



UL LLC
333 Pfingsten Rd.
Northbrook, IL 60062

www.ul.com/emc
(847) 272-8800

Job Number:	1001524215
Project Number:	12CA34742
File Number:	MC16433
Date:	July 2, 2012
Model:	LCN7330

Electromagnetic Compatibility Test Report

For

Philips Lighting Electronics N. A.

Copyright © 2012 UL LLC

UL LLC authorizes the above-named company to reproduce this Report provided it is reproduced in its entirety.

Job #: 1001524215 File #: MC16433 12CA34742
Model Number: LCN7330
Client Name: Philips Lighting Electronics N. A.

Page 2 of 57

Test Report Details

Tests Performed By: **UL LLC**
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**
Phone: **(847) 390-5195**
E-mail: **richard.haring@philips.com**

Test Report Date: **July 2, 2012**

Product Type: **Street Light Control Panel with wireless communication**

Product standards **FCC Part 15, Subpart C, 15.247**

Model Number: **LCN7330**

Sample Serial Number: **Prototype**

EUT Category: **Digital / Wireless Device**

Testing Start Date: **June 15, 2012**

Date Testing Complete: **June 21, 2012**

Overall Results: **Compliant**

UL LLC reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. UL LLC shall have no liability for any deductions, inferences or generalizations drawn by the client or others from UL LLC issued reports. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

This report may contain test results that are not covered by the NVLAP or A2LA accreditation. The scope of accreditation is limited to the specific tests that are listed on the NVLAP and/or A2LA websites referenced at the end of this report.

Report Directory

1.0	G E N E R A L - Product Description	4
1.1	Equipment Description	4
1.2	Device Configuration During Test	4
1.2.1	Equipment Used During Test:	4
1.2.2	Input/Output Ports:	4
1.2.3	Power Interface:	5
1.3	EUT Configurations	5
1.4	EUT Operation Modes	5
1.5	Rational for EUT Configuration	5
2.0	Summary	6
2.1	Deviations from standard test methods	6
2.2	Device Modifications Necessary for Compliance	6
2.3	Reference Standards	7
2.4	Results Summary	7
3.0	Calibration of Equipment Used for Measurement	8
4.0	EMISSIONS TEST RESULTS	8
4.1	Test Conditions and Results – MAINS TERMINAL – CONDUCTED EMISSIONS	9
4.2	Test Conditions and Results – RADIATED EMISSIONS Receiver Mode	18
4.3	Test Conditions and Results – SPURIOUS EMISSIONS (Antenna Conducted and Radiated)	24
4.4	Test Conditions and Results – BAND EDGE COMPLIANCE	38
4.5	Test Conditions and Results – 6dB BANDWIDTH	40
4.6	Test Conditions and Results – MAXIMUM PEAK OUTPUT POWER	44
4.7	Test Conditions and Results – POWER SPECTRAL DENSITY	48
4.8	Test Conditions and Results – 99% Power BANDWIDTH	52
Appendix A	53
Appendix B	56
	Accreditations and Authorizations	56

Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
None			

1.0 G E N E R A L - Product Description

1.1 Equipment Description

The Equipment Under Test (EUT) is a commercial street lamp controller panel with 900MHz transceiver.

1.2 Device Configuration During Test

1.2.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	Light Controller	Philips	LCN7330	Tested mounted in representative configuration, metal enclosure.
AE	Control Panel	Philips	Generic	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	Mains	AC	N	N	None

Note:
 AC = AC Power Port DC = DC Power Port N/E = Non-Electrical
 I/O = Signal Input or Output Port (Not Involved in Process Control)
 TP = Telecommunication Ports

1.2.3 Power Interface:

Mode # /Rated	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
1	240	-	-	60Hz	1	Power Applied to the panel
2	5	-	-	DC	1	EUT Powered via USB from computer installed inside the panel.

1.3 EUT Configurations

Mode #	Description
1	Panel with transmitter installed was placed on 80cm support.
2	Transmitter part of the EUT was powered by external 5VDC supply (antenna port measurements)

1.4 EUT Operation Modes

Mode #	Description
1	EUT set to transmit continuously on either low, middle or high channels
2	EUT set to receive on a channel
3	EUT Unpowered, USB cable unplugged.

1.5 Rational for EUT Configuration

Mode #	Description
1	The selected EUT configuration was chosen to maximize emissions

2.0 Summary

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by UL LLC 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

2.3 Reference Standards

Standard Number	Standard Name	Standard Date
FCC Part 15, Subpart C, 15.247	Code of Federal Regulations, Part 15, Radio Frequency Devices	2012
RSS-210	License-exempt Radio Apparatus (All Frequency Bands): Category I Equipment	Issue 8
FCC KDB558074 DTS Meas Guidance DR01		

2.4 Results Summary

This product is considered Class A

Requirement – Test	Result (Compliant / Non-Compliant)*
Mains Terminal - Conducted Emissions	Compliant
Radiated Emissions – Receiver Mode	Compliant
Spurious Emissions (Antenna Conducted and Radiated)	Compliant
Band Edge Compliance	Compliant
6dB Bandwidth Measurement	Compliant
Maximum Peak Output Power	Compliant
Power Spectral Density	Compliant
99% Power Bandwidth	N/A – Data Only

Test Engineer:



Bartlomiej Mucha (Ext.41216)
Staff Engineer
International EMC Services
Conformity Assessment Services

Reviewer:



Michael Ferrer(Ext.41312)
Senior Project Engineer
International EMC Services
Conformity Assessment Services

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

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 C, Radio Frequency Devices
--------------------------------------	---

----- Canada -----

Spectrum Management and Telecommunications Radio Standards Specification	License-exempt Radio Apparatus (All Frequency Bands): Category I Equipment
--	--

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

Measurement Uncertainty

Test	Uncertainty
Conducted Emissions	0.9dB
Radiated Emissions	3.1dB

Sample Calculations

Radiated Field Strength and Conducted Emissions data contained within this report is calculated on the following basis:

Field Strength (dBuV/m) = Meter Reading (dBuV) + AF (dB/m) - Gain (dB) + Cable Loss (dB)

Conducted Voltage (dBuV) = Meter Reading (dBuV) + Cable Loss (dB) + LISN IL (dB)

Conducted Current (dBuA) = Meter Reading (dBuV) + Cable Loss (dB) - Transducer Factor (dBohms)

4.1 Test Conditions and Results – MAINS TERMINAL – CONDUCTED EMISSIONS

Test Description	Measurements were made on a ground plane. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN. The EUT was placed approximately 80cm above horizontal ground plane and 40cm from the vertical ground plane (+/- 10%).	
Basic Standard	47 CFR Part 15.107, 15.207 RSS-Gen 7.2.4	
UL LPG	80-EM-S0026	
	Frequency range on each side of line	Measurement Point
Fully configured sample scanned over the following frequency range	150kHz to 30MHz	Mains
Limits - Class A		
Frequency (MHz)	Limit (dB μ V)	
	Quasi-Peak	Average
0.15-0.5	79	66
0.5-30	73	60
Supplementary information: EUT is not for residential use therefore it will never be connected to public utility. All emissions recorded are product of the auxiliary devices installed inside the panel. Two sets of data below shows the device while transmitting and unpowered. In both cases the EUT only meets class A limits.		

Table 1 Conducted Emissions EUT Configuration Settings

Power Interface Mode #	EUT Configurations Mode #	EUT Operation Mode #
1	1	1 and 3
Supplementary information: None		

Table 2 Conducted Emissions Test Equipment

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC4328	Dec 28 2011	Dec 31 2012
Transient Limiter	Electro-Metrics	EM7600-2	EMC4224	N/A	N/A
HighPass Filter	Solar Electronics	2803-150	885551	N/A	N/A
Attenuator	HP	8494B	2831A00838	N/A	N/A
LISN - L1	Solar	8602-50-TS-50-N	EMC4052	Jan 6 2012	Jan 6 2013
LISN - L2	Solar	8602-50-TS-50-N	EMC4064	Jan 6 2012	Jan 6 2013
FILE USED FOR TESTING					
CISPR 22_11 w_ Dongle Line 1and2.TST					

Figure 1 Conducted Emissions Graph – TX Mode

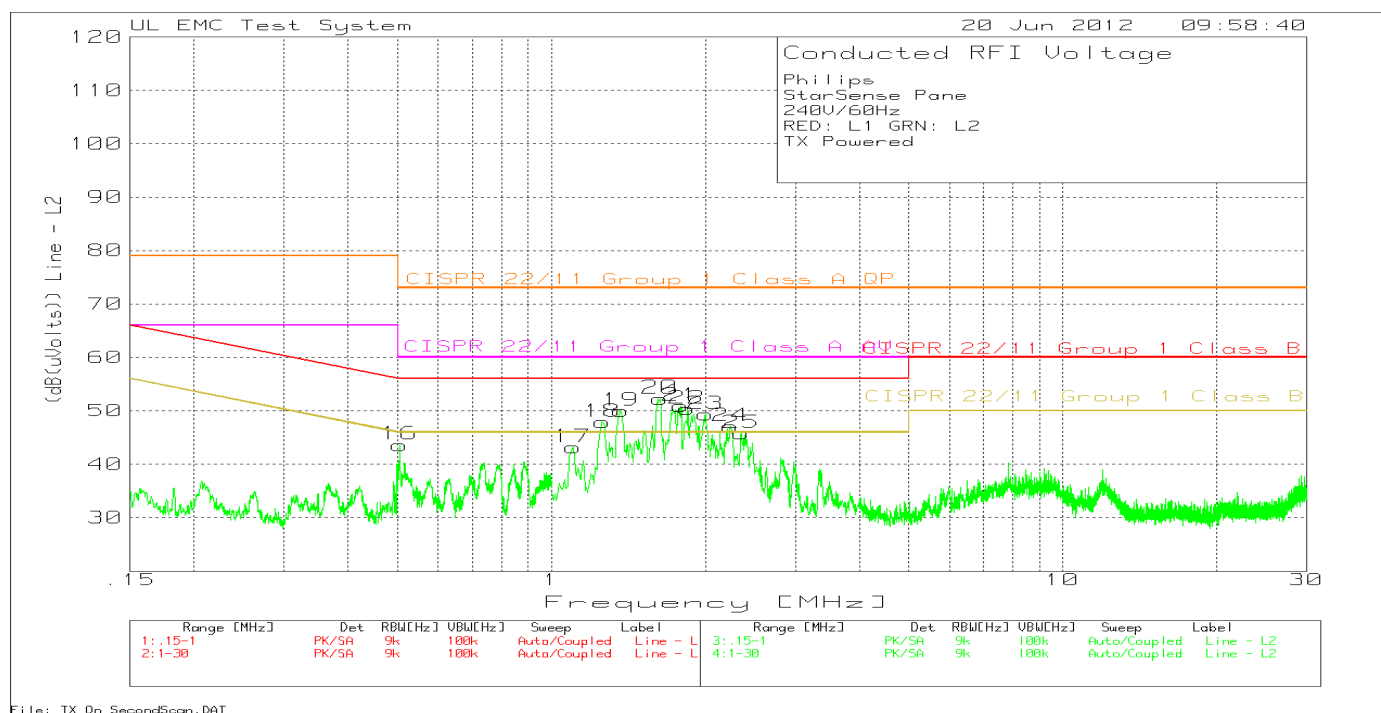
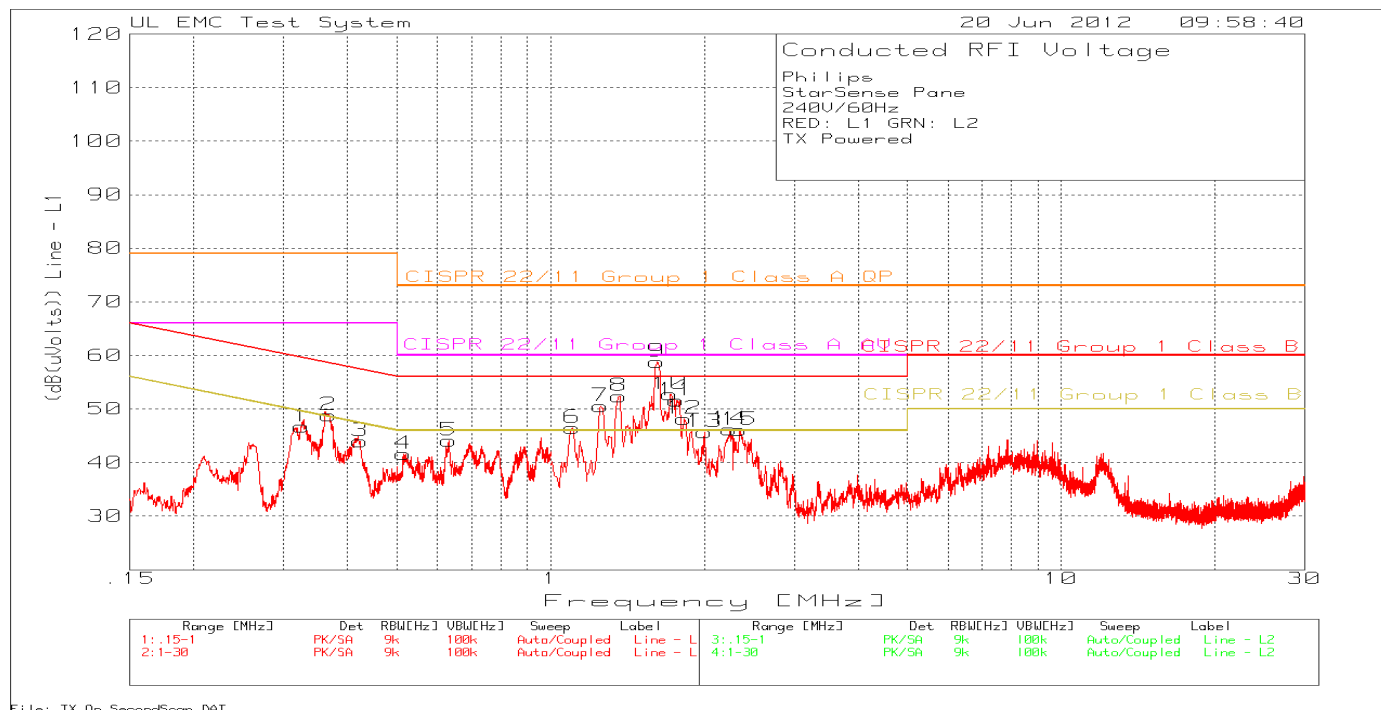


Table 3 Conducted Emissions Data Points – TX Mode

Philips
 StarSense Pane
 240V/60Hz
 RED: L1 GRN: L2
 TX Powered

No.	Test Frequency [MHz]	Meter Reading (dBuV)	Transducer Factor [dB]	Gain/Loss Factor [dB]	Level Limit:1 (dB(uVolts))	2	3	4	5	6
Line - L1 .15 - 1MHz -----										
1	.32476	35.9 PK	0	10.8	46.7	79	66	59.6	49.6	-
				Margin [dB]		-32.3	-19.3	-12.9	-2.9	-
2	.36723	38.05 PK	0	10.8	48.85	79	66	58.6	48.6	-
				Margin [dB]		-30.15	-17.15	-9.75	.25	-
3	.42286	33.25 PK	0	10.7	43.95	79	66	57.4	47.4	-
				Margin [dB]		-35.05	-22.05	-13.45	-3.45	-
4	.51416	30.92 PK	0	10.7	41.62	73	60	56	46	-
				Margin [dB]		-31.38	-18.38	-14.38	-4.38	-
5	.6318	33.54 PK	0	10.6	44.14	73	60	56	46	-
				Margin [dB]		-28.86	-15.86	-11.86	-1.86	-
6	1.10625	35.88 PK	0	10.6	46.48	73	60	56	46	-
				Margin [dB]		-26.52	-13.52	-9.52	.48	-
7	1.25595	39.97 PK	0	10.6	50.57	73	60	56	46	-
				Margin [dB]		-22.43	-9.43	-5.43	4.57	-
8	1.3622	41.79 PK	0	10.6	52.39	73	60	56	46	-
				Margin [dB]		-20.61	-7.61	-3.61	6.39	-
9	1.61815	48.23 PK	0	10.6	58.83	73	60	56	46	-
				Margin [dB]		-14.17	-1.17	2.83	12.83	-
10	1.71474	42.21 PK	0	10.6	52.81	73	60	56	46	-
				Margin [dB]		-20.19	-7.19	-3.19	6.81	-
11	1.76303	41.04 PK	0	10.6	51.64	73	60	56	46	-
				Margin [dB]		-21.36	-8.36	-4.36	5.64	-
12	1.82581	37.56 PK	0	10.6	48.16	73	60	56	46	-
				Margin [dB]		-24.84	-11.84	-7.84	2.16	-
13	1.99967	35.11 PK	0	10.6	45.71	73	60	56	46	-
				Margin [dB]		-27.29	-14.29	-10.29	-2.29	-
14	2.24113	35.61 PK	0	10.6	46.21	73	60	56	46	-
				Margin [dB]		-26.79	-13.79	-9.79	.21	-
15	2.34738	35.5 PK	0	10.6	46.1	73	60	56	46	-
				Margin [dB]		-26.9	-13.9	-9.9	.1	-
Line - L2 .15 - 1MHz -----										
16	.50514	32.94 PK	0	10.7	43.64	73	60	56	46	-
				Margin [dB]		-29.36	-16.36	-12.36	-2.36	-
17	1.10142	32.58 PK	0	10.6	43.18	73	60	56	46	-
				Margin [dB]		-29.82	-16.82	-12.82	-2.82	-
18	1.26078	37.22 PK	.1	10.6	47.92	73	60	56	46	-
				Margin [dB]		-25.08	-12.08	-8.08	1.92	-
19	1.36703	39.31 PK	.1	10.6	50.01	73	60	56	46	-
				Margin [dB]		-22.99	-9.99	-5.99	4.01	-
20	1.63264	41.7 PK	0	10.6	52.3	73	60	56	46	-
				Margin [dB]		-20.7	-7.7	-3.7	6.3	-
21	1.79201	40.31 PK	0	10.6	50.91	73	60	56	46	-
				Margin [dB]		-22.09	-9.09	-5.09	4.91	-
22	1.84513	39.78 PK	0	10.6	50.38	73	60	56	46	-
				Margin [dB]		-22.62	-9.62	-5.62	4.38	-
23	1.99967	38.71 PK	0	10.6	49.31	73	60	56	46	-
				Margin [dB]		-23.69	-10.69	-6.69	3.31	-
24	2.24596	36.46 PK	0	10.6	47.06	73	60	56	46	-
				Margin [dB]		-25.94	-12.94	-8.94	1.06	-
25	2.35221	35.14 PK	.1	10.6	45.84	73	60	56	46	-
				Margin [dB]		-27.16	-14.16	-10.16	-.16	-

LIMIT 1: CISPR 22/11 Group 1 Class A QP
 LIMIT 2: CISPR 22/11 Group 1 Class A AV
 LIMIT 3: CISPR 22/11 Group 1 Class B QP
 LIMIT 4: CISPR 22/11 Group 1 Class B AV

Job #: 1001524215 File #: MC16433 12CA34742
 Model Number: LCN7330
 Client Name: Philips Lighting Electronics N. A.

Page 12 of 57

Philips
 StarSense Pane
 240V/60Hz
 RED: L1 GRN: L2
 TX Powered

Test Frequency [MHz]	Meter Reading (dBuV)	Transducer Factor [dB]	Gain/Loss Factor [dB]	Level (dB(uVolts))	Limit:1	2	3	4	5	6
=====										
Line - L1 .15 - 1MHz										
.32604	32.04 QP	0	10.8	42.84	79	66	59.55	49.55	-	-
			Margin [dB]:	-36.16	79	-23.16	-16.71	-6.71	-	-
.3664	36.24 QP	0	10.8	47.04	79	66	58.58	48.58	-	-
			Margin [dB]:	-31.96	79	-18.96	-11.54	-1.54	-	-
.42279	30.83 QP	0	10.7	41.53	79	66	57.39	47.39	-	-
			Margin [dB]:	-37.47	79	-24.47	-15.86	-5.86	-	-
.51592	25.31 QP	0	10.7	36.01	73	60	56	46	-	-
			Margin [dB]:	-36.99	73	-23.99	-19.99	-9.99	-	-
.63032	29.14 QP	0	10.6	39.74	73	60	56	46	-	-
			Margin [dB]:	-33.26	73	-20.26	-16.26	-6.26	-	-
1.09961	33.45 QP	0	10.6	44.05	73	60	56	46	-	-
			Margin [dB]:	-28.95	73	-15.95	-11.95	-1.95	-	-
1.25801	37.01 QP	0	10.6	47.61	73	60	56	46	-	-
			Margin [dB]:	-25.39	73	-12.39	-8.39	1.61	-	-
1.36828	38.32 QP	0	10.6	48.92	73	60	56	46	-	-
			Margin [dB]:	-24.08	73	-11.08	-7.08	2.92	-	-
1.61745	41.7 QP	0	10.6	52.3	73	60	56	46	-	-
			Margin [dB]:	-20.7	73	-7.7	-3.7	6.3	-	-
1.72748	37.94 QP	0	10.6	48.54	73	60	56	46	-	-
			Margin [dB]:	-24.46	73	-11.46	-7.46	2.54	-	-
1.75812	35.46 QP	0	10.6	46.06	73	60	56	46	-	-
			Margin [dB]:	-26.94	73	-13.94	-9.94	.06	-	-
1.84021	34.04 QP	0	10.6	44.64	73	60	56	46	-	-
			Margin [dB]:	-28.36	73	-15.36	-11.36	-1.36	-	-
1.99825	30.86 QP	0	10.6	41.46	73	60	56	46	-	-
			Margin [dB]:	-31.54	73	-18.54	-14.54	-4.54	-	-
2.23978	32.34 QP	0	10.6	42.94	73	60	56	46	-	-
			Margin [dB]:	-30.06	73	-17.06	-13.06	-3.06	-	-
2.3539	32.64 QP	0	10.6	43.24	73	60	56	46	-	-
			Margin [dB]:	-29.76	73	-16.76	-12.76	-2.76	-	-
Line - L2 .15 - 1MHz										
.50514	13.9 QP	0	10.7	24.6	73	60	56	46	-	-
			Margin [dB]:	-48.4	73	-35.4	-31.4	-21.4	-	-
1.1012	30.5 QP	0	10.6	41.1	73	60	56	46	-	-
			Margin [dB]:	-31.9	73	-18.9	-14.9	-4.9	-	-
1.25962	34.82 QP	0	10.6	45.42	73	60	56	46	-	-
			Margin [dB]:	-27.58	73	-14.58	-10.58	-.58	-	-
1.36287	36.62 QP	.1	10.6	47.32	73	60	56	46	-	-
			Margin [dB]:	-25.68	73	-12.68	-8.68	1.32	-	-
1.6272	37.58 QP	0	10.6	48.18	73	60	56	46	-	-
			Margin [dB]:	-24.82	73	-11.82	-7.82	2.18	-	-
1.78256	36.12 QP	0	10.6	46.72	73	60	56	46	-	-
			Margin [dB]:	-26.28	73	-13.28	-9.28	.72	-	-
1.84418	35.16 QP	0	10.6	45.76	73	60	56	46	-	-
			Margin [dB]:	-27.24	73	-14.24	-10.24	-.24	-	-
2.00337	36.1 QP	0	10.6	46.7	73	60	56	46	-	-
			Margin [dB]:	-26.3	73	-13.3	-9.3	.7	-	-
2.24976	30.38 QP	.1	10.6	41.08	73	60	56	46	-	-
			Margin [dB]:	-31.92	73	-18.92	-14.92	-4.92	-	-
2.35801	30.67 QP	0	10.6	41.27	73	60	56	46	-	-
			Margin [dB]:	-31.73	73	-18.73	-14.73	-4.73	-	-

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

PK - Peak detector
 QP - Quasi-Peak detector
 Av - average detection

LIMIT 1: CISPR 22/11 Group 1 Class A QP
 LIMIT 2: CISPR 22/11 Group 1 Class A AV
 LIMIT 3: CISPR 22/11 Group 1 Class B QP
 LIMIT 4: CISPR 22/11 Group 1 Class B AV

Job #: 1001524215 File #: MC16433 12CA34742
 Model Number: LCN7330
 Client Name: Philips Lighting Electronics N. A.

Page 13 of 57

Philips
 StarSense Pane
 240V/60Hz
 RED: L1 GRN: L2
 TX Powered

Test Frequency [MHz]	Meter Reading (dBuV)	Transducer Factor [dB]	Gain/Loss Factor [dB]	Level (dB(uVolts))	Limit:1	2	3	4	5	6
Line - L1 .15 - 1MHz										
.32604	26.96 Av	0	10.8	37.76	79	66	59.55	49.55	-	-
			Margin [dB]:	-41.24	79	-28.24	-21.79	-11.79	-	-
.3664	34.83 Av	0	10.8	45.63	79	66	58.58	48.58	-	-
			Margin [dB]:	-33.37	79	-20.37	-12.95	-2.95	-	-
.42279	26.97 Av	0	10.7	37.67	79	66	57.39	47.39	-	-
			Margin [dB]:	-41.33	79	-28.33	-19.72	-9.72	-	-
.51592	18.71 Av	0	10.7	29.41	73	60	56	46	-	-
			Margin [dB]:	-43.59	73	-30.59	-26.59	-16.59	-	-
.63032	25.57 Av	0	10.6	36.17	73	60	56	46	-	-
			Margin [dB]:	-36.83	73	-23.83	-19.83	-9.83	-	-
1.09961	29.08 Av	0	10.6	39.68	73	60	56	46	-	-
			Margin [dB]:	-33.32	73	-20.32	-16.32	-6.32	-	-
1.25801	32.61 Av	0	10.6	43.21	73	60	56	46	-	-
			Margin [dB]:	-29.79	73	-16.79	-12.79	-2.79	-	-
1.36828	32.1 Av	0	10.6	42.7	73	60	56	46	-	-
			Margin [dB]:	-30.3	73	-17.3	-13.3	-3.3	-	-
1.61745	35.08 Av	0	10.6	45.68	73	60	56	46	-	-
			Margin [dB]:	-27.32	73	-14.32	-10.32	-3.32	-	-
1.72748	32.55 Av	0	10.6	43.15	73	60	56	46	-	-
			Margin [dB]:	-29.85	73	-16.85	-12.85	-2.85	-	-
1.75812	29.99 Av	0	10.6	40.59	73	60	56	46	-	-
			Margin [dB]:	-32.41	73	-19.41	-15.41	-5.41	-	-
1.84021	28.51 Av	0	10.6	39.11	73	60	56	46	-	-
			Margin [dB]:	-33.89	73	-20.89	-16.89	-6.89	-	-
1.99825	24.93 Av	0	10.6	35.53	73	60	56	46	-	-
			Margin [dB]:	-37.47	73	-24.47	-20.47	-10.47	-	-
2.23978	26.3 Av	0	10.6	36.9	73	60	56	46	-	-
			Margin [dB]:	-36.1	73	-23.1	-19.1	-9.1	-	-
2.3539	25.59 Av	0	10.6	36.19	73	60	56	46	-	-
			Margin [dB]:	-36.81	73	-23.81	-19.81	-9.81	-	-
Line - L2 .15 - 1MHz										
.50514	9.48 Av	0	10.7	20.18	73	60	56	46	-	-
			Margin [dB]:	-52.82	73	-39.82	-35.82	-25.82	-	-
1.1012	26.12 Av	0	10.6	36.72	73	60	56	46	-	-
			Margin [dB]:	-36.28	73	-23.28	-19.28	-9.28	-	-
1.25962	30.22 Av	0	10.6	40.82	73	60	56	46	-	-
			Margin [dB]:	-32.18	73	-19.18	-15.18	-5.18	-	-
1.36287	31.56 Av	.1	10.6	42.26	73	60	56	46	-	-
			Margin [dB]:	-30.74	73	-17.74	-13.74	-3.74	-	-
1.6272	32.54 Av	0	10.6	43.14	73	60	56	46	-	-
			Margin [dB]:	-29.86	73	-16.86	-12.86	-2.86	-	-
1.78256	30.28 Av	0	10.6	40.88	73	60	56	46	-	-
			Margin [dB]:	-32.12	73	-19.12	-15.12	-5.12	-	-
1.84418	29.85 Av	0	10.6	40.45	73	60	56	46	-	-
			Margin [dB]:	-32.55	73	-19.55	-15.55	-5.55	-	-
2.00337	29.15 Av	0	10.6	39.75	73	60	56	46	-	-
			Margin [dB]:	-33.25	73	-20.25	-16.25	-6.25	-	-
2.24976	25.21 Av	.1	10.6	35.91	73	60	56	46	-	-
			Margin [dB]:	-37.09	73	-24.09	-20.09	-10.09	-	-
2.35801	24.18 Av	0	10.6	34.78	73	60	56	46	-	-
			Margin [dB]:	-38.22	73	-25.22	-21.22	-11.22	-	-

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

PK - Peak detector
 QP - Quasi-Peak detector
 Av - average detection

LIMIT 1: CISPR 22/11 Group 1 Class A QP
 LIMIT 2: CISPR 22/11 Group 1 Class A AV
 LIMIT 3: CISPR 22/11 Group 1 Class B QP
 LIMIT 4: CISPR 22/11 Group 1 Class B AV

Figure 2 Conducted Emissions Graph – Transmitter Unpowered

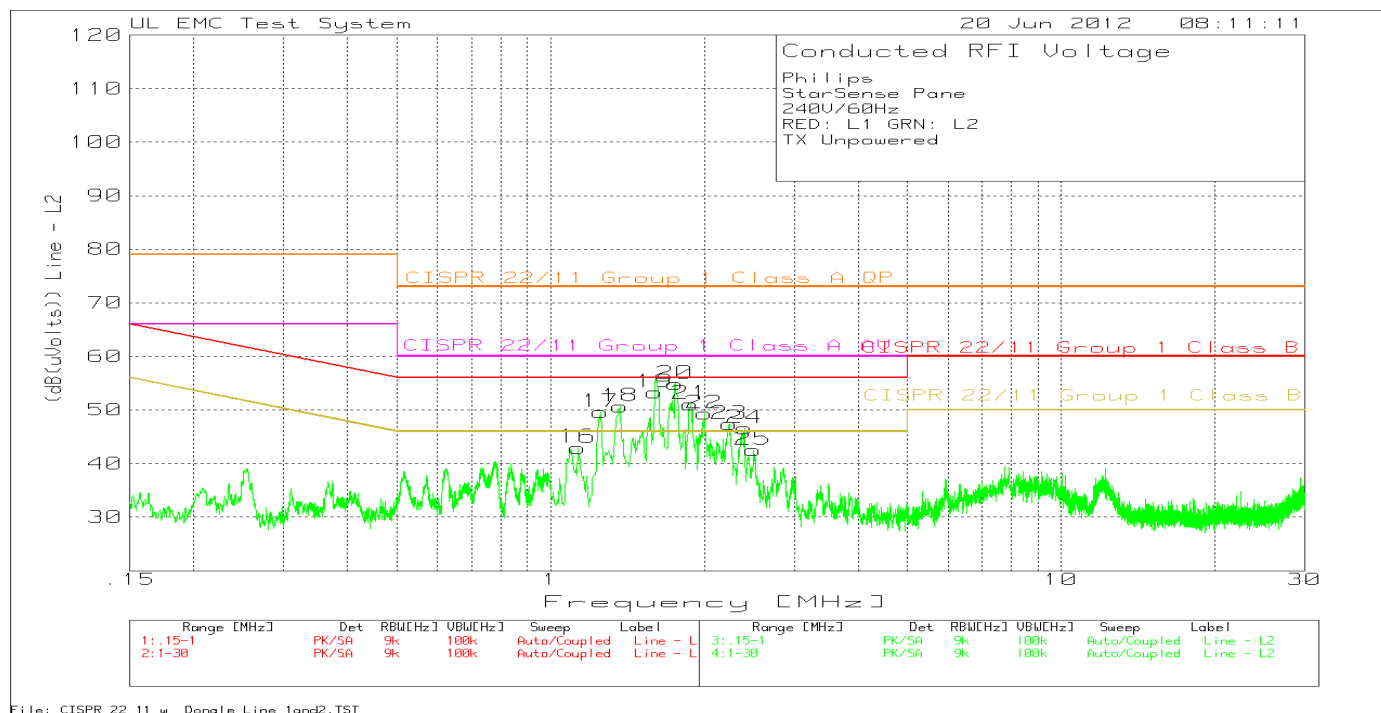
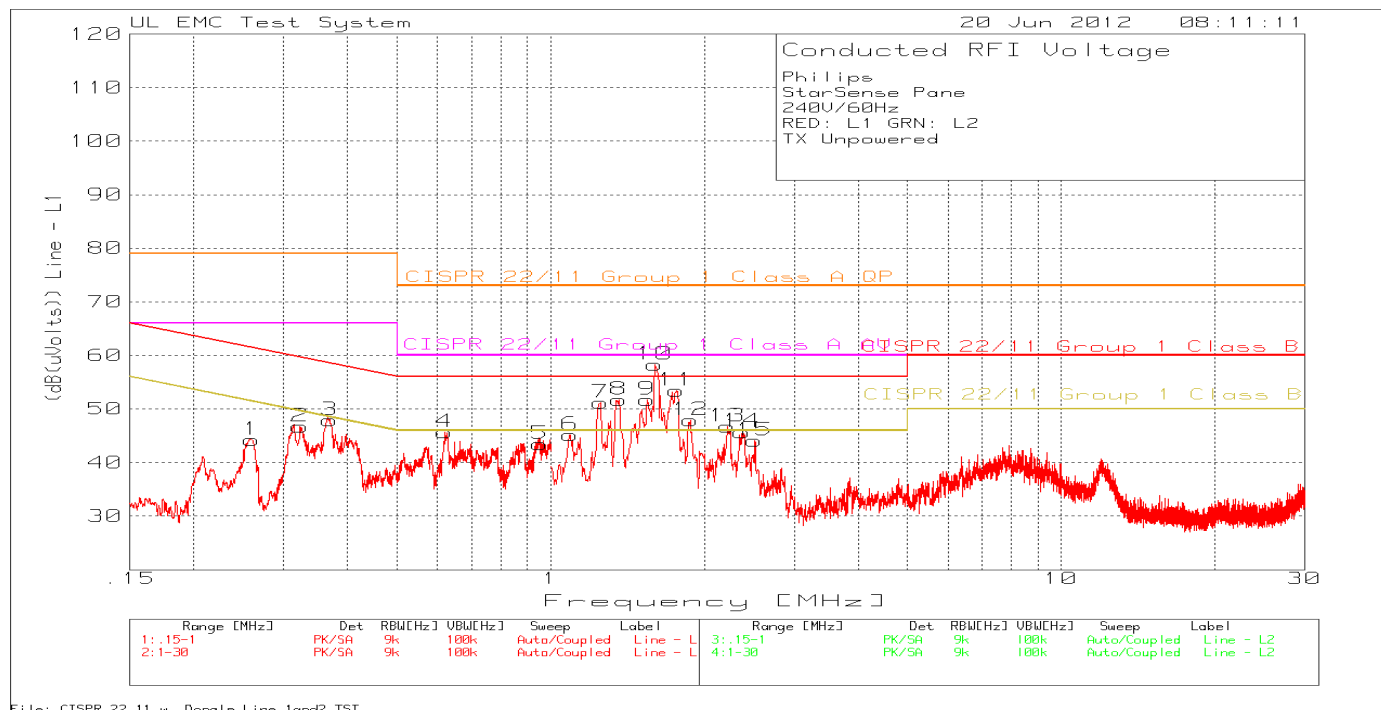


Table 4 Conducted Emissions Data Points – Transmitter Unpowered

Philips
 StarSense Pane
 240V/60Hz
 RED: L1 GRN: L2
 TX Unpowered

No.	Test Frequency [MHz]	Meter Reading (dBuV)	Transducer Factor [dB]	Gain/Loss Factor [dB]	Level (dB(uVolts))	Limit:1	2	3	4	5	6
Line - L1 .15 -	1MHz										
1	.25999	33.07 PK	0	11.2	44.27	79	66	61.4	51.4	-	-
				Margin [dB]		-34.73	-21.73	-17.13	-7.13	-	-
2	.32306	35.96 PK	0	10.8	46.76	79	66	59.6	49.6	-	-
				Margin [dB]		-32.24	-19.24	-12.84	-2.84	-	-
3	.36892	37.13 PK	0	10.8	47.93	79	66	58.5	48.5	-	-
				Margin [dB]		-31.07	-18.07	-10.57	-5.57	-	-
4	.62076	35.03 PK	0	10.6	45.63	73	60	56	46	-	-
				Margin [dB]		-27.37	-14.37	-10.37	-3.37	-	-
5	.95477	32.89 PK	0	10.6	43.49	73	60	56	46	-	-
				Margin [dB]		-29.51	-16.51	-12.51	-2.51	-	-
6	1.09176	34.51 PK	0	10.6	45.11	73	60	56	46	-	-
				Margin [dB]		-27.89	-14.89	-10.89	-5.89	-	-
7	1.25112	40.54 PK	0	10.6	51.14	73	60	56	46	-	-
				Margin [dB]		-21.86	-8.86	-4.86	5.14	-	-
8	1.3622	41.08 PK	0	10.6	51.68	73	60	56	46	-	-
				Margin [dB]		-21.32	-8.32	-4.32	5.68	-	-
9	1.54571	41.06 PK	0	10.6	51.66	73	60	56	46	-	-
				Margin [dB]		-21.34	-8.34	-4.34	5.66	-	-
10	1.60366	47.7 PK	0	10.6	58.3	73	60	56	46	-	-
				Margin [dB]		-14.7	-1.7	2.3	12.3	-	-
11	1.76303	42.84 PK	0	10.6	53.44	73	60	56	46	-	-
				Margin [dB]		-19.56	-6.56	-2.56	7.44	-	-
12	1.87893	37.33 PK	0	10.6	47.93	73	60	56	46	-	-
				Margin [dB]		-25.07	-12.07	-8.07	1.93	-	-
13	2.22182	36.1 PK	0	10.6	46.7	73	60	56	46	-	-
				Margin [dB]		-26.3	-13.3	-9.3	.7	-	-
14	2.37152	35.14 PK	0	10.6	45.74	73	60	56	46	-	-
				Margin [dB]		-27.26	-14.26	-10.26	-2.26	-	-
15	2.51157	33.49 PK	0	10.6	44.09	73	60	56	46	-	-
				Margin [dB]		-28.91	-15.91	-11.91	-1.91	-	-
16	1.13039	32.38 PK	0	10.6	42.98	73	60	56	46	-	-
				Margin [dB]		-30.02	-17.02	-13.02	-3.02	-	-
17	1.25112	38.99 PK	0	10.6	49.59	73	60	56	46	-	-
				Margin [dB]		-23.41	-10.41	-6.41	3.59	-	-
18	1.36703	40.02 PK	.1	10.6	50.72	73	60	56	46	-	-
				Margin [dB]		-22.28	-9.28	-5.28	4.72	-	-
19	1.59883	42.74 PK	0	10.6	53.34	73	60	56	46	-	-
				Margin [dB]		-19.66	-6.66	-2.66	7.34	-	-
20	1.75337	44.24 PK	0	10.6	54.84	73	60	56	46	-	-
				Margin [dB]		-18.16	-5.16	-1.16	8.84	-	-
21	1.87893	40.52 PK	0	10.6	51.12	73	60	56	46	-	-
				Margin [dB]		-21.88	-8.88	-4.88	5.12	-	-
22	1.99967	38.74 PK	0	10.6	49.34	73	60	56	46	-	-
				Margin [dB]		-23.66	-10.66	-6.66	3.34	-	-
23	2.24113	36.77 PK	0	10.6	47.37	73	60	56	46	-	-
				Margin [dB]		-25.63	-12.63	-8.63	1.37	-	-
24	2.39567	35.95 PK	0	10.6	46.55	73	60	56	46	-	-
				Margin [dB]		-26.45	-13.45	-9.45	.55	-	-
25	2.49709	31.89 PK	0	10.6	42.49	73	60	56	46	-	-
				Margin [dB]		-30.51	-17.51	-13.51	-3.51	-	-

LIMIT 1: CISPR 22/11 Group 1 Class A QP
 LIMIT 2: CISPR 22/11 Group 1 Class A AV
 LIMIT 3: CISPR 22/11 Group 1 Class B QP
 LIMIT 4: CISPR 22/11 Group 1 Class B AV

Job #: 1001524215 File #: MC16433 12CA34742
 Model Number: LCN7330
 Client Name: Philips Lighting Electronics N. A.

Page 16 of 57

Philips
 StarSense Pane
 240V/60Hz
 RED: L1 GRN: L2
 TX Unpowered

Test Frequency [MHz]	Meter Reading (dBuV)	Transducer Factor [dB]	Gain/Loss Factor [dB]	Level (dB(uVolts))	Limit:1	2	3	4	5	6
=====										
Line - L1 .15 - 1MHz										
.25836	32.66 QP	0	11.2	43.86	79	66	61.48	51.48	-	-
			Margin [dB]:		-35.14	-22.14	-17.62	-7.62	-	-
.32475	31.63 QP	0	10.8	42.43	79	66	59.58	49.58	-	-
			Margin [dB]:		-36.57	-23.57	-17.15	-7.15	-	-
.36727	35.04 QP	0	10.8	45.84	79	66	58.56	48.56	-	-
			Margin [dB]:		-33.16	-20.16	-12.72	-2.72	-	-
.62157	32.13 QP	0	10.6	42.73	73	60	56	46	-	-
			Margin [dB]:		-30.27	-17.27	-13.27	-3.27	-	-
.95349	28.07 QP	0	10.6	38.67	73	60	56	46	-	-
			Margin [dB]:		-34.33	-21.33	-17.33	-7.33	-	-
1.09024	32.41 QP	0	10.6	43.01	73	60	56	46	-	-
			Margin [dB]:		-29.99	-16.99	-12.99	-2.99	-	-
1.2474	38.94 QP	0	10.6	49.54	73	60	56	46	-	-
			Margin [dB]:		-23.46	-10.46	-6.46	3.54	-	-
1.36788	38.88 QP	0	10.6	49.48	73	60	56	46	-	-
			Margin [dB]:		-23.52	-10.52	-6.52	3.48	-	-
1.56398	38.31 QP	0	10.6	48.91	73	60	56	46	-	-
			Margin [dB]:		-24.09	-11.09	-7.09	2.91	-	-
1.60978	45.88 QP	0	10.6	56.48	73	60	56	46	-	-
			Margin [dB]:		-16.52	-3.52	.48	10.48	-	-
1.75764	40.9 QP	0	10.6	51.5	73	60	56	46	-	-
			Margin [dB]:		-21.5	-8.5	-4.5	5.5	-	-
1.87897	36.03 QP	0	10.6	46.63	73	60	56	46	-	-
			Margin [dB]:		-26.37	-13.37	-9.37	.63	-	-
2.23172	33.35 QP	0	10.6	43.95	73	60	56	46	-	-
			Margin [dB]:		-29.05	-16.05	-12.05	-2.05	-	-
2.38813	32.33 QP	0	10.6	42.93	73	60	56	46	-	-
			Margin [dB]:		-30.07	-17.07	-13.07	-3.07	-	-
2.51412	28 QP	0	10.6	38.6	73	60	56	46	-	-
			Margin [dB]:		-34.4	-21.4	-17.4	-7.4	-	-
Line - L2										
1.13619	29.37 QP	0	10.6	39.97	73	60	56	46	-	-
			Margin [dB]:		-33.03	-20.03	-16.03	-6.03	-	-
1.25657	37.47 QP	0	10.6	48.07	73	60	56	46	-	-
			Margin [dB]:		-24.93	-11.93	-7.93	2.07	-	-
1.36521	39.41 QP	.1	10.6	50.11	73	60	56	46	-	-
			Margin [dB]:		-22.89	-9.89	-5.89	4.11	-	-
1.6143	45.77 QP	0	10.6	56.37	73	60	56	46	-	-
			Margin [dB]:		-16.63	-3.63	.37	10.37	-	-
1.7706	40.8 QP	0	10.6	51.4	73	60	56	46	-	-
			Margin [dB]:		-21.6	-8.6	-4.6	5.4	-	-
1.88953	38.72 QP	0	10.6	49.32	73	60	56	46	-	-
			Margin [dB]:		-23.68	-10.68	-6.68	3.32	-	-
1.98938	34.99 QP	0	10.6	45.59	73	60	56	46	-	-
			Margin [dB]:		-27.41	-14.41	-10.41	-.41	-	-
2.24163	33.71 QP	0	10.6	44.31	73	60	56	46	-	-
			Margin [dB]:		-28.69	-15.69	-11.69	-1.69	-	-
2.39895	31.03 QP	.1	10.6	41.73	73	60	56	46	-	-
			Margin [dB]:		-31.27	-18.27	-14.27	-4.27	-	-
2.51241	26.29 QP	.1	10.6	36.99	73	60	56	46	-	-
			Margin [dB]:		-36.01	-23.01	-19.01	-9.01	-	-

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

PK - Peak detector
 QP - Quasi-Peak detector
 Av - average detection

LIMIT 1: CISPR 22/11 Group 1 Class A QP
 LIMIT 2: CISPR 22/11 Group 1 Class A AV
 LIMIT 3: CISPR 22/11 Group 1 Class B QP
 LIMIT 4: CISPR 22/11 Group 1 Class B AV

Job #: 1001524215 File #: MC16433 12CA34742
 Model Number: LCN7330
 Client Name: Philips Lighting Electronics N. A.

Page 17 of 57

Philips
 StarSense Pane
 240V/60Hz
 RED: L1 GRN: L2
 TX Unpowered

Test Frequency [MHz]	Meter Reading (dBuV)	Transducer Factor [dB]	Gain/Loss Factor [dB]	Level (uVolts)	Limit:1	2	3	4	5	6
=====										
Line - L1 .15 - 1MHz										
.25836	31.42 Av	0	11.2	42.62	79	66	61.48	51.48	-	-
			Margin [dB]:		-36.38	-23.38	-18.86	-8.86	-	-
.32475	27.59 Av	0	10.8	38.39	79	66	59.58	49.58	-	-
			Margin [dB]:		-40.61	-27.61	-21.19	-11.19	-	-
.36727	33.17 Av	0	10.8	43.97	79	66	58.56	48.56	-	-
			Margin [dB]:		-35.03	-22.03	-14.59	-4.59	-	-
.62157	28.96 Av	0	10.6	39.56	73	60	56	46	-	-
			Margin [dB]:		-33.44	-20.44	-16.44	-6.44	-	-
.95349	23.34 Av	0	10.6	33.94	73	60	56	46	-	-
			Margin [dB]:		-39.06	-26.06	-22.06	-12.06	-	-
1.09024	29.09 Av	0	10.6	39.69	73	60	56	46	-	-
			Margin [dB]:		-33.31	-20.31	-16.31	-6.31	-	-
1.2474	34.77 Av	0	10.6	45.37	73	60	56	46	-	-
			Margin [dB]:		-27.63	-14.63	-10.63	-6.63	-	-
1.36788	33.63 Av	0	10.6	44.23	73	60	56	46	-	-
			Margin [dB]:		-28.77	-15.77	-11.77	-1.77	-	-
1.56398	32.89 Av	0	10.6	43.49	73	60	56	46	-	-
			Margin [dB]:		-29.51	-16.51	-12.51	-2.51	-	-
1.60978	40.73 Av	0	10.6	51.33	73	60	56	46	-	-
			Margin [dB]:		-21.67	-8.67	-4.67	5.33	-	-
1.75764	35.84 Av	0	10.6	46.44	73	60	56	46	-	-
			Margin [dB]:		-26.56	-13.56	-9.56	4.44	-	-
1.87897	31.23 Av	0	10.6	41.83	73	60	56	46	-	-
			Margin [dB]:		-31.17	-18.17	-14.17	-4.17	-	-
2.23172	27.06 Av	0	10.6	37.66	73	60	56	46	-	-
			Margin [dB]:		-35.34	-22.34	-18.34	-8.34	-	-
2.38813	27.61 Av	0	10.6	38.21	73	60	56	46	-	-
			Margin [dB]:		-34.79	-21.79	-17.79	-7.79	-	-
2.51412	22.61 Av	0	10.6	33.21	73	60	56	46	-	-
			Margin [dB]:		-39.79	-26.79	-22.79	-12.79	-	-
Line - L2 1 - 30MHz										
1.13619	25.19 Av	0	10.6	35.79	73	60	56	46	-	-
			Margin [dB]:		-37.21	-24.21	-20.21	-10.21	-	-
1.25657	32.7 Av	0	10.6	43.3	73	60	56	46	-	-
			Margin [dB]:		-29.7	-16.7	-12.7	-2.7	-	-
1.36521	34.01 Av	.1	10.6	44.71	73	60	56	46	-	-
			Margin [dB]:		-28.29	-15.29	-11.29	-1.29	-	-
1.6143	40.36 Av	0	10.6	50.96	73	60	56	46	-	-
			Margin [dB]:		-22.04	-9.04	-5.04	4.96	-	-
1.7706	35.72 Av	0	10.6	46.32	73	60	56	46	-	-
			Margin [dB]:		-26.68	-13.68	-9.68	3.32	-	-
1.88953	33.25 Av	0	10.6	43.85	73	60	56	46	-	-
			Margin [dB]:		-29.15	-16.15	-12.15	-2.15	-	-
1.98938	29.73 Av	0	10.6	40.33	73	60	56	46	-	-
			Margin [dB]:		-32.67	-19.67	-15.67	-5.67	-	-
2.24163	28.49 Av	0	10.6	39.09	73	60	56	46	-	-
			Margin [dB]:		-33.91	-20.91	-16.91	-6.91	-	-
2.39895	25.49 Av	.1	10.6	36.19	73	60	56	46	-	-
			Margin [dB]:		-36.81	-23.81	-19.81	-9.81	-	-
2.51241	20.94 Av	.1	10.6	31.64	73	60	56	46	-	-
			Margin [dB]:		-41.36	-28.36	-24.36	-14.36	-	-

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

PK - Peak detector
 QP - Quasi-Peak detector
 Av - average detection

LIMIT 1: CISPR 22/11 Group 1 Class A QP
 LIMIT 2: CISPR 22/11 Group 1 Class A AV
 LIMIT 3: CISPR 22/11 Group 1 Class B QP
 LIMIT 4: CISPR 22/11 Group 1 Class B AV

4.2 Test Conditions and Results – RADIATED EMISSIONS Receiver /Digital Mode

Test Description	Measurements were made in a 10-meter semi-anechoic chamber that complies to CISPR 16/ANSI C63.4:2003. 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 – 5GHz	(10 meter or 3 meter)
Limits - Class A		
Frequency (MHz)	Limit (dB μ 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)
Limits - Class B		
Frequency (MHz)	Limit (dB μ V/m)	
	Quasi-Peak	Average
30-88	29.54	NA
88-216	33.06	NA
216-960	35.56	NA
960-1000	43.52	NA
Above 1GHz	NA	54 (at 3-meter)
Supplementary information: EUT is considered class A device with unlicensed transmitter. There are no emissions related to transmitter/receiver recorded in the frequency range.		

Table 5 Radiated Emissions EUT Configuration Settings

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

Table 6 Radiated Emissions Test Equipment

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323	20111228	20121231
Bicon Antenna	Chase	VBA6106A	EMC4078	20120117	20130131
Log-P Antenna	Chase	UPA6109	EMC4313	20110929	20120629
Spectrum Analyzer	Rhode & Schwarz	FSEK	EMC4182	20111227	20121231
Antenna Array	UL	BOMS	EMC4276	20111227	20121231

Figure 3 Radiated Emissions Graph 30MHz – 1GHz, RX CH5

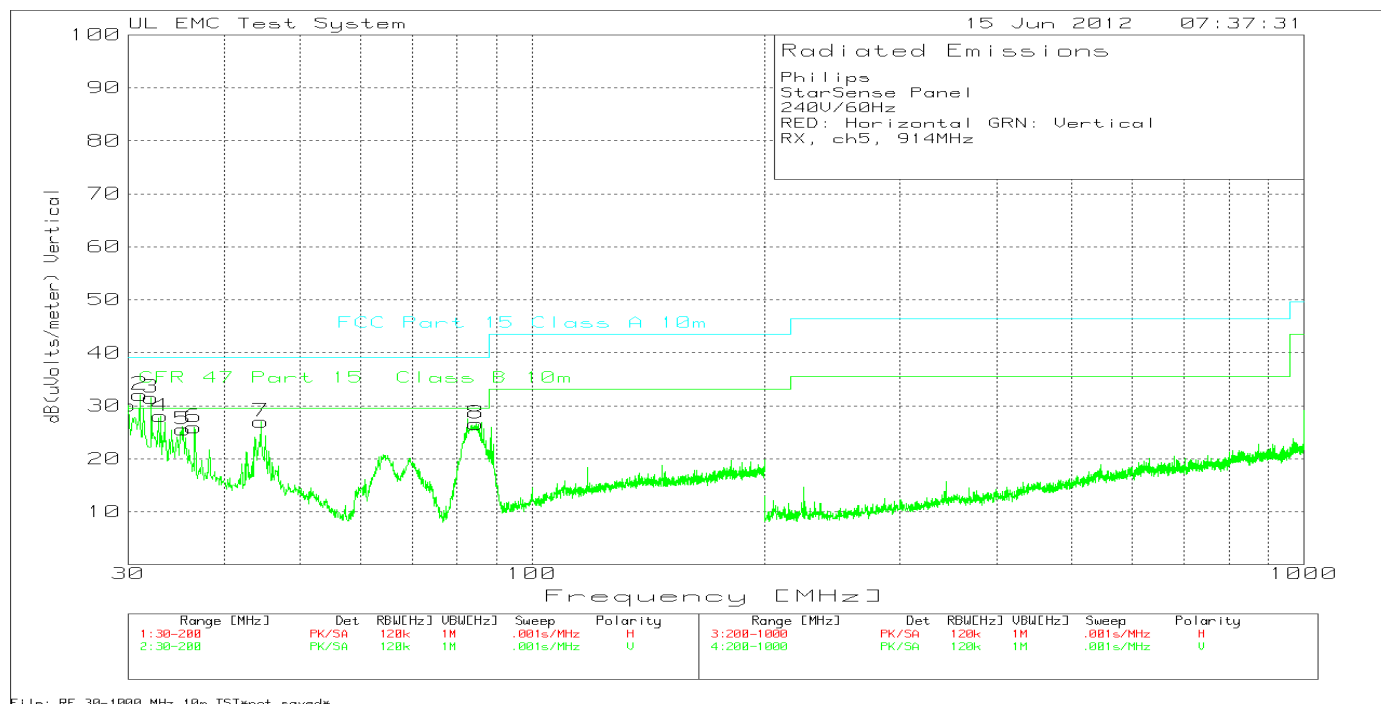
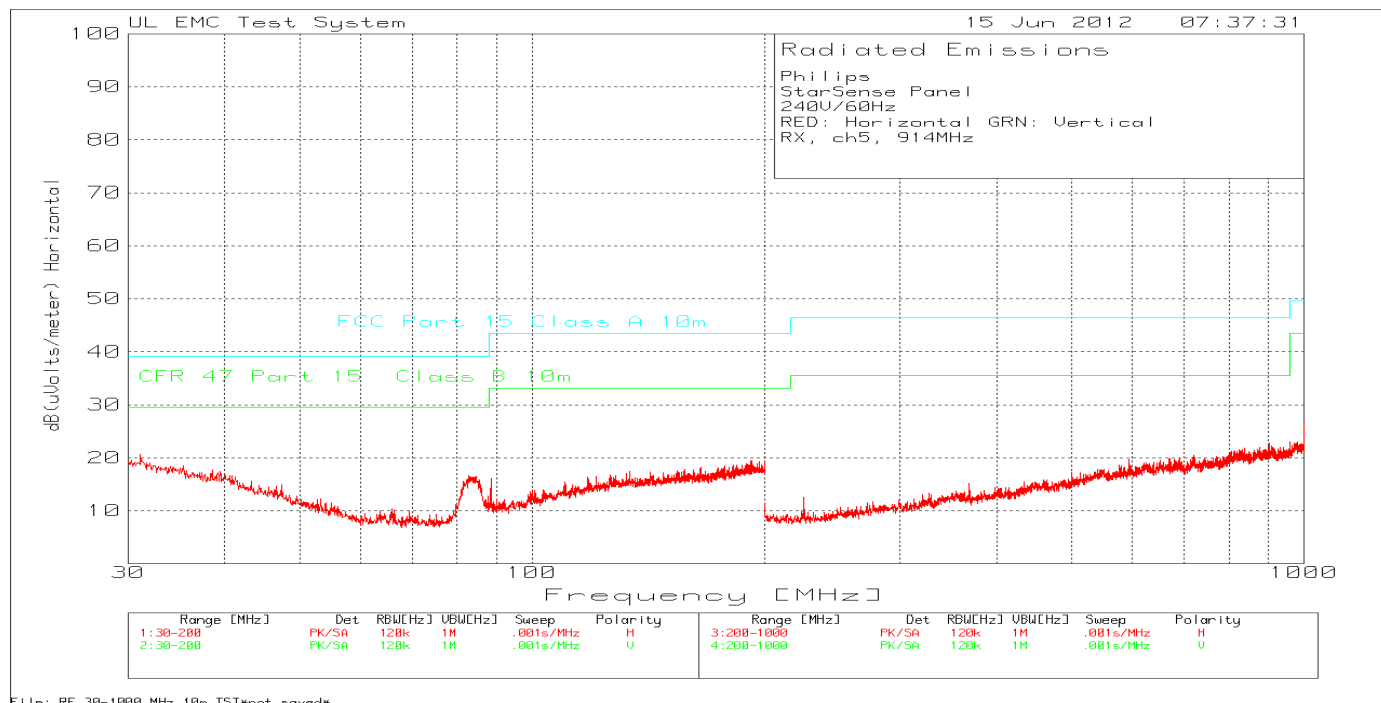


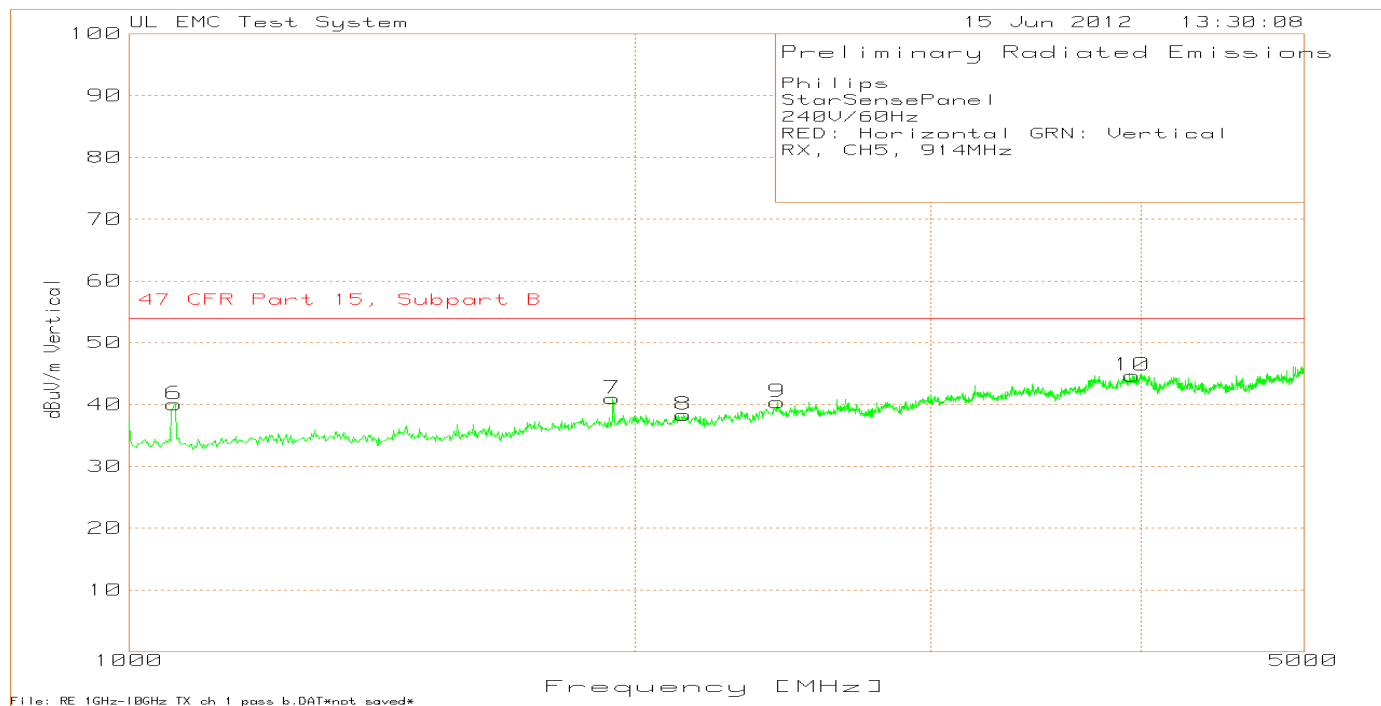
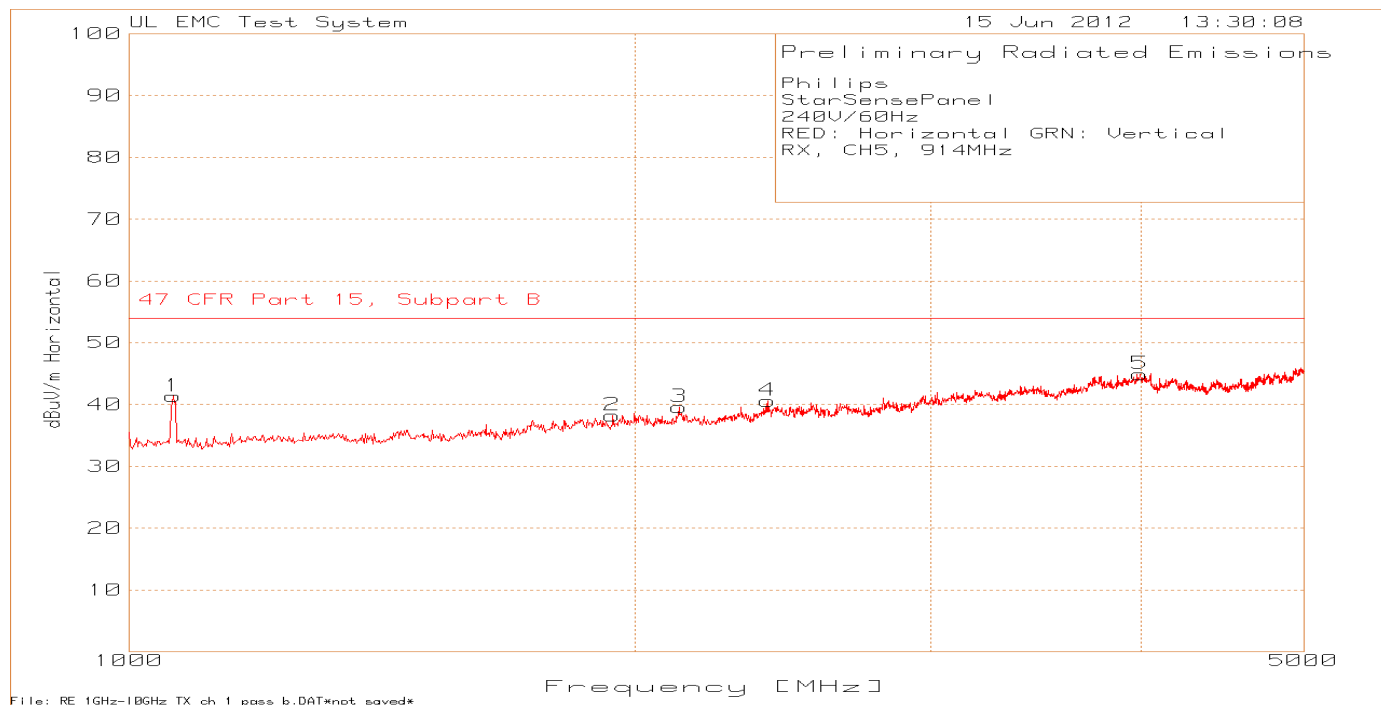
Table 7 Radiated Emissions Data Points 30MHz – 1GHz, RX CH5

Philips
 StarSense Panel
 240V/60Hz
 RED: Horizontal GRN: Vertical
 RX, ch5, 914MHz

Test Frequency	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	CFR 47 Part 15 Class B 10m	Margin	FCC Part 15 Class A 10m	Margin	Height [cm]	Polarity	
30	41.59	PK	17.8	-29.3	30.09	29.6	.49	39.1	-9.01	300	Vert	
31.0195	43.81	PK	17.6	-29.3	32.11	29.6	2.51	39.1	-6.99	99	Vert	
32.1239	43.86	PK	17.1	-29.4	31.56	29.6	1.96	39.1	-7.54	99	Vert	
33.0585	40.53	PK	16.9	-29.4	28.03	29.6	-1.57	39.1	-11.07	99	Vert	
35.3523	38.9	PK	15.9	-29.3	25.5	29.6	-4.1	39.1	-13.6	99	Vert	
36.5417	39.74	PK	15.4	-29.2	25.94	29.6	-3.66	39.1	-13.16	300	Vert	
44.5277	44.26	PK	12.2	-29.4	27.06	29.6	-2.54	39.1	-12.04	99	Vert	
84.5427	48.03	PK	8	-29.4	26.63	29.6	-2.97	39.1	-12.47	300	Vert	
Test Frequency	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	CFR 47 Part 15 Class B 10m	Margin	FCC Part 15 Class A 10m	Margin	Azimuth [Degs]	Height [cm]	Polarity
30	32.18	QP	17.8	-29.3	20.68	29.6	-8.92	39.1	-18.42	283	115	Vert
31.104936	31.85	QP	17.5	-29.3	20.05	29.6	-9.55	39.1	-19.05	306	100	Vert
31.971795	31.14	QP	17.1	-29.3	18.94	29.6	-10.66	39.1	-20.16	248	122	Vert
33.05	30.37	QP	16.9	-29.4	17.87	29.6	-11.73	39.1	-21.23	204	100	Vert
35.35609	29.88	QP	15.9	-29.3	16.48	29.6	-13.12	39.1	-22.62	207	105	Vert
36.54	27.31	QP	15.4	-29.2	13.51	29.6	-16.09	39.1	-25.59	88	103	Vert
44.52	32.59	QP	12.2	-29.4	15.39	29.6	-14.21	39.1	-23.71	34	103	Vert
84.551218	44.7	QP	8	-29.4	23.3	29.6	-6.3	39.1	-15.8	264	167	Vert

PK - Peak detector
 QP - Quasi-Peak detector

Figure 4 Radiated Emissions Graph 1GHz – 5GHz, RX CH5



Job #: 1001524215 File #: MC16433 12CA34742
 Model Number: LCN7330
 Client Name: Philips Lighting Electronics N. A.

Page 23 of 57

Table 8 Radiated Emissions Data Points 1GHz – 5GHz, RX CH5

Philips
 StarSensePanel
 240V/60Hz
 RED: Horizontal GRN: Vertical
 RX, CH5, 914MHz

Test Frequency	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	47 CFR Part 15, Subpart B	Margin	Height [cm]	Polarity
1062.031	73.79	PK	24.2	-56.64	41.35	54	-12.65	100	Horz
1940.47	65.35	PK	27.4	-54.54	38.21	54	-15.79	200	Horz
2124.562	65.37	PK	27.5	-53.29	39.58	54	-14.42	100	Horz
2398.699	63.61	PK	28.7	-51.74	40.57	54	-13.43	100	Horz
3995.498	63.22	PK	32.5	-50.84	44.88	54	-9.12	150	Horz
1064.032	72.49	PK	24.2	-56.63	40.06	54	-13.94	200	Vert
1940.47	68.15	PK	27.4	-54.54	41.01	54	-12.99	100	Vert
2138.569	63.95	PK	27.5	-53.08	38.37	54	-15.63	100	Vert
2430.715	63.64	PK	28.7	-51.98	40.36	54	-13.64	150	Vert
3955.478	63.82	PK	32.6	-51.72	44.7	54	-9.3	100	Vert

PK - Peak detector

4.3 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 7.2.5		
	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 – 10GHz	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: All emissions other than the fundamental in frequency range from 30MHz to 1GHz are product of the main EUT and not the transmit / receive board.			

Table 9 SPURIOUS EMISSIONS EUT Configuration Settings

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

Table 10 SPURIOUS CONDUCTED EMISSIONS Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	Agilent	PXA	EMC4360	20120515	20130515
Attenuator w/ Cable	Mini Circuits	BW-N10W5	None	*N/A	N/A
* Cable and attenuator were characterized at the time of testing					

Table 11 SPURIOUS RADIATED EMISSIONS Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	Rhode & Schwartz	ESU	EMC4323	20111228	20121231
Bicon Antenna	Chase	VBA6106A	EMC4078	20120117	20130131
Log-P Antenna	Chase	UPA6109	EMC4313	20110929	20120629
Spectrum Analyzer	Rhode & Schwartz	FSEK	EMC4182	20111227	20121231
Antenna Array	UL	BOMS	EMC4276	20111227	20121231

Figure 5 30MHz-10GHz Antenna Port Spurious Emissions Plots TX Mode, Low Channel.

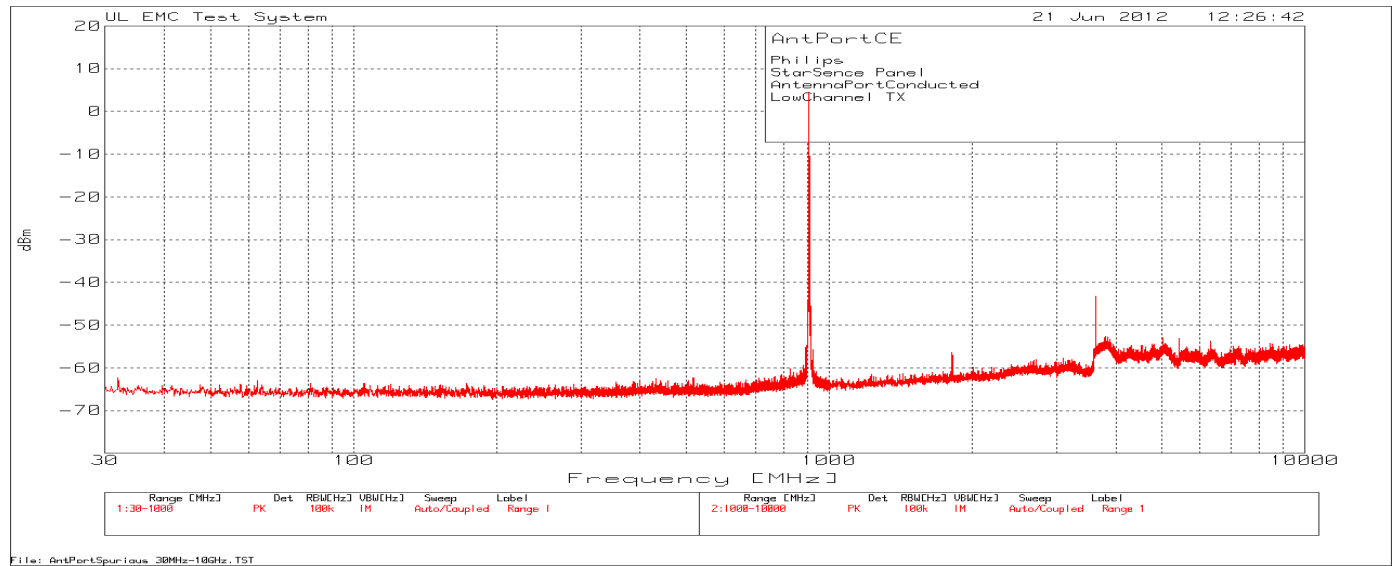


Table 12 Antenna Port Conducted Spurious Emissions 30MHz - 10GHz, Low Channel

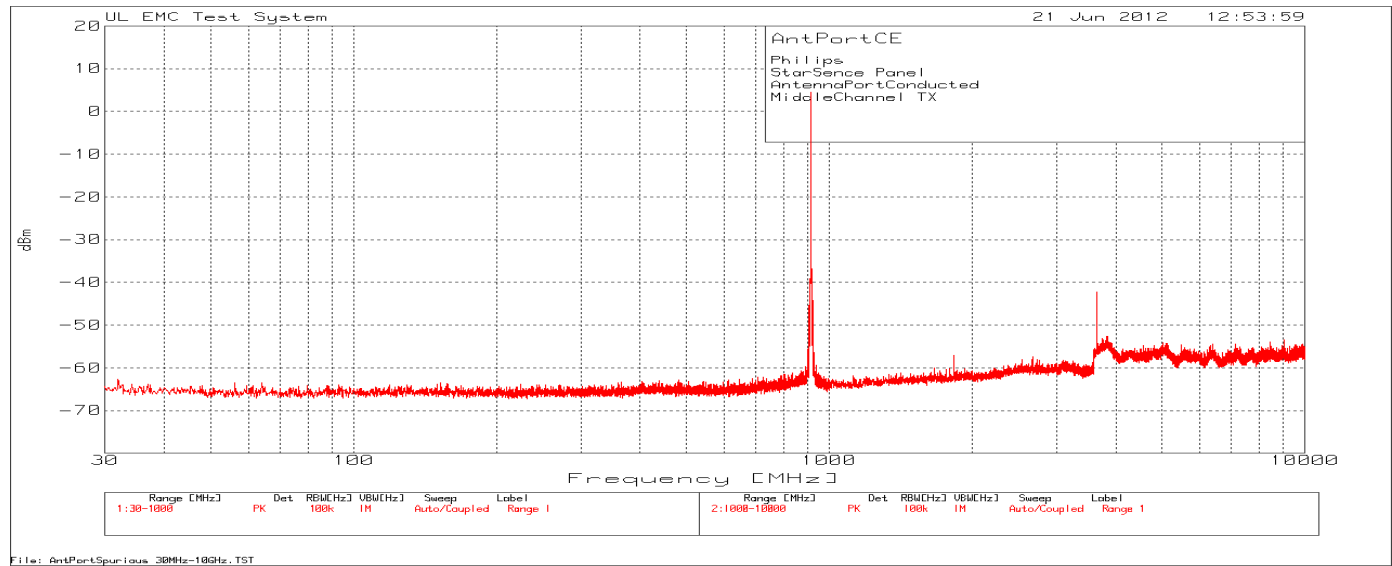
Philips
StarSense Panel
AntennaPortConducted
LowChannel TX

Test Frequency	Meter Reading dBuV	Detector	dBuV to dBm [dB]	10dB pad and cable.TXT [dB]	dBm
906.4059	101.1	PK	-107	10.4	4.5
1811.279	40.05	PK	-107	10.6	-56.35
3623.668	52.5	PK	-107	11.3	-43.2
5035.413	42.6	PK	-107	11.5	-52.9
5437.056	42.54	PK	-107	11.4	-53.06
6328.264	41.73	PK	-107	11.5	-53.77

PK - Peak detector

Model Number: LCN7330

Client Name: Philips Lighting Electronics N. A.

Figure 6 30MHz-10GHz Antenna Port Spurious Emissions Plots TX Mode Middle Channel.**Table 13 Antenna Port Conducted Spurious Emissions 30MHz - 10GHz, Middle Channel**

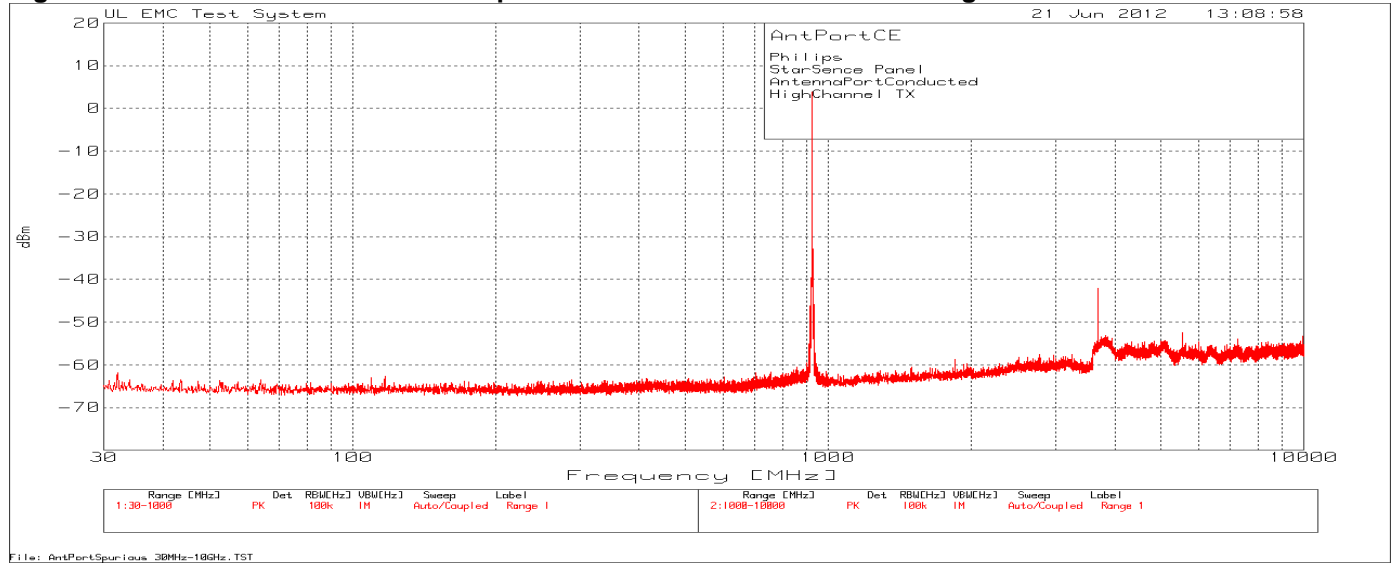
Philips
StarSense Panel
AntennaPortConducted
MiddleChannel TX

Test Frequency	Meter Reading dBuV	Detector	dBuV to dBm [dB]	10dB pad and cable.TXT [dB]	dBm
913.8824	101.1	PK	-107	10.4	4.5
1827.265	39.33	PK	-107	10.6	-57.07
3655.639	53.56	PK	-107	11.2	-42.24
8451.377	40.86	PK	-107	12.2	-53.94
9044.849	41.01	PK	-107	12.5	-53.49

PK - Peak detector

Model Number: LCN7330

Client Name: Philips Lighting Electronics N. A.

Figure 7 30MHz-10GHz Antenna Port Spurious Emissions Plots TX Mode High Channel.**Table 14 Antenna Port Conducted Spurious Emissions 30MHz - 10GHz, High Channel**

Philips
StarSense Panel
AntennaPortConducted
HighChannel TX

Test Frequency	Meter Reading dBuV	Detector	dBuV to dBm [dB]	10dB pad and cable.TXT [dB]	dBm
924.2663	100.46	PK	-107	10.4	3.86
1847.247	37.73	PK	-107	10.6	-58.67
3695.604	53.82	PK	-107	11.1	-42.08
5544.96	42.93	PK	-107	11.6	-52.47
7238.455	41.26	PK	-107	11.8	-53.94

PK - Peak detector

Figure 8 Radiated Spurious Emissions below 1GHz, Low Channel

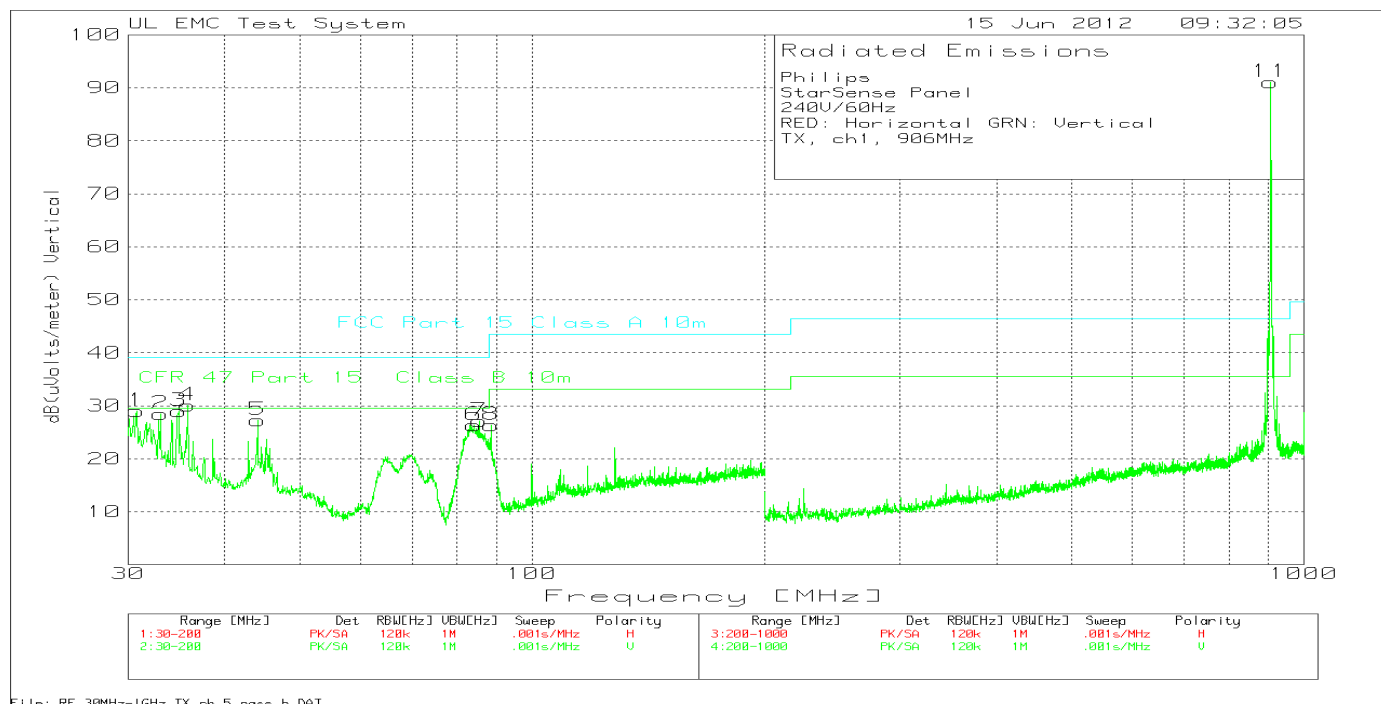
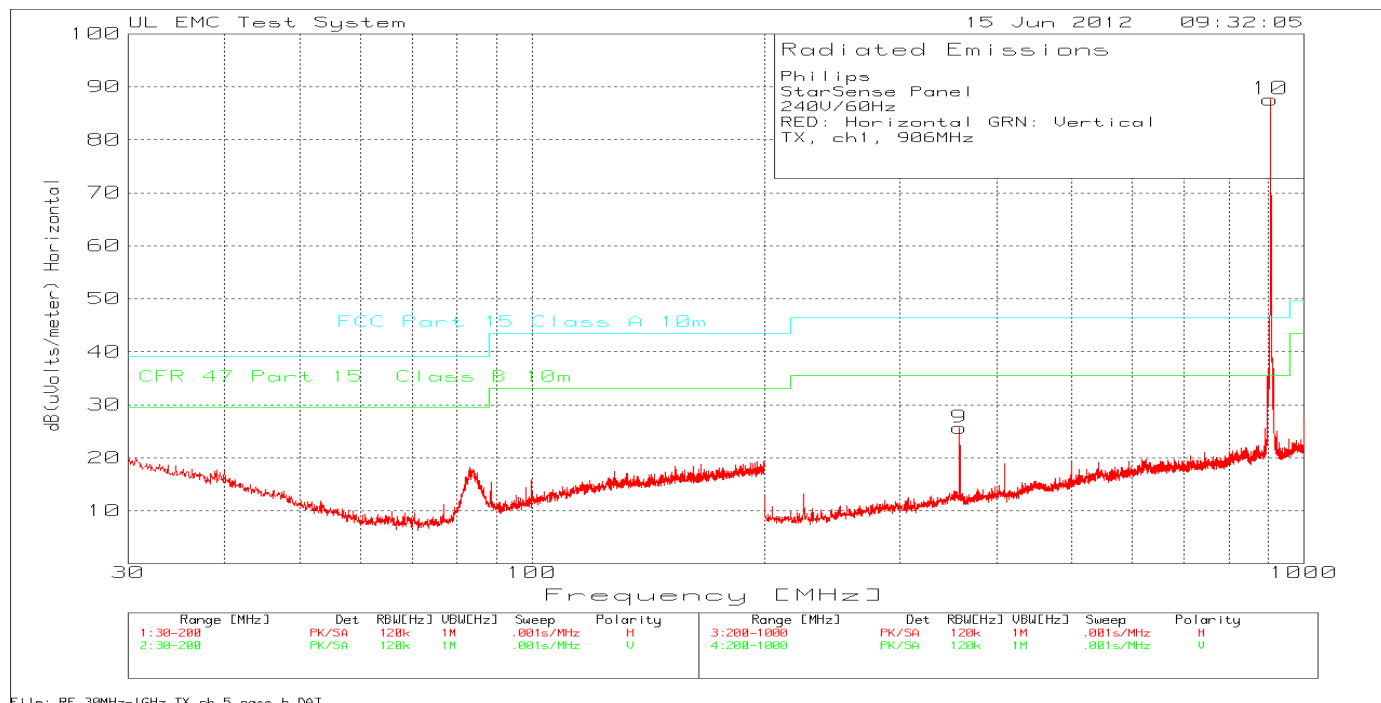
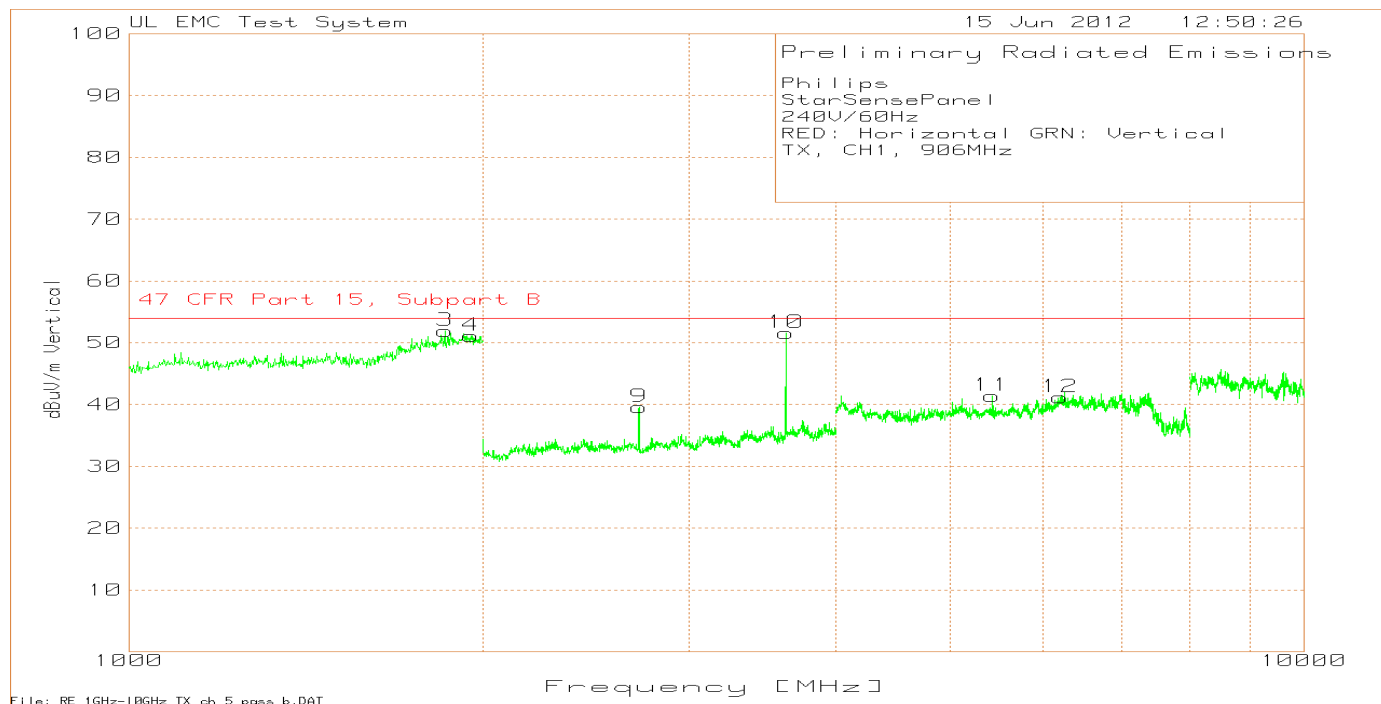
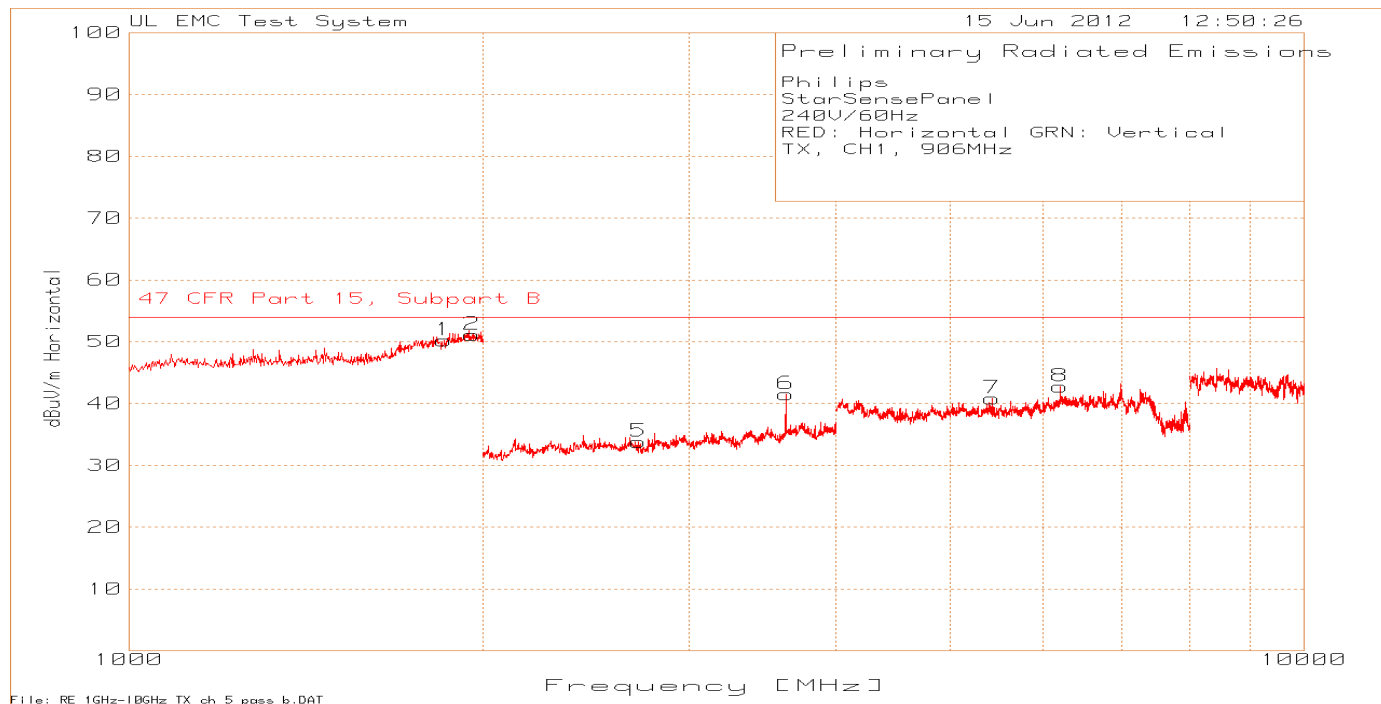


Figure 9 Radiated Spurious Emissions above 1GHz, Low Channel



Model Number: LCN7330

Client Name: Philips Lighting Electronics N. A.

Table 15 Radiated Spurious Emissions below 1GHz, Low Channel

Philips
StarSense Panel
240V/60Hz
RED: Horizontal GRN: Vertical
TX, chl, 906MHz

Bicon Vertical 30 - 200MHz

Test Frequency	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	CFR 47 Part 15 Class B 10m	Margin	FCC Part 15 Class A 10m	Margin	Height [cm]	Polarity
30.7646	40.76	PK	17.6	-29.3	29.06	29.6	-.54	39.1	-10.04	99	Vert
32.9735	40.95	PK	16.9	-29.4	28.45	29.6	-1.15	39.1	-10.65	99	Vert
34.8426	42.3	PK	16.1	-29.4	29	29.6	-.6	39.1	-10.1	99	Vert
35.7771	43.69	PK	15.6	-29.2	30.09	29.6	.49	39.1	-9.01	99	Vert
44.1029	44.31	PK	12.4	-29.4	27.31	29.6	-2.29	39.1	-11.79	99	Vert
84.1179	47.99	PK	7.8	-29.4	26.39	29.6	-3.21	39.1	-12.71	99	Vert
85.3923	48.44	PK	8.2	-29.5	27.14	29.6	-2.46	39.1	-11.96	99	Vert
88.5357	47.11	PK	8.7	-29.4	26.41	33.1	-6.69	43.5	-17.09	99	Vert
358.2945	43.53	PK	14.6	-32.5	25.63	35.6	-9.97	46.4	-20.77	200	Horz
905.9294	96.17	PK	23.1	-31.7	87.57	-	-	-	-	200	Horz
906.1959	99.65	PK	23.1	-31.7	91.05	-	-	-	-	99	Vert

Philips
StarSense Panel
240V/60Hz
RED: Horizontal GRN: Vertical
TX, chl, 906MHz

PK - Peak detector
QP - Quasi-Peak detector

Table 16 Radiated Spurious Emissions above 1GHz, Low Channel

Philips
StarSensePanel
240V/60Hz
RED: Horizontal GRN: Vertical
TX, CH1, 906MHz

Test Frequency	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	47 CFR Part 15, Subpart B	Margin	Height [cm]	Polarity	
1855.711	19.28	PK	27.2	3.79	50.27	54	-3.73	200	Horz	
1957.916	19.97	PK	27.4	3.75	51.12	54	-2.88	99	Horz	
2716.717	63.76	PK	22.1	-52.08	33.78	54	-20.22	99	Horz	
3623.624	69.31	PK	23.3	-51.14	41.47	54	-12.53	99	Horz	
5435.624	63.44	PK	28	-50.6	40.84	54	-13.16	100	Horz	
6204.136	61.24	PK	29.2	-47.63	42.81	54	-11.19	150	Horz	
1857.715	21.02	PK	27.2	3.75	51.97	54	-2.03	200	Vert	
1953.908	19.97	PK	27.4	3.79	51.16	54	-2.84	200	Vert	
2718.719	69.62	PK	22.1	-52.14	39.58	54	-14.42	200	Vert	
3625.626	79.37	PK	23.3	-51.07	51.6	54	-2.4	150	Vert	
5435.624	64.05	PK	28	-50.6	41.45	54	-12.55	150	Vert	
6206.805	59.47	PK	29.2	-47.52	41.15	54	-12.85	150	Vert	
Test Frequency	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	47 CFR Part 15, Subpart B	Margin	Azimuth [Degs]	Height [cm]	Polarity
3623.9289	80.31	PK	23.3	-51.13	52.48	54	-1.52	266	150	Vert
3624.0371	78.87	LnAv	23.3	-51.12	51.05	54	-2.95	266	150	Vert

PK - Peak detector
LnAv - Linear Average detector

Figure 10 Radiated Spurious Emissions below 1GHz, Middle Channel

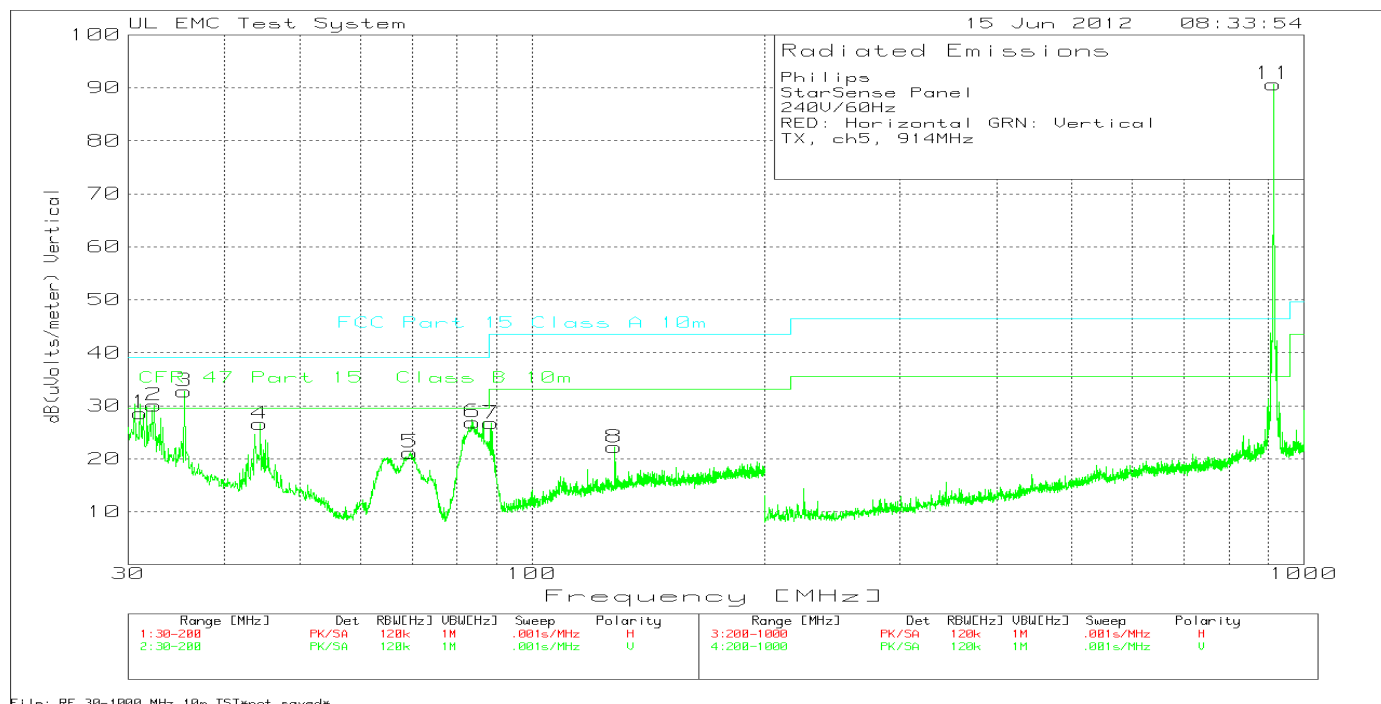
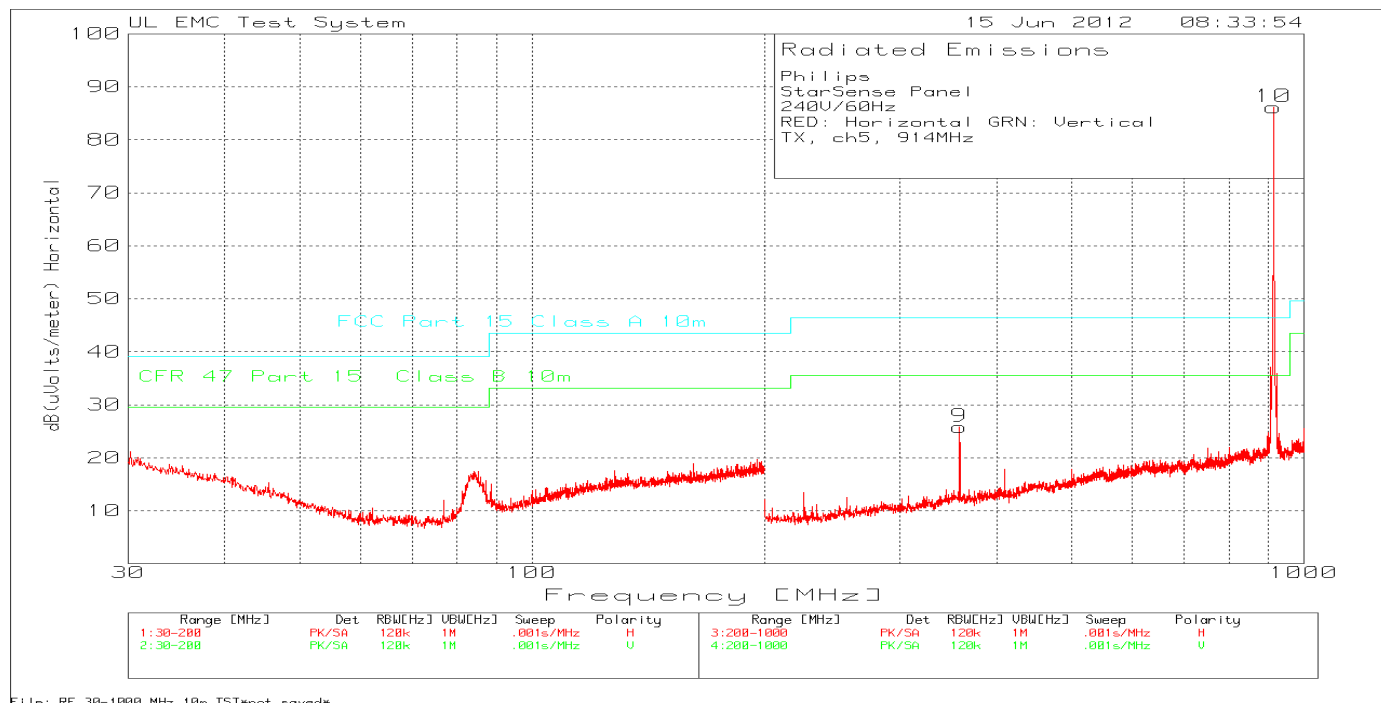


Figure 11 Radiated Spurious Emissions above 1GHz, Middle Channel

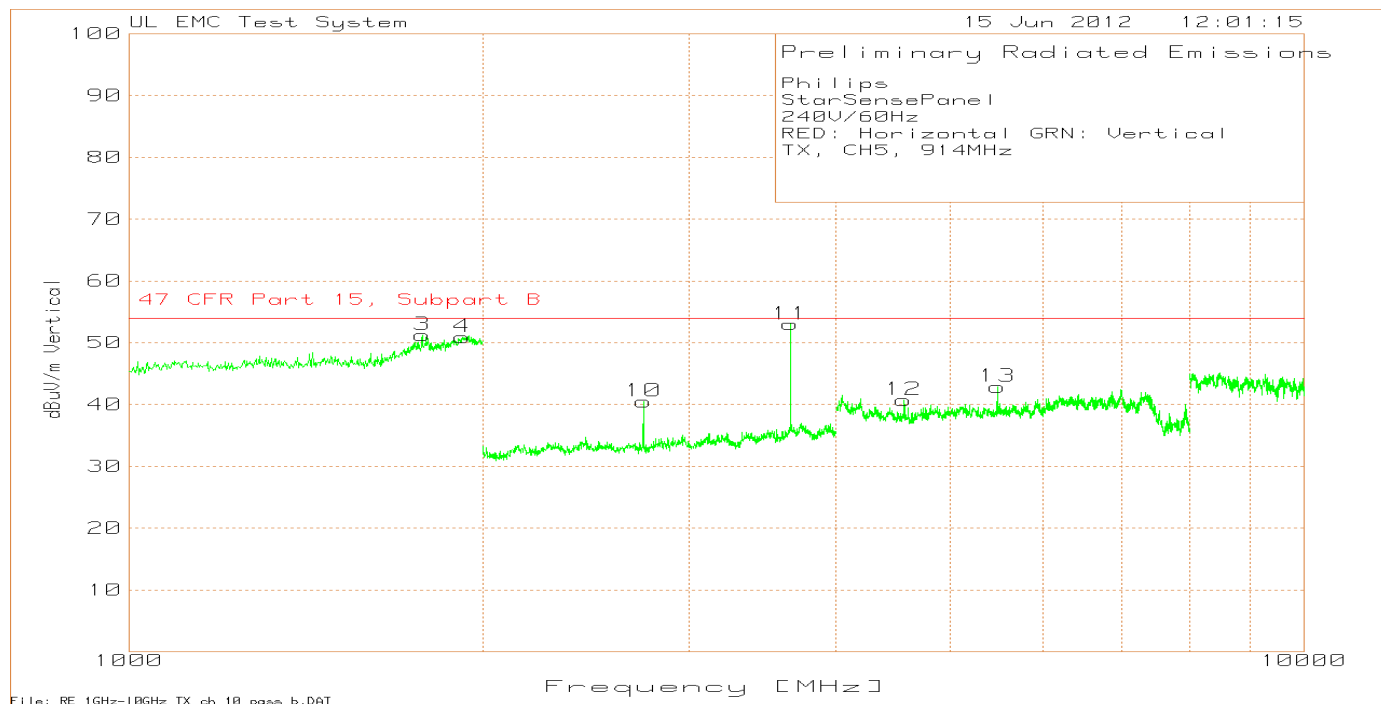
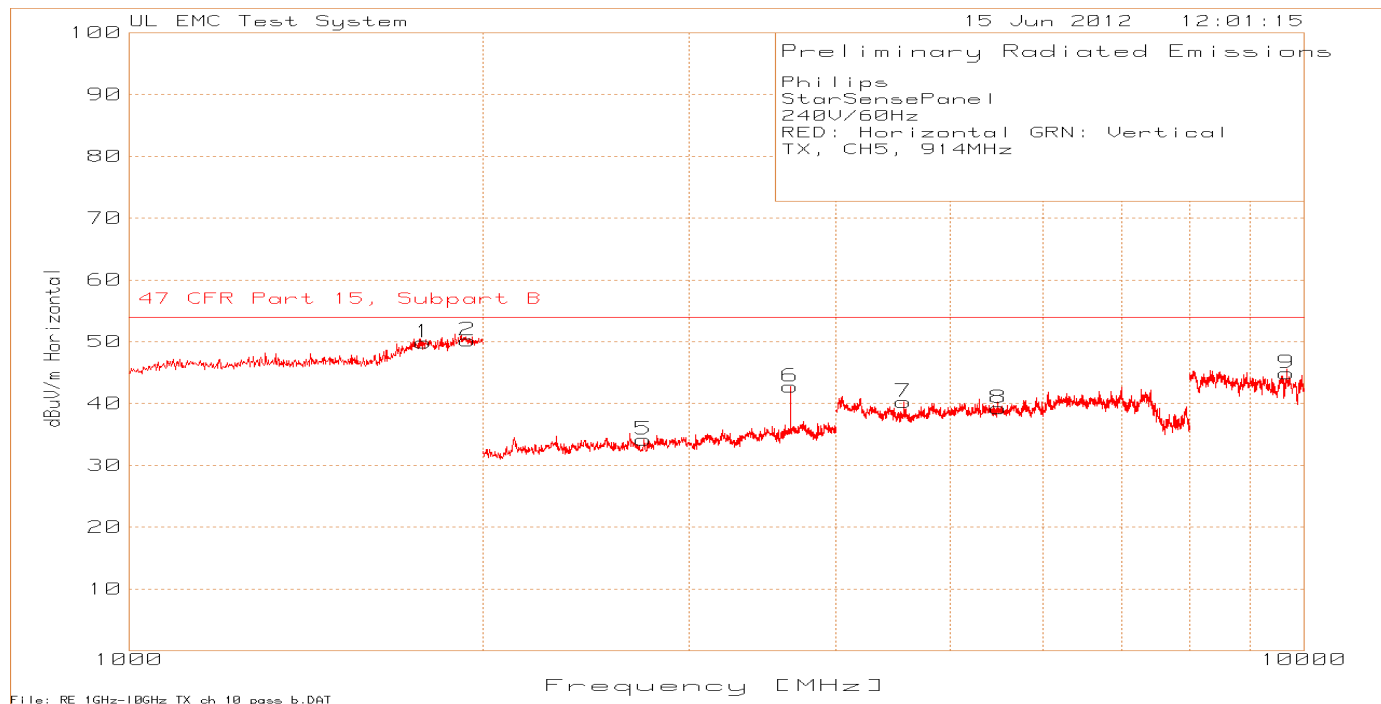


Table 17 Radiated Spurious Emissions below 1GHz, Middle Channel

Philips
StarSense Panel
240V/60Hz
RED: Horizontal GRN: Vertical
TX, ch5, 914MHz

Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	CFR 47 Part 15 Class B 10m	Margin	FCC Part 15 Class A 10m	Margin	Height [cm]	Polarity
31.1044	40.45	PK	17.5	-29.3	28.65	29.6	-.95	39.1	-10.45	99	Vert
32.3788	42.43	PK	17	-29.4	30.03	29.6	.43	39.1	-9.07	99	Vert
35.4373	46.28	PK	15.8	-29.3	32.78	29.6	3.18	39.1	-6.32	99	Vert
44.4428	43.66	PK	12.3	-29.4	26.56	29.6	-3.04	39.1	-12.54	99	Vert
69.5902	44.41	PK	6.2	-29.4	21.21	29.6	-8.39	39.1	-17.89	300	Vert
83.8631	48.5	PK	7.8	-29.4	26.9	29.6	-2.7	39.1	-12.2	99	Vert
88.4508	47.39	PK	8.7	-29.4	26.69	33.1	-6.41	43.5	-16.81	99	Vert
128.041	37.57	PK	14	-29.4	22.17	33.1	-10.93	43.5	-21.33	99	Vert
358.2945	43.72	PK	14.6	-32.5	25.82	35.6	-9.78	46.4	-20.58	199	Horz
913.9241	95.02	PK	22.8	-31.7	86.12	-	-	-	-	299	Horz
914.1905	99.69	PK	22.8	-31.8	90.69	-	-	-	-	99	Vert

PK - Peak detector
QP - Quasi-Peak detector

Table 18 Radiated Spurious Emissions above 1GHz, Middle Channel

Philips
StarSensePanel
240V/60Hz
RED: Horizontal GRN: Vertical
TX, CH5, 914MHz

Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	47 CFR Part 15, Subpart B	Margin	Height [cm]	Polarity	
1781.563	19.43	PK	26.8	3.67	49.9	54	-4.1	200	Horz	
1941.884	18.9	PK	27.4	3.92	50.22	54	-3.78	100	Horz	
2742.743	64.1	PK	22.1	-52.05	34.15	54	-19.85	150	Horz	
3655.656	69.88	PK	23.4	-50.51	42.77	54	-11.23	150	Horz	
4568.379	65.05	PK	27.7	-52.44	40.31	54	-13.69	150	Horz	
5494.33	61.32	PK	28.1	-50.15	39.27	54	-14.73	150	Horz	
9679.359	56.95	PK	36.4	-48.46	44.89	54	-9.11	200	Horz	
1777.555	20.78	PK	26.8	3.64	51.22	54	-2.78	150	Vert	
1921.844	19.6	PK	27.4	3.86	50.86	54	-3.14	200	Vert	
2742.743	70.45	PK	22.1	-52.05	40.5	54	-13.5	150	Vert	
3655.656	80.11	PK	23.4	-50.51	53	54	-1	150	Vert	
4568.379	65.47	PK	27.7	-52.44	40.73	54	-13.27	150	Vert	
5483.656	65.3	PK	28.1	-50.52	42.88	54	-11.12	150	Vert	
Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	47 CFR Part 15, Subpart B	Margin	Azimuth [Degs]	Height [cm]	Polarity
3655.9379	81.28	PK	23.4	-50.51	54.17	54	.17	264	181	Vert
3656.0401	79.93	LnAv	23.4	-50.51	52.82	54	-1.18	264	181	Vert

PK - Peak detector
LnAv - Linear Average detector

Figure 12 Radiated Spurious Emissions below 1GHz, High Channel

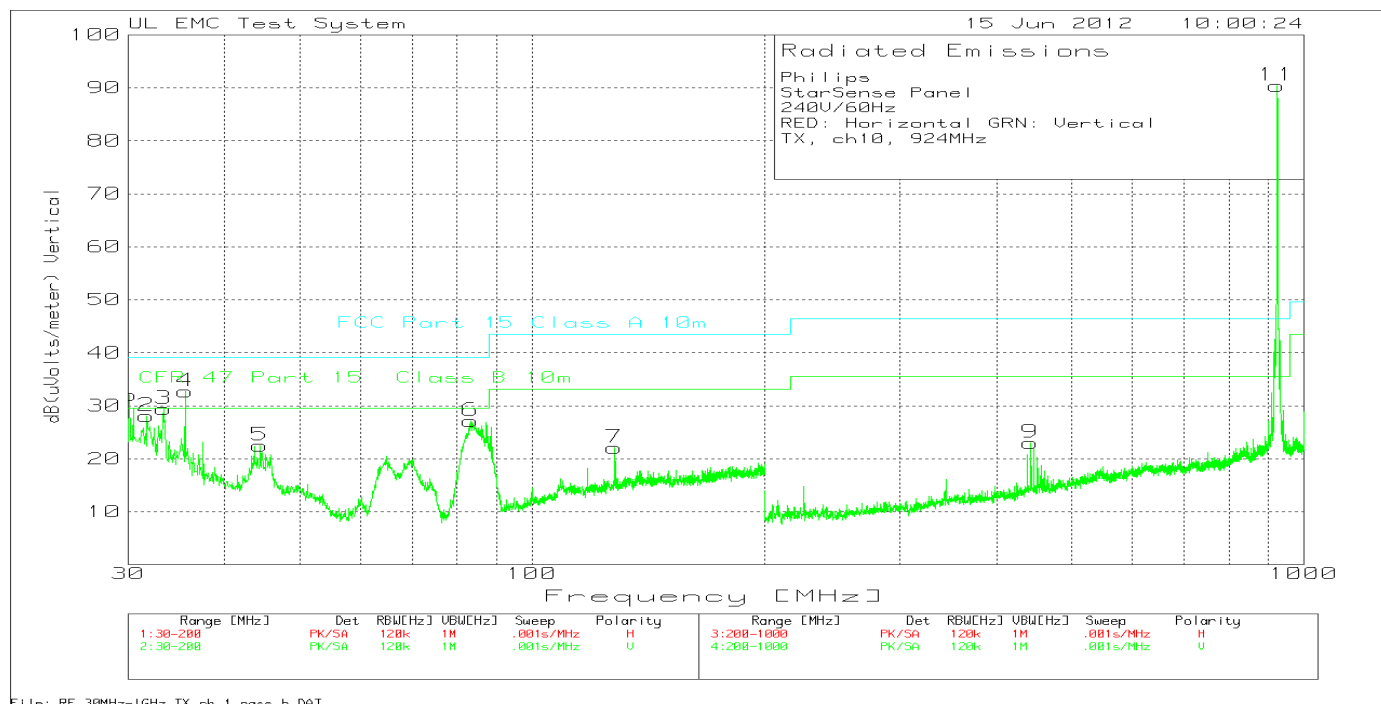
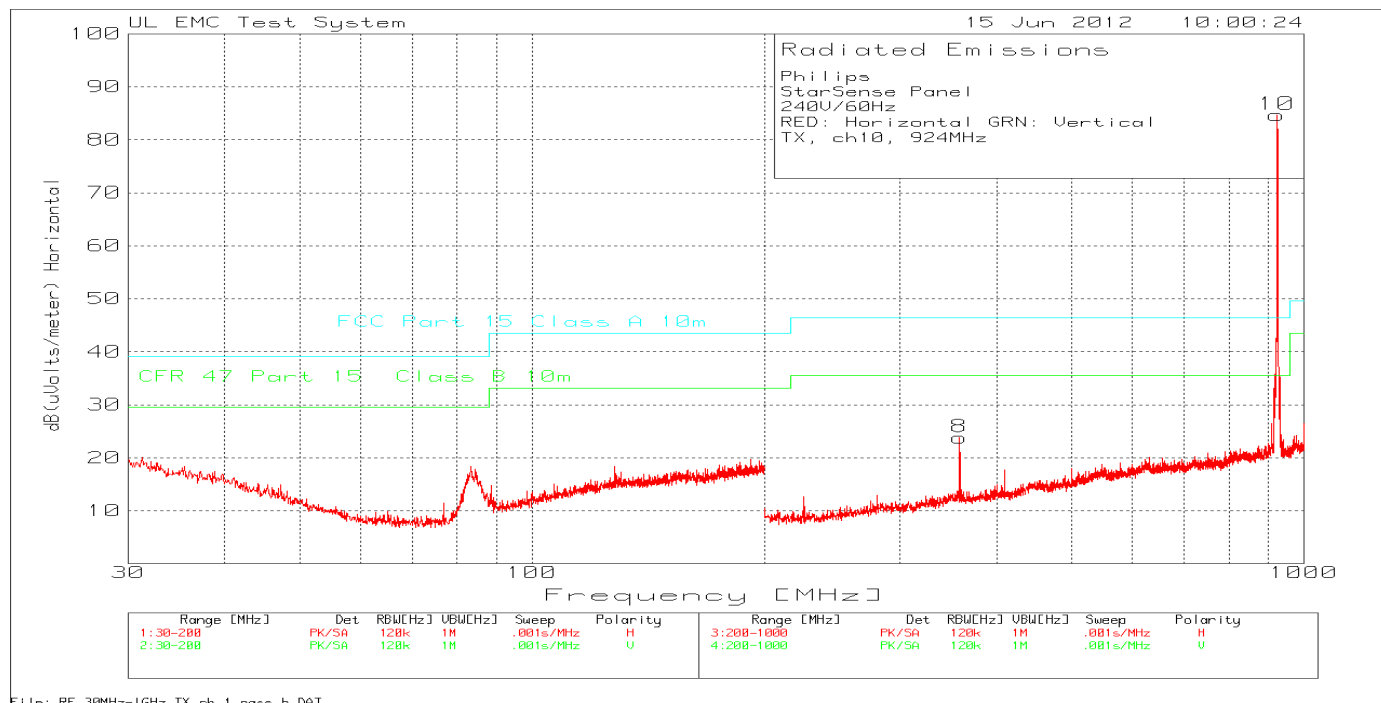


Figure 13 Radiated Spurious Emissions above 1GHz, High Channel

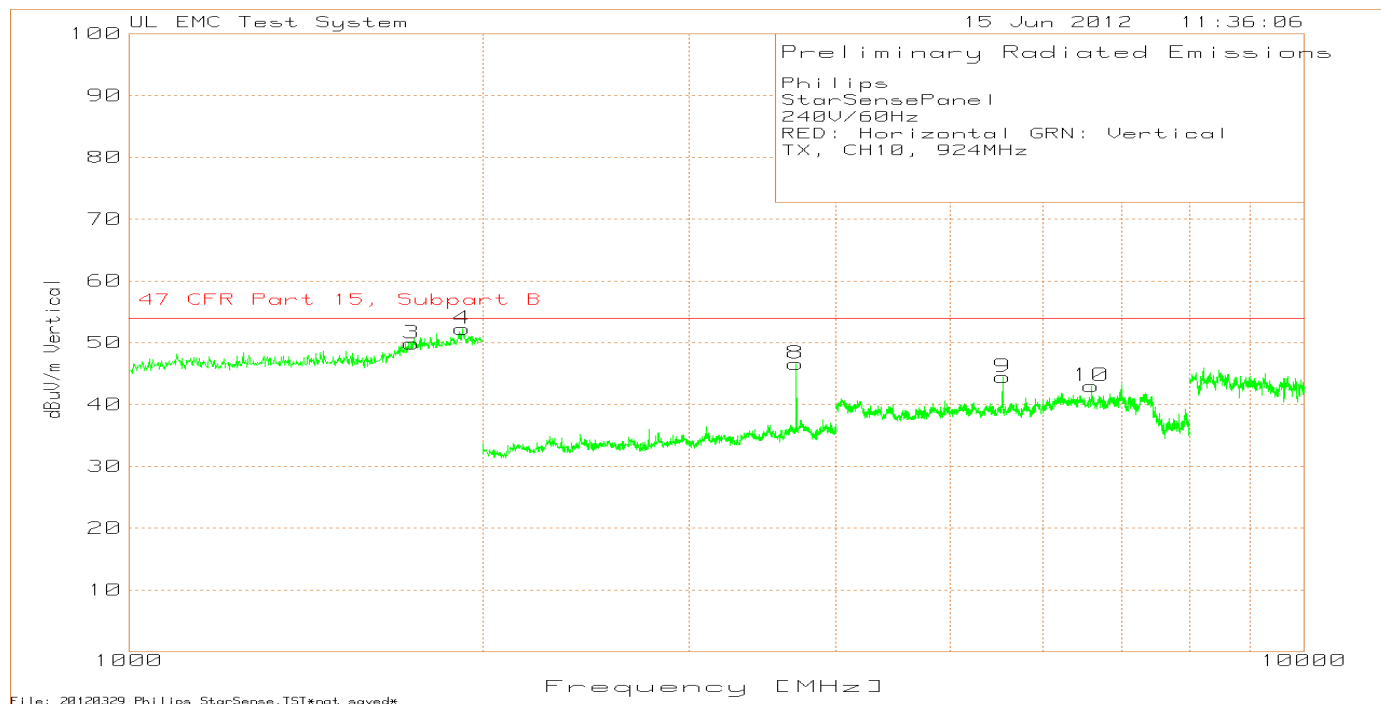
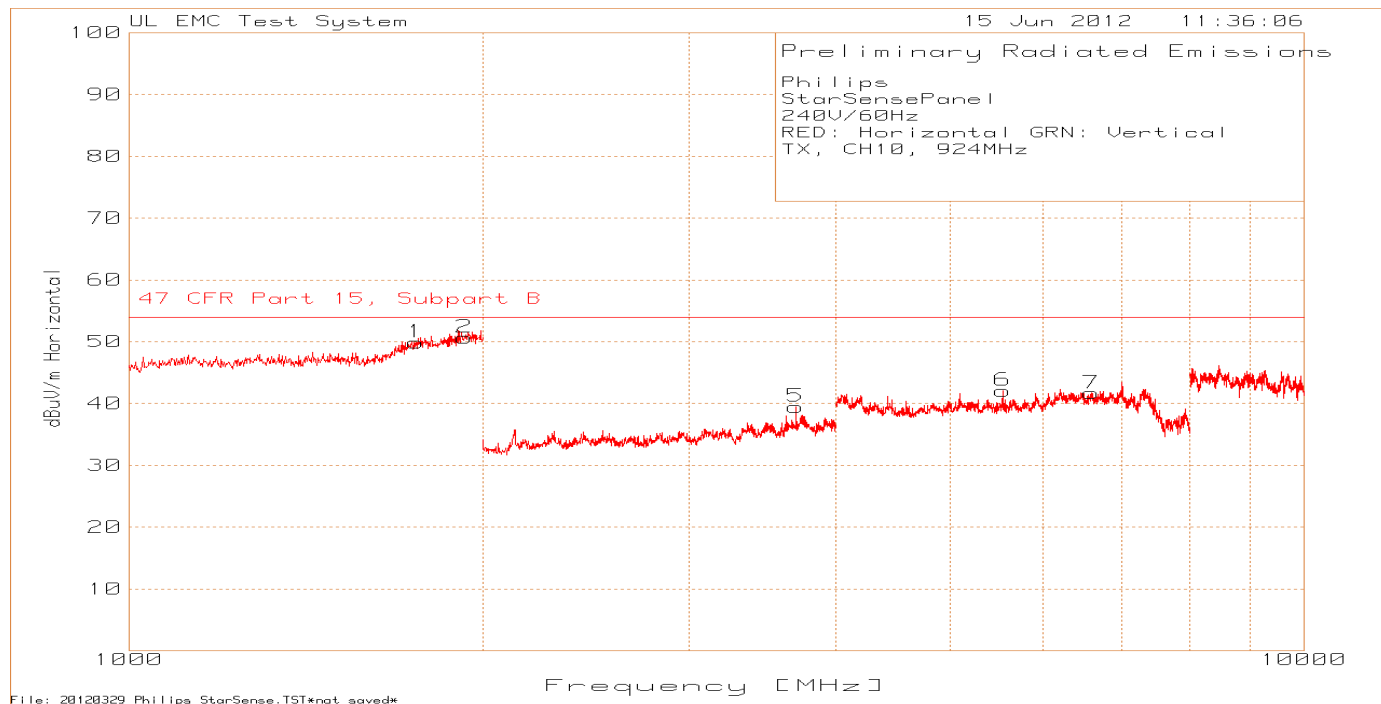


Table 19 Radiated Spurious Emissions below 1GHz, High Channel

Philips
StarSense Panel
240V/60Hz
RED: Horizontal GRN: Vertical
TX, ch10, 924MHz

Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	CFR 47 Part 15 Class B 10m	Margin	FCC Part 15 Class A 10m	Margin	Height [cm]	Polarity
30.085	43.55	PK	17.8	-29.3	32.05	29.6	2.45	39.1	-7.05	99	Vert
31.6992	40.04	PK	17.3	-29.3	28.04	29.6	-1.56	39.1	-11.06	99	Vert
33.3133	42.08	PK	16.7	-29.4	29.38	29.6	-.22	39.1	-9.72	99	Vert
35.5222	46.21	PK	15.8	-29.3	32.71	29.6	3.11	39.1	-6.39	99	Vert
44.4428	39.65	PK	12.3	-29.4	22.55	29.6	-7.05	39.1	-16.55	300	Vert
83.3533	48.89	PK	7.7	-29.4	27.19	29.6	-2.41	39.1	-11.91	300	Vert
128.041	37.52	PK	14	-29.4	22.12	33.1	-10.98	43.5	-21.38	99	Vert
358.2945	41.77	PK	14.6	-32.5	23.87	35.6	-11.73	46.4	-22.53	99	Horz
924.0506	93.73	PK	22.7	-31.7	84.73	-	-	-	-	299	Horz
443.038	38.35	PK	16.7	-32	23.05	35.6	-12.55	46.4	-23.35	199	Vert
924.0506	99.4	PK	22.7	-31.7	90.4	-	-	-	-	99	Vert

PK - Peak detector
QP - Quasi-Peak detector

Table 20 Radiated Spurious Emissions above 1GHz, High Channel

Philips
StarSensePanel
240V/60Hz
RED: Horizontal GRN: Vertical
TX, CH10, 924MHz

Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	47 CFR Part 15, Subpart B	Margin	Height [cm]	Polarity
1755.511	19.6	PK	26.6	3.73	49.93	54	-4.07	150	Horz
1929.86	19.33	PK	27.4	3.94	50.67	54	-3.33	150	Horz
3695.696	66.69	PK	23.5	-50.76	39.43	54	-14.57	100	Horz
5545.03	64.24	PK	28.3	-50.45	42.09	54	-11.91	100	Horz
6601.734	60.02	PK	28.9	-47.23	41.69	54	-12.31	100	Horz
1739.479	19.74	PK	26.5	3.68	49.92	54	-4.08	200	Vert
1921.844	20.99	PK	27.4	3.86	52.25	54	-1.75	150	Vert
3697.698	73.88	PK	23.5	-50.78	46.6	54	-7.4	150	Vert
5545.03	66.58	PK	28.3	-50.45	44.43	54	-9.57	150	Vert
6599.066	61.3	PK	28.9	-47.19	43.01	54	-10.99	100	Vert

PK - Peak detector
LnAv - Linear Average detector

Table 21 Radiated Spurious Emissions – Quasi Peak Data for emissions between 30MHz-100MHz

Test Frequency MHz	Meter Reading dBuV	Detector	Antenna Factor dB	Path Loss / Gain dB	Level dBuV/m	CFR 47 Part 15 Class B 10m	Margin	FCC Part 15 Class A 10m	Margin	Azimuth [Degr]	Height [cm]	Polarity
30.950962	31.4	QP	17.6	-29.3	19.7	29.6	-9.9	39.1	-19.4	213	107	Vert
32.3	30.87	QP	17	-29.4	18.47	29.6	-11.13	39.1	-20.63	239	100	Vert
35.4	28.58	QP	15.9	-29.3	15.18	29.6	-14.42	39.1	-23.92	212	109	Vert
44.4	32.34	QP	12.3	-29.4	15.24	29.6	-14.36	39.1	-23.86	291	109	Vert
83.68141	44.86	QP	7.8	-29.4	23.26	29.6	-6.34	39.1	-15.84	259	114	Vert

4.4 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	902MHz – 928MHz	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: Radiated Tests are not conducted since there is no restricted bands close to the fundamental frequency range.		

Table 22 Band Edge Compliance EUT Configuration Settings

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

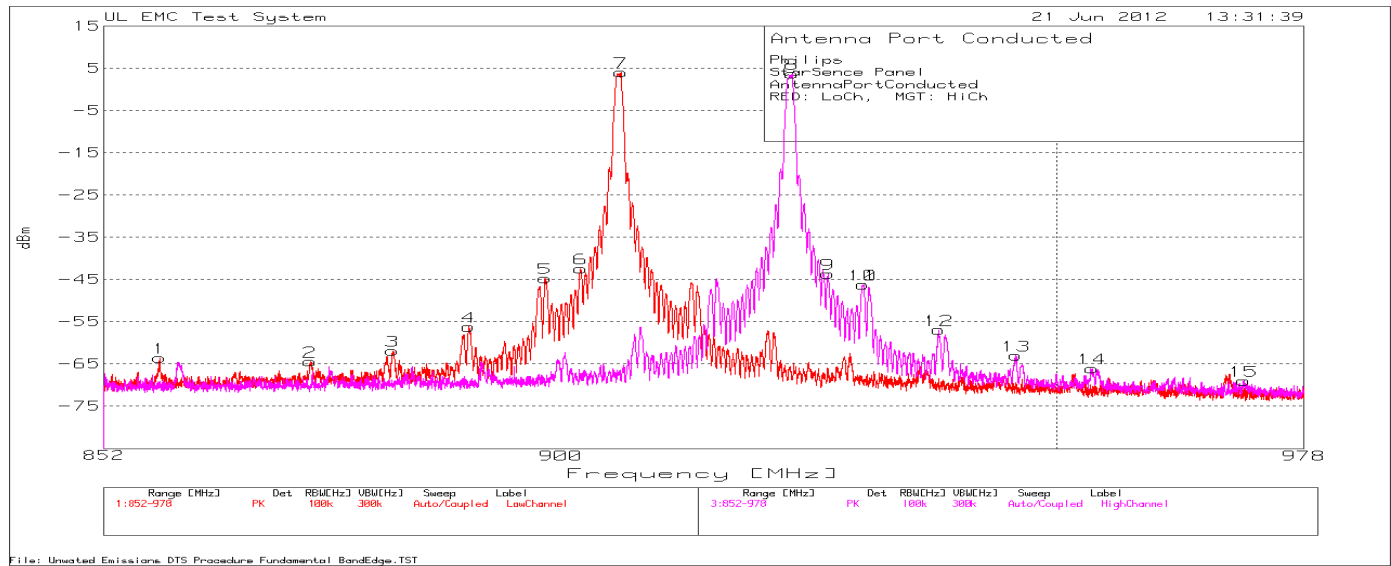
Table 23 Bandedge CONDUCTED EMISSIONS Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	Agilent	PXA	EMC4360	20120515	20130515
Attenuator w/ Cable	Mini Circuits	BW-N10W5	None	*N/A	N/A
* Cable and attenuator were characterized at the time of testing					

Model Number: LCN7330

Client Name: Philips Lighting Electronics N. A.

Figure 14 Antenna Conducted Band Edge Compliance Graph – Low Channel & High Channel



Philips
StarSence Panel
AntennaPortConducted
RED: LoCh, MGT: HiCh

LowChannel 852 - 978MHz					
Test Frequency MHz	Meter Reading dBuV	Detector	10dB pad and cable.TXT [dB]	dBuV to dBm [dB]	Level dBm
857.8286	33.05	PK	10.4	-107	-63.55
873.6273	32.17	PK	10.4	-107	-64.43
882.2821	34.74	PK	10.4	-107	-61.86
890.2821	40.42	PK	10.4	-107	-56.18
898.2885	51.89	PK	10.4	-107	-44.71
902.0274	54.17	PK	10.4	-107	-42.43
906.2698	100.6	PK	10.4	-107	4
HighChannel 852 - 978MHz					
Test Frequency MHz	Meter Reading dBuV	Detector	10dB pad and cable.TXT [dB]	dBuV to dBm [dB]	Level dBm
924.2338	100.25	PK	10.4	-107	3.65
927.9978	52.93	PK	10.4	-107	-43.67
931.6737	50.37	PK	10.4	-107	-46.23
931.6737	50.37	PK	10.4	-107	-46.23
939.6675	39.66	PK	10.4	-107	-56.94
947.7494	33.62	PK	10.4	-107	-62.98
955.7621	30.54	PK	10.4	-107	-66.06
971.6679	27.62	PK	10.4	-107	-68.98

PK - Peak detector

4.5 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 24 6dB Bandwidth Configuration Settings

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

Table 25 6dB Bandwidth Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	Agilent	PXA	EMC4360	20120515	20130515
Attenuator w/ Cable	Mini Circuits	BW-N10W5	None	*N/A	N/A
* Cable and attenuator were characterized at the time of testing					

Table 26 6dB Bandwidth Results

Mode	Channel	6dB Bandwidth
TX	Low	809.2 kHz
	Middle	758.8 kHz
	High	761.8 kHz

Figure 15 6dB Bandwidth Graphs – Low Channel

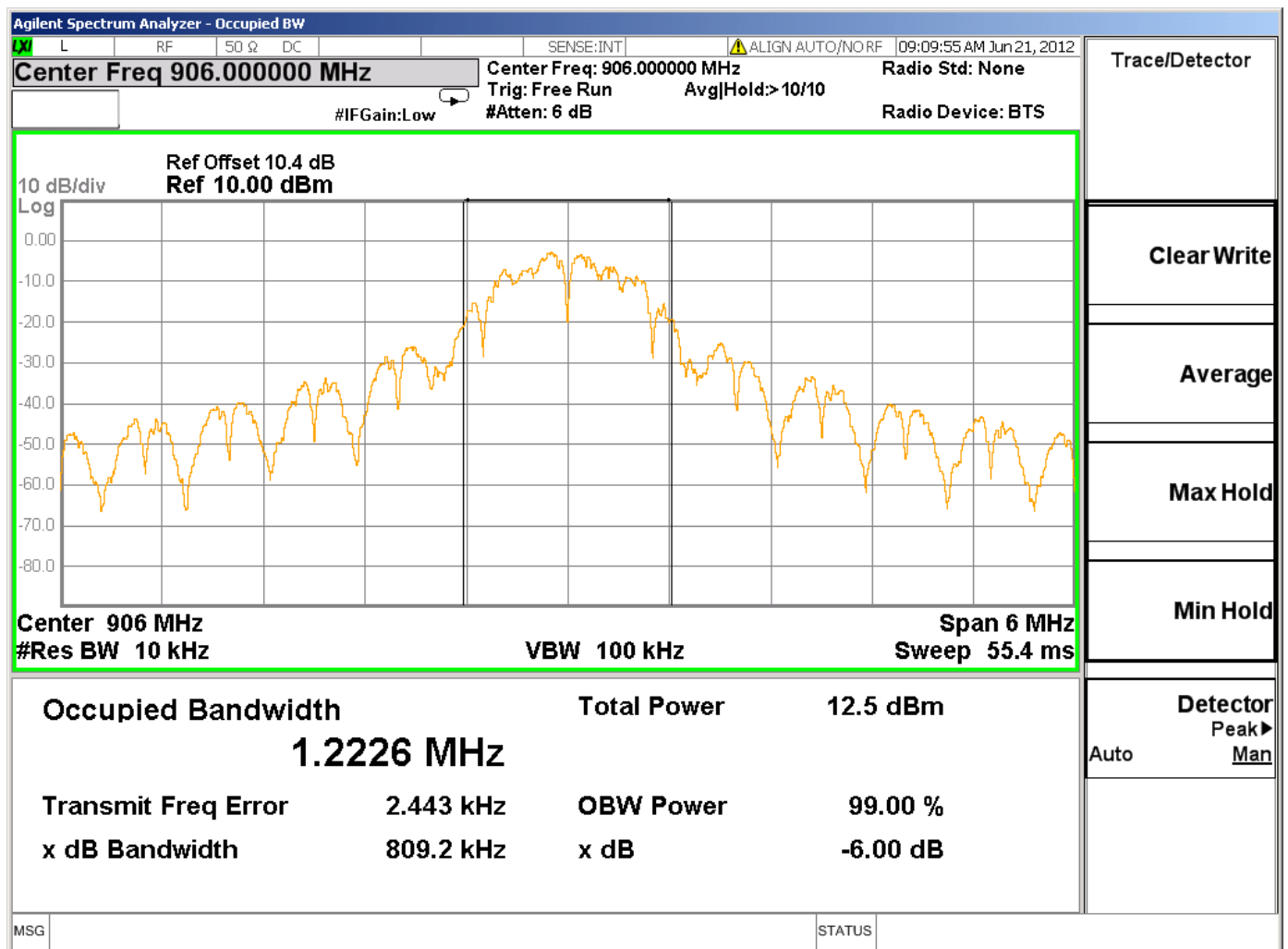


Figure 16 6dB Bandwidth Graphs – Middle Channel

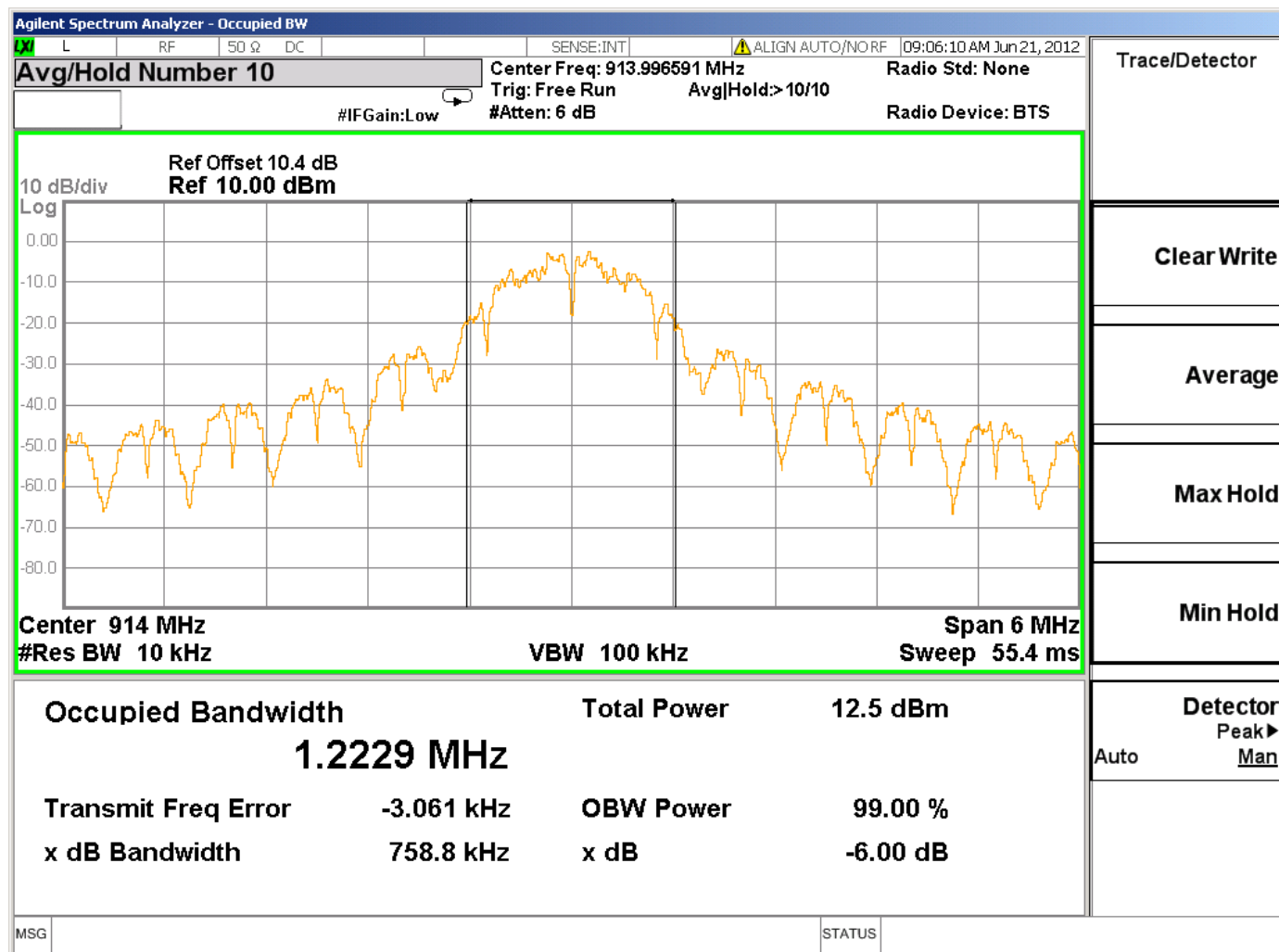
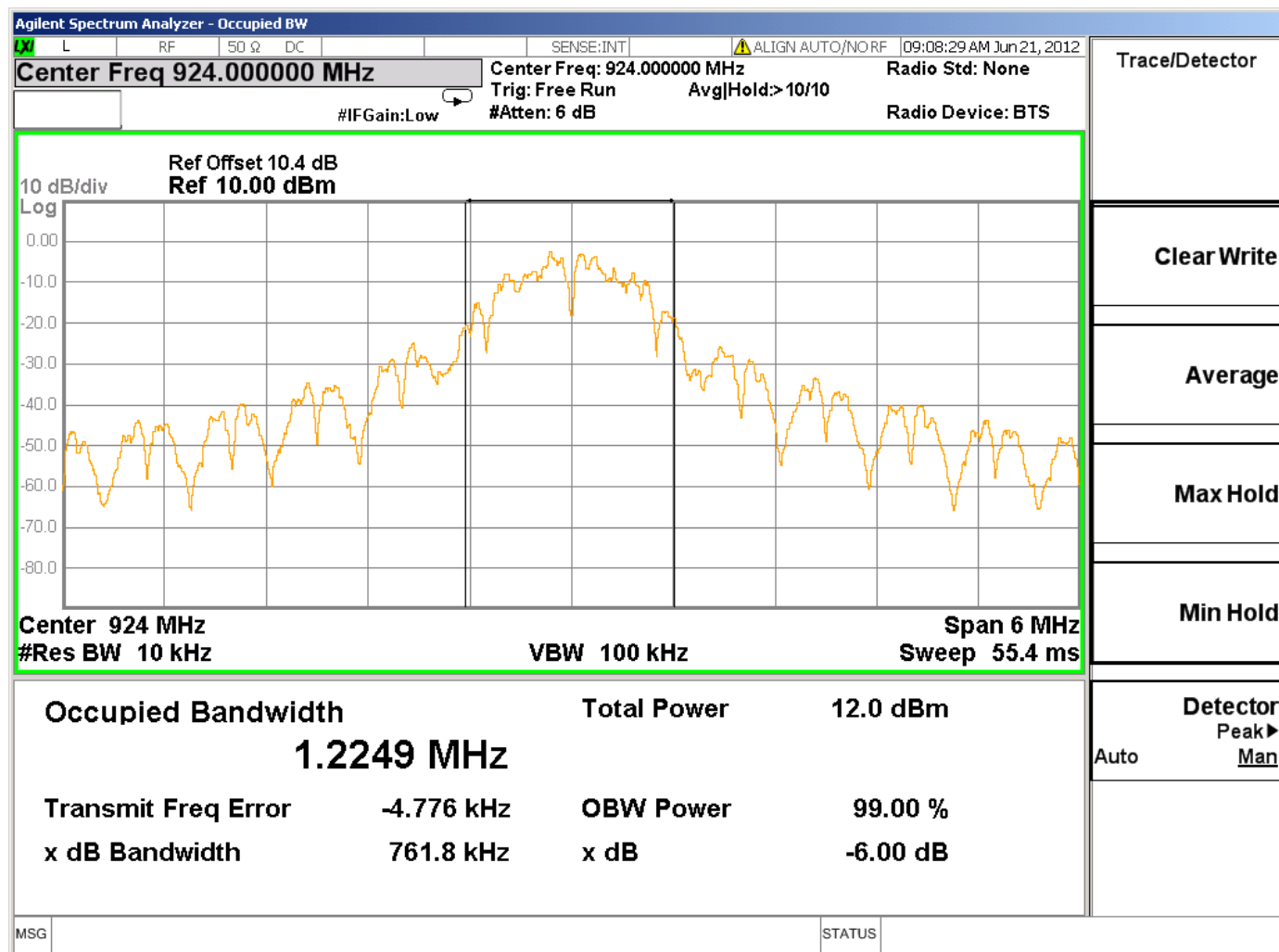


Figure 17 6dB Bandwidth Graphs – High Channel



4.6 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		902MHz – 928MHz	Antenna Conducted
Limits			
Frequency (MHz)	Limit mW		
	Peak		
2400 – 2483.5	1,000		
Supplementary information: None			

Table 27 Maximum Peak Output Power EUT Configuration Settings

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

Table 28 Maximum Peak Output Power Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	Agilent	PXA	EMC4360	20120515	20130515
Attenuator w/ Cable	Mini Circuits	BW-N10W5	None	*N/A	N/A
* Cable and attenuator were characterized at the time of testing					

Table 29 Maximum Peak Output Power Results

Channel	Limit (dBm)	Power dBm	Power W
Low Channel	30	5.968	0.003952
Middle Channel	30	5.796	0.003798
High Channel	30	5.554	0.003593

Figure 18 Maximum Peak Output Power Graphs – Low Channel

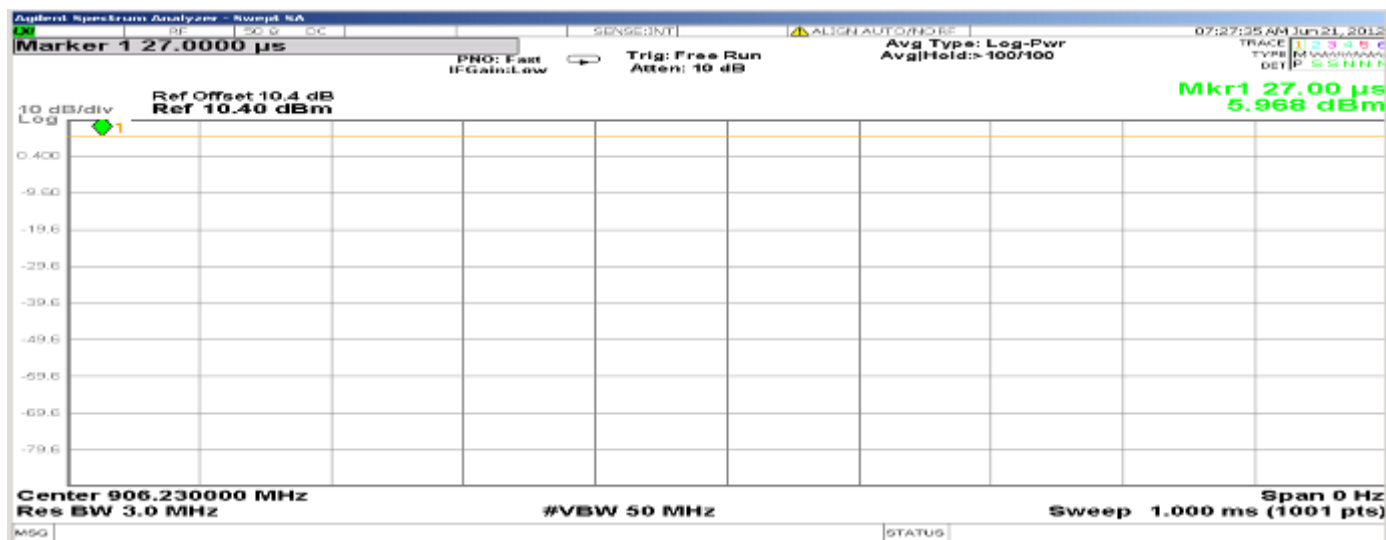
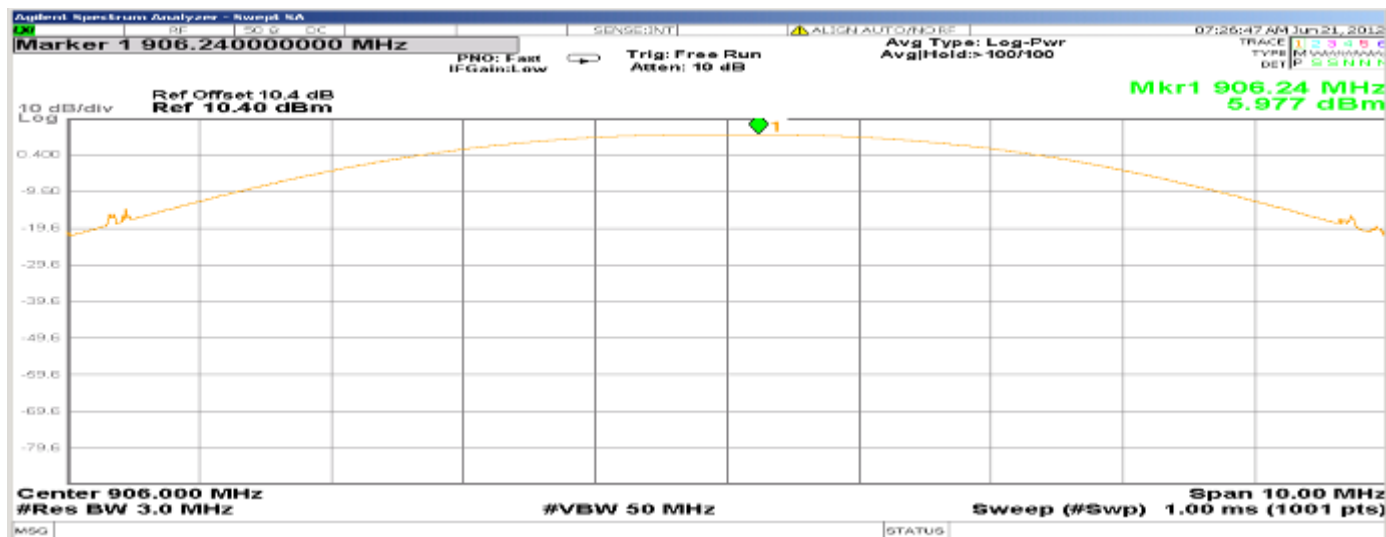


Figure 19 Maximum Peak Output Power Graphs – Mid Channel

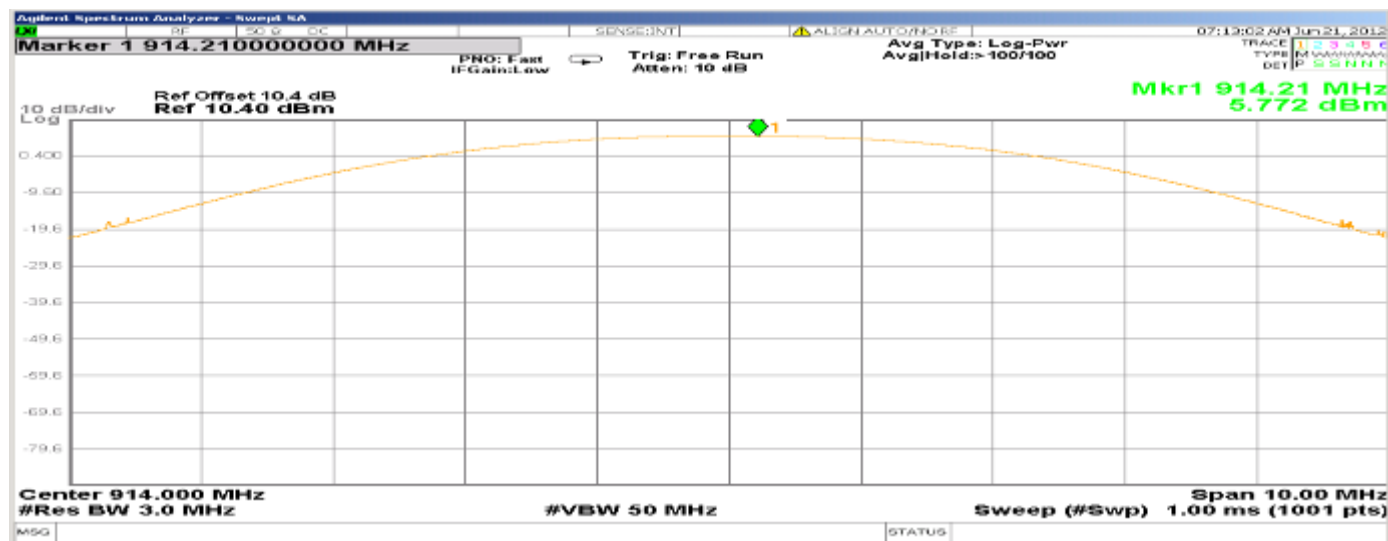
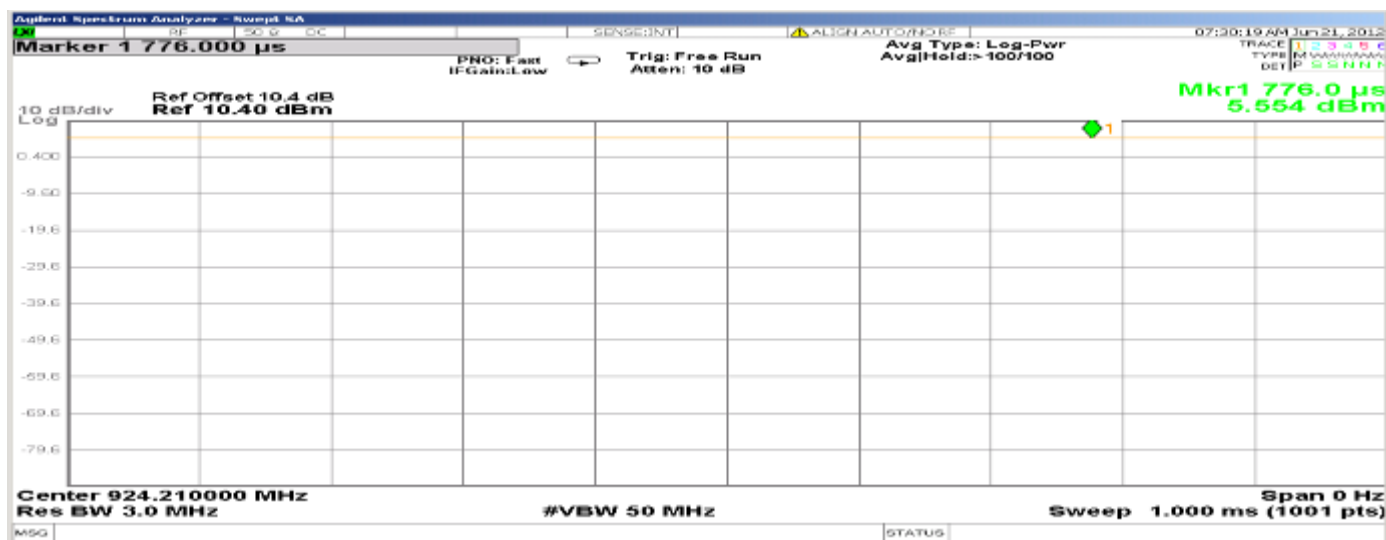
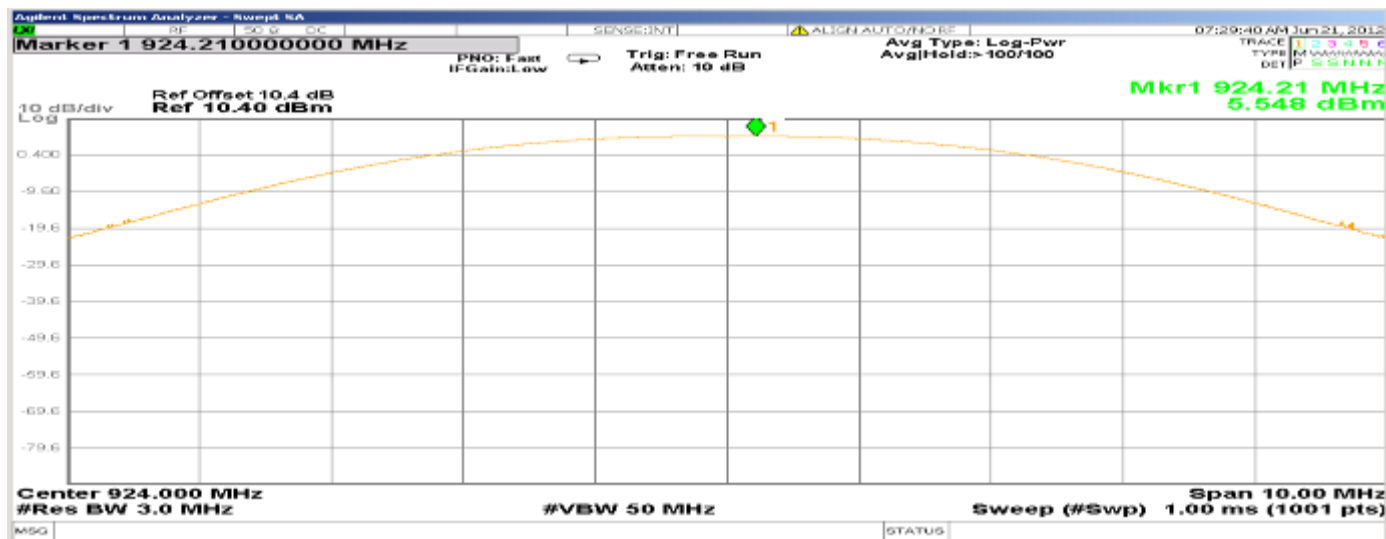


Figure 20 Maximum Peak Output Power Graphs – High Channel



4.7 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	902MHz – 928MHz	Antenna Conducted
Limits		
Frequency (MHz)	Limit mW	
	Peak	
2400 – 2483.5	8dBm (0.00631mW)	
Supplementary information: Per “558074 D01 DTS Meas Gudence DR01”, Option 1, PSD was measured with 100kHz RBW and -15.2dB correction factor was applied in Table 32 below.		

Table 30 Power Spectral Density EUT Configuration Settings

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

Table 31 Power Spectral Density Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum analyzer	Agilent	PXA	EMC4360	20120515	20130515
Attenuator w/ Cable	Mini Circuits	BW-N10W5	None	*N/A	N/A
* Cable and attenuator were characterized at the time of testing					

Table 32 Power Spectral Density Power Results

Channel	Limit (dBm)	Power Density dBm
Low Channel	8	-11.106
Middle Channel	8	-11.916
High Channel	8	-11.540

Figure 21 Power Spectral Density Graphs – Low Channel

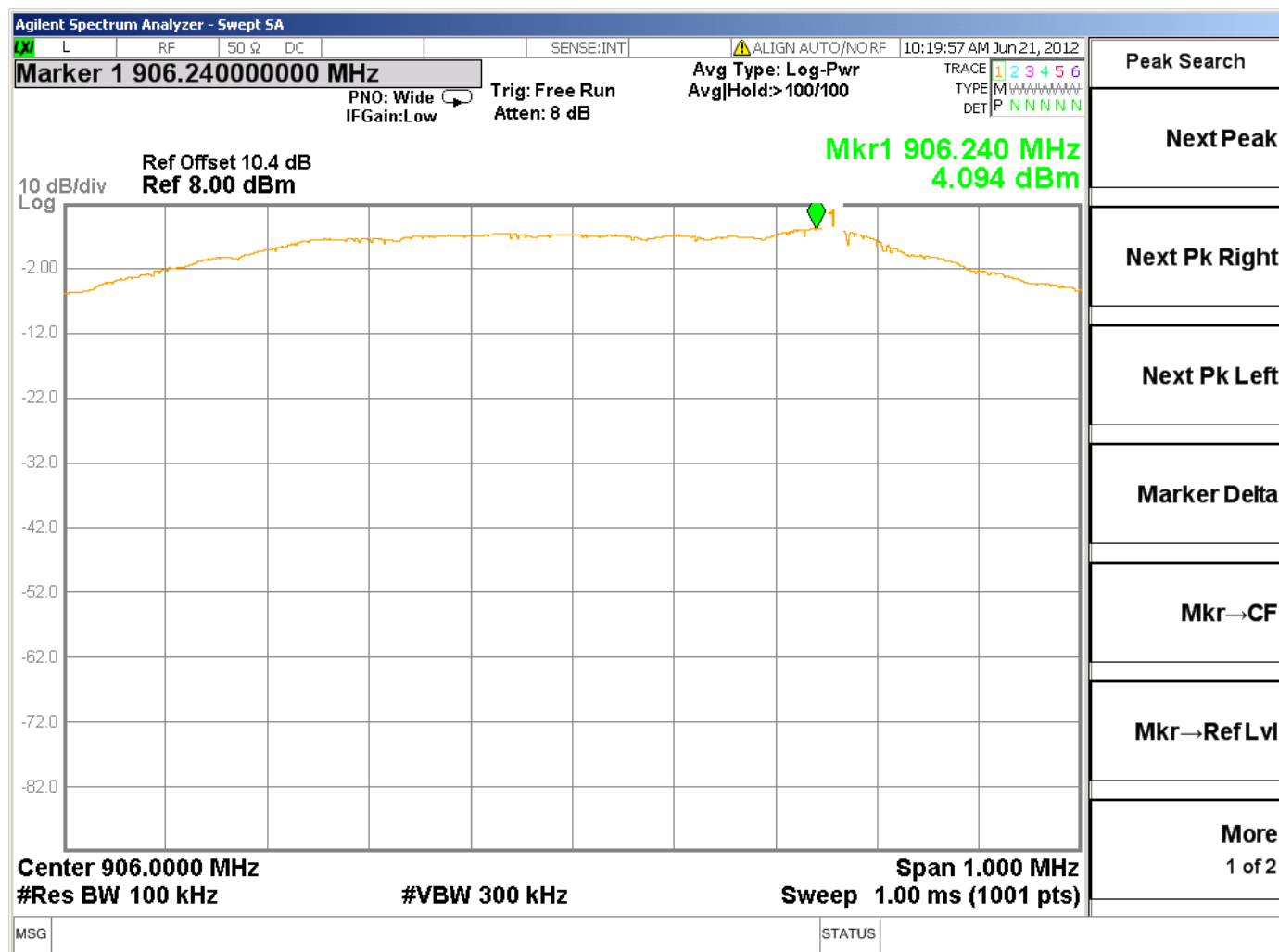


Figure 22 Power Spectral Density Graphs – Middle Channel

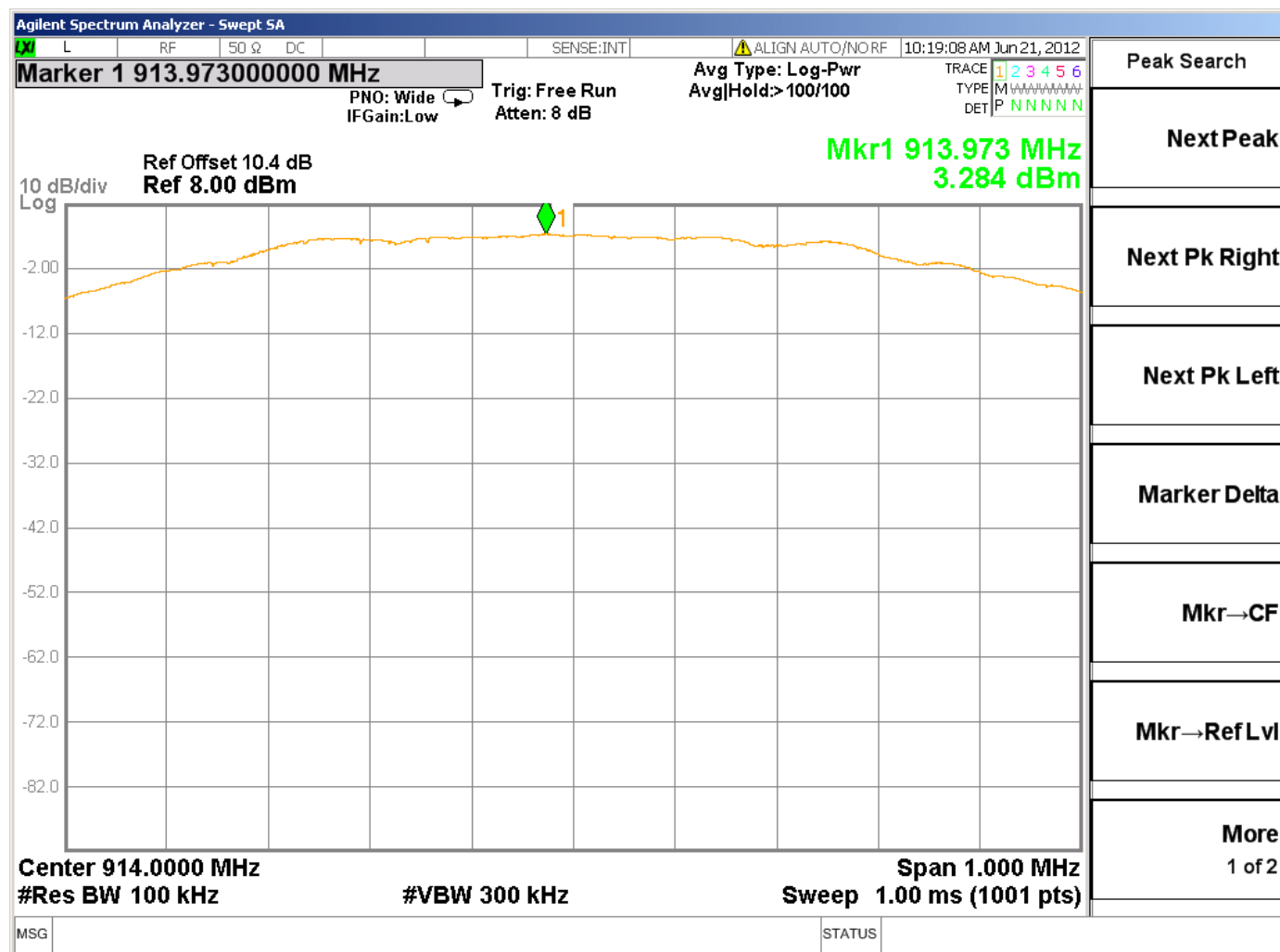
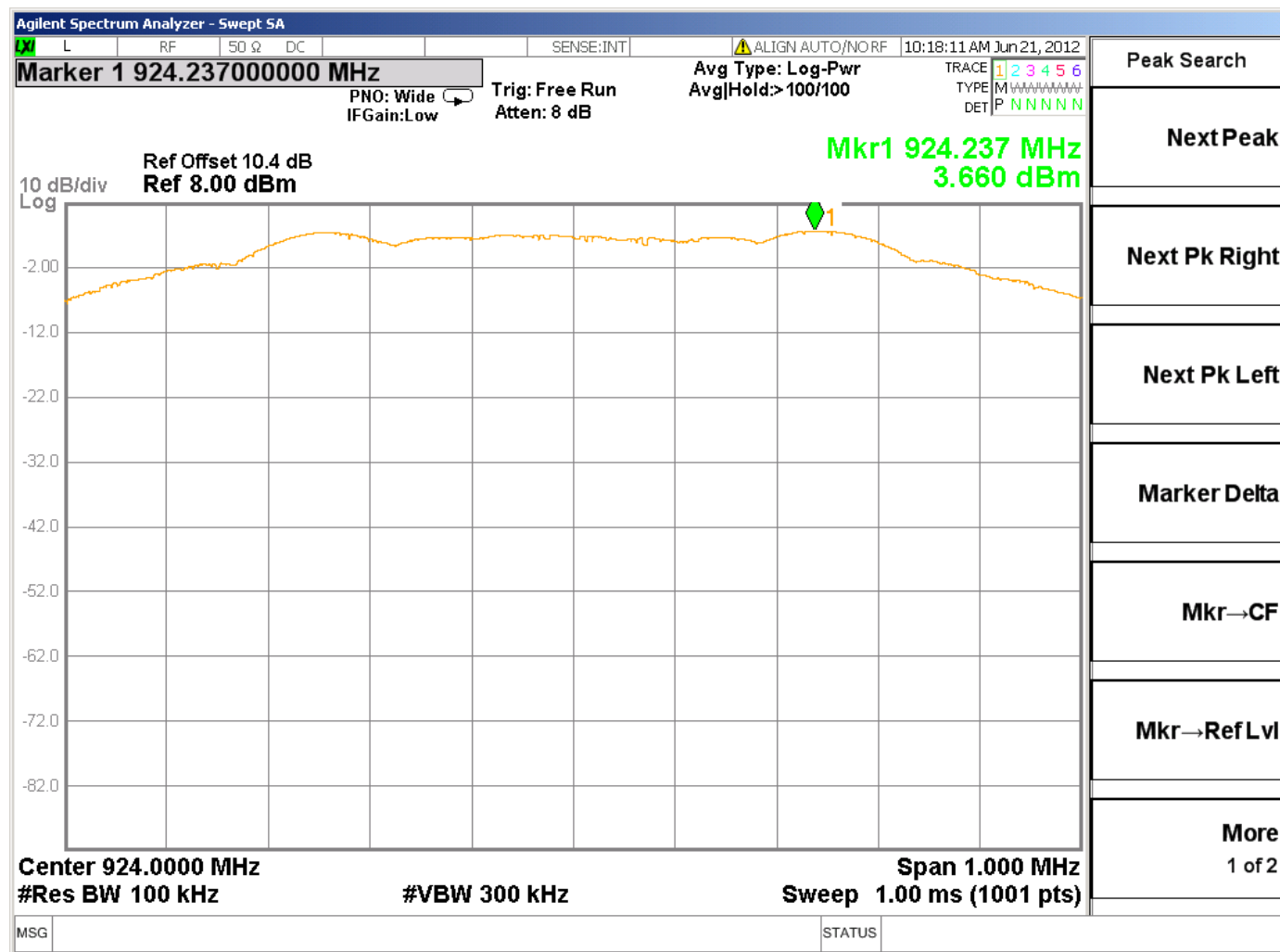


Figure 23 Power Spectral Density Graphs – High Channel



4.8 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 33 99% Power Bandwidth Configuration Settings

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

Table 34 99% Power Bandwidth Test Equipment

Test Equipment Used					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	Agilent	PXA	EMC4360	20120515	20130515
Near Filed Probe	Generic	-	-	-	-

Table 35 99% Power Bandwidth Results

Mode	Channel	99% Power Bandwidth
TX	Low	1.2226 MHz
	Middle	1.2229 MHz
	High	1.2249 MHz

For graphical representation of 99% Power Bandwidth please refer to section 4.5 Test Conditions and Results – 6dB BANDWIDTH

Appendix A

Test Setup Photos

Figure 24 – Antenna Port Conducted Emissions



Figure 25 – Radiated Emissions – EUT installed inside a panel, typical configuration



Figure 26 – Line Conducted Emissions - EUT installed inside a panel, typical configuration



Appendix B

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/standards/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 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 2004/108/EC, Annex III (2-3). 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

