TEST DATA REPORT

Report Number: 100497156MIN-001
Project Number: G100497156

Testing performed on the
SPT-M1-8519-1

to
47 CFR, Part 22:2010, Enclosure Spurious Radiated Emissions
47 CFR, Part 24:2010, Enclosure Spurious Radiated Emissions

For
LGC Wireless, LLC - a TE Connectivity Company

Test Performed by:
Intertek Testing Services NA, Inc.
7250 Hudson Blvd., Suite 100
Oakdale, MN 55128 USA

Test Authorized by:
LGC Wireless, LLC - a TE Connectivity Company
541 E Trimble Road
San Jose, CA 95131 USA

Prepared by: _____ Date: September 2, 2011
Simon Khazon

Reviewed by: _____ Date: September 2, 2011
Norman Shpilsher

TABLE OF CONTENTS

1.0 DESCRIPTION OF THE SAMPLE (EUT)

Model:	SPT-M1-8519-1
Type of EUT:	Spectrum Cell P1/PCS P1 RFIC MRAU Repeater
Frequency Range:	869-894MHz (Cell Phone Band) 1930-1990MHz (PCS Band)
Company:	LGC Wireless, LLC - a TE Connectivity Company
Customer:	Sue Cyr
Address:	541 E. Trimble Road San Jose, CA 95131 USA
Phone:	408-952-2445
Fax:	408-952-2645
e-mail:	sue.cyr@te.com
Test Standards:	☐ EN 55022:2006 +A1:2007, Class ☐ EN 55011:2007 +A2:2007, Group , Class ☒ 47 CFR, Part 22:2010, Enclosure Spurious Radiated Emissions ☒ 47 CFR, Part 24:2010, Enclosure Spurious Radiated Emissions ☐ ICES-003, Issue 4:2004 ☐ EN 55014-1:2006 ☐ EN 61326-1:2006 ☐ Class for Radiated and Conducted Emissions ☐ Basic Immunity Test Requirements ☐ Immunity Test Requirements for Industrial Locations ☐ EN 60601-1-2:2001 +A1:2006 ☐ EN 61000-6-3:2007 ☐ EN 61000-6-4:2007 ☐ EN 61000-3-2:2006 ☐ EN 61000-3-3:1995 +A1:2001 +A2:2006 ☐ EN 61000-6-1:2007 ☐ EN 61000-6-2:2005 ☐ EN 55024:1998 + A1:2001 + A2:2003
Date Sample Submitted:	September 1, 2011
Test Work Started:	September 1, 2011
Test Work Completed:	September 1, 2011
Test Sample Conditions:	☐ Damaged ☐Poor (Usable) ☒ Good ☐ Prototype ☒Production ☐ Used

2.0 TEST SUMMARY

Referring to the performance criteria and the operating mode during the tests specified in this report, the equipment complies with the requirements according to the following standards.

TEST STANDARD	TEST	RESULT
Part 22	Enclosure Spurious Radiated Emissions	Pass
Part 24	Enclosure Spurious Radiated Emissions	Pass

2.1 Statement of the Measurement Uncertainty

Note: The measured result in this report is within the specification limits by more than the measurement uncertainty; the measured result indicates that the product tested complies with the specification limit.

The expanded uncertainty (k = 2) for radiated emissions from 30 to 1000 MHz has been determined to be: ±4 dB at 10m and ±5.4 dB at 3m

The expanded uncertainty (k = 2) for conducted emissions from 150 kHz to 30 MHz has been determined to be:
±2.6 dB

3.0 EQUIPMENT UNDER TEST

3.1 Power Configuration

Rated voltage:	☒ 120VAC ☐ 230VAC ☐ 400VAC ☐ VDC ☐ Other:
Rated current:	Amp.
Rated frequency:	☐ 50Hz ☒ 60Hz
Number of phases:	☒ 1 Phase ☐ 3 Phases

3.2 EUT Configuration

The equipment under test was operated during the measurement under the following conditions:

☐ - Standby
☐ - Test program (H - Pattern)
☒ - Continuous Operation (see details below)
☐ - Specific test program
☐ -

Operating modes of the EUT:

No.	Description
1	Continuous transmitting at 870MHz, 881MHz, and 893MHz
2	Continuous transmitting at 1931MHz, 1960MHz, and 1989MHz
3	RF Input setting: -12dBm; CW. The EUT antenna port was terminated.

Cables:

No.	Type	Length	Designation	Note
1	Two RF coax	10m each	RF signal cables to the Support Equipment	

Support equipment/Services:

No.	Item	Description
1	Agilent 8648C (located outside Test site)	Signal Generator
2	SPT-M1-AWS19-11(located outside Test site)	Distributed Antenna System / Repeater1
3	50Ohm, 40dB Terminator	Terminator

General notes: None

3.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 °C
Humidity:	30-60 %
Atmospheric pressure:	86-106 kPa

4.0 TEST CONDITIONS AND RESULTS

4.1 Enclosure Spurious Radiated Emissions

Description of the test location

Test location: ☐ OATS ☒ Anechoic Chamber

Test distance: ☐ 10 meters ☒ 3 meters

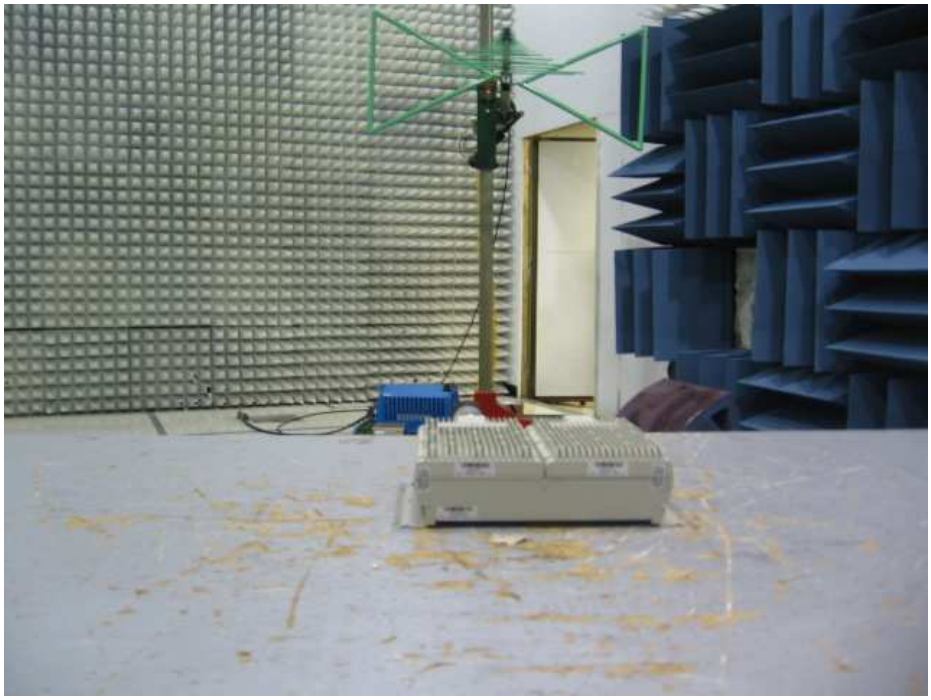
Test result: **Pass**

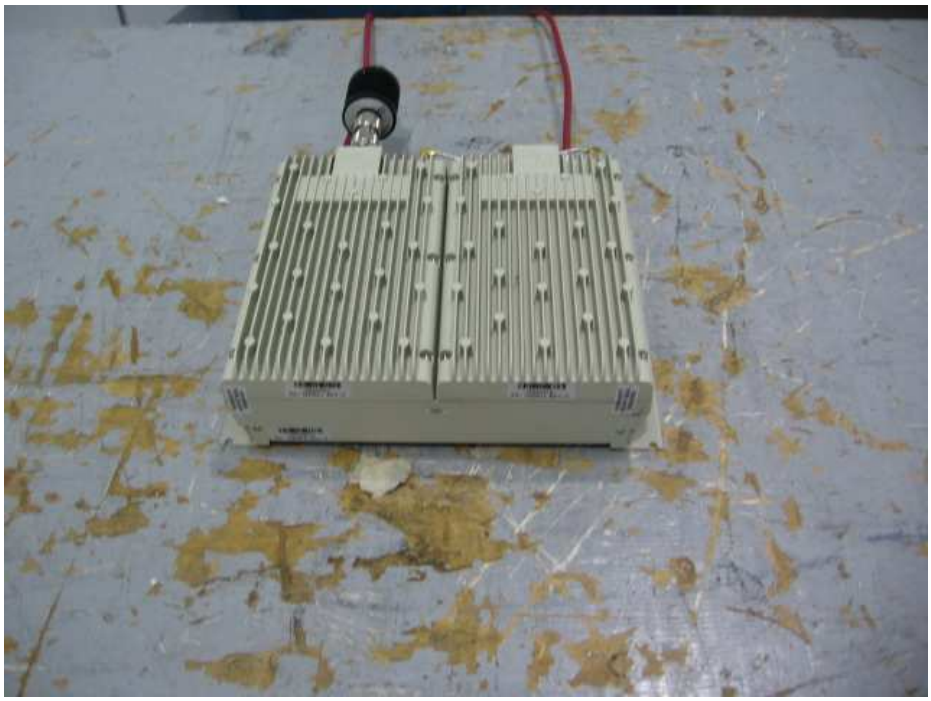
Frequency range: 30MHz-10GHz for Cell Phone Band
30MHz-20GHz for PCS Band

Max. Emissions margin: 8.7dB below the Limits

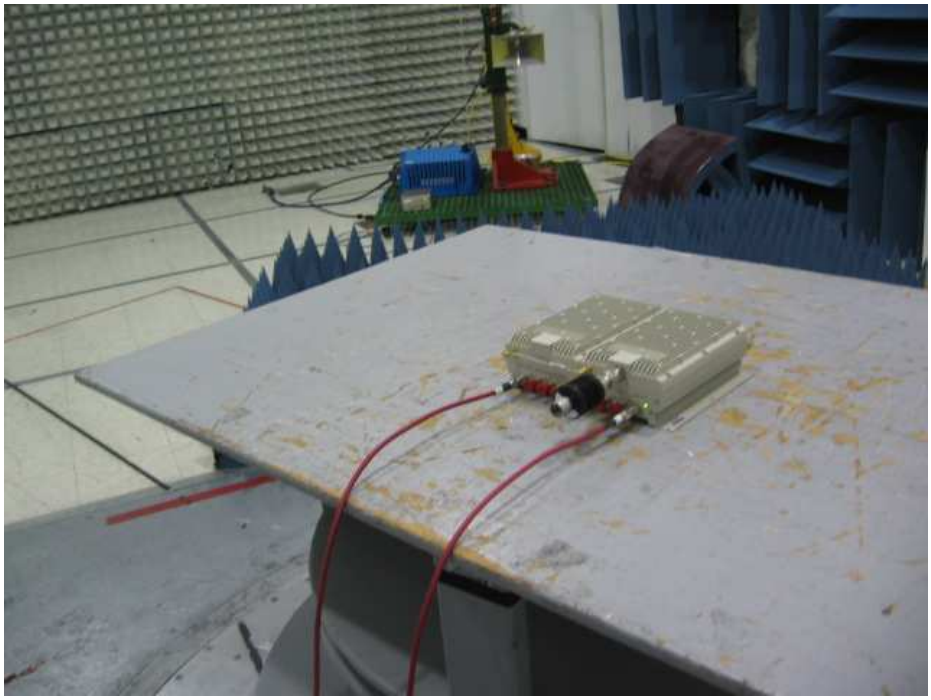
Notes:

1. The Radiated Emissions testing was performed in the Anechoic chamber at 3m measurement distance (see Tables 1 and 2 and Graphs 1-30)
2. The Spurious Radiated Power limits of -13dBm was correlated with field strength Reference Limit of 82.2dBµV/m during field strength pre-scan at 3m measurement distance (Graphs 1-30)
3. Emissions with margin less than 20dB below the reference limit were measured with substitution method (see Tables 1 and 2)
4. Emissions at operating frequencies were excluded from the Tables





Test Setup Photos



Test Setup Photos

Date:	September 1, 2011	**Result:** **Pass**
Tested by:	Norman Shpilsher	
Standard:	FCC Part 22, Cell Phone Band	
Test Point:	Enclosure	
Operation mode:	See page 5	
Note:	Substitution Method	

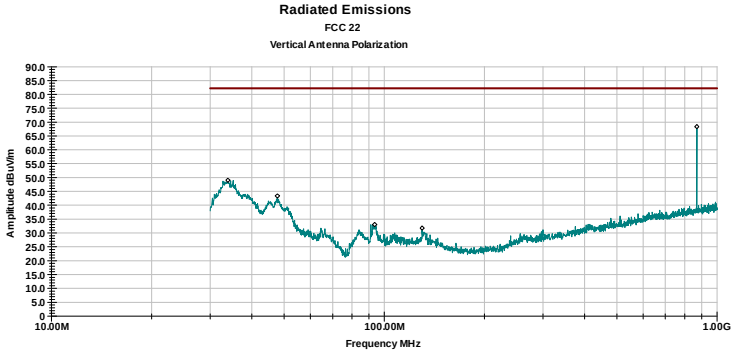
Table 1

Frequency MHz	Antenna Polarity	Measured Emissions dBµV	Substitution Antenna Power dBm	Substitution Antenna Gain dBi	Cable Loss dB	Additional Loss/Gain dB	Emissions EIRP dBm	Limits dBm	Margin dB
1742.50	V	76.1	-29.2	8.5	1.0	0.0	-21.7	-13.0	-8.7
1762.75	V	81.2	-34.4	8.5	1.0	0.0	-26.9	-13.0	-13.9
2611.00	V	65.3	-41.3	9.6	1.4	0.0	-33.1	-13.0	-20.1
2642.50	V	66.7	-39.9	9.6	1.5	0.0	-31.7	-13.0	-18.7
1742.50	H	75.1	-35.4	8.5	1.0	0.0	-27.9	-13.0	-14.9
1762.75	H	80.2	-30.2	8.5	1.0	0.0	-22.7	-13.0	-9.7
2611.00	H	69.2	-37.6	9.6	1.4	0.0	-29.4	-13.0	-16.4
2642.50	H	70.7	-36.3	9.6	1.5	0.0	-28.1	-13.0	-15.1

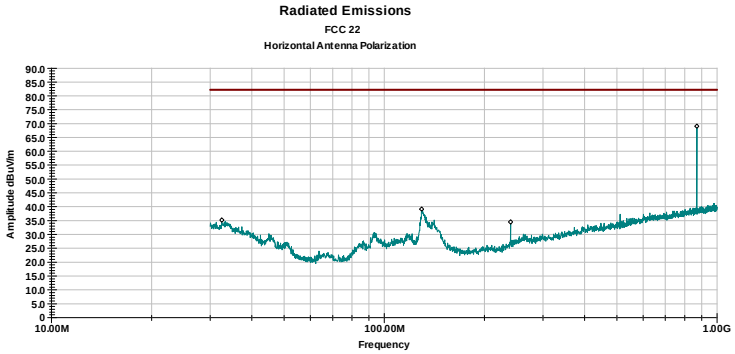
Date:	September 1, 2011	**Result:** **Pass**
Tested by:	Norman Shpilsher	
Standard:	FCC Part 24, PCS Band	
Test Point:	Enclosure	
Operation mode:	See page 5	
Note:	Substitution Method	

Table 2

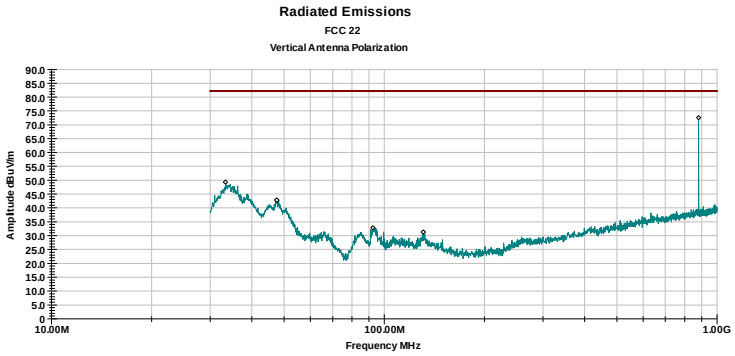
Frequency MHz	Antenna Polarity	Measured Emissions dBµV	Substitution Antenna Power dBm	Substitution Antenna Gain dBi	Cable Loss dB	Additional Loss/Gain dB	Emissions EIRP dBm	Limits dBm	Margin dB
3992.00	V	57.8	-43.2	9.7	2.3	0.0	-35.8	-13.0	-22.8
5882.00	V	59.4	-40.3	11.1	1.9	0.0	-31.1	-13.0	-18.1
3992.00	H	62.2	-41.4	9.7	2.3	0.0	-34.0	-13.0	-21.0
5882.00	H	61.5	-38.3	11.1	1.9	0.0	-29.1	-13.0	-16.1



Graph 1



Graph 2



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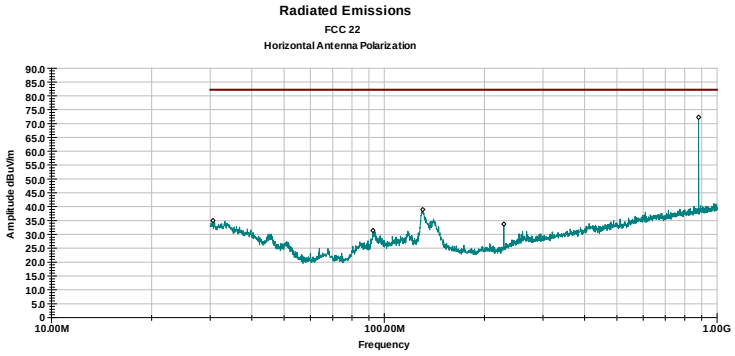
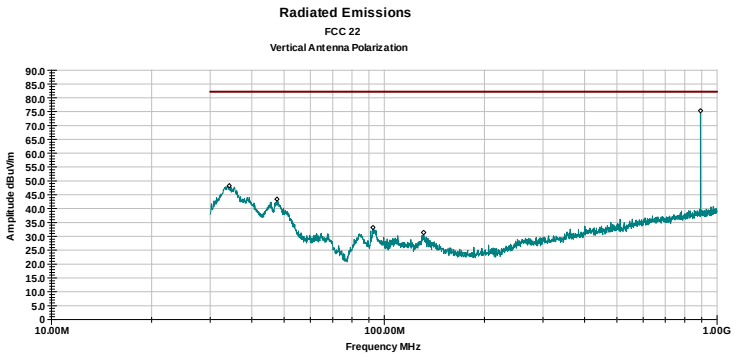


Graph 4



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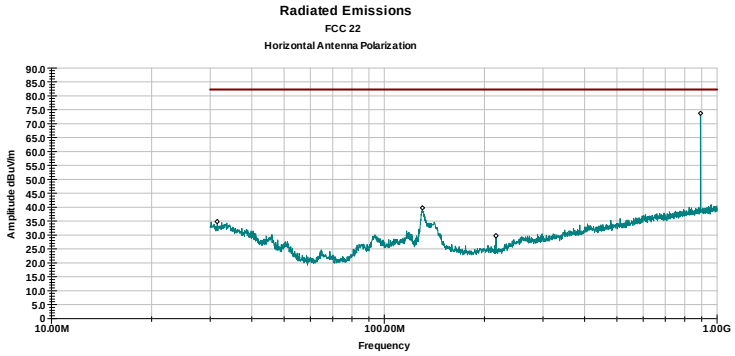

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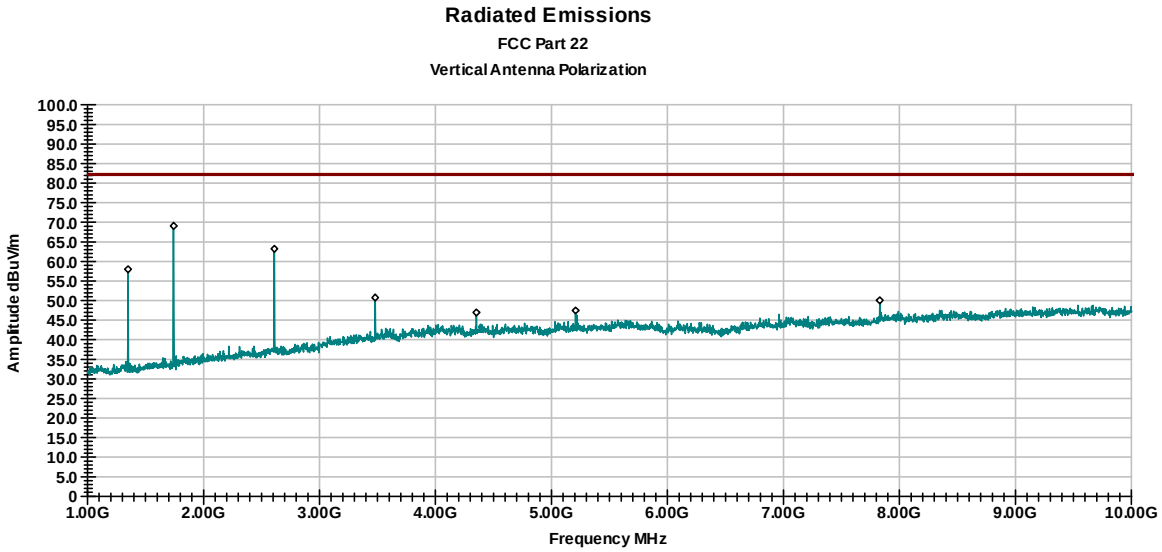

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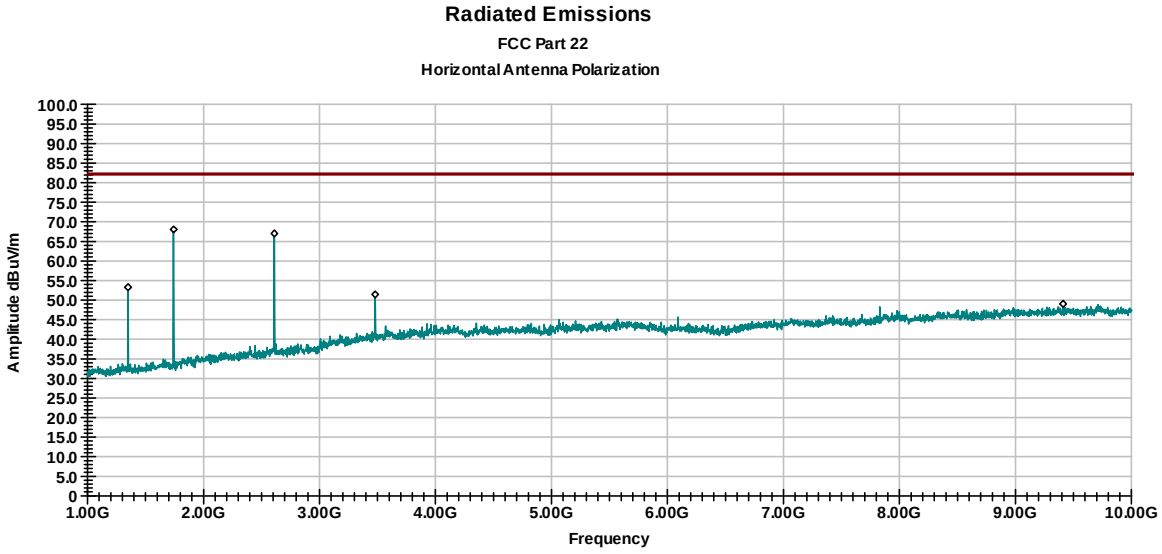
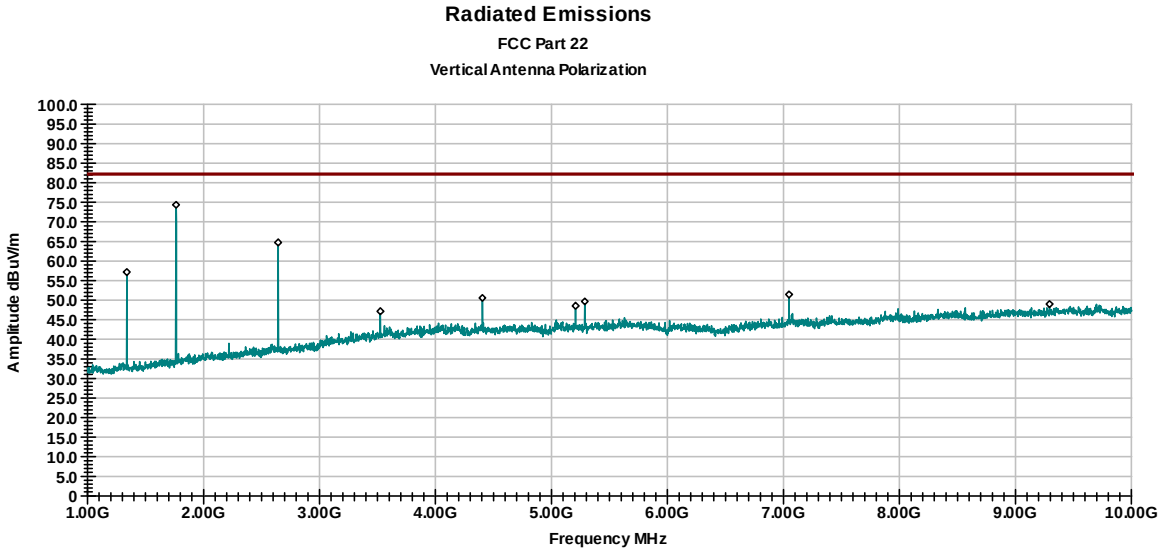
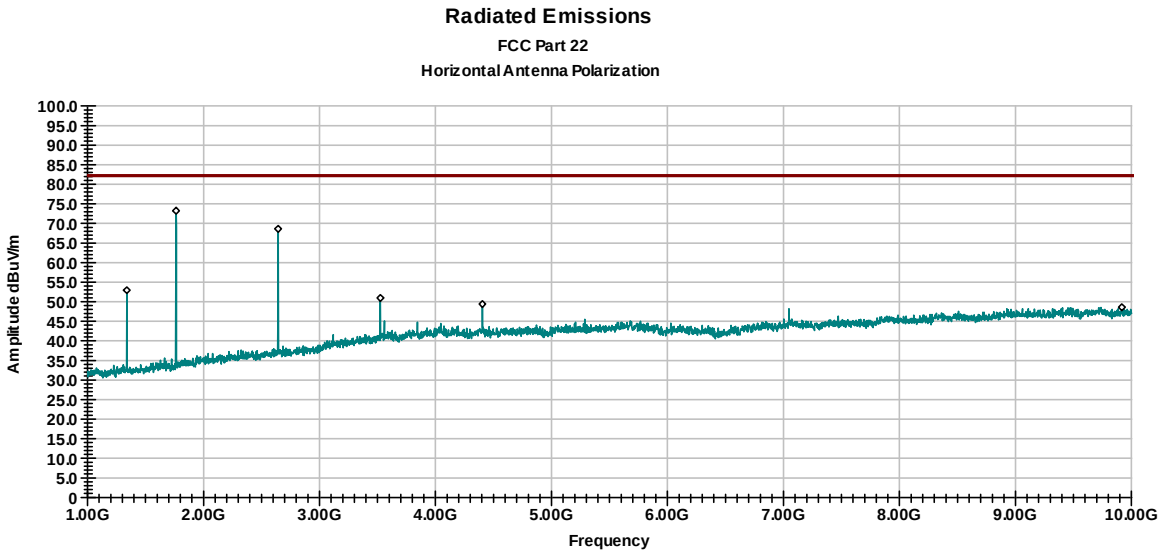


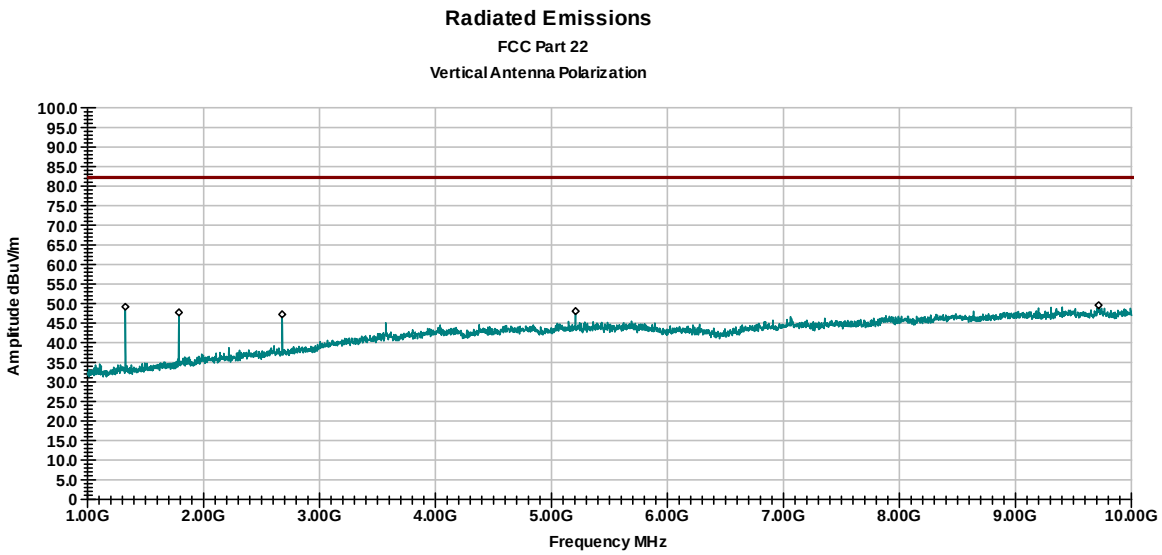
Graph 8



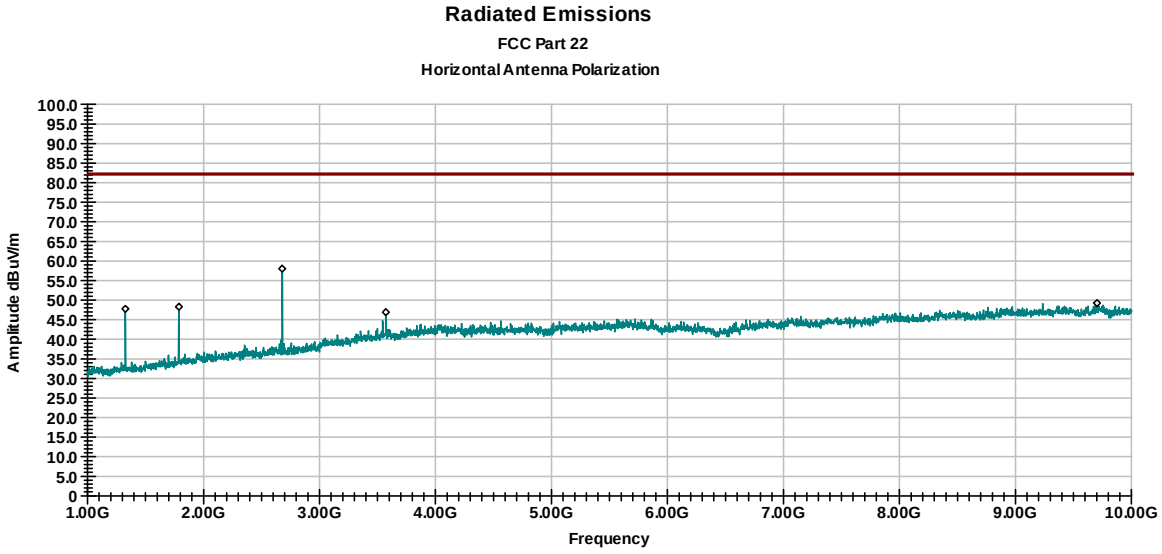
Graph 9



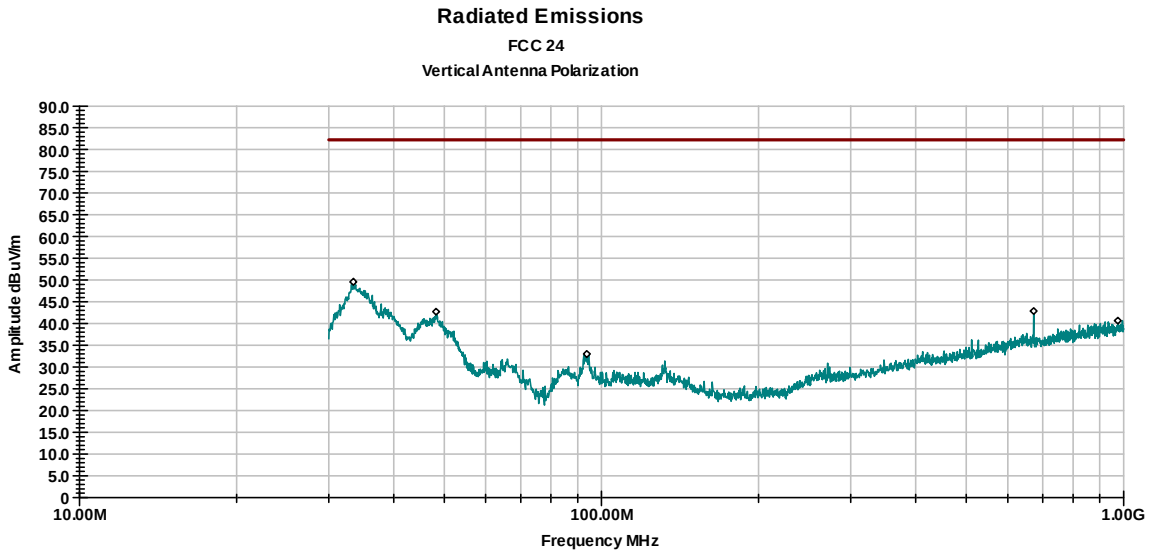
Graph 10



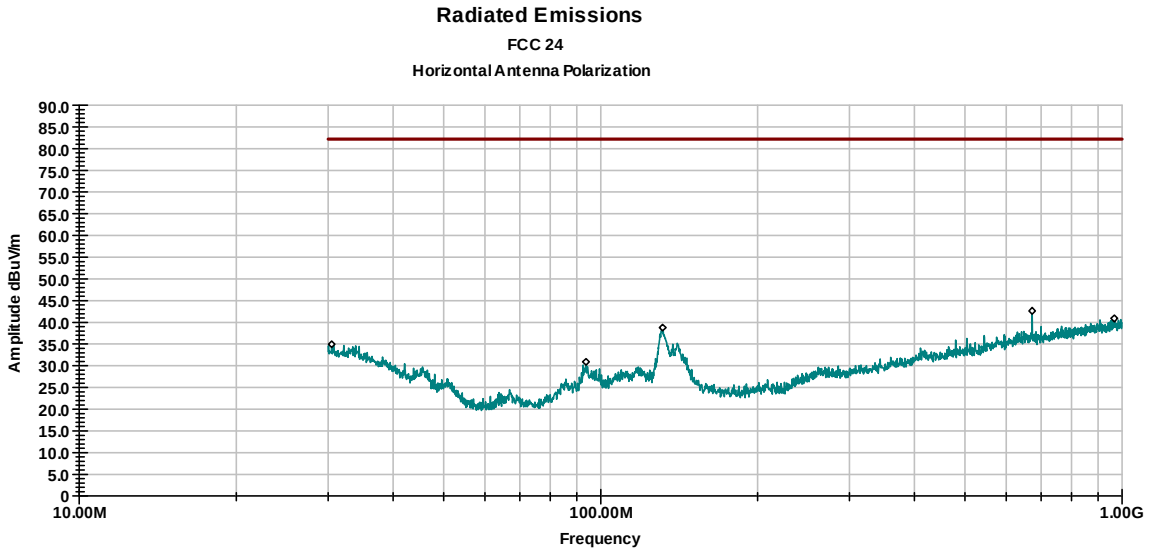
Graph 11



Graph 12



Graph 13



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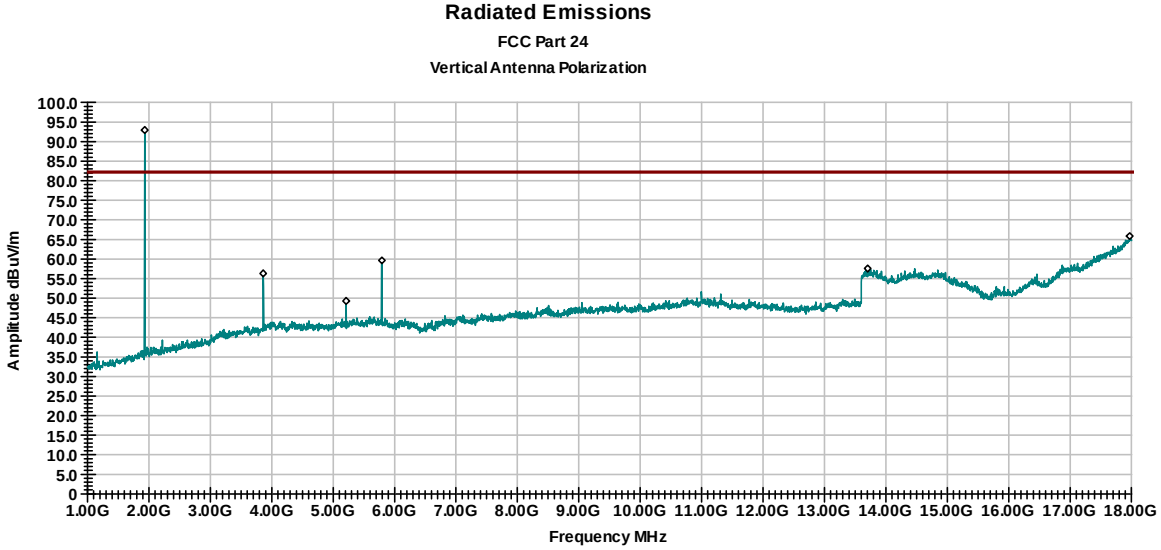

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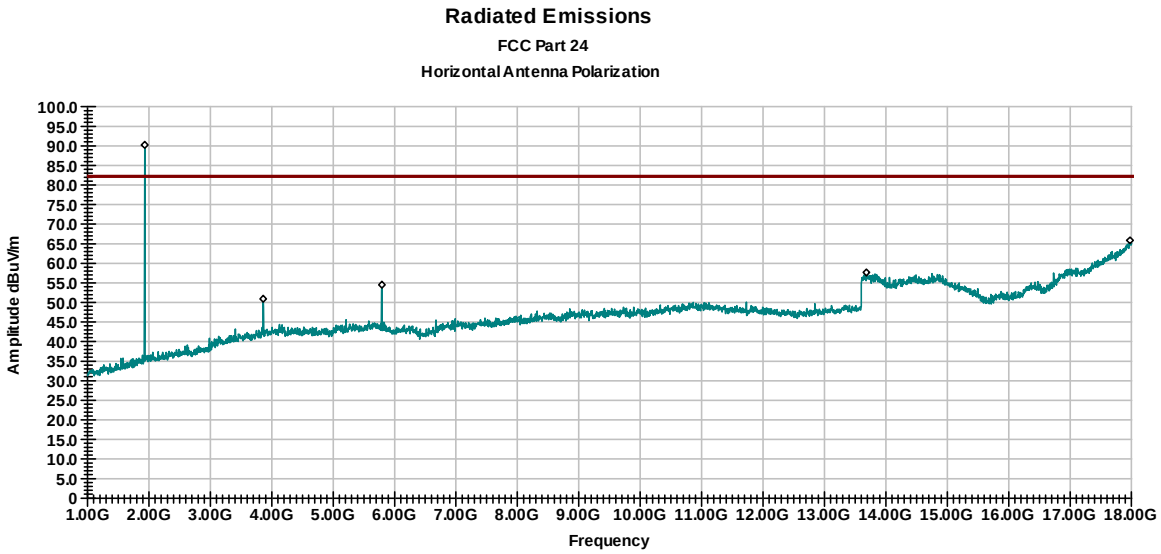
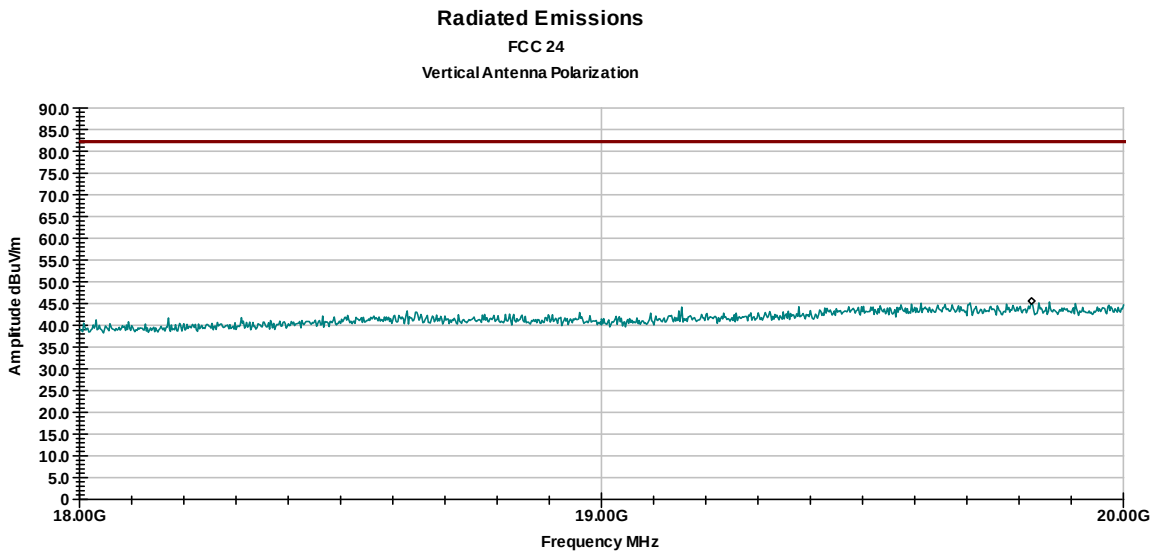


Graph 16



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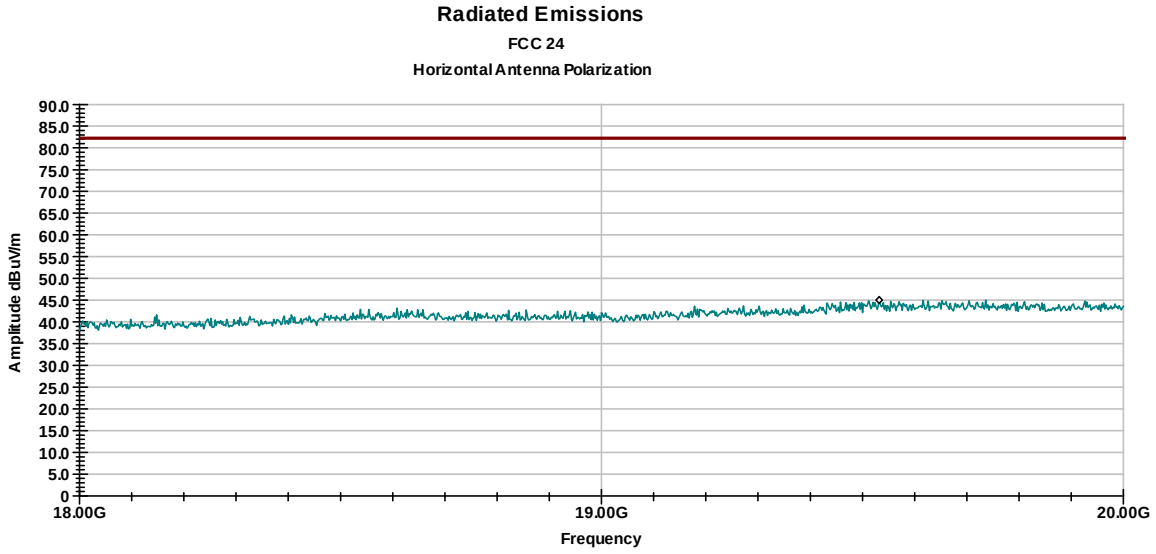

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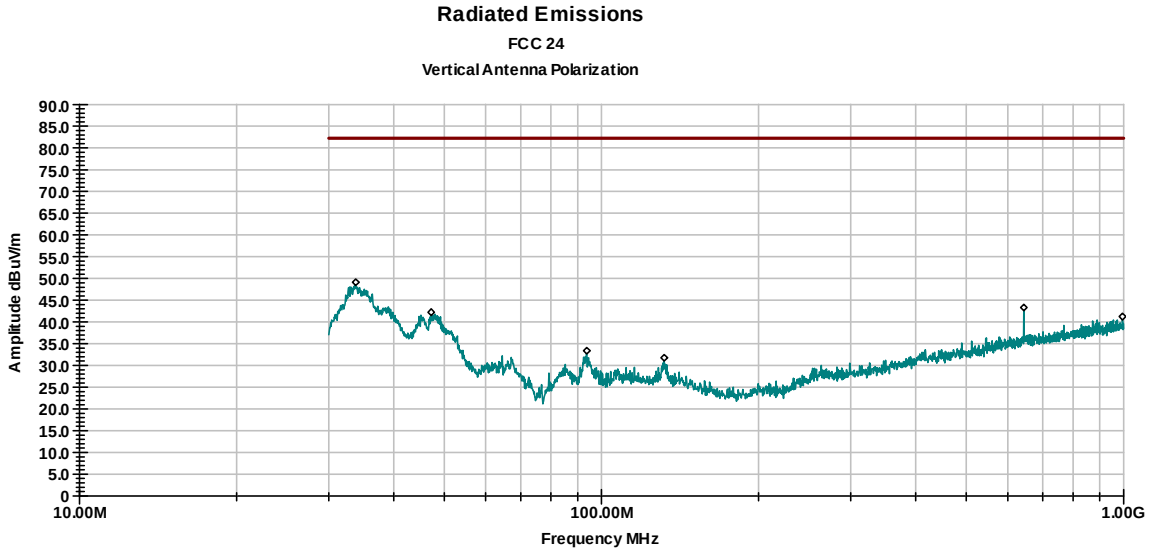

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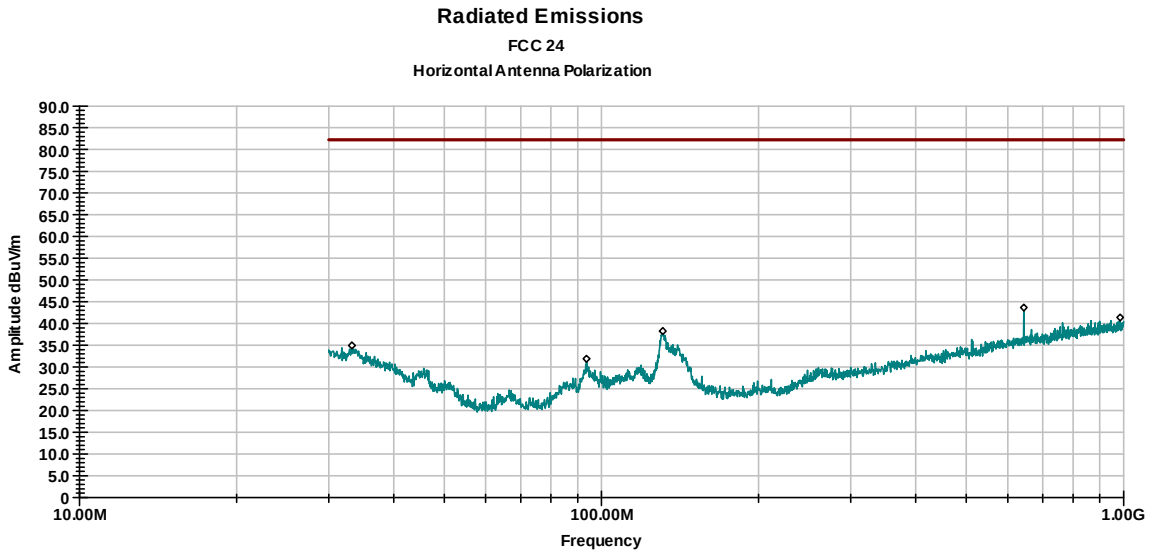

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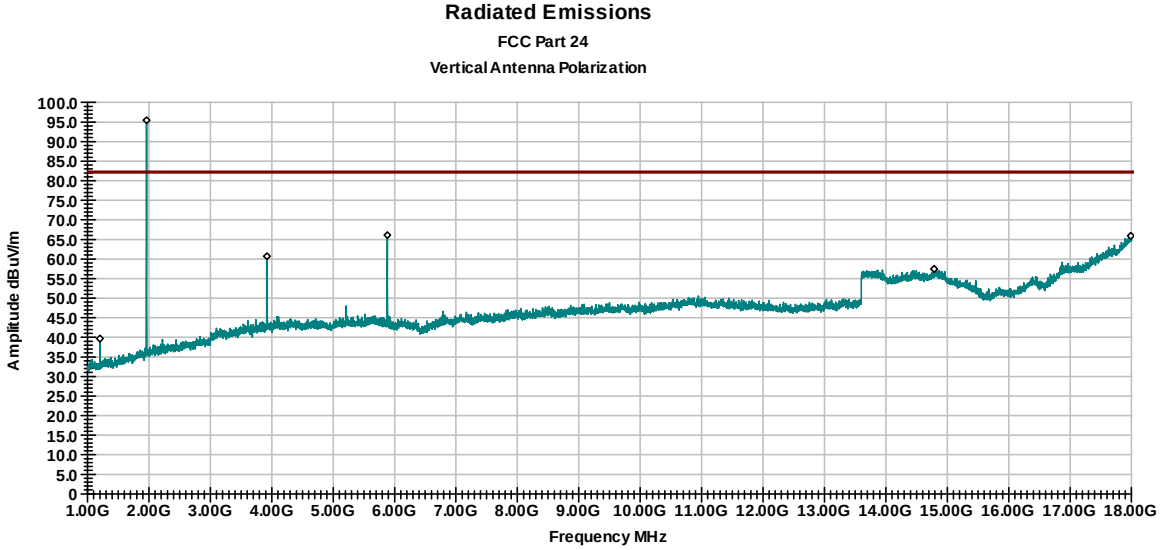
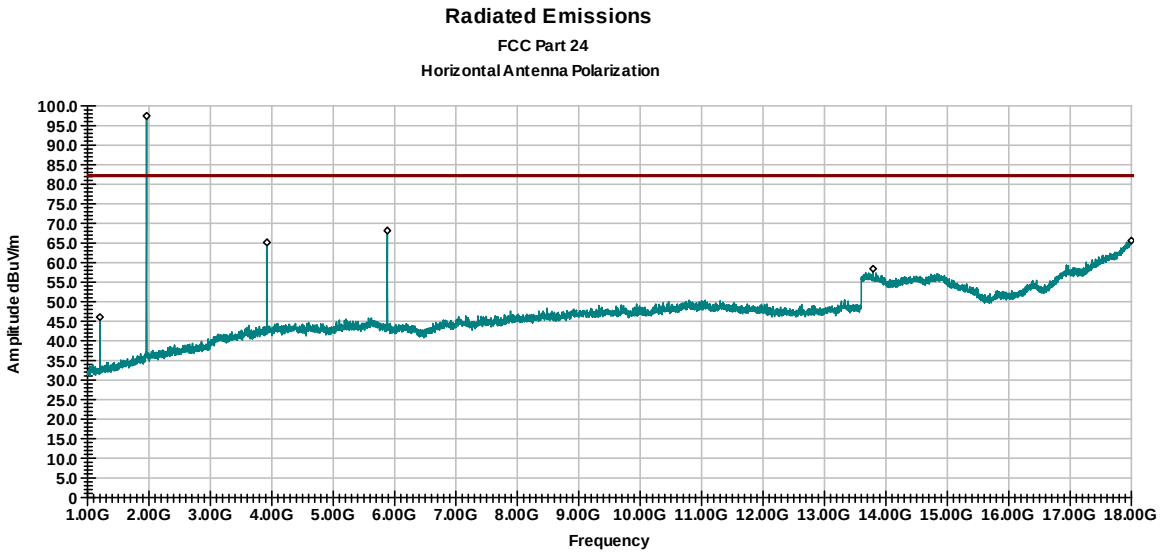
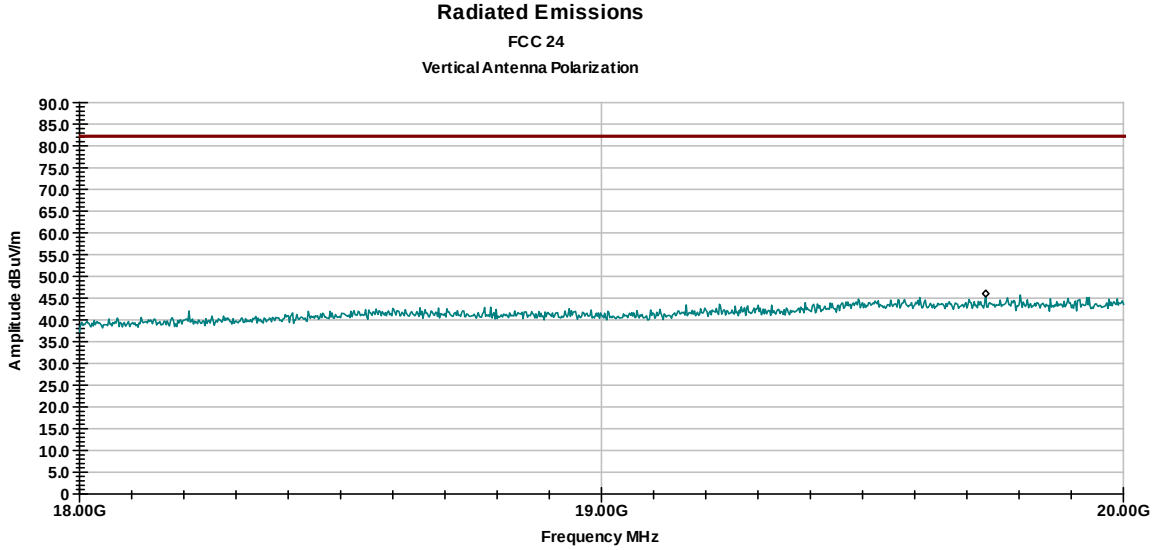


Graph 21



Graph 22



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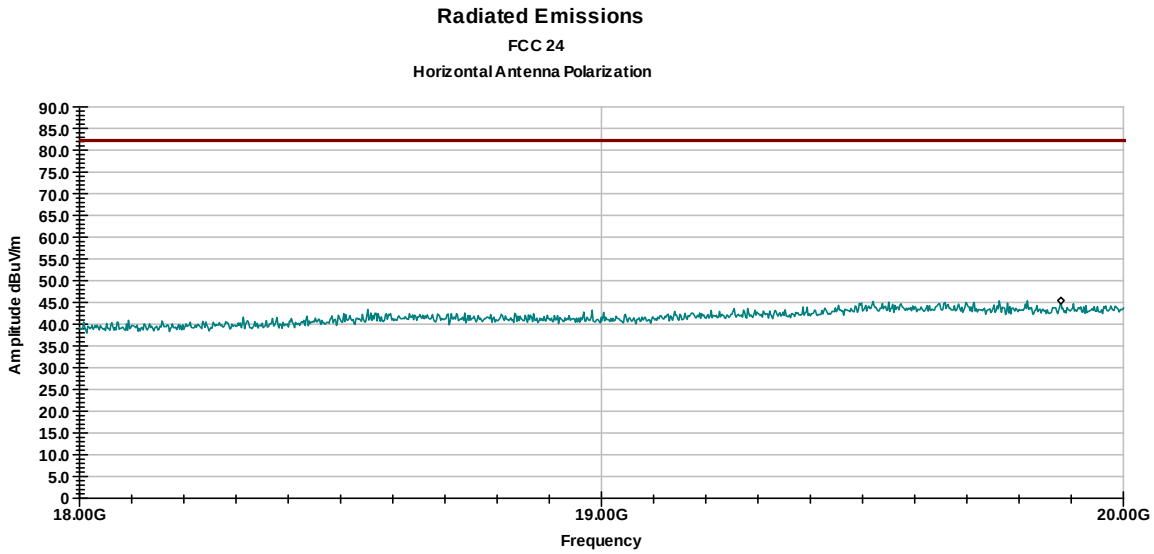

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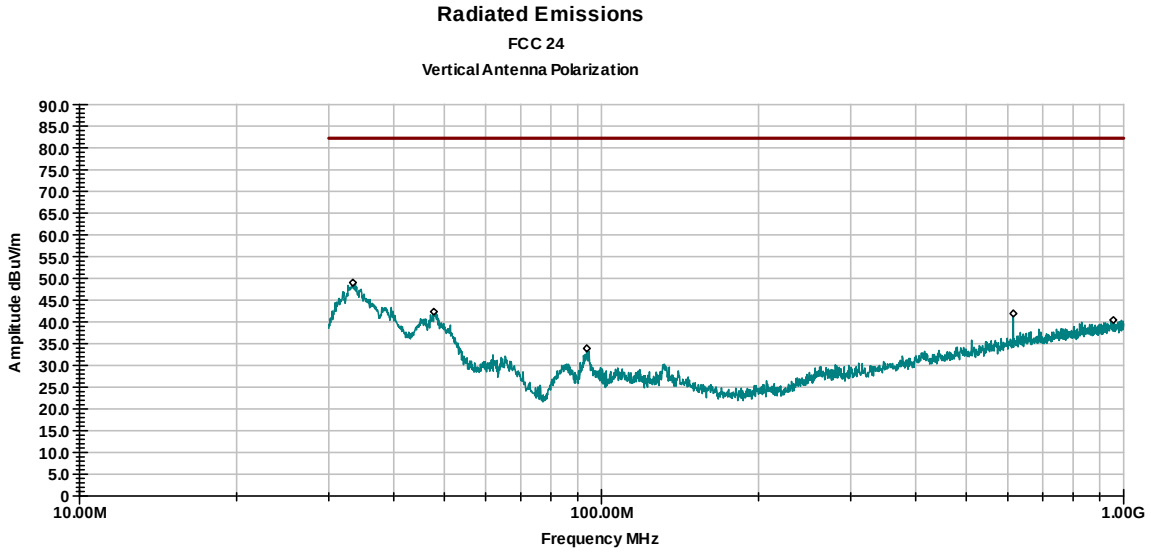

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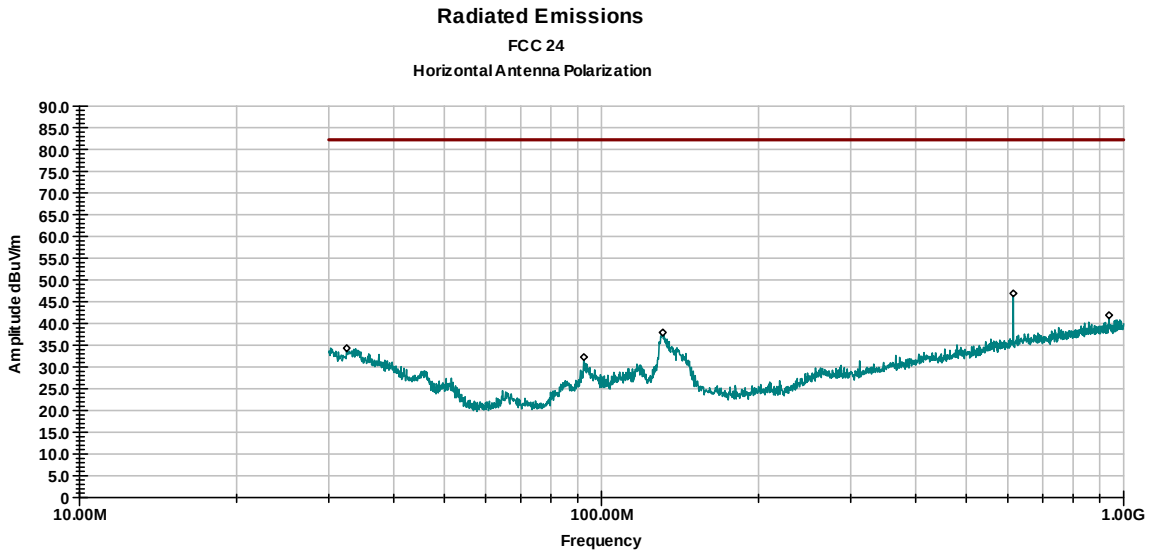

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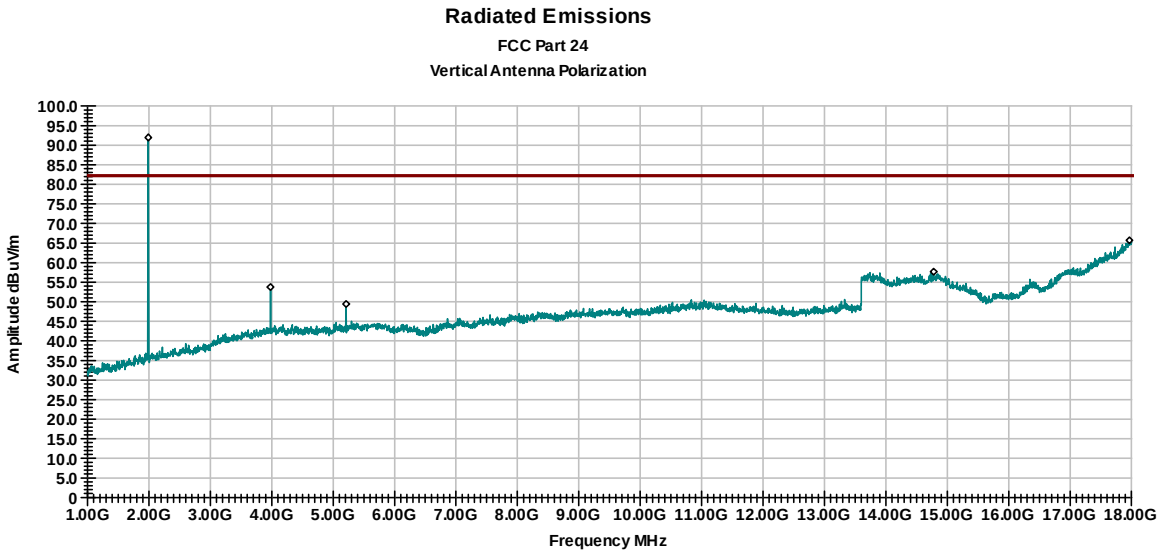

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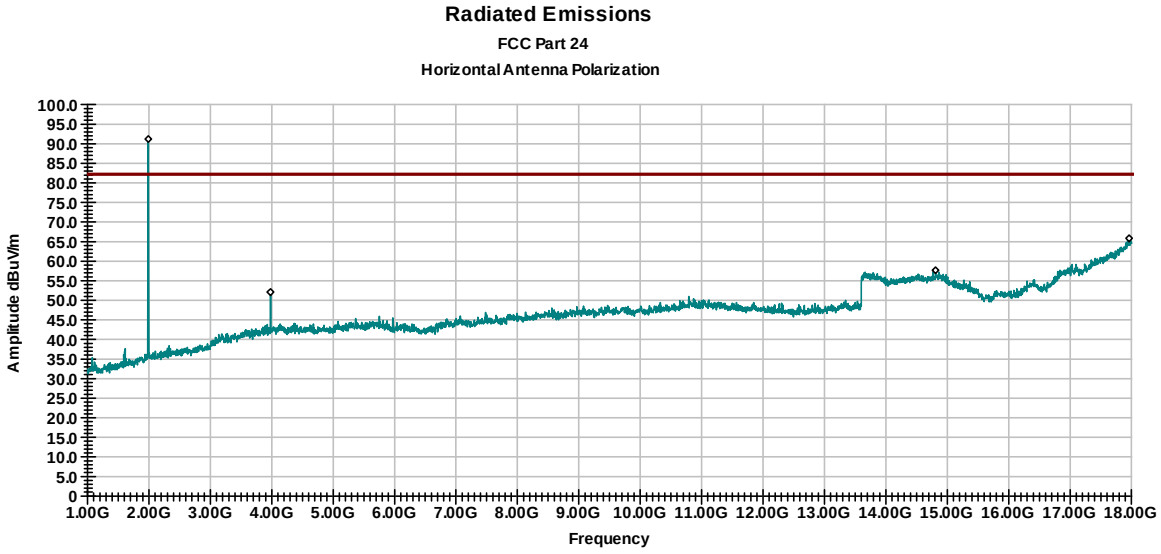

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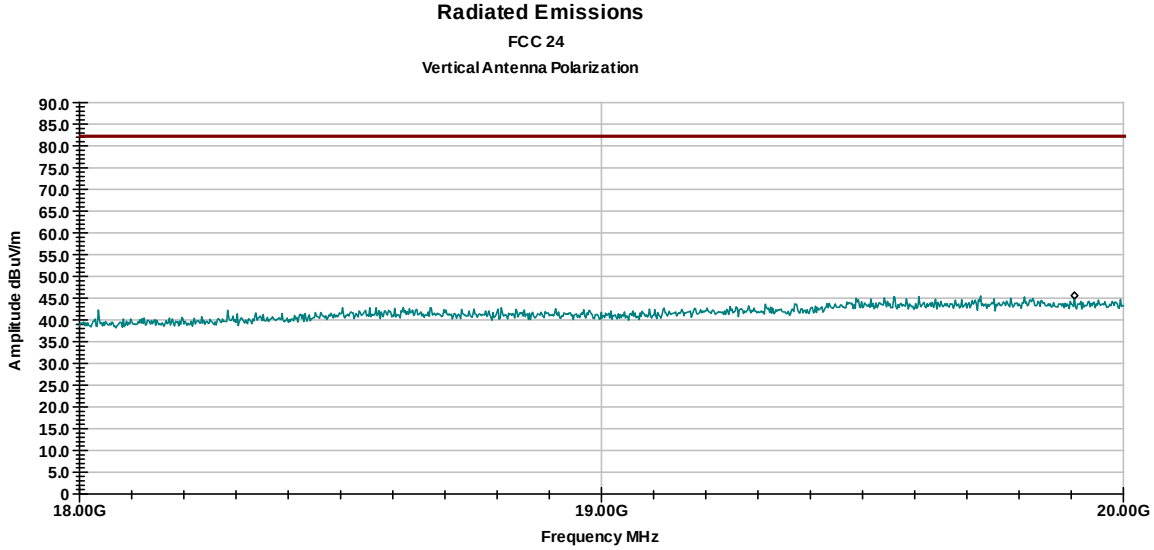

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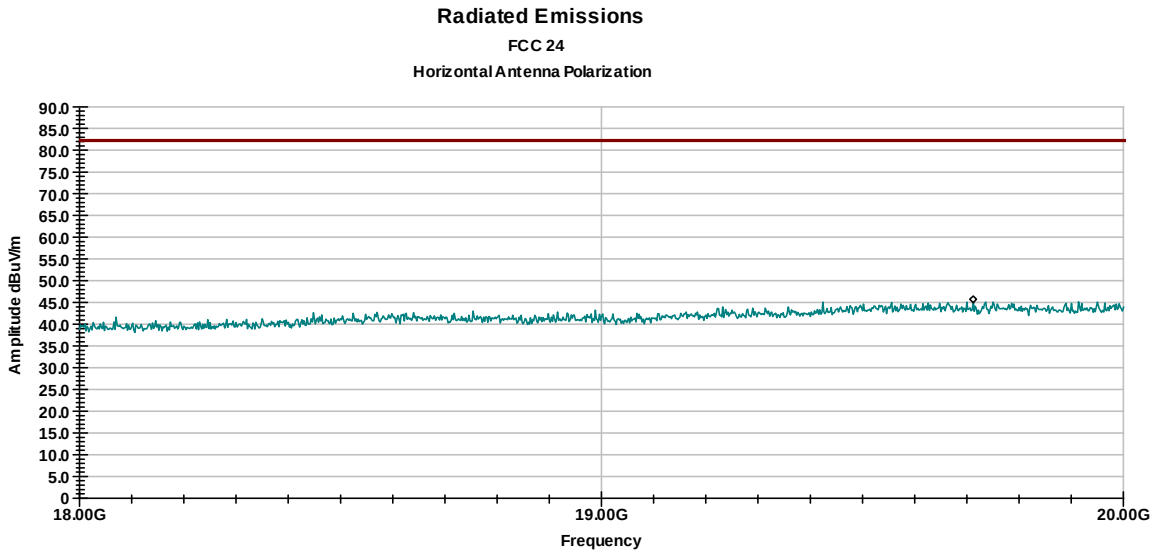

Graph 30

5.0 TEST EQUIPMENT

DESCRIPTION	MANUFACTURER	MODEL	SERIAL NO.	INTERTEK ID	CAL DUE	USED
Spectrum Analyzer	R & S	FSP 40	100024	12559	12/07/2011	☒
Spectrum Analyzer	R & S	ESCI	100358	12909	05/12/2012	☒
Bicono-Log Antenna	Schaffner-Chase	CBL 6112 B	2468	14459	10/18/2011	☒
Horn Antenna	EMCO	3115	9507-4513	9936	04/29/2012	☒
Horn Antenna	EMCO	3115	6579	15580	05/25/2012	☒
Pre-Amplifier	MITEQ	AMF-5D-00501800-28-13P	1122951	13475	10/06/2011	☒
System	TILE! Instrument Control		Ver. 3.4.K.29	15259	VBU	☒
Waveguide Horn Antenna	EMCO	3116	9904-2423	9705	10/04/2011	☒
Pre-Amplifier	MITEQ	AMF-6F-16002600-25-10P	1222383	MIN-0065	10/06/2011	☒