00849
Microwave Pre-amp	3123A00281	07/28/2008	07/28/2010	00786
Heliax Antenna Cable	P5565	09/04/2008	09/04/2010	P05565
2'-40GHz cable	NA	09/21/2009	09/21/2011	P2948
Loop Antenna	2014	06/16/2008	06/16/2010	00314
1.0 GHz HPF	002	09/14/2009	09/14/2011	03169

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
INSTEON USB RF Dongle*	SmartLabs, Inc.	2448A7	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Laptop	Lenovo	T60	L3-AV583-06/12

Test Conditions / Notes:

The EUT is inserted in the USB slot of a support laptop placed on the wooden table lined with Styrofoam of 5 cm in thickness. Connected to the laptop is a section of unterminated UTP.
The emission profile of the EUT installed in both Vertical and Horizontal USB slots is evaluated.
The EUT is set in constant transmit mode.
TX=915MHz.
15.31(e) No variation in Fundamental emission was observed with AC voltage varied +- 15%.
Frequency range of measurement = 9 kHz- 10 GHz.
Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz- 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz- 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz-10,000 MHz RBW=1 MHz, VBW=1 MHz.
15ºC, 48% Relative Humidity

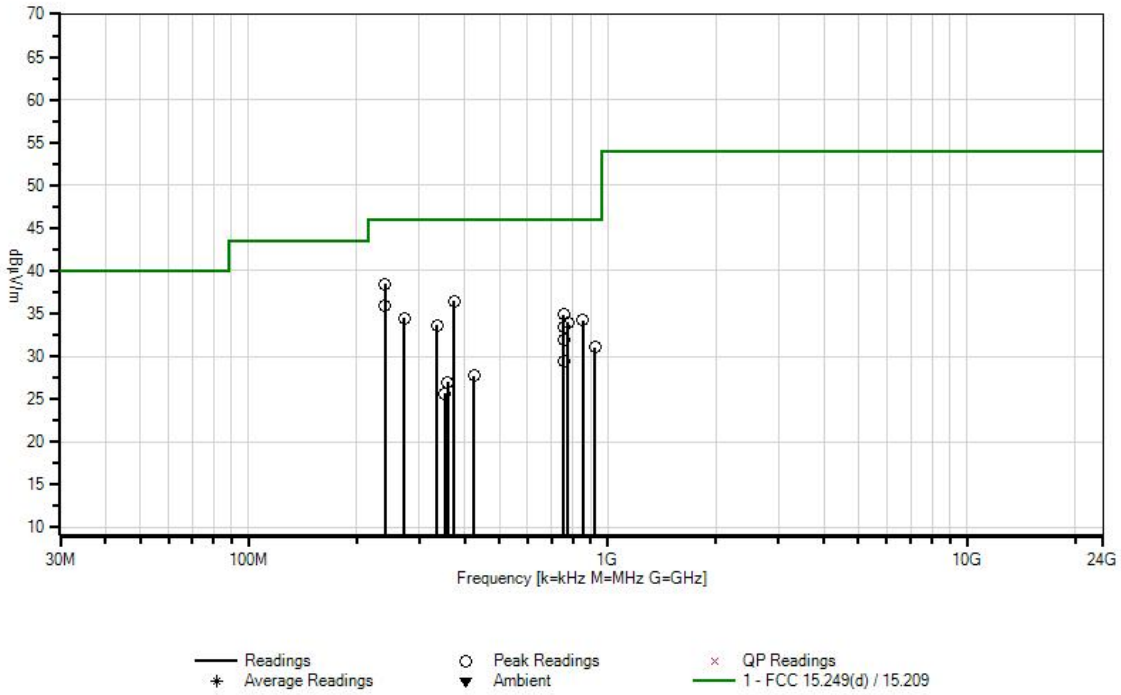
Transducer Legend:

T2=Cable #10 ANP05050 041611	T1=Bilog-AN01995 BILOG_030812
T4=Pre_amp_HP8447D-AN00309-050210	T3=Cable #15_05198_ Site A, 010511

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV/m	Spec dBµV/m	Margin dB	Polar Ant
1	240.000M	51.3	+12.0	+0.3	+2.7	-27.8	+0.0	38.5	46.0	-7.5	Horiz
2	375.017M	44.9	+15.5	+0.4	+3.5	-27.8	+0.0	36.5	46.0	-9.5	Horiz
3	240.004M	48.7	+12.0	+0.3	+2.7	-27.8	+0.0	35.9	46.0	-10.1	Vert
4	755.020M	34.6	+21.8	+0.4	+5.1	-27.0	+0.0	34.9	46.0	-11.1	Horiz
5	272.027M	46.1	+13.0	+0.3	+2.9	-27.8	+0.0	34.5	46.0	-11.5	Horiz
6	855.067M	32.1	+22.9	+0.7	+5.5	-27.0	+0.0	34.2	46.0	-11.8	Horiz
7	775.026M	33.3	+22.1	+0.4	+5.2	-27.1	+0.0	33.9	46.0	-12.1	Horiz
8	336.000M	43.5	+14.4	+0.3	+3.2	-27.8	+0.0	33.6	46.0	-12.4	Horiz
9	755.057M	33.1	+21.8	+0.4	+5.1	-27.0	+0.0	33.4	46.0	-12.6	Vert
10	755.057M	31.6	+21.8	+0.4	+5.1	-27.0	+0.0	31.9	46.0	-14.1	Horiz
11	925.000M	28.1	+23.7	+0.7	+5.8	-27.2	+0.0	31.1	46.0	-14.9	Horiz
12	755.071M	29.2	+21.8	+0.4	+5.1	-27.0	+0.0	29.5	46.0	-16.5	Vert
13	425.017M	34.8	+16.7	+0.3	+3.7	-27.8	+0.0	27.7	46.0	-18.3	Horiz
14	359.967M	36.0	+15.1	+0.3	+3.4	-27.8	+0.0	27.0	46.0	-19.0	Horiz
15	352.033M	35.0	+14.9	+0.3	+3.3	-27.8	+0.0	25.7	46.0	-20.3	Horiz

CKC Laboratories, Inc. Date: 4/9/2010 Time: 10:55:57 SmartLabs, Inc. WO#: 90598
FCC 15.249(d) / 15.209 Test Distance: 3 Meters Sequence#: 2
2448A7



Test Setup Photos

Occupied Bandwidth (-20dBc/RSS-210)

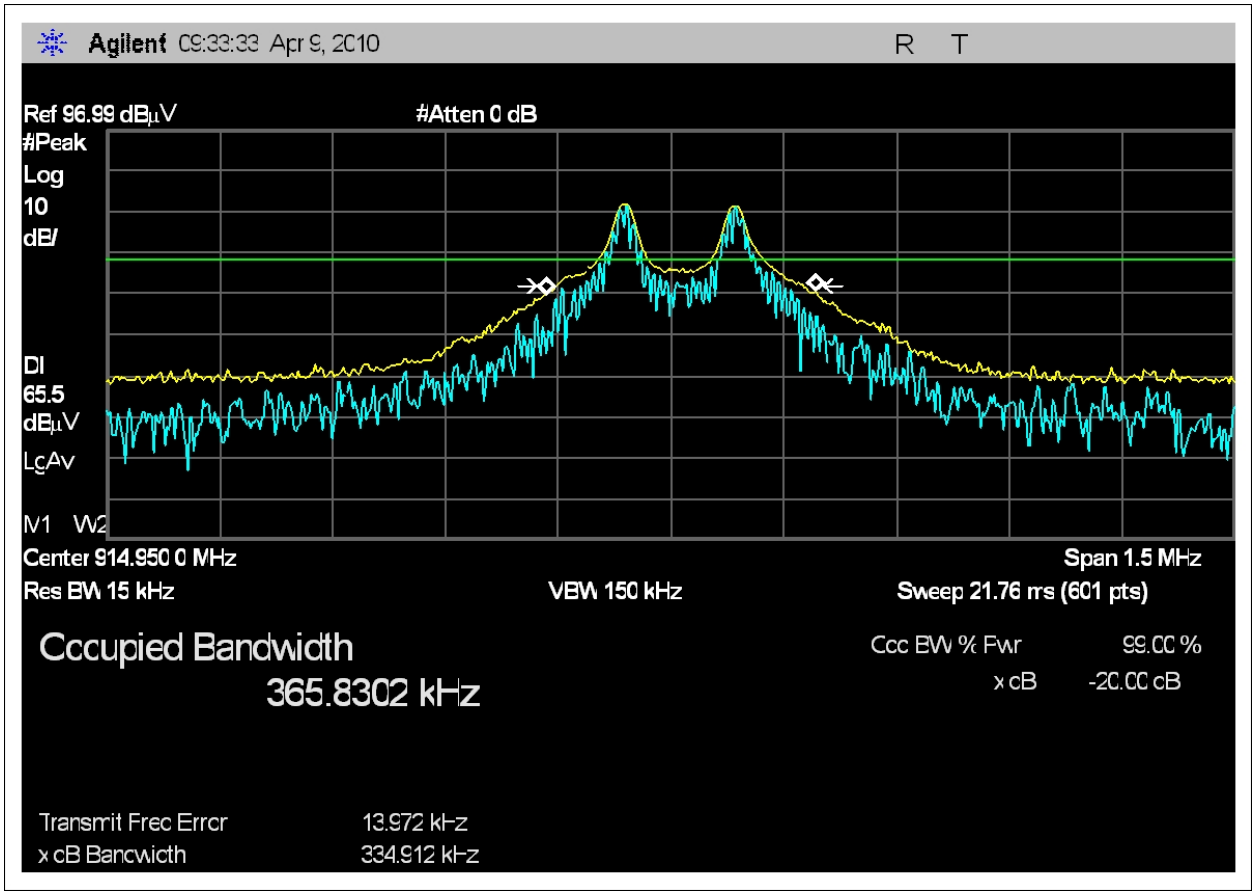
Engineer Name: S. Hundal

Test Equipment				
Name	**Serial**	**Cal Date**	**Cal Due**	**Asset**
Spectrum Analyzer RF Section	2928A04874	09/16/2008	09/16/2010	02462
Spectrum Analyzer Display Section	3001A18430	09/16/2008	09/16/2010	02472
Quasi Peak Adapter	3303A01884	09/16/2008	09/16/2010	01437
Log Periodic Antenna	463	10/23/2009	10/23/2011	00001
Antenna Cable	Cable #9	11/11/2009	11/11/2011	P01911
10m Position Cable	Cable #17	09/22/2008	09/22/2010	P04382
Preamplifier Cable	Cable #22	08/19/2008	08/19/2010	P05555
Preamplifier	2727A05392	04/29/2008	04/29/2010	00010

Test Conditions

The equipment under test (EUT) is a SwitchLinc - INSTEON Dimmer Switch (Dual-Band). The EUT input power is powered from 120Vac 60Hz. Connected to the EUT as a load is a 120V 100W light bulb. Temperature: 21°C, Humidity: 30%, Pressure: 101kPa. Frequency range of measurement = 913.5MHz to 916.5MHz. Operating range of device 914.9MHz to 915.1MHz. EUT set at 915.0MHz. Modulation FSK. Frequency 9 kHz - 150 kHz RBW=200 Hz, VBW=200 Hz; 150 kHz- 30 MHz RBW=9 kHz, VBW=9 kHz; 30 MHz- 1000 MHz RBW=120 kHz, VBW=120 kHz; 1000 MHz-10,000 MHz RBW=1 MHz, VBW=1 MHz.

Test Plots


Agilent 09:33:33 Apr 9, 2010
R T
Ref 96.99 dBµV
#Atten 0 dB
#Peak
Log
10
dB/
Dl
65.5
dBµV
LgAv
M1 W2
Center 914.950 0 MHz
Span 1.5 MHz
Res BW 15 kHz
VBW 150 kHz
Sweep 21.76 ms (601 pts)
Occupied Bandwidth
365.8302 kHz
Occ BW % Pwr 99.00 %
x dB -20.00 dB
Transmit Freq Error 13.972 kHz
x dB Bandwidth 334.912 kHz

Test Setup Photos

Bandedge

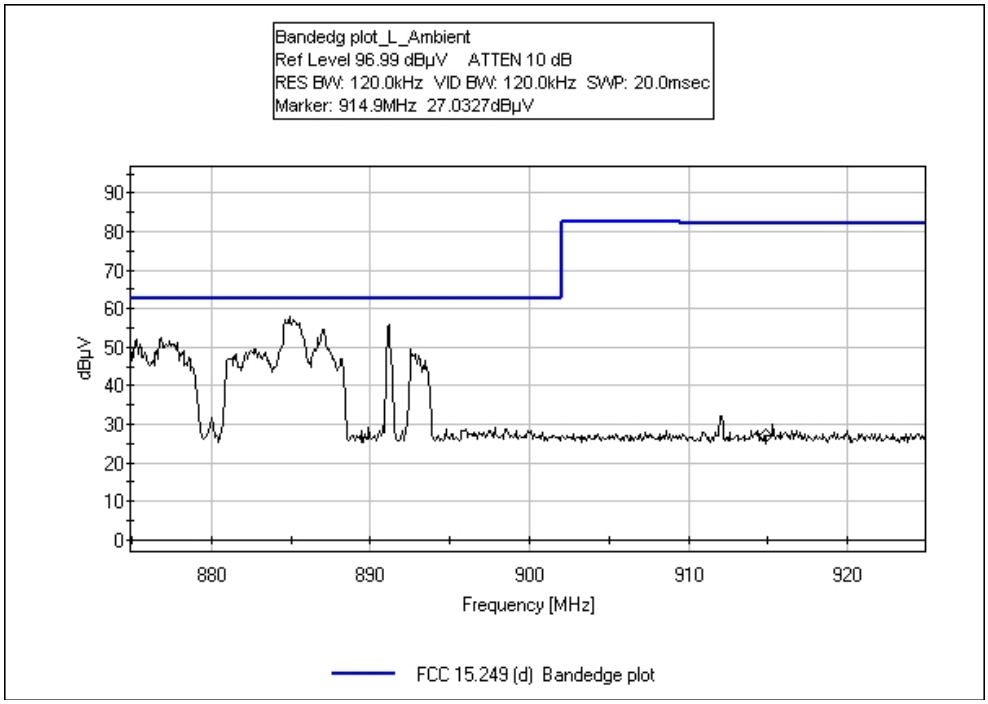
Engineer Name: S. Hundal

Test Equipment				
Name	**Serial**	**Cal Date**	**Cal Due**	**Asset**
Spectrum Analyzer RF Section	2928A04874	09/16/2008	09/16/2010	02462
Spectrum Analyzer Display Section	3001A18430	09/16/2008	09/16/2010	02472
Quasi Peak Adapter	3303A01884	09/16/2008	09/16/2010	01437
Log Periodic Antenna	463	10/23/2009	10/23/2011	00001
Antenna Cable	Cable #9	11/11/2009	11/11/2011	P01911
10m Position Cable	Cable #17	09/22/2008	09/22/2010	P04382
Preamplifier Cable	Cable #22	08/19/2008	08/19/2010	P05555
Preamplifier	2727A05392	04/29/2008	04/29/2010	00010

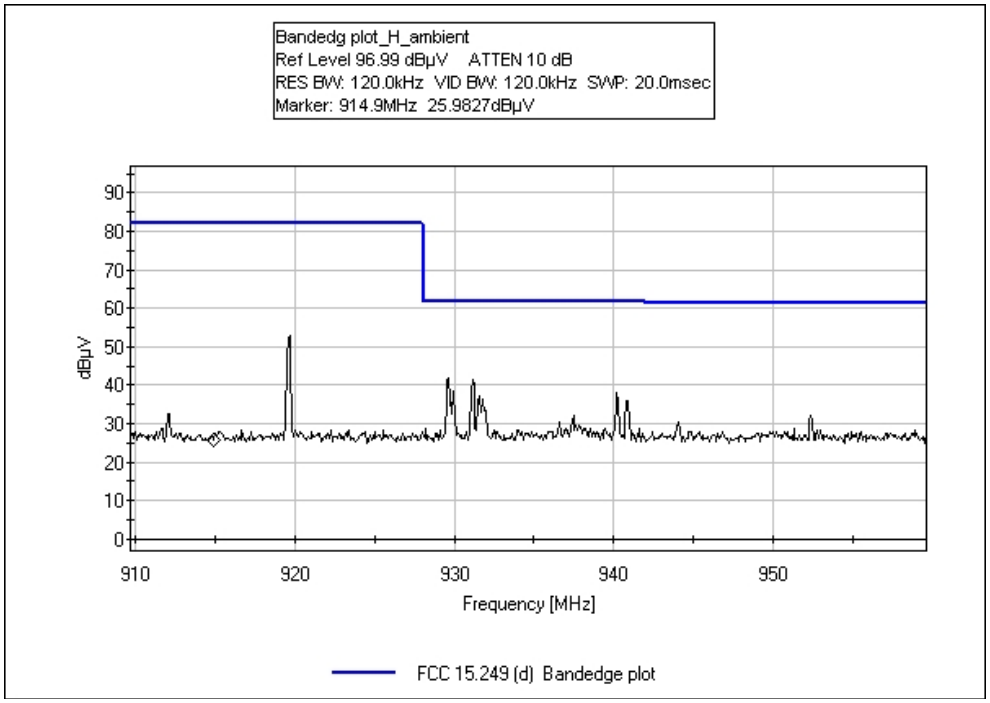
Test Conditions

The EUT is inserted in the USB slot of a support laptop placed on the wooden table lined with Styrofoam of 5 cm in thickness. Connected to the laptop is a section of unterminated UTP. The emission profile of the EUT installed in both Vertical and Horizontal USB slots is evaluated. The EUT is set in constant transmit mode. TX=915MHz.

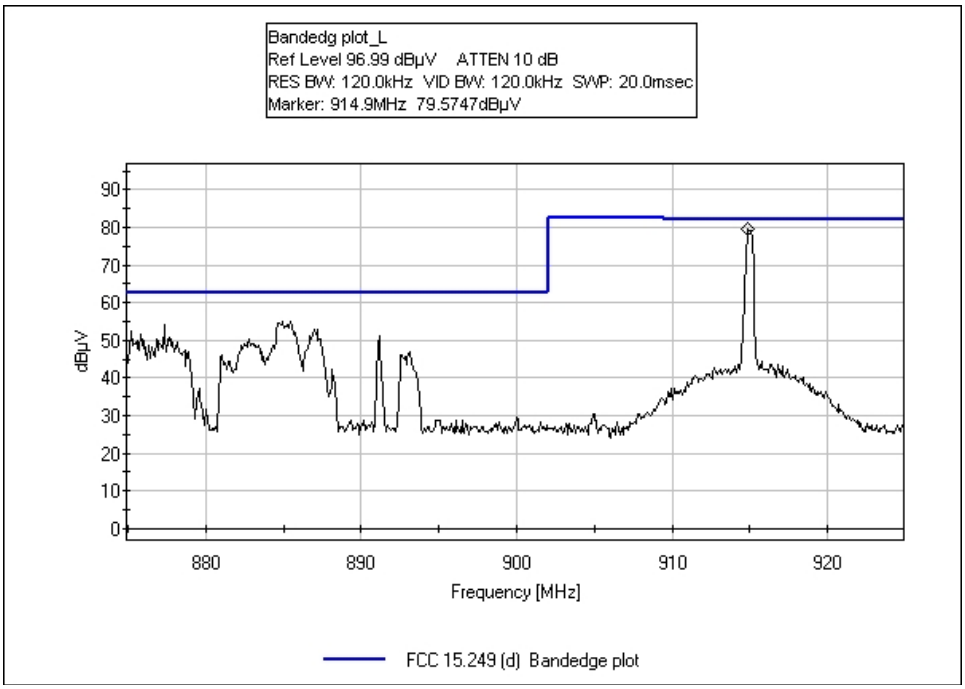
Test Data



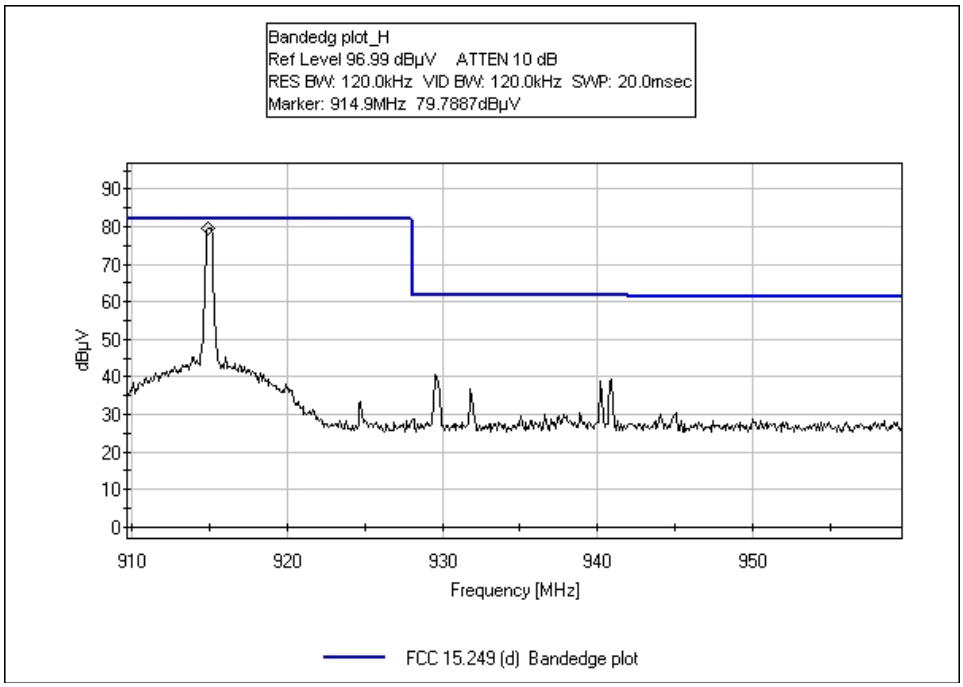
Ambient Readings – Low End



Ambient Readings – High End



Bandedge Low End



Bandedge High End

Test Setup Photos

SUPPLEMENTAL INFORMATION

Measurement Uncertainty

Uncertainty Value	Parameter
4.73 dB	Radiated Emissions
3.34 dB	Mains Conducted Emissions
3.30 dB	Disturbance Power

The reported measurement uncertainties are calculated based on the worst case of all laboratory environments from CKC Laboratories, Inc. test sites. Only those parameters which require estimation of measurement uncertainty are reported. The reported worst case measurement uncertainty is less than the maximum values derived in CISPR 16-4-2. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k=2. Compliance is deemed to occur provided measurements are below the specified limits.

Emissions Test Details

TESTING PARAMETERS

The cables were routed consistent with the typical application by varying the configuration of the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cables was investigated to find the configuration that produced maximum emissions. Cables were of the type and length specified in the individual requirements. The length of cable that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was taken with a spectrum analyzer or receiver. Incorporating the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown in the table below. The corrected data was then compared to the applicable emission limits. Preliminary and final measurements were taken in order to ensure that all emissions from the EUT were found and maximized.

CORRECTION FACTORS

The basic spectrum analyzer reading was converted using correction factors as shown in the highest emissions readings in the tables. For radiated emissions in dBµV/m, the spectrum analyzer reading in dBµV was corrected by using the following formula. This reading was then compared to the applicable specification limit.

SAMPLE CALCULATIONS		
	Meter reading	(dBµV)
+	Antenna Factor	(dB)
+	Cable Loss	(dB)
-	Distance Correction	(dB)
-	Preamplifier Gain	(dB)
=	Corrected Reading	(dBµV/m)

TEST INSTRUMENTATION AND ANALYZER SETTINGS

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. The following table shows the measuring equipment bandwidth settings that were used in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10 dB per division were used. When conducted emissions testing was performed, a 10 dB external attenuator was used with internal offset correction in the analyzer.

MEASURING EQUIPMENT BANDWIDTH SETTINGS PER FREQUENCY RANGE			
TEST	BEGINNING FREQUENCY	ENDING FREQUENCY	BANDWIDTH SETTING
CONDUCTED EMISSIONS	150 kHz	30 MHz	9 kHz
RADIATED EMISSIONS	30 MHz	1000 MHz	120 kHz
RADIATED EMISSIONS	1000 MHz	>1 GHz	1 MHz

SPECTRUM ANALYZER/RECEIVER DETECTOR FUNCTIONS

The notes that accompany the measurements contained in the emissions tables indicate the type of detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the "Peak" mode. Whenever a "Quasi-Peak" or "Average" reading is listed as one of the highest readings, this is indicated as a "QP" or an "Ave" on the appropriate rows of the data sheets. The following paragraphs describe in more detail the detector functions and when they were used to obtain the emissions data.

Peak

In this mode, the spectrum analyzer/receiver readings recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature of the measuring device called "peak hold," the measuring device had the ability to measure transients or low duty cycle transient emission peak levels. In this mode the measuring device made a slow scan across the frequency band selected and measured the peak emission value found at each frequency across the band.

Quasi-Peak

When the true peak values exceeded or were within 2 dB of the specification limit, quasi-peak measurements were taken using the quasi-peak detector.

Average

For certain frequencies, average measurements may be made using the spectrum analyzer/receiver. To make these measurements, the test engineer reduces the video bandwidth on the measuring device until the modulation of the signal is filtered out. At this point the measuring device is set into the linear mode and the scan time is reduced.