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Job Number:	1001145700
Project Number:	09CA32738B
File Number:	MC16272
Date:	October 05, 2009
Model:	LRM1742

## **Electromagnetic Compatibility Test Report**

**For**

**Philips Lighting Electronics N. A.**

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Job #: 1001132501    File #: MC16272    Project #: 09CA32738B  
Model Number: LRM1742  
Client Name: Philips Lighting Electronics N. A.

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## Test Report Details

Tests Performed By: **Underwriters Laboratories Inc.  
333 Pfingsten Rd.  
Northbrook, IL 60062**

Tests Performed For: **Philips Lighting Electronics N. A.  
10275 West Higgins Road  
Rosemont, IL 60018**

Applicant Contact: **Richard Haring**  
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Test Report Date: **October 05, 2009**

Product Type: **Ceiling Motion Sensor**

Product standards **FCC Part 15, Subpart B & 15.247  
RSS-210, RSS-Gen**

Model Number: **LRM1742**

EUT Category: **Lighting Products**

Testing Start Date: **September 21, 2009**

Date Testing Complete: **September 22, 2009**

**Overall Results: Compliant**

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Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
None			

## 1.0 GENERAL - Product Description

### 1.1 Equipment Description

The Philips OccuSwitch™ Wireless Control System is an wireless occupancy sensor system that automatically turns lights off when a workspace is unoccupied. The system consists of a wireless battery-powered ceiling mounted sensor that communicates to a wall switch. Multiple sensors and switches can be used for additional coverage.

The sensor uses a combination of passive infrared (PIR) technology and advanced logic for detecting major and minor motion, to recognize when the room is occupied (or unoccupied) thus eliminating the possibility of false triggers. The system adapts to accommodate varying user occupancy patterns with built-in intelligence to automatically adjust the shut off time delay.

### 1.2 Device Configuration During Test

#### 1.2.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	Ceiling Motion Sensor	Philips Lighting Electronics N. A.	LRM1742	None
Note: EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment, or SIM - Simulator (Not Subjected to Test)				

#### 1.2.2 Input/Output Ports:

Port #	Name	Type*	Cable Max. >3m (Y/N)	Cable Shielded (Y/N)	Comments
0	Enclosure	N/E	—	—	None
1	Antenna L10	N/E	-	-	Only one antenna at a time is used to transmit.
2	Antenna L11	N/E	-	-	
Note: AC = AC Power Port                      DC = DC Power Port                      N/E = Non-Electrical I/O = Signal Input or Output Port (Not Involved in Process Control) TP = Telecommunication Ports					

#### 1.2.3 EUT Internal Operating Frequencies:

Frequency (MHz)	Description
32	X-Tal Oscillator
0.032768	Sleep Timer Oscillator
0.032	RC-Oscillator

**1.2.4 Power Interface:**

Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
1	3.6	-	-	DC	1	Lithium Battery

**1.3 EUT Configurations**

Mode #	Description
1	EUT was configured on 80cm Styrofoam with battery inserted.
2	EUT was configured on bench top with it's RF output connected directly into a measuring device (Oscilloscope or Spectrum Analyzer)

**1.4 EUT Operation Modes**

Mode #	Description
1	EUT was set to continuously transmit on a single channel with full output power.
2	EUT was set to receive on a single channel. This is also considered as standby mode.

## 2.0 Summary

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by Underwriters Laboratories Inc. in accordance with the procedures stated in each test requirement and specification. The applicant determined the list of tests performed were applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

### 2.1 Deviations from standard test methods

None
------

### 2.2 Device Modifications Necessary for Compliance

None
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### 2.3 Reference Standards

Product is considered Class A per Part 15, Subpart B

Standard Number	Standard Name	Standard Date
FCC Part 15, Subpart B & 15.247	Code of Federal Regulations, Part 15, Radio Frequency Devices	2009
RSS-210, Issue 7	Low-Power License-Exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment	June 2007
RSS-Gen, Issue 2	General Requirements and Information for the Certification of Radiocommunication Equipment	June 2007

### 2.4 Results Summary

Requirement – Test	References	Result (Compliant / Non-Compliant)*
Conducted Emissions - Mains	47 CFR Part 15.107, 15.207 RSS-Gen 7.2.2	Not Applicable <sup>1</sup>
Radiated Emissions - Digital	47 CFR Part 15.209 RSS-Gen 7.2.3	Compliant
Spurious Emissions (Antenna Conducted and Radiated)	47 CFR Part 15.247(d) RSS-210, A8.5 RSS-Gen 7.2.1 and 7.2.3	Compliant
Bandedge Compliance	47 CFR Part 15.247(d) RSS-210, A8.5	Compliant
6dB Bandwidth	47 CFR Part 15.247(a)(2) RSS-210, A8.2(a)	Compliant
Peak Power	47 CFR Part 15.247(b)(3) RSS-210, A8.4(4)	Compliant
Power Spectral Density	47 CFR Part 15.247(e) RSS-210, A8.2(b)	Compliant
99% Occupied Bandwidth	RSS-Gen, 4.6.1	Compliant

<sup>1</sup> - EUT is battery powered and has no means to connect to AC mains

Test Engineer:



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Section Manager  
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Conformity Assessment Services

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### 3.0 Calibration of Equipment Used for Measurement

All test equipment and test accessories are calibrated on a regular basis. The maximum time between calibrations is one year or the manufacturers' recommendation, whichever is less.

All test equipment calibrations are traceable to the National Institute of Standards and Technology (NIST); therefore, all test data recorded in this report is traceable to NIST.

### 4.0 EMISSIONS TEST RESULTS

The emissions tests were performed according to following regulations:

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

Code of Federal Regulations Title 47	Part 15, Subpart B, Radio Frequency Devices
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----- Canada -----

Industry Canada	Spectrum Management and Telecommunications Radio Standards Specifications
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Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be verified at the time the test is conducted.

Ambient Temperature, °C	22.5 ± 2.5	Relative Humidity, %	45 ± 15	Barometric Pressure, mBar	950 ± 150
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#### 4.1 Test Conditions and Results – RADIATED EMISSIONS Digital

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 10-meter or 3-meter as noted. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in both horizontal and vertical polarities. Final measurements (quasi-peak or average as noted) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4-meters. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable.	
Basic Standard	FCC Part 15, Subpart B	
UL LPG	80-EM-S0029	
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	30MHz – 25GHz	(10 meter or 3 meter)
<b>Limits - Class A</b>		
Frequency (MHz)	Limit (dB $\mu$ V/m)	
	Quasi-Peak	Average
30-88	39.08	NA
88-216	43.52	NA
216-960	46.44	NA
960-1000	49.54	NA
Above 1GHz	NA	60 (at 3-meter)
Supplementary information: In receive mode / digital mode measurements are only required up to 12.5GHz, however testing was conducted to 25GHz.		

**Table 1 Radiated Emissions EUT Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	2
Supplementary information: None		

**Table 2 Radiated Emissions Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Bicon Antenna	Chase	VBA6106A	EMC4078
Log-P Antenna	Chase	UPA6109	EMC4313
Spectrum Analyzer	Rhode & Schwarz	FSEK	EMC4182
Antenna Array	UL	BOMS	EMC4276

**Figure 1 Test setup for Radiated Emissions**

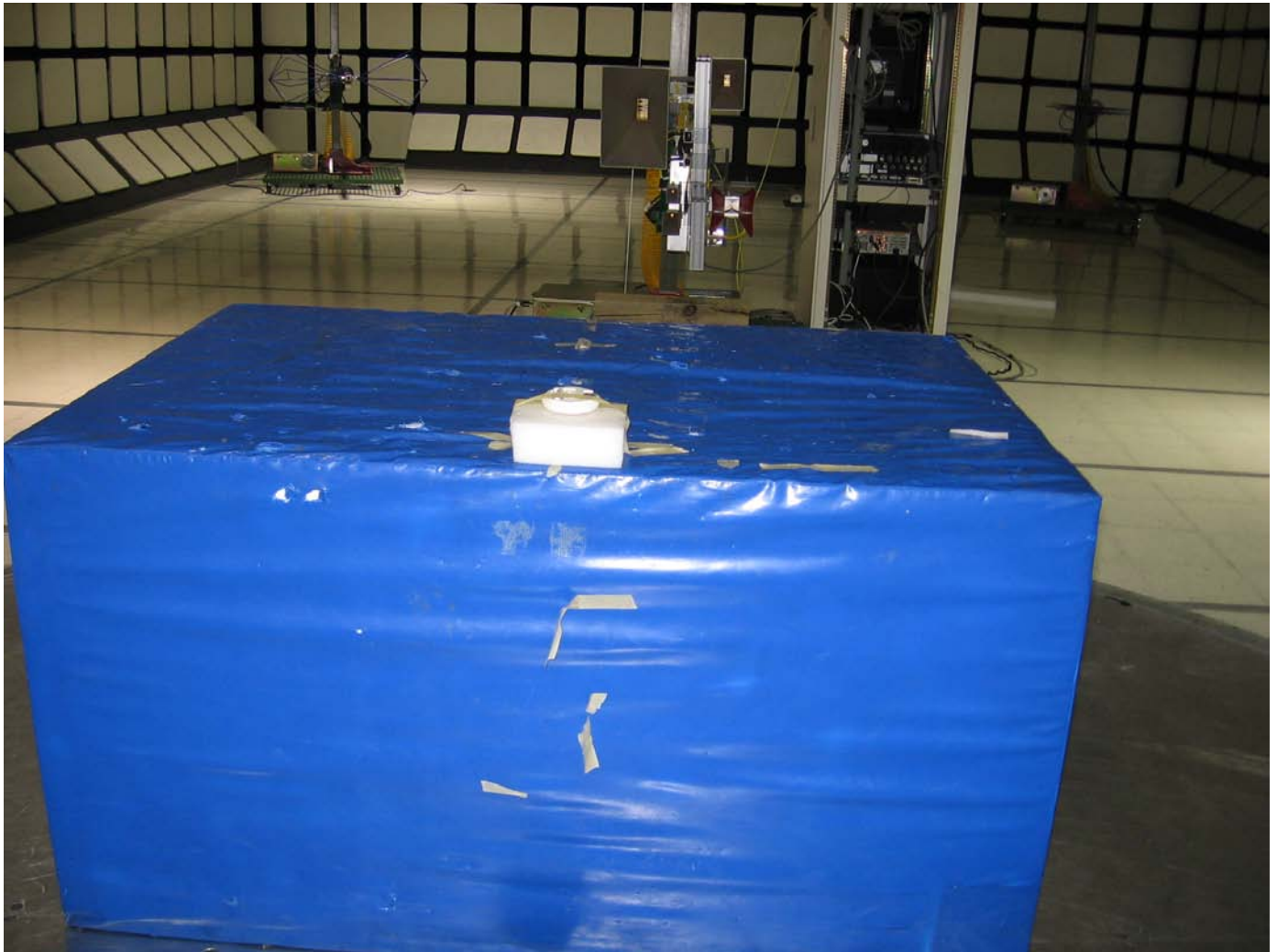


Figure 2 Radiated Emissions Graph 30MHz – 1GHz

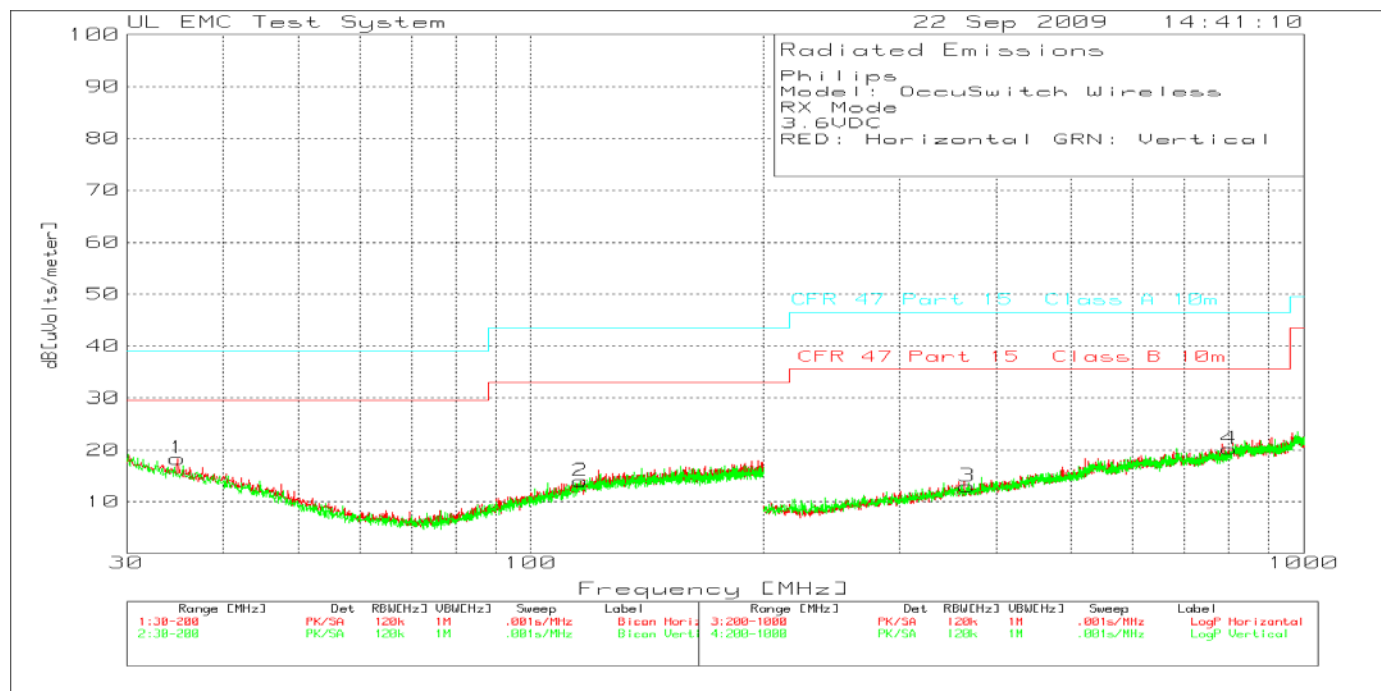


Table 3 Radiated Emissions Data Points 30MHz – 1GHz

Philips  
Model: OccuSwitch Wireless  
RX Mode  
3.6VDC  
RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit 3	Margin 3[dB]	Limit 4	Margin 4[dB]	Height [cm]	Polarity
1	34.9275	32.74	pk	-30.4	16	18.34	39.1	-20.76	29.6	-11.26	250	Horz
2	115.977	31.3	pk	-30.1	12.8	14	43.5	-29.5	33.1	-19.1	250	Horz
3	367.0886	30.87	pk	-32.7	14.8	12.97	46.4	-33.43	35.6	-22.63	302	Horz
4	801.9987	30.26	pk	-31.8	21.7	20.16	46.4	-26.24	35.6	-15.44	200	Horz

LIMIT 3: CFR 47 Part 15 Class A 10m  
LIMIT 4: CFR 47 Part 15 Class B 10m

PK - Peak detector  
QP - Quasi-Peak detector

Figure 3 Radiated Emissions Graph 1GHz – 25GHz

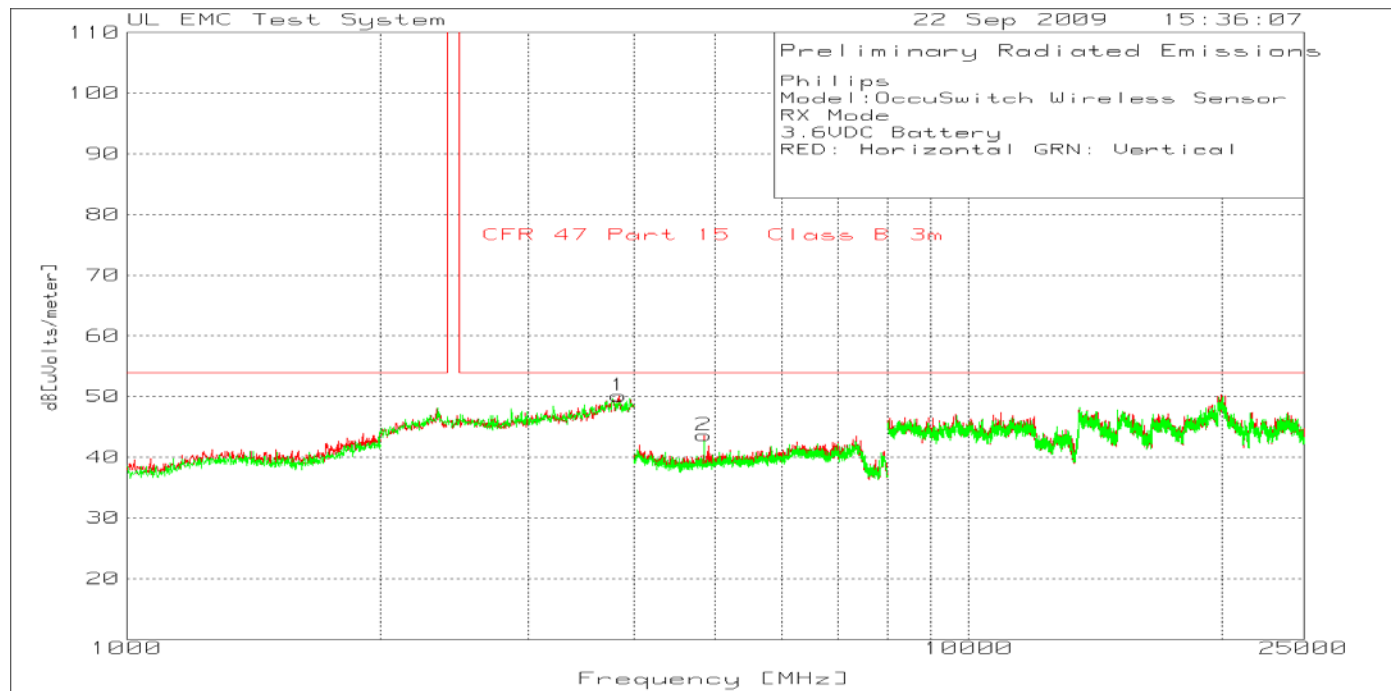


Table 4 Radiated Emissions Data Points 1GHz – 25GHz

Philips  
Model:OccuSwitch Wireless Sensor  
RX Mode  
3.6VDC Battery  
RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit 1	Margin 1 [dB]	Height [cm]	Polarity
1	3843.687	20.34	pk	5.77	24	50.11	54	-3.89	150	Horz
2	4848.566	67.21	pk	-51.28	27.7	43.63	54	-10.37	100	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m

pk - Peak detector

#### 4.2 Test Conditions and Results – SPURIOUS EMISSIONS (Antenna Conducted and Radiated)

Test Description	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section15.205(c)).		
Basic Standard	47 CFR Part 15.247(d) RSS-210, A8.5 RSS-Gen 7.2.1 and 7.2.3		
	Frequency range	Measurement Point	
Fully configured sample scanned over the following frequency range	30MHz – 1GHz	10 meter distance and / or antenna port	
Fully configured sample scanned over the following frequency range	1GHz – 25GHz	3 meter distance and / or antenna port	
Limits (Antenna Conducted)			
All emissions must be 20dB below the level of the fundamental frequency.			
Limits (Radiated – Restricted Bands Only)			
Frequency (MHz)	Limit (dBµV/m)		
	Quasi-Peak	Average	
	General Emissions	Fundamental	Spurious
30 – 88	29.54	-	-
88 – 216	33.06	-	-
216-960	35.56	-	-
960-1000	43.52	-	-
1,000-25,000	-	-	54
Supplementary information: Below 1GHz, spectrum was checked. All emissions related to the transmitter below 1GHz are not in the restricted band therefore only antenna conducted limits apply (20dB below the peak level of the fundamental).			

**Table 5 SPURIOUS EMISSIONS EUT Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1 & 2	1
Supplementary information: None		

**Table 6 SPURIOUS CONDUCTED EMISSIONS Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Cable with Attenuator	Pasternack	10dB	none

**Table 7 SPURIOUS RADIATED EMISSIONS Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Bicon Antenna	Chase	VBA6106A	EMC4078
Log-P Antenna	Chase	UPA6109	EMC4313
Spectrum Analyzer	Rhode & Schwarz	FSEK	EMC4182
Antenna Array	UL	BOMS	EMC4276

**Test setup for SPURIOUS EMISSIONS – Antenna conducted**





**Test setup for SPURIOUS EMISSIONS – Radiated**

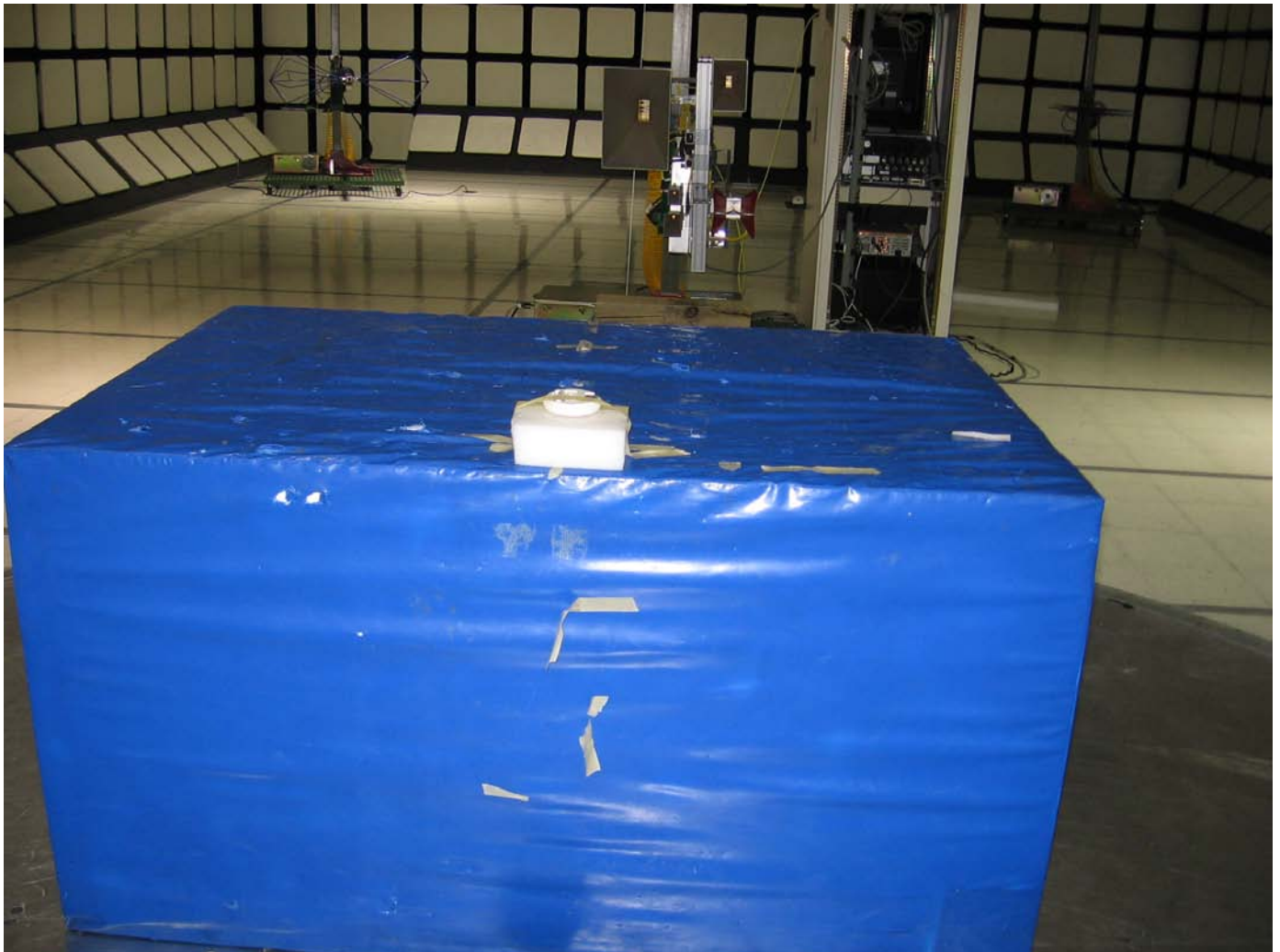
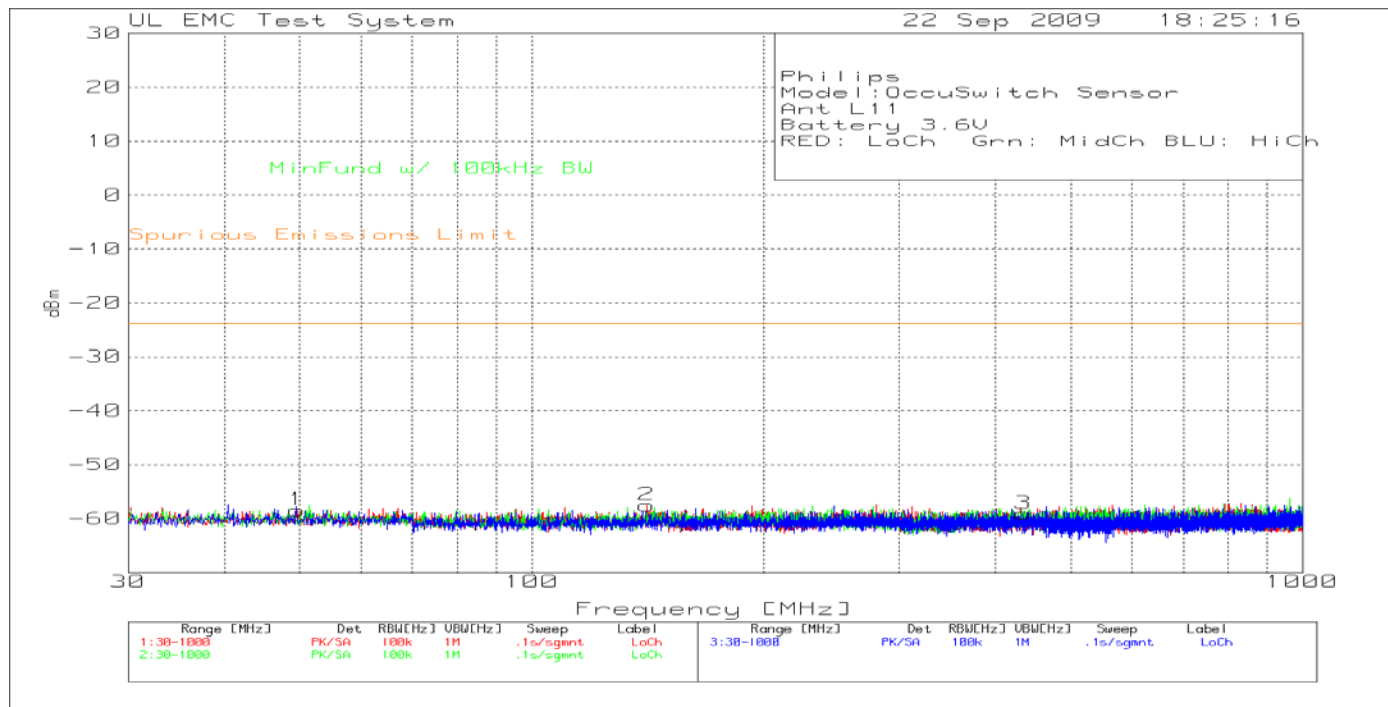
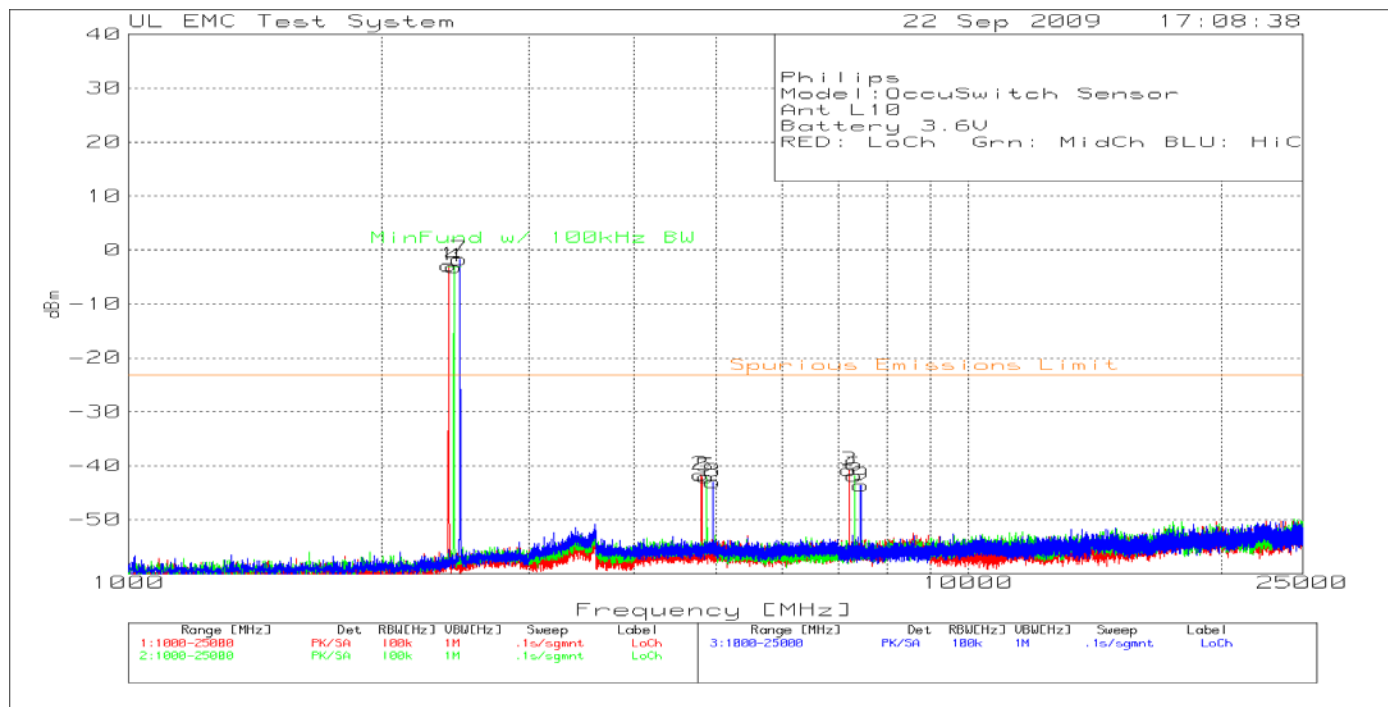


Figure 4 30MHz-1GHz Antenna (L10) Port Spurious Emissions Plots TX Mode, Low, Middle and High Channels



No Emissions recorded within 20dB of the limit.

Figure 5 1GHz-25GHz Antenna (L10) Port Spurious Emissions Plots TX Mode, Low, Middle and High Channels



Job #: 1001132501    File #: MC16272    Project #: 09CA32738B  
 Model Number: LRM1742  
 Client Name: Philips Lighting Electronics N. A.

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**Table 8 Antenna (L10) Port Conducted Spurious Emissions Above 1GHz, Low Channel, Middle Channel and High Channel**

Philips  
 Model:OccuSwitch Sensor  
 Ant L10  
 Battery 3.6V  
 RED: LoCh Grn: MidCh BLU: HiC

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1 [dB]	Limit 2	Margin 2 [dB]
1	*2404.654	93.69	pk	10.4	-107	-2.91	-3.1	.19	-23.1	20.19
2	4808.35	54.57	pk	10.8	-107	-41.63	0	-41.63	-23.1	-18.53
3	7216.043	54.84	pk	11.4	-107	-40.76	0	-40.76	-23.1	-17.66
4	*2439.62	93.57	pk	10.3	-107	-3.13	-3.1	-.03	-23.1	19.97
5	4880.281	54.08	pk	10.9	-107	-42.02	0	-42.02	-23.1	-18.92
6	7318.944	53.91	pk	11.3	-107	-41.79	0	-41.79	-23.1	-18.69
7	*2479.582	94.77	pk	10.5	-107	-1.73	-3.1	1.37	-23.1	21.37
8	4959.206	53.25	pk	10.8	-107	-42.95	0	-42.95	-23.1	-19.85
9	7441.827	51.79	pk	11.5	-107	-43.71	0	-43.71	-23.1	-20.61

LIMIT 1: MinFund w/ 100kHz BW  
 LIMIT 2: Spurious Emissions Limit

PK - Peak detector

\* - Fundamental frequency, not subject to limit

Figure 6 30MHz-1GHz Antenna (L11) Port Spurious Emissions Plots TX Mode, Low, Middle and High Channels.

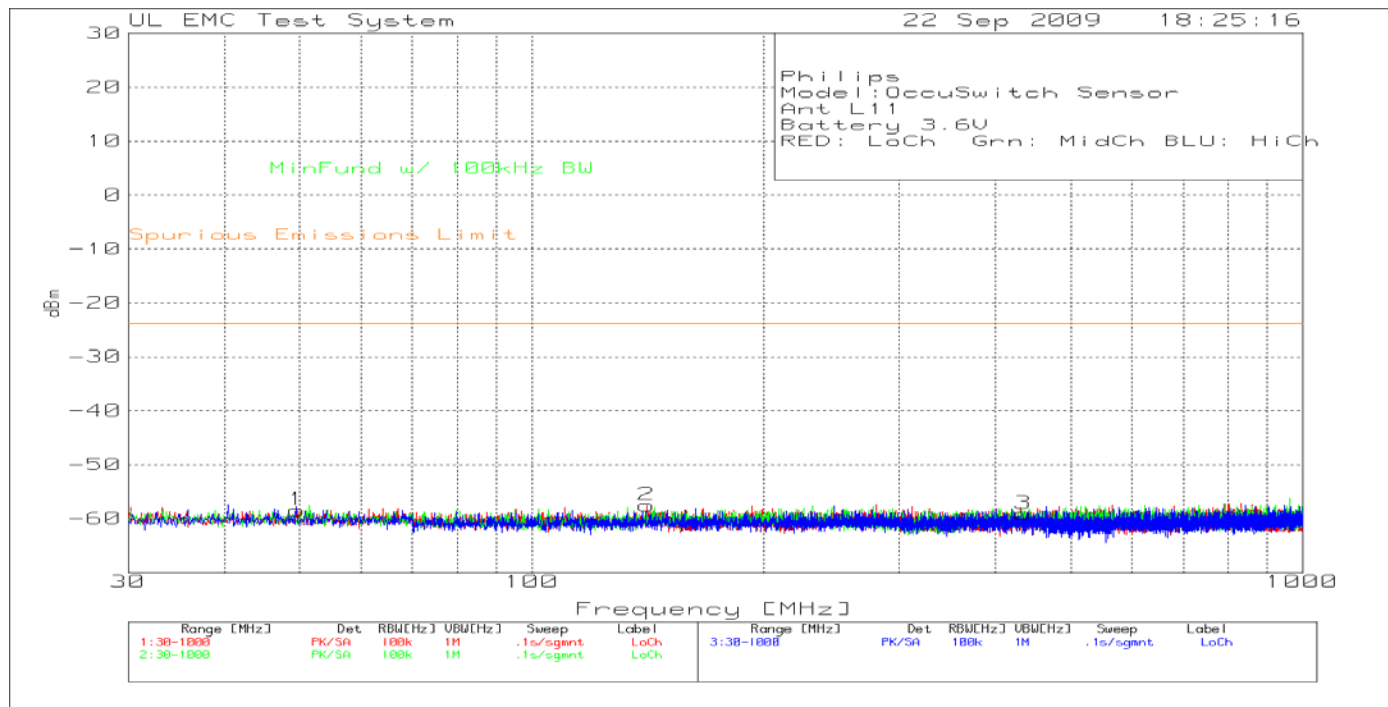
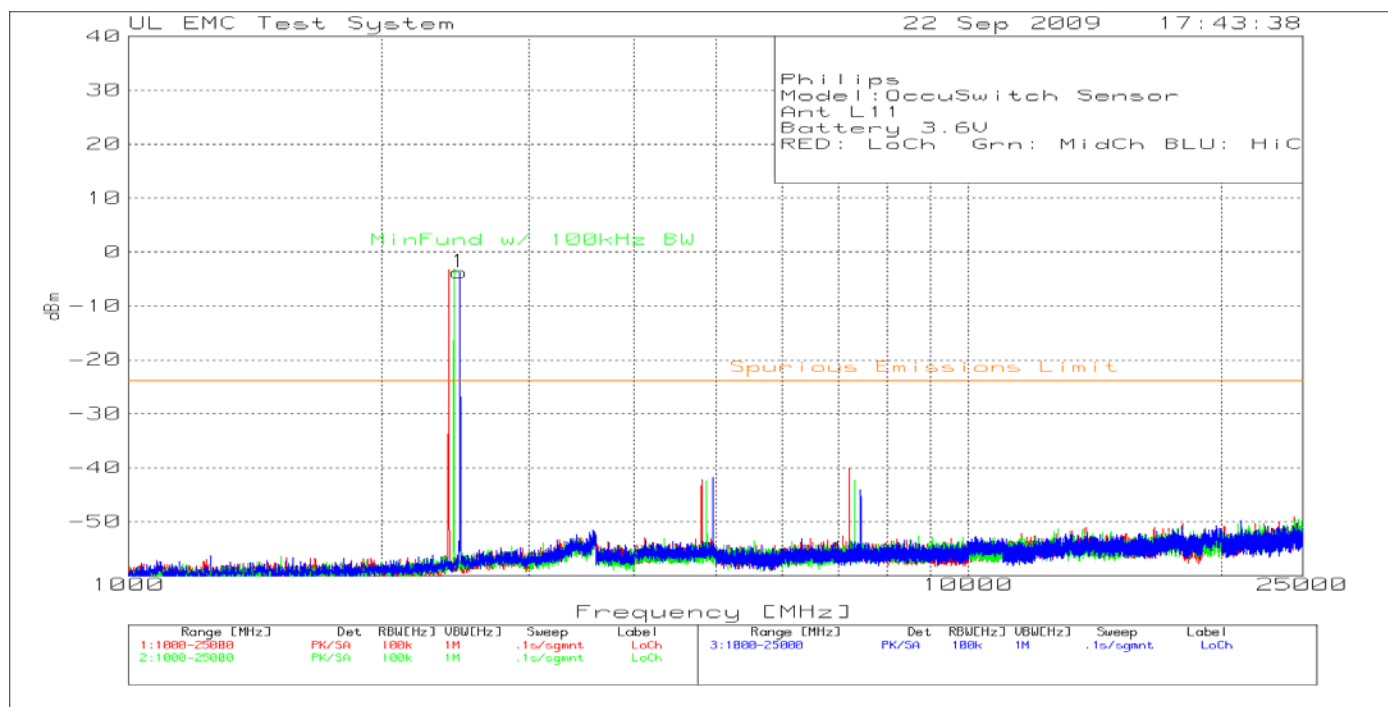


Figure 7 1GHz-10GHz Antenna (L11) Port Spurious Emissions Plots TX Mode, Low, Middle and High Channels.



Job #: 1001132501    File #: MC16272    Project #: 09CA32738B  
 Model Number: LRM1742  
 Client Name: Philips Lighting Electronics N. A.

**Table 9 Antenna (L11) Port Conducted Spurious Emissions Above 1GHz, Low Channel, Middle Channel and High Channel**

Philips  
 Model:OccuSwitch Sensor  
 Ant L11  
 Battery 3.6V  
 RED: LoCh Grn: MidCh BLU: HiC

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV) ]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1 [dB]	Limit 2	Margin 2 [dB]
1	*2479.582	92.7	pk	10.5	-107	-3.8	-3.1	-.7	-23.1	19.3

LIMIT 1: MinFund w/ 100kHz BW  
 LIMIT 2: Spurious Emissions Limit

PK - Peak detector

\* - Fundamental frequency, not subject to limit

Figure 8 Radiated Spurious Emissions below 1GHz, Low Channel, L10

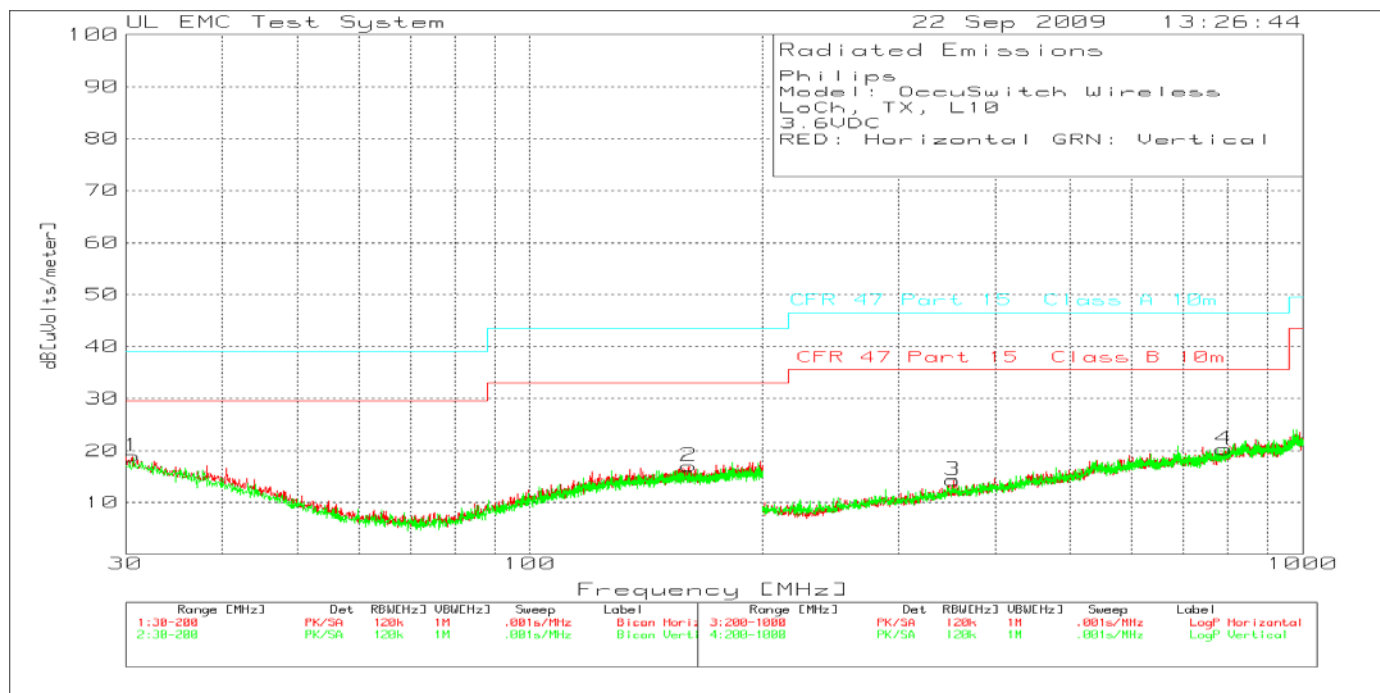
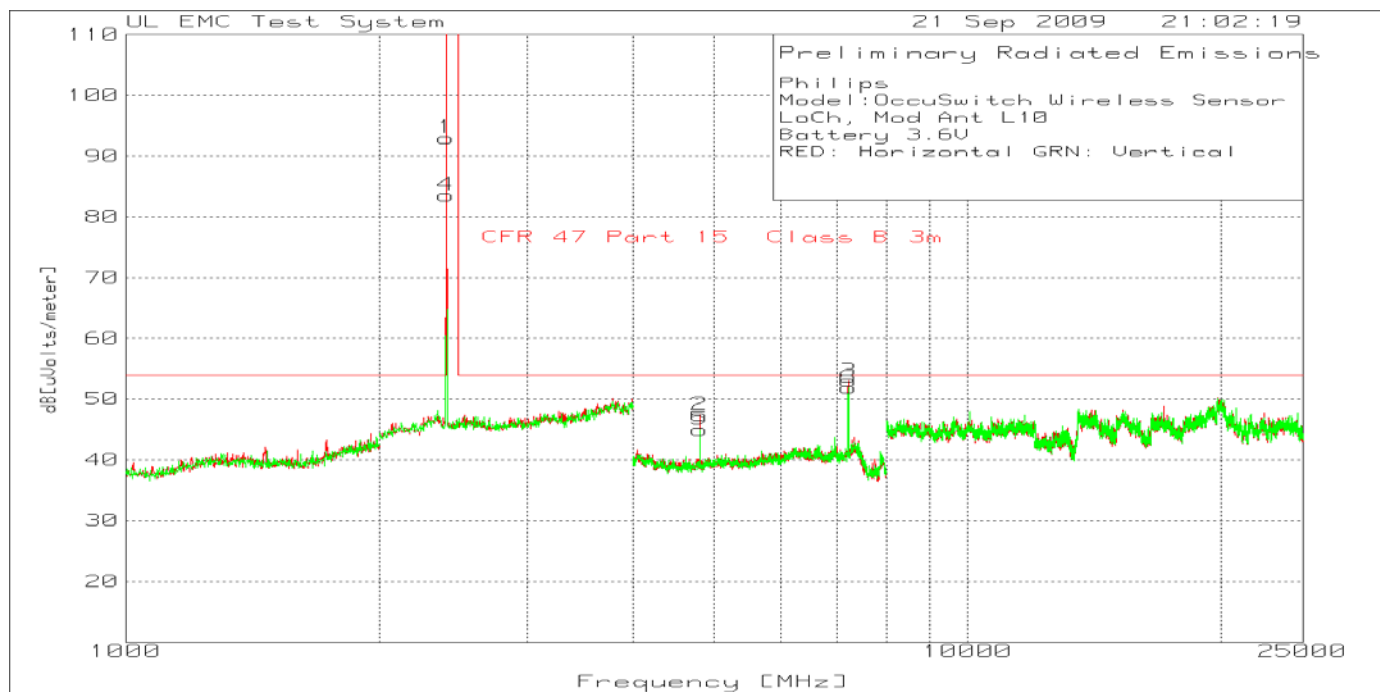


Figure 9 Radiated Spurious Emissions above 1GHz, Low Channel, L10



**Table 10 Radiated Spurious Emissions below 1GHz, Low Channel, L10**

Philips  
 Model: OccuSwitch Wireless  
 LoCh, TX, L10  
 3.6VDC  
 RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit 3	Margin 3[dB]	Limit 4	Margin 4[dB]	Height [cm]	Polarity
1	30.5947	31.64	pk	-30.4	17.7	18.94	39.1	-20.16	29.6	-10.66	250	Horz
2	160.4948	32.06	pk	-30.1	15.1	17.06	43.5	-26.44	33.1	-16.04	400	Horz
3	352.6982	32.11	pk	-32.7	14.9	14.31	46.4	-32.09	35.6	-21.29	303	Horz
4	792.1386	30.55	pk	-31.6	21.3	20.25	46.4	-26.15	35.6	-15.35	202	Horz

LIMIT 3: CFR 47 Part 15 Class A 10m  
 LIMIT 4: CFR 47 Part 15 Class B 10m

PK - Peak detector  
 QP - Quasi-Peak detector

**Table 11 Radiated Spurious Emissions above 1GHz, Low Channel, L10**

Philips  
 Model: OccuSwitch Wireless Sensor  
 LoCh, Mod Ant L10  
 Battery 3.6V  
 RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit 1	Margin 1[dB]	Height [cm]	Polarity	Comments
1	2404.81	66.81	pk	4.41	21.8	93.02	X	X	101	Horz	TX Frequency
2	4808.539	71.08	pk	-51.37	27.7	47.41	54	-6.59	100	Horz	Note 1
3	7215.477	70.23	pk	-47.03	29.8	53	54	-1	100	Horz	Note 2
4	2404.81	57.34	pk	4.41	21.8	83.55	X	X	150	Vert	TX Frequency
5	4808.539	68.66	pk	-51.37	27.7	44.99	54	-9.01	100	Vert	Note 1
6	7218.145	69.14	pk	-47.08	29.8	51.86	54	-2.14	100	Vert	Note 2

**Note 1:** Sufficient margin based on preliminary data.  
**Note 2:** Not in restricted band, radiated emissions limits do not apply.

LIMIT 1: CFR 47 Part 15 Class B 3m

pk - Peak detector  
 qp - Quasi-Peak detector

Figure 10 Radiated Spurious Emissions below 1GHz, Low Channel, L11

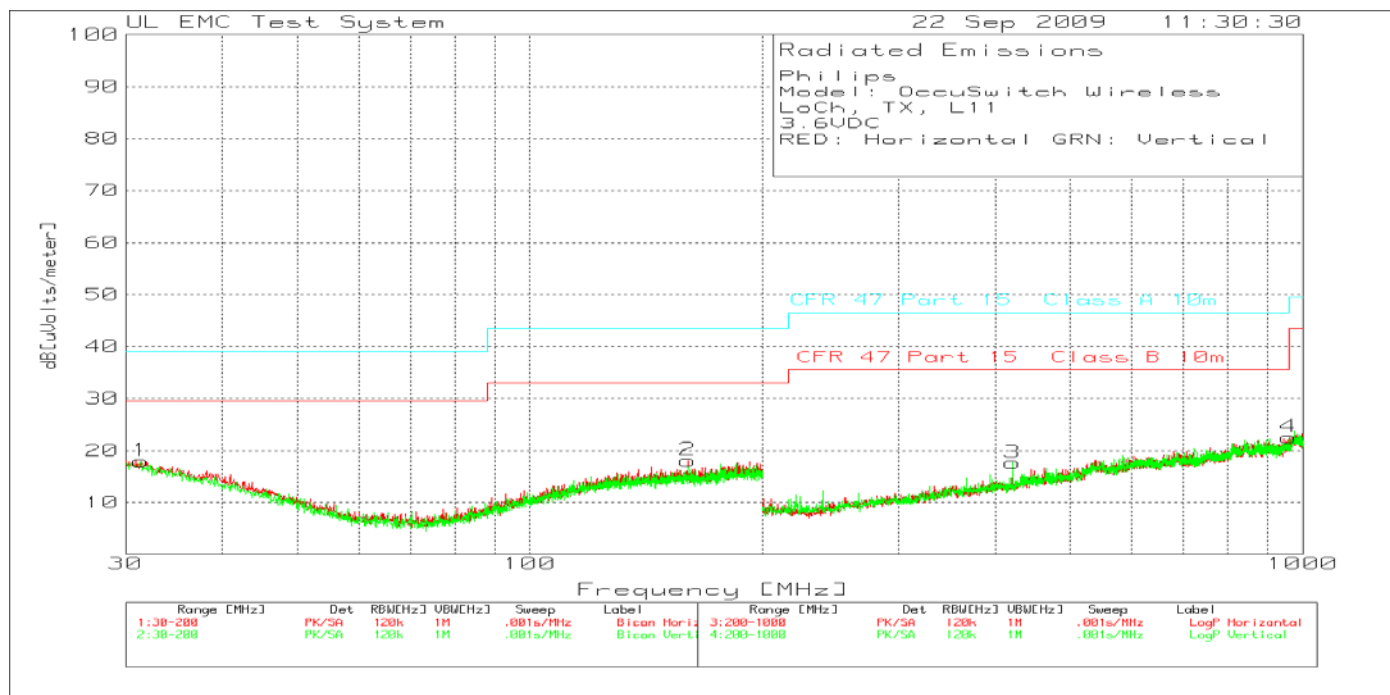
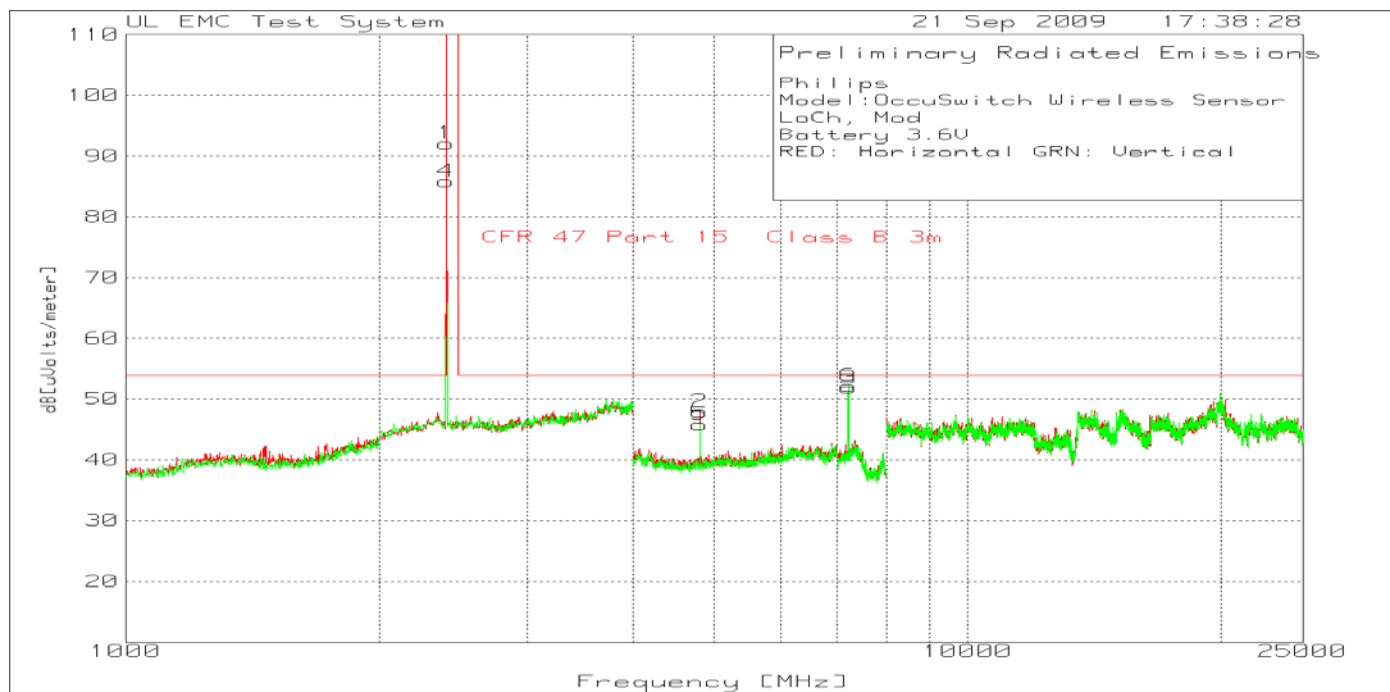


Figure 11 Radiated Spurious Emissions above 1GHz, Low Channel, L11





**Table 12 Radiated Spurious Emissions below 1GHz, Low Channel, L11**

Philips  
Model: OccuSwitch Wireless  
LoCh, TX, L11  
3.6VDC  
RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit 3	Margin 3[dB]	Limit 4	Margin 4[dB]	Height [cm]	Polarity
1	31.3593	30.97	pk	-30.4	17.4	17.97	39.1	-21.13	29.6	-11.63	400	Horz
2	160.07	33.08	pk	-30.1	15.1	18.08	43.5	-25.42	33.1	-15.02	400	Horz
3	421.1859	34.24	pk	-32.3	15.7	17.64	46.4	-28.76	35.6	-17.96	100	Vert
4	959.7602	31.12	pk	-31.7	23.1	22.52	46.4	-23.88	35.6	-13.08	301	Vert

LIMIT 3: CFR 47 Part 15 Class A 10m  
LIMIT 4: CFR 47 Part 15 Class B 10m

PK - Peak detector

**Table 13 Radiated Spurious Emissions above 1GHz, Low Channel, L11**

Philips  
Model: OccuSwitch Wireless Sensor  
LoCh, Mod  
Battery 3.6V  
RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit 1	Margin 1[dB]	Height [cm]	Polarity	Comments
1	2404.81	65.87	pk	4.41	21.8	92.08	X	X	101	Horz	TX Frequency
2	4808.539	71.58	pk	-51.37	27.7	47.91	54	-6.09	100	Horz	Note 1
3	7215.477	69.04	pk	-47.03	29.8	51.81	54	-2.19	100	Horz	Note 2
4	2404.81	59.59	pk	4.41	21.8	85.8	X	X	149	Vert	TX Frequency
5	4808.539	69.48	pk	-51.37	27.7	45.81	54	-8.19	100	Vert	Note 1
6	7218.145	69.43	pk	-47.08	29.8	52.15	54	-1.85	100	Vert	Note 2

**Note 1:** Sufficient margin based on preliminary data.

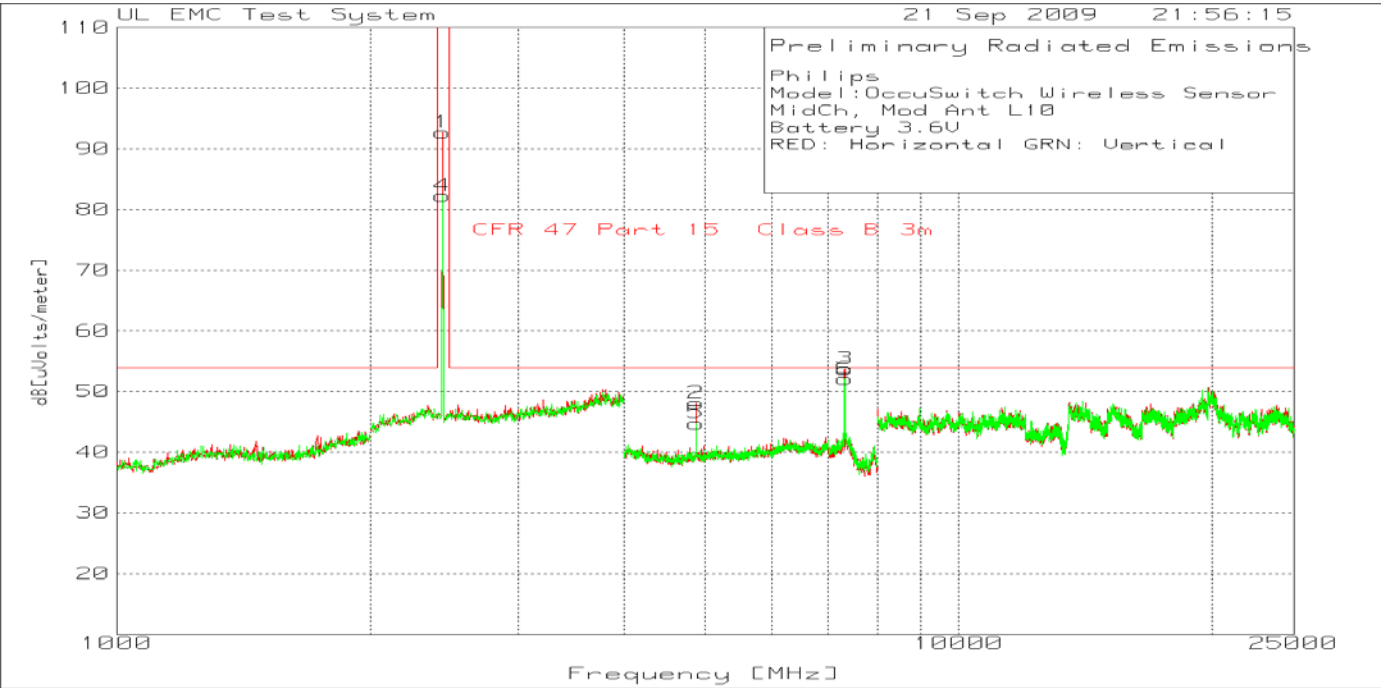
**Note 2:** Not in restricted band, radiated emissions limits do not apply.

LIMIT 1: CFR 47 Part 15 Class B 3m  
pk - Peak detector

Figure 12 Radiated Spurious Emissions below 1GHz, Middle Channel, L10

There were no emissions recorded below 1GHz on middle channel. See low channel data for reference.

Figure 13 Radiated Spurious Emissions above 1GHz, Middle Channel, L10



**Table 14 Radiated Spurious Emissions below 1GHz, Middle Channel, L10**

There were no emissions recorded below 1GHz on Middle Channel. See low channel data for reference.

**Table 15 Radiated Spurious Emissions above 1GHz, Middle Channel, L10**

Philips  
 Model:OccuSwitch Wireless Sensor  
 MidCh, Mod Ant L10  
 Battery 3.6V  
 RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit 1	Margin 1[dB]	Height [cm]	Polarity	Comments
1	2436.874	66.92	pk	3.89	21.9	92.71	X	X	100	Horz	TX frequency
2	4877.919	71.5	pk	-51.16	27.7	48.04	54	-5.96	101	Horz	Note 1
3	7322.215	69.51	pk	-46.4	30.6	53.71	54	-.29	101	Horz	See table below
4	2440.882	56.49	pk	3.85	21.9	82.24	X	X	100	Vert	TX Frequency
5	4877.919	68.19	pk	-51.16	27.7	44.73	54	-9.27	150	Vert	Note 1
6	7322.215	67.87	pk	-46.4	30.6	52.07	54	-1.93	100	Vert	See table below

**Note 1:** Sufficient margin based on preliminary data.

**Note 2:** Not in restricted band, radiated emissions limits do not apply.

LIMIT 1: CFR 47 Part 15 Class B 3m

pk - Peak detector

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Azimuth [deg]	Height [cm]	Polarity
Mid L10										
7318.5271	63.77	av	-46.36	30.6	48.01	54	-5.99	352	100	Horz
7318.5271	62.49	av	-46.36	30.6	46.73	54	-7.27	110	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

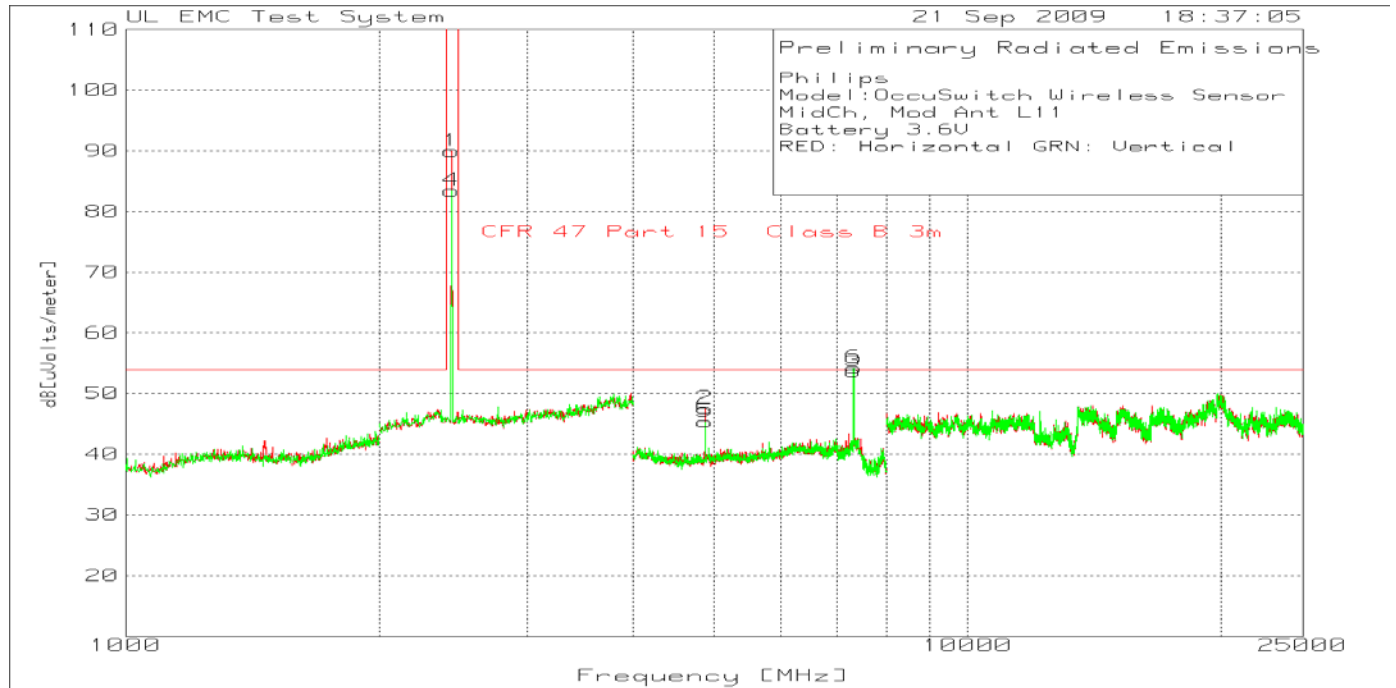
pk - Peak detector

av - Average detector

**Figure 14 Radiated Spurious Emissions below 1GHz, Middle Channel, L11**

There were no emissions recorded below 1GHz on middle channel. See low channel data for reference.

**Figure 15 Radiated Spurious Emissions above 1GHz, Middle Channel, L11**



**Table 16 Radiated Spurious Emissions below 1GHz, Middle Channel, L11**

There were no emissions recorded below 1GHz on middle channel. See low channel data for reference.

**Table 17 Radiated Spurious Emissions above 1GHz, Middle Channel, L11**

Philips  
Model:OccuSwitch Wireless Sensor  
MidCh, Mod Ant L11  
Battery 3.6V  
RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit 1	Margin 1[dB]	Height [cm]	Polarity	Comments
1	2436.874	64.19	pk	3.89	21.9	89.98	X	X	100	Horz	TX Frequency
2	4877.919	71	pk	-51.16	27.7	47.54	54	-6.46	100	Horz	Note 1
3	7319.546	69.46	pk	-46.37	30.6	53.69	54	-.31	100	Horz	See table below
4	2440.882	57.7	pk	3.85	21.9	83.45	X	X	150	Vert	TX Frequency
5	4880.587	68.78	pk	-51.13	27.7	45.35	54	-8.65	100	Vert	Note 1
6	7322.215	70.03	pk	-46.4	30.6	54.23	54	.23	100	Vert	See table below

**Note 1:** Sufficient margin based on preliminary data.  
**Note 2:** Not in restricted band, radiated emissions limits do not apply.

LIMIT 1: CFR 47 Part 15 Class B 3m

pk - Peak detector

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1 [dB]	Azimuth [deg]	Height [cm]	Polarity
Mid L11										
7318.5271	62.01	av	-46.36	30.6	46.25	54	-7.75	121	101	Horz
7318.5271	64.6	av	-46.36	30.6	48.84	54	-5.16	114	100	Vert

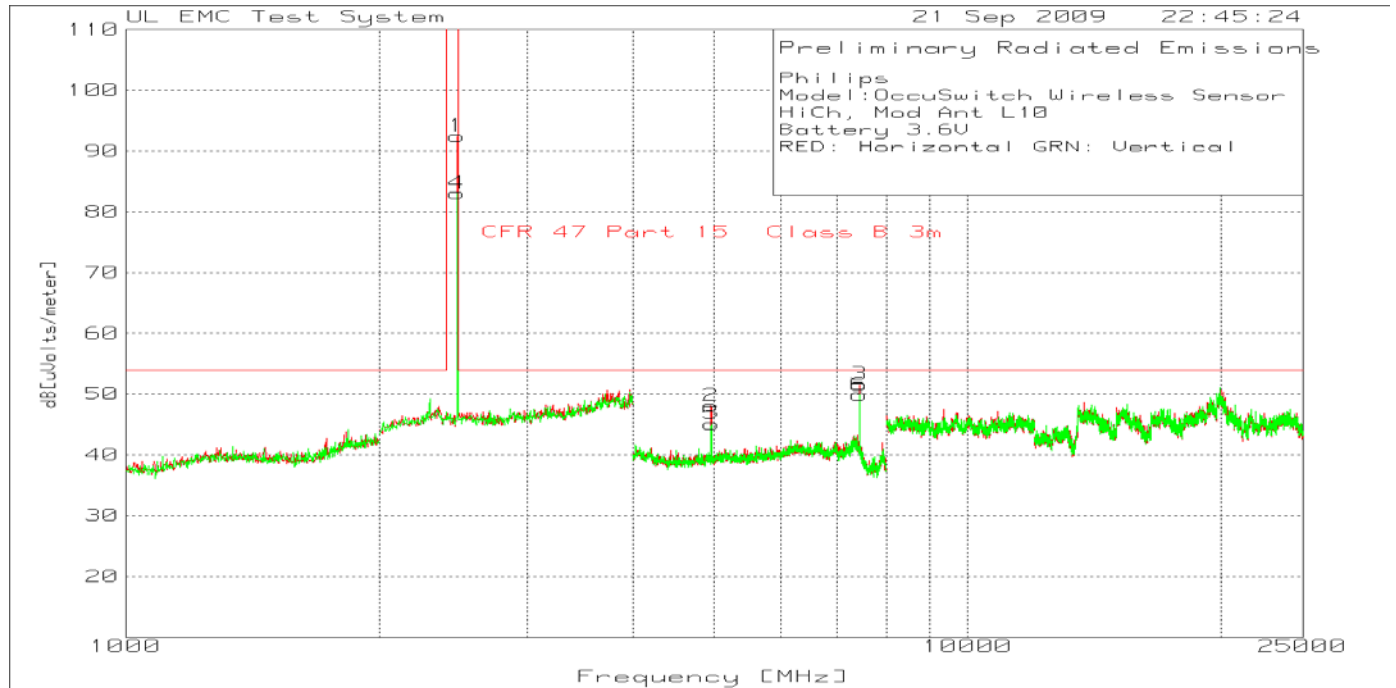
LIMIT 1: CFR 47 Part 15 Class B 3m

pk - Peak detector  
av - Average detector

**Figure 16 Radiated Spurious Emissions below 1GHz, High Channel, L10**

There were no emissions recorded below 1GHz on middle channel. See low channel data for reference.

**Figure 17 Radiated Spurious Emissions above 1GHz, High Channel, L10**



### Table 18 Radiated Spurious Emissions below 1GHz, High Channel, L10

There were no emissions recorded below 1GHz on middle channel. See low channel data for reference.

### Table 19 Radiated Spurious Emissions above 1GHz, High Channel, L10

Philips  
 Model:OccuSwitch Wireless Sensor  
 HiCh, Mod Ant L10  
 Battery 3.6V  
 RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uV/m]	Limit 1	Margin 1[dB]	Height [cm]	Polarity	Comments
1	2476.954	66.29	pk	4.18	22	92.47	X	X	101	Horz	TX frequency
2	4957.972	71.53	pk	-51.27	27.8	48.06	54	-5.94	101	Horz	Note 1
3	7439.626	68.26	pk	-47.31	30.6	51.55	54	-2.45	101	Horz	See table below
4	2476.954	56.85	pk	4.18	22	83.03	X	X	100	Vert	TX Frequency
5	4960.64	68.55	pk	-51.3	27.8	45.05	54	-8.95	150	Vert	Note 1
6	7439.626	66.6	pk	-47.31	30.6	49.89	54	-4.11	100	Vert	See table below

**Note 1:** Sufficient margin based on preliminary data.

**Note 2:** Not in restricted band, radiated emissions limits do not apply.

LIMIT 1: CFR 47 Part 15 Class B 3m

pk - Peak detector

Philips  
 Model:OccuSwitch Wireless Sensor  
 HiCh, Mod Ant L10  
 Battery 3.6V  
 RED: Horizontal GRN: Vertical

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Azimuth [deg]	Height [cm]	Polarity
Hi L10										
7438.5762	62.94	av	-47.36	30.6	46.18	54	-7.82	349	106	Horz
7438.5762	60.94	av	-47.36	30.6	44.18	54	-9.82	107	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m

pk - Peak detector

av - Average detector





**Table 20 Radiated Spurious Emissions below 1GHz, High Channel, L11**

There were no emissions recorded below 1GHz on middle channel. See low channel data for reference.

**Table 21 Radiated Spurious Emissions above 1GHz, High Channel, L11**

Philips  
 Model:OccuSwitch Wireless Sensor  
 HiCh, Mod Ant L11  
 Battery 3.6V  
 RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Height [cm]	Polarity	Comment
1	2476.954	62.33	pk	4.18	22	88.51	X	X	100	Horz	TX frequency
2	4957.972	72.83	pk	-51.27	27.8	49.36	54	-4.64	101	Horz	See table below
3	7439.626	69.15	pk	-47.31	30.6	52.44	54	-1.56	101	Horz	See table below
4	2480.962	57.16	pk	4.08	22	83.24	X	X	150	Vert	TX frequency
5	4960.64	69.55	pk	-51.3	27.8	46.05	54	-7.95	100	Vert	Note 1
6	7442.295	68.15	pk	-47.28	30.5	51.37	54	-2.63	100	Vert	See table below

**Note 1:** Sufficient margin based on preliminary data.

**Note 2:** Not in restricted band, radiated emissions limits do not apply.

LIMIT 1: CFR 47 Part 15 Class B 3m  
 pk - Peak detector

Philips  
 Model:OccuSwitch Wireless Sensor  
 HiCh, Mod Ant L10  
 Battery 3.6V  
 RED: Horizontal GRN: Vertical

Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Azimuth [deg]	Height [cm]	Polarity
Hi L11										
4959.0441	67.05	av	-51.28	27.8	43.57	54	-10.43	120	100	Horz
7438.5762	63.33	av	-47.36	30.6	46.57	54	-7.43	103	106	Vert
7438.5762	64.05	av	-47.36	30.6	47.29	54	-6.71	336	100	Horz

LIMIT 1: CFR 47 Part 15 Class B 3m

pk - Peak detector  
 av - Average detector

File: AV measure.TXT

#### 4.3 Test Conditions and Results – BAND EDGE COMPLIANCE

Test Description	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section15.205(c)).	
Basic Standard	47 CFR Part 15.247(d) RSS-210, A8.5	
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	2400MHz – 2483.5MHz	Antenna Conducted
Limits		
Measurement Type		
Conducted	Antenna Conducted – 20dB below the fundamental	
Radiated	Must meet the restricted band limit adjacent to the bandedge.	
Supplementary information: Only Antenna Conducted Measurements required. No restricted bands close to the allocated frequency band.		

**Table 22 Band Edge Compliance EUT Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1 & 2	1
Supplementary information: None		

**Table 23 Bandedge CONDUCTED EMISSIONS Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Cable with Attenuator	Pasternack	10dB	none

**Table 24 Bandedge RADIATED EMISSIONS Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Bicon Antenna	Chase	VBA6106A	EMC4078
Log-P Antenna	Chase	UPA6109	EMC4313
Spectrum Analyzer	Rhode & Schwarz	FSEK	EMC4182
Antenna Array	UL	BOMS	EMC4276

**Figure 20 Test setup for Band Edge Compliance – Conducted**



**Figure 21 Test setup for Band Edge Compliance – Radiated**

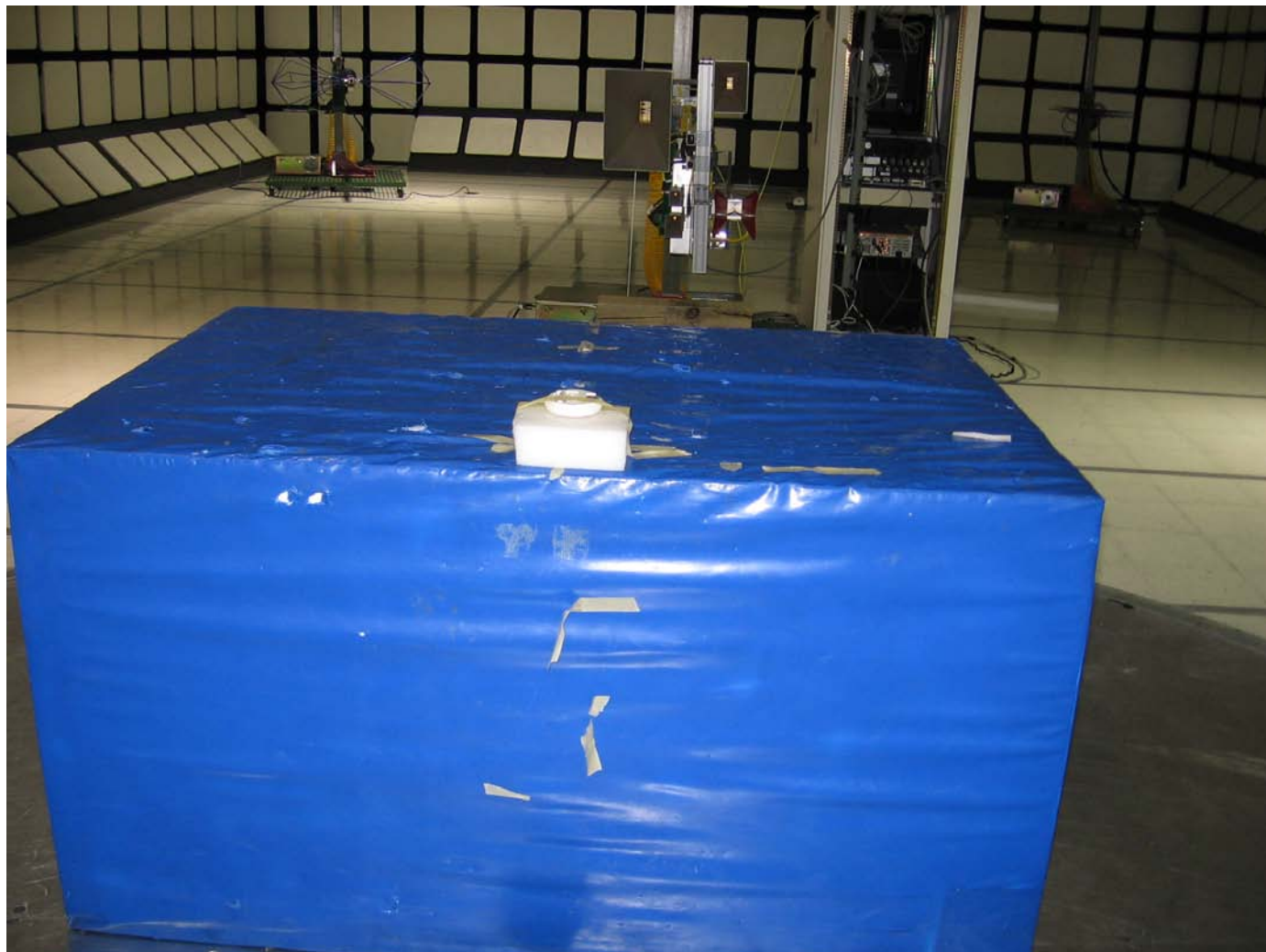


Figure 22 Antenna Conducted Band Edge Compliance Graph, L10

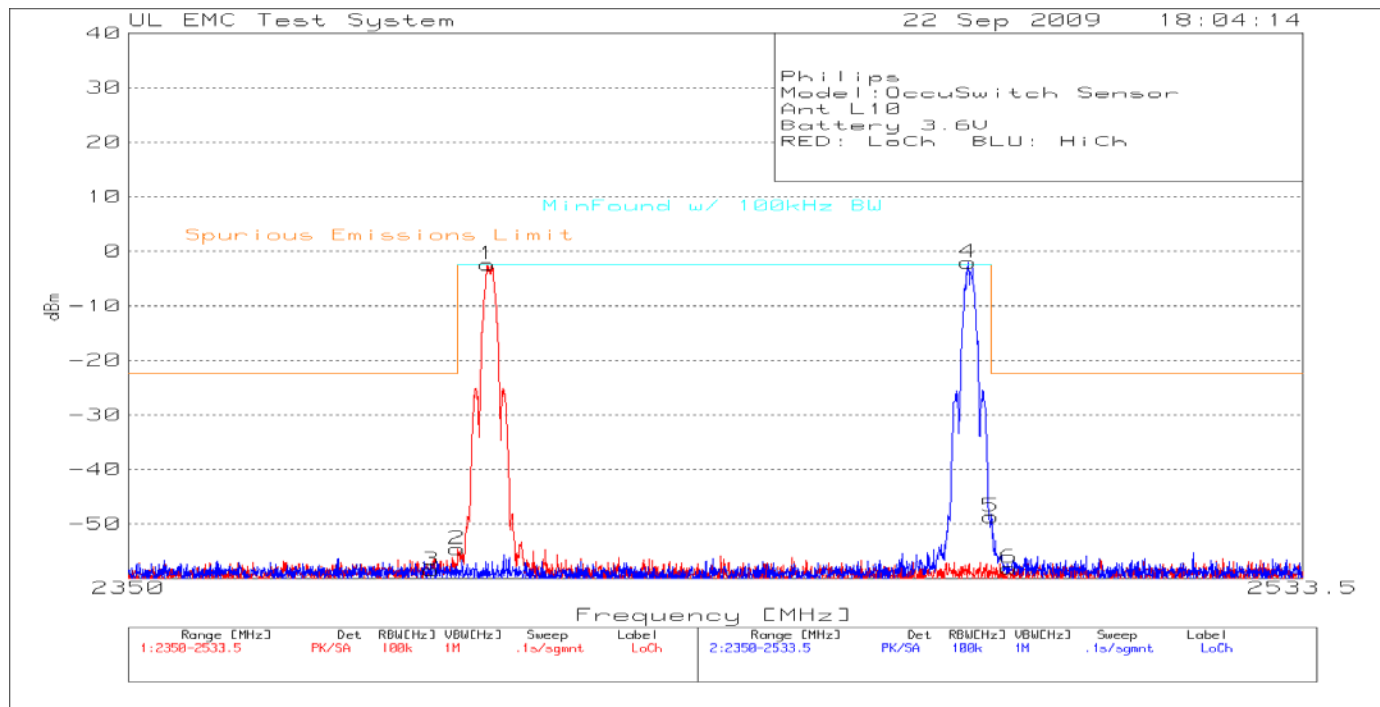


Table 25 Antenna Conducted Band Edge Compliance Data Points, L10

Philips  
Model:OccuSwitch Sensor  
Ant L10  
Battery 3.6V  
RED: LoCh BLU: HiCh

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 2	Margin 2[dB]	Limit 3	Margin 3[dB]
Low Channel Bandedge										
1	*2404.708	94.22	pk	10.4	-107	-2.38	-2.4	.02	-2.4	.02
2	2400.001	42	pk	10.4	-107	-54.6	-2.4	-52.2	-2.4	-52.2
3	2396.028	38.14	pk	10.4	-107	-58.46	-22.4	-36.06	0	-58.46
High Channel Bandedge										
4	*2479.77	94.43	pk	10.5	-107	-2.07	-2.4	.33	-2.4	.33
5	2483.499	47.88	pk	10.5	-107	-48.62	-2.4	-46.22	-2.4	-46.22
6	2486.433	38.44	pk	10.5	-107	-58.06	-22.4	-35.66	0	-58.06

LIMIT 2: Spurious Emissions Limit  
LIMIT 3: MinFound w/ 100kHz BW

PK - Peak detector  
QP - Quasi-Peak detector  
av - Average detector

\* - Fundamental frequency, not subject to limit

Figure 23 Antenna Conducted Band Edge Compliance Graph, L11

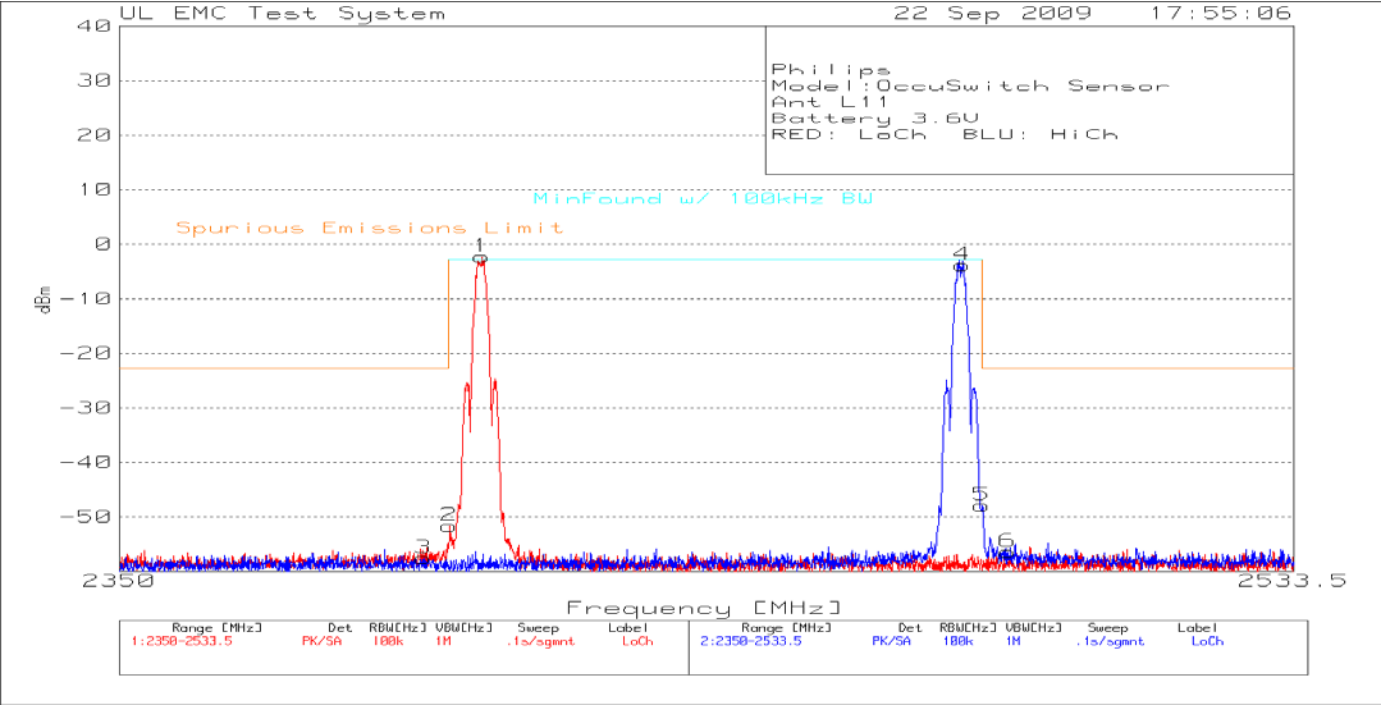


Table 26 Antenna Conducted Band Edge Compliance Data Points, L11

Philips  
Model:OccuSwitch Sensor  
Ant L11  
Battery 3.6V  
RED: LoCh BLU: HiCh

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 2	Margin 2[dB]	Limit 3	Margin 3[dB]
Low Channel Bandedge										
1	*2405.258	94.32	pk	10.4	-107	-2.28	10	-12.28	10	-12.28
2	2400.246	44.97	pk	10.4	-107	-51.63	-2.8	-48.83	-2.8	-48.83
3	2396.272	39.03	pk	10.4	-107	-57.57	-22.8	-34.77	0	-57.57
High Channel Bandedge										
4	*2480.32	92.67	pk	10.5	-107	-3.83	-2.8	-1.03	-2.8	-1.03
5	2483.499	48.67	pk	10.5	-107	-47.83	-2.8	-45.03	-2.8	-45.03
6	2487.594	40.14	pk	10.5	-107	-56.36	-22.8	-33.56	0	-56.36

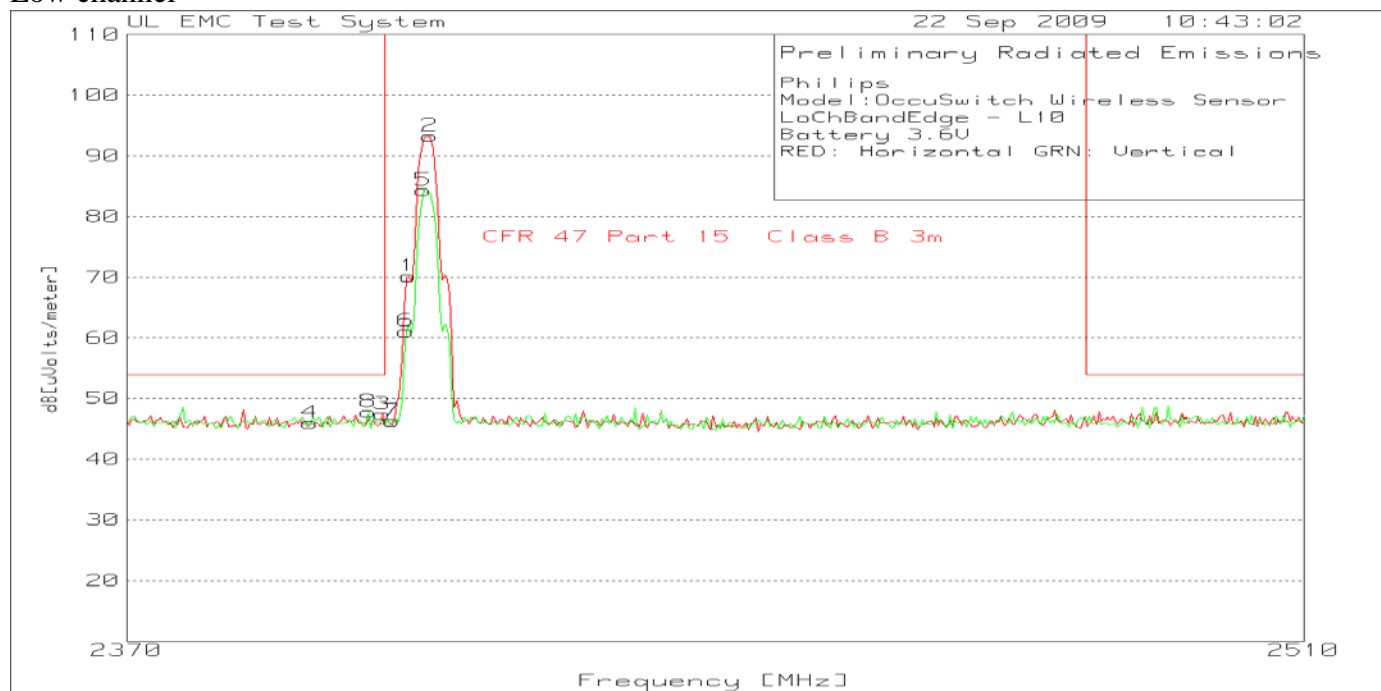
LIMIT 2: Spurious Emissions Limit  
LIMIT 3: MinFound w/ 100kHz BW

PK - Peak detector

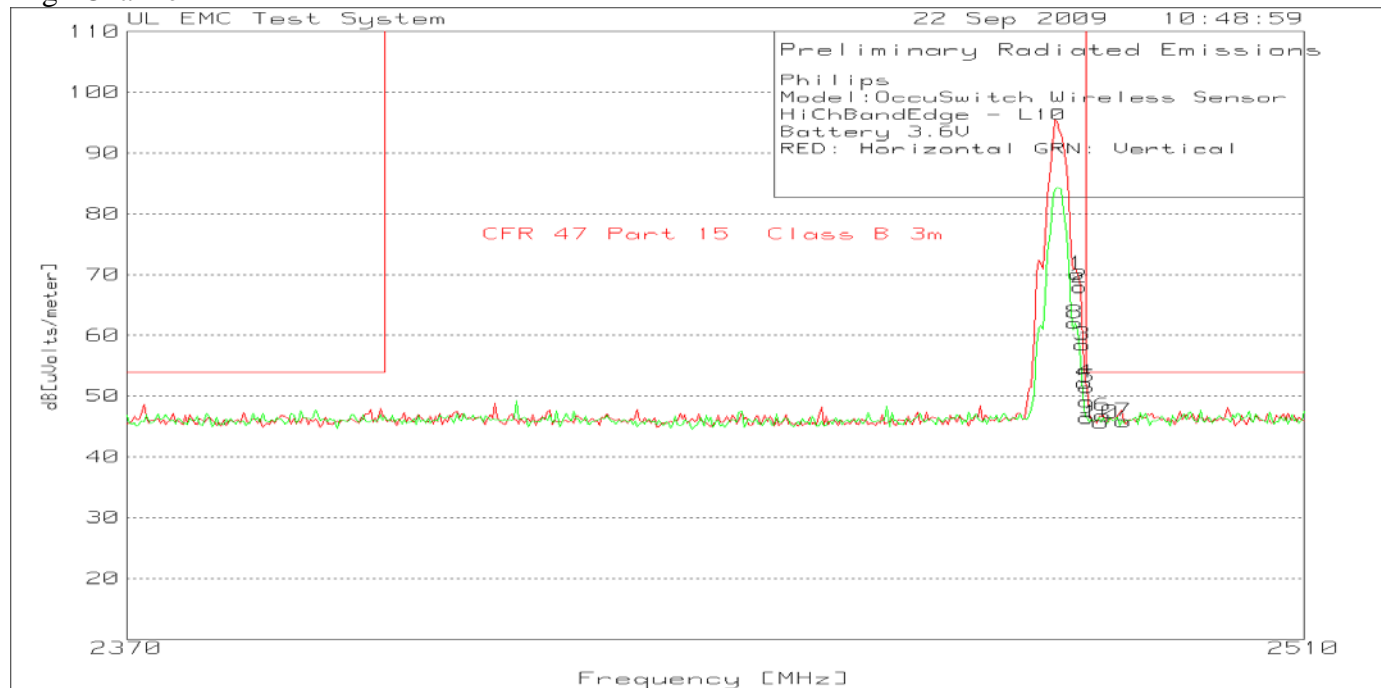
\* - Fundamental frequency, not subject to limit

**Figure 24 Radiated Band Edge Compliance Graph, L10**

**Low channel**



**High Channel**





**Table 27 Radiated Band Edge Compliance Data Points, L10**

### Low Channel

Philips  
Model:OccuSwitch Wireless Sensor  
LoChBandEdge - L10  
Battery 3.6V  
RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
1	2402.826	44.04	pk	4.33	21.8	70.17	X	X	101	Horz
2	2405.351	67.05	pk	4.42	21.8	93.27	X	X	101	Horz
3	2399.739	21.4	pk	4.24	21.8	47.44	54	-6.56	150	Horz
4	2391.323	20.11	pk	4.06	21.8	45.97	54	-8.03	150	Horz
5	2404.509	58.11	pk	4.39	21.8	84.3	X	X	100	Vert
6	2402.545	35	pk	4.32	21.8	61.12	X	X	100	Vert
7	2400.862	20.25	pk	4.27	21.8	46.32	X	X	150	Vert
8	2398.056	21.77	pk	4.21	21.8	47.78	54	-6.22	150	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m  
pk - Peak detector

### High Channel

Philips  
Model:OccuSwitch Wireless Sensor  
HiChBandEdge - L10  
Battery 3.6V  
RED: Horizontal GRN: Vertical

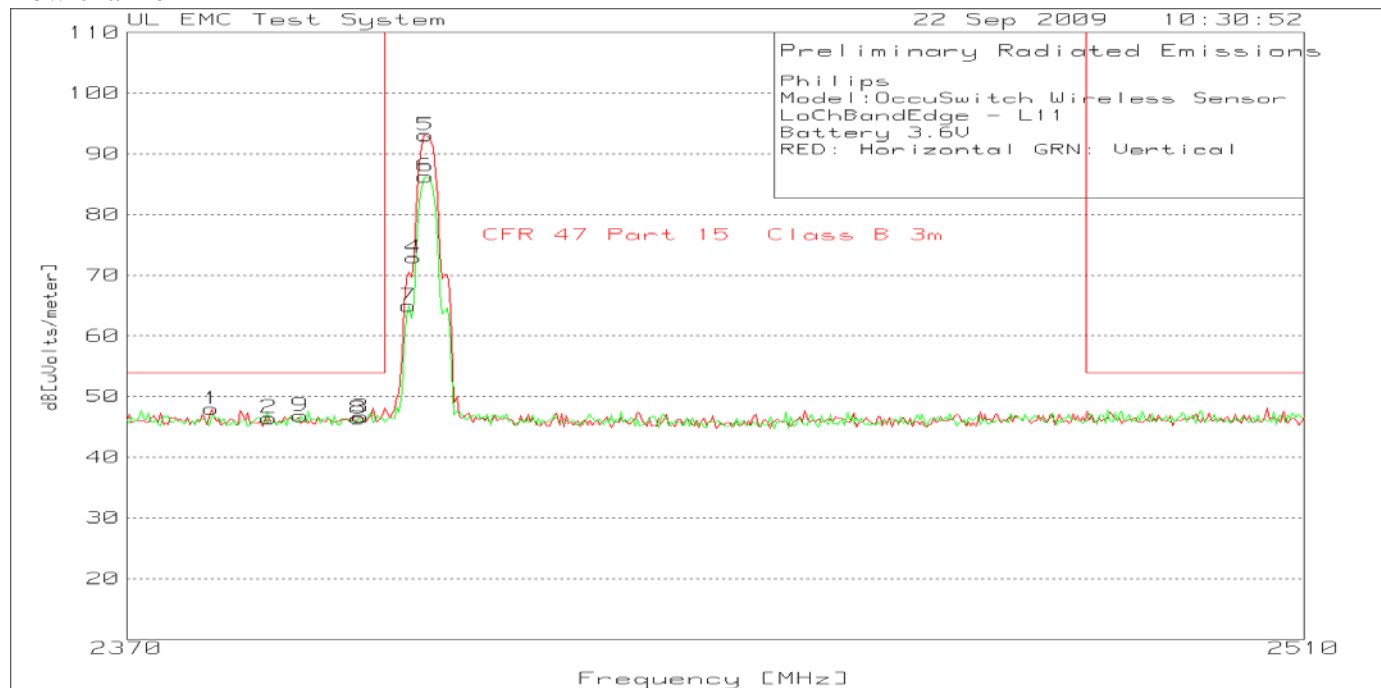
Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]x	Height [cm]	Polarity
1	2482.505	44.08	pk	4.05	22	70.13	X	X	100	Horz
2	2482.786	41.9	pk	4.05	22	67.95	X	X	100	Horz
3	2483.066	32.44	pk	4.04	22	58.48	X	X	100	Horz
4	2483.347	26.08	pk	4.04	22.1	52.22	X	X	100	Horz
5	2483.627	25.32	pk	4.04	22.1	51.46	54	-2.54	100	Horz
6	2485.591	20.65	pk	4.04	22.1	46.79	54	-7.21	150	Horz
7	2488.116	19.76	pk	4.06	22.1	45.92	54	-8.08	150	Horz
8	2482.224	35.99	pk	4.06	22	62.05	X	X	100	Vert
9	2483.627	20.27	pk	4.04	22.1	46.41	54	-7.59	100	Vert
10	2485.311	19.46	pk	4.04	22.1	45.6	54	-8.4	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m  
pk - Peak detector

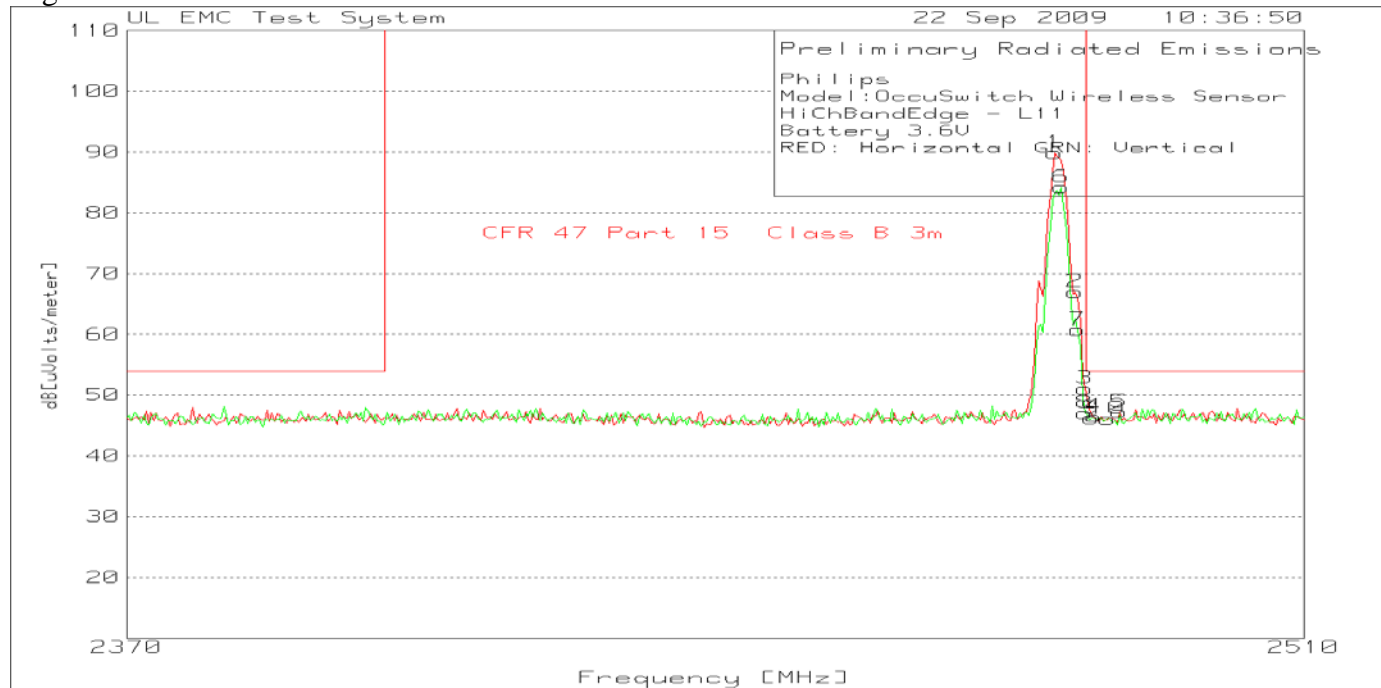


**Figure 25 Radiated Band Edge Compliance Graph, L11**

**Low channel**



**High Channel**



**Table 28 Radiated Band Edge Compliance Data Points, L11**

Philips  
Model:OccuSwitch Wireless Sensor  
LoChBandEdge - L11  
Battery 3.6V  
RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
1	2379.82	22.39	pk	3.73	21.8	47.92	54	-6.08	149	Horz
2	2386.553	20.79	pk	3.88	21.8	46.47	54	-7.53	149	Horz
3	2397.214	20.65	pk	4.2	21.8	46.65	54	-7.35	149	Horz
4	2403.387	46.74	pk	4.35	21.8	72.89	X	X	102	Horz
5	2404.79	66.89	pk	4.4	21.8	93.09	X	X	102	Horz
6	2404.79	60.15	pk	4.4	21.8	86.35	X	X	100	Vert
7	2402.826	38.86	pk	4.33	21.8	64.99	X	X	100	Vert
8	2396.934	20.42	pk	4.19	21.8	46.41	54	-7.59	153	Vert
9	2390.2	21.02	pk	4.02	21.8	46.84	54	-7.16	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m  
pk - Peak detector

Philips  
Model:OccuSwitch Wireless Sensor  
HiChBandEdge - L11  
Battery 3.6V  
RED: Horizontal GRN: Vertical

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit 1	Margin 1[dB]	Height [cm]	Polarity
1	2479.699	63.77	pk	4.12	22	89.89	X	X	100	Horz
2	2482.224	40.93	pk	4.06	22	66.99	X	X	100	Horz
3	2483.347	24.95	pk	4.04	22.1	51.09	X	X	100	Horz
4	2484.469	20.36	pk	4.04	22.1	46.5	54	-7.5	100	Horz
5	2487.555	21.07	pk	4.05	22.1	47.22	54	-6.78	100	Horz
6	2480.541	58.12	pk	4.09	22	84.21	X	X	100	Vert
7	2482.505	34.71	pk	4.05	22	60.76	X	X	100	Vert
8	2483.347	20.88	pk	4.04	22.1	47.02	X	X	100	Vert
9	2484.188	20.04	pk	4.04	22.1	46.18	54	-7.82	100	Vert
10	2486.152	19.96	pk	4.04	22.1	46.1	54	-7.9	100	Vert

LIMIT 1: CFR 47 Part 15 Class B 3m  
pk - Peak detector

#### 4.4 Test Conditions and Results – 6dB BANDWIDTH

Test Description	Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.		
Basic Standard	47 CFR Part 15.247(a)(2) RSS-210, A8.2(a)		

**Table 29 6dB Bandwidth Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	2	1
Supplementary information: None		

**Table 30 6dB Bandwidth Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Cable with Attenuator	Pasternack	10dB	none

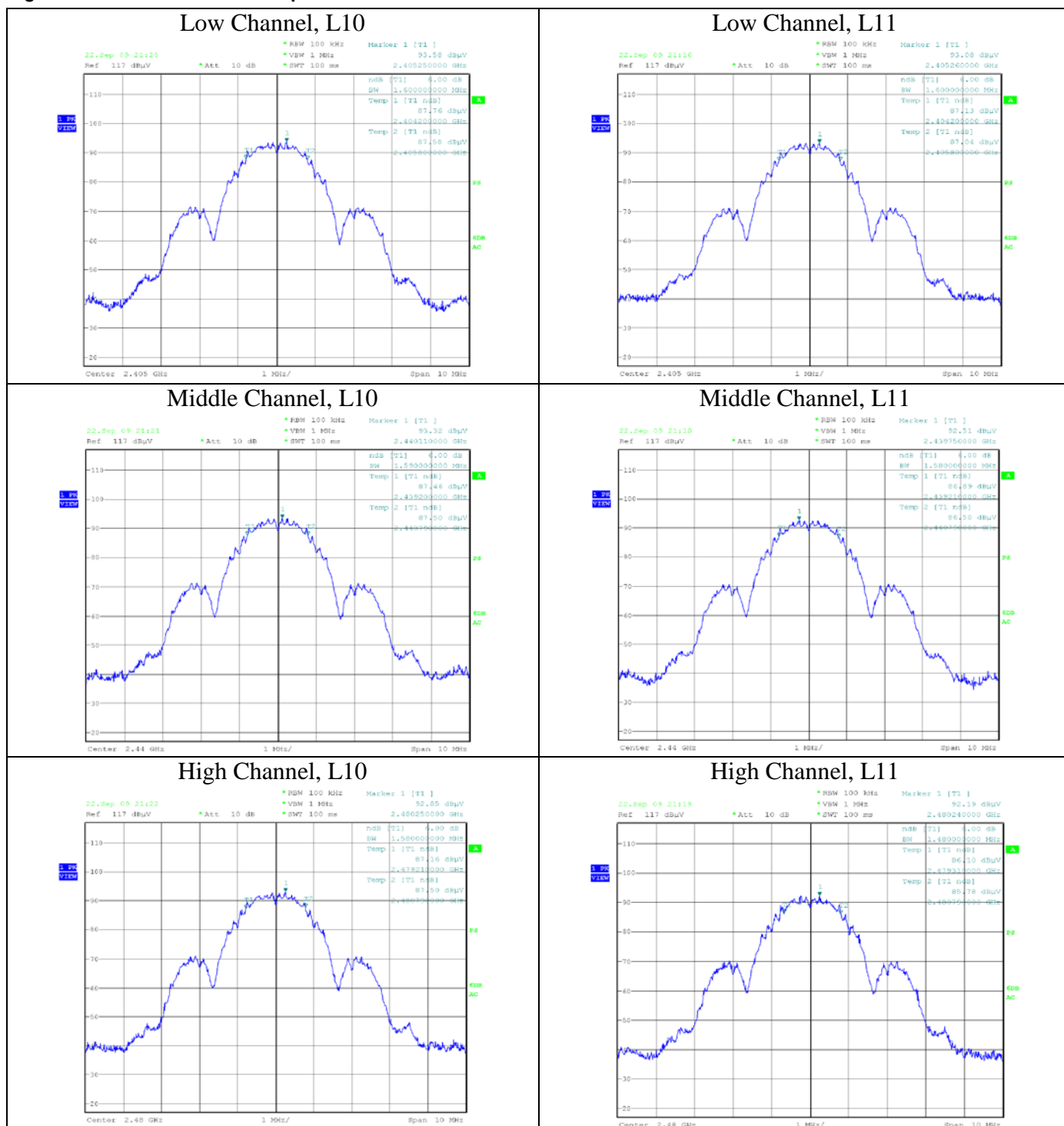
**Table 31 20dB Bandwidth Results**

Mode	Channel	20dB Bandwidth
TX	Low	1.570MHz
	Middle	1.590MHz
	High	1.580MHz

**Test Setup for 6dB Bandwidth**



Figure 26 6dB Bandwidth Graphs



#### 4.5 Test Conditions and Results – MAXIMUM PEAK OUTPUT POWER

Test Description	For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.		
Basic Standard		47 CFR Part 15.247(b)(3) RSS-210, A8.4(4)	
	Frequency range		Measurement Point
Fully configured sample scanned over the following frequency range	2400MHz –2483.5MHz		Antenna Conducted
Limits			
Frequency (MHz)	Limit mW		
	Peak		
2400 – 2483.5	1,000		
Supplementary information: None			

**Table 32 Maximum Peak Output Power EUT Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	2	1
Supplementary information: None		

**Table 33 Maximum Peak Output Power Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Cable with Attenuator	Pasternack	10dB	none

**Table 34 Maximum Peak Output Power Results**

Channel	Declared Antenna Gain (dBi)	Limit (dBm)	Power dBm	Power W
Low Channel, L10	1.2	30	1.76	0.00150
Middle Channel, L10	1.5	30	1.5	0.00141
High Channel, L10	0.9	30	1.29	0.00135
Low Channel, L11	1.2	30	1.12	0.00129
Middle Channel, L11	1.5	30	0.87	0.00122
High Channel, L11	0.9	30	0.54	0.00113

**Figure 27 Test setup for Maximum Peak Output Power**



Figure 28 Maximum Peak Output Power Graph, L10

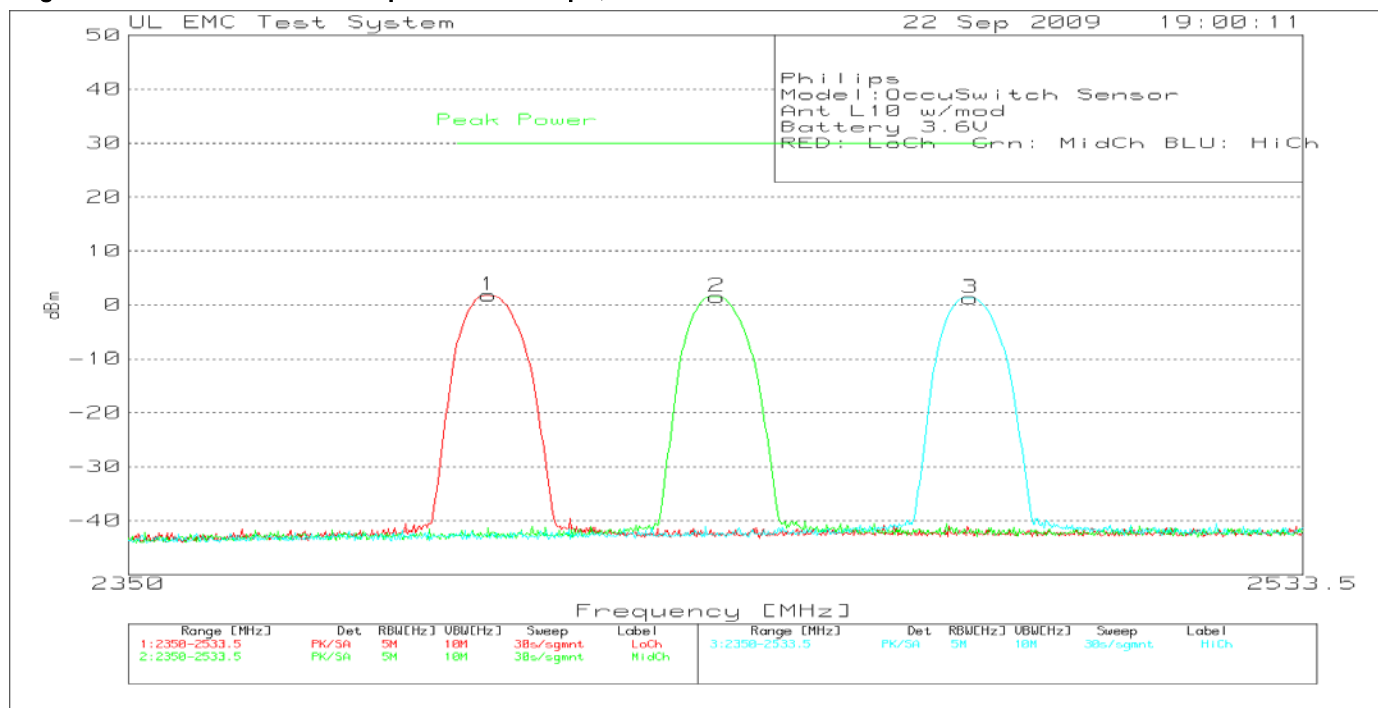
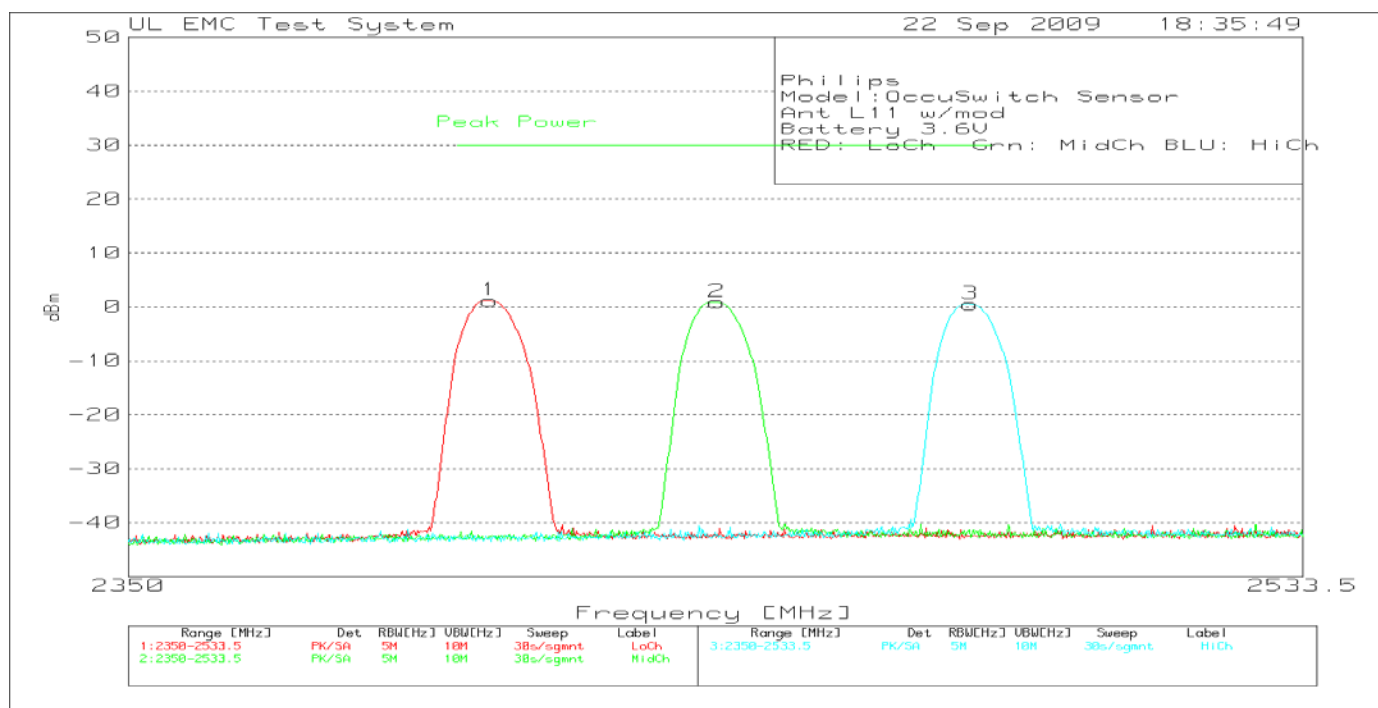


Figure 29 Maximum Peak Output Power Graph, L11





Job #: 1001132501    File #: MC16272    Project #: 09CA32738B  
 Model Number:        LRM1742  
 Client Name:          Philips Lighting Electronics N. A.

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**Table 35 Maximum Peak Output Power Emissions Data Points**

Philips  
 Model:OccuSwitch Sensor  
 Ant L10 w/mod  
 Battery 3.6V  
 RED: LoCh    Grn: MidCh BLU: HiCh

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1[dB]
Low Channel								
1	2404.775	98.36	pk	10.4	-107	1.76	30	-28.24
Middle Channel								
2	2440.19	98.2	pk	10.3	-107	1.5	30	-28.5
High Channel								
3	2480.102	97.79	pk	10.5	-107	1.29	30	-28.71

LIMIT 1: Peak Power  
 PK - Peak detector

Philips  
 Model:OccuSwitch Sensor  
 Ant L11 w/mod  
 Battery 3.6V  
 RED: LoCh    Grn: MidCh BLU: HiCh

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1[dB]
Low Channel								
1	2404.958	97.72	pk	10.4	-107	1.12	30	-28.88
Middle Channel								
2	2440.282	97.57	pk	10.3	-107	.87	30	-29.13
High Channel								
3	2480.102	97.04	pk	10.5	-107	.54	30	-29.46

LIMIT 1: Peak Power  
 PK - Peak detector

#### 4.6 Test Conditions and Results – POWER SPECTRAL DENSITY

Test Description	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.		
Basic Standard	47 CFR Part 15.247(e) RSS-210, A8.2(b)		
	Frequency range	Measurement Point	
Fully configured sample scanned over the following frequency range	2400MHz –2483.5MHz	Antenna Conducted	
Limits			
Frequency (MHz)	Limit mW		
	Peak		
2400 – 2483.5	8dBm (0.00631mW)		
Supplementary information: None			

**Table 36 Power Spectral Density EUT Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	2	1
Supplementary information: None		

**Table 37 Power Spectral Density Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Cable with Attenuator	Pasternack	10dB	none

**Table 38 Power Spectral Density Power Results**

Channel	Limit (dBm)	Power Density dBm
Low Channel, L10	8	-12.11
Middle Channel, L10	8	-13.12
High Channel, L10	8	-12.83
Low Channel, L11	8	-12.60
Middle Channel, L11	8	-12.88
High Channel, L11	8	-14.10

**Figure 30 Test setup for Power Spectral Density**



Figure 31 Power Spectral Density Graph – Low Channel, L10

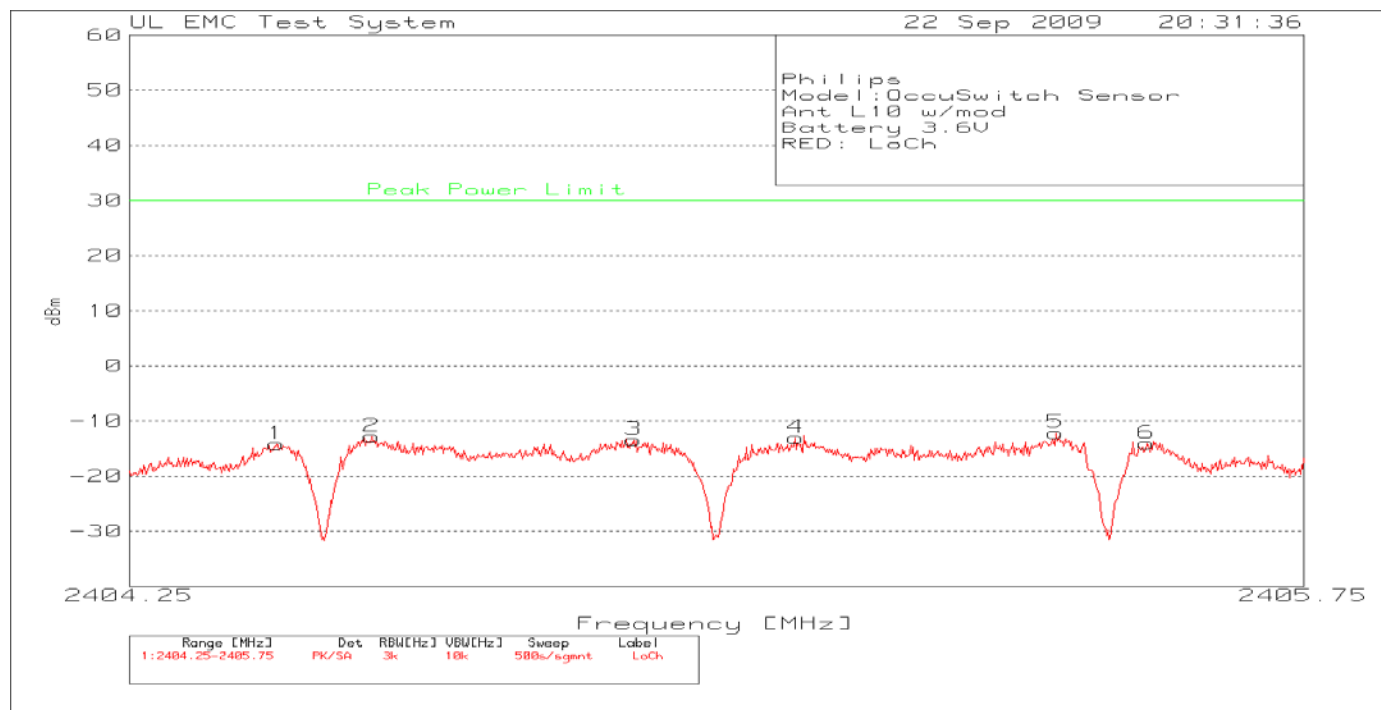


Table 39 Power Spectral Density Data Points – Low Channel, L10

Philips  
Model:OccuSwitch Sensor  
Ant L10 w/mod  
Battery 3.6V  
RED: LoCh

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1[dB]
1	2404.438	82.42	pk	10.4	-107	-14.18	30	-44.18
2	2404.559	83.87	pk	10.4	-107	-12.73	30	-42.73
3	2404.894	83.2	pk	10.4	-107	-13.4	30	-43.4
4	2405.101	83.55	pk	10.4	-107	-13.05	30	-43.05
5	2405.434	84.49	pk	10.4	-107	-12.11	30	-42.11
6	2405.549	82.59	pk	10.4	-107	-14.01	30	-44.01

LIMIT 1: Peak Power Limit  
PK - Peak detector  
Limit shown is a peak power limit

Figure 32 Power Spectral Density Graph – Low Channel, L11

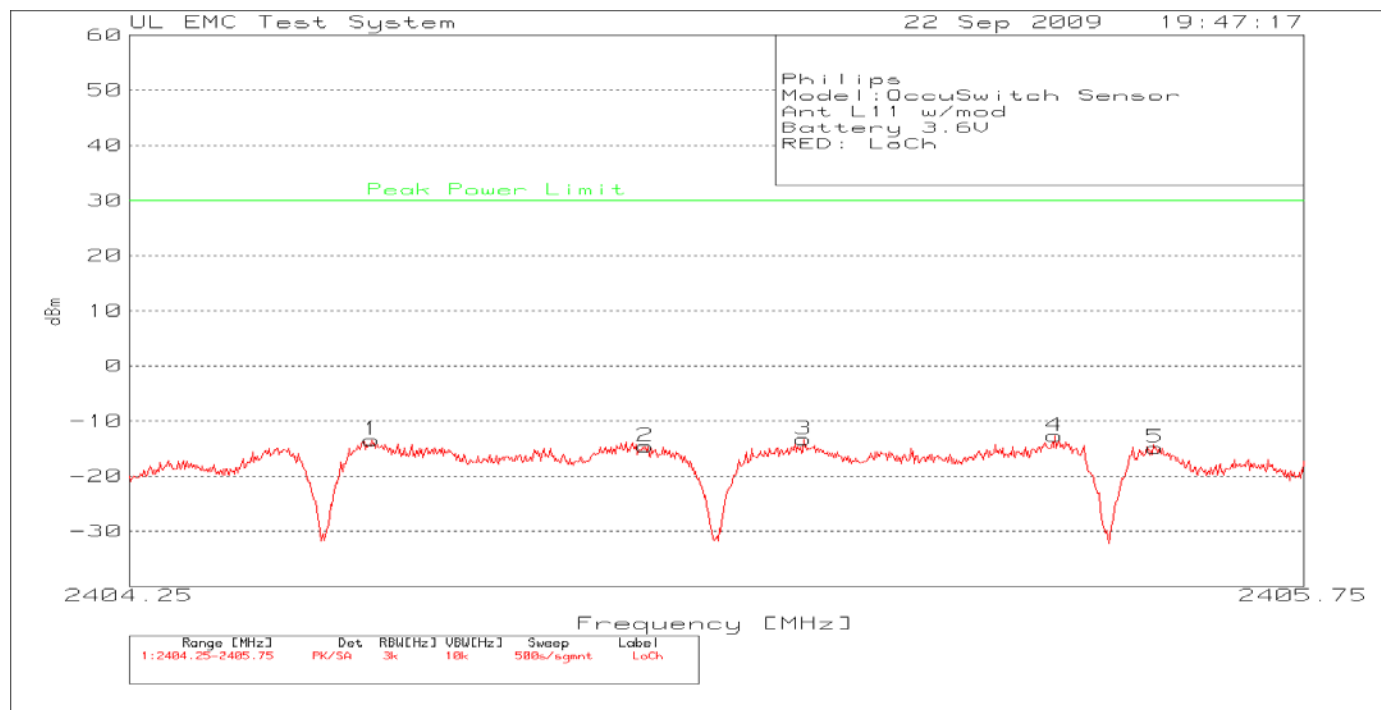


Table 40 Power Spectral Density Data Points – Low Channel, L11

Philips  
Model:OccuSwitch Sensor  
Ant L11 w/mod  
Battery 3.6V  
RED: LoCh

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1[dB]
1	2404.559	83.2	pk	10.4	-107	-13.4	30	-43.4
2	2404.909	82	pk	10.4	-107	-14.6	30	-44.6
3	2405.111	83.32	pk	10.4	-107	-13.28	30	-43.28
4	2405.432	84	pk	10.4	-107	-12.6	30	-42.6
5	2405.561	81.83	pk	10.4	-107	-14.77	30	-44.77

LIMIT 1: Peak Power Limit  
PK - Peak detector

Figure 33 Power Spectral Density Graph – Middle Channel, L10

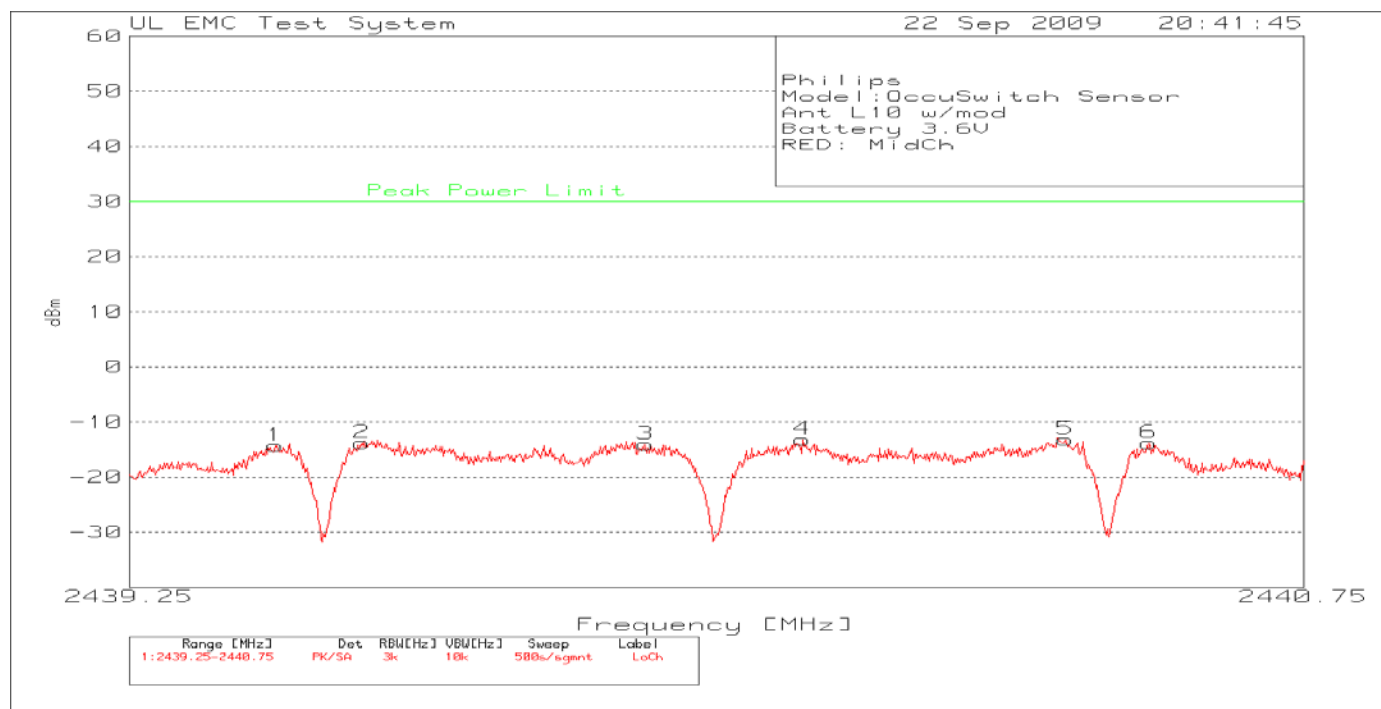


Table 41 Power Spectral Density Data Points – Middle Channel, L10

Philips  
Model:OccuSwitch Sensor  
Ant: L10 w/mod  
Battery 3.6V  
RED: MidCh

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1 [dB]
1	2439.436	82.38	pk	10.3	-107	-14.32	30	-44.32
2	2439.547	82.92	pk	10.3	-107	-13.78	30	-43.78
3	2439.909	82.63	pk	10.3	-107	-14.07	30	-44.07
4	2440.11	83.58	pk	10.3	-107	-13.12	30	-43.12
5	2440.446	83.56	pk	10.3	-107	-13.14	30	-43.14
6	2440.552	82.86	pk	10.3	-107	-13.84	30	-43.84

LIMIT 1: Peak Power Limit  
PK - Peak detector

Figure 34 Power Spectral Density Graph – Middle Channel, L11

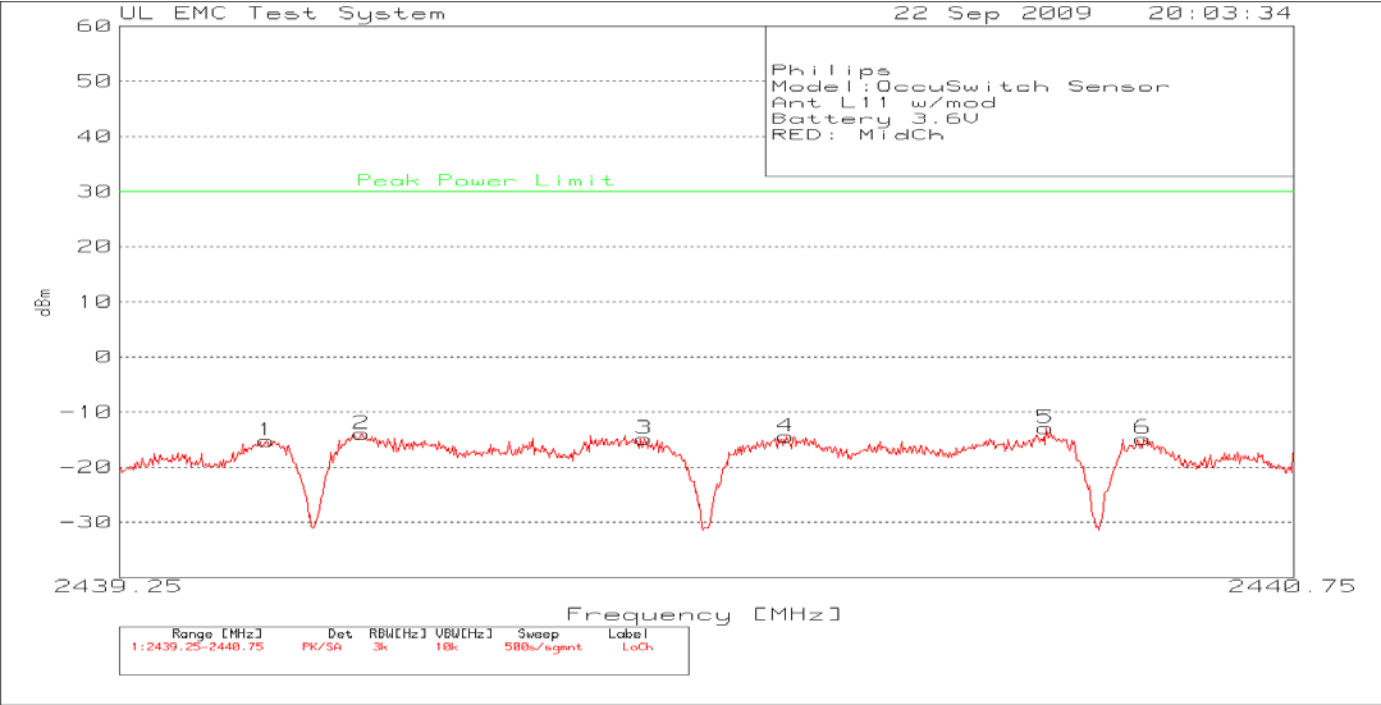


Table 42 Power Spectral Density Data Points – Middle Channel, L11

Philips  
Model:OccuSwitch Sensor  
Ant L11 w/mod  
Battery 3.6V  
RED: MidCh

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1[dB]
1	2439.438	81.45	pk	10.3	-107	-15.25	30	-45.25
2	2439.559	82.8	pk	10.3	-107	-13.9	30	-43.9
3	2439.921	81.91	pk	10.3	-107	-14.79	30	-44.79
4	2440.102	82.25	pk	10.3	-107	-14.45	30	-44.45
5	2440.434	83.82	pk	10.3	-107	-12.88	30	-42.88
6	2440.558	81.94	pk	10.3	-107	-14.76	30	-44.76

LIMIT 1: Peak Power Limit  
PK - Peak detector

Figure 35 Power Spectral Density Graph – High Channel, L10

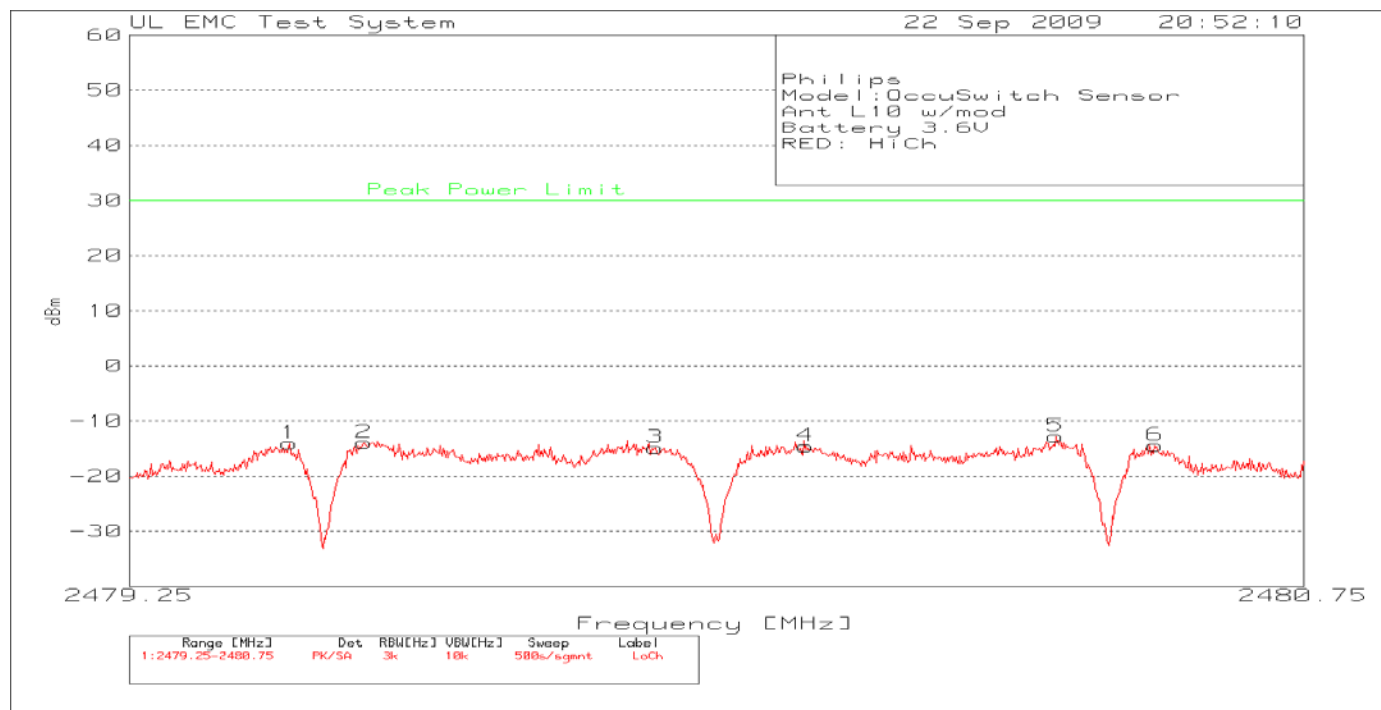


Table 43 Power Spectral Density Data Points – High Channel, L10

Philips  
Model:OccuSwitch Sensor  
Ant: L10 w/mod  
Battery 3.6V  
RED: HiCh

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1[dB]
1	2479.454	82.5	pk	10.5	-107	-14	30	-44
2	2479.55	82.58	pk	10.5	-107	-13.92	30	-43.92
3	2479.922	81.71	pk	10.5	-107	-14.79	30	-44.79
4	2480.114	81.91	pk	10.5	-107	-14.59	30	-44.59
5	2480.434	83.67	pk	10.5	-107	-12.83	30	-42.83
6	2480.56	82.07	pk	10.5	-107	-14.43	30	-44.43

LIMIT 1: Peak Power Limit  
PK - Peak detector



Figure 36 Power Spectral Density Graph – High Channel, L11

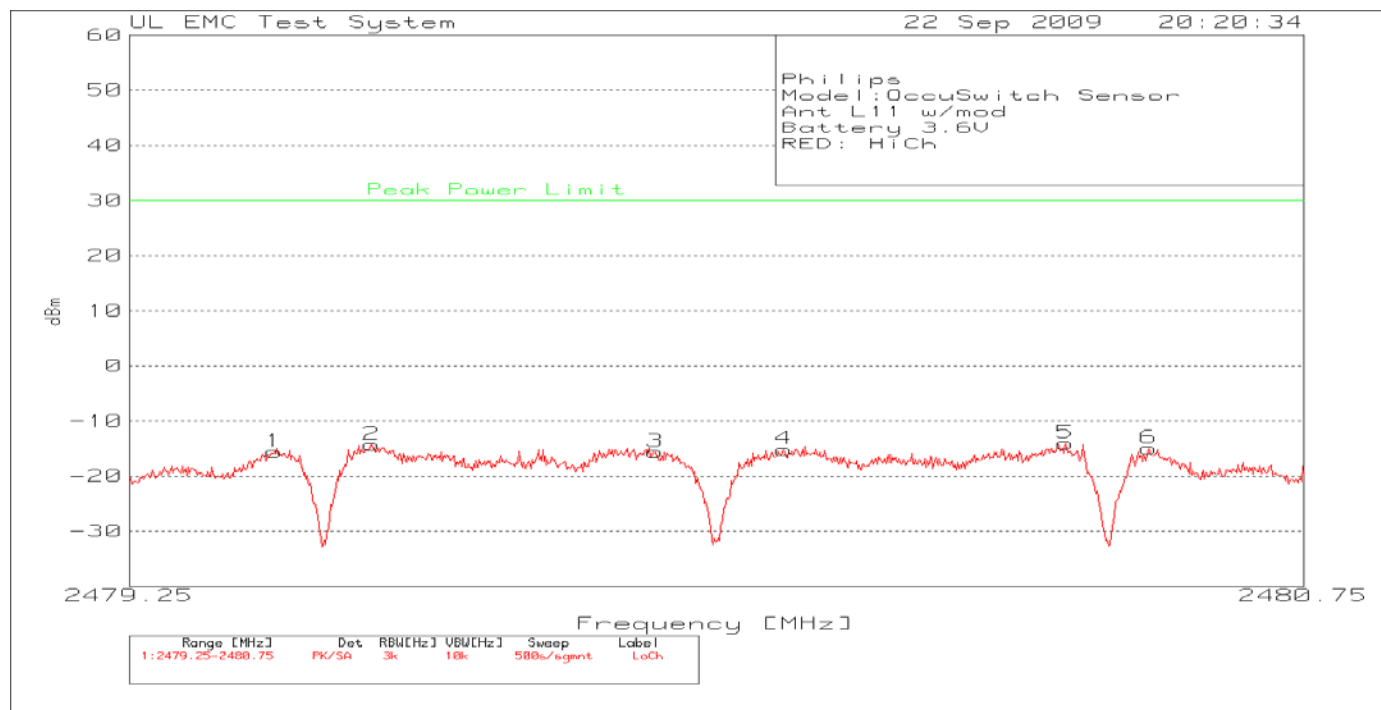


Table 44 Power Spectral Density Data Points – High Channel, L11

Philips  
Model: OccuSwitch Sensor  
Ant: L11 w/mod  
Battery 3.6V  
RED: HiCh

Marker Number	Test Frequency [MHz]	Meter Reading [dB(uV)]	Detector Type	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dBm	Limit 1	Margin 1 [dB]
1	2479.435	80.86	pk	10.5	-107	-15.64	30	-45.64
2	2479.559	82.19	pk	10.5	-107	-14.31	30	-44.31
3	2479.922	80.97	pk	10.5	-107	-15.53	30	-45.53
4	2480.086	81.36	pk	10.5	-107	-15.14	30	-45.14
5	2480.446	82.4	pk	10.5	-107	-14.1	30	-44.1
6	2480.552	81.57	pk	10.5	-107	-14.93	30	-44.93

LIMIT 1: Peak Power Limit  
PK - Peak detector

#### 4.7 Test Conditions and Results – 99% Power BANDWIDTH

Test Description	When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99% emission bandwidth, as calculated or measured.
Basic Standard	RSS-Gen, 4.6.1

**Table 45 99% Power Bandwidth Configuration Settings**

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	2	1
Supplementary information: None		

**Table 46 99% Power Bandwidth Test Equipment**

Test Equipment Used			
Description	Manufacturer	Model	Identifier
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323
Cable with Attenuator	Pasternack	10dB	none

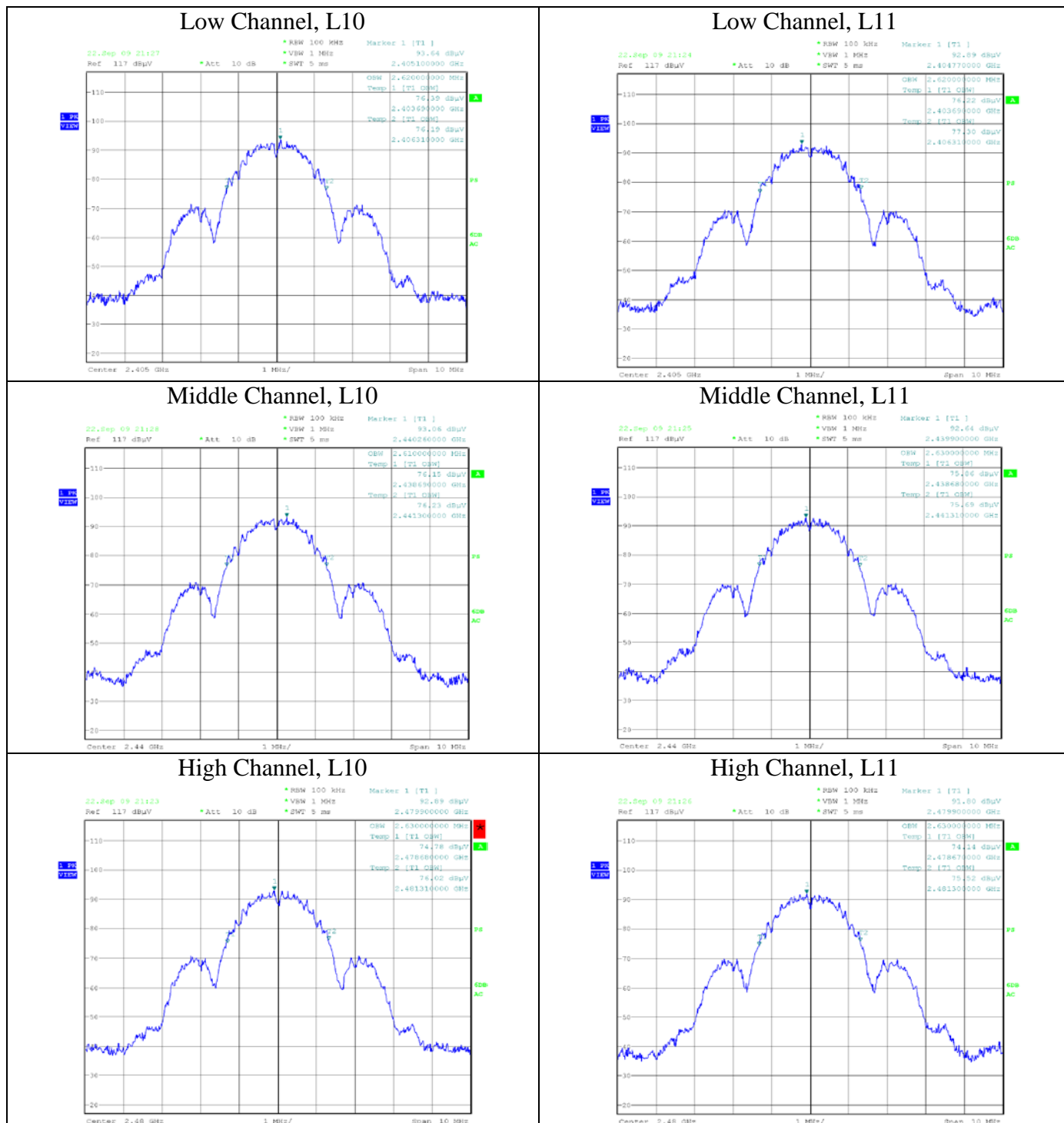
**Table 47 99% Power Bandwidth Results**

Mode	Channel	99% Power Bandwidth
TX	Low, L10	2.620MHz
	Middle, L10	2.610MHz
	High, L10	2.630MHz
	Low, L11	2.620MHz
	Middle, L11	2.630MHz
	High, L11	2.630MHz

**Test Setup for 99% Power Bandwidth**



**Figure 37 99% Power Bandwidth Graphs**



## **5.0    IMMUNITY TEST RESULTS**

Immunity testing was not conducted nor is required by the standard.

## Appendix A

### Accreditations and Authorizations

NVLAP Lab code: 100414-0

NVLAP: The National Institute of Standards and Technology (NIST) administers the National Voluntary Laboratory Accreditation Program (NVLAP). NVLAP is comprised of laboratory accreditation programs (LAPs) which are established on the basis of requests and demonstrated need. Each LAP includes specific calibration and/or test standards and related methods and protocols assembled to satisfy the unique needs for accreditation in a field of testing or calibration. NVLAP accredits public and private laboratories based on evaluation of their technical qualifications and competence to carry out specific calibrations or tests. Accreditation criteria are established in accordance with the U.S. Code of Federal Regulations (CFR, Title 15, Part 285), NVLAP Procedures and General Requirements, and encompass the requirements of ISO/IEC 17025. For a full scope listing see <http://ts.nist.gov/ts/htdocs/210/214/scopes/1004140.htm>



FCC: Details of the measurement facilities used for these tests have been filed with the Federal Communications Commission's Laboratory in Columbia, Maryland (Ref. No. 91044).



Industry Canada    Industrie Canada

Industry of Canada: Accredited by Industry Canada for performance of radiated measurements. Our test site complies with RSP 100, Issue 7, Section 3.3. File #: IC 2180



VCCI: Accepted as an Associate Member to the VCCI. The measurement facilities detailed in this test report have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. Registration Nos.: Radiated Emissions R-621, Conducted Emissions C-642.



ICASA: ICASA (Independent Communications Authority of South Africa) has appointed UL as a Designated Test Laboratory to test Telecommunications equipment for type approval in compliance with CISPR 22 to assist in fulfilling its mandate under section 54(1) of the Telecommunications Act, 1996 (Act 103 of 1996).



NIST/CAB: Validated by the European Commission as a U.S. Conformity Assessment Body (CAB) of the U.S.-EU Mutual Recognition Agreement (MRA) for the Electromagnetic Compatibility - Council Directive 89/336/EEC, Article 10 (2). Also validated for the Telecommunication Equipment-Council Directive 99/5/EC, Annex III and IV, Identification Number: 0983.

NIST/CAB: Provisioned to act as a U.S. Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the Asia Pacific Economic Cooperation (APEC) MRA between the American Institute in Taiwan (AIT) and the United States. Our laboratory is considered qualified to test equipment subject to the applicable EMC regulations of the Chinese Taipei Bureau of Standards, Metrology and Inspection (BSMI) which require testing to CNS 13438 (CISPR 22).

NIST/CAB: Recognized by the Infocomm Development Authority of Singapore (IDA) under the Asia Pacific Economic Cooperation Mutual Recognition Agreement (APEC MRA). Our laboratory is provisionally designated to act as a Conformity Assessment Body (CAB) under Appendix B, Phase I Procedures, of the APEC MRA. Our scope of designation includes IDA TS EMC (CISPR 22), IEC 61000-4-2, -4-3, -4-4, -4-5, and -4-6

