FCC Part 15.249
Certification Application Report

Test Lab:	Applicant:
Rhein Tech Laboratories, Inc. Tel: 703-689-0368 360 Herndon Parkway Fax: 703-689-2056 Suite 1400 http://www.rheintech.com Herndon, VA 20170 EMail: atcbinfo@rheintech.com	Bird Gard, LLC Tel: (541) 549-0205 P.O. Box 1690 254 West Adams Ave. Sisters, Oregon 97759 Contact: Todd Weitzman

FCC ID:	XGA-0045T	**Test Report Date:**	June 9, 2009
Platform:	N/A	**RTL Work Order #:**	2009189
Model:	Super Pro Wireless Transmitter	**RTL Quote #:**	QRTL09-285A
American National Standard Institute:	ANSI C63.4-2003: Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz		
FCC Classification:	DXX – Part 15 Low Power Communication Device Transmitter		
FCC Rule Part(s)/Guidance:	Part 15.249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz, and 24.0-24.25 GHz (10-01-08)		
Digital Interface Information:	N/A		

Frequency Range (MHz)	Output Power (W)	Frequency Tolerance	Emission Designator
916.48	N/A	N/A	N/A

I, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards. Furthermore, there was no deviation from, additions to, or exclusions from, the applicable parts of FCC Part 2, FCC Part 15, and ANSI C63.4.

Signature: _____ Date: June 9, 2009

Typed/Printed Name: Desmond A. Fraser Position: President

Table of Contents

Figure Index

Table Index

Appendix Index

Photograph Index

1 General Information

1.1 Scope

FCC Rules Part 15.249: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5850 MHz, and 24.0-24.25 GHz.

1.2 Modifications

N/A

1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at Rhein Tech Laboratories (RTL), 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing (ANSI C63.4 2003).

1.4 Related Submittal(s)/Grant(s)

This is an original certification application for Bird Gard, LLC, Model Super Pro Wireless Transmitter, FCC ID: XGA-0045T.

2 Test Information

2.1 Test Justification

The EUT was tested in all three orthogonal planes in order to determine worst-case emissions. The single channel of operation was tested and investigated from 9 kHz to 10 GHz. The test results relate only to the item that was tested.

2.2 Exercising the EUT

The EUT transmitted for extended bursts to facilitate testing. There were no deviations from the test standard(s) and/or methods.

2.3 Test Result Summary

Table 2-1: Test Result Summary with FCC Rules and Regulations

Standard	Test	Pass/Fail or N/A
FCC 15.249(a)	Radiated Emissions	Pass
FCC 15.207	AC Line Conducted Emissions	Pass

2.4 Test System Details

The test sample was received on May 28 and June 4, 2009. The FCC Identifiers for all equipment, plus descriptions of all cables used in the tested system, are shown in the table below.

Table 2-2: Equipment under Test (EUT)

Part	Manufacturer	Model	S/N	FCC ID	Cable Description	RTL Bar Code
Transmitter	Bird Gard, LLC	Super Pro Wireless Transmitter	N/A	XGA-0045T	N/A	18965

2.5 Configuration of Tested System

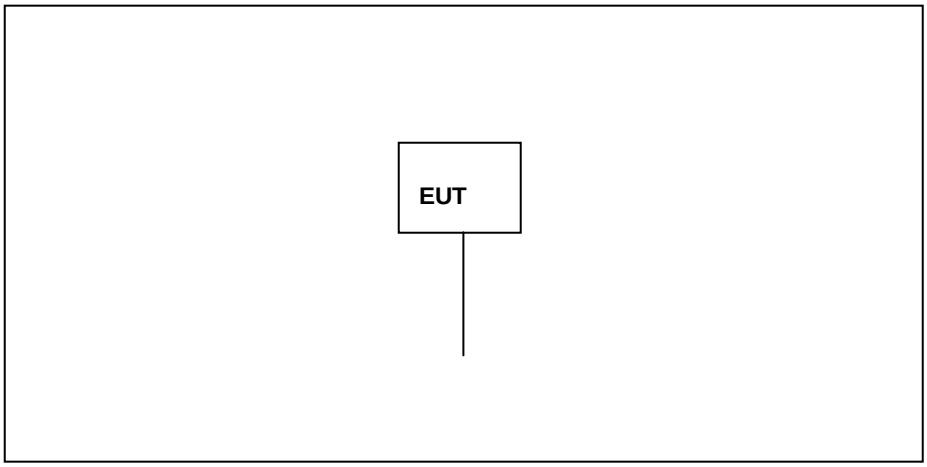

Figure 2-1: Worst Case Configuration of System under Test

3 Radiated Emissions – FCC 15.249

3.1 Radiated Emissions Test Procedure

Radiated Emissions of the fundamentals were tested at three meters, and meet the quasi-peak limit of 50 mV/m. The EUT was tested in all three orthogonal planes for the low and high channels; the worst case emissions are shown. Quasi-peak measurements were taken and are compared to the quasi-peak limit.

3.2 Radiated Emission Test Data

Table 3-1: Radiated Emissions Fundamental Emissions

Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dBm)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Result
916.464	QP	96.2	-4.8	91.4	94.0	-2.6	Pass

Radiated emissions of the harmonics were tested at three meters, and meet the requirements of 500 microvolts/meter in average mode, and 20 dB higher in peak mode, per 15.249(e). The EUT was tested in all three orthogonal planes.

Table 3-2: Spurious/Harmonics

Frequency (MHz)	Peak Analyzer Reading (dBuV)	Average Analyzer Reading (dBuV)	Site Correction Factor (dBm)	Average Level Corrected (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)	Result
1832.928	52.4	51.2	2.7	53.9	54.0	-0.1	Pass
2749.392	53.1	52.8	-4.3	48.5	54.0	-5.5	Pass
3665.856	50.4	44.6	-2.7	41.9	54.0	-12.1	Pass
4582.320	48.2	48.1	3.4	51.5	54.0	-2.5	Pass
5498.784	31.3	26.7	6.8	33.5	54.0	-20.5	Pass
6415.248	29.2	19.3	6.5	25.8	54.0	-28.2	Pass
7331.712	25.3	17.8	6.4	24.2	54.0	-29.8	Pass
8248.176	35.7	25.7	12.2	37.9	54.0	-16.1	Pass
9164.640	34.5	25.0	13.1	38.1	54.0	-15.9	Pass

Table 3-3: Radiated Emissions/Fundamental Emissions Test Equipment

RTL Asset	Manufacturer	Model	Part Type	Serial Number	Calibration Date
900791	Chase	CBL6111B	Bilog antenna (30 MHz – 2000 MHz)	N/A	12/12/10
901365	MITEQ	JS4-00102600-41-5P	Amplifier, 0.1-26 GHz, 30dB gain	N/A	3/4/10
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	6/14/10
900323	EMCO	3160-07	Horn Antenna (8.2 - 12.4 GHz)	9605-1054	6/14/10
900321	EMCO	3161-03	Horn Antenna (4.0 - 8.2 GHz)	9508-1020	6/14/10
901413	Agilent Technologies	E4448A	Spectrum Analyzer	US44020346	7/31/09
901516	Insulated Wire, Inc.	KPS-1503-2400-KPS	RF cable, 20'	NA	10/17/09
901517	Insulated Wire Inc.	KPS-1503-360-KPS	RF cable 36"	NA	10/17/09
900878	Rhein Tech Laboratories, Inc.	AM3-1197-0005	3 meter antenna mast, polarizing	Outdoor Range 1	Not Required
901242	Rhein Tech Laboratories, Inc.	WRT-000-0003	Wood rotating table	N/A	Not Required

Test Personnel:

Daniel Baltzell		June 2-3, 2009
Test Engineer	Signature	Dates of Tests

4 Conducted AC Emissions – FCC 15.207

4.1 Site and Test Description

The power line conducted emissions measurements were performed in a Series 81 type shielded enclosure manufactured by Rayproof. The EUT was assembled on a wooden table 80 centimeters high. Power was fed to the EUT through a 50-ohm/50 microhenry Line Impedance Stabilization Network (LISN). The EUT LISN was fed power through an A.C. filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. A second LISN, the peripheral LISN, provides isolation for the EUT test peripherals. This peripheral LISN was also fed A.C. power. A metal power outlet box, which is bonded to the ground plane and electrically connected to the peripheral LISN, powers the EUT host peripherals.

The spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the EUT LISN was connected to the spectrum analyzer input through a Solar 100 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 100 kHz. Conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable).

The analyzer's 6 dB bandwidth was set to 9 kHz. Video filter less than 10 times the resolution bandwidth is not used. Average measurements are performed in linear mode using a 10 kHz resolution bandwidth, a 1 Hz video bandwidth, and by increasing the sweep time in order to obtain a calibrated measurement. The emission spectrum was scanned from 150 kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded.

4.2 Test Limits

Line-Conducted Emissions		
	Limit (dBµV)	
Frequency (MHz)	Quasi-Peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5.00	56	46
5.00 to 30.00	60	50

4.3 Conducted Emissions Test Data

Table 4-1: Conducted Emissions Test Data - Neutral Side – Line 1

Temperature: 74°F Humidity: 43%									
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)	Pass/ Fail
0.173	Pk	40.4	0.2	40.6	64.8	-24.2	54.8	-14.2	Pass
0.309	Pk	38.8	0.4	39.2	60.0	-20.8	50.0	-10.8	Pass
0.399	Pk	38.1	0.3	38.4	57.9	-19.5	47.9	-9.5	Pass
0.610	Pk	30.5	0.4	30.9	56.0	-25.1	46.0	-15.1	Pass
0.880	Pk	22.9	0.5	23.4	56.0	-32.6	46.0	-22.6	Pass
20.090	Pk	18.3	3.1	21.4	60.0	-38.6	50.0	-28.6	Pass

Table 4-2: Conducted Emissions Test Data – Hot Side – Line 2

Temperature: 74°F Humidity: 43%									
Emission Frequency (MHz)	Test Detector	Analyzer Reading (dBuV)	Site Correction Factor (dB)	Emission Level (dBuV)	QP Limit (dBuV)	QP Margin (dBuV)	AV Limit (dBuV)	AV Margin (dBuV)	Pass/ Fail
0.163	Pk	39.7	0.2	39.9	65.3	-25.4	55.3	-15.4	Pass
0.309	Pk	36.3	0.4	36.7	60.0	-23.3	50.0	-13.3	Pass
0.527	Pk	27.3	0.4	27.7	56.0	-28.3	46.0	-18.3	Pass
0.643	Pk	26.2	0.4	26.6	56.0	-29.4	46.0	-19.4	Pass
14.570	Pk	18.7	2.7	21.4	60.0	-38.6	50.0	-28.6	Pass
16.500	Pk	18.4	2.8	21.2	60.0	-38.8	50.0	-28.8	Pass

Table 4-3: Conducted Emissions Test Equipment

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Date
900970	Hewlett Packard	85662A	Spectrum Analyzer Display	2542A11239	9/8/09
900339	Hewlett Packard	85650A	Quasi-Peak Adapter (30 Hz - 1 GHz)	2521A00743	9/11/09
901083	AFJ International	LS16/110VAC	16A LISN	16010020080	10/23/09

Test Personnel:

Daniel Baltzell		June 8, 2009
Test Engineer	Signature	Date Of Test

5 Conclusion

The data in this measurement report shows that the Bird Gard, LLC, Model Super Pro Wireless Transmitter; FCC ID: XGA-0045T, complies with all the applicable requirements of Parts 2 and 15 of the FCC Rules and Regulations.