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Job Number:	960863
Project Number:	08CA17835
File Number:	MC15343
Date:	April 15, 2008
Model:	PIRV400R

Electromagnetic Compatibility Test Report

For

Chamberlain Group Inc.

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Underwriters Laboratories Inc.
333 Pfingsten Rd.
Northbrook, IL 60062

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Tel: (847) 272-8800

Job #: 960863 File #: MC15343 Project #: 08CA17835
Model Number: PIRV400R
Client Name: Chamberlain Group Inc.

Page 2 of 30
FCC ID: JLFPIR2

Test Report Details

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

Tests Performed For: **Chamberlain Group Inc.**
 845 Larch Av
 Elmhurst, IL 60126

Applicant Contact: **Hank Sieradzki**
Phone: **(630) 993-6564**
E-mail: **Hank.Sieradzki@chamberlaingroup.com**

Test Report Date: **April 15, 2008**

Product Type: **Low Power Transmitter**

Product standards **FCC Part 15, Subpart C, 15.249**
 RSS-210, Section A2.9

Model Number: **PIRV400R**

EUT Category: **Low Power Transmitter**

Testing Start Date: **April 2, 2008**

Date Testing Complete: **April 9, 2008**

Overall Results: Compliant

Underwriters Laboratories Inc. reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. Underwriters Laboratories Inc. shall have no liability for any deductions, inferences or generalizations drawn by the client or others from Underwriters Laboratories Inc. issued reports. This report shall not be used to claim, constitute or imply product certification, approval, or endorsement by NVLAP, A2LA, or any agency of the US government.

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

Report Directory

1.0	GENERAL - 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
2.0	Summary	5
2.1	Deviations from standard test methods.....	5
2.2	Device Modifications Necessary for Compliance	5
2.3	Reference Standards	6
2.4	Results Summary	6
3.0	Calibration of Equipment Used for Measurement	7
4.0	EMISSIONS TEST RESULTS.....	7
4.1	Test Conditions and Results – RADIATED EMISSIONS.....	8
4.2.1	Radiated Emissions – Filed Strength of the Fundamental Frequency	10
4.2.2	Radiated Emissions – Band Edge Compliance	11
4.2.3	Radiated Emissions – Low Channel Spurious Emissions	13
4.2.4	Radiated Emissions – Middle Channel Spurious Emissions	16
4.2.5	Radiated Emissions – Low Channel Spurious Emissions	19
4.2.6	Radiated Emissions – Standby / Receive Mode.....	22
4.2	Test Conditions and Results – Occupied Bandwidth / 99% Bandwidth.....	24
5.0	IMMUNITY TEST RESULTS	28
Appendix A	29
	Accreditations and Authorizations.....	29

Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
None			

1 GENERAL - Product Description

1.1 Equipment Description

The Equipment Under Test (EUT) is a PIRV 400R - wireless pedestrian and vehicle sensor with voice.

1.2 Device Configuration During Test

1.2.1 Equipment Used During Test:

Use	Product Type	Manufacturer	Model	Comments
EUT	Wireless Pedestrian and Vehicle Sensor	Chamberlain Group Inc.	PIRV	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	DC	N	N	EUT is battery operated only – 4xAA
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	6VDC	-	-	DC	-	None

1.3 EUT Configurations

Mode #	Description
1	EUT configured on 80cm table connected in manner simulating normal use.

1.4 EUT Operation Modes

Mode #	Description
1	Receiver / Standby Mode
2	Transmit Mode

2 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

2.3 Reference Standards

Standard Number	Standard Name	Standard Date
FCC Part 15, Subpart C, 15.209	Code of Federal Regulations, Part 15, Radio Frequency Devices	2007
RSS-Gen	General Requirements of Information for the Certification of Radiocommunication Equipment.	2007
RSS-210	Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment	2007

2.4 Results Summary

Requirement – Test	Result (Compliant / Non-Compliant)*
Conducted Emissions - Mains	N/A**
Radiated Emissions	Compliant
Bandwidth Measurements	Compliant

** EUT is battery operated only therefore Line Conducted Emissions testing is not required.

Test Engineer:



Bartlomiej Mucha (Ext.41216)
Senior Project Engineer
International EMC Services
Conformity Assessment Services-

Reviewer:



Michael A. Ehas(Ext.42351)
Lead Engineering Associate
International EMC Services
Conformity Assessment Services

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

3 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 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
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----- Canada -----

RSS-Gen	General Requirements of Information for the Certification of Radiocommunication Equipment.
RSS-210	Low-power Licence-exempt Radiocommunication Devices (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
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4.1 Test Conditions and Results – RADIATED EMISSIONS

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 C, 15.209 & 15.249 RSS-210, Section 2.7 and A2.9	
UL LPG	80-EM-S0029	
	Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range	30MHz – 1GHz	10m measurement distance
	1GHz – 10GHz	3m measurement distance
Limits – 902MHz – 928MHz – Fundamental Frequency		
Frequency (MHz)	Limit (dBµV/m)	
	Quasi-Peak	Average
902 - 928	83.52	NA
Limits – All Other Emissions including Harmonics		
Frequency (MHz)	Limit (dBµV/m)	
	Quasi-Peak	Average
30 - 88	29.54	NA
88 - 216	33.06	NA
216 - 960	35.56	NA
960 – 1,000	43.52	NA
Above 1,000 (FCC)	NA	54
Supplementary information: None		

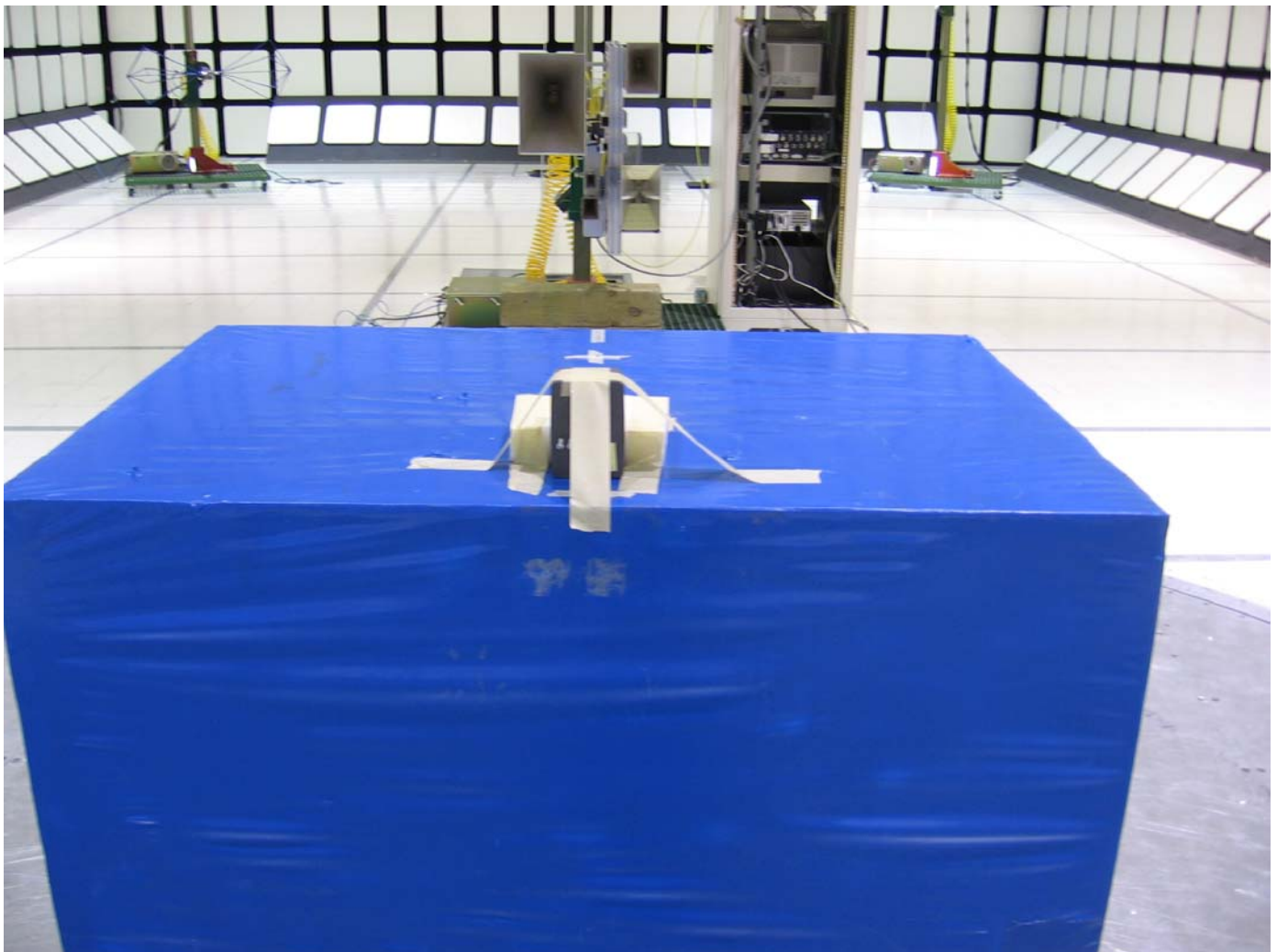
Table 1 Radiated Emissions EUT Configuration Settings

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

Table 2 Radiated Emissions Test Equipment

Description	Manufacturer	Model	Identifier
Spectrum Analyzer	HP	8566B	EMC4085
Quasi-Peak Detector	HP	85650A	EMC4016
Bicon Antenna	Chase	VBA6106A	EMC4078
Log-P Antenna	Chase	UPA6108	EMC4076
Spectrum Analyzer	Rhode & Schwartz	FSEK	EMC4182
Antenna Array	UL	BOMS	EMC4276

Figure 1 Test setup for Radiated Emissions



4.1.1 Radiated Emissions – Filed Strength of the Fundamental Frequency

Table 3 Fundamental Frequency Data Points

Chamberlain
 Model: PIRV
 4xAA
 Red=Horizontal Green=Vertical

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
Low Channel										
903.2241	85.23 qp	-31.8	22.5	75.93	83.5	46.4	35.6	-	-	-
Azimuth: 217	Height:103	Horz		Margin [dB]:	-7.57	29.53	40.33	-	-	-
903.2945	88.45 qp	-31.8	22.5	79.15	83.5	46.4	35.6	-	-	-
Azimuth: 112	Height:176	Vert		Margin [dB]:	-4.35	32.75	43.55	-	-	-
Middle Channel										
915.7382	86.13 qp	-31.7	22.4	76.83	83.5	46.4	35.6	-	-	-
Azimuth: 206	Height:104	Horz		Margin [dB]:	-6.67	30.43	41.23	-	-	-
915.7376	89.55 qp	-31.7	22.4	80.25	83.5	46.4	35.6	-	-	-
Azimuth: 116	Height:186	Vert		Margin [dB]:	-3.25	33.85	44.65	-	-	-
High Channel										
926.8004	89.76 qp	-31.7	22.8	80.86	83.5	46.4	35.6	-	-	-
Azimuth: 120	Height:183	Vert		Margin [dB]:	-2.64	34.46	45.26	-	-	-
926.8	86.13 qp	-31.7	22.8	77.23	83.5	46.4	35.6	-	-	-
Azimuth: 201	Height:103	Horz		Margin [dB]:	-6.27	30.83	41.63	-	-	-

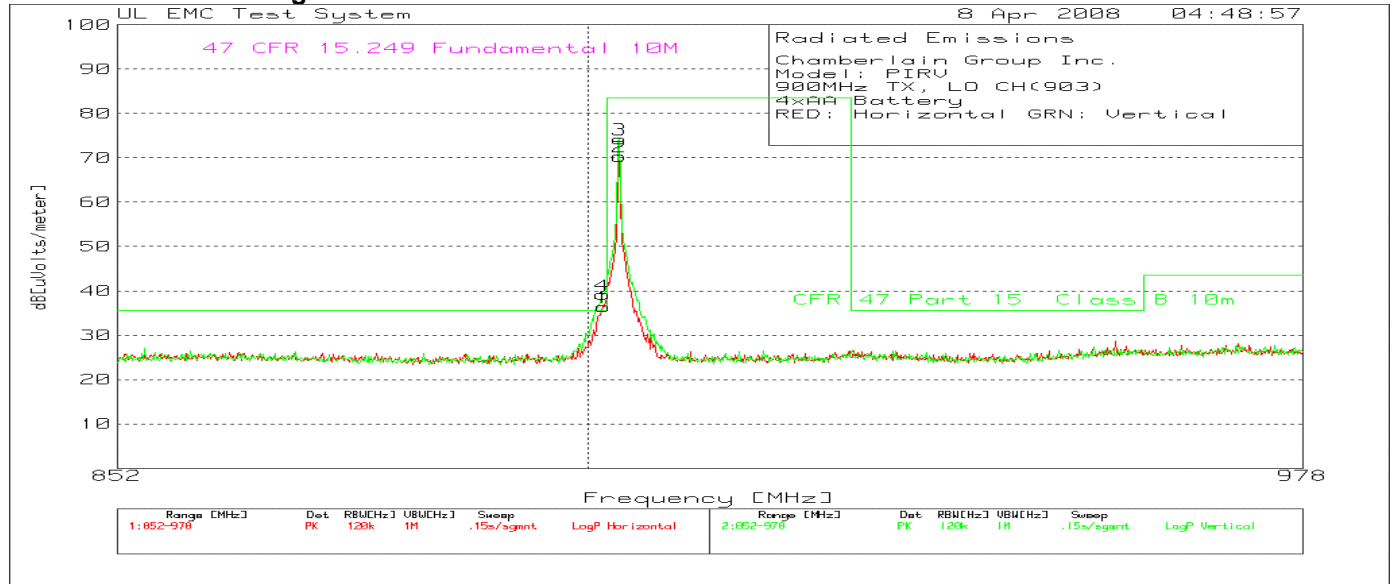
LIMIT 1: 47 CFR 15.249 Fundamental 10M
 LIMIT 2: CFR 47 Part 15 Class A 10m
 LIMIT 3: CFR 47 Part 15 Class B 10m

pk - Peak detector
 qp - Quasi-Peak detector

4.1.2 Radiated Emissions – Band Edge Compliance

Figure 2 Band Edge Emissions Graphs

Low Channel Band Edge Plot



High Channel Band Edge Plot

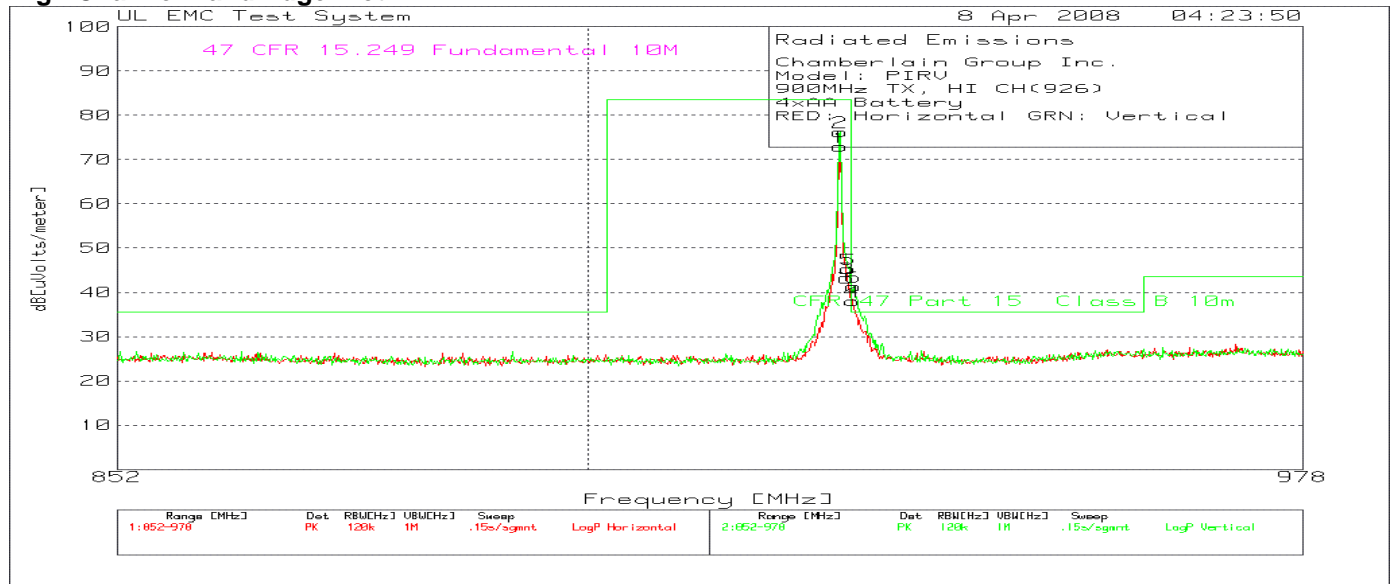


Table 4 Band Edge Emissions Data Points

Chamberlain Group Inc.
 Model: PIRV
 900MHz TX,
 4xAA Battery
 RED: Horizontal GRN: Vertical

Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4	5	6
Frequency	Reading	Factor	Factor	dB[uVolts/meter]						
[MHz]	[dB(uV)]	[dB]	[dB]							
Low Channel Band Edge										
902	26.02 qp	-31.8	22.5	16.72	35.6	-	-	83.5	-	-
Azimuth: 22	Height:106	Horz		Margin [dB]:	-18.88	-	-	-66.78	-	-
902	30.02 qp	-31.8	22.5	20.72	35.6	-	-	83.5	-	-
Azimuth: 126	Height:186	Vert		Margin [dB]:	-14.88	-	-	-62.78	-	-

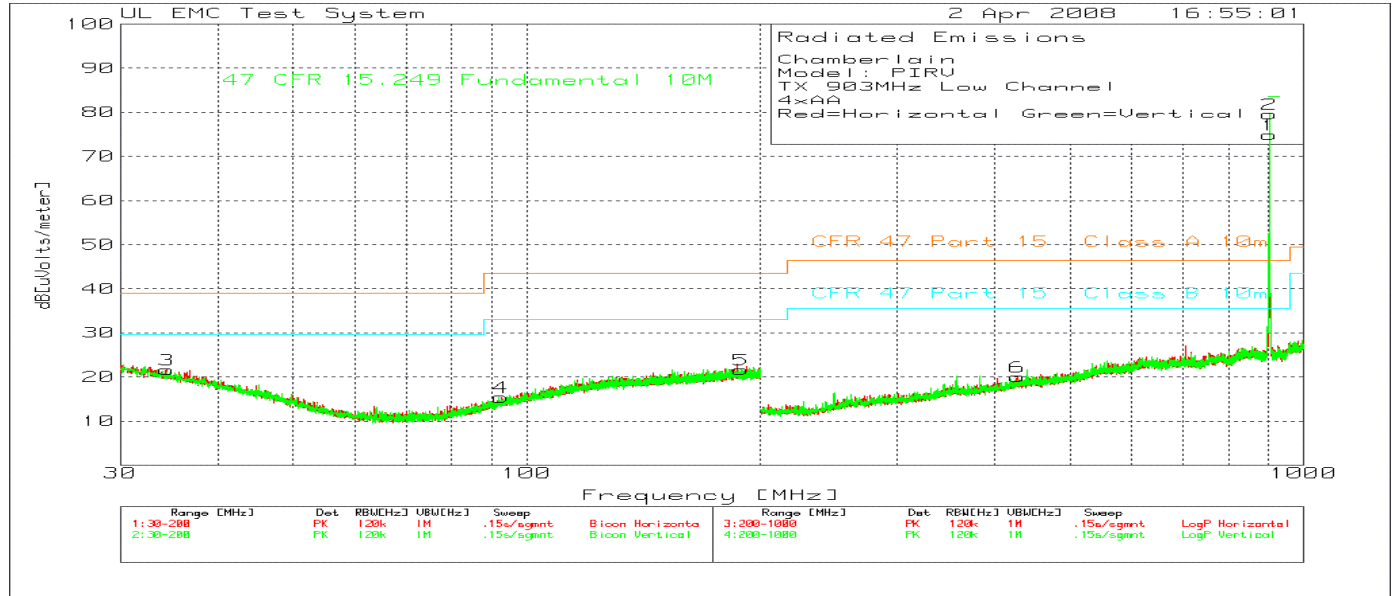
Test	Meter	Gain/Loss	Transducer	Level	Limit:1	2	3	4	5	6
Frequency	Reading	Factor	Factor	dB[uVolts/meter]						
[MHz]	[dB(uV)]	[dB]	[dB]							
High Channel Band Edge										
928	29.02 qp	-31.5	22.9	20.42	0	-	-	35.5	-	-
Azimuth: 16	Height:102	Horz		Margin [dB]:	20.42	-	-	-15.08	-	-
928	33.02 qp	-31.5	22.9	24.42	0	-	-	35.5	-	-
Azimuth: 288	Height:179	Vert		Margin [dB]:	24.42	-	-	-11.08	-	-

LIMIT 1: 47 CFR 15.249 Fundamental 10M
 LIMIT 2: NONE
 LIMIT 3: NONE
 LIMIT 4: CFR 47 Part 15 Class B 10m

pk - Peak detector
 qp - Quasi-Peak detector

4.1.3 Radiated Emissions – Low Channel Spurious Emissions

Figure 3 Radiated Spurious Emissions Graphs
30MHz – 1GHz



1GHz – 10GHz

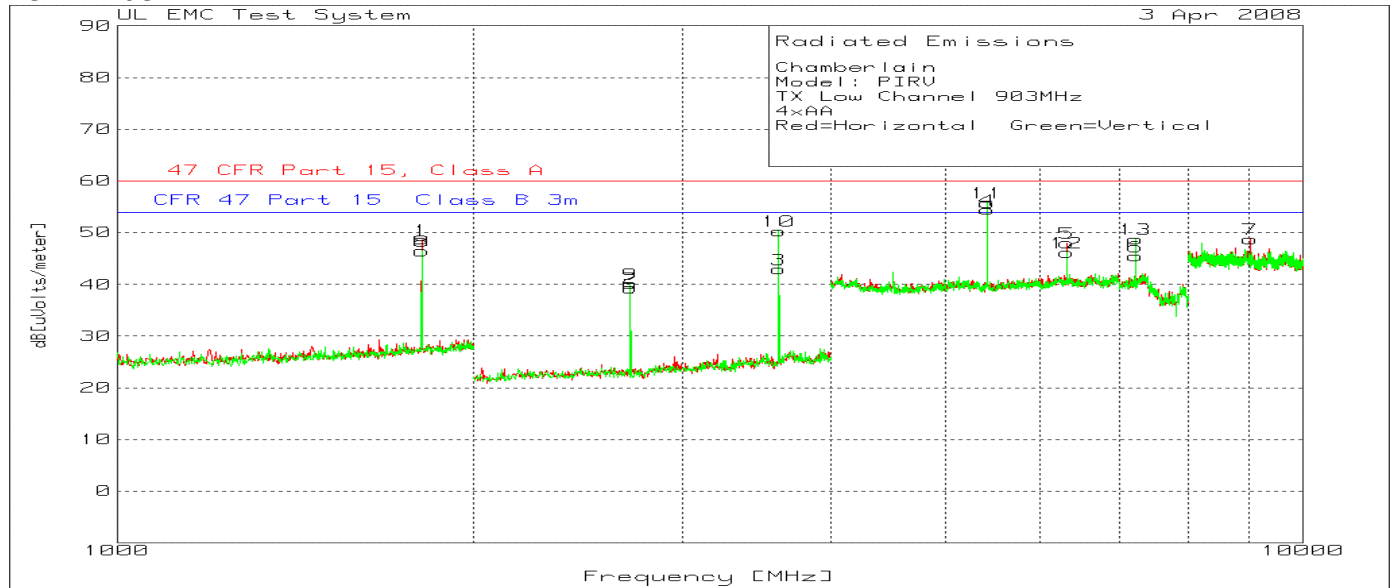


Table 5 Radiated Spurious Emissions Data Points

30MHz – 1GHz

Chamberlain
 Model: PIRV
 TX 903MHz Low Channel
 4xAA
 Red=Horizontal Green=Vertical

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
3	34.4167	35.7 pk	-30.3	16.2	21.6	0	39.1	29.6	-	-	-
	Azimuth:196	Height:200	Horz	Margin [dB]	21.6	-17.5	-8	-	-	-	-
4	92.5556	36 pk	-30.1	9.5	15.4	0	43.5	33.1	-	-	-
	Azimuth:281	Height:200	Horz	Margin [dB]	15.4	-28.1	-17.7	-	-	-	-
5	188.5761	35.7 pk	-29.9	15.8	21.6	0	43.5	33.1	-	-	-
	Azimuth:105	Height:299	Horz	Margin [dB]	21.6	-21.9	-11.5	-	-	-	-
1	903.0727	84.2 pk	-31.8	22.5	74.9	83.5	46.4	35.6	-	-	-
	Azimuth:48	Height:99	Horz	Margin [dB]	-8.6	28.5	39.3	-	-	-	-
6	427.6293	35.8 pk	-32.1	16.3	20	0	46.4	35.6	-	-	-
	Azimuth:252	Height:99	Horz	Margin [dB]	20	-26.4	-15.6	-	-	-	-
2	903.0727	88.9 pk	-31.8	22.5	79.6	83.5	46.4	35.6	-	-	-
	Azimuth:122	Height:203	Vert	Margin [dB]	-3.9	33.2	44	-	-	-	-

LIMIT 1: 47 CFR 15.249 Fundamental 10M
 LIMIT 2: CFR 47 Part 15 Class A 10m
 LIMIT 3: CFR 47 Part 15 Class B 10m

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector

Only Fundamental Frequency Detected - No Measurements were required. For the level of fundamental frequency please refer to section 4.1.1.

1GHz – 10GHz

Chamberlain
 Model: PIRV
 TX Low Channel 903MHz
 4xAA
 Red=Horizontal Green=Vertical

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1	1807.615	75.74 pk	-53.79	26.7	48.65	60	54	-	-	-	-
		Height:150	Horz	Margin [dB]		-11.35	-5.35	-	-	-	-
2	2709.419	68.42 pk	-51.24	22.1	39.28	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-20.72	-14.72	-	-	-	-
3	3615.23	70.61 pk	-50.88	23.2	42.93	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-17.07	-11.07	-	-	-	-
4	5421.421	76.58 pk	-50.14	28	54.44	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-5.56	.44	-	-	-	-
5	6322.322	66.75 pk	-47.96	29.2	47.99	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-12.01	-6.01	-	-	-	-
6	7227.227	62.6 pk	-47.09	29.9	45.41	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-14.59	-8.59	-	-	-	-
7	9032.688	62.56 pk	-49.94	36.1	48.72	60	54	-	-	-	-
		Height:150	Horz	Margin [dB]		-11.28	-5.28	-	-	-	-
8	1807.615	73.53 pk	-53.79	26.7	46.44	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-13.56	-7.56	-	-	-	-
9	2709.419	69.24 pk	-51.24	22.1	40.1	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-19.9	-13.9	-	-	-	-
10	3615.23	77.96 pk	-50.88	23.2	50.28	60	54	-	-	-	-
		Height:150	Vert	Margin [dB]		-9.72	-3.72	-	-	-	-
11	5421.421	77.87 pk	-50.14	28	55.73	60	54	-	-	-	-
		Height:152	Vert	Margin [dB]		-4.27	1.73	-	-	-	-
12	6322.322	64.91 pk	-47.96	29.2	46.15	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-13.85	-7.85	-	-	-	-
13	7227.227	65.91 pk	-47.09	29.9	48.72	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-11.28	-5.28	-	-	-	-

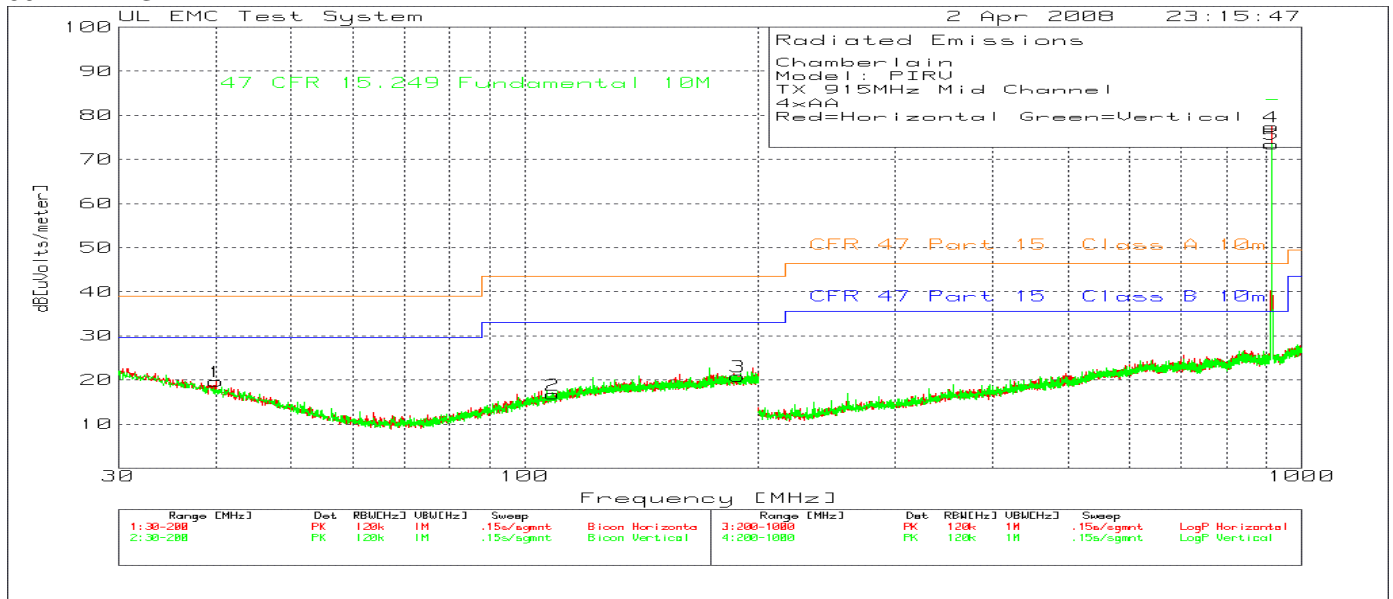
Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1806.7946	77.46 pk	-53.79	26.7	50.37	60	54	-	-	-	-
	Azimuth: 265	Height:131	Horz	Margin [dB]:		-9.63	-3.63	-	-	-
1806.6082	75.17 av	-53.79	26.7	48.08	60	54	-	-	-	-
	Azimuth: 265	Height:131	Horz	Margin [dB]:		-11.92	-5.92	-	-	-
3613.2104	81.49 pk	-50.91	23.2	53.78	60	54	-	-	-	-
	Azimuth: 331	Height:144	Vert	Margin [dB]:		-6.22	-.22	-	-	-
3613.1443	79.36 av	-50.91	23.2	51.65	60	54	-	-	-	-
	Azimuth: 331	Height:144	Vert	Margin [dB]:		-8.35	-2.35	-	-	-
5419.996	76.89 pk	-50.15	27.9	54.64	60	54	-	-	-	-
	Azimuth: 48	Height:100	Horz	Margin [dB]:		-5.36	.64	-	-	-
5419.7214	73.13 av	-50.15	27.9	50.88	60	54	-	-	-	-
	Azimuth: 48	Height:100	Horz	Margin [dB]:		-9.12	-3.12	-	-	-
5419.1643	79.58 pk	-50.15	27.9	57.33	60	54	-	-	-	-
	Azimuth: 330	Height:116	Vert	Margin [dB]:		-2.67	3.33	-	-	-
5419.7355	76.15 av	-50.15	27.9	53.9	60	54	-	-	-	-
	Azimuth: 330	Height:116	Vert	Margin [dB]:		-6.1	-.1	-	-	-
7226.8066	67.67 pk	-47.09	29.9	50.48	60	54	-	-	-	-
	Azimuth: 166	Height:100	Vert	Margin [dB]:		-9.52	-3.52	-	-	-
7226.3317	61.3 av	-47.09	29.9	44.11	60	54	-	-	-	-
	Azimuth: 166	Height:100	Vert	Margin [dB]:		-15.89	-9.89	-	-	-
9033.3677	65.18 pk	-49.93	36.1	51.35	60	54	-	-	-	-
	Azimuth: 212	Height:159	Horz	Margin [dB]:		-8.65	-2.65	-	-	-
9032.9569	55.97 av	-49.94	36.1	42.13	60	54	-	-	-	-
	Azimuth: 212	Height:159	Horz	Margin [dB]:		-17.87	-11.87	-	-	-

LIMIT 1: 47 CFR Part 15, Class A
 LIMIT 2: CFR 47 Part 15 Class B 3m

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector

4.1.4 Radiated Emissions – Middle Channel Spurious Emissions

Figure 4 Radiated Spurious Emissions Graphs
 30MHz – 1GHz



1GHz – 10GHz

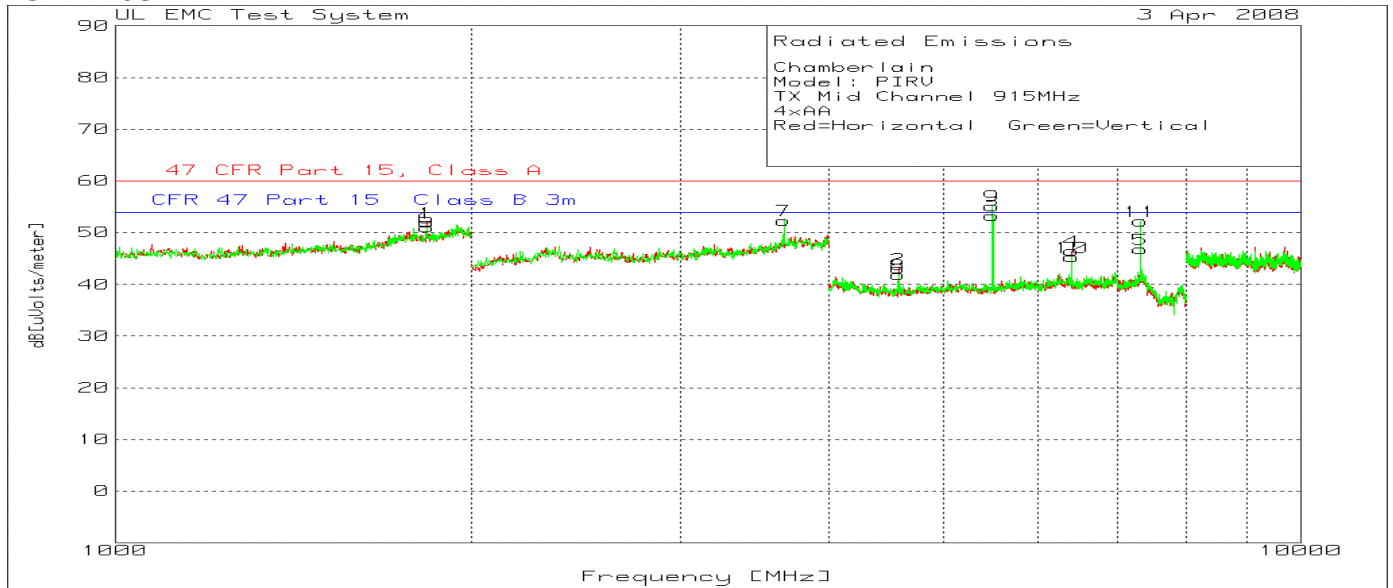


Table 6 Radiated Spurious Emissions Data Points

30MHz – 1GHz

Chamberlain
 Model: PIRV
 TX 915MHz Mid Channel
 4xAA
 Red=Horizontal Green=Vertical

No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1	40.025	36 pk	-30.3	13.9	19.6	0	39.1	29.6	-	-	-
	Azimuth:89	Height:100	Horz	Margin [dB]	19.6	-19.5	-10	-	-	-	-
2	108.6707	34.8 pk	-30	11.9	16.7	0	43.5	33.1	-	-	-
	Azimuth:126	Height:100	Horz	Margin [dB]	16.7	-26.8	-16.4	-	-	-	-
3	188.1909	34.9 pk	-29.9	15.8	20.8	0	43.5	33.1	-	-	-
	Azimuth:39	Height:100	Horz	Margin [dB]	20.8	-22.7	-12.3	-	-	-	-
4	914.7235	86.7 pk	-31.7	22.4	77.4	83.5	46.4	35.6	-	-	-
	Azimuth:195	Height:103	Horz	Margin [dB]	-6.1	31	41.8	-	-	-	-
5	914.99	82.7 pk	-31.7	22.4	73.4	83.5	46.4	35.6	-	-	-
	Azimuth:57	Height:101	Vert	Margin [dB]	-10.1	27	37.8	-	-	-	-

LIMIT 1: 47 CFR 15.249 Fundamental 10M
 LIMIT 2: CFR 47 Part 15 Class A 10m
 LIMIT 3: CFR 47 Part 15 Class B 10m

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector

Only Fundamental Frequency Detected - No Measurements were required. For the level of fundamental frequency please refer to section 4.1.1.

1GHz – 10GHz

Chamberlain
 Model: PIRV
 TX Mid Channel 915MHz
 4xAA
 Red=Horizontal Green=Vertical

Test No.	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1	1831.663	21.56 pk	3.61	26.8	51.97	60	54	-	-	-	-
		Height:150	Horz	Margin [dB]		-8.03	-2.03	-	-	-	-
2	4576.577	67.85 pk	-52.48	27.7	43.07	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-16.93	-10.93	-	-	-	-
3	5493.493	75.41 pk	-50.23	28.1	53.28	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-6.72	-7.72	-	-	-	-
4	6410.41	65.28 pk	-48	29.2	46.48	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-13.52	-7.52	-	-	-	-
5	7327.327	62.47 pk	-46.39	30.7	46.78	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-13.22	-7.22	-	-	-	-
6	1831.663	20.59 pk	3.61	26.8	51	60	54	-	-	-	-
		Height:102	Vert	Margin [dB]		-9	-3	-	-	-	-
7	3663.327	23.42 pk	5.52	23.4	52.34	60	54	-	-	-	-
		Height:150	Vert	Margin [dB]		-7.66	-1.66	-	-	-	-
8	4576.577	66.64 pk	-52.48	27.7	41.86	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-18.14	-12.14	-	-	-	-
9	5493.493	77.25 pk	-50.23	28.1	55.12	60	54	-	-	-	-
		Height:150	Vert	Margin [dB]		-4.88	1.12	-	-	-	-
10	6410.41	64.06 pk	-48	29.2	45.26	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-14.74	-8.74	-	-	-	-
11	7327.327	67.91 pk	-46.39	30.7	52.22	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-7.78	-1.78	-	-	-	-

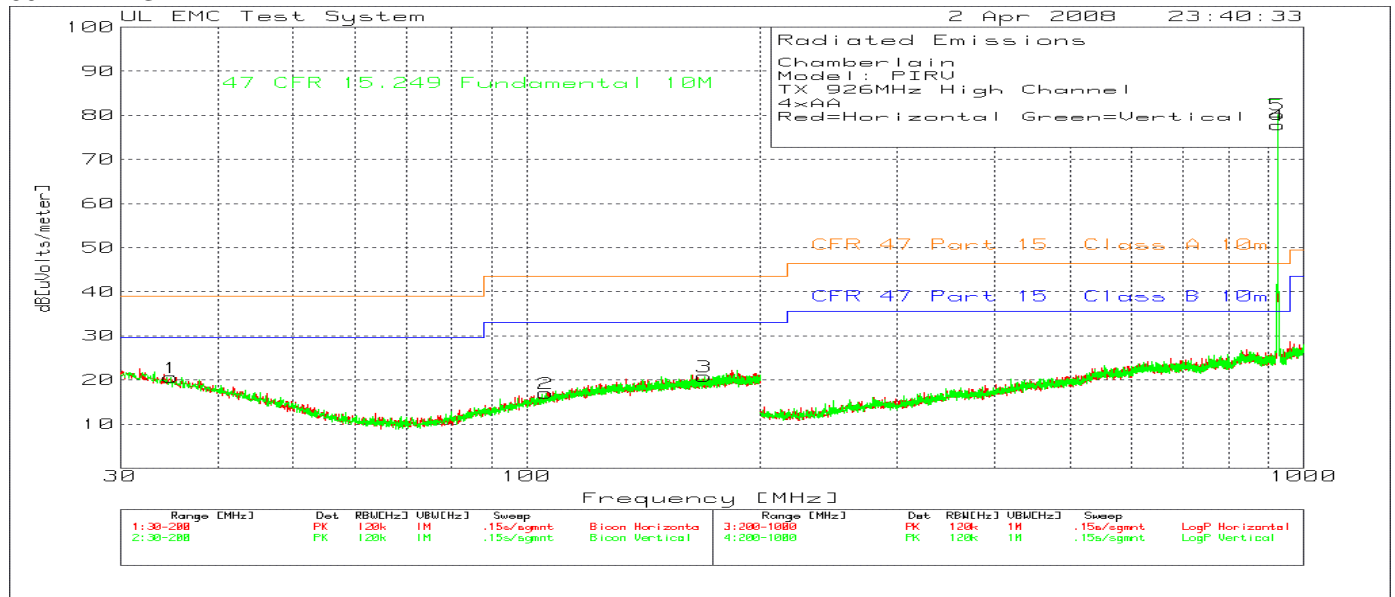
Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1831.6042	78.84 pk	-53.79	26.8	51.85	60	54	-	-	-	-
	Azimuth: 157	Height:189	Horz	Margin [dB]:		-8.15	-2.15	-	-	-
1831.496	77.09 av	-53.79	26.8	50.1	60	54	-	-	-	-
	Azimuth: 157	Height:189	Horz	Margin [dB]:		-9.9	-3.9	-	-	-
1831.2495	80.35 pk	-53.79	26.8	53.36	60	54	-	-	-	-
	Azimuth: 140	Height:100	Vert	Margin [dB]:		-6.64	-6.64	-	-	-
1831.49	78.93 av	-53.79	26.8	51.94	60	54	-	-	-	-
	Azimuth: 140	Height:100	Vert	Margin [dB]:		-8.06	-2.06	-	-	-
3663.0441	30.44 pk	5.52	23.4	59.36	60	54	-	-	-	-
	Azimuth: 331	Height:126	Vert	Margin [dB]:		-6.64	5.36	-	-	-
3662.9279	24.84 av	5.53	23.4	53.77	60	54	-	-	-	-
	Azimuth: 331	Height:132	Vert	Margin [dB]:		-6.23	-2.23	-	-	-
5493.7034	75.69 pk	-50.23	28.1	53.56	60	54	-	-	-	-
	Azimuth: 47	Height:108	Horz	Margin [dB]:		-6.44	-4.44	-	-	-
5494.3747	72.2 av	-50.23	28.1	50.07	60	54	-	-	-	-
	Azimuth: 40	Height:100	Horz	Margin [dB]:		-9.93	-3.93	-	-	-
5494.1042	78.77 pk	-50.23	28.1	56.64	60	54	-	-	-	-
	Azimuth: 318	Height:114	Vert	Margin [dB]:		-3.36	2.64	-	-	-
5494.3727	75.58 av	-50.23	28.1	53.45	60	54	-	-	-	-
	Azimuth: 318	Height:114	Vert	Margin [dB]:		-6.55	-5.55	-	-	-
7324.987	69.47 pk	-46.39	30.6	53.68	60	54	-	-	-	-
	Azimuth: 168	Height:109	Vert	Margin [dB]:		-6.32	-3.32	-	-	-
7325.8046	63.73 av	-46.39	30.6	47.94	60	54	-	-	-	-
	Azimuth: 168	Height:109	Vert	Margin [dB]:		-12.06	-6.06	-	-	-

LIMIT 1: 47 CFR Part 15, Class A
 LIMIT 2: CFR 47 Part 15 Class B 3m

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector

4.1.5 Radiated Emissions – High Channel Spurious Emissions

Figure 5 Radiated Spurious Emissions Graphs
30MHz – 1GHz



1GHz – 10GHz

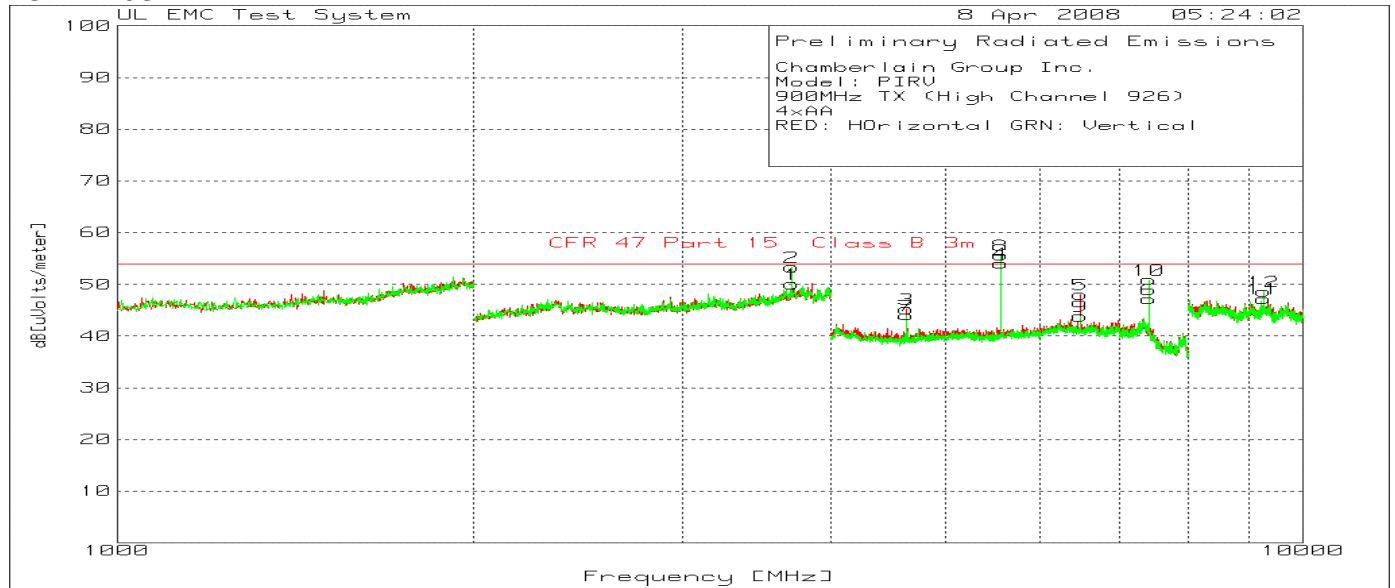


Table 7 Radiated Spurious Emissions Data Points

30MHz – 1GHz

Chamberlain
 Model: PIRV
 TX 926MHz High Channel
 4xAA
 Red=Horizontal Green=Vertical

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1	34.8426	34.9 pk	-30.3	16	20.6	0	39.1	29.6	-	-	-
	Azimuth:243	Height:100	Vert	Margin [dB]		20.6	-18.5	-9	-	-	-
2	105.7821	35.5 pk	-30	11.5	17	0	43.5	33.1	-	-	-
	Azimuth:168	Height:100	Vert	Margin [dB]		17	-26.5	-16.1	-	-	-
3	169.3303	35.6 pk	-30	15.2	20.8	0	43.5	33.1	-	-	-
	Azimuth:84	Height:100	Vert	Margin [dB]		20.8	-22.7	-12.3	-	-	-
4	925.9161	86.8 pk	-31.8	22.8	77.8	83.5	46.4	35.6	-	-	-
	Azimuth:228	Height:100	Horz	Margin [dB]		-5.7	31.4	42.2	-	-	-
5	925.9161	89.2 pk	-31.8	22.8	80.2	83.5	46.4	35.6	-	-	-
	Azimuth:117	Height:201	Vert	Margin [dB]		-3.3	33.8	44.6	-	-	-

LIMIT 1: 47 CFR 15.249 Fundamental 10M
 LIMIT 2: CFR 47 Part 15 Class A 10m
 LIMIT 3: CFR 47 Part 15 Class B 10m

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector

Only Fundamental Frequency Detected - No Measurements were required. For the level of fundamental frequency please refer to section 4.1.1.

1GHz – 10GHz

Chamberlain Group Inc.
 Model: PIRV
 900MHz TX (High Channel 926)
 4xAA
 RED: HOrizontal GRN: Vertical

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1	3707.708	20.82 pk	5.75	23.5	50.07	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-3.93	-	-	-	-	-
3	4632.422	69.85 pk	-52.32	27.7	45.23	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-8.77	-	-	-	-	-
4	5561.041	76.25 pk	-50.52	28.3	54.03	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		.03	-	-	-	-	-
5	6489.66	67.21 pk	-48.27	29.1	48.04	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-5.96	-	-	-	-	-
6	7415.61	63.55 pk	-47.43	31	47.12	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-6.88	-	-	-	-	-
11	9261.261	60.13 pk	-49.33	36.4	47.2	54	-	-	-	-	-
		Height:100	Horz	Margin [dB]		-6.8	-	-	-	-	-
2	3707.708	24.07 pk	5.75	23.5	53.32	54	-	-	-	-	-
		Height:150	Vert	Margin [dB]		-6.68	-	-	-	-	-
7	4632.422	68.64 pk	-52.32	27.7	44.02	54	-	-	-	-	-
		Height:150	Vert	Margin [dB]		-9.98	-	-	-	-	-
8	5561.041	77.85 pk	-50.52	28.3	55.63	54	-	-	-	-	-
		Height:150	Vert	Margin [dB]		1.63	-	-	-	-	-
9	6486.991	63.05 pk	-48.32	29.1	43.83	54	-	-	-	-	-
		Height:101	Vert	Margin [dB]		-10.17	-	-	-	-	-
10	7415.61	67.29 pk	-47.43	31	50.86	54	-	-	-	-	-
		Height:101	Vert	Margin [dB]		-3.14	-	-	-	-	-
12	9269.269	61.59 pk	-49.37	36.4	48.62	54	-	-	-	-	-
		Height:150	Vert	Margin [dB]		-5.38	-	-	-	-	-

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
3707.4058	74.39 pk	-49.53	23.5	48.36	54	-	-	-	-	-
	Azimuth: 117	Height:106	Horz	Margin [dB]:	-5.64	-	-	-	-	-
3707.1774	71.51 av	-49.52	23.5	45.49	54	-	-	-	-	-
	Azimuth: 117	Height:106	Horz	Margin [dB]:	-8.51	-	-	-	-	-
3706.6122	30.63 pk	5.74	23.5	59.87	54	-	-	-	-	-
	Azimuth: 350	Height:145	Vert	Margin [dB]:	5.87	-	-	-	-	-
3707.1774	23.32 av	5.75	23.5	52.57	54	-	-	-	-	-
	Azimuth: 350	Height:140	Vert	Margin [dB]:	-1.43	-	-	-	-	-
5560.3096	75.49 pk	-50.53	28.3	53.26	54	-	-	-	-	-
	Azimuth: 67	Height:102	Horz	Margin [dB]:	-.74	-	-	-	-	-
5560.7365	71.91 av	-50.52	28.3	49.69	54	-	-	-	-	-
	Azimuth: 67	Height:102	Horz	Margin [dB]:	-4.31	-	-	-	-	-
5560.989	78.99 pk	-50.52	28.3	56.77	54	-	-	-	-	-
	Azimuth: 332	Height:136	Vert	Margin [dB]:	2.77	-	-	-	-	-
5560.7425	75.62 av	-50.52	28.3	53.4	54	-	-	-	-	-
	Azimuth: 332	Height:136	Vert	Margin [dB]:	-.6	-	-	-	-	-
6487.1974	66.71 pk	-48.32	29.1	47.49	60	54	-	-	-	-
	Azimuth: 213	Height:100	Horz	Margin [dB]:	-12.51	-6.51	-	-	-	-
6487.5822	60.53 av	-48.32	29.1	41.31	60	54	-	-	-	-
	Azimuth: 213	Height:100	Horz	Margin [dB]:	-18.69	-12.69	-	-	-	-
7414.7705	69.08 pk	-47.46	31	52.62	54	-	-	-	-	-
	Azimuth: 0	Height:116	Vert	Margin [dB]:	-1.38	-	-	-	-	-
7414.2535	63.46 av	-47.45	31	47.01	54	-	-	-	-	-
	Azimuth: 0	Height:116	Vert	Margin [dB]:	-6.99	-	-	-	-	-
9267.3998	65.84 pk	-49.38	36.4	52.86	60	54	-	-	-	-
	Azimuth: 174	Height:100	Vert	Margin [dB]:	-7.14	-1.14	-	-	-	-
9267.3898	56.56 av	-49.38	36.4	43.58	60	54	-	-	-	-
	Azimuth: 174	Height:100	Vert	Margin [dB]:	-16.42	-10.42	-	-	-	-

LIMIT 1: CFR 47 Part 15 Class B 3m

pk - Peak detector
 qp - Quasi-Peak detector
 av - Average detector

4.1.6 Radiated Emissions – Standby / Receive Mode

Figure 6 Radiated Emissions Graph

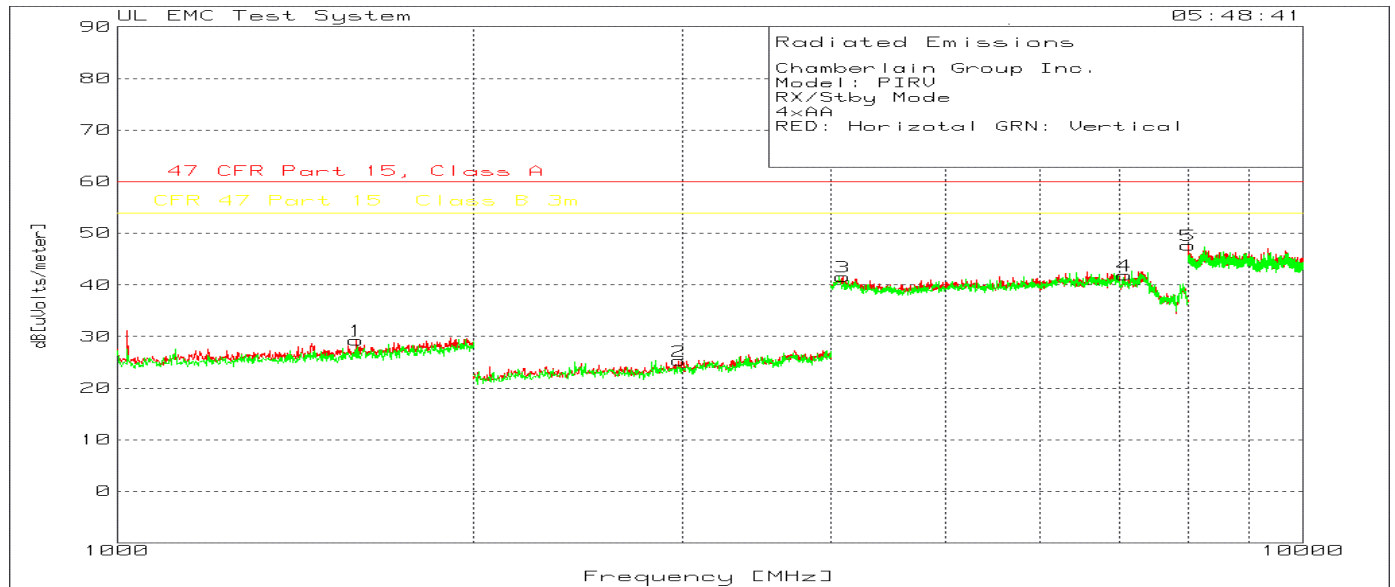
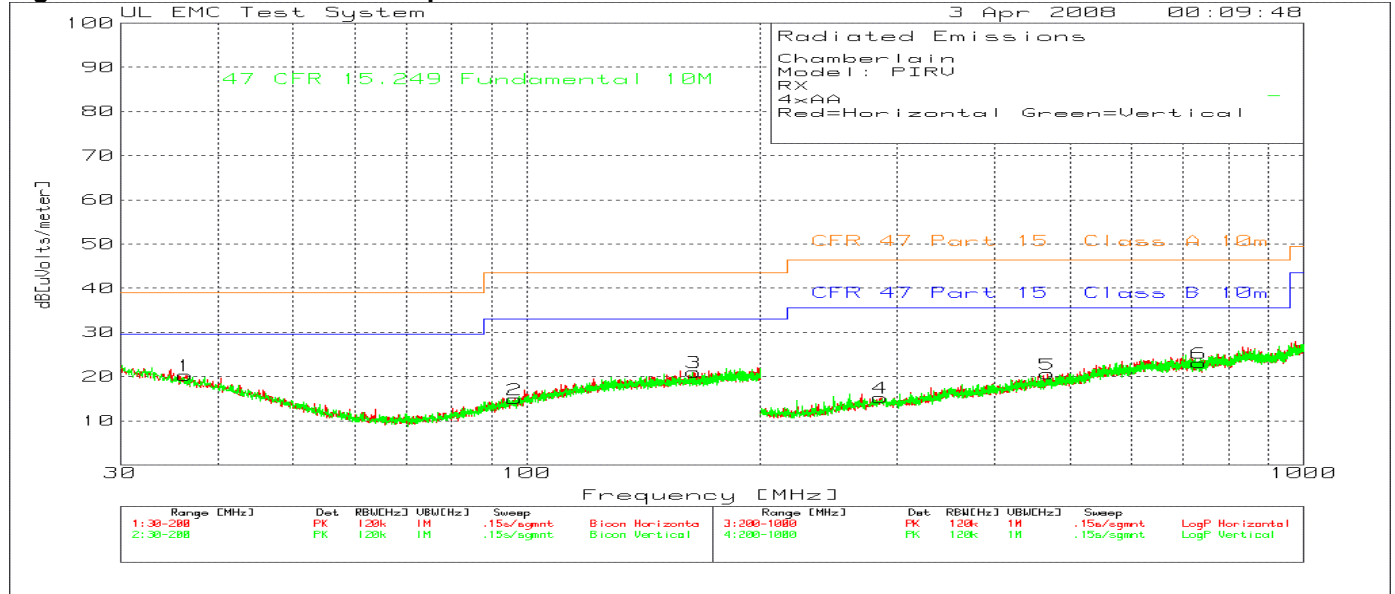


Table 8 Radiated Emissions Data Points

Chamberlain
 Model: PIRV
 RX
 4xAA
 Red=Horizontal Green=Vertical

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1	36.3718	35.2 pk	-30.3	15.4	20.3	0	39.1	29.6	-	-	-
	Azimuth:11	Height:100	Horz	Margin [dB]		20.3	-18.8	-9.3	-	-	-
2	96.3518	34.9 pk	-30.1	10.1	14.9	0	43.5	33.1	-	-	-
	Azimuth:239	Height:100	Horz	Margin [dB]		14.9	-28.6	-18.2	-	-	-
3	164.3178	35.9 pk	-30	15.1	21	0	43.5	33.1	-	-	-
	Azimuth:177	Height:100	Horz	Margin [dB]		21	-22.5	-12.1	-	-	-
4	285.01	35 pk	-33	13.2	15.2	0	46.4	35.6	-	-	-
	Azimuth:168	Height:103	Horz	Margin [dB]		15.2	-31.2	-20.4	-	-	-
5	468.3544	35.5 pk	-31.9	17	20.6	0	46.4	35.6	-	-	-
	Azimuth:284	Height:103	Horz	Margin [dB]		20.6	-25.8	-15	-	-	-
6	733.7775	34.4 pk	-31.4	20.1	23.1	0	46.4	35.6	-	-	-
	Azimuth:358	Height:103	Horz	Margin [dB]		23.1	-23.3	-12.5	-	-	-

LIMIT 1: 47 CFR 15.249 Fundamental 10M
 LIMIT 2: CFR 47 Part 15 Class A 10m
 LIMIT 3: CFR 47 Part 15 Class B 10m

No emissions close to the limit were detected therefore final measurements were considered not required.

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1	1591.182	57.79 pk	-54.36	25.8	29.23	60	54	-	-	-	-
	Height:100	Horz	Margin [dB]			-30.77	-24.77	-	-	-	-
2	2977.956	53.25 pk	-50.48	22.5	25.27	60	54	-	-	-	-
	Height:200	Horz	Margin [dB]			-34.73	-28.73	-	-	-	-
3	4092.092	64.33 pk	-51.18	28.4	41.55	60	54	-	-	-	-
	Height:100	Horz	Margin [dB]			-18.45	-12.45	-	-	-	-
4	7071.071	59.35 pk	-46.9	29.4	41.85	60	54	-	-	-	-
	Height:200	Horz	Margin [dB]			-18.15	-12.15	-	-	-	-
5	8008.005	59.32 pk	-47.78	36.1	47.64	60	54	-	-	-	-
	Height:200	Horz	Margin [dB]			-12.36	-6.36	-	-	-	-

LIMIT 1: 47 CFR Part 15, Class A
 LIMIT 2: CFR 47 Part 15 Class B 3m

No emissions close to the limit were detected therefore final measurements were considered not required.

4.2 Test Conditions and Results – Occupied Bandwidth / 99% Bandwidth

Test Description	Measurements were made in the laboratory environment. A Dipole (or equivalent) antenna tuned to the transmit frequency was attached to the input of a spectrum analyzer. The device was operated and the spectrum analyzer resolution bandwidth set per the appropriate standard.		
Basic Standard	47 CFR Part 15.215 (c) RSS-Gen Section 4.6		
Occupied Bandwidth / 99% Bandwidth Measurement			
The 20dB down measurement must fit in the allocated band.			

Table 9 Occupied Bandwidth / 99% Bandwidth Configuration Settings

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

Table 10 Occupied Bandwidth / 99% Bandwidth Spectrum Analyzer Settings

Resolution Bandwidth (MHz)	Occupied Bandwidth Requirements	
	dBc	%
0.01	-20	99
Supplementary information: None		

Table 11 Occupied Bandwidth / 99% Bandwidth Test Equipment

Test Equipment Used			
Description	Manufacturer	Model	Identifier
Spectrum Analyzer	Agilent	E7405A	EMC4242
Near Filed Probe	EMCO	-	-

Table 12 Occupied Bandwidth / 99% BW Measurement Results

Measurement	Low Channel	Middle Channel	High Channel	Low Channel -20dB Frequency	High Channel -20dB Frequency
20dB Bandwidth	480.0kHz	478.1kHz	476.3kHz	903.03370MHz	927.0163MHz
99% Bandwidth	1.787MHz	1.468MHz	1.080MHz	N/A	N/A

Figure 7 Test Setup for Occupied Bandwidth



Figure 8 20dB Bandwidth Graph

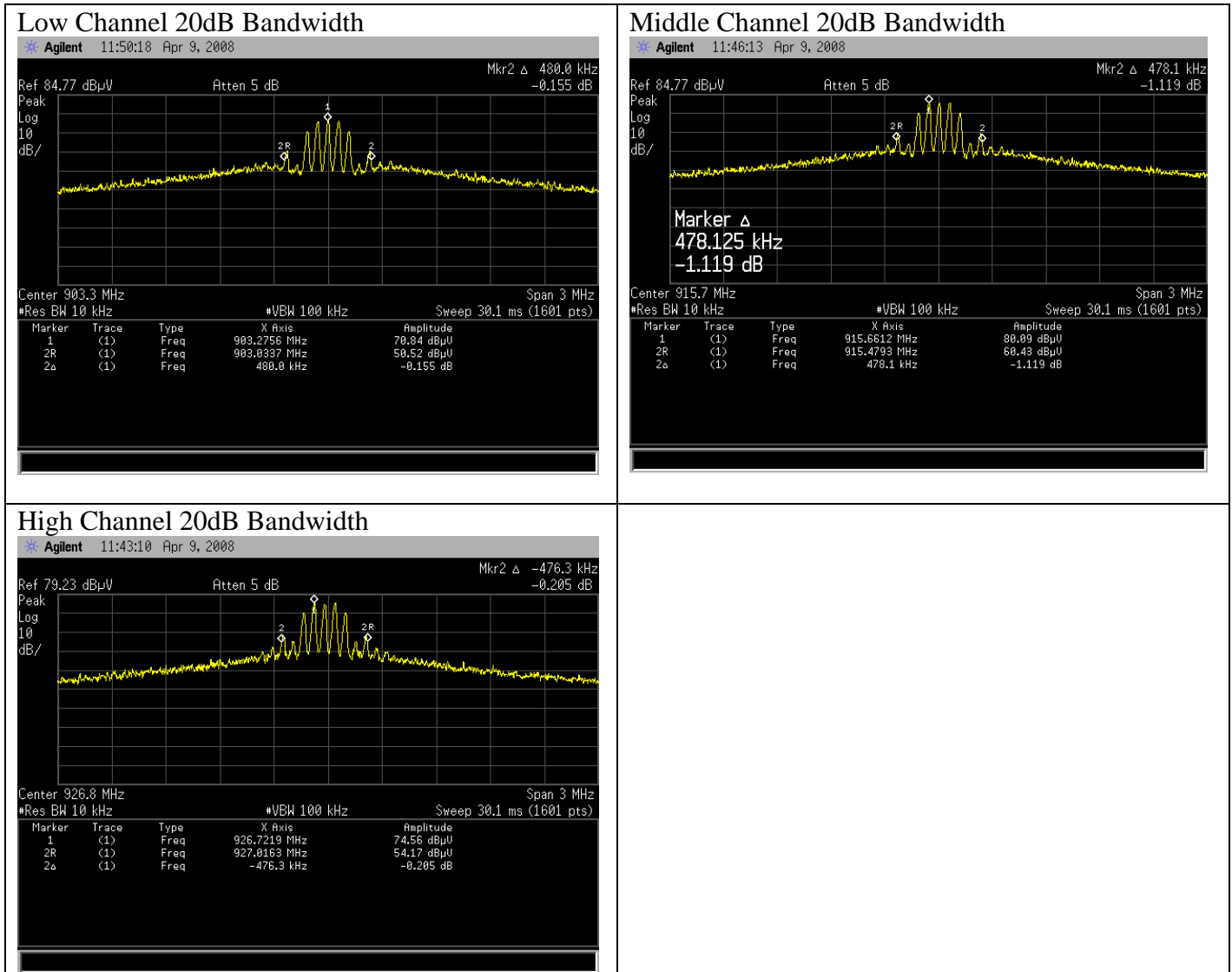
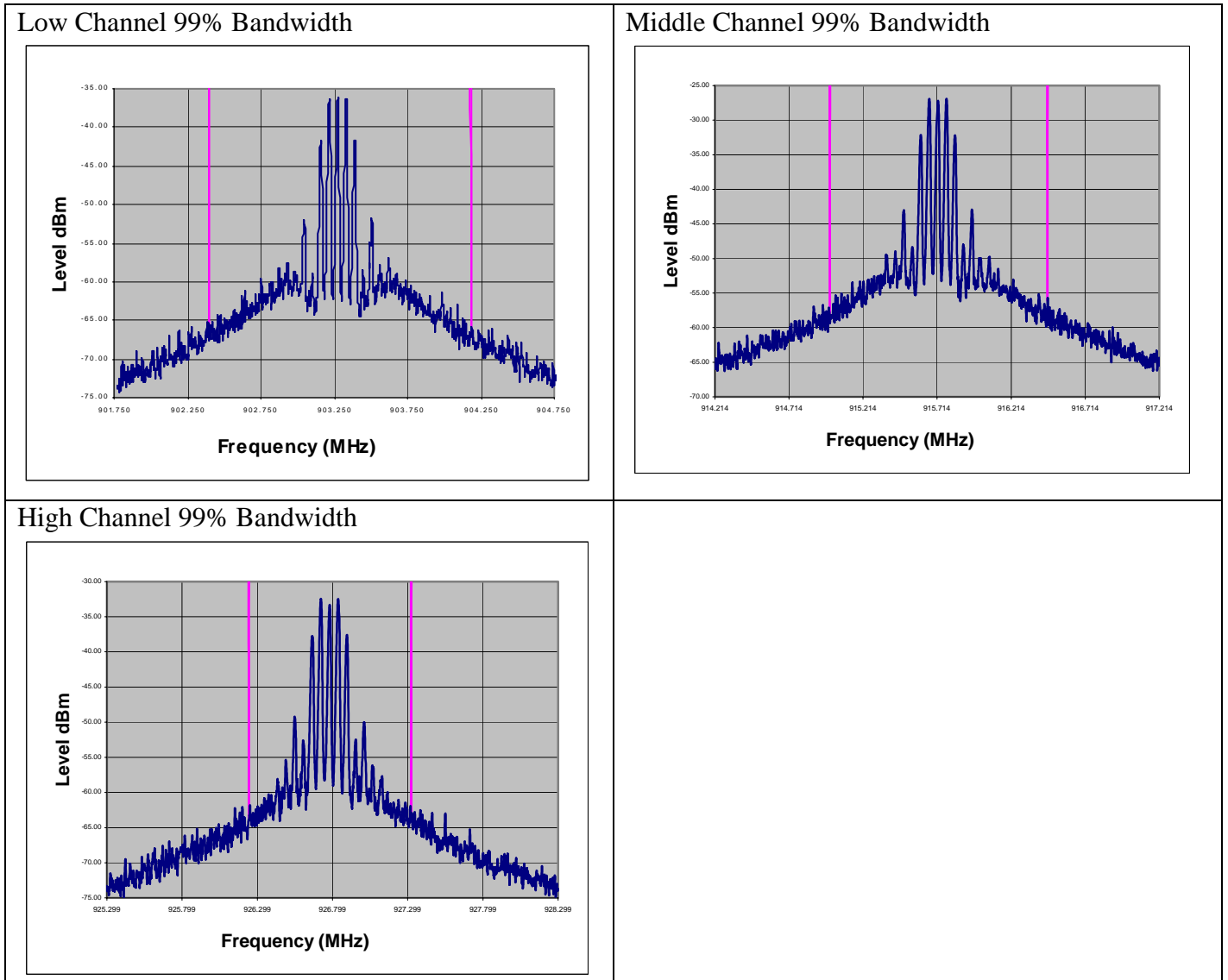


Figure 9 99% Bandwidth Graph



Job #: 960863 File #: MC15343 Project #: 08CA17835
Model Number: PIRV400R
Client Name: Chamberlain Group Inc.

Page 28 of 30
FCC ID: JLFPIR2

5 IMMUNITY TEST RESULTS

Immunity testing was not requested nor required.

Appendix A

Accreditations and Authorizations



NVLAP Lab code: 100414-0

NVLAP: Recognized under the National Voluntary Laboratory Accreditation Program (NVLAP) for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC EN17025 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. For a full scope listing see <http://ts.nist.gov/ts/htdocs/210/214/scopes/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