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Job Number:	960865
Project Number:	08CA17845
File Number:	MC15343
Date:	April 11, 2008
Model:	OTIU

## 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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quality service for over 100 years**

Tel: (847) 272-8800

Job #: 954541    File #: MC15343    Project #: 08CA17845  
Model Number:    OTIU  
Client Name:      Chamberlain Group Inc.

Page    2 of 44  
FCC ID: JLFTIU1

## 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 11, 2008**

Product Type:                    **Low Power Transmitter**

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

Model Number:                   **OTIU**

EUT Category:                    **Low Power Transmitter**

Testing Start Date:               **March 31, 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.

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Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
None			

**1.0 GENERAL - Product Description**

**1.1 Equipment Description**

The Equipment Under Test (EUT) is a Wireless Telephone Interface Unit.

**1.2 Device Configuration During Test**

**1.2.1 Equipment Used During Test:**

Use	Product Type	Manufacturer	Model	Comments
EUT	Wireless Phone Interface Unit	Chamberlain Group Inc.	OTIU	None
AE	Analog Phone	SAKAR	KT1100CL	None
SIM	Phone Line Voltage Simulator	Chamberlain Group Inc.	-	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
2	Phone Line Input	TP	Y	N	Phone line simulator was provided for testing
3	Phone Line Output	TP	Y	N	Analog Phone Connected

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	120Vac	-	-	60Hz	Single Phase	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

**2.0 Summary**

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

**2.1 Deviations from standard test methods**

None

**2.2 Device Modifications Necessary for Compliance**

None


**2.3 Reference Standards**

Standard Number	Standard Name	Standard Date
FCC Part 15, Subpart C, 15.249	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	Compliant
Radiated Emissions	Compliant
Bandwidth Measurements	Compliant

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.

### 3.0 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
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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 – 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.	
Basic Standard	FCC Part 15, Subpart C, 15.207 RSS-Gen, Section 7.2.2	
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
<b>Limits - Class B</b>		
Frequency (MHz)	Limit (dB $\mu$ V)	
	Quasi-Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50
Supplementary information: None		

**Table 1 Conducted Emissions EUT Configuration Settings**

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

**Table 2 Conducted Emissions Test Equipment**

Description	Manufacturer	Model	Identifier
Spectrum Analyzer / Preselector	Advantest	R3361D / R3551	EMC4259
Transient Limiter	Electro-Metrics	EM7600-2	EMC4224
LISN - L1	Solar	8602-50-TS-50-N	EMC4052
LISN - L2	Solar	8602-50-TS-50-N	EMC4064

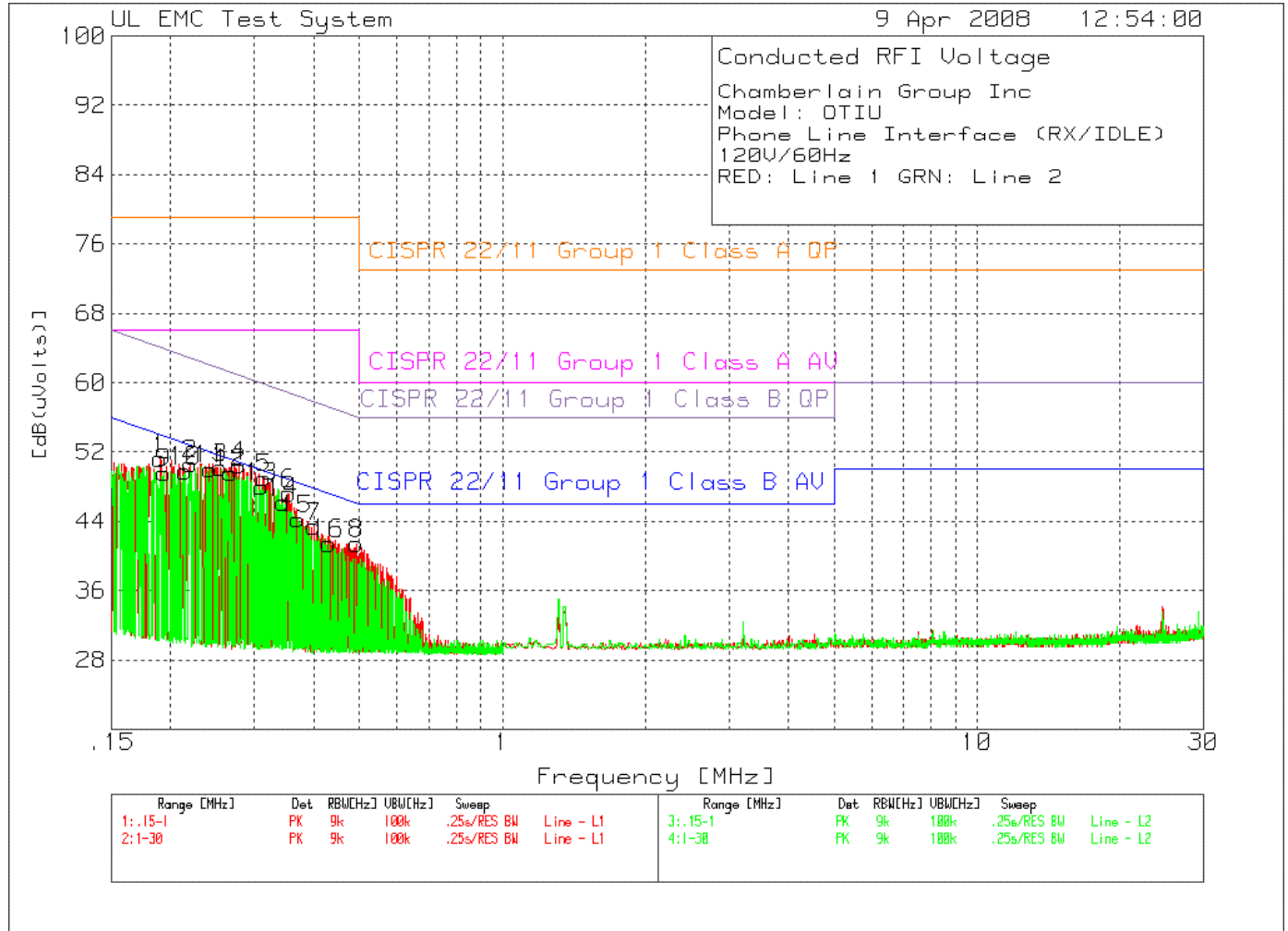


**Figure 1 Test Setup for Conducted Emissions**



4.1.1 Conducted Emissions Standby / Receive Mode

Figure 2 Conducted Emissions Graph



**Table 3 Conducted Emissions Data Points**

Chamberlain Group Inc  
 Model: OTIU  
 Phone Line Interface (RX/IDLE)  
 120V/60Hz  
 RED: Line 1 GRN: Line 2

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
=====											
Line											
1	.19003	39.9 pk	10.1	1.2	51.2	79	66	64	54	-	-
				Margin [dB]		-27.8	-14.8	-12.8	-2.8	-	-
2	.22036	39.5 pk	10.1	1	50.6	79	66	62.8	52.8	-	-
				Margin [dB]		-28.4	-15.4	-12.2	-2.2	-	-
3	.25473	39.3 pk	10.1	.8	50.2	79	66	61.6	51.6	-	-
				Margin [dB]		-28.8	-15.8	-11.4	-1.4	-	-
4	.27799	39.6 pk	10.1	.7	50.4	79	66	60.9	50.9	-	-
				Margin [dB]		-28.6	-15.6	-10.5	-.5	-	-
5	.31377	38.3 pk	10.1	.6	49	79	66	59.9	49.9	-	-
				Margin [dB]		-30	-17	-10.9	-.9	-	-
6	.35441	36.6 pk	10.1	.5	47.2	79	66	58.9	48.9	-	-
				Margin [dB]		-31.8	-18.8	-11.7	-1.7	-	-
7	.39991	32.9 pk	10.1	.4	43.4	79	66	57.9	47.9	-	-
				Margin [dB]		-35.6	-22.6	-14.5	-4.5	-	-
8	.4917	31 pk	10.1	.3	41.4	79	66	56.1	46.1	-	-
				Margin [dB]		-37.6	-24.6	-14.7	-4.7	-	-
Neutral											
9	.19397	38.2 pk	10.1	1.3	49.6	79	66	63.9	53.9	-	-
				Margin [dB]		-29.4	-16.4	-14.3	-4.3	-	-
10	.21444	38.6 pk	10.1	1.1	49.8	79	66	63	53	-	-
				Margin [dB]		-29.2	-16.2	-13.2	-3.2	-	-
11	.24219	39 pk	10.1	.9	50	79	66	62	52	-	-
				Margin [dB]		-29	-16	-12	-2	-	-
12	.2672	38.7 pk	10.1	.8	49.6	79	66	61.2	51.2	-	-
				Margin [dB]		-29.4	-16.4	-11.6	-1.6	-	-
13	.31042	37.3 pk	10.1	.6	48	79	66	60	50	-	-
				Margin [dB]		-31	-18	-12	-2	-	-
14	.34499	35.7 pk	10	.5	46.2	79	66	59.1	49.1	-	-
				Margin [dB]		-32.8	-19.8	-12.9	-2.9	-	-
15	.3697	33.7 pk	10	.5	44.2	79	66	58.5	48.5	-	-
				Margin [dB]		-34.8	-21.8	-14.3	-4.3	-	-
16	.43035	31 pk	10	.4	41.4	79	66	57.2	47.2	-	-
				Margin [dB]		-37.6	-24.6	-15.8	-5.8	-	-

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

pk - Peak detector  
 qp - Quasi-Peak detector

Chamberlain Group Inc  
 Model: OTIU  
 Phone Line Interface (RX/IDLE)  
 120V/60Hz  
 RED: Line 1 GRN: Line 2

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
=====										
Line										
.19122	32.57 qp	10.1	1.2	43.87	79	66	64	54	-	-
			Margin [dB]:		-35.13	-22.13	-20.13	-10.13	-	-
.2244	32.5 qp	10.1	.9	43.5	79	66	62.7	52.7	-	-
			Margin [dB]:		-35.5	-22.5	-19.2	-9.2	-	-
.25327	32.37 qp	10.1	.8	43.27	79	66	61.6	51.6	-	-
			Margin [dB]:		-35.73	-22.73	-18.33	-8.33	-	-
.27637	32.05 qp	10.1	.7	42.85	79	66	60.9	50.9	-	-
			Margin [dB]:		-36.15	-23.15	-18.05	-8.05	-	-
.3067	31.4 qp	10.1	.6	42.1	79	66	60.1	50.1	-	-
			Margin [dB]:		-36.9	-23.9	-18	-8	-	-
.35115	28.2 qp	10.1	.5	38.8	79	66	58.9	48.9	-	-
			Margin [dB]:		-40.2	-27.2	-20.1	-10.1	-	-
.39208	24.92 qp	10.1	.4	35.42	79	66	58	48	-	-
			Margin [dB]:		-43.58	-30.58	-22.58	-12.58	-	-
.49966	22.07 qp	10.1	.3	32.47	79	66	56	46	-	-
			Margin [dB]:		-46.53	-33.53	-23.53	-13.53	-	-
Neutral										
.19624	32.4 qp	10.1	1.2	43.7	79	66	63.8	53.8	-	-
			Margin [dB]:		-35.3	-22.3	-20.1	-10.1	-	-
.21659	32.27 qp	10.1	1.1	43.47	79	66	62.9	52.9	-	-
			Margin [dB]:		-35.53	-22.53	-19.43	-9.43	-	-
.24562	32.3 qp	10.1	.9	43.3	79	66	61.9	51.9	-	-
			Margin [dB]:		-35.7	-22.7	-18.6	-8.6	-	-
.2664	31.97 qp	10.1	.8	42.87	79	66	61.2	51.2	-	-
			Margin [dB]:		-36.13	-23.13	-18.33	-8.33	-	-
.31227	30.25 qp	10.1	.6	40.95	79	66	59.9	49.9	-	-
			Margin [dB]:		-38.05	-25.05	-18.95	-8.95	-	-
.33995	28.3 qp	10	.6	38.9	79	66	59.2	49.2	-	-
			Margin [dB]:		-40.1	-27.1	-20.3	-10.3	-	-
.36386	26.05 qp	10	.5	36.55	79	66	58.6	48.6	-	-
			Margin [dB]:		-42.45	-29.45	-22.05	-12.05	-	-
.42543	22.75 qp	10	.4	33.15	79	66	57.3	47.3	-	-
			Margin [dB]:		-45.85	-32.85	-24.15	-14.15	-	-

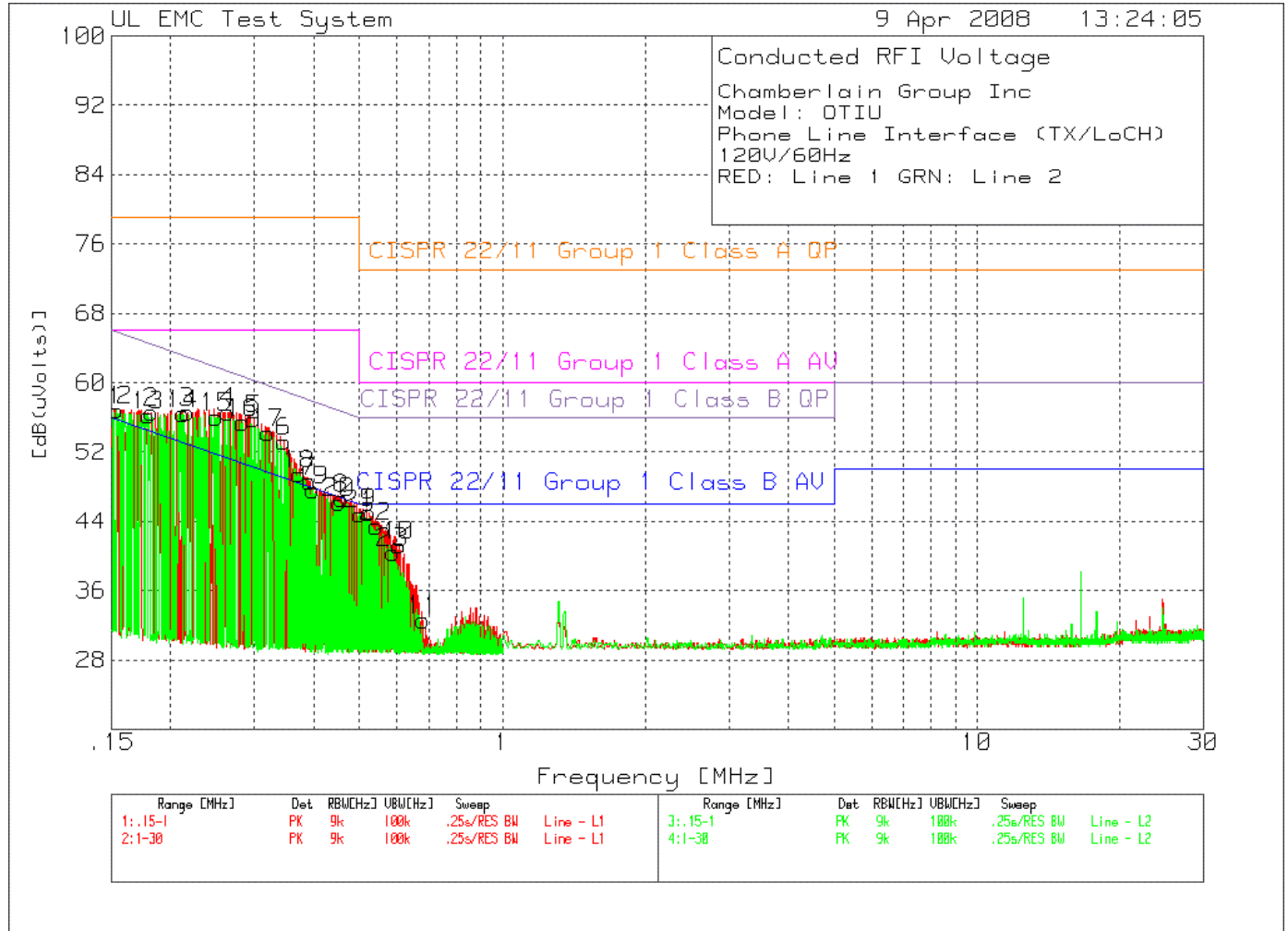
NOTE: "+" - Indicates an emission level in excess of the applicable limit (s).

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

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

4.1.2 Conducted Emissions – Transmit Mode – Low Channel

Figure 3 Conducted Emissions Graph



**Table 4 Conducted Emissions Data Points**

Chamberlain Group Inc  
 Model: OTIU  
 Phone Line Interface (TX/LoCH)  
 120V/60Hz  
 RED: Line 1 GRN: Line 2

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
=====											
Line											
1	.15364	45 pk	10.1	1.7	56.8	79	66	65.8	55.8	-	-
				Margin [dB]		-22.2	-9.2	-9	1	-	-
2	.18215	45.2 pk	10.1	1.3	56.6	79	66	64.4	54.4	-	-
				Margin [dB]		-22.4	-9.4	-7.8	2.2	-	-
3	.21692	45.5 pk	10.1	1	56.6	79	66	62.9	52.9	-	-
				Margin [dB]		-22.4	-9.4	-6.3	3.7	-	-
4	.26383	45.8 pk	10.1	.7	56.6	79	66	61.3	51.3	-	-
				Margin [dB]		-22.4	-9.4	-4.7	5.3	-	-
5	.29901	45.1 pk	10.1	.6	55.8	79	66	60.3	50.3	-	-
				Margin [dB]		-23.2	-10.2	-4.5	5.5	-	-
6	.34592	42.6 pk	10.1	.5	53.2	79	66	59.1	49.1	-	-
				Margin [dB]		-25.8	-12.8	-5.9	4.1	-	-
7	.39242	38.1 pk	10.1	.4	48.6	79	66	58	48	-	-
				Margin [dB]		-30.4	-17.4	-9.4	.6	-	-
8	.45834	36.2 pk	10.1	.3	46.6	79	66	56.7	46.7	-	-
				Margin [dB]		-32.4	-19.4	-10.1	-1	-	-
9	.52263	34.6 pk	10.1	.3	45	73	60	56	46	-	-
				Margin [dB]		-28	-15	-11	-1	-	-
10	.60472	30.8 pk	10.1	.3	41.2	73	60	56	46	-	-
				Margin [dB]		-31.8	-18.8	-14.8	-4.8	-	-
11	.68074	22.3 pk	10.1	.2	32.6	73	60	56	46	-	-
				Margin [dB]		-40.4	-27.4	-23.4	-13.4	-	-
=====											
Neutral											
12	.15364	44.9 pk	10.1	1.8	56.8	79	66	65.8	55.8	-	-
				Margin [dB]		-22.2	-9.2	-9	1	-	-
13	.17942	44.7 pk	10.1	1.4	56.2	79	66	64.5	54.5	-	-
				Margin [dB]		-22.8	-9.8	-8.3	1.7	-	-
14	.21232	45.2 pk	10.1	1.1	56.4	79	66	63.1	53.1	-	-
				Margin [dB]		-22.6	-9.6	-6.7	3.3	-	-
15	.24947	45 pk	10.1	.9	56	79	66	61.8	51.8	-	-
				Margin [dB]		-23	-10	-5.8	4.2	-	-
16	.28328	44.6 pk	10.1	.7	55.4	79	66	60.7	50.7	-	-
				Margin [dB]		-23.6	-10.6	-5.3	4.7	-	-
17	.32073	43.5 pk	10.1	.6	54.2	79	66	59.7	49.7	-	-
				Margin [dB]		-24.8	-11.8	-5.5	4.5	-	-
18	.37258	38.9 pk	10	.5	49.4	79	66	58.4	48.4	-	-
				Margin [dB]		-29.6	-16.6	-9	1	-	-
19	.39897	37.2 pk	10	.4	47.6	79	66	57.9	47.9	-	-
				Margin [dB]		-31.4	-18.4	-10.3	-3	-	-
20	.45264	35.8 pk	10	.4	46.2	79	66	56.8	46.8	-	-
				Margin [dB]		-32.8	-19.8	-10.6	-6	-	-
21	.50101	34.5 pk	10	.3	44.8	73	60	56	46	-	-
				Margin [dB]		-28.2	-15.2	-11.2	-1.2	-	-
22	.54195	33.1 pk	10	.3	43.4	73	60	56	46	-	-
				Margin [dB]		-29.6	-16.6	-12.6	-2.6	-	-
23	.58789	30.1 pk	10	.3	40.4	73	60	56	46	-	-
				Margin [dB]		-32.6	-19.6	-15.6	-5.6	-	-

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

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

Chamberlain Group Inc  
 Model: OTIU  
 Phone Line Interface (TX/LoCH)  
 120V/60Hz  
 RED: Line 1 GRN: Line 2

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line .16515	38.67 qp	10.1	1.5	50.27	79	66	65.2	55.2	-	-
			Margin [dB]:		-28.73	-15.73	-14.93	-4.93	-	-
.18929	38.85 qp	10.1	1.2	50.15	79	66	64.1	54.1	-	-
			Margin [dB]:		-28.85	-15.85	-13.95	-3.95	-	-
.22148	38.85 qp	10.1	1	49.95	79	66	62.8	52.8	-	-
			Margin [dB]:		-29.05	-16.05	-12.85	-2.85	-	-
.25737	38.57 qp	10.1	.8	49.47	79	66	61.5	51.5	-	-
			Margin [dB]:		-29.53	-16.53	-12.03	-2.03	-	-
.29123	37.9 qp	10.1	.6	48.6	79	66	60.5	50.5	-	-
			Margin [dB]:		-30.4	-17.4	-11.9	-1.9	-	-
.3383	35.22 qp	10.1	.5	45.82	79	66	59.2	49.2	-	-
			Margin [dB]:		-33.18	-20.18	-13.38	-3.38	-	-
.38594	30.4 qp	10.1	.4	40.9	79	66	58.2	48.2	-	-
			Margin [dB]:		-38.1	-25.1	-17.3	-7.3	-	-
.45049	28.97 qp	10.1	.4	39.47	79	66	56.9	46.9	-	-
			Margin [dB]:		-39.53	-26.53	-17.43	-7.43	-	-
.51579	27.1 qp	10.1	.3	37.5	73	60	56	46	-	-
			Margin [dB]:		-35.5	-22.5	-18.5	-8.5	-	-
.59826	22.17 qp	10.1	.3	32.57	73	60	56	46	-	-
			Margin [dB]:		-40.43	-27.43	-23.43	-13.43	-	-
.67914	9.62 qp	10.1	.2	19.92	73	60	56	46	-	-
			Margin [dB]:		-53.08	-40.08	-36.08	-26.08	-	-
Neutral .1571	38.52 qp	10.1	1.8	50.42	79	66	65.6	55.6	-	-
			Margin [dB]:		-28.58	-15.58	-15.18	-5.18	-	-
.18111	38.57 qp	10.1	1.4	50.07	79	66	64.4	54.4	-	-
			Margin [dB]:		-28.93	-15.93	-14.33	-4.33	-	-
.21053	38.6 qp	10.1	1.1	49.8	79	66	63.2	53.2	-	-
			Margin [dB]:		-29.2	-16.2	-13.4	-3.4	-	-
.25011	38.42 qp	10.1	.9	49.42	79	66	61.8	51.8	-	-
			Margin [dB]:		-29.58	-16.58	-12.38	-2.38	-	-
.2785	37.72 qp	10.1	.7	48.52	79	66	60.9	50.9	-	-
			Margin [dB]:		-30.48	-17.48	-12.38	-2.38	-	-
.31507	36.07 qp	10.1	.6	46.77	79	66	59.8	49.8	-	-
			Margin [dB]:		-32.23	-19.23	-13.03	-3.03	-	-
.36661	31.2 qp	10	.5	41.7	79	66	58.6	48.6	-	-
			Margin [dB]:		-37.3	-24.3	-16.9	-6.9	-	-
.39425	29.22 qp	10	.5	39.72	79	66	58	48	-	-
			Margin [dB]:		-39.28	-26.28	-18.28	-8.28	-	-
.45113	27.92 qp	10	.4	38.32	79	66	56.9	46.9	-	-
			Margin [dB]:		-40.68	-27.68	-18.58	-8.58	-	-
.49844	26.32 qp	10	.3	36.62	79	66	56	46	-	-
			Margin [dB]:		-42.38	-29.38	-19.38	-9.38	-	-
.5376	24.52 qp	10	.3	34.82	73	60	56	46	-	-
			Margin [dB]:		-38.18	-25.18	-21.18	-11.18	-	-
.58176	21.95 qp	10	.3	32.25	73	60	56	46	-	-
			Margin [dB]:		-40.75	-27.75	-23.75	-13.75	-	-

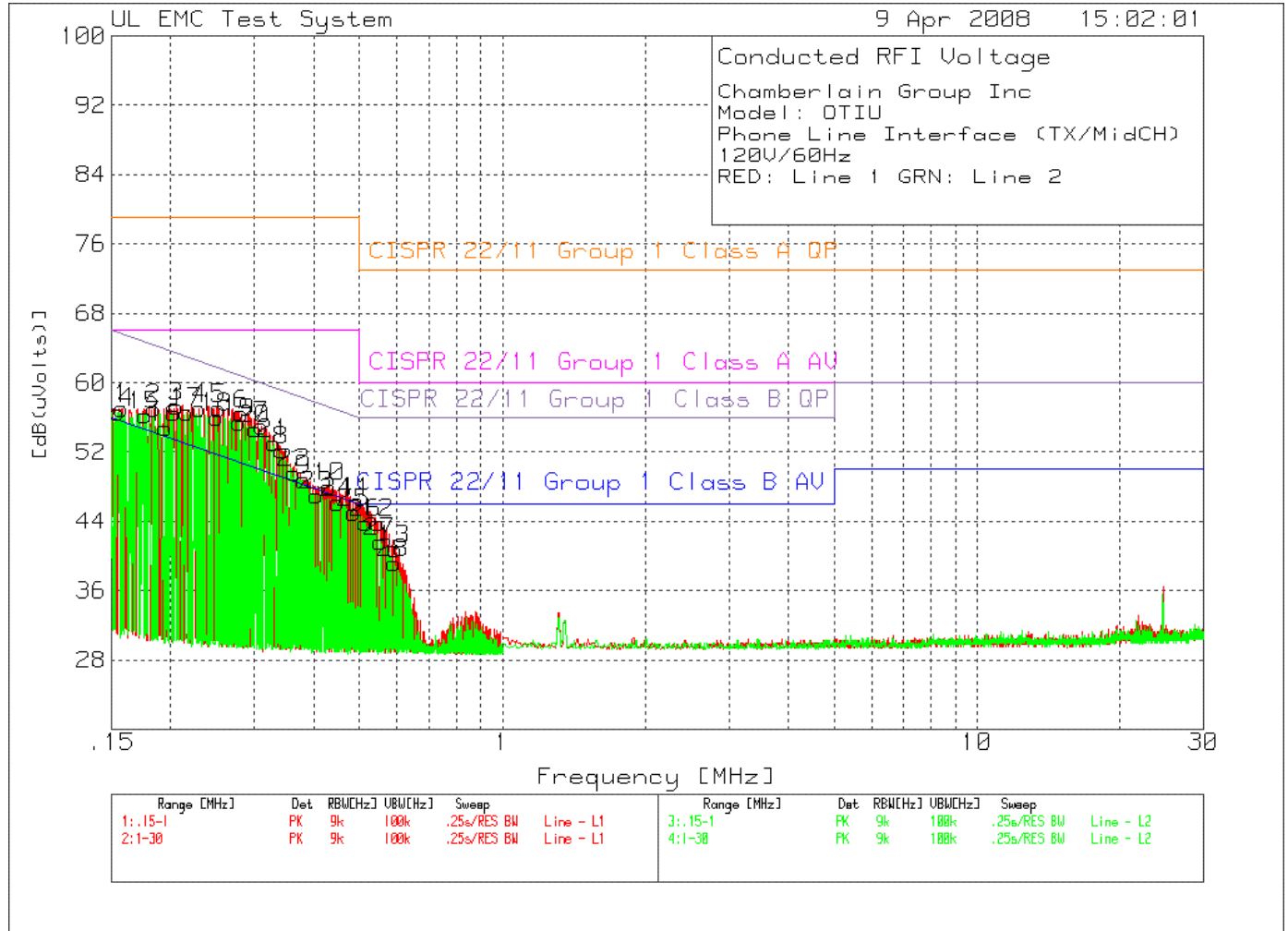
NOTE: "+" - Indicates an emission level in excess of the applicable limit (s).

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

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

4.1.3 Conducted Emissions – Transmit Mode – Middle Channel

Figure 4 Conducted Emissions Graph





**Table 5 Conducted Emissions Data Points**

Chamberlain Group Inc  
 Model: OTIU  
 Phone Line Interface (TX/MidCH)  
 120V/60Hz  
 RED: Line 1 GRN: Line 2

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line											
1	.15789	45.3 pk	10.1	1.6	57	79	66	65.6	55.6	-	-
				Margin [dB]		-22	-9	-8.6	1.4	-	-
2	.18437	45.6 pk	10.1	1.3	57	79	66	64.3	54.3	-	-
				Margin [dB]		-22	-9	-7.3	2.7	-	-
3	.2054	46 pk	10.1	1.1	57.2	79	66	63.4	53.4	-	-
				Margin [dB]		-21.8	-8.8	-6.2	3.8	-	-
4	.23007	46 pk	10.1	.9	57	79	66	62.4	52.4	-	-
				Margin [dB]		-22	-9	-5.4	4.6	-	-
5	.25251	46.1 pk	10.1	.8	57	79	66	61.7	51.7	-	-
				Margin [dB]		-22	-9	-4.7	5.3	-	-
6	.28162	45.6 pk	10.1	.7	56.4	79	66	60.8	50.8	-	-
				Margin [dB]		-22.6	-9.6	-4.4	5.6	-	-
7	.31074	44.3 pk	10.1	.6	55	79	66	60	50	-	-
				Margin [dB]		-24	-11	-5	5	-	-
8	.34289	41.6 pk	10.1	.5	52.2	79	66	59.1	49.1	-	-
				Margin [dB]		-26.8	-13.8	-6.9	3.1	-	-
9	.3811	38.3 pk	10.1	.4	48.8	79	66	58.3	48.3	-	-
				Margin [dB]		-30.2	-17.2	-9.5	.5	-	-
10	.43226	37.5 pk	10.1	.4	48	79	66	57.2	47.2	-	-
				Margin [dB]		-31	-18	-9.2	.8	-	-
11	.4921	35.8 pk	10.1	.3	46.2	79	66	56.1	46.1	-	-
				Margin [dB]		-32.8	-19.8	-9.9	.1	-	-
12	.5473	33.4 pk	10.1	.3	43.8	73	60	56	46	-	-
				Margin [dB]		-29.2	-16.2	-12.2	-2.2	-	-
13	.5934	30.4 pk	10.1	.3	40.8	73	60	56	46	-	-
				Margin [dB]		-32.2	-19.2	-15.2	-5.2	-	-
Neutral											
14	.155	44.7 pk	10.1	1.8	56.6	79	66	65.7	55.7	-	-
				Margin [dB]		-22.4	-9.4	-9.1	.9	-	-
15	.17623	44.6 pk	10.1	1.5	56.2	79	66	64.7	54.7	-	-
				Margin [dB]		-22.8	-9.8	-8.5	1.5	-	-
16	.19488	43.4 pk	10.1	1.3	54.8	79	66	63.8	53.8	-	-
				Margin [dB]		-24.2	-11.2	-9	1	-	-
17	.21611	45.4 pk	10.1	1.1	56.6	79	66	63	53	-	-
				Margin [dB]		-22.4	-9.4	-6.4	3.6	-	-
18	.25007	45 pk	10.1	.9	56	79	66	61.8	51.8	-	-
				Margin [dB]		-23	-10	-5.8	4.2	-	-
19	.27858	44.6 pk	10.1	.7	55.4	79	66	60.9	50.9	-	-
				Margin [dB]		-23.6	-10.6	-5.5	4.5	-	-
20	.30087	43.9 pk	10.1	.6	54.6	79	66	60.2	50.2	-	-
				Margin [dB]		-24.4	-11.4	-5.6	4.4	-	-
21	.32998	42.4 pk	10	.6	53	79	66	59.5	49.5	-	-
				Margin [dB]		-26	-13	-6.5	3.5	-	-
22	.36379	39.1 pk	10	.5	49.6	79	66	58.6	48.6	-	-
				Margin [dB]		-29.4	-16.4	-9	1	-	-
23	.40564	36.6 pk	10	.4	47	79	66	57.7	47.7	-	-
				Margin [dB]		-32	-19	-10.7	-7	-	-
24	.44946	35.8 pk	10	.4	46.2	79	66	56.9	46.9	-	-
				Margin [dB]		-32.8	-19.8	-10.7	-7	-	-
25	.4863	34.6 pk	10	.4	45	79	66	56.2	46.2	-	-
				Margin [dB]		-34	-21	-11.2	-1.2	-	-
26	.51481	33.5 pk	10	.3	43.8	73	60	56	46	-	-
				Margin [dB]		-29.2	-16.2	-12.2	-2.2	-	-
27	.55195	31.3 pk	10	.3	41.6	73	60	56	46	-	-
				Margin [dB]		-31.4	-18.4	-14.4	-4.4	-	-
28	.59016	28.9 pk	10	.3	39.2	73	60	56	46	-	-
				Margin [dB]		-33.8	-20.8	-16.8	-6.8	-	-

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

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

Chamberlain Group Inc  
 Model: OTIU  
 Phone Line Interface (TX/MidCH)  
 120V/60Hz  
 RED: Line 1 GRN: Line 2

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line .15901	38.72 qp	10.1	1.6	50.42	79	66	65.5	55.5	-	-
			Margin [dB]:		-28.58	-15.58	-15.08	-5.08	-	-
.19208	38.82 qp	10.1	1.2	50.12	79	66	63.9	53.9	-	-
			Margin [dB]:		-28.88	-15.88	-13.78	-3.78	-	-
.20723	38.87 qp	10.1	1.1	50.07	79	66	63.3	53.3	-	-
			Margin [dB]:		-28.93	-15.93	-13.23	-3.23	-	-
.2365	38.85 qp	10.1	.9	49.85	79	66	62.2	52.2	-	-
			Margin [dB]:		-29.15	-16.15	-12.35	-2.35	-	-
.25351	38.7 qp	10.1	.8	49.6	79	66	61.6	51.6	-	-
			Margin [dB]:		-29.4	-16.4	-12	-2	-	-
.2774	38.27 qp	10.1	.7	49.07	79	66	60.9	50.9	-	-
			Margin [dB]:		-29.93	-16.93	-11.83	-1.83	-	-
.30463	37.6 qp	10.1	.6	48.3	79	66	60.1	50.1	-	-
			Margin [dB]:		-30.7	-17.7	-11.8	-1.8	-	-
.33525	35.17 qp	10.1	.5	45.77	79	66	59.3	49.3	-	-
			Margin [dB]:		-33.23	-20.23	-13.53	-3.53	-	-
.37373	31.07 qp	10.1	.4	41.57	79	66	58.4	48.4	-	-
			Margin [dB]:		-37.43	-24.43	-16.83	-6.83	-	-
.42651	29.62 qp	10.1	.4	40.12	79	66	57.3	47.3	-	-
			Margin [dB]:		-38.88	-25.88	-17.18	-7.18	-	-
.48485	28.45 qp	10.1	.3	38.85	79	66	56.3	46.3	-	-
			Margin [dB]:		-40.15	-27.15	-17.45	-7.45	-	-
.5421	25.9 qp	10.1	.3	36.3	73	60	56	46	-	-
			Margin [dB]:		-36.7	-23.7	-19.7	-9.7	-	-
.58651	22.95 qp	10.1	.3	33.35	73	60	56	46	-	-
			Margin [dB]:		-39.65	-26.65	-22.65	-12.65	-	-
Neutral .15787	38.62 qp	10.1	1.8	50.52	79	66	65.6	55.6	-	-
			Margin [dB]:		-28.48	-15.48	-15.08	-5.08	-	-
.17951	38.62 qp	10.1	1.4	50.12	79	66	64.5	54.5	-	-
			Margin [dB]:		-28.88	-15.88	-14.38	-4.38	-	-
.19777	38.65 qp	10.1	1.2	49.95	79	66	63.7	53.7	-	-
			Margin [dB]:		-29.05	-16.05	-13.75	-3.75	-	-
.22012	38.65 qp	10.1	1	49.75	79	66	62.8	52.8	-	-
			Margin [dB]:		-29.25	-16.25	-13.05	-3.05	-	-
.24678	38.55 qp	10.1	.9	49.55	79	66	61.9	51.9	-	-
			Margin [dB]:		-29.45	-16.45	-12.35	-2.35	-	-
.27274	37.92 qp	10.1	.7	48.72	79	66	61	51	-	-
			Margin [dB]:		-30.28	-17.28	-12.28	-2.28	-	-
.29499	36.97 qp	10.1	.7	47.77	79	66	60.4	50.4	-	-
			Margin [dB]:		-31.23	-18.23	-12.63	-2.63	-	-
.32432	35.27 qp	10.1	.6	45.97	79	66	59.6	49.6	-	-
			Margin [dB]:		-33.03	-20.03	-13.63	-3.63	-	-
.35939	31.6 qp	10	.5	42.1	79	66	58.7	48.7	-	-
			Margin [dB]:		-36.9	-23.9	-16.6	-6.6	-	-
.40136	28.95 qp	10	.4	39.35	79	66	57.8	47.8	-	-
			Margin [dB]:		-39.65	-26.65	-18.45	-8.45	-	-
.44417	28 qp	10	.4	38.4	79	66	57	47	-	-
			Margin [dB]:		-40.6	-27.6	-18.6	-8.6	-	-
.48143	26.85 qp	10	.4	37.25	79	66	56.3	46.3	-	-
			Margin [dB]:		-41.75	-28.75	-19.05	-9.05	-	-
.50886	25.75 qp	10	.3	36.05	73	60	56	46	-	-
			Margin [dB]:		-36.95	-23.95	-19.95	-9.95	-	-
.54822	23.8 qp	10	.3	34.1	73	60	56	46	-	-
			Margin [dB]:		-38.9	-25.9	-21.9	-11.9	-	-
.58725	21.22 qp	10	.3	31.52	73	60	56	46	-	-
			Margin [dB]:		-41.48	-28.48	-24.48	-14.48	-	-

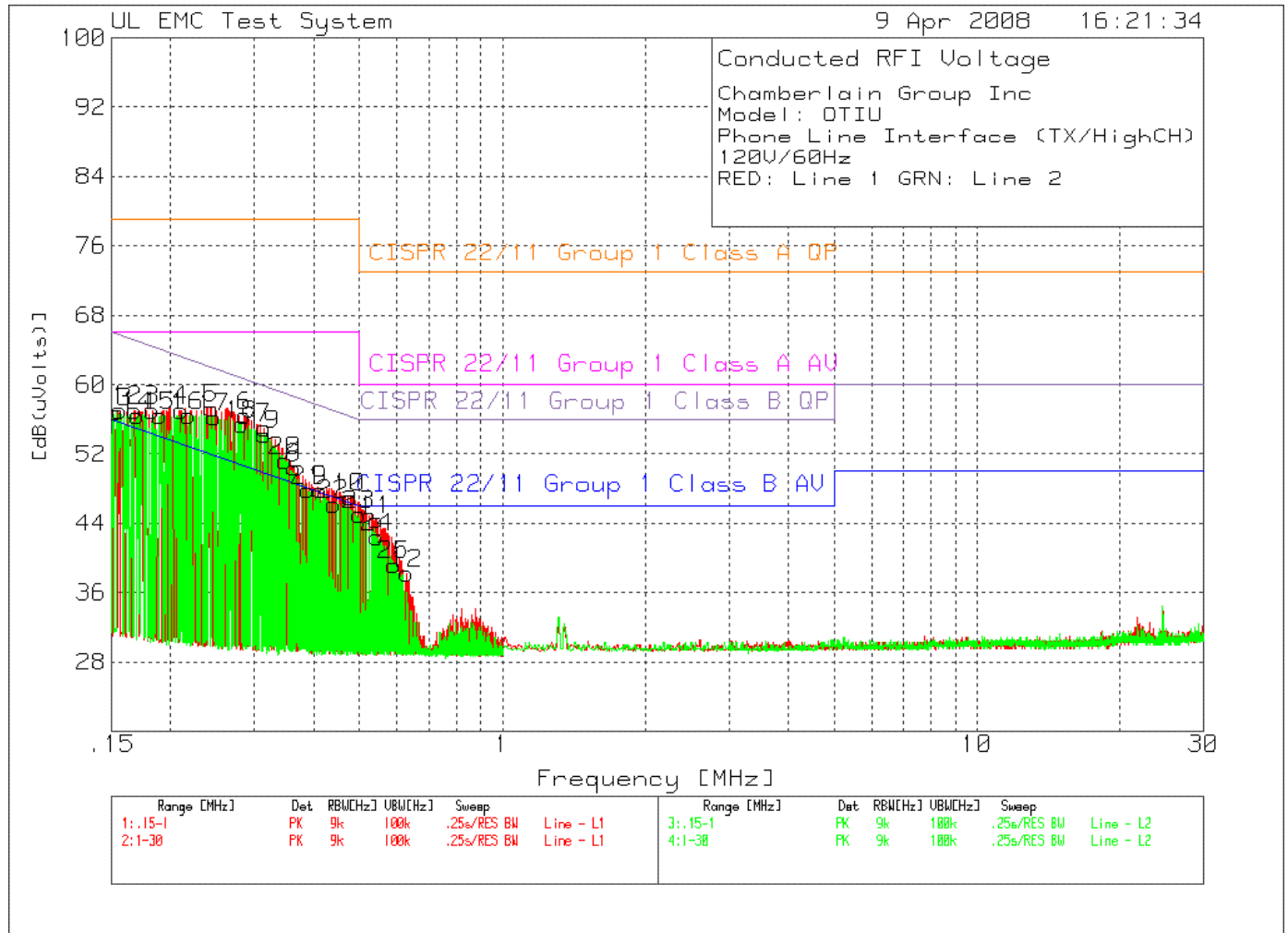
NOTE: "+" - Indicates an emission level in excess of the applicable limit (s).

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

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

4.1.4 Conducted Emissions – Transmit Mode – High Channel

Figure 5 Conducted Emissions Graph



**Table 6 Conducted Emissions Data Points**

Chamberlain Group Inc  
 Model: OTIU  
 Phone Line Interface (TX/HighCH)  
 120V/60Hz  
 RED: Line 1 GRN: Line 2

No.	Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
=====											
Line											
1	.15627	45.3 pk	10.1	1.6	57	79	66	65.7	55.7	-	-
				Margin [dB]							
2	.16799	45.4 pk	10.1	1.5	57	79	66	65.1	55.1	-	-
				Margin [dB]							
3	.18296	45.6 pk	10.1	1.3	57	79	66	64.4	54.4	-	-
				Margin [dB]							
4	.21066	45.9 pk	10.1	1	57	79	66	63.2	53.2	-	-
				Margin [dB]							
5	.24382	46.3 pk	10.1	.8	57.2	79	66	62	52	-	-
				Margin [dB]							
6	.28628	45.7 pk	10.1	.6	56.4	79	66	60.6	50.6	-	-
				Margin [dB]							
7	.31499	44.3 pk	10.1	.6	55	79	66	59.8	49.8	-	-
				Margin [dB]							
8	.36432	39.8 pk	10.1	.5	50.4	79	66	58.6	48.6	-	-
				Margin [dB]							
9	.41386	37.3 pk	10.1	.4	47.8	79	66	57.6	47.6	-	-
				Margin [dB]							
10	.47694	36.6 pk	10.1	.3	47	79	66	56.4	46.4	-	-
				Margin [dB]							
11	.54164	34 pk	10.1	.3	44.4	73	60	56	46	-	-
				Margin [dB]							
12	.62818	27.9 pk	10.1	.2	38.2	73	60	56	46	-	-
				Margin [dB]							
=====											
Neutral											
13	.15364	44.9 pk	10.1	1.8	56.8	79	66	65.8	55.8	-	-
				Margin [dB]							
14	.17032	44.7 pk	10.1	1.6	56.4	79	66	64.9	54.9	-	-
				Margin [dB]							
15	.18973	45 pk	10.1	1.3	56.4	79	66	64	54	-	-
				Margin [dB]							
16	.21808	45.2 pk	10.1	1.1	56.4	79	66	62.9	52.9	-	-
				Margin [dB]							
17	.24719	45.2 pk	10.1	.9	56.2	79	66	61.9	51.9	-	-
				Margin [dB]							
18	.28282	44.6 pk	10.1	.7	55.4	79	66	60.7	50.7	-	-
				Margin [dB]							
19	.31481	43.5 pk	10.1	.6	54.2	79	66	59.8	49.8	-	-
				Margin [dB]							
20	.34832	40.7 pk	10	.5	51.2	79	66	59	49	-	-
				Margin [dB]							
21	.3882	37.3 pk	10	.5	47.8	79	66	58.1	48.1	-	-
				Margin [dB]							
22	.44066	35.8 pk	10	.4	46.2	79	66	57	47	-	-
				Margin [dB]							
23	.49904	34.7 pk	10	.3	45	79	66	56	46	-	-
				Margin [dB]							
24	.54422	32.1 pk	10	.3	42.4	73	60	56	46	-	-
				Margin [dB]							
25	.59047	28.9 pk	10	.3	39.2	73	60	56	46	-	-
				Margin [dB]							

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

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

Chamberlain Group Inc  
 Model: OTIU  
 Phone Line Interface (TX/HighCH)  
 120V/60Hz  
 RED: Line 1 GRN: Line 2

Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level [dB(uVolts)]	Limit:1	2	3	4	5	6
Line .15778	38.47 qp	10.1	1.6	50.17	79	66	65.6	55.6	-	-
			Margin [dB]:		-28.83	-15.83	-15.43	-5.43	-	-
.17415	38.6 qp	10.1	1.4	50.1	79	66	64.8	54.8	-	-
			Margin [dB]:		-28.9	-15.9	-14.7	-4.7	-	-
.18713	38.62 qp	10.1	1.2	49.92	79	66	64.2	54.2	-	-
			Margin [dB]:		-29.08	-16.08	-14.28	-4.28	-	-
.21607	38.65 qp	10.1	1	49.75	79	66	63	53	-	-
			Margin [dB]:		-29.25	-16.25	-13.25	-3.25	-	-
.24612	38.55 qp	10.1	.8	49.45	79	66	61.9	51.9	-	-
			Margin [dB]:		-29.55	-16.55	-12.45	-2.45	-	-
.27907	38 qp	10.1	.7	48.8	79	66	60.8	50.8	-	-
			Margin [dB]:		-30.2	-17.2	-12	-2	-	-
.30888	37.27 qp	10.1	.6	47.97	79	66	60	50	-	-
			Margin [dB]:		-31.03	-18.03	-12.03	-2.03	-	-
.35652	32.57 qp	10.1	.5	43.17	79	66	58.8	48.8	-	-
			Margin [dB]:		-35.83	-22.83	-15.63	-5.63	-	-
.40927	29.62 qp	10.1	.4	40.12	79	66	57.7	47.7	-	-
			Margin [dB]:		-38.88	-25.88	-17.58	-7.58	-	-
.47162	28.75 qp	10.1	.3	39.15	79	66	56.5	46.5	-	-
			Margin [dB]:		-39.85	-26.85	-17.35	-7.35	-	-
.5353	26.07 qp	10.1	.3	36.47	73	60	56	46	-	-
			Margin [dB]:		-36.53	-23.53	-19.53	-9.53	-	-
.62145	19.42 qp	10.1	.2	29.72	73	60	56	46	-	-
			Margin [dB]:		-43.28	-30.28	-26.28	-16.28	-	-
Neutral .15751	38.37 qp	10.1	1.8	50.27	79	66	65.6	55.6	-	-
			Margin [dB]:		-28.73	-15.73	-15.33	-5.33	-	-
.17501	38.35 qp	10.1	1.5	49.95	79	66	64.7	54.7	-	-
			Margin [dB]:		-29.05	-16.05	-14.75	-4.75	-	-
.19369	38.45 qp	10.1	1.3	49.85	79	66	63.9	53.9	-	-
			Margin [dB]:		-29.15	-16.15	-14.05	-4.05	-	-
.22371	38.45 qp	10.1	1	49.55	79	66	62.7	52.7	-	-
			Margin [dB]:		-29.45	-16.45	-13.15	-3.15	-	-
.24392	38.3 qp	10.1	.9	49.3	79	66	62	52	-	-
			Margin [dB]:		-29.7	-16.7	-12.7	-2.7	-	-
.27843	37.5 qp	10.1	.7	48.3	79	66	60.9	50.9	-	-
			Margin [dB]:		-30.7	-17.7	-12.6	-2.6	-	-
.30902	36.07 qp	10.1	.6	46.77	79	66	60	50	-	-
			Margin [dB]:		-32.23	-19.23	-13.23	-3.23	-	-
.34211	33.37 qp	10	.5	43.87	79	66	59.2	49.2	-	-
			Margin [dB]:		-35.13	-22.13	-15.33	-5.33	-	-
.38264	29.6 qp	10	.5	40.1	79	66	58.2	48.2	-	-
			Margin [dB]:		-38.9	-25.9	-18.1	-8.1	-	-
.43622	27.97 qp	10	.4	38.37	79	66	57.1	47.1	-	-
			Margin [dB]:		-40.63	-27.63	-18.73	-8.73	-	-
.49661	26.1 qp	10	.3	36.4	79	66	56.1	46.1	-	-
			Margin [dB]:		-42.6	-29.6	-19.7	-9.7	-	-
.53978	24 qp	10	.3	34.3	73	60	56	46	-	-
			Margin [dB]:		-38.7	-25.7	-21.7	-11.7	-	-
.58434	21.35 qp	10	.3	31.65	73	60	56	46	-	-
			Margin [dB]:		-41.35	-28.35	-24.35	-14.35	-	-

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

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

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**

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
<b>Limits – 902MHz – 928MHz – Fundamental Frequency</b>		
Frequency (MHz)	Limit (dBµV/m)	
	Quasi-Peak	Average
902 - 928	83.52	NA
<b>Limits – All Other Emissions including Harmonics</b>		
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 7 Radiated Emissions EUT Configuration Settings**

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

**Table 8 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 6 Test setup for Radiated Emissions**



**4.2.1 Radiated Emissions – Filed Strength of the Fundamental Frequency**

**Table 9 Fundamental Frequency Data Points**

Chamberlain Group Inc.  
 Model: OTIU  
 120V/60Hz

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
<b>Low Channel Peak Level</b>										
903.2909	92.06 qp	-31.8	22.5	82.76	83.5	-	-	-	-	-
Azimuth: 345 Height:101 Horz					Margin [dB]:	-0.74	-	-	-	-
903.2931	84.43 qp	-31.8	22.5	75.13	83.5	-	-	-	-	-
Azimuth: 267 Height:164 Vert					Margin [dB]:	-8.37	-	-	-	-
<b>Middle Channel Peak Level</b>										
914.347	87.19 qp	-31.8	22.4	77.79	83.5	-	-	-	-	-
Azimuth: 121 Height:182 Vert					Margin [dB]:	-5.71	-	-	-	-
LogP Vertical 852 - 978MHz										
903.283	89.3 qp	-31.8	22.5	80	83.5	-	-	-	-	-
Azimuth: 36 Height:185 Vert					Margin [dB]:	-3.5	-	-	-	-
<b>High Channel Peak Level</b>										
926.8261	88.7 qp	-31.6	22.8	79.9	83.5	-	-	-	-	-
Azimuth: 244 Height:213 Vert					Margin [dB]:	-3.6	-	-	-	-
926.8251	87.55 qp	-31.6	22.8	78.75	83.5	-	-	-	-	-
Azimuth: 255 Height:302 Horz					Margin [dB]:	-4.75	-	-	-	-

LIMIT 1: 47 CFR 15.249 Fundamental 10M

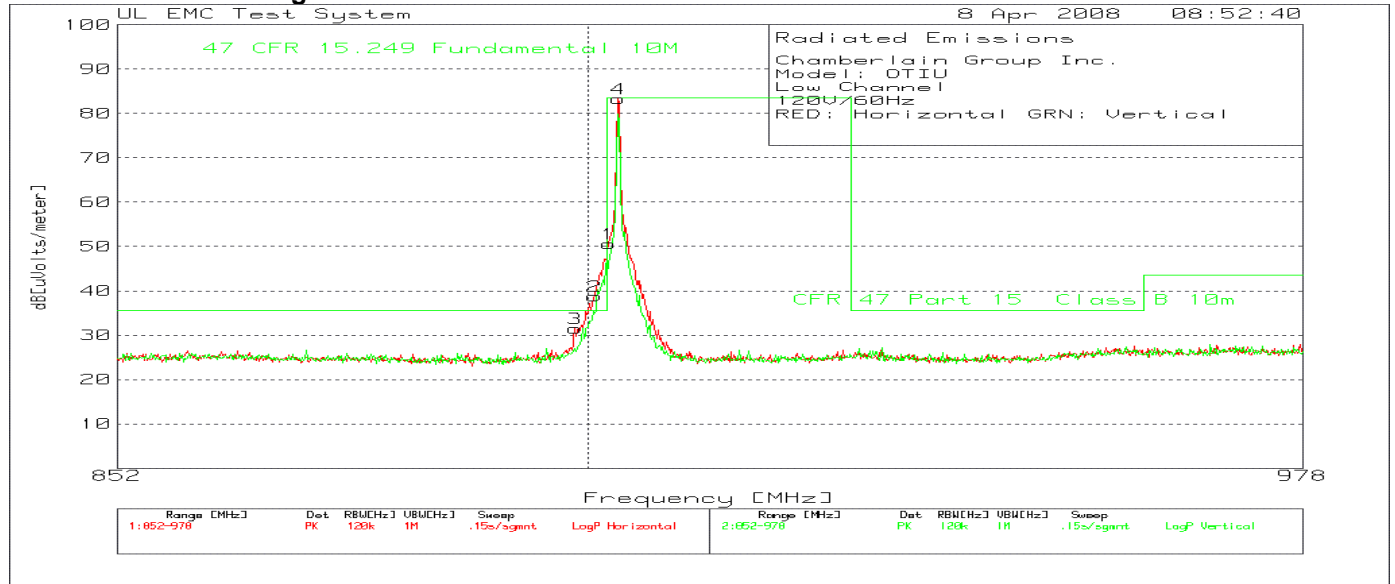
pk - Peak detector  
 qp - Quasi-Peak detector



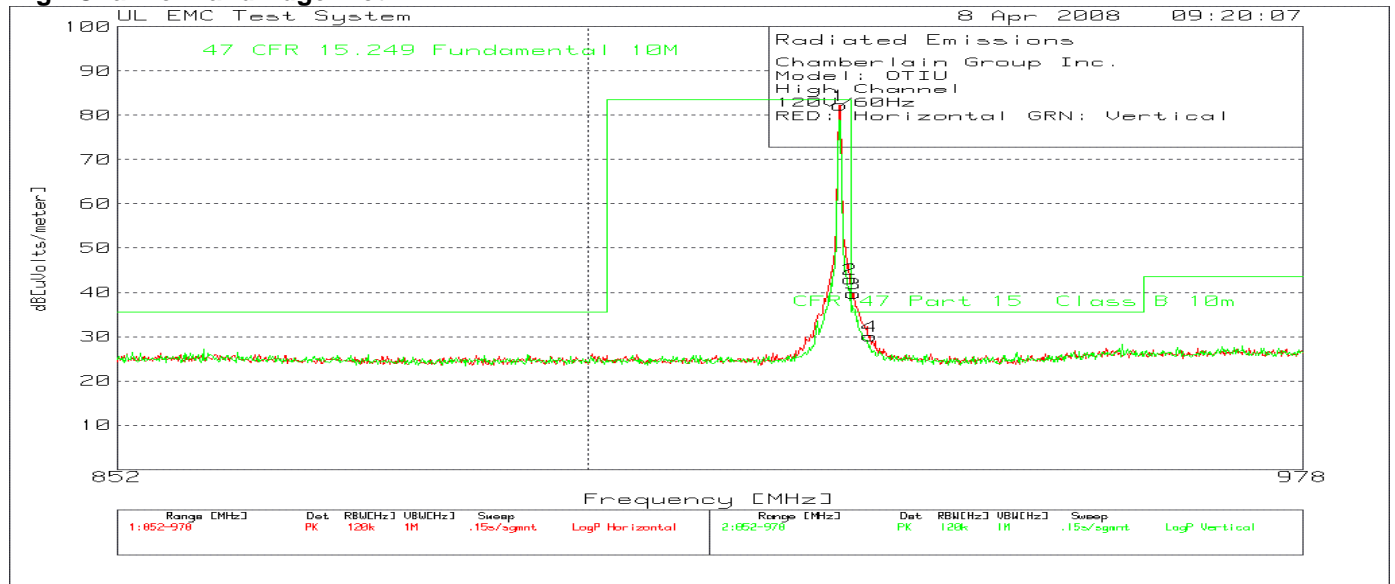
### 4.2.2 Radiated Emissions – Band Edge Compliance

Figure 7 Band Edge Emissions Graphs

#### Low Channel Band Edge Plot



#### High Channel Band Edge Plot



**Table 10 Band Edge Emissions Data Points**

Chamberlain Group Inc.  
 Model: OTIU  
 Low Channel  
 120V/60Hz

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	902.148	59.9 pk	-31.8	22.5	50.6	83.5	-	-	83.5	-	-
	Azimuth:345	Height:300	Horz	Margin [dB]		-32.9	-	-	-32.9	-	-
2	900.636	48.1 pk	-31.8	22.5	38.8	35.6	-	-	35.6	-	-
	Azimuth:136	Height:103	Horz	Margin [dB]		3.2	-	-	3.2	-	-
3	898.62	40.9 pk	-31.9	22.5	31.5	35.6	-	-	35.6	-	-
	Azimuth:355	Height:300	Horz	Margin [dB]		-4.1	-	-	-4.1	-	-
4	903.156	92.6 pk	-31.8	22.5	83.3	83.5	-	-	83.5	-	-
	Azimuth:345	Height:103	Horz	Margin [dB]		-.2	-	-	-.2	-	-

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
902	40.02 qp	-31.8	22.5	30.72	-	-	-	35.6	-	-
	Azimuth: 345	Height:101	Horz	Margin [dB]:		-	-	-4.88	-	-
902	33.02 qp	-31.8	22.5	23.72	-	-	-	35.6	-	-
	Azimuth: 267	Height:164	Vert	Margin [dB]:		-	-	-11.88	-	-

Chamberlain Group Inc.  
 Model: OTIU  
 High Channel  
 120V/60Hz

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	926.718	91.2 pk	-31.7	22.8	82.3	83.5	-	-	83.5	-	-
	Azimuth:328	Height:299	Horz	Margin [dB]		-1.2	-	-	-1.2	-	-
2	927.852	51.6 pk	-31.5	22.9	43	83.5	-	-	83.5	-	-
	Azimuth:328	Height:100	Horz	Margin [dB]		-40.5	-	-	-40.5	-	-
3	928.23	48.3 pk	-31.6	23	39.7	35.5	-	-	35.5	-	-
	Azimuth:316	Height:299	Horz	Margin [dB]		4.2	-	-	4.2	-	-
4	929.994	38.7 pk	-31.7	23.1	30.1	35.5	-	-	35.5	-	-
	Azimuth:141	Height:299	Horz	Margin [dB]		-5.4	-	-	-5.4	-	-

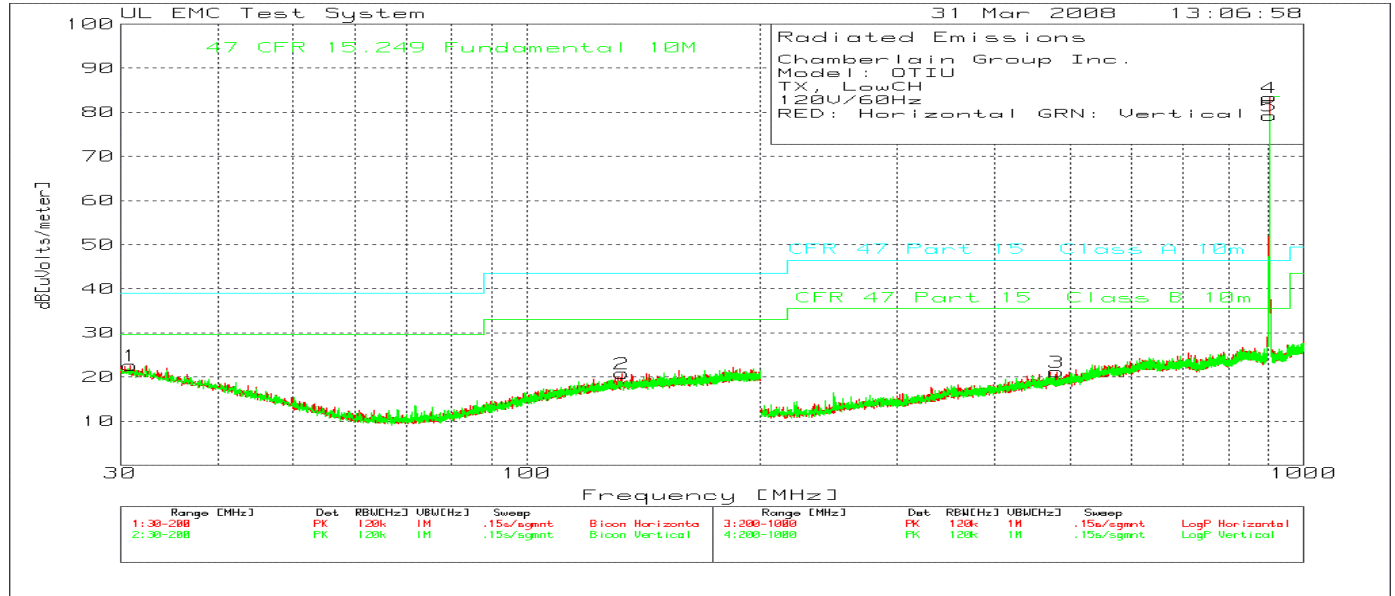
Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
928	39.02 qp	-31.5	22.9	30.42	-	-	-	35.5	-	-
	Azimuth: 329	Height:300	Horz	Margin [dB]:		-	-	-5.08	-	-
928	34.02 qp	-31.5	22.9	25.42	-	-	-	35.5	-	-
	Azimuth: 341	Height:173	Vert	Margin [dB]:		-	-	-10.08	-	-

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

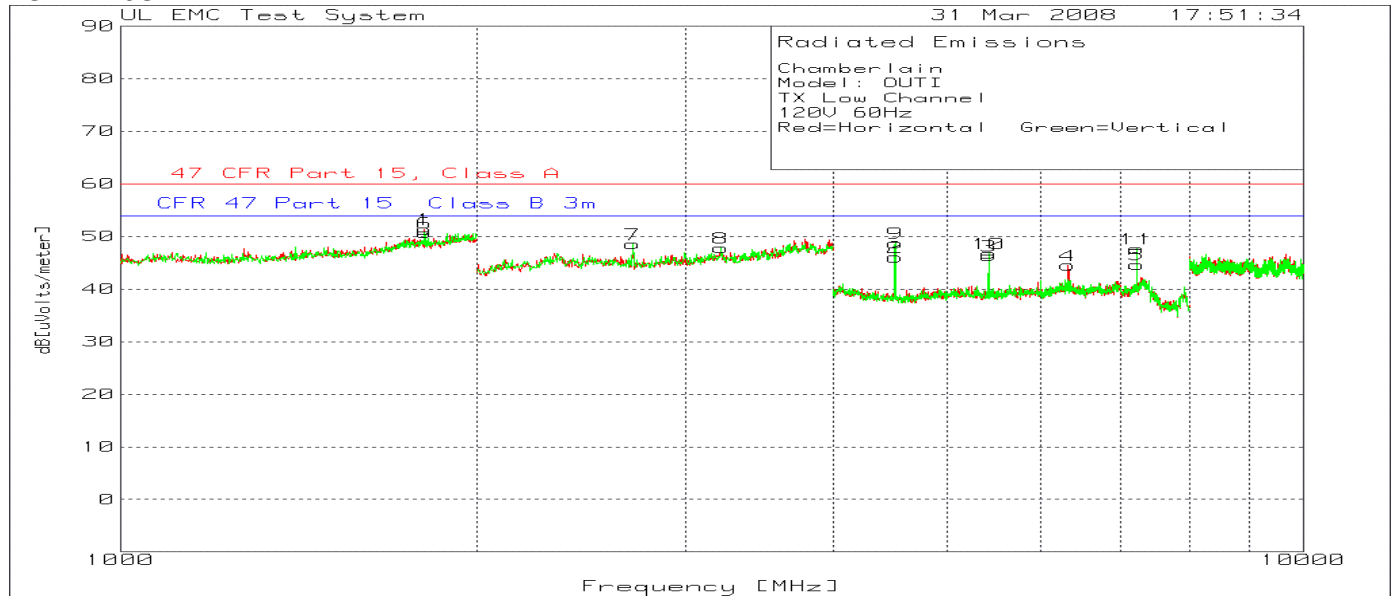
pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector

### 4.2.3 Radiated Emissions – Low Channel Spurious Emissions

**Figure 8 Radiated Spurious Emissions Graphs**  
**30MHz – 1GHz**



### 1GHz – 10GHz



**Table 11 Radiated Spurious Emissions Data Points**

**30MHz – 1GHz**

Chamberlain Group Inc.  
 Model: OTIU  
 TX, LowCH  
 120V/60Hz  
 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	30.9061	35.5 pk	-30.4	17.5	22.6	0	-	39.1	29.6	-	-
	Azimuth:275	Height:100	Horz	Margin [dB]	22.6		-	-16.5	-7	-	-
2	132.6116	36.7 pk	-30	14.1	20.8	0	-	43.5	33.1	-	-
	Azimuth:207	Height:200	Horz	Margin [dB]	20.8		-	-22.7	-12.3	-	-
3	480.9893	36.1 pk	-32	17.1	21.2	0	-	46.4	35.6	-	-
	Azimuth:177	Height:201	Horz	Margin [dB]	21.2		-	-25.2	-14.4	-	-
4	903.0727	92.7 pk	-31.8	22.5	83.4	83.5	-	46.4	35.6	-	-
	Azimuth:63	Height:101	Horz	Margin [dB]	-	-.1	-	37	47.8	-	-
5	903.0727	88.5 pk	-31.8	22.5	79.2	83.5	-	46.4	35.6	-	-
	Azimuth:0	Height:201	Vert	Margin [dB]	-	-4.3	-	32.8	43.6	-	-

Only Fundamental Frequency Detected - No Measurements were required. For the level of fundamental frequency please refer to section 4.2.1.

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

pk - Peak detector  
 qp - Quasi-Peak detector

**1GHz – 10GHz**

Chamberlain  
 Model: OTIU  
 TX Low Channel  
 120V 60Hz  
 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	21.1 pk	3.58	26.7	51.38	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-8.62	-2.62	-	-	-	-
2	4516.517	70.75 pk	-52.48	27.8	46.07	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-13.93	-7.93	-	-	-	-
3	5417.417	68.59 pk	-50.16	27.9	46.33	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-13.67	-7.67	-	-	-	-
4	6322.322	63.28 pk	-47.96	29.2	44.52	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-15.48	-9.48	-	-	-	-
5	7227.227	61.84 pk	-47.09	29.9	44.65	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-15.35	-9.35	-	-	-	-
6	1807.615	20.4 pk	3.58	26.7	50.68	60	54	-	-	-	-
		Height:150	Vert	Margin [dB]		-9.32	-3.32	-	-	-	-
7	2709.419	22.29 pk	4.14	22.1	48.53	60	54	-	-	-	-
		Height:150	Vert	Margin [dB]		-11.47	-5.47	-	-	-	-
8	3218.437	19.94 pk	4.78	23.1	47.82	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-12.18	-6.18	-	-	-	-
9	4516.517	73.43 pk	-52.48	27.8	48.75	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-11.25	-5.25	-	-	-	-
10	5417.417	69.03 pk	-50.16	27.9	46.77	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-13.23	-7.23	-	-	-	-
11	7227.227	64.87 pk	-47.09	29.9	47.68	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-12.32	-6.32	-	-	-	-

LIMIT 1: 47 CFR Part 15, Class A  
 LIMIT 2: CFR 47 Part 15 Class B 3m  
 LIMIT 3: NONE  
 LIMIT 4: NONE  
 LIMIT 5: NONE  
 File: re 1GHz-10GHz Lo Ch.TXT

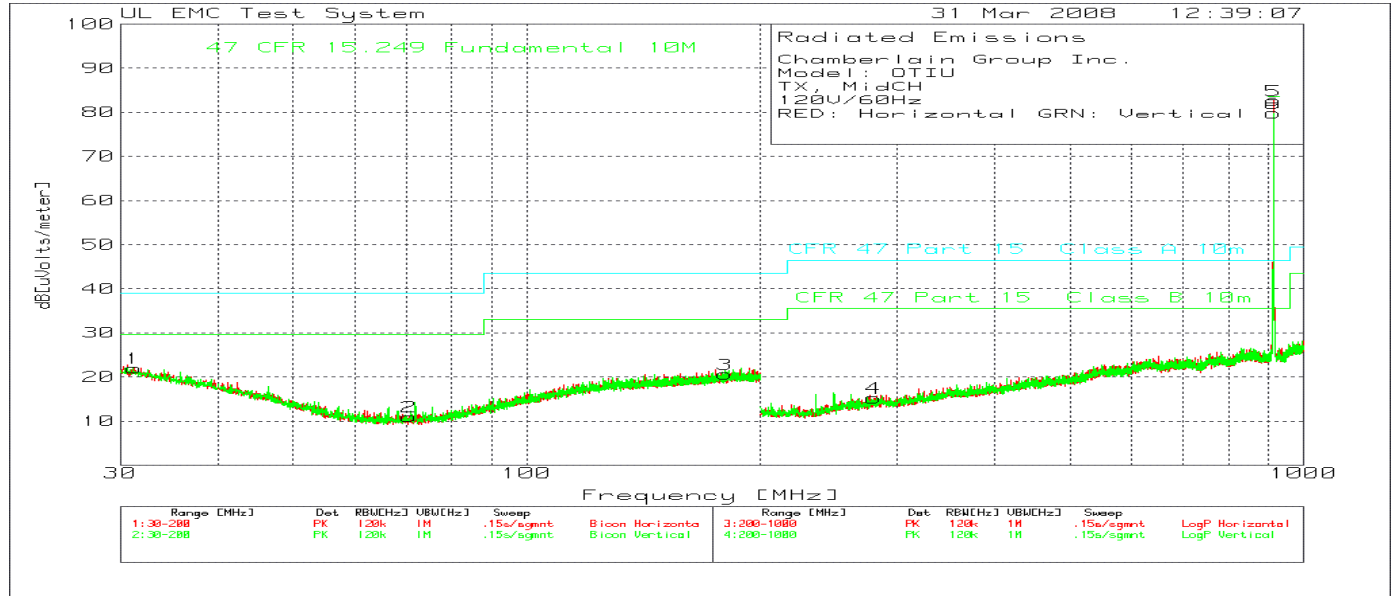
Test	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1806.5713	28.57 pk	3.59	26.7	58.86	60	54	-	-	-	-	-
	Azimuth: 94	Height:104	Horz	Margin [dB]:		-1.14	4.86	-	-	-	-
1806.6134	21.56 av	3.59	26.7	51.85	60	54	-	-	-	-	-
	Azimuth: 94	Height:104	Horz	Margin [dB]:		-8.15	-2.15	-	-	-	-
1 - 2GHz 1000 - 2000MHz											
1806.6202	28.56 pk	3.59	26.7	58.85	60	54	-	-	-	-	-
	Azimuth: 102	Height:136	Vert	Margin [dB]:		-1.15	4.85	-	-	-	-
1806.6142	21.65 av	3.59	26.7	51.94	60	54	-	-	-	-	-
	Azimuth: 102	Height:136	Vert	Margin [dB]:		-8.06	-2.06	-	-	-	-

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

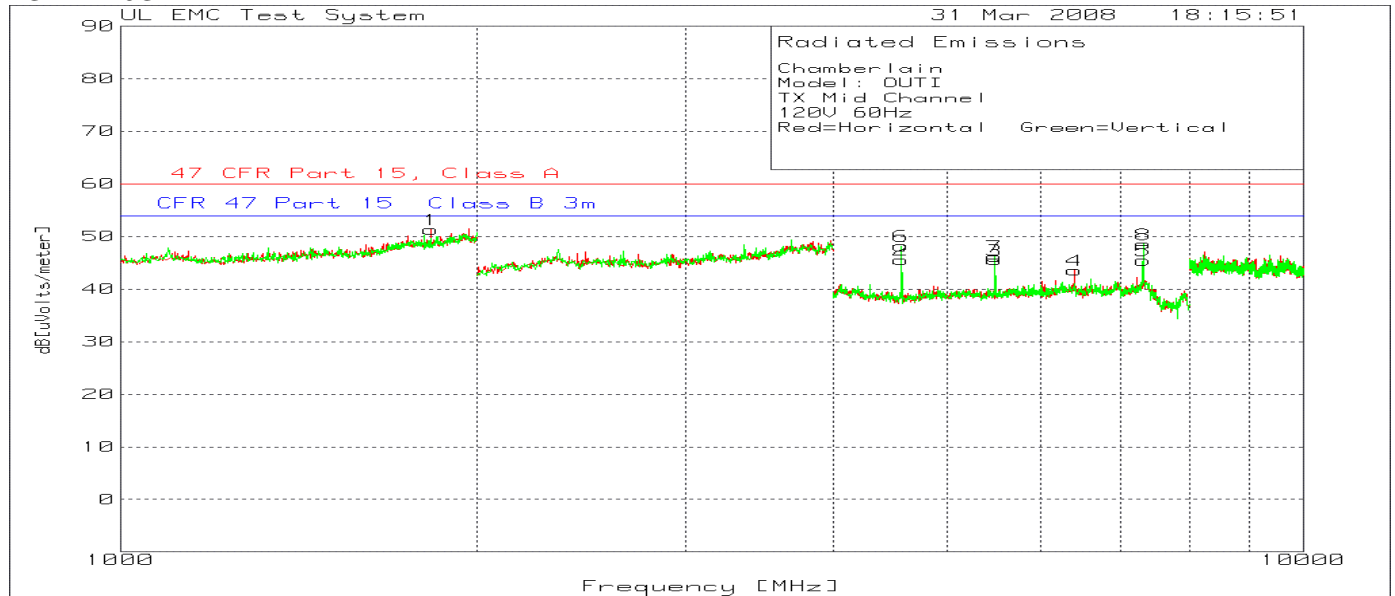
pk - Peak detector  
 qp - Quasi-Peak detector  
 av - Average detector

### 4.2.4 Radiated Emissions – Middle Channel Spurious Emissions

**Figure 9 Radiated Spurious Emissions Graphs**  
**30MHz – 1GHz**



### 1GHz – 10GHz



**Table 12 Radiated Spurious Emissions Data Points**

**30MHz – 1GHz**

Chamberlain Group Inc.  
 Model: OTIU  
 TX, MidCH  
 120V/60Hz  
 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	31.1892	35 pk	-30.4	17.4	22	-	-	39.1	29.6	-	-
	Azimuth:169	Height:200	Horz	Margin [dB]		-	-	-17.1	-7.6	-	-
2	70.4897	35 pk	-30.2	6.2	11	-	-	39.1	29.6	-	-
	Azimuth:87	Height:100	Horz	Margin [dB]		-	-	-28.1	-18.6	-	-
3	179.8967	34.8 pk	-29.9	15.7	20.6	-	-	43.5	33.1	-	-
	Azimuth:110	Height:200	Horz	Margin [dB]		-	-	-22.9	-12.5	-	-
4	279.5403	35.3 pk	-33.1	13	15.2	-	-	46.4	35.6	-	-
	Azimuth:120	Height:201	Horz	Margin [dB]		-	-	-31.2	-20.4	-	-
5	914.0645	92 pk	-31.8	22.4	82.6	83.5	-	46.4	35.6	-	-
	Azimuth:73	Height:100	Horz	Margin [dB]		-	-	36.2	47	-	-
6	914.0645	89.2 pk	-31.8	22.4	79.8	83.5	-	46.4	35.6	-	-
	Azimuth:240	Height:201	Vert	Margin [dB]		-	-	33.4	44.2	-	-

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

Only Fundamental Frequency Detected - No Measurements were required. For the level of fundamental frequency please refer to section 4.2.1.

**1GHz – 10GHz**

Chamberlain  
 Model: OTIU  
 TX Mid Channel  
 120V 60Hz  
 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	1829.659	20.92 pk	3.58	26.8	51.3	60	54	-	-	-	-
		Height:150 Horz		Margin [dB]		-8.7	-2.7	-	-	-	-
2	4572.573	70.29 pk	-52.46	27.7	45.53	60	54	-	-	-	-
		Height:100 Horz		Margin [dB]		-14.47	-8.47	-	-	-	-
3	5485.485	67.6 pk	-50.2	28.1	45.5	60	54	-	-	-	-
		Height:100 Horz		Margin [dB]		-14.5	-8.5	-	-	-	-
4	6402.402	62.3 pk	-47.91	29.2	43.59	60	54	-	-	-	-
		Height:100 Horz		Margin [dB]		-16.41	-10.41	-	-	-	-
5	7319.319	61.2 pk	-46.37	30.6	45.43	60	54	-	-	-	-
		Height:100 Horz		Margin [dB]		-14.57	-8.57	-	-	-	-
6	4568.569	72.94 pk	-52.46	27.7	48.18	60	54	-	-	-	-
		Height:150 Vert		Margin [dB]		-11.82	-5.82	-	-	-	-
7	5485.485	68.34 pk	-50.2	28.1	46.24	60	54	-	-	-	-
		Height:150 Vert		Margin [dB]		-13.76	-7.76	-	-	-	-
8	7315.315	64.34 pk	-46.41	30.6	48.53	60	54	-	-	-	-
		Height:100 Vert		Margin [dB]		-11.47	-5.47	-	-	-	-

LIMIT 1: 47 CFR Part 15, Class A  
 LIMIT 2: CFR 47 Part 15 Class B 3m  
 pk - Peak detector  
 qp - Quasi-Peak detector

Chamberlain  
 Model: OTIU  
 TX Mid Channel  
 120V 60Hz  
 Red=Horizontal Green=Vertical

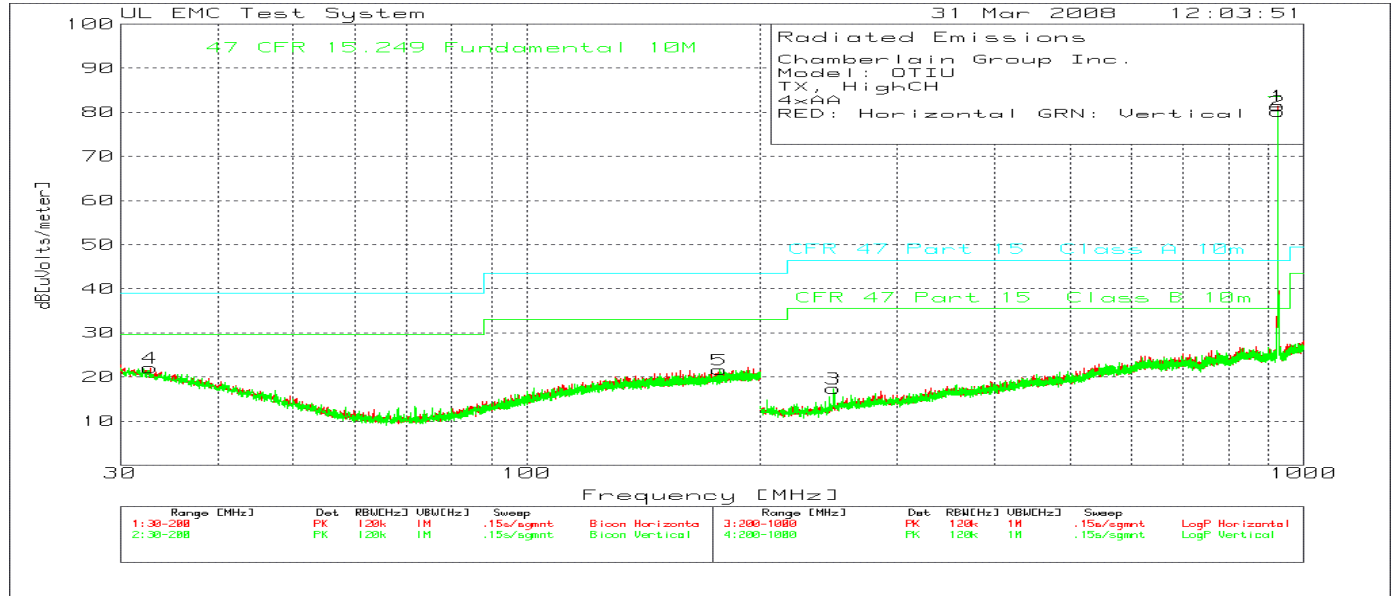
Test Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
1828.6707	28.35 pk	3.57	26.8	58.72	60	54	-	-	-	-
	Azimuth: 91	Height:106 Horz		Margin [dB]:		-1.28	4.72	-	-	-
1828.7268	21.41 av	3.57	26.8	51.78	60	54	-	-	-	-
	Azimuth: 91	Height:106 Horz		Margin [dB]:		-8.22	-2.22	-	-	-

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

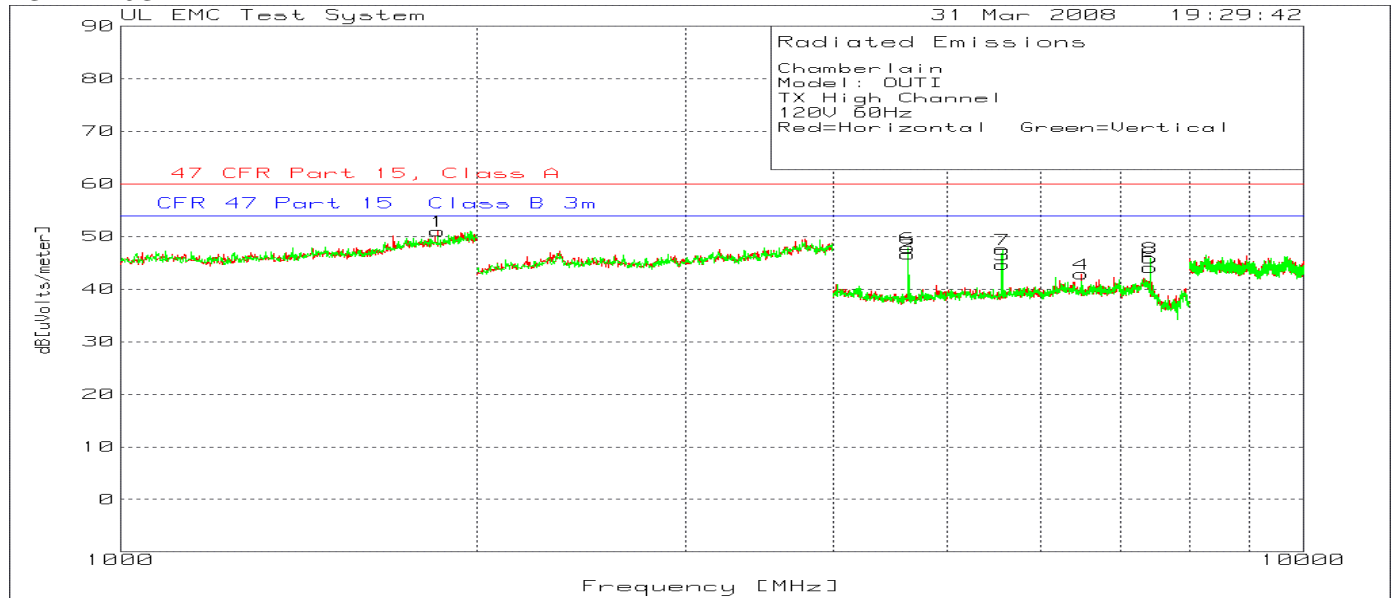


### 4.2.5 Radiated Emissions – Low Channel Spurious Emissions

**Figure 10 Radiated Spurious Emissions Graphs**  
**30MHz – 1GHz**



### 1GHz – 10GHz



**Table 13 Radiated Spurious Emissions Data Points**

**30MHz – 1GHz**

Chamberlain Group Inc.

Model: OTIU

TX, HighCH

4xAA

RED: Horizontal GRN: 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
4	32.7182	35.4 pk	-30.3	17	22.1	-	-	39.1	29.6	-	-
	Azimuth:287	Height:200	Horz	Margin [dB]		-	-	-17	-7.5	-	-
5	177.3484	35.9 pk	-29.9	15.6	21.6	-	-	43.5	33.1	-	-
	Azimuth:334	Height:100	Vert	Margin [dB]		-	-	-21.9	-11.5	-	-
1	926.4552	90.4 pk	-31.7	22.8	81.5	83.5	-	46.4	35.6	-	-
	Azimuth:310	Height:103	Horz	Margin [dB]		-2	-	35.1	45.9	-	-
2	926.5551	89.1 pk	-31.7	22.8	80.2	83.5	-	46.4	35.6	-	-
	Azimuth:205	Height:201	Vert	Margin [dB]		-3.3	-	33.8	44.6	-	-
3	248.3637	38.8 pk	-33.2	11.8	17.4	-	-	46.4	35.6	-	-
	Azimuth:0	Height:303	Vert	Margin [dB]		-	-	-29	-18.2	-	-

LIMIT 1: 47 CFR 15.249 Fundamental 10M

LIMIT 2: NONE

LIMIT 3: CFR 47 Part 15 Class A 10m

LIMIT 4: CFR 47 Part 15 Class B 10m

Only Fundamental Frequency Detected - No Measurements were required. For the level of fundamental frequency please refer to section 4.2.1.

**1GHz – 10GHz**

Chamberlain  
 Model: OTIU  
 TX High Channel  
 120V 60Hz  
 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	1853.707	20.34 pk	3.74	26.9	50.98	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-9.02	-3.02	-	-	-	-
2	4632.633	71.19 pk	-52.32	27.7	46.57	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-13.43	-7.43	-	-	-	-
3	5561.562	66.88 pk	-50.52	28.3	44.66	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-15.34	-9.34	-	-	-	-
4	6490.49	62.03 pk	-48.27	29.1	42.86	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-17.14	-11.14	-	-	-	-
5	7415.415	60.56 pk	-47.44	31	44.12	60	54	-	-	-	-
		Height:100	Horz	Margin [dB]		-15.88	-9.88	-	-	-	-
6	4632.633	72.48 pk	-52.32	27.7	47.86	60	54	-	-	-	-
		Height:150	Vert	Margin [dB]		-12.14	-6.14	-	-	-	-
7	5561.562	69.77 pk	-50.52	28.3	47.55	60	54	-	-	-	-
		Height:150	Vert	Margin [dB]		-12.45	-6.45	-	-	-	-
8	7415.415	62.36 pk	-47.44	31	45.92	60	54	-	-	-	-
		Height:100	Vert	Margin [dB]		-14.08	-8.08	-	-	-	-

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

pk - Peak detector  
 qp - Quasi-Peak detector

Chamberlain  
 Model: OTIU  
 TX High Channel  
 120V 60Hz  
 Red=Horizontal Green=Vertical

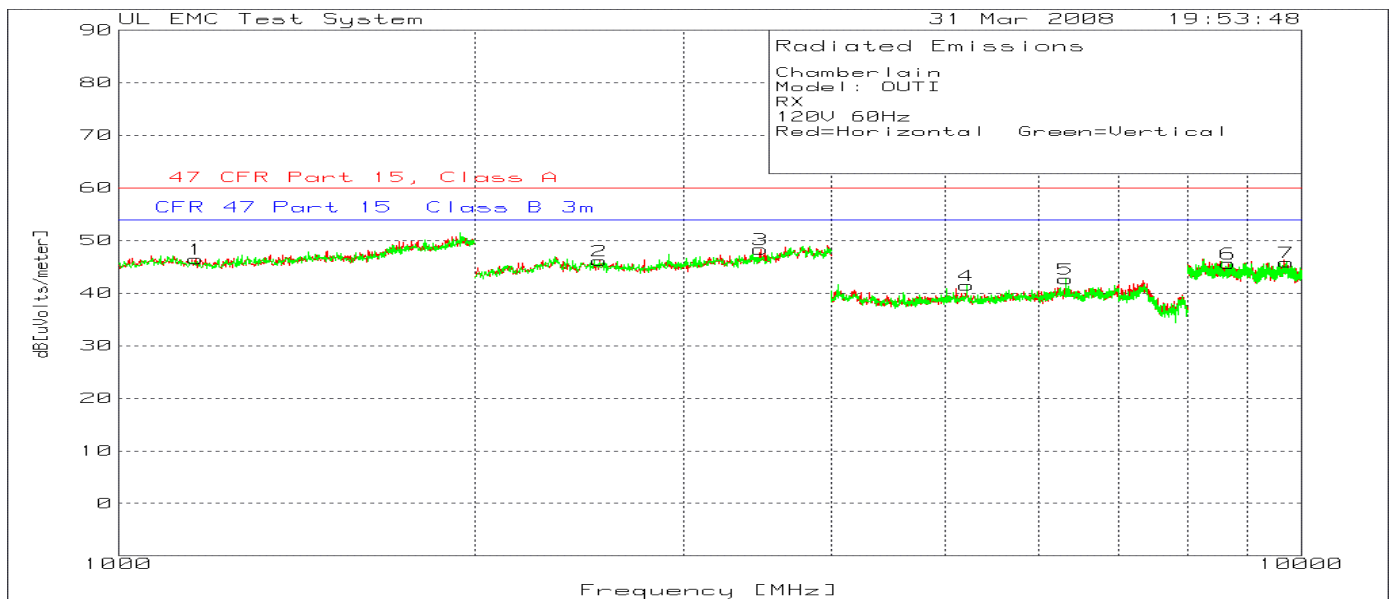
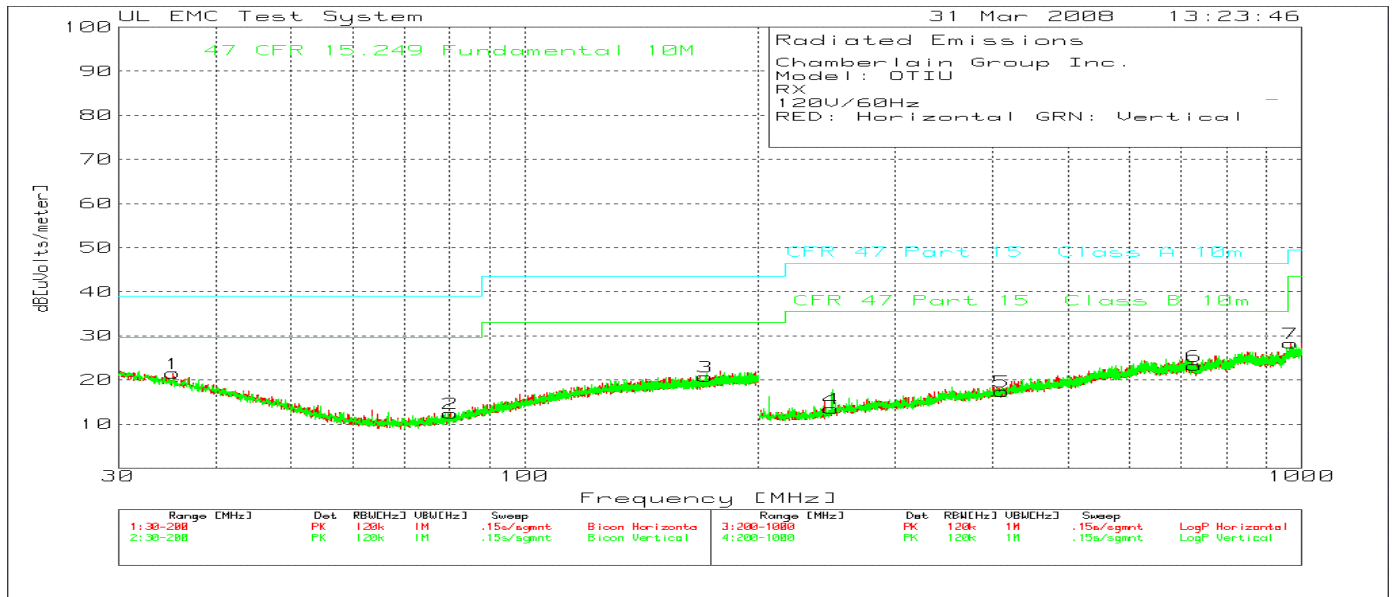
Test	Frequency [MHz]	Meter Reading [dB(uV)]	Gain/Loss Factor [dB]	Transducer Factor [dB]	Level dB[uVolts/meter]	Limit:1	2	3	4	5	6
	1853.5862	27.72 pk	3.74	26.9	58.36	60	54	-	-	-	-
	Azimuth: 92	Height:141	Horz	Margin [dB]:		-1.64	4.36	-	-	-	-
	1853.6293	20.83 av	3.74	26.9	51.47	60	54	-	-	-	-
	Azimuth: 92	Height:141	Horz	Margin [dB]:		-8.53	-2.53	-	-	-	-
	1853.5962	26.89 pk	3.74	26.9	57.53	60	54	-	-	-	-
	Azimuth: 106	Height:129	Vert	Margin [dB]:		-2.47	3.53	-	-	-	-
	1853.6062	19.04 av	3.74	26.9	49.68	60	54	-	-	-	-
	Azimuth: 106	Height:129	Vert	Margin [dB]:		-10.32	-4.32	-	-	-	-

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

4.2.6 Radiated Emissions – Standby / Receive Mode

Figure 11 Radiated Emissions Graph



**Table 14 Radiated Emissions Data Points**

Chamberlain Group Inc.  
 Model: OTIU - RX  
 120V/60Hz  
 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	35.2665	36 pk	-30.3	15.8	21.5	0	-	39.1	29.6	-	-
	Azimuth:310	Height:100	Horz	Margin [dB]	21.5	-	-	-17.6	-8.1	-	-
2	80.2865	35.3 pk	-30.1	7.2	12.4	0	-	39.1	29.6	-	-
	Azimuth:157	Height:100	Horz	Margin [dB]	12.4	-	-	-26.7	-17.2	-	-
3	170.8927	35.3 pk	-29.9	15.3	20.7	0	-	43.5	33.1	-	-
	Azimuth:310	Height:100	Horz	Margin [dB]	20.7	-	-	-22.8	-12.4	-	-
4	248.3637	34.9 pk	-33.2	11.8	13.5	0	-	46.4	35.6	-	-
	Azimuth:80	Height:203	Horz	Margin [dB]	13.5	-	-	-32.9	-22.1	-	-
5	411.6413	33.9 pk	-32.2	15.7	17.4	0	-	46.4	35.6	-	-
	Azimuth:345	Height:203	Horz	Margin [dB]	17.4	-	-	-29	-18.2	-	-
6	727.6043	34.3 pk	-31.2	20.1	23.2	0	-	46.4	35.6	-	-
	Azimuth:162	Height:203	Horz	Margin [dB]	23.2	-	-	-23.2	-12.4	-	-
7	968.2238	35.8 pk	-31.3	23.8	28.3	0	-	49.5	43.5	-	-
	Azimuth:355	Height:101	Horz	Margin [dB]	28.3	-	-	-21.2	-15.2	-	-

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

pk - Peak detector  
 qp - Quasi-Peak detector

Chamberlain  
 Model: OUTI - RX  
 120V 60Hz  
 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	1162.325	18.8 pk	3.08	24.6	46.48	60	54	-	-	-	-
	Height:101	Horz	Margin [dB]	-13.52	-7.52	-	-	-	-	-	-
2	2553.106	19.8 pk	4.13	22.2	46.13	60	54	-	-	-	-
	Height:100	Horz	Margin [dB]	-13.87	-7.87	-	-	-	-	-	-
3	3486.974	19.64 pk	5.2	23.5	48.34	60	54	-	-	-	-
	Height:100	Horz	Margin [dB]	-11.66	-5.66	-	-	-	-	-	-
6	8673.783	59.99 pk	-50.77	36.4	45.62	60	54	-	-	-	-
	Height:150	Horz	Margin [dB]	-14.38	-8.38	-	-	-	-	-	-
7	9710.474	58.81 pk	-49.37	36.4	45.84	60	54	-	-	-	-
	Height:150	Horz	Margin [dB]	-14.16	-8.16	-	-	-	-	-	-
4	5209.209	63.29 pk	-50.16	28.3	41.43	60	54	-	-	-	-
	Height:150	Vert	Margin [dB]	-18.57	-12.57	-	-	-	-	-	-
5	6318.318	61.49 pk	-48.02	29.2	42.67	60	54	-	-	-	-
	Height:150	Vert	Margin [dB]	-17.33	-11.33	-	-	-	-	-	-

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

pk - Peak detector  
 qp - Quasi-Peak detector

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

**4.3 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		
<b>Occupied Bandwidth / 99% Bandwidth Measurement</b>			
The 20dB down measurement must fit in the allocated band.			

**Table 15 Occupied Bandwidth / 99% Bandwidth Configuration Settings**

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

**Table 16 Occupied Bandwidth / 99% Bandwidth Spectrum Analyzer Settings**

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

**Table 17 Occupied Bandwidth / 99% Bandwidth Test Equipment**

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

**Table 18 Occupied Bandwidth / 99% BW Measurement Results**

Measurement	Low Channel	Middle Channel	High Channel	Low Channel -20dB Frequency	High Channel -20dB Frequency
20dB Bandwidth	476.3kHz	470.6kHz	412.5kHz	903.040MHz	927.015MHz
99% Bandwidth	870.0kHz	620.625kHz	470.625kHz	N/A	N/A

**Figure 12 Test Setup for Occupied Bandwidth**



**Figure 13 20dB Bandwidth Graph**

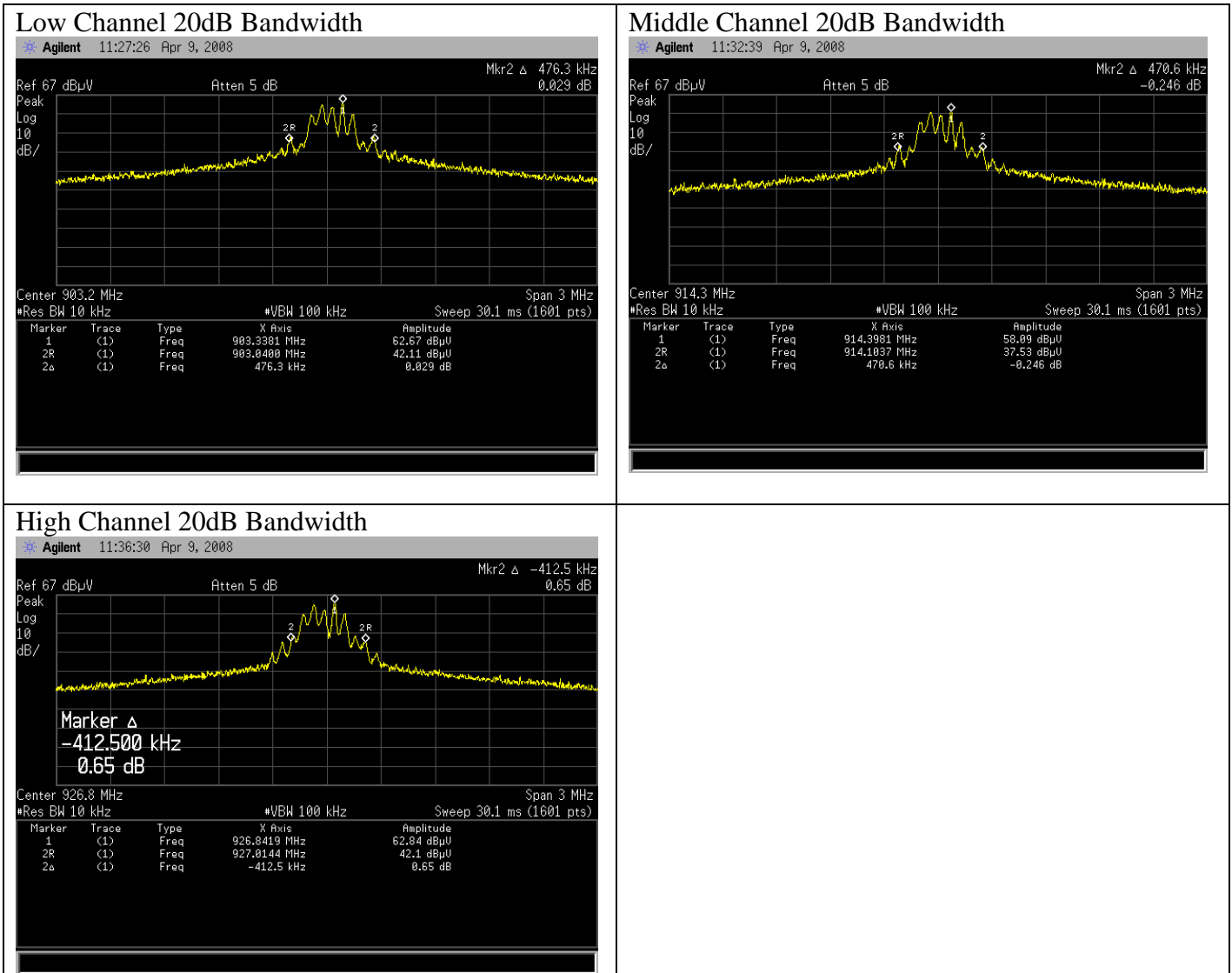
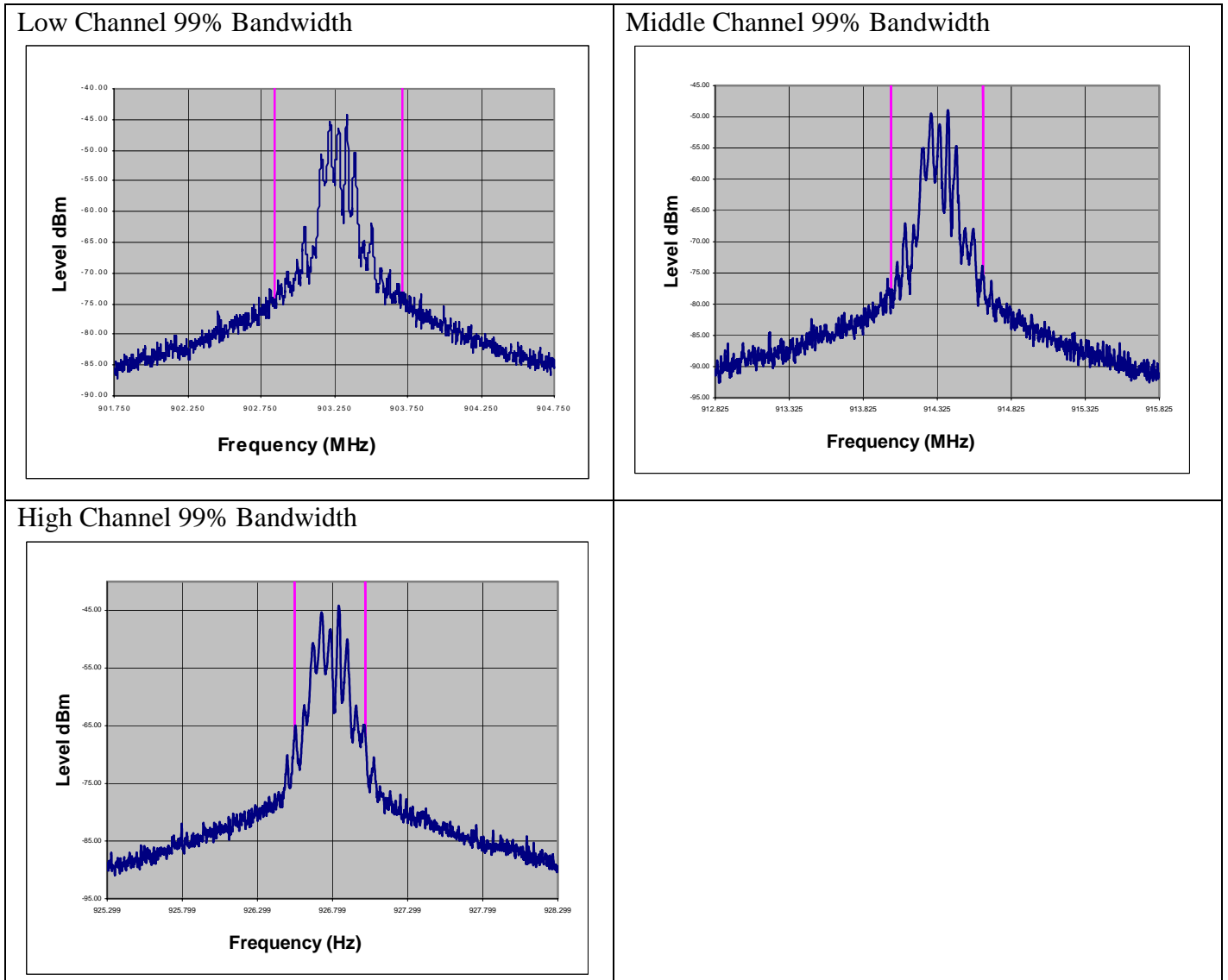




Figure 14 99% Bandwidth Graph



## **5.0    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