SmartLabs, Inc.

TEST REPORT FOR

Micro Module Dimmer, 24422
Micro Module Relay, 24432
Micro Module Shutter, 24442

Tested To The Following Standards:

FCC Part 15 Subpart C Section 15.249
and
RSS 210 Issue 8

Report No.: 93082-20

Date of issue: May 18, 2012

ACCREDITED
Testing Certificates:
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.

Testing the Future
CKC LABORATORIES, INC.

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ADMINISTRATIVE INFORMATION

Test Report Information

REPORT PREPARED FOR:

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

Representative: Matthew Meyer
Customer Reference Number: 12-3MM0419-01

REPORT PREPARED BY:

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

Project Number: 93082

DATE OF EQUIPMENT RECEIPT: April 25, 2012
DATE(S) OF TESTING: April 25- May 14, 2012

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	CB #	Taiwan	Canada	FCC	Japan
Brea A	US0060	SL2-IN-E-1146R	3082D-1	90473	R-2945 C-3248 T-1572

SUMMARY OF RESULTS

Standard / Specification: FCC Part 15 Subpart C § 15.249 and RSS 210 Issue 8

Description	Test Procedure/Method	Results
Voltage Variation	FCC Part 15 Subpart C Section 15.31(e)	Pass
Conducted Emissions	FCC Part 15 Subpart C Section 15.207 / ANSI C63.4 (2003)	Pass
RF Power Output	FCC Part 15 Subpart C Section 15.249(a)	Pass
-20dBc Occupied Bandwidth	FCC Part 15 Subpart C Section 15.249	Pass
Bandedge	FCC Part 15 Subpart C	Pass
Field Strength of Harmonic & Spurious Emissions	FCC Part 15 Subpart C Section 15.249(b)(d)	Pass
99% Bandwidth	RSS 210 Issue 8	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
During testing of the Micro Module Dimmer, 24422, the following modifications were made: Antenna protrudes out of EUT case. During testing of the Micro Module Relay, 24432, the following modifications were made: Antenna protrudes out of EUT case. Increasing antenna length from 3 1/4 to 4 inches. Drop power supply voltage from 22V to 20V. Change radio design C34 from 100pF to 3.3 pF, L5 from DNP to 5.6nH, C35 from 1.8pF to 4.7pF During testing of the Micro Module Shutter, 24442, the following modifications were made: Antenna protrudes out of EUT case. Increasing antenna length from 3 1/4 to 4 inches.

EQUIPMENT UNDER TEST (EUT)

EQUIPMENT UNDER TEST

Micro Module Dimmer
Manuf: SmartLabs, Inc.
Model: 24422
Serial: NA

Micro Module Relay
Manuf: SmartLabs, Inc.
Model: 24432
Serial: NA

Micro Module Shutter
Manuf: SmartLabs, Inc.
Model: 24442
Serial: NA

PERIPHERAL DEVICES

The EUT was tested with the following peripheral device(s):

Light Bulb fixture
Manuf: Sylvania
Model: Hi Spot 63 Halogen
Serial: R42-61-W

Switcher
Manuf: Leviton
Model: S02-5601-2WS
Serial: 078477104163

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.

15.31(e) Voltage Variations

Test Conditions / Setup

Note: Test conditions and setup listed below applies to the Micro Module Dimmer, Micro Module Relay, and the Micro Module Shutter.

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.

The EUT is set in constant transmit mode.

TX freq = 914.5-915.5 MHz
Frequency range of measurement = Fundamental
RBW=120 kHz, VBW=120 kHz

15.31(e) compliance: the supply voltage was varied between 85% and 115% of the nominal rated supply voltage (110vac and 270 Vac) no change in the Fundamental signal level was observed.

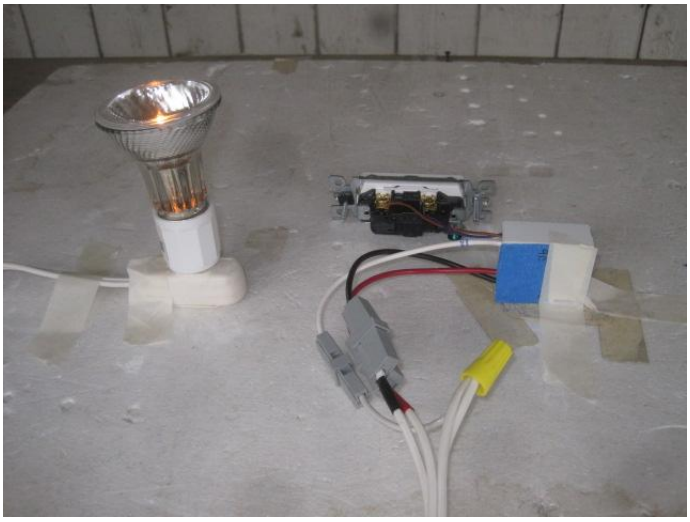
Test environment conditions:
Temp: 20°C,
Relative Humidity: 42%
100kPa
Modifications: increasing antenna length from 3 1/4 to 4 inches.

Engineer Name: Don Nguyen

Test Equipment					
Asset/Serial #	**Description**	**Model**	**Manufacturer**	**Cal Date**	**Cal Due**
AN00309	Preamp	8447D	HP	3/29/2012	3/29/2014
ANP05050	Cable	RG223/U	Pasternack	3/21/2011	3/21/2013
ANP05198	Cable	8268	Belden	12/21/2010	12/21/2012
AN01996	Biconilog Antenna	CBL6111C	Chase	3/2/2012	3/2/2014
AN02672	Spectrum Analyzer	E4446A	Agilent	8/9/2010	8/9/2012

Test Setup Photos

FRONT VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER



BACK VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER

15.207 AC Conducted Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/26/2012
Test Type: **Conducted Emissions** Time: 08:46:33
Equipment: **Micro Module Dimmer** Sequence#: 9
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24422 120V 60Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T3	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Dimmer*	SmartLabs, Inc.	24422	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

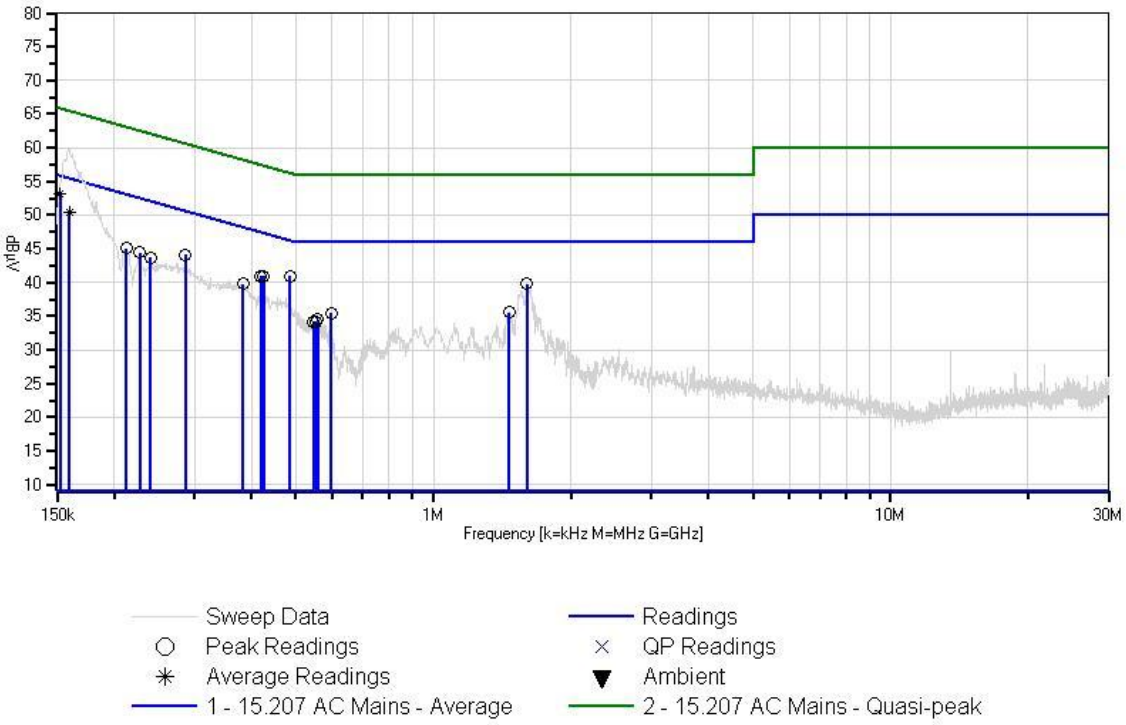
The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned off. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18°C, 42% relative humidity, 100kPa
Note: The light bulb for dimmer EUT is turned off because when it is turned on, interference from triac dimmer circuitry would invalidate the readings of the conducted emissions test.

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L1 (Live)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	152.242k Ave	45.7	+5.8	+1.7	+0.0	+0.0	+0.0	53.2	55.9	-2.7	L1 (L
^	152.242k	53.9	+5.8	+1.7	+0.0	+0.0	+0.0	61.4	55.9	+5.5	L1 (L
3	159.454k Ave	44.0	+5.8	+0.6	+0.0	+0.0	+0.0	50.4	55.5	-5.1	L1 (L
^	159.454k	53.6	+5.8	+0.6	+0.0	+0.0	+0.0	60.0	55.5	+4.5	L1 (L
5	484.515k	35.0	+5.7	+0.2	+0.0	+0.1	+0.0	41.0	46.3	-5.3	L1 (L
6	1.600M	33.7	+5.8	+0.2	+0.0	+0.1	+0.0	39.8	46.0	-6.2	L1 (L
7	425.611k	35.0	+5.7	+0.2	+0.0	+0.1	+0.0	41.0	47.3	-6.3	L1 (L
8	419.066k	35.0	+5.7	+0.2	+0.0	+0.1	+0.0	41.0	47.5	-6.5	L1 (L
9	286.715k	38.1	+5.7	+0.2	+0.0	+0.1	+0.0	44.1	50.6	-6.5	L1 (L
10	212.540k	39.1	+5.8	+0.2	+0.0	+0.0	+0.0	45.1	53.1	-8.0	L1 (L
11	227.811k	38.4	+5.8	+0.2	+0.0	+0.0	+0.0	44.4	52.5	-8.1	L1 (L
12	382.706k	33.8	+5.7	+0.2	+0.0	+0.1	+0.0	39.8	48.2	-8.4	L1 (L
13	240.174k	37.7	+5.8	+0.2	+0.0	+0.0	+0.0	43.7	52.1	-8.4	L1 (L
14	1.464M	29.5	+5.8	+0.2	+0.0	+0.1	+0.0	35.6	46.0	-10.4	L1 (L
15	597.232k	29.5	+5.8	+0.2	+0.0	+0.0	+0.0	35.5	46.0	-10.5	L1 (L
16	557.963k	28.5	+5.8	+0.2	+0.0	+0.0	+0.0	34.5	46.0	-11.5	L1 (L
17	552.145k	28.2	+5.8	+0.2	+0.0	+0.0	+0.0	34.2	46.0	-11.8	L1 (L
18	545.600k	28.2	+5.8	+0.2	+0.0	+0.0	+0.0	34.2	46.0	-11.8	L1 (L

CKC Laboratories, Inc. Date: 4/26/2012 Time: 08:46:33 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L1 (Live) 120V 60Hz Sequence#: 9 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/26/2012
Test Type: **Conducted Emissions** Time: 08:51:10
Equipment: **Micro Module Dimmer** Sequence#: 10
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24422 120V 60Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
T3	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Dimmer*	SmartLabs, Inc.	24422	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned off. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18°C, 42% relative humidity, 100kPa
Note: The light bulb for dimmer EUT is turned off because when it is turned on, interference from triac dimmer circuitry would invalidate the readings of the conducted emissions test.

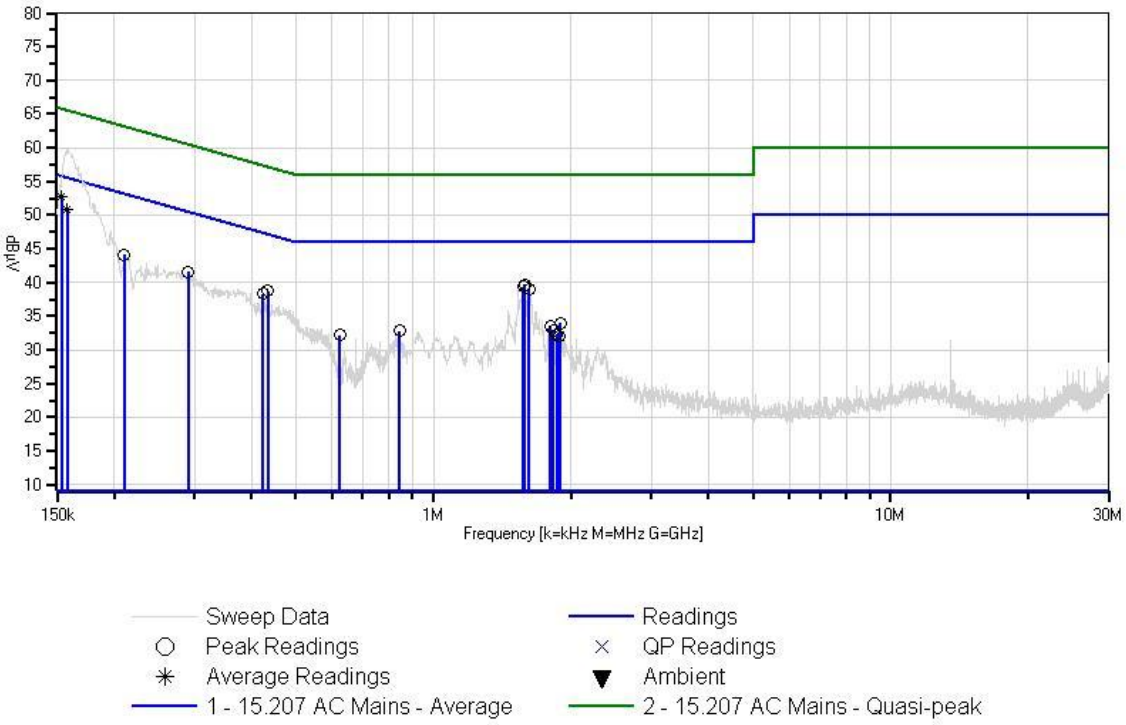
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L2 (Neutral)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	153.546k Ave	45.4	+5.8	+1.5	+0.0	+0.0	+0.0	52.7	55.8	-3.1	L2 (N
2	157.999k Ave	44.3	+5.8	+0.8	+0.0	+0.0	+0.0	50.9	55.6	-4.7	L2 (N
^	153.546k	53.6	+5.8	+1.5	+0.0	+0.0	+0.0	60.9	55.8	+5.1	L2 (N
^	157.999k	53.4	+5.8	+0.8	+0.0	+0.0	+0.0	60.0	55.6	+4.4	L2 (N

5	1.583M	33.5	+5.8	+0.2	+0.1	+0.1	+0.0	39.7	46.0	-6.3	L2 (N
6	1.575M	33.2	+5.8	+0.2	+0.1	+0.1	+0.0	39.4	46.0	-6.6	L2 (N
7	1.617M	32.8	+5.8	+0.2	+0.1	+0.1	+0.0	39.0	46.0	-7.0	L2 (N
8	433.610k	32.7	+5.7	+0.2	+0.0	+0.1	+0.0	38.7	47.2	-8.5	L2 (N
9	290.351k	35.6	+5.7	+0.2	+0.0	+0.1	+0.0	41.6	50.5	-8.9	L2 (N
10	422.702k	32.3	+5.7	+0.2	+0.0	+0.1	+0.0	38.3	47.4	-9.1	L2 (N
11	210.358k	38.1	+5.8	+0.2	+0.0	+0.0	+0.0	44.1	53.2	-9.1	L2 (N
12	1.898M	27.8	+5.8	+0.2	+0.1	+0.1	+0.0	34.0	46.0	-12.0	L2 (N
13	1.804M	27.4	+5.8	+0.2	+0.1	+0.1	+0.0	33.6	46.0	-12.4	L2 (N
14	1.826M	26.7	+5.8	+0.2	+0.1	+0.1	+0.0	32.9	46.0	-13.1	L2 (N
15	843.027k	26.7	+5.8	+0.2	+0.0	+0.1	+0.0	32.8	46.0	-13.2	L2 (N
16	624.138k	26.2	+5.8	+0.2	+0.0	+0.0	+0.0	32.2	46.0	-13.8	L2 (N
17	1.860M	26.0	+5.8	+0.2	+0.1	+0.1	+0.0	32.2	46.0	-13.8	L2 (N
18	1.881M	25.8	+5.8	+0.2	+0.1	+0.1	+0.0	32.0	46.0	-14.0	L2 (N

CKC Laboratories, Inc. Date: 4/26/2012 Time: 08:51:10 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L2 (Neutral) 120V 60Hz Sequence#: 10 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Conducted Emissions** Time: 11:50:21
Equipment: **Micro Module Dimmer** Sequence#: 20
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24422 230V 50Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T3	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Dimmer*	SmartLabs, Inc.	24422	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned off. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18°C, 42% relative humidity, 100kPa
Note: The light bulb for dimmer EUT is turned off because when it is turned on, interference from triac dimmer circuitry would invalidate the readings of the conducted emissions test.

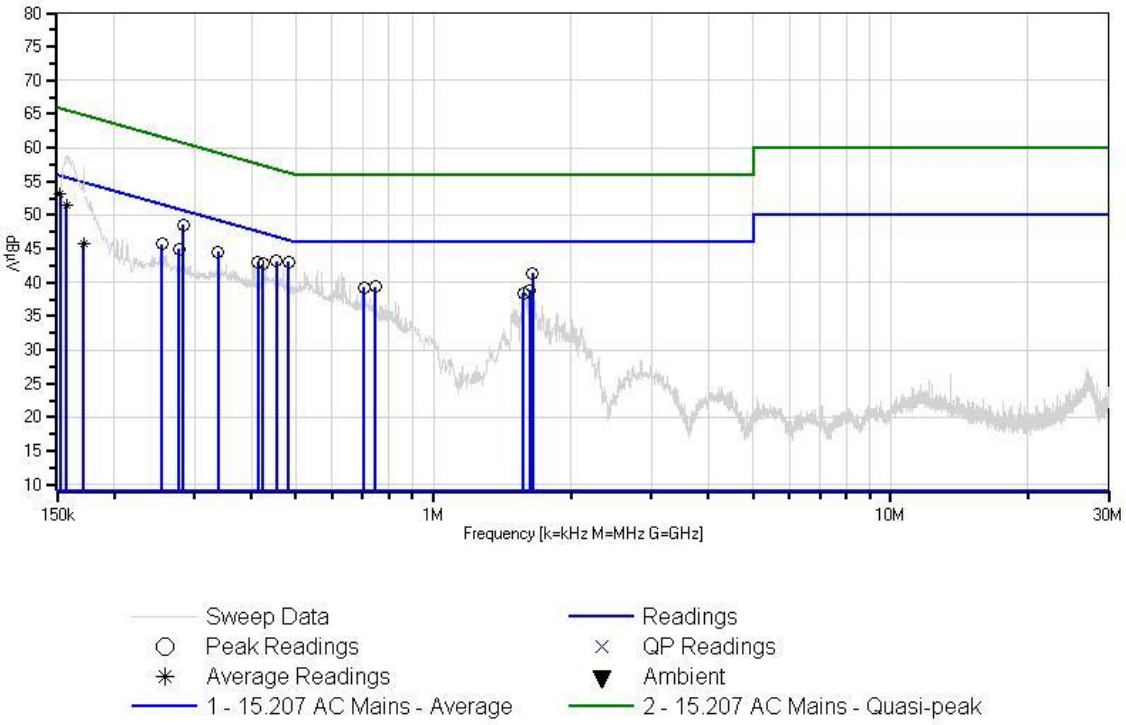
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L1 (Live)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	283.805k	42.6	+5.7	+0.2	+0.0	+0.1	+0.0	48.6	50.7	-2.1	L1 (L
2	152.630k Ave	45.7	+5.8	+1.7	+0.0	+0.0	+0.0	53.2	55.9	-2.7	L1 (L
3	481.605k	37.1	+5.7	+0.2	+0.0	+0.1	+0.0	43.1	46.3	-3.2	L1 (L
4	453.244k	37.2	+5.7	+0.2	+0.0	+0.1	+0.0	43.2	46.8	-3.6	L1 (L

5	157.271k	44.7	+5.8	+0.9	+0.0	+0.0	+0.0	51.4	55.6	-4.2	L1 (L
Ave											
^	157.271k	52.3	+5.8	+0.9	+0.0	+0.0	+0.0	59.0	55.6	+3.4	L1 (L
^	152.630k	51.7	+5.8	+1.7	+0.0	+0.0	+0.0	59.2	55.9	+3.3	L1 (L
8	412.520k	37.1	+5.7	+0.2	+0.0	+0.1	+0.0	43.1	47.6	-4.5	L1 (L
9	423.428k	36.8	+5.7	+0.2	+0.0	+0.1	+0.0	42.8	47.4	-4.6	L1 (L
10	1.647M	35.3	+5.8	+0.2	+0.0	+0.1	+0.0	41.4	46.0	-4.6	L1 (L
11	337.618k	38.6	+5.7	+0.2	+0.0	+0.1	+0.0	44.6	49.3	-4.7	L1 (L
12	254.717k	39.7	+5.8	+0.2	+0.0	+0.0	+0.0	45.7	51.6	-5.9	L1 (L
13	277.260k	39.0	+5.8	+0.2	+0.0	+0.0	+0.0	45.0	50.9	-5.9	L1 (L
14	747.035k	33.4	+5.8	+0.2	+0.0	+0.0	+0.0	39.4	46.0	-6.6	L1 (L
15	703.403k	33.3	+5.8	+0.2	+0.0	+0.0	+0.0	39.3	46.0	-6.7	L1 (L
16	1.626M	32.7	+5.8	+0.2	+0.0	+0.1	+0.0	38.8	46.0	-7.2	L1 (L
17	1.575M	32.3	+5.8	+0.2	+0.0	+0.1	+0.0	38.4	46.0	-7.6	L1 (L
18	171.815k	39.6	+5.8	+0.4	+0.0	+0.0	+0.0	45.8	54.9	-9.1	L1 (L
Ave											
^	171.815k	50.8	+5.8	+0.4	+0.0	+0.0	+0.0	57.0	54.9	+2.1	L1 (L

CKC Laboratories, Inc. Date: 4/27/2012 Time: 11:50:21 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L1 (Live) 230V 50Hz Sequence#: 20 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Conducted Emissions** Time: 11:41:39
Equipment: **Micro Module Dimmer** Sequence#: 19
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24422 230V 50Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
T3	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Dimmer*	SmartLabs, Inc.	24422	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned off. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18°C, 42% relative humidity, 100kPa
Note: The light bulb for dimmer EUT is turned off because when it is turned on, interference from triac dimmer circuitry would invalidate the readings of the conducted emissions test.

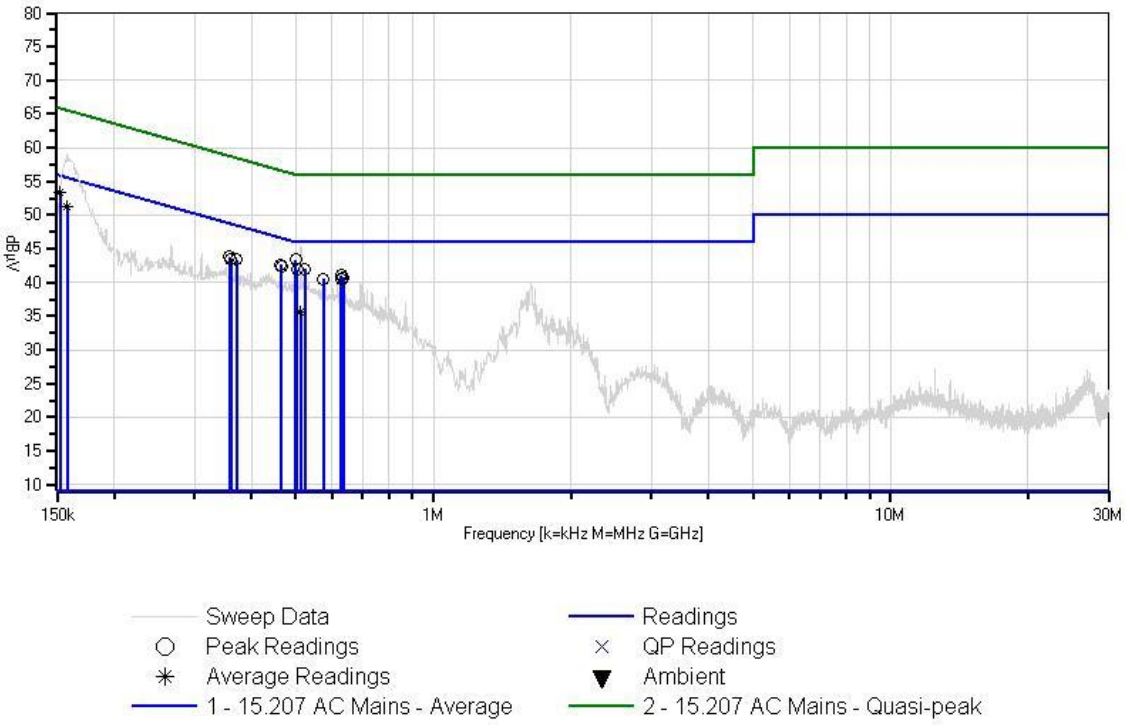
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L2 (Neutral)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1 Ave	152.711k	45.9	+5.8	+1.7	+0.0	+0.0	+0.0	53.4	55.9	-2.5	L2 (N
^	152.711k	52.0	+5.8	+1.7	+0.0	+0.0	+0.0	59.5	55.9	+3.6	L2 (N
3	499.058k	37.4	+5.7	+0.2	+0.0	+0.1	+0.0	43.4	46.0	-2.6	L2 (N
4	463.425k	36.7	+5.7	+0.2	+0.0	+0.1	+0.0	42.7	46.6	-3.9	L2 (N

5	523.056k	36.0	+5.7	+0.2	+0.0	+0.1	+0.0	42.0	46.0	-4.0	L2 (N
6	503.421k	35.9	+5.7	+0.2	+0.0	+0.1	+0.0	41.9	46.0	-4.1	L2 (N
7	465.606k	36.3	+5.7	+0.2	+0.0	+0.1	+0.0	42.3	46.6	-4.3	L2 (N
8	157.998k Ave	44.6	+5.8	+0.8	+0.0	+0.0	+0.0	51.2	55.6	-4.4	L2 (N
^	157.998k	52.5	+5.8	+0.8	+0.0	+0.0	+0.0	59.1	55.6	+3.5	L2 (N
10	627.773k	35.1	+5.8	+0.2	+0.0	+0.0	+0.0	41.1	46.0	-4.9	L2 (N
11	357.253k	37.8	+5.7	+0.2	+0.0	+0.1	+0.0	43.8	48.8	-5.0	L2 (N
12	370.342k	37.4	+5.7	+0.2	+0.0	+0.1	+0.0	43.4	48.5	-5.1	L2 (N
13	360.162k	37.5	+5.7	+0.2	+0.0	+0.1	+0.0	43.5	48.7	-5.2	L2 (N
14	635.045k	34.8	+5.8	+0.2	+0.0	+0.0	+0.0	40.8	46.0	-5.2	L2 (N
15	573.960k	34.5	+5.8	+0.2	+0.0	+0.0	+0.0	40.5	46.0	-5.5	L2 (N
16	630.682k	34.5	+5.8	+0.2	+0.0	+0.0	+0.0	40.5	46.0	-5.5	L2 (N
17	512.875k Ave	29.6	+5.7	+0.2	+0.0	+0.1	+0.0	35.6	46.0	-10.4	L2 (N
^	512.875k	39.4	+5.7	+0.2	+0.0	+0.1	+0.0	45.4	46.0	-0.6	L2 (N
^	509.966k	35.2	+5.7	+0.2	+0.0	+0.1	+0.0	41.2	46.0	-4.8	L2 (N

CKC Laboratories, Inc. Date: 4/27/2012 Time: 11:41:39 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L2 (Neutral) 230V 50Hz Sequence#: 19 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Conducted Emissions** Time: 10:16:22
Equipment: **Micro Module Relay** Sequence#: 10
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24432 120V 60Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T3	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Relay*	SmartLabs, Inc.	24432	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.

TX freq = 914.5-915.5 MHz

Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;

Test environment conditions: 18°C, 42% relative humidity, 100kPa

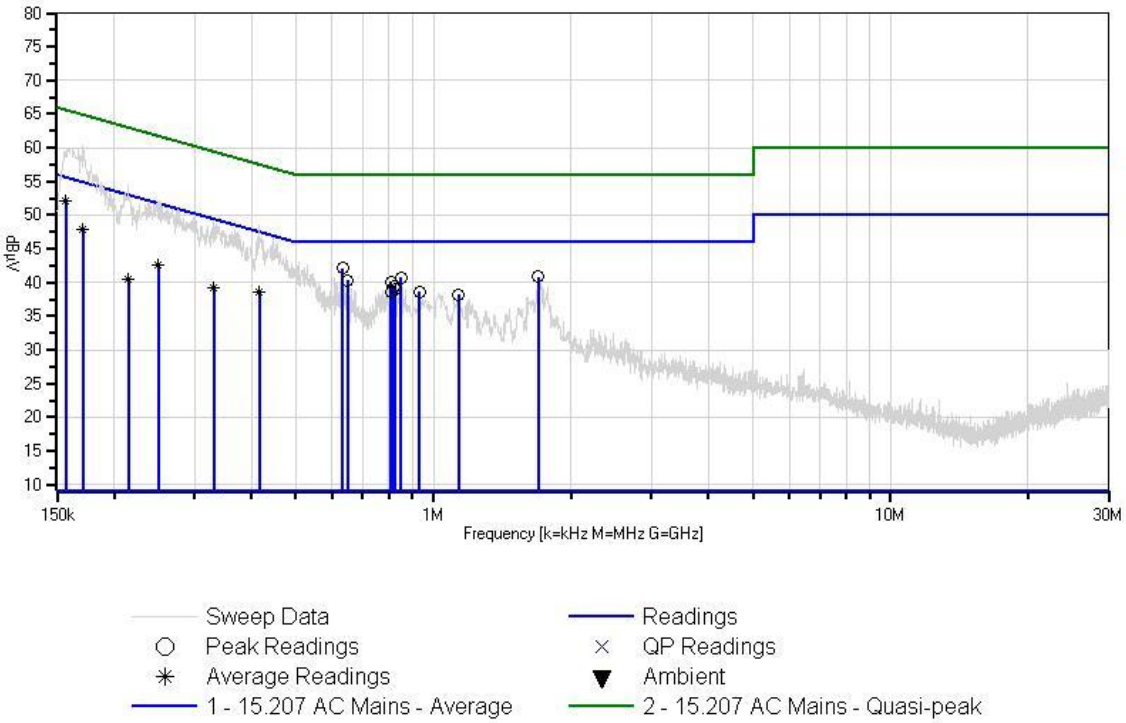
Modification: Antenna protrudes out of EUT case.
Drop power supply voltage from 22V to 20V.
Change radio design C34 from 100pF to 3.3 pF, L5 from DNP to 5.6nH, C35 from 1.8pF to 4.7pF

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L1 (Live)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	156.662k	45.3	+5.8	+1.0	+0.0	+0.0	+0.0	52.1	55.6	-3.5	L1 (L
	Ave										
^	156.662k	53.4	+5.8	+1.0	+0.0	+0.0	+0.0	60.2	55.6	+4.6	L1 (L
3	633.592k	36.1	+5.8	+0.2	+0.0	+0.0	+0.0	42.1	46.0	-3.9	L1 (L
4	1.698M	34.8	+5.8	+0.2	+0.0	+0.1	+0.0	40.9	46.0	-5.1	L1 (L
5	847.391k	34.7	+5.8	+0.2	+0.0	+0.1	+0.0	40.8	46.0	-5.2	L1 (L
6	649.591k	34.3	+5.8	+0.2	+0.0	+0.0	+0.0	40.3	46.0	-5.7	L1 (L
7	806.667k	34.1	+5.8	+0.2	+0.0	+0.0	+0.0	40.1	46.0	-5.9	L1 (L
8	817.575k	33.5	+5.8	+0.2	+0.0	+0.0	+0.0	39.5	46.0	-6.5	L1 (L
9	824.847k	33.0	+5.8	+0.2	+0.0	+0.0	+0.0	39.0	46.0	-7.0	L1 (L
10	171.089k	41.6	+5.8	+0.4	+0.0	+0.0	+0.0	47.8	54.9	-7.1	L1 (L
	Ave										
^	171.089k	54.2	+5.8	+0.4	+0.0	+0.0	+0.0	60.4	54.9	+5.5	L1 (L
12	932.490k	32.5	+5.8	+0.2	+0.0	+0.1	+0.0	38.6	46.0	-7.4	L1 (L
13	809.576k	32.5	+5.8	+0.2	+0.0	+0.0	+0.0	38.5	46.0	-7.5	L1 (L
14	1.137M	32.1	+5.8	+0.2	+0.0	+0.1	+0.0	38.2	46.0	-7.8	L1 (L
15	415.430k	32.5	+5.7	+0.2	+0.0	+0.1	+0.0	38.5	47.5	-9.0	L1 (L
	Ave										
^	415.430k	42.6	+5.7	+0.2	+0.0	+0.1	+0.0	48.6	47.5	+1.1	L1 (L
17	250.354k	36.5	+5.8	+0.2	+0.0	+0.0	+0.0	42.5	51.7	-9.2	L1 (L
	Ave										
^	250.354k	46.3	+5.8	+0.2	+0.0	+0.0	+0.0	52.3	51.7	+0.6	L1 (L
19	331.074k	33.3	+5.7	+0.2	+0.0	+0.1	+0.0	39.3	49.4	-10.1	L1 (L
	Ave										
^	331.074k	43.2	+5.7	+0.2	+0.0	+0.1	+0.0	49.2	49.4	-0.2	L1 (L
21	214.721k	34.5	+5.8	+0.2	+0.0	+0.0	+0.0	40.5	53.0	-12.5	L1 (L
	Ave										
^	214.721k	48.4	+5.8	+0.2	+0.0	+0.0	+0.0	54.4	53.0	+1.4	L1 (L

CKC Laboratories, Inc. Date: 4/27/2012 Time: 10:16:22 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L1 (Live) 120V 60Hz Sequence#: 10 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Conducted Emissions** Time: 10:23:13
Equipment: **Micro Module Relay** Sequence#: 11
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24432 120V 60Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
T3	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Relay*	SmartLabs, Inc.	24432	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

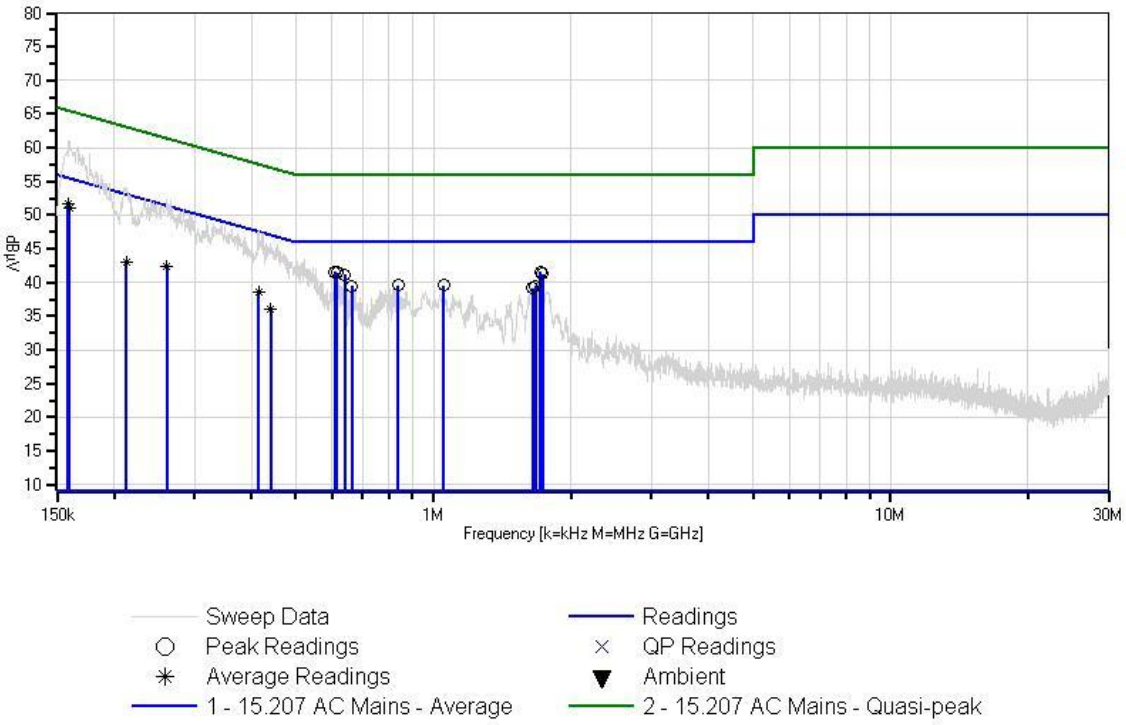
The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18°C, 42% relative humidity, 100kPa
Modification: Antenna protrudes out of EUT case.
Drop power supply voltage from 22V to 20V.
Change radio design C34 from 100pF to 3.3 pF, L5 from DNP to 5.6nH, C35 from 1.8pF to 4.7pF

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L2 (Neutral)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	158.304k Ave	45.1	+5.8	+0.8	+0.0	+0.0	+0.0	51.7	55.6	-3.9	L2 (N
2	607.413k	35.6	+5.8	+0.2	+0.0	+0.0	+0.0	41.6	46.0	-4.4	L2 (N
3	1.715M	35.4	+5.8	+0.2	+0.1	+0.1	+0.0	41.6	46.0	-4.4	L2 (N
4	159.454k Ave	44.7	+5.8	+0.6	+0.0	+0.0	+0.0	51.1	55.5	-4.4	L2 (N
^	159.454k	54.7	+5.8	+0.6	+0.0	+0.0	+0.0	61.1	55.5	+5.6	L2 (N
^	158.304k	53.4	+5.8	+0.8	+0.0	+0.0	+0.0	60.0	55.6	+4.4	L2 (N
7	614.685k	35.5	+5.8	+0.2	+0.0	+0.0	+0.0	41.5	46.0	-4.5	L2 (N
8	1.732M	35.1	+5.8	+0.2	+0.1	+0.1	+0.0	41.3	46.0	-4.7	L2 (N
9	639.410k	35.2	+5.8	+0.2	+0.0	+0.0	+0.0	41.2	46.0	-4.8	L2 (N
10	1.052M	33.5	+5.8	+0.2	+0.0	+0.1	+0.0	39.6	46.0	-6.4	L2 (N
11	837.937k	33.5	+5.8	+0.2	+0.0	+0.1	+0.0	39.6	46.0	-6.4	L2 (N
12	661.953k	33.5	+5.8	+0.2	+0.0	+0.0	+0.0	39.5	46.0	-6.5	L2 (N
13	1.672M	33.3	+5.8	+0.2	+0.1	+0.1	+0.0	39.5	46.0	-6.5	L2 (N
14	1.647M	33.0	+5.8	+0.2	+0.1	+0.1	+0.0	39.2	46.0	-6.8	L2 (N
15	261.263k Ave	36.4	+5.8	+0.2	+0.0	+0.0	+0.0	42.4	51.4	-9.0	L2 (N
^	261.263k	46.5	+5.8	+0.2	+0.0	+0.0	+0.0	52.5	51.4	+1.1	L2 (N
17	414.703k Ave	32.5	+5.7	+0.2	+0.0	+0.1	+0.0	38.5	47.6	-9.1	L2 (N
^	414.703k	41.8	+5.7	+0.2	+0.0	+0.1	+0.0	47.8	47.6	+0.2	L2 (N
19	212.540k Ave	37.0	+5.8	+0.2	+0.0	+0.0	+0.0	43.0	53.1	-10.1	L2 (N
^	212.540k	48.2	+5.8	+0.2	+0.0	+0.0	+0.0	54.2	53.1	+1.1	L2 (N
21	440.882k Ave	30.1	+5.7	+0.2	+0.0	+0.1	+0.0	36.1	47.0	-10.9	L2 (N
^	440.882k	39.8	+5.7	+0.2	+0.0	+0.1	+0.0	45.8	47.0	-1.2	L2 (N

CKC Laboratories, Inc. Date: 4/27/2012 Time: 10:23:13 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L2 (Neutral) 120V 60Hz Sequence#: 11 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Conducted Emissions** Time: 10:48:41
Equipment: **Micro Module Relay** Sequence#: 13
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24432 230V 50Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T3	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Relay*	SmartLabs, Inc.	24432	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

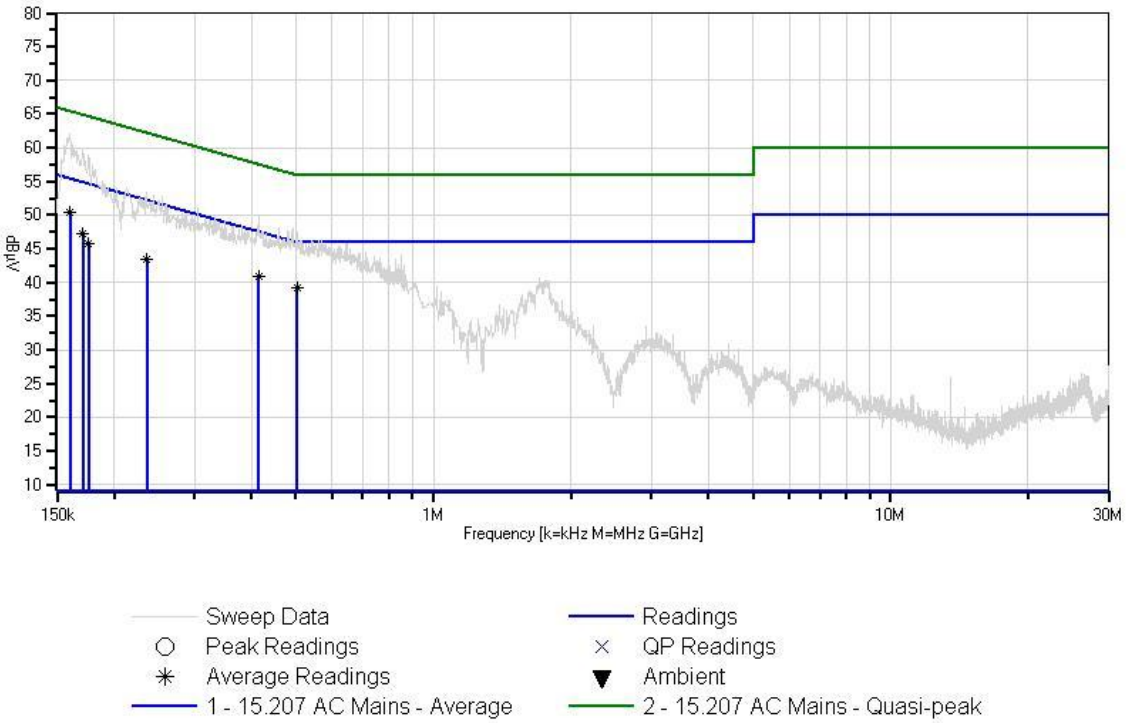
The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18°C, 42% relative humidity, 100kPa
Modification: Antenna protrudes out of EUT case.
Drop power supply voltage from 22V to 20V.
Change radio design C34 from 100pF to 3.3 pF, L5 from DNP to 5.6nH, C35 from 1.8pF to 4.7pF

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L1 (Live)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	160.181k Ave	44.2	+5.8	+0.5	+0.0	+0.0	+0.0	50.5	55.5	-5.0	L1 (L
^	160.181k	55.7	+5.8	+0.5	+0.0	+0.0	+0.0	62.0	55.5	+6.5	L1 (L
^	162.363k	54.1	+5.8	+0.5	+0.0	+0.0	+0.0	60.4	55.3	+5.1	L1 (L
4	413.976k Ave	34.9	+5.7	+0.2	+0.0	+0.1	+0.0	40.9	47.6	-6.7	L1 (L
^	413.976k	44.0	+5.7	+0.2	+0.0	+0.1	+0.0	50.0	47.6	+2.4	L1 (L
6	503.422k Ave	33.2	+5.7	+0.2	+0.0	+0.1	+0.0	39.2	46.0	-6.8	L1 (L
^	503.422k	41.4	+5.7	+0.2	+0.0	+0.1	+0.0	47.4	46.0	+1.4	L1 (L
8	171.089k Ave	41.0	+5.8	+0.4	+0.0	+0.0	+0.0	47.2	54.9	-7.7	L1 (L
^	171.089k	53.6	+5.8	+0.4	+0.0	+0.0	+0.0	59.8	54.9	+4.9	L1 (L
10	235.810k Ave	37.4	+5.8	+0.2	+0.0	+0.0	+0.0	43.4	52.2	-8.8	L1 (L
^	235.810k	47.5	+5.8	+0.2	+0.0	+0.0	+0.0	53.5	52.2	+1.3	L1 (L
12	176.179k Ave	39.6	+5.8	+0.3	+0.0	+0.0	+0.0	45.7	54.7	-9.0	L1 (L
^	176.179k	52.8	+5.8	+0.3	+0.0	+0.0	+0.0	58.9	54.7	+4.2	L1 (L
^	179.088k	51.3	+5.8	+0.3	+0.0	+0.0	+0.0	57.4	54.5	+2.9	L1 (L

CKC Laboratories, Inc. Date: 4/27/2012 Time: 10:48:41 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L1 (Live) 230V 50Hz Sequence#: 13 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Conducted Emissions** Time: 10:36:59
Equipment: **Micro Module Relay** Sequence#: 12
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24432 230V 50Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
T3	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Relay*	SmartLabs, Inc.	24432	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

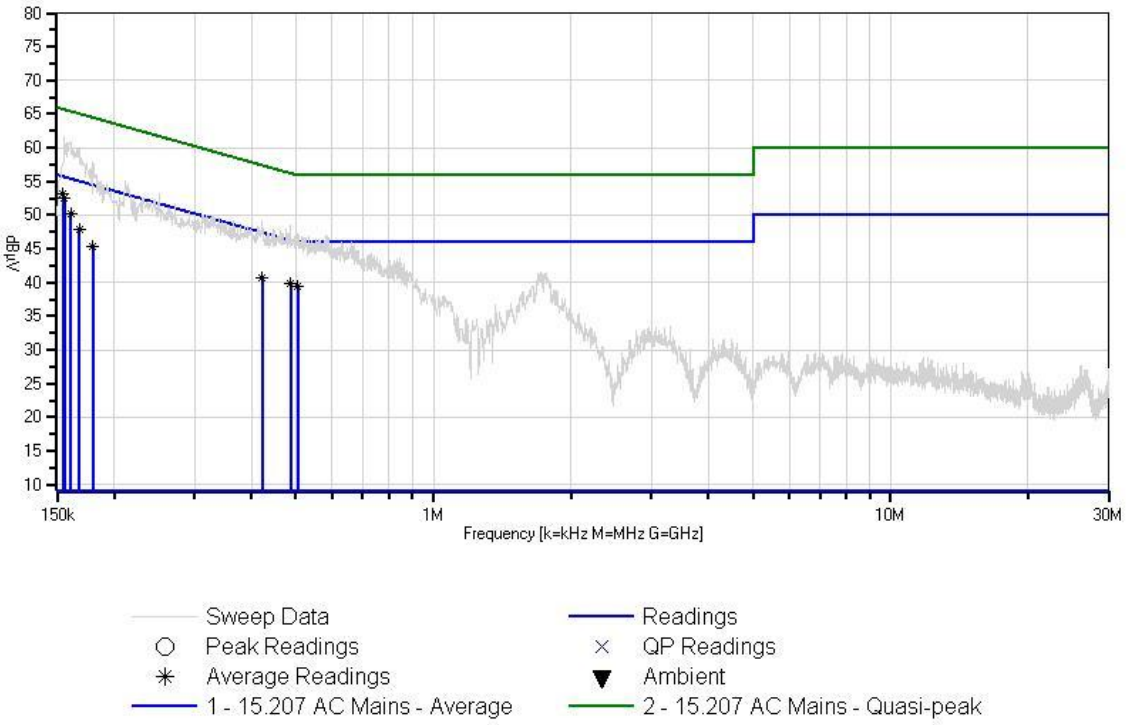
The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18° C, 42% relative humidity, 100kPa
Modification:
Antenna protrudes out of EUT case.
Drop power supply voltage from 22V to 20V.
Change radio design C34 from 100pF to 3.3 pF, L5 from DNP to 5.6nH, C35 from 1.8pF to 4.7pF

Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L2 (Neutral)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1 Ave	154.438k	45.9	+5.8	+1.4	+0.0	+0.0	+0.0	53.1	55.8	-2.7	L2 (N
2 Ave	155.818k	45.5	+5.8	+1.2	+0.0	+0.0	+0.0	52.5	55.7	-3.2	L2 (N
^	154.438k	54.9	+5.8	+1.4	+0.0	+0.0	+0.0	62.1	55.8	+6.3	L2 (N
^	155.818k	54.6	+5.8	+1.2	+0.0	+0.0	+0.0	61.6	55.7	+5.9	L2 (N
5 Ave	160.908k	43.9	+5.8	+0.5	+0.0	+0.0	+0.0	50.2	55.4	-5.2	L2 (N
^	160.908k	54.6	+5.8	+0.5	+0.0	+0.0	+0.0	60.9	55.4	+5.5	L2 (N
^	157.272k	54.2	+5.8	+0.9	+0.0	+0.0	+0.0	60.9	55.6	+5.3	L2 (N
8 Ave	486.696k	33.9	+5.7	+0.2	+0.0	+0.1	+0.0	39.9	46.2	-6.3	L2 (N
^	486.696k	42.5	+5.7	+0.2	+0.0	+0.1	+0.0	48.5	46.2	+2.3	L2 (N
10 Ave	505.604k	33.5	+5.7	+0.2	+0.0	+0.1	+0.0	39.5	46.0	-6.5	L2 (N
^	505.604k	41.3	+5.7	+0.2	+0.0	+0.1	+0.0	47.3	46.0	+1.3	L2 (N
12 Ave	421.248k	34.7	+5.7	+0.2	+0.0	+0.1	+0.0	40.7	47.4	-6.7	L2 (N
^	421.248k	43.1	+5.7	+0.2	+0.0	+0.1	+0.0	49.1	47.4	+1.7	L2 (N
14 Ave	168.180k	41.7	+5.8	+0.4	+0.0	+0.0	+0.0	47.9	55.0	-7.1	L2 (N
^	168.180k	53.8	+5.8	+0.4	+0.0	+0.0	+0.0	60.0	55.0	+5.0	L2 (N
16 Ave	179.815k	39.3	+5.8	+0.3	+0.0	+0.0	+0.0	45.4	54.5	-9.1	L2 (N
^	179.815k	51.7	+5.8	+0.3	+0.0	+0.0	+0.0	57.8	54.5	+3.3	L2 (N

CKC Laboratories, Inc. Date: 4/27/2012 Time: 10:36:59 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L2 (Neutral) 230V 50Hz Sequence#: 12 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Conducted Emissions** Time: 11:24:01
Equipment: **Micro Module Shutter** Sequence#: 17
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24442 120V 60Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T3	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Shutter*	SmartLabs, Inc.	24442	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18°C, 42% relative humidity, 100kPa
Modification: Antenna protrudes out of EUT case.

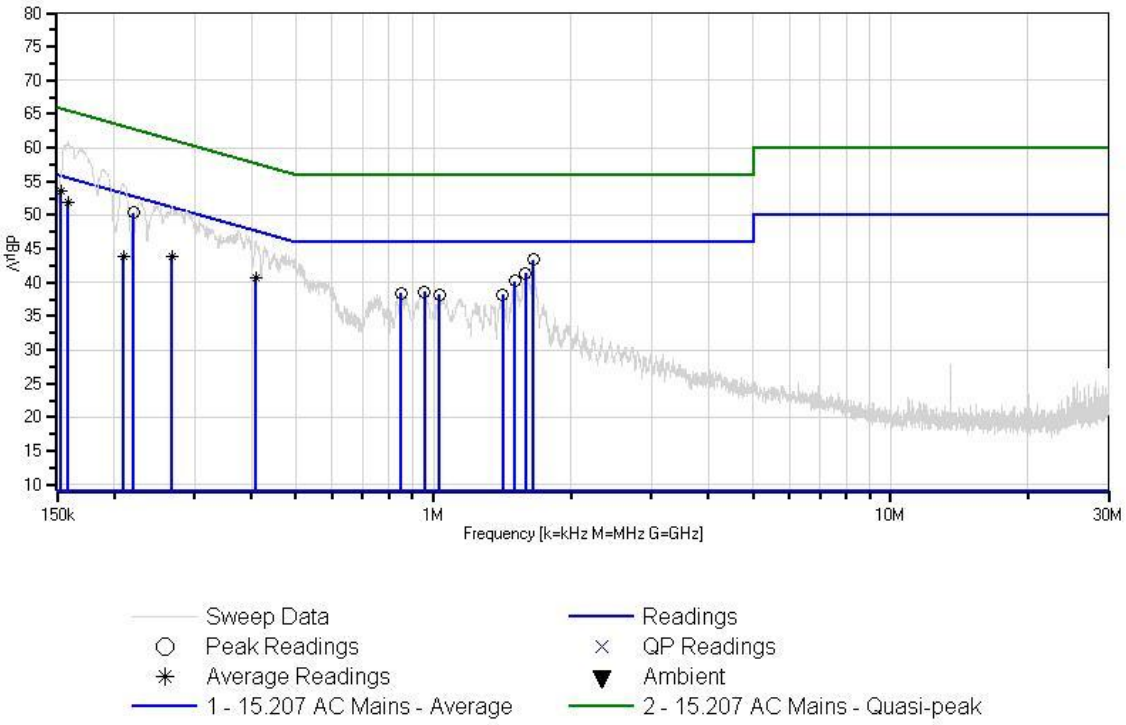
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L1 (Live)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	152.916k Ave	46.1	+5.8	+1.6	+0.0	+0.0	+0.0	53.5	55.8	-2.3	L1 (L
^	152.916k	54.3	+5.8	+1.6	+0.0	+0.0	+0.0	61.7	55.8	+5.9	L1 (L
3	220.538k	44.4	+5.8	+0.2	+0.0	+0.0	+0.0	50.4	52.8	-2.4	L1 (L
4	1.655M	37.3	+5.8	+0.2	+0.0	+0.1	+0.0	43.4	46.0	-2.6	L1 (L

5	158.725k	45.3	+5.8	+0.7	+0.0	+0.0	+0.0	51.8	55.5	-3.7	L1 (L Ave
^	158.725k	54.5	+5.8	+0.7	+0.0	+0.0	+0.0	61.0	55.5	+5.5	L1 (L
7	1.592M	35.3	+5.8	+0.2	+0.0	+0.1	+0.0	41.4	46.0	-4.6	L1 (L
8	1.507M	34.1	+5.8	+0.2	+0.0	+0.1	+0.0	40.2	46.0	-5.8	L1 (L
9	408.157k	34.8	+5.7	+0.2	+0.0	+0.1	+0.0	40.8	47.7	-6.9	L1 (L Ave
^	408.157k	40.2	+5.7	+0.2	+0.0	+0.1	+0.0	46.2	47.7	-1.5	L1 (L
11	953.754k	32.5	+5.8	+0.2	+0.0	+0.1	+0.0	38.6	46.0	-7.4	L1 (L
12	267.806k	37.8	+5.8	+0.2	+0.0	+0.0	+0.0	43.8	51.2	-7.4	L1 (L Ave
^	267.806k	45.3	+5.8	+0.2	+0.0	+0.0	+0.0	51.3	51.2	+0.1	L1 (L
14	850.298k	32.3	+5.8	+0.2	+0.0	+0.1	+0.0	38.4	46.0	-7.6	L1 (L
15	1.030M	32.1	+5.8	+0.2	+0.0	+0.1	+0.0	38.2	46.0	-7.8	L1 (L
16	1.417M	32.1	+5.8	+0.2	+0.0	+0.1	+0.0	38.2	46.0	-7.8	L1 (L
17	209.630k	37.8	+5.8	+0.2	+0.0	+0.0	+0.0	43.8	53.2	-9.4	L1 (L Ave
^	209.630k	48.8	+5.8	+0.2	+0.0	+0.0	+0.0	54.8	53.2	+1.6	L1 (L

CKC Laboratories, Inc. Date: 4/27/2012 Time: 11:24:01 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L1 (Live) 120V 60Hz Sequence#: 17 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Conducted Emissions** Time: 11:30:58
Equipment: **Micro Module Shutter** Sequence#: 18
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24442 120V 60Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
T3	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Shutter*	SmartLabs, Inc.	24442	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18°C, 42% relative humidity, 100kPa
Modification: Antenna protrudes out of EUT case.

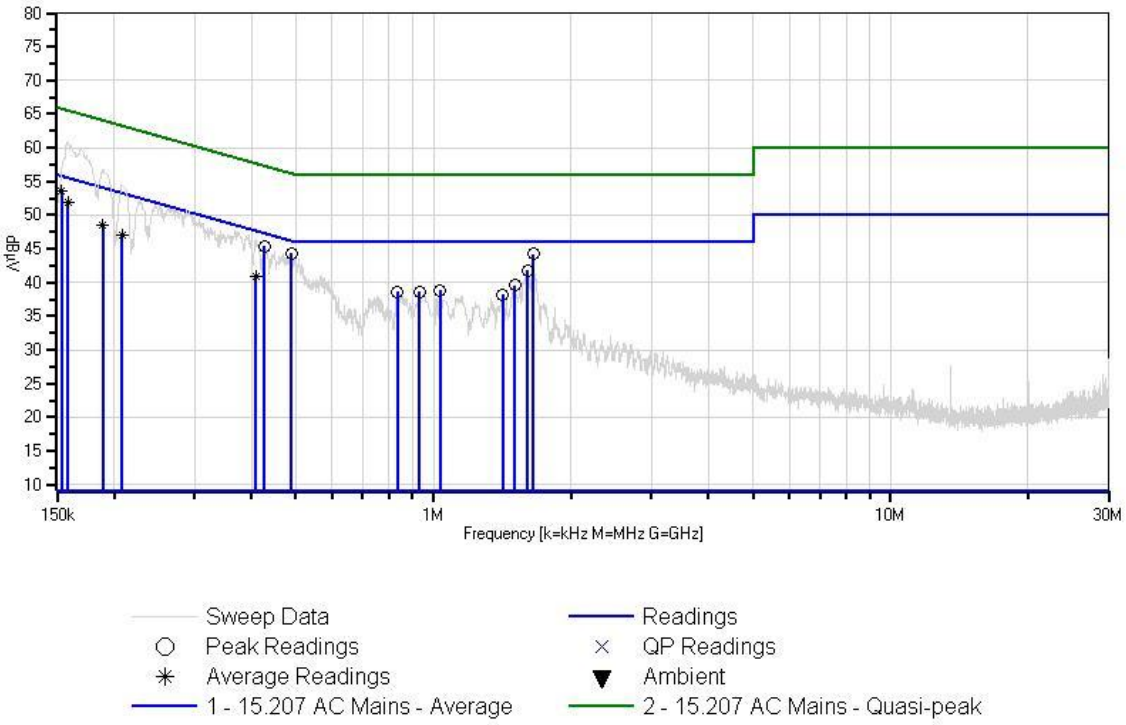
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L2 (Neutral)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	1.651M	38.0	+5.8	+0.2	+0.1	+0.1	+0.0	44.2	46.0	-1.8	L2 (N
2	488.877k	38.3	+5.7	+0.2	+0.0	+0.1	+0.0	44.3	46.2	-1.9	L2 (N
3	426.337k	39.4	+5.7	+0.2	+0.0	+0.1	+0.0	45.4	47.3	-1.9	L2 (N
4	153.537k Ave	46.3	+5.8	+1.5	+0.0	+0.0	+0.0	53.6	55.8	-2.2	L2 (N

^	153.537k	54.7	+5.8	+1.5	+0.0	+0.0	+0.0	62.0	55.8	+6.2	L2 (N
6	158.725k Ave	45.4	+5.8	+0.7	+0.0	+0.0	+0.0	51.9	55.5	-3.6	L2 (N
^	158.725k	54.3	+5.8	+0.7	+0.0	+0.0	+0.0	60.8	55.5	+5.3	L2 (N
8	1.604M	35.6	+5.8	+0.2	+0.1	+0.1	+0.0	41.8	46.0	-4.2	L2 (N
9	189.268k Ave	42.5	+5.8	+0.2	+0.0	+0.0	+0.0	48.5	54.1	-5.6	L2 (N
^	189.268k	50.8	+5.8	+0.2	+0.0	+0.0	+0.0	56.8	54.1	+2.7	L2 (N
11	208.175k Ave	41.0	+5.8	+0.2	+0.0	+0.0	+0.0	47.0	53.3	-6.3	L2 (N
^	208.175k	48.6	+5.8	+0.2	+0.0	+0.0	+0.0	54.6	53.3	+1.3	L2 (N
13	1.507M	33.4	+5.8	+0.2	+0.1	+0.1	+0.0	39.6	46.0	-6.4	L2 (N
14	408.157k Ave	35.0	+5.7	+0.2	+0.0	+0.1	+0.0	41.0	47.7	-6.7	L2 (N
^	408.157k	40.4	+5.7	+0.2	+0.0	+0.1	+0.0	46.4	47.7	-1.3	L2 (N
16	1.035M	32.7	+5.8	+0.2	+0.0	+0.1	+0.0	38.8	46.0	-7.2	L2 (N
17	833.573k	32.6	+5.8	+0.2	+0.0	+0.0	+0.0	38.6	46.0	-7.4	L2 (N
18	932.490k	32.5	+5.8	+0.2	+0.0	+0.1	+0.0	38.6	46.0	-7.4	L2 (N
19	1.417M	32.0	+5.8	+0.2	+0.1	+0.1	+0.0	38.2	46.0	-7.8	L2 (N

CKC Laboratories, Inc. Date: 4/27/2012 Time: 11:30:58 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L2 (Neutral) 120V 60Hz Sequence#: 18 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Conducted Emissions** Time: 11:16:09
Equipment: **Micro Module Shutter** Sequence#: 16
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24442 230V 50Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
T3	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Shutter*	SmartLabs, Inc.	24442	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18°C, 42% relative humidity, 100kPa
Modification: Antenna protrudes out of EUT case.

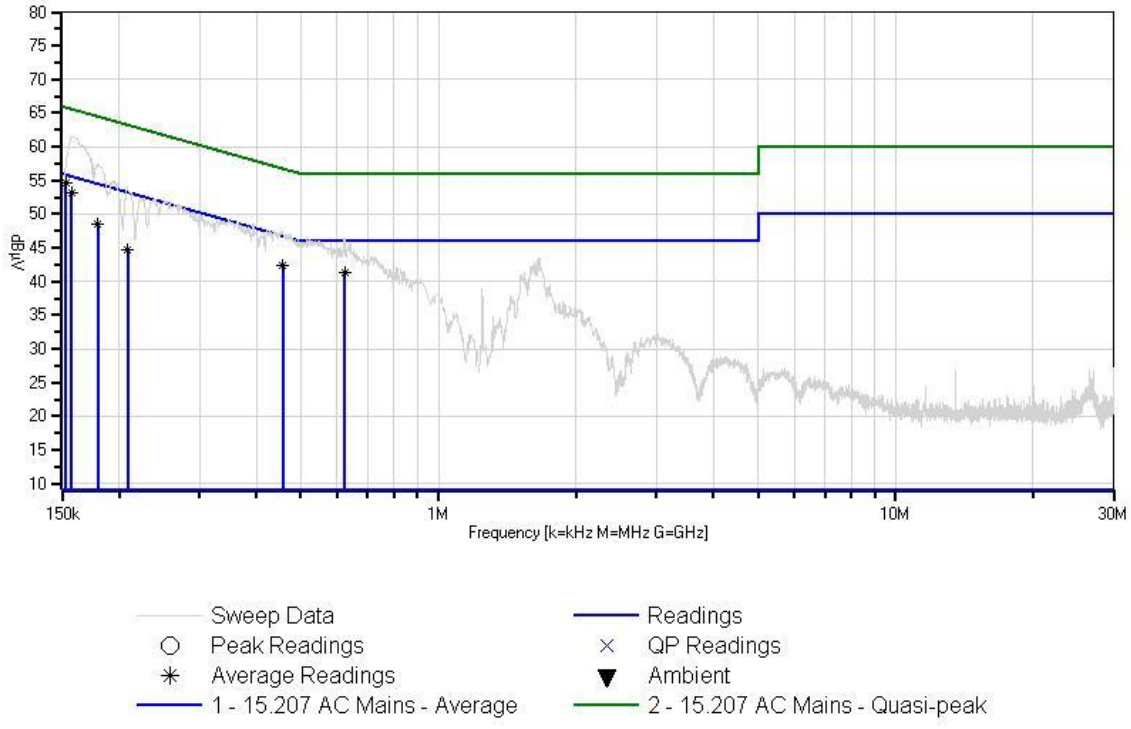
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L1 (Live)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	152.868k Ave	47.2	+5.8	+1.6	+0.0	+0.0	+0.0	54.6	55.8	-1.2	L1 (L
2	157.271k Ave	46.4	+5.8	+0.9	+0.0	+0.0	+0.0	53.1	55.6	-2.5	L1 (L
^	152.868k	55.7	+5.8	+1.6	+0.0	+0.0	+0.0	63.1	55.8	+7.3	L1 (L
^	157.271k	55.0	+5.8	+0.9	+0.0	+0.0	+0.0	61.7	55.6	+6.1	L1 (L

5	456.153k	36.4	+5.7	+0.2	+0.0	+0.1	+0.0	42.4	46.8	-4.4	L1 (L
	Ave										
^	456.153k	41.5	+5.7	+0.2	+0.0	+0.1	+0.0	47.5	46.8	+0.7	L1 (L
7	622.683k	35.3	+5.8	+0.2	+0.0	+0.0	+0.0	41.3	46.0	-4.7	L1 (L
	Ave										
^	622.683k	40.5	+5.8	+0.2	+0.0	+0.0	+0.0	46.5	46.0	+0.5	L1 (L
9	179.814k	42.5	+5.8	+0.3	+0.0	+0.0	+0.0	48.6	54.5	-5.9	L1 (L
	Ave										
^	179.814k	51.4	+5.8	+0.3	+0.0	+0.0	+0.0	57.5	54.5	+3.0	L1 (L
^	175.451k	51.4	+5.8	+0.3	+0.0	+0.0	+0.0	57.5	54.7	+2.8	L1 (L
12	208.903k	38.7	+5.8	+0.2	+0.0	+0.0	+0.0	44.7	53.2	-8.5	L1 (L
	Ave										
^	208.903k	48.0	+5.8	+0.2	+0.0	+0.0	+0.0	54.0	53.2	+0.8	L1 (L

CKC Laboratories, Inc. Date: 4/27/2012 Time: 11:16:09 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L1 (Live) 230V 50Hz Sequence#: 16 Ext ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.207 AC Mains - Average**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Conducted Emissions** Time: 11:06:58
Equipment: **Micro Module Shutter** Sequence#: 15
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24442 230V 50Hz
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T1	ANP06084	Attenuator	SA18N10W-06	12/8/2010	12/8/2012
T2	AN02610	High Pass Filter	HE9615-150K-50-720B	11/21/2011	11/21/2013
	AN00847.1	50uH LISN-Line 1 (dB)	3816/2NM	12/21/2010	12/21/2012
T3	AN00847.1	50uH LISN-Line 2 (dB)	3816/2NM	12/21/2010	12/21/2012
T4	ANP04358	Cable	RG142	4/10/2012	4/10/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Shutter*	SmartLabs, Inc.	24442	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 150kHz-30MHz
150 kHz-30 MHz; RBW=9 kHz, VBW=9 kHz;
Test environment conditions: 18°C, 42% relative humidity, 100kPa
Modification: Antenna protrudes out of EUT case.

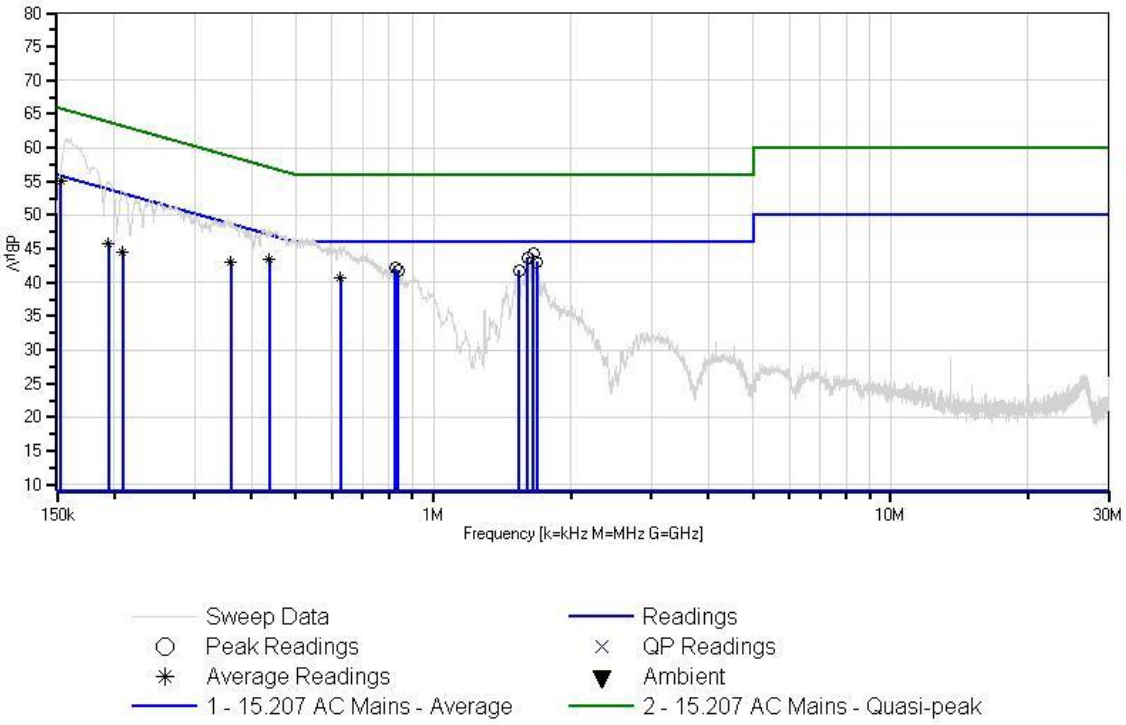
Ext Attn: 0 dB

Measurement Data: Reading listed by margin. Test Lead: L2 (Neutral)

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	T3 dB	T4 dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1 Ave	153.001k	47.6	+5.8	+1.6	+0.0	+0.0	+0.0	55.0	55.8	-0.8	L2 (N
^	153.001k	54.7	+5.8	+1.6	+0.0	+0.0	+0.0	62.1	55.8	+6.3	L2 (N
3	1.651M	38.0	+5.8	+0.2	+0.1	+0.1	+0.0	44.2	46.0	-1.8	L2 (N
4	1.609M	37.5	+5.8	+0.2	+0.1	+0.1	+0.0	43.7	46.0	-2.3	L2 (N

5	1.681M	36.9	+5.8	+0.2	+0.1	+0.1	+0.0	43.1	46.0	-2.9	L2 (N
6	437.974k Ave	37.5	+5.7	+0.2	+0.0	+0.1	+0.0	43.5	47.1	-3.6	L2 (N
^	437.974k	42.0	+5.7	+0.2	+0.0	+0.1	+0.0	48.0	47.1	+0.9	L2 (N
8	826.302k	36.1	+5.8	+0.2	+0.0	+0.0	+0.0	42.1	46.0	-3.9	L2 (N
9	837.210k	35.7	+5.8	+0.2	+0.0	+0.1	+0.0	41.8	46.0	-4.2	L2 (N
10	1.541M	35.6	+5.8	+0.2	+0.1	+0.1	+0.0	41.8	46.0	-4.2	L2 (N
11	624.866k Ave	34.8	+5.8	+0.2	+0.0	+0.0	+0.0	40.8	46.0	-5.2	L2 (N
^	624.866k	39.4	+5.8	+0.2	+0.0	+0.0	+0.0	45.4	46.0	-0.6	L2 (N
13	360.163k Ave	37.1	+5.7	+0.2	+0.0	+0.1	+0.0	43.1	48.7	-5.6	L2 (N
^	360.163k	43.1	+5.7	+0.2	+0.0	+0.1	+0.0	49.1	48.7	+0.4	L2 (N
15	194.360k Ave	39.7	+5.8	+0.2	+0.0	+0.0	+0.0	45.7	53.8	-8.1	L2 (N
^	194.360k	49.1	+5.8	+0.2	+0.0	+0.0	+0.0	55.1	53.8	+1.3	L2 (N
17	208.904k Ave	38.6	+5.8	+0.2	+0.0	+0.0	+0.0	44.6	53.2	-8.6	L2 (N
^	208.904k	47.6	+5.8	+0.2	+0.0	+0.0	+0.0	53.6	53.2	+0.4	L2 (N

CKC Laboratories, Inc. Date: 4/27/2012 Time: 11:06:58 SmartLabs, Inc. WO#: 93082
15.207 AC Mains - Average Test Lead: L2 (Neutral) 230V 50Hz Sequence#: 15 Ext ATTN: 0 dB

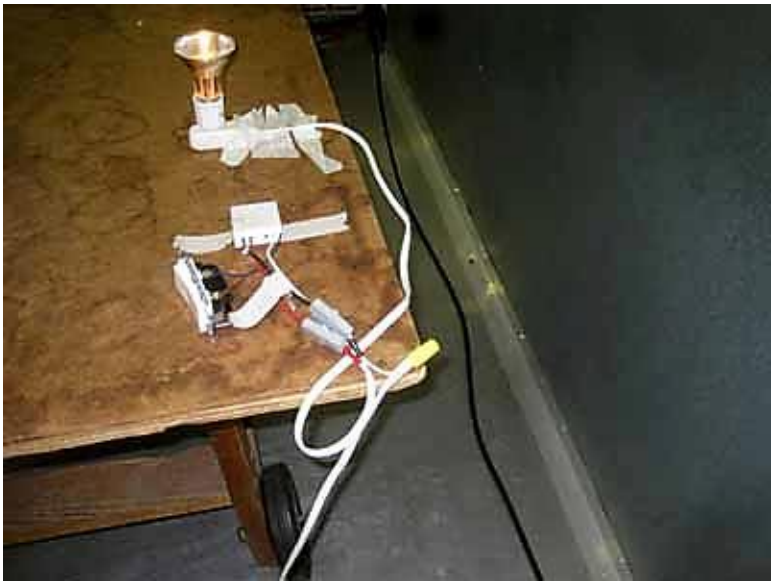


Test Setup Photos

MICRO MODULE DIMMER, LIGHT OFF

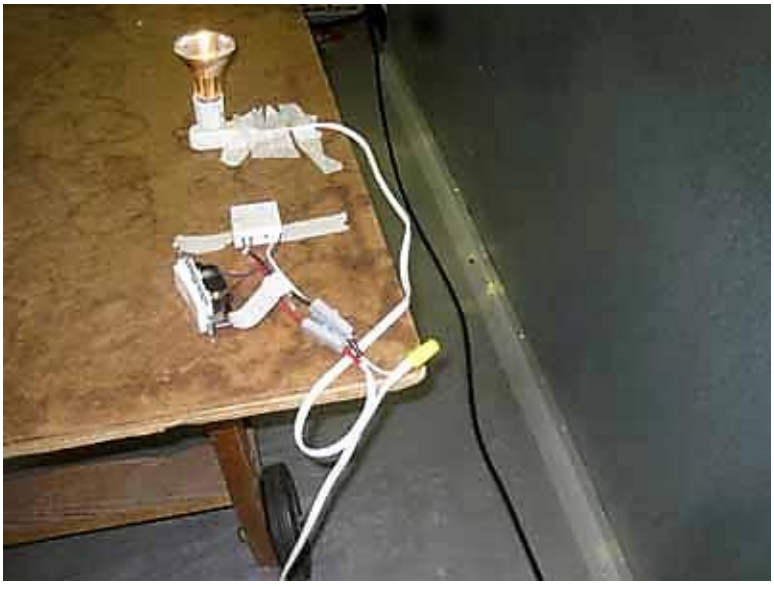
MICRO MODULE DIMMER, LIGHT OFF

MICRO MODULE RELAY, LIGHT ON



MICRO MODULE RELAY, LIGHT ON

MICRO MODULE SHUTTER, LIGHT ON



MICRO MODULE SHUTTER, LIGHT ON

15.249(a) RF Power Output

Test Data

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)**
Work Order #: **93082** Date: 4/25/2012
Test Type: **Maximized Emissions** Time: 10:12:15
Equipment: **Micro Module Dimmer** Sequence#: 6
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24422
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	3/21/2011	3/21/2013
T3	ANP05198	Cable	8268	12/21/2010	12/21/2012
T4	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T5	AN01996	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014

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

Function	Manufacturer	Model #	S/N
Micro Module Dimmer*	SmartLabs, Inc.	24422	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position.
EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = Fundamental
RBW=120 kHz, VBW=120 kHz
Test environment conditions: 20°C, 42% relative humidity, 100kPa
Modification: antenna protrudes out of EUT case.

Ext Attn: 0 dB

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	915.048M	88.3	-27.2	+0.5	+5.8	+0.0	+0.0	90.1	94.0	-3.9	Horiz
	QP		+22.7								
^	915.048M	88.6	-27.2	+0.5	+5.8	+0.0	+0.0	90.4	94.0	-3.6	Horiz
			+22.7								
3	914.894M	88.3	-27.2	+0.5	+5.8	+0.0	+0.0	90.1	94.0	-3.9	Horiz
	QP		+22.7								
^	914.894M	88.4	-27.2	+0.5	+5.8	+0.0	+0.0	90.2	94.0	-3.8	Horiz
			+22.7								
5	915.052M	87.2	-27.2	+0.5	+5.8	+0.0	+0.0	89.0	94.0	-5.0	Vert
	QP		+22.7								
^	915.052M	87.9	-27.2	+0.5	+5.8	+0.0	+0.0	89.7	94.0	-4.3	Vert
			+22.7								
7	914.890M	87.0	-27.2	+0.5	+5.8	+0.0	+0.0	88.8	94.0	-5.2	Vert
	QP		+22.7								
^	914.892M	87.8	-27.2	+0.5	+5.8	+0.0	+0.0	89.6	94.0	-4.4	Vert
			+22.7								

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Maximized Emissions** Time: 09:22:56
Equipment: **Micro Module Relay** Sequence#: 11
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24432
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	3/21/2011	3/21/2013
T3	ANP05198	Cable	8268	12/21/2010	12/21/2012
T4	AN01996	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012

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

Function	Manufacturer	Model #	S/N
Micro Module Relay*	SmartLabs, Inc.	24432	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position.
EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = fundamental
RBW=120 kHz, VBW=120 kHz
Test environment conditions: 20°C, 42% relative humidity, 100kPa
Modification: Antenna protrudes out of EUT case. Drop power supply voltage from 22V to 20V.
Change radio design C34 from 100pF to 3.3 pF, L5 from DNP to 5.6nH, C35 from 1.8pF to 4.7pF

Ext Attn: 0 dB

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	915.050M	85.5	-27.2	+0.5	+5.8	+22.7	+0.0	87.3	94.0	-6.7	Horiz
2	915.050M	83.4	-27.2	+0.5	+5.8	+22.7	+0.0	85.2	94.0	-8.8	Vert

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)**
Work Order #: **93082** Date: 4/26/2012
Test Type: **Maximized Emissions** Time: 14:02:30
Equipment: **Micro Module Shutter** Sequence#: 9
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24442
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	3/21/2011	3/21/2013
T3	ANP05198	Cable	8268	12/21/2010	12/21/2012
T4	AN01996	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014
T5	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012

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

Function	Manufacturer	Model #	S/N
Micro Module Shutter*	SmartLabs, Inc.	24442	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position.
EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = fundamental
RBW=120 kHz, VBW=120 kHz,
Test environment conditions: 20°C, 42% relative humidity, 100kPa
Modification: antenna protrudes out of EUT case.

Ext Attn: 0 dB

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

#	Freq	Rdng	T1 T5	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	914.898M	87.6	-27.2 +0.0	+0.5	+5.8	+22.7	+0.0	89.4	94.0	-4.6	Horiz
2	915.048M	87.6	-27.2 +0.0	+0.5	+5.8	+22.7	+0.0	89.4	94.0	-4.6	Horiz
3	915.048M	86.4	-27.2 +0.0	+0.5	+5.8	+22.7	+0.0	88.2	94.0	-5.8	Vert
4	915.048M	86.4	-27.2 +0.0	+0.5	+5.8	+22.7	+0.0	88.2	94.0	-5.8	Horiz

Test Setup Photos

FRONT VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER

BACK VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER

-20dBc Occupied Bandwidth

Test Conditions / Setup

Note: Test conditions and setup listed below applies to the Micro Module Dimmer.

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = Fundamental
RBW=120 kHz, VBW=120 kHz,
Test environment conditions:
Temp: 20°C
Relative Humidity: 42%
100kPa
Modification: Antenna protrudes out of EUT case.

Note: Test conditions and setup listed below applies to the Micro Module Relay & Shutter.

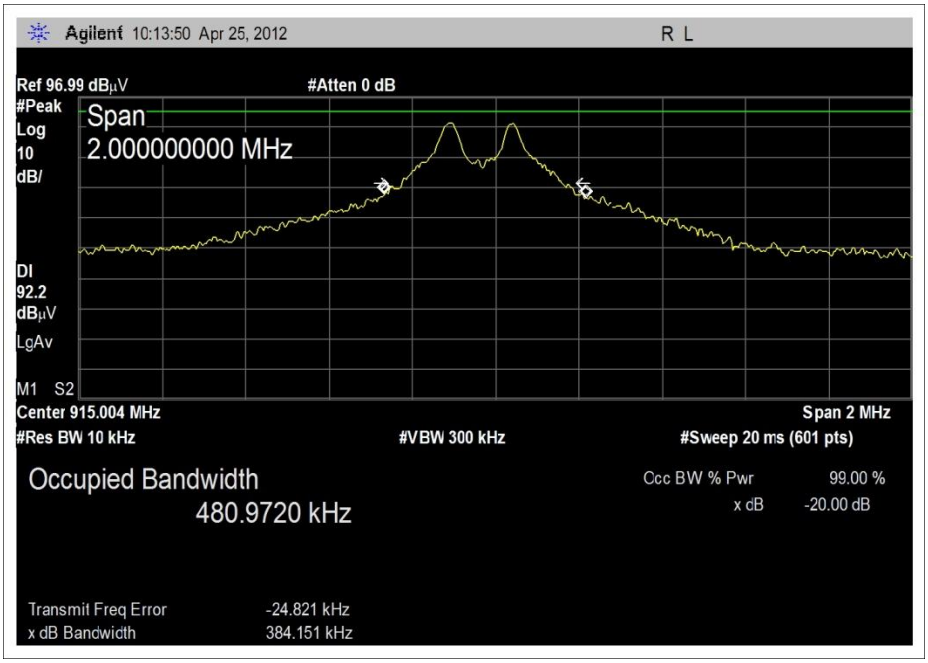
The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = Fundamental
RBW=120 kHz, VBW=120 kHz,
Test environment conditions:
Temp: 20° C
Relative Humidity: 42%
100kPa
Modification: Antenna protrudes out of EUT case. Increasing antenna length from 3 1/4 to 4 inches.

Engineer Name: Don Nguyen

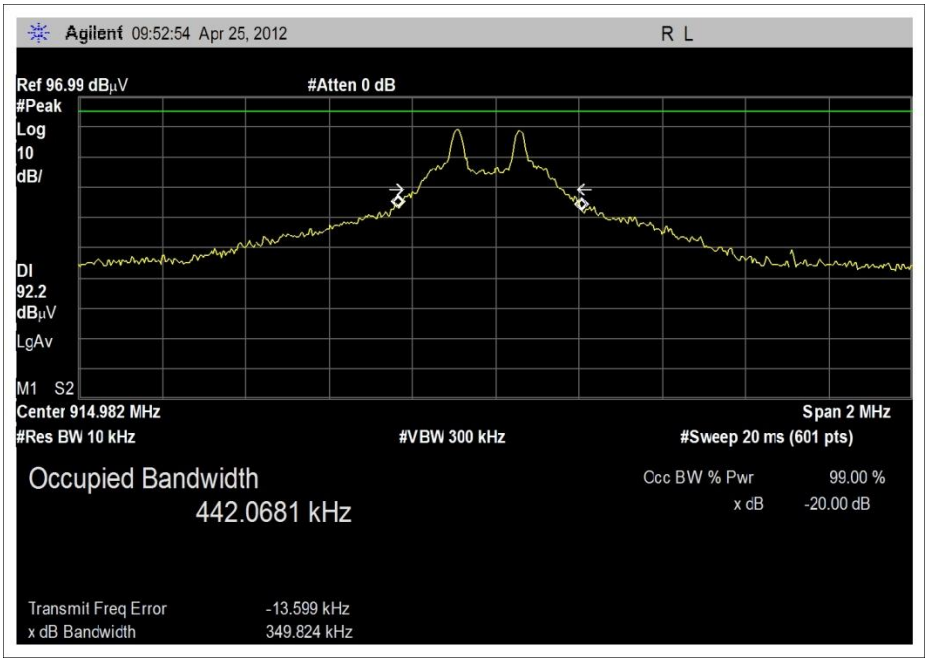
Test Equipment

Asset/Serial #	Description	Model	Manufacturer	Cal Date	Cal Due
AN00309	Preamp	8447D	HP	3/29/2012	3/29/2014
ANP05050	Cable	RG223/U	Pasternack	3/21/2011	3/21/2013
ANP05198	Cable	8268	Belden	12/21/2010	12/21/2012
AN01996	Biconilog Antenna	CBL6111C	Chase	3/2/2012	3/2/2014
AN02672	Spectrum Analyzer	E4446A	Agilent	8/9/2010	8/9/2012

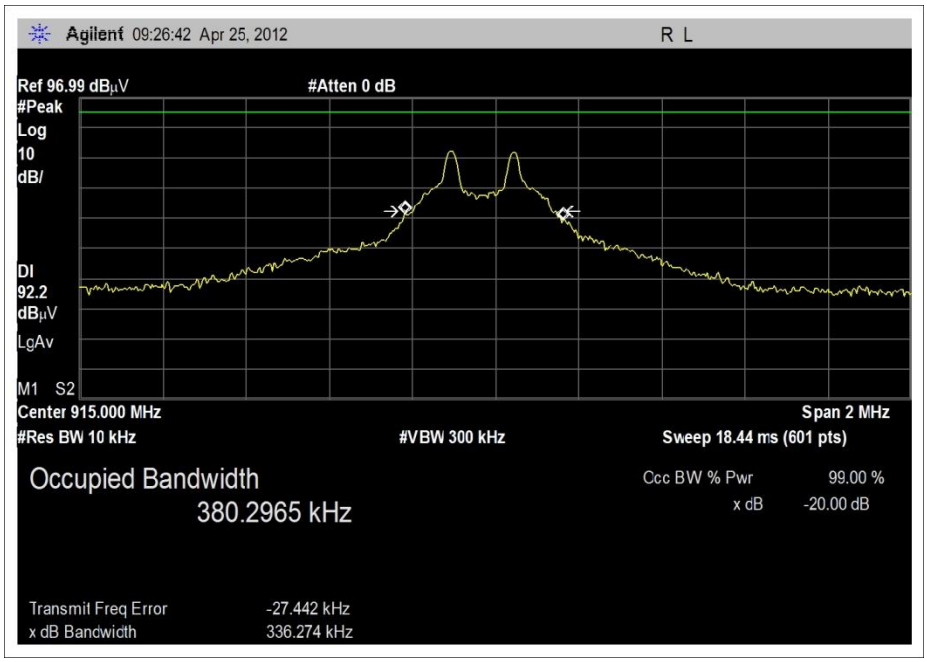
Test Plots



MICRO MODULE DIMMER



MICRO MODULE RELAY



MICRO MODULE SHUTTER

Test Setup Photos

FRONT VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER

BACK VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER

Bandedge

Test Conditions / Setup

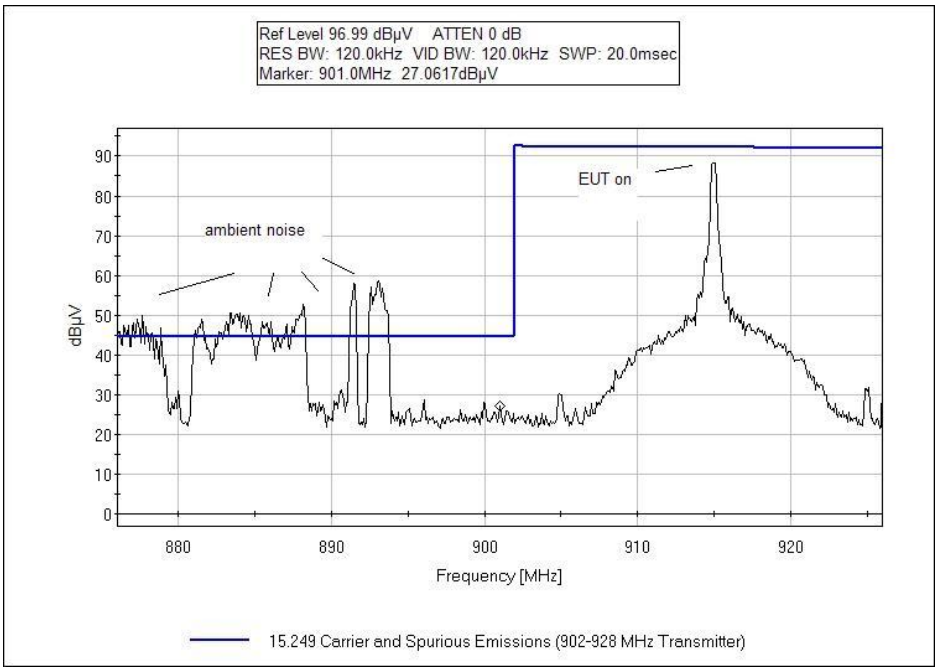
Note: Test conditions and setup listed below applies to the Micro Module Dimmer, Micro Module Relay, and the Micro Module Shutter.

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position.
EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = Fundamental
RBW=120 kHz, VBW=120 kHz,
Test environment conditions:
Temp: 20° C
Relative Humidity: 42%
100kPa

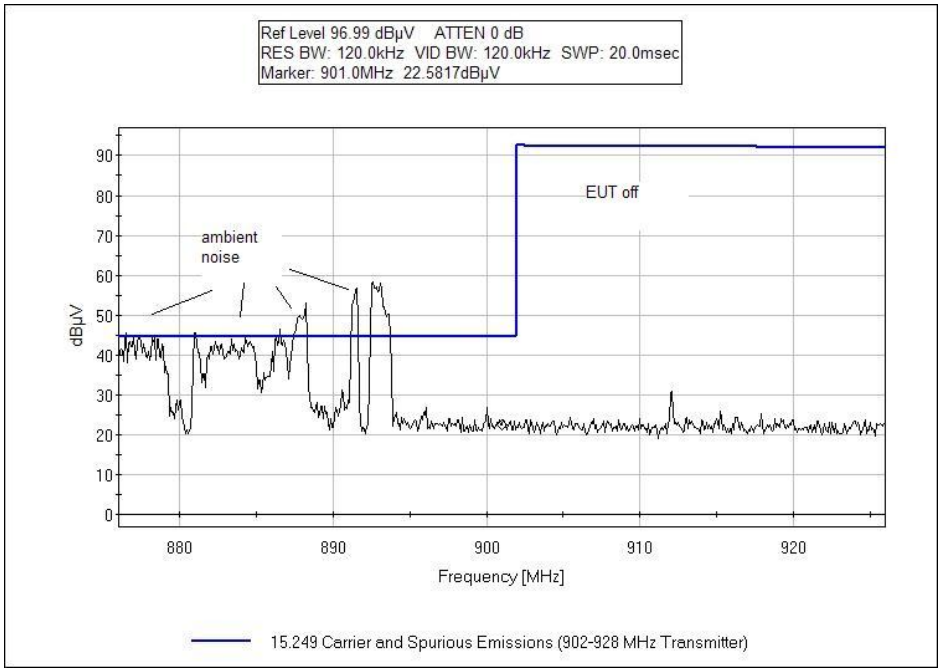
Engineer Name: Don Nguyen

Test Equipment					
Asset/Serial #	**Description**	**Model**	**Manufacturer**	**Cal Date**	**Cal Due**
AN00309	Preamp	8447D	HP	3/29/2012	3/29/2014
ANP05050	Cable	RG223/U	Pasternack	3/21/2011	3/21/2013
ANP05198	Cable	8268	Belden	12/21/2010	12/21/2012
AN01996	Biconilog Antenna	CBL6111C	Chase	3/2/2012	3/2/2014
AN02672	Spectrum Analyzer	E4446A	Agilent	8/9/2010	8/9/2012

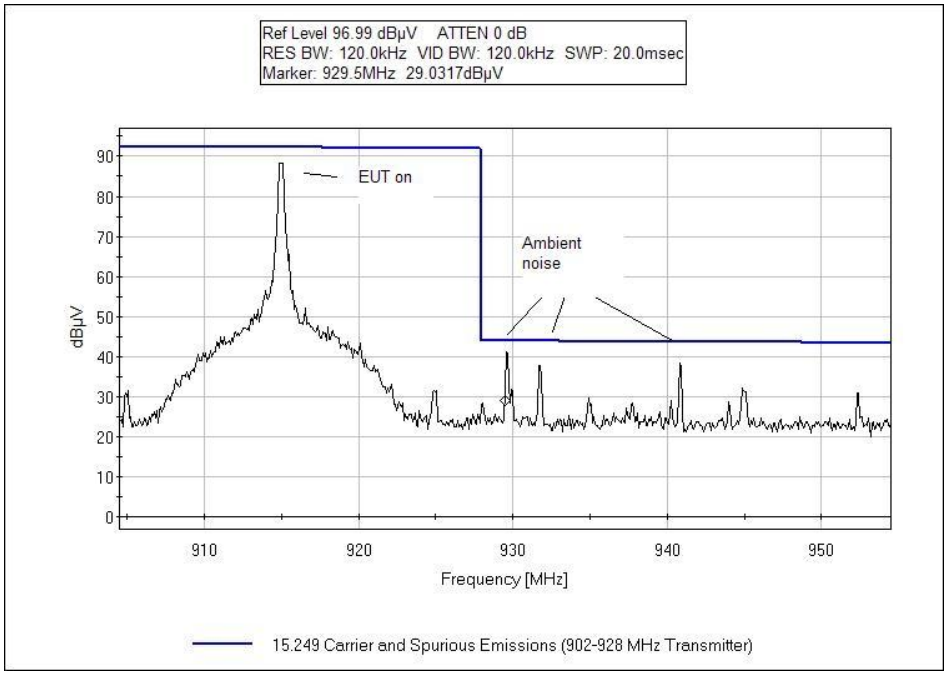
Test Data



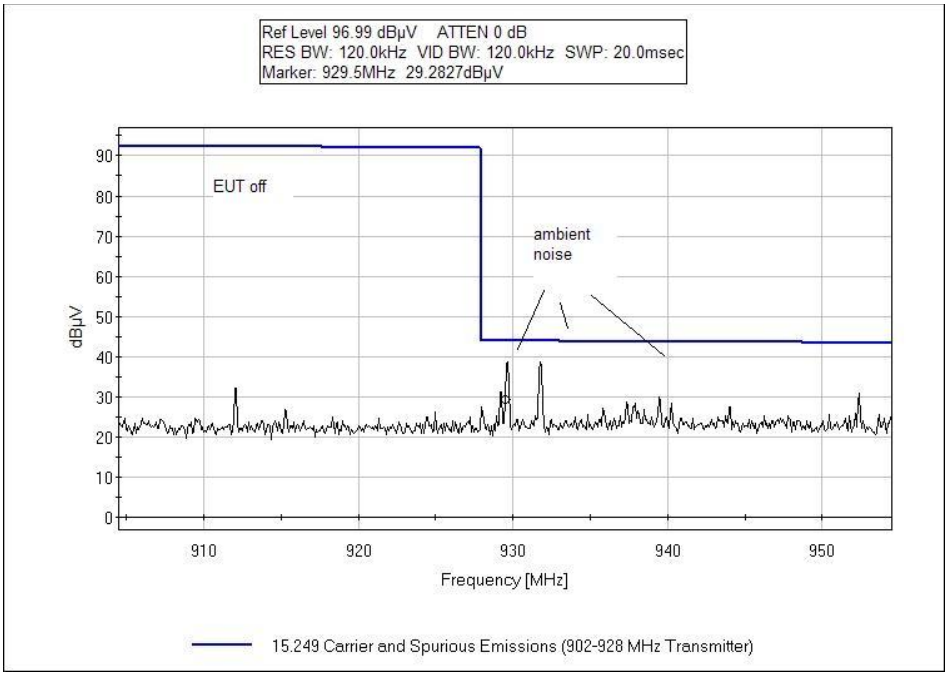
LEFT Tx ON, MICRO MODULE DIMMER



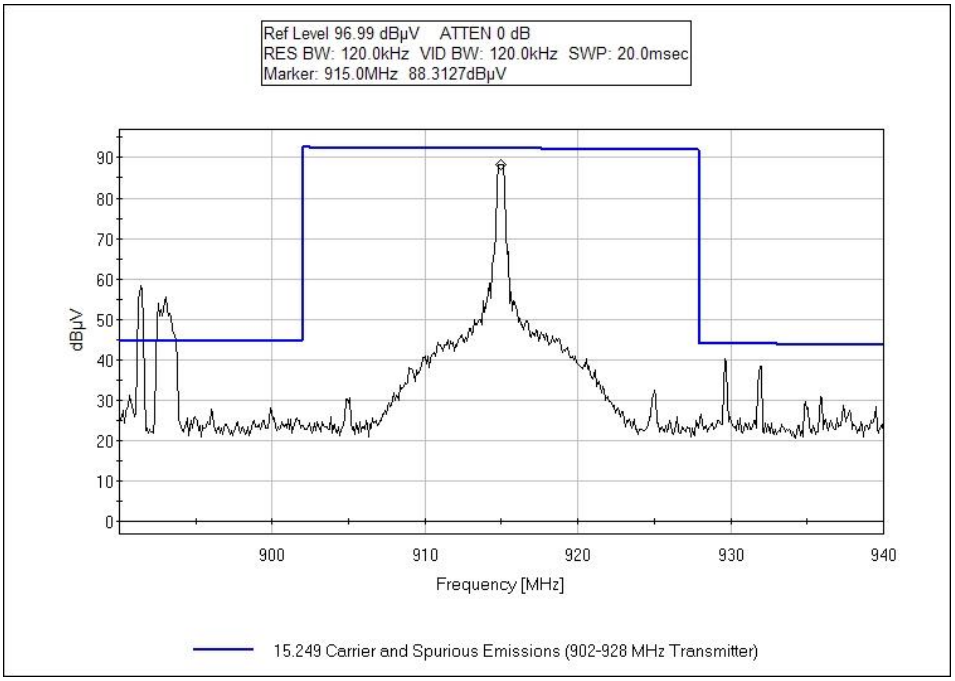
LEFT Tx OFF, MICRO MODULE DIMMER



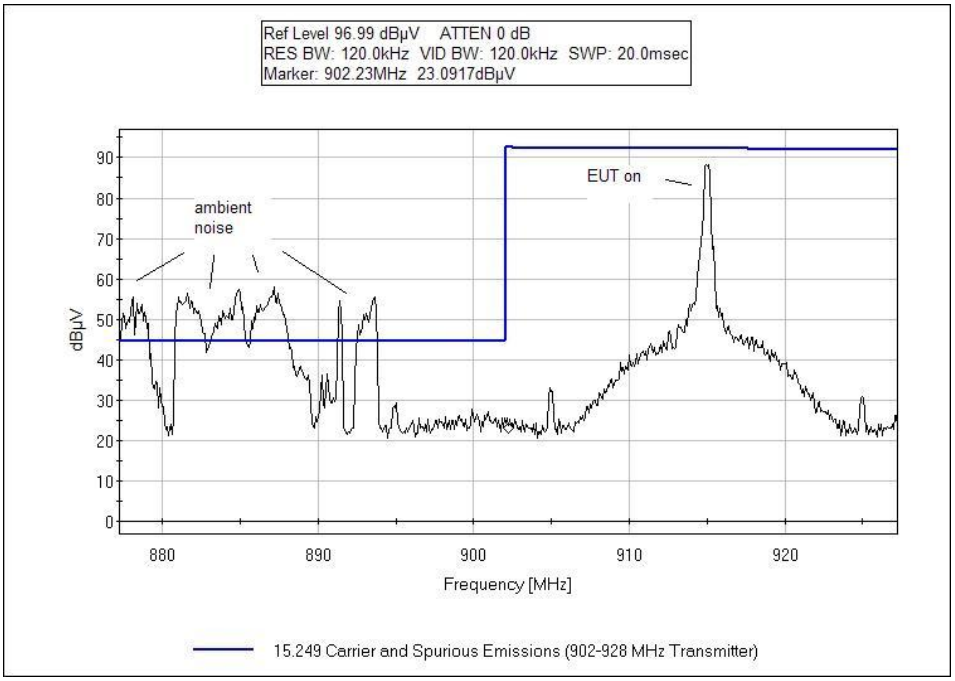
RIGHT Tx ON, MICRO MODULE DIMMER



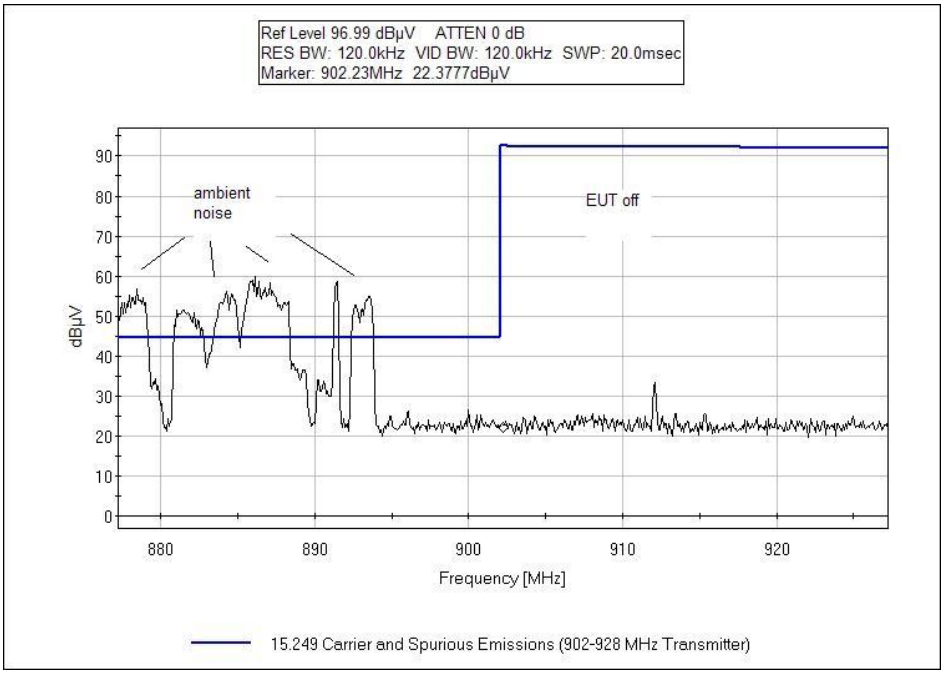
RIGHT Tx OFF, MICRO MODULE DIMMER



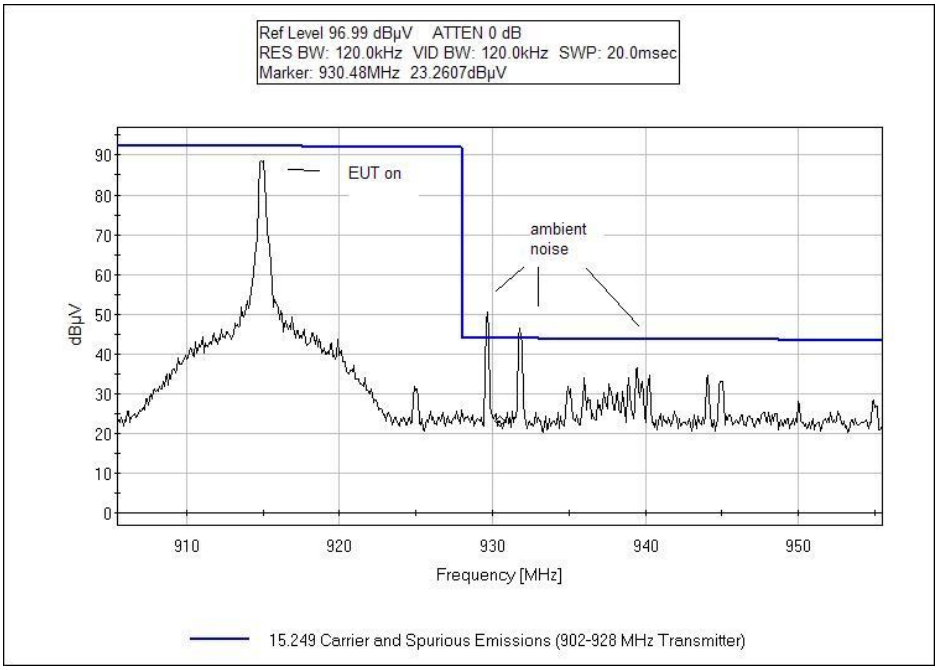
CENTER, MICRO MODULE DIMMER



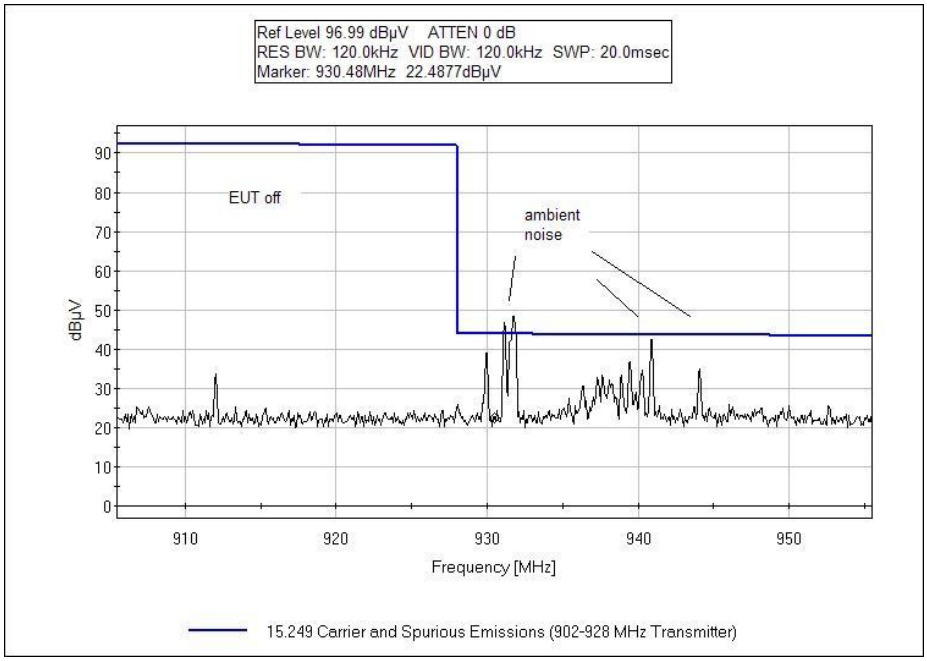
LEFT Tx ON, MICRO MODULE RELAY



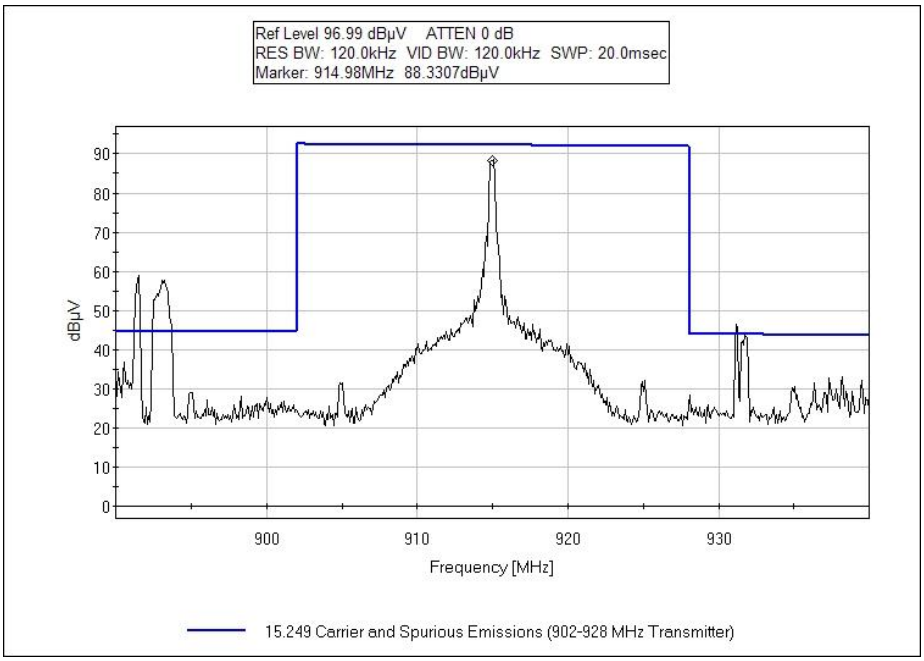
LEFT Tx OFF, MICRO MODULE RELAY



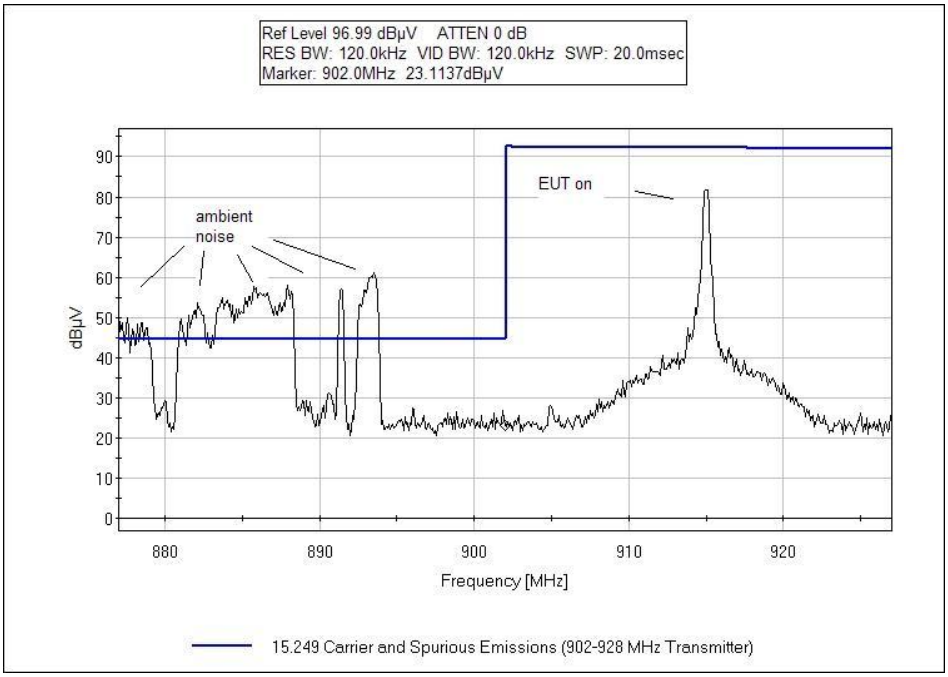
RIGHT Tx ON, MICRO MODULE RELAY



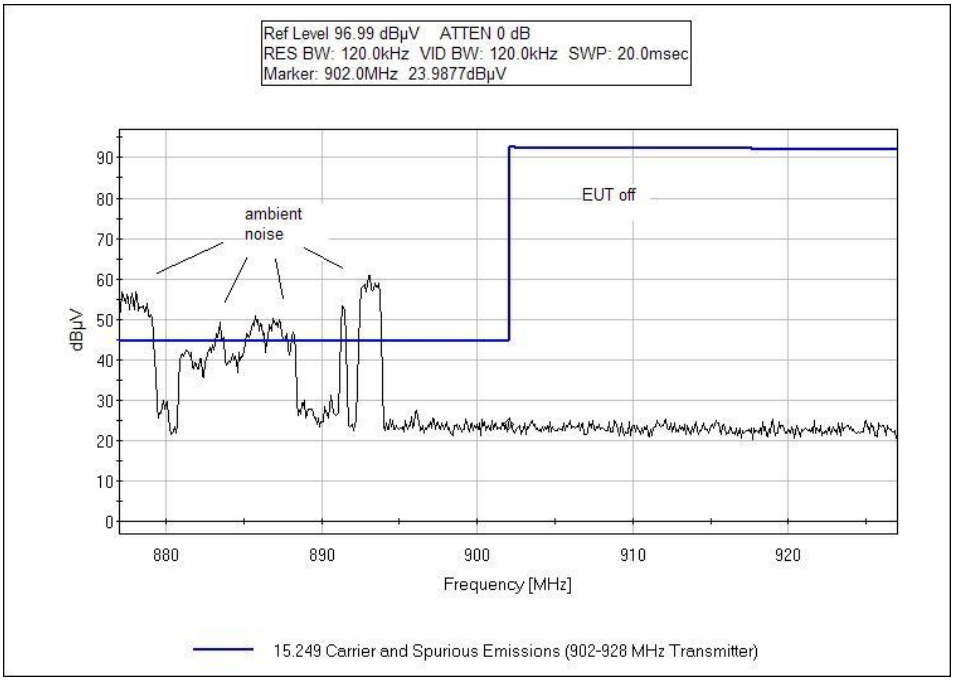
RIGHT Tx OFF, MICRO MODULE RELAY



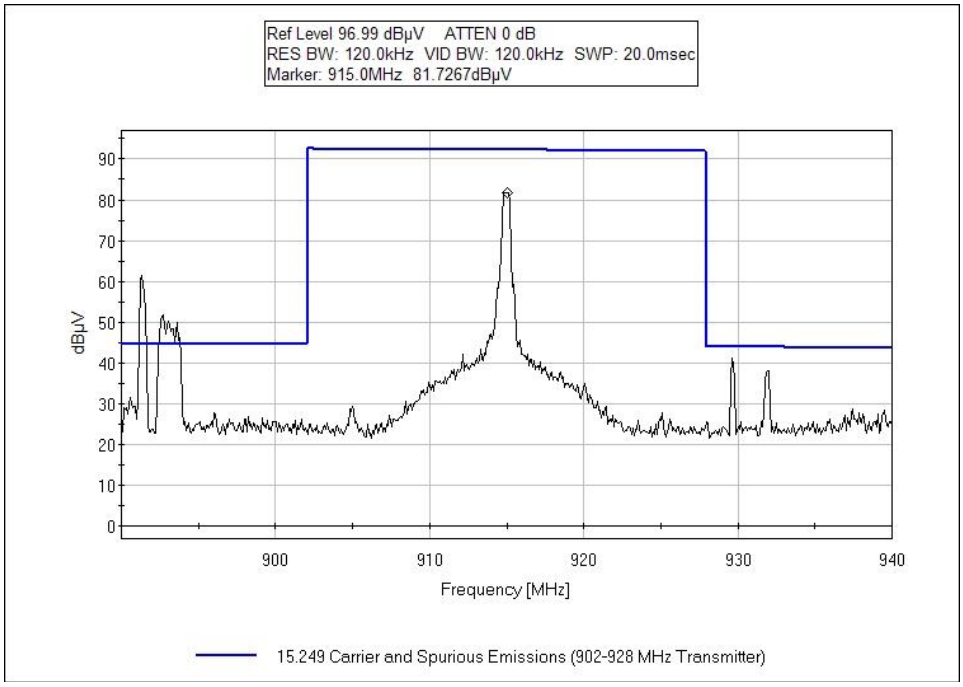
CENTER, MICRO MODULE RELAY



LEFT Tx ON, MICRO MODULE SHUTTER



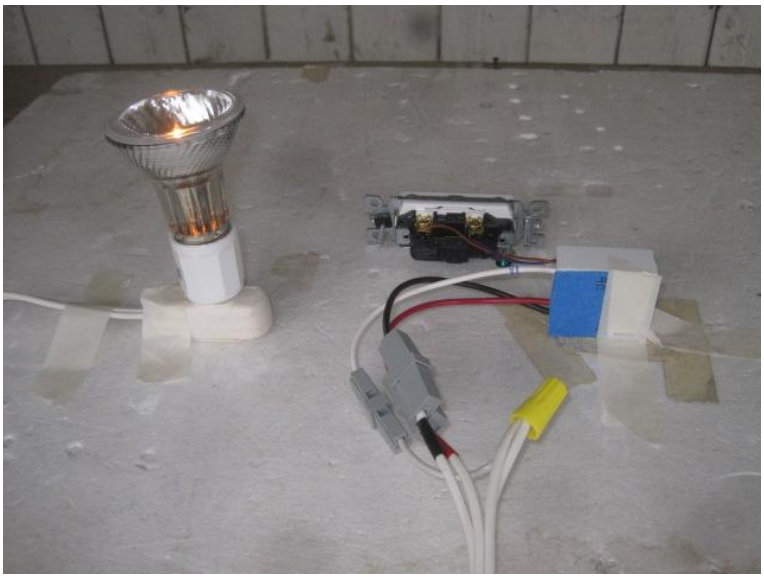
LEFT Tx OFF, MICRO MODULE SHUTTER



CENTER, MICRO MODULE SHUTTER

Test Setup Photos

FRONT VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER



BACK VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER

15.249(b)(d) Field Strength of Harmonic & Spurious Emissions

Test Data Sheets

Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)**
Work Order #: **93082** Date: 4/25/2012
Test Type: **Maximized Emissions** Time: 14:08:20
Equipment: **Micro Module Dimmer** Sequence#: 7
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24422
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	3/21/2011	3/21/2013
T3	ANP05198	Cable	8268	12/21/2010	12/21/2012
T4	AN01996	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T5	ANP06139	Cable	Sucoflex 104A	8/8/2011	8/8/2013
T6	ANP06081	Cable	L1-PNMNM-48	4/28/2011	4/28/2013
T7	AN00787	Preamp	83017A	4/8/2011	4/8/2013
T8	AN02947	Cable	32022-29094K-29094K-72TC	8/8/2011	8/8/2013
T9	AN01646	Horn Antenna	3115	4/13/2012	4/13/2014
T10	AN03169	High Pass Filter	HM1155-11SS	9/22/2011	9/22/2013
	AN00314	Loop Antenna	6502	6/30/2010	6/30/2012

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

Function	Manufacturer	Model #	S/N
Micro Module Dimmer*	SmartLabs, Inc.	24422	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position.
EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.

TX freq = 914.5-915.5 MHz

Frequency range of measurement = 9kHz-10GHz
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-10000MHz; RBW=1 MHz, VBW=1 MHz.

Test environment conditions: 20°C, 42% relative humidity, 100kPa
Modification: Antenna protrudes out of EUT case. Increasing antenna length from 3 1/4 to 4 inches.

Ext Attn: 0 dB

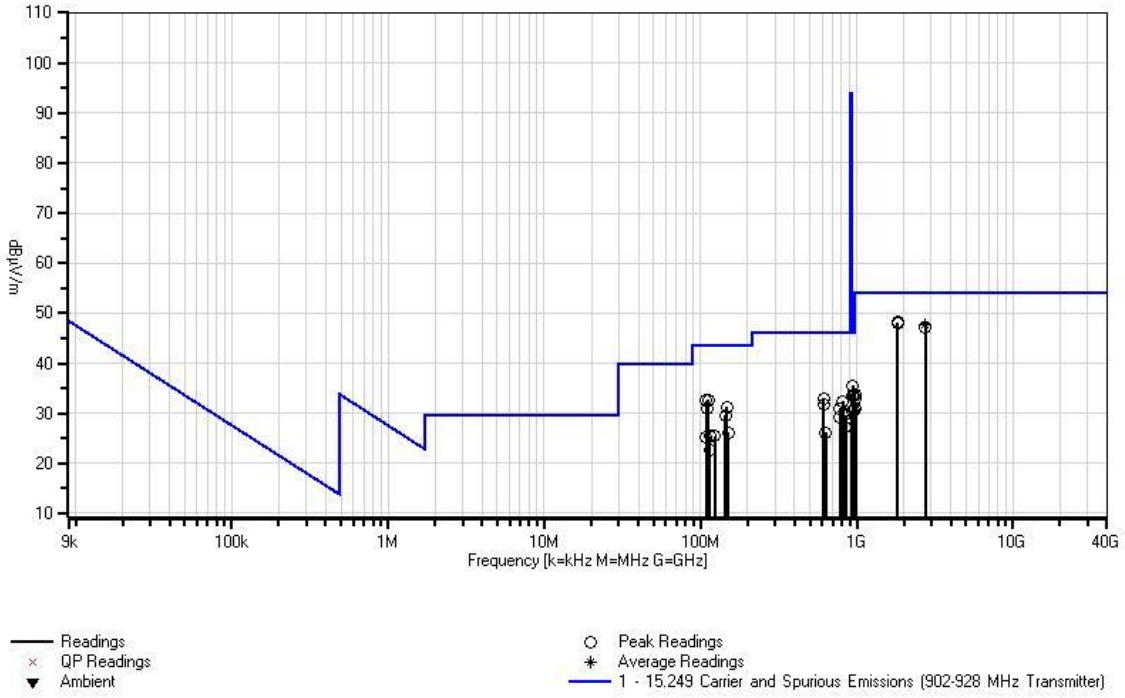
Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	1830.000M	55.6	+0.0 +0.6 +27.8	+0.0 +2.8 +0.4	+0.0 -39.4	+0.0 +0.4	+0.0	48.2	54.0	-5.8	Horiz
2	1829.921M	55.3	+0.0 +0.6 +27.8	+0.0 +2.8 +0.4	+0.0 -39.4	+0.0 +0.4	+0.0	47.9	54.0	-6.1	Vert
3	2745.071M Ave	53.7	+0.0 +0.7 +28.7	+0.0 +3.4 +0.3	+0.0 -39.7	+0.0 +0.5	+0.0	47.6	54.0	-6.4	Vert
^	2745.071M	57.1	+0.0 +0.7 +28.7	+0.0 +3.4 +0.3	+0.0 -39.7	+0.0 +0.5	+0.0	51.0	54.0	-3.0	Vert
5	2745.000M	53.1	+0.0 +0.7 +28.7	+0.0 +3.4 +0.3	+0.0 -39.7	+0.0 +0.5	+0.0	47.0	54.0	-7.0	Horiz
6	945.051M	33.2	-27.3 +0.0 +0.0	+0.5 +0.0 +0.0	+5.9 +0.0	+23.3 +0.0	+0.0	35.6	46.0	-10.4	Horiz
7	112.050M	47.8	-28.0 +0.0 +0.0	+0.2 +0.0 +0.0	+1.8 +0.0	+10.9 +0.0	+0.0	32.7	43.5	-10.8	Vert
8	108.350M	48.1	-28.0 +0.0 +0.0	+0.1 +0.0 +0.0	+1.8 +0.0	+10.5 +0.0	+0.0	32.5	43.5	-11.0	Vert
9	148.100M	45.9	-27.9 +0.0 +0.0	+0.1 +0.0 +0.0	+2.1 +0.0	+11.0 +0.0	+0.0	31.2	43.5	-12.3	Vert
10	955.051M	31.0	-27.3 +0.0 +0.0	+0.5 +0.0 +0.0	+5.9 +0.0	+23.5 +0.0	+0.0	33.6	46.0	-12.4	Horiz

11	109.550M	46.4	-28.0 +0.0 +0.0	+0.1 +0.0 +0.0	+1.8 +0.0	+10.7 +0.0	+0.0	31.0	43.5	-12.5	Vert
12	944.900M	31.0	-27.3 +0.0 +0.0	+0.5 +0.0 +0.0	+5.9 +0.0	+23.3 +0.0	+0.0	33.4	46.0	-12.6	Vert
13	609.970M	35.2	-27.4 +0.0 +0.0	+0.4 +0.0 +0.0	+4.6 +0.0	+20.1 +0.0	+0.0	32.9	46.0	-13.1	Horiz
14	809.965M	31.7	-27.3 +0.0 +0.0	+0.6 +0.0 +0.0	+5.4 +0.0	+22.0 +0.0	+0.0	32.4	46.0	-13.6	Horiz
15	144.000M	44.0	-27.9 +0.0 +0.0	+0.1 +0.0 +0.0	+2.1 +0.0	+11.3 +0.0	+0.0	29.6	43.5	-13.9	Horiz
16	609.975M	34.0	-27.4 +0.0 +0.0	+0.4 +0.0 +0.0	+4.6 +0.0	+20.1 +0.0	+0.0	31.7	46.0	-14.3	Vert
17	779.965M	30.7	-27.3 +0.0 +0.0	+0.5 +0.0 +0.0	+5.3 +0.0	+21.8 +0.0	+0.0	31.0	46.0	-15.0	Horiz
18	954.900M	28.1	-27.3 +0.0 +0.0	+0.5 +0.0 +0.0	+5.9 +0.0	+23.5 +0.0	+0.0	30.7	46.0	-15.3	Vert
19	934.905M	28.2	-27.3 +0.0 +0.0	+0.5 +0.0 +0.0	+5.9 +0.0	+23.1 +0.0	+0.0	30.4	46.0	-15.6	Horiz
20	845.065M	28.6	-27.2 +0.0 +0.0	+0.5 +0.0 +0.0	+5.6 +0.0	+22.2 +0.0	+0.0	29.7	46.0	-16.3	Horiz
21	779.985M	28.8	-27.3 +0.0 +0.0	+0.5 +0.0 +0.0	+5.3 +0.0	+21.8 +0.0	+0.0	29.1	46.0	-16.9	Vert
22	150.400M	41.0	-27.9 +0.0 +0.0	+0.1 +0.0 +0.0	+2.1 +0.0	+10.9 +0.0	+0.0	26.2	43.5	-17.3	Horiz
23	114.250M	40.4	-28.0 +0.0 +0.0	+0.2 +0.0 +0.0	+1.8 +0.0	+11.1 +0.0	+0.0	25.5	43.5	-18.0	Vert
24	123.600M	39.6	-28.0 +0.0 +0.0	+0.2 +0.0 +0.0	+1.9 +0.0	+11.7 +0.0	+0.0	25.4	43.5	-18.1	Horiz
25	108.150M	40.8	-28.0 +0.0 +0.0	+0.1 +0.0 +0.0	+1.8 +0.0	+10.5 +0.0	+0.0	25.2	43.5	-18.3	Horiz
26	844.995M	26.1	-27.2 +0.0 +0.0	+0.5 +0.0 +0.0	+5.6 +0.0	+22.2 +0.0	+0.0	27.2	46.0	-18.8	Vert
27	629.980M	28.2	-27.3 +0.0 +0.0	+0.4 +0.0 +0.0	+4.7 +0.0	+20.2 +0.0	+0.0	26.2	46.0	-19.8	Vert

28	974.901M	30.6	-27.3 +0.0 +0.0	+0.6 +0.0 +0.0	+6.1 +0.0	+23.8 +0.0	+0.0	33.8	54.0	-20.2	Horiz
29	114.800M	37.5	-28.0 +0.0 +0.0	+0.2 +0.0 +0.0	+1.8 +0.0	+11.1 +0.0	+0.0	22.6	43.5	-20.9	Horiz
30	975.030M	29.8	-27.3 +0.0 +0.0	+0.6 +0.0 +0.0	+6.1 +0.0	+23.8 +0.0	+0.0	33.0	54.0	-21.0	Vert
31	984.930M	27.5	-27.3 +0.0 +0.0	+0.6 +0.0 +0.0	+6.1 +0.0	+24.0 +0.0	+0.0	30.9	54.0	-23.1	Vert

CKC Laboratories, Inc. Date: 4/25/2012 Time: 14:08:20 SmartLabs, Inc. WO#: 93082
15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter) Test Distance: 3 Meters Sequence#: 7 Ext
ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)**
Work Order #: **93082** Date: 4/27/2012
Test Type: **Maximized Emissions** Time: 09:40:11
Equipment: **Micro Module Relay** Sequence#: 10
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24432
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	3/21/2011	3/21/2013
T3	ANP05198	Cable	8268	12/21/2010	12/21/2012
T4	AN01996	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014
	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T5	ANP06139	Cable	Sucoflex 104A	8/8/2011	8/8/2013
T6	ANP06081	Cable	L1-PNMNM-48	4/28/2011	4/28/2013
T7	AN00787	Preamp	83017A	4/8/2011	4/8/2013
T8	AN02947	Cable	32022-29094K-29094K-72TC	8/8/2011	8/8/2013
T9	AN01646	Horn Antenna	3115	4/13/2012	4/13/2014
T10	AN03169	High Pass Filter	HM1155-11SS	9/22/2011	9/22/2013
	AN00314	Loop Antenna	6502	6/30/2010	6/30/2012

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

Function	Manufacturer	Model #	S/N
Micro Module Relay*	SmartLabs, Inc.	24432	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

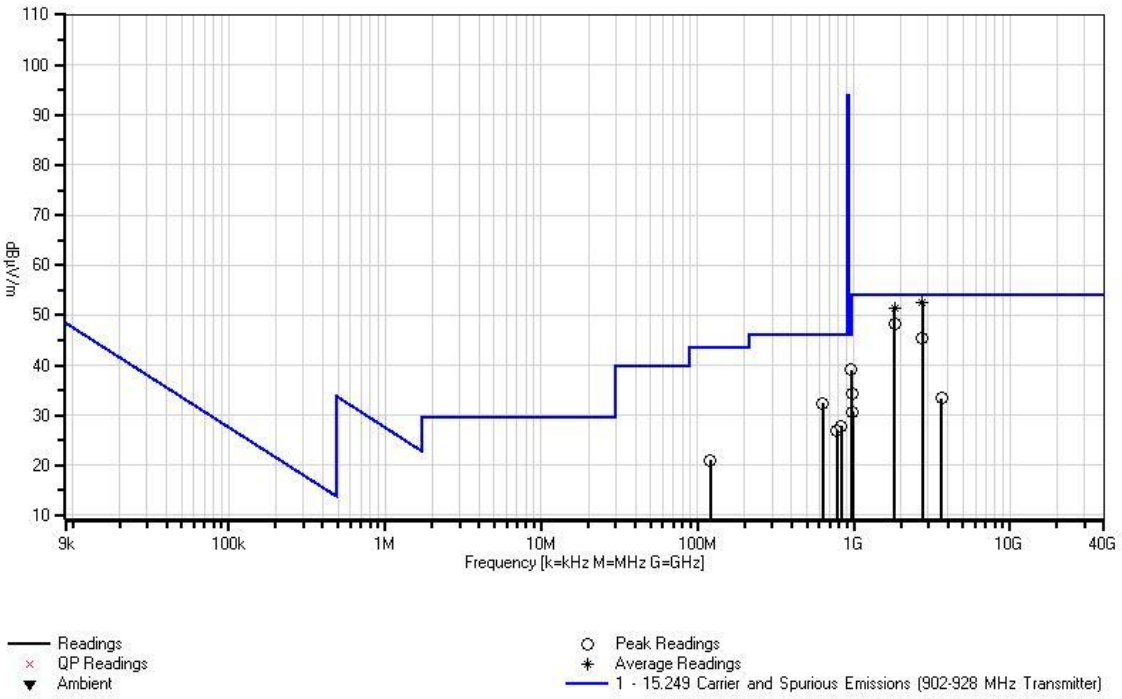
The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position.
EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 9kHz-10GHz
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-10000MHz; RBW=1 MHz, VBW=1 MHz.
Test environment conditions: 20°C, 42% relative humidity, 100kPa
Modification: Antenna protrudes out of EUT case. Drop power supply voltage from 22V to 20V.
Change radio design C34 from 100pF to 3.3 pF, L5 from DNP to 5.6nH, C35 from 1.8pF to 4.7pF

Ext Attn: 0 dB

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

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2744.932M	58.7	+0.0	+0.0	+0.0	+0.0	+0.0	52.6	54.0	-1.4	Horiz
	Ave		+0.7	+3.4	-39.7	+0.5					
			+28.7	+0.3							
^	2744.942M	60.9	+0.0	+0.0	+0.0	+0.0	+0.0	54.8	54.0	+0.8	Horiz
			+0.7	+3.4	-39.7	+0.5					
			+28.7	+0.3							
3	1829.932M	58.9	+0.0	+0.0	+0.0	+0.0	+0.0	51.5	54.0	-2.5	Horiz
	Ave		+0.6	+2.8	-39.4	+0.4					
			+27.8	+0.4							
^	1829.932M	60.7	+0.0	+0.0	+0.0	+0.0	+0.0	53.3	54.0	-0.7	Horiz
			+0.6	+2.8	-39.4	+0.4					
			+27.8	+0.4							
5	1829.932M	55.6	+0.0	+0.0	+0.0	+0.0	+0.0	48.2	54.0	-5.8	Vert
			+0.6	+2.8	-39.4	+0.4					
			+27.8	+0.4							
6	2744.932M	51.6	+0.0	+0.0	+0.0	+0.0	+0.0	45.5	54.0	-8.5	Vert
			+0.7	+3.4	-39.7	+0.5					
			+28.7	+0.3							
7	629.975M	34.4	-27.3	+0.4	+4.7	+20.2	+0.0	32.4	46.0	-13.6	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0							
8	965.050M	36.2	-27.3	+0.5	+6.0	+23.7	+0.0	39.1	54.0	-14.9	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0							
9	835.075M	26.9	-27.2	+0.5	+5.5	+22.1	+0.0	27.8	46.0	-18.2	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0							
10	779.975M	26.7	-27.3	+0.5	+5.3	+21.8	+0.0	27.0	46.0	-19.0	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0							
11	975.050M	31.2	-27.3	+0.6	+6.1	+23.8	+0.0	34.4	54.0	-19.6	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0							
12	3659.932M	36.8	+0.0	+0.0	+0.0	+0.0	+0.0	33.4	54.0	-20.6	Horiz
			+0.8	+4.2	-39.7	+0.6					
			+30.4	+0.3							
13	120.650M	35.3	-28.0	+0.2	+1.9	+11.6	+0.0	21.0	43.5	-22.5	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0							
14	985.075M	27.3	-27.3	+0.6	+6.1	+24.0	+0.0	30.7	54.0	-23.3	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0							

CKC Laboratories, Inc. Date: 4/27/2012 Time: 09:40:11 SmartLabs, Inc. WO#: 93082
15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter) Test Distance: 3 Meters Sequence#: 10 Ext
ATTN: 0 dB



Test Location: CKC Laboratories, Inc. • 110 N. Olinda Place • Brea, CA 92823 • (714) 993-6112

Customer: **SmartLabs, Inc.**
Specification: **15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter)**
Work Order #: **93082** Date: 4/26/2012
Test Type: **Maximized Emissions** Time: 14:49:30
Equipment: **Micro Module Shutter** Sequence#: 9
Manufacturer: SmartLabs, Inc. Tested By: Don Nguyen
Model: 24442
S/N: NA

***Test Equipment*:**

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN00309	Preamp	8447D	3/29/2012	3/29/2014
T2	ANP05050	Cable	RG223/U	3/21/2011	3/21/2013
T3	ANP05198	Cable	8268	12/21/2010	12/21/2012
T4	AN01996	Biconilog Antenna	CBL6111C	3/2/2012	3/2/2014
T5	AN02672	Spectrum Analyzer	E4446A	8/9/2010	8/9/2012
T6	ANP06139	Cable	Sucoflex 104A	8/8/2011	8/8/2013
T7	ANP06081	Cable	L1-PNMNM-48	4/28/2011	4/28/2013
T8	AN00787	Preamp	83017A	4/8/2011	4/8/2013
T9	AN02947	Cable	32022-29094K-29094K-72TC	8/8/2011	8/8/2013
T10	AN01646	Horn Antenna	3115	4/13/2012	4/13/2014
T11	AN03169	High Pass Filter	HM1155-11SS	9/22/2011	9/22/2013
	AN00314	Loop Antenna	6502	6/30/2010	6/30/2012

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

Function	Manufacturer	Model #	S/N
Micro Module Shutter*	SmartLabs, Inc.	24442	NA

Support Devices:

Function	Manufacturer	Model #	S/N
Light bulb fixture	Sylvania	Hi Spot 63 Halogen	R42-61-W
Switcher	Leviton	S02-5601-2WS	078477104163

Test Conditions / Notes:

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position.
EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = 9kHz-10GHz
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-10000MHz; RBW=1 MHz, VBW=1 MHz.
Test environment conditions: 20°C, 42% relative humidity, 100kPa
Modification: antenna protrudes out of EUT case.

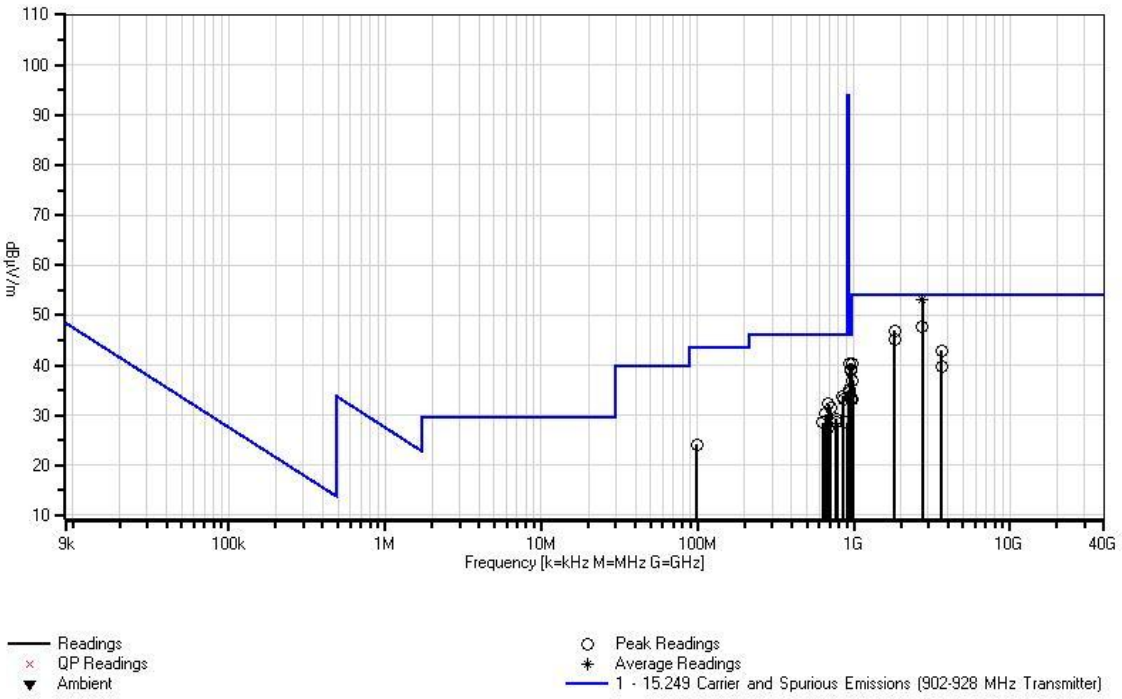
Ext Attn: 0 dB

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

#	Freq	Rdng	T1 T5 T9	T2 T6 T10	T3 T7 T11	T4 T8	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2745.000M	59.1	+0.0	+0.0	+0.0	+0.0	+0.0	53.0	54.0	-1.0	Horiz
	Ave		+0.0	+0.7	+3.4	-39.7					
			+0.5	+28.7	+0.3						
^	2745.000M	61.4	+0.0	+0.0	+0.0	+0.0	+0.0	55.3	54.0	+1.3	Horiz
			+0.0	+0.7	+3.4	-39.7					
			+0.5	+28.7	+0.3						
3	945.043M	38.0	-27.3	+0.5	+5.9	+23.3	+0.0	40.4	46.0	-5.6	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
4	944.898M	38.0	-27.3	+0.5	+5.9	+23.3	+0.0	40.4	46.0	-5.6	Vert
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
5	2744.992M	53.8	+0.0	+0.0	+0.0	+0.0	+0.0	47.7	54.0	-6.3	Vert
			+0.0	+0.7	+3.4	-39.7					
			+0.5	+28.7	+0.3						
6	954.893M	36.6	-27.3	+0.5	+5.9	+23.5	+0.0	39.2	46.0	-6.8	Vert
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
7	1829.992M	54.3	+0.0	+0.0	+0.0	+0.0	+0.0	46.9	54.0	-7.1	Horiz
			+0.0	+0.6	+2.8	-39.4					
			+0.4	+27.8	+0.4						
8	955.043M	36.2	-27.3	+0.5	+5.9	+23.5	+0.0	38.8	46.0	-7.2	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
9	1829.992M	52.5	+0.0	+0.0	+0.0	+0.0	+0.0	45.1	54.0	-8.9	Vert
			+0.0	+0.6	+2.8	-39.4					
			+0.4	+27.8	+0.4						
10	934.893M	32.9	-27.3	+0.5	+5.9	+23.1	+0.0	35.1	46.0	-10.9	Vert
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
11	3660.166M	46.3	+0.0	+0.0	+0.0	+0.0	+0.0	42.9	54.0	-11.1	Horiz
			+0.0	+0.8	+4.2	-39.7					
			+0.6	+30.4	+0.3						
12	934.921M	32.3	-27.3	+0.5	+5.9	+23.1	+0.0	34.5	46.0	-11.5	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
13	845.053M	32.7	-27.2	+0.5	+5.6	+22.2	+0.0	33.8	46.0	-12.2	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
14	854.908M	32.0	-27.2	+0.5	+5.6	+22.2	+0.0	33.1	46.0	-12.9	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						
15	974.883M	37.0	-27.3	+0.6	+6.1	+23.8	+0.0	40.2	54.0	-13.8	Vert
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0						

16	689.973M	33.2	-27.1 +0.0 +0.0	+0.5 +0.0 +0.0	+5.0 +0.0 +0.0	+20.6 +0.0	+0.0	32.2	46.0	-13.8	Horiz
17	3659.992M	43.0	+0.0 +0.0 +0.6	+0.0 +0.8 +30.4	+0.0 +4.2 +0.3	+0.0 -39.7	+0.0	39.6	54.0	-14.4	Vert
18	709.971M	32.3	-27.1 +0.0 +0.0	+0.5 +0.0 +0.0	+5.0 +0.0 +0.0	+20.8 +0.0	+0.0	31.5	46.0	-14.5	Vert
19	709.951M	32.2	-27.1 +0.0 +0.0	+0.5 +0.0 +0.0	+5.0 +0.0 +0.0	+20.8 +0.0	+0.0	31.4	46.0	-14.6	Horiz
20	659.973M	31.9	-27.2 +0.0 +0.0	+0.4 +0.0 +0.0	+4.8 +0.0 +0.0	+20.4 +0.0	+0.0	30.3	46.0	-15.7	Horiz
21	769.947M	29.0	-27.2 +0.0 +0.0	+0.5 +0.0 +0.0	+5.3 +0.0 +0.0	+21.6 +0.0	+0.0	29.2	46.0	-16.8	Horiz
22	984.883M	33.6	-27.3 +0.0 +0.0	+0.6 +0.0 +0.0	+6.1 +0.0 +0.0	+24.0 +0.0	+0.0	37.0	54.0	-17.0	Vert
23	899.896M	27.1	-27.2 +0.0 +0.0	+0.5 +0.0 +0.0	+5.8 +0.0 +0.0	+22.4 +0.0	+0.0	28.6	46.0	-17.4	Horiz
24	629.973M	30.6	-27.3 +0.0 +0.0	+0.4 +0.0 +0.0	+4.7 +0.0 +0.0	+20.2 +0.0	+0.0	28.6	46.0	-17.4	Horiz
25	779.942M	28.2	-27.3 +0.0 +0.0	+0.5 +0.0 +0.0	+5.3 +0.0 +0.0	+21.8 +0.0	+0.0	28.5	46.0	-17.5	Vert
26	689.967M	28.6	-27.1 +0.0 +0.0	+0.5 +0.0 +0.0	+5.0 +0.0 +0.0	+20.6 +0.0	+0.0	27.6	46.0	-18.4	Vert
27	99.196M	40.7	-28.0 +0.0 +0.0	+0.1 +0.0 +0.0	+1.7 +0.0 +0.0	+9.6 +0.0	+0.0	24.1	43.5	-19.4	Horiz
28	975.088M	30.0	-27.3 +0.0 +0.0	+0.6 +0.0 +0.0	+6.1 +0.0 +0.0	+23.8 +0.0	+0.0	33.2	54.0	-20.8	Horiz
29	965.046M	30.3	-27.3 +0.0 +0.0	+0.5 +0.0 +0.0	+6.0 +0.0 +0.0	+23.7 +0.0	+0.0	33.2	54.0	-20.8	Horiz

CKC Laboratories, Inc. Date: 4/26/2012 Time: 14:49:30 SmartLabs, Inc. WO#: 93082
15.249 Carrier and Spurious Emissions (902-928 MHz Transmitter) Test Distance: 3 Meters Sequence#: 9 Ext
ATTN: 0 dB



Test Setup Photos

FRONT VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER

BACK VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER

RSS-210

99 % Bandwidth

Test Conditions / Setup

Note: Test conditions and setup listed below applies to the Micro Module Dimmer.

The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = Fundamental
RBW=120 kHz, VBW=120 kHz,
Test environment conditions:
Temp: 20°C
Relative Humidity: 42%
100kPa
Modification: antenna protrudes out of EUT case.

Note: Test conditions and setup listed below applies to the Micro Module Relay & Shutter.

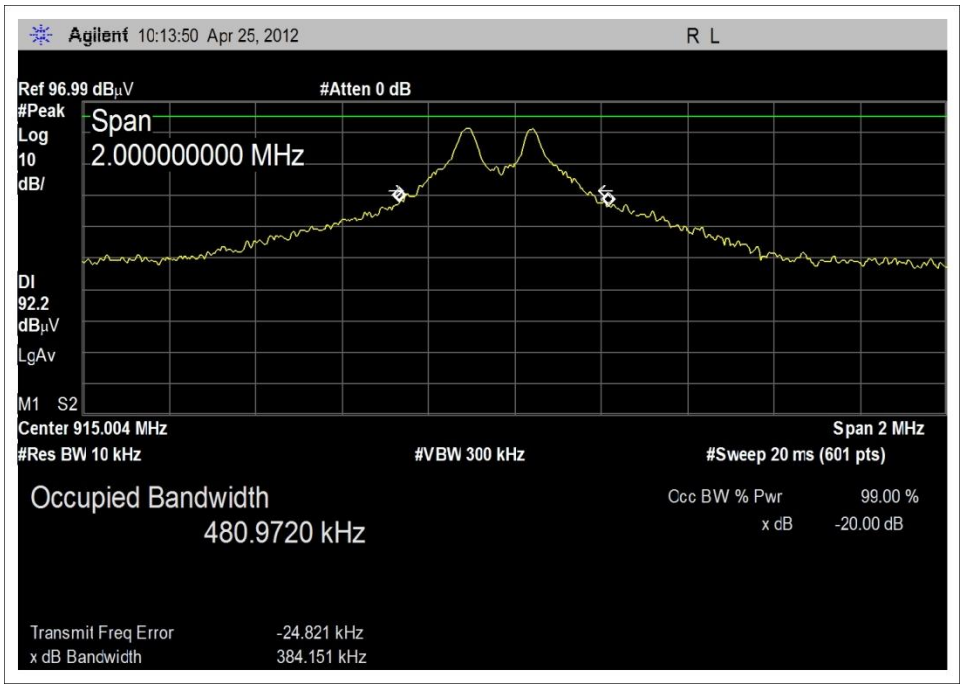
The EUT is placed on the wooden table lined with Styrofoam of 10 cm thickness. EUT is installed in fixed position. EUT is connected to light fixture which is turned on constantly. Sensor output is connected to switcher.
The EUT is set in constant transmit mode.
TX freq = 914.5-915.5 MHz
Frequency range of measurement = Fundamental
RBW=120 kHz, VBW=120 kHz,
Test environment conditions:
Temp: 20°C
Relative Humidity: 42%
100kPa
Modification: Antenna protrudes out of EUT case. Increasing antenna length from 3 1/4 to 4 inches.

Engineer Name: Don Nguyen

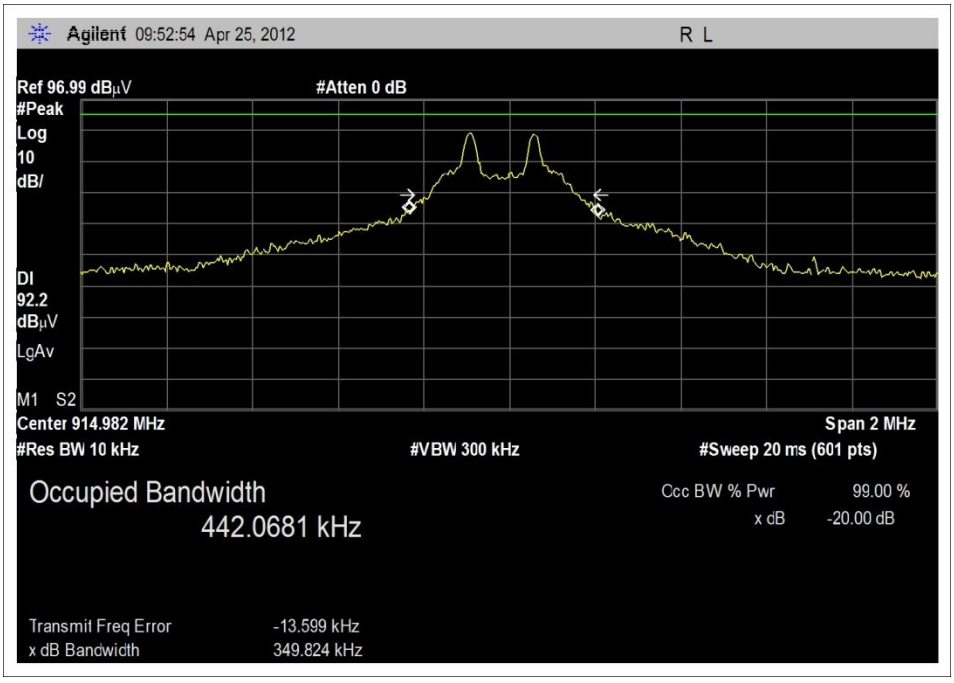
Test Equipment

Asset/Serial #	Description	Model	Manufacturer	Cal Date	Cal Due
AN00309	Preamp	8447D	HP	3/29/2012	3/29/2014
ANP05050	Cable	RG223/U	Pasternack	3/21/2011	3/21/2013
ANP05198	Cable	8268	Belden	12/21/2010	12/21/2012
AN01996	Biconilog Antenna	CBL6111C	Chase	3/2/2012	3/2/2014
AN02672	Spectrum Analyzer	E4446A	Agilent	8/9/2010	8/9/2012

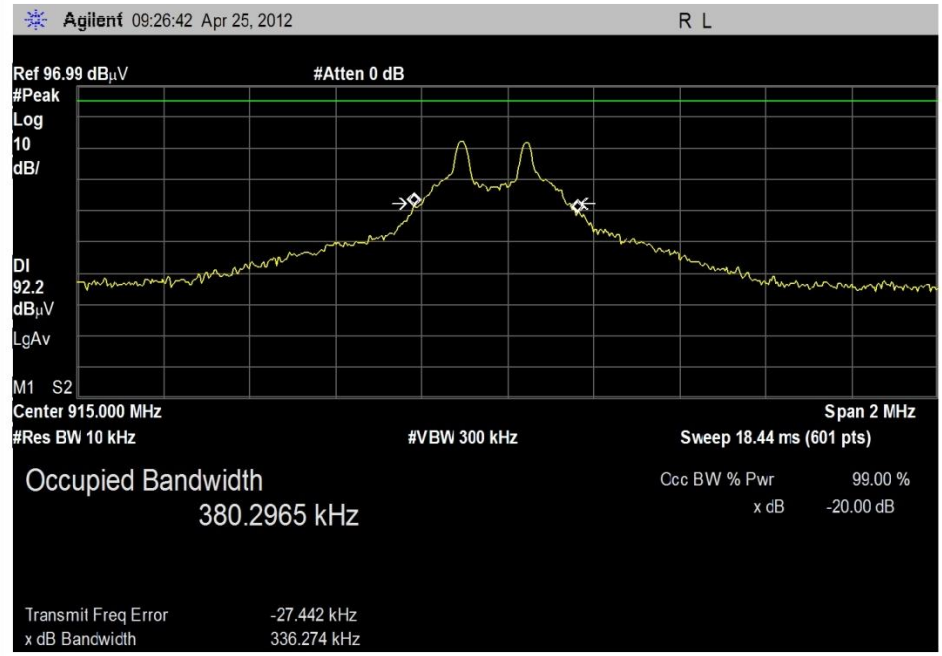
Test Data



MICRO MODULE DIMMER



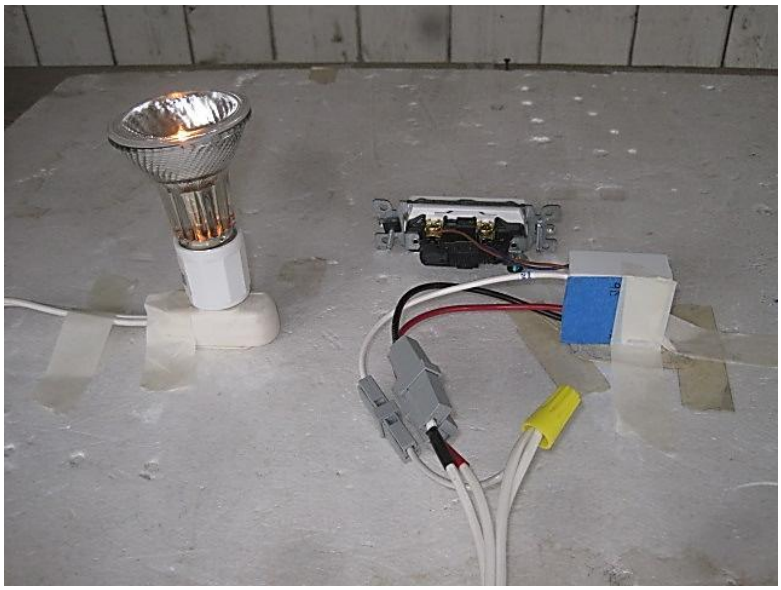
MICRO MODULE RELAY



MICRO MODULE SHUTTER

Test Setup Photos

FRONT VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER



BACK VIEW, MICRO MODULE DIMMER, RELAY AND SHUTTER

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

Unless otherwise indicated, the following configuration parameters are used for equipment setup: 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. Unless otherwise specified, 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.

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 "positive peak" detector mode. Whenever a "quasi-peak" or "average" reading was recorded, the measurement was annotated with a "QP" or an "Ave" on the appropriate rows of the data sheets. In cases where quasi-peak or average limits were employed and data exists for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference, however the numbering for the affected row was removed and an arrow or carrot ("^") was placed in the far left-hand column indicating that the row above takes precedence for comparison to the limit. 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 or receiver recorded all emissions at their peak value as the frequency band selected was scanned. By combining this function with another feature called "peak hold," the measurement device had the ability to measure intermittent 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

Quasi-peak measurements were taken using the quasi-peak detector when the true peak values exceeded or were within 2 dB of a quasi-peak specification limit. Additional QP measurements may have been taken at the discretion of the operator.

Average

Average measurements were taken using the average detector when the true peak values exceeded or were within 2 dB of an average specification limit. Additional average measurements may have been taken at the discretion of the operator. If the specification or test procedure requires trace averaging, then the averaging was performed using 100 samples or as required by the specification. All other average measurements are performed using video bandwidth averaging. 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.