



TEST REPORT

Report Number: 101388141MIN-001
Project Number: G101388141

Testing performed on the:
FWP – L4MTU4MMOD

to
47 CFR, Part 27:2010, Enclosure Spurious Radiated Emissions

For
ADC Telecommunications Inc.

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

Test Authorized by:
ADC Telecommunications Inc.
541 E Trimble Road
San Jose, CA 95131 USA

Prepared by: Clay Huff
Clay Huff

Date: November 21, 2013

Reviewed by: Norman Shpilsher
Norman Shpilsher

Date: November 21, 2013

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1.0 DESCRIPTION OF THE SAMPLE (EUT)

Model:	FWP – L4MTU4MMOD
Type of EUT:	700 Lower ABC HDM 700 Upper C HDM
Intertek ID:	MIN1311110848-001
Company:	ADC Telecommunications Inc.
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:	<input type="checkbox"/> EN 55022:2006 +A1:2007, Class [REDACTED] <input type="checkbox"/> EN 55011:2007 +A2:2007, Group [REDACTED], Class [REDACTED] <input checked="" type="checkbox"/> 47 CFR, Part 27:2010, Enclosure Spurious Radiated Emissions <input type="checkbox"/> ICES-003, Issue 4:2004 <input type="checkbox"/> EN 55014-1:2006 <input type="checkbox"/> EN 61326-1:2006 <input type="checkbox"/> Class [REDACTED] for Radiated and Conducted Emissions <input type="checkbox"/> Basic Immunity Test Requirements <input type="checkbox"/> Immunity Test Requirements for Industrial Locations <input type="checkbox"/> EN 60601-1-2:2001 +A1:2006 <input type="checkbox"/> EN 61000-6-3:2007 <input type="checkbox"/> EN 61000-6-4:2007 <input type="checkbox"/> EN 61000-3-2:2006 <input type="checkbox"/> EN 61000-3-3:1995 +A1:2001 +A2:2006 <input type="checkbox"/> EN 61000-6-1:2007 <input type="checkbox"/> EN 61000-6-2:2005 <input type="checkbox"/> EN 55024:1998 + A1:2001 + A2:2003
Date Sample Submitted:	November 8, 2013
Test Work Started:	November 8, 2013
Test Work Completed:	November 8, 2013
Test Sample Conditions:	<input type="checkbox"/> Damaged <input type="checkbox"/> Poor (Usable) <input checked="" type="checkbox"/> Good <input type="checkbox"/> Prototype <input checked="" type="checkbox"/> Production <input type="checkbox"/> 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 27	Enclosure Spurious Radiated Emissions	Pass

2.1 Statement of the Measurement Uncertainty

Note 1: 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:	<input checked="" type="checkbox"/> 120VAC <input type="checkbox"/> 230VAC <input type="checkbox"/> 400VAC Supply <input type="checkbox"/> Other: <input type="text"/>
Rated current:	<input type="text"/> Amp.
Rated frequency:	<input type="checkbox"/> 50Hz <input checked="" type="checkbox"/> 60Hz
Number of phases:	<input checked="" type="checkbox"/> 1 Phase <input type="checkbox"/> 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 transmission of RF signals at 729MHz, 737MHz, 745MHz for 700 Lower ABC HDM Module. Continuous transmission of RF signals at 747MHz, 751MHz, 755MHz for 700 Upper C HDM Module.
2	The EUT antenna ports were terminated.

Cables:

No.	Type	Length	Designation	Note
1	Two pair fiber	10m each	Signal to the Support Equipment	

Support equipment/Services:

No.	Item	Description
1	Agilent 8648B (located outside Test site)	Signal Generator
2	Prism Host Unit	
3	Prism Host 28VDC Power Supply	
4	30dB Attenuator (2)	

General notes: 700 Lower ABC HDM Module and 700 Upper C HDM Module were tested simultaneously

3.3 Environmental conditions

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

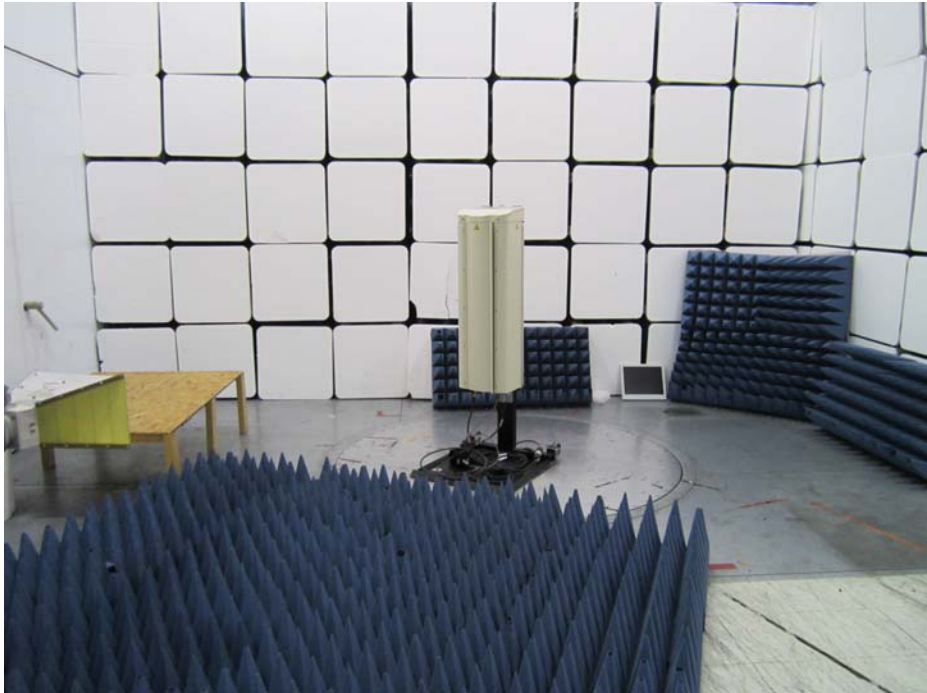
Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 86-106 kPa



Test Setup Photos



Test Setup Photos



Date:	November 8, 2013	Result: Pass
Tested by:	Clay Huff	
Standard:	FCC Part 27	
Test Point:	Enclosure	
Operation mode:	See page 5	
Note:	Frequency Range 1GHz-10GHz	

Table 1

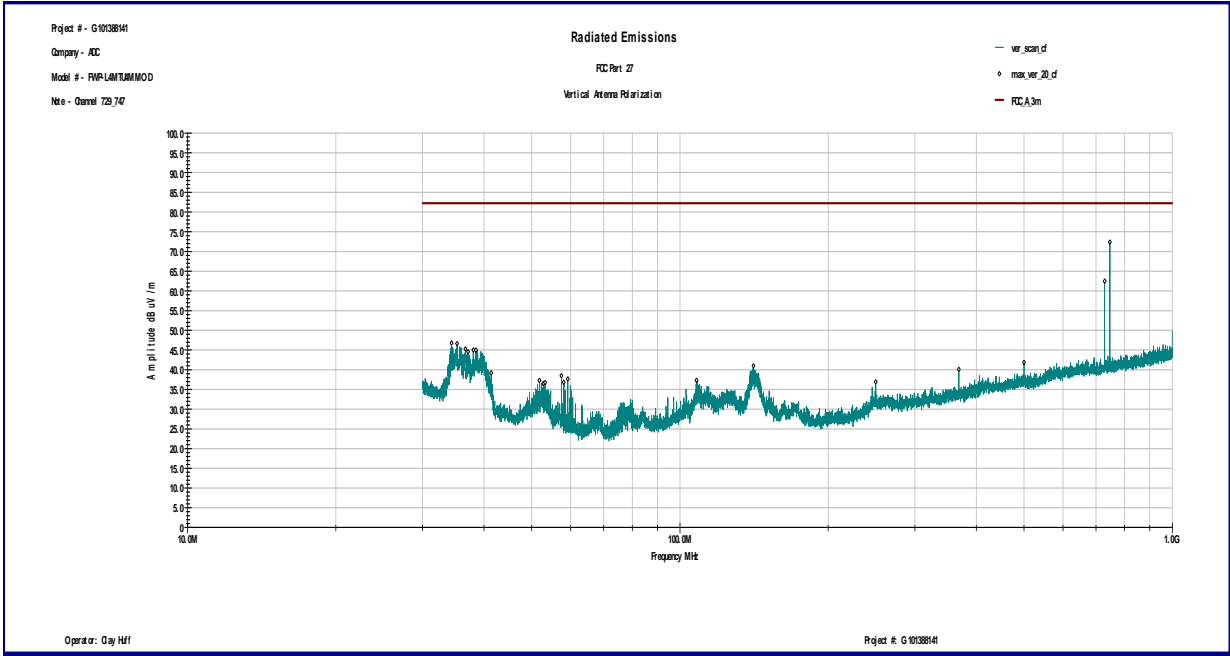
Frequency MHz	Antenna Polarity	Peak Reading dBµV	Total C.F. dB1/m	Pre-Amp. Gain (dB)	Total at 3m dBµV/m	Limit dBµV/m	Margin dB
Channels 729_747MHz							
1.2502 GHz	V	60.1	26.6	42.0	44.7	82.2	-37.5
1.783 GHz	V	52.1	29.0	41.3	39.8	82.2	-42.4
1.9342 GHz	V	47.9	29.8	41.1	36.6	82.2	-45.6
2.1124 GHz	V	55.1	30.42	40.8	44.7	82.2	-37.5
2.9152 GHz	V	54.8	33.1	40.5	47.4	82.2	-34.9
9.2944 GHz	V	38.0	43.7	37.1	44.5	82.2	-37.7
1.2502 GHz	H	68.3	26.6	42.0	53.0	82.2	-29.2
1.495 GHz	H	65.4	27.6	41.8	51.1	82.2	-31.1
2.1124 GHz	H	64.5	30.2	40.8	53.9	82.2	-28.3
2.9152 GHz	H	62.0	33.1	40.5	54.6	82.2	-27.6
8.9812 GHz	H	38.4	43.34	37.2	44.5	82.2	-37.7
Channel 737_751MHz							
1.2502 GHz	V	59.7	26.6	42.0	44.4	82.2	-37.8
1.4536 GHz	V	49.7	27.5	41.8	35.3	82.2	-46.9
2.1124 GHz	V	54.8	30.4	40.8	44.5	82.2	-37.7
2.3338 GHz	V	49.1	31.12	40.5	39.7	82.2	-42.5
2.9476 GHz	V	49.9	33.2	40.5	42.6	82.2	-39.6
8.5024 GHz	V	38.1	43.03	37.2	44.0	82.2	-38.2
1.2502 GHz	H	67.0	26.6	42.0	51.7	82.2	-30.5
1.4752 GHz	H	59.1	27.47	41.8	44.7	82.2	-37.5
1.5022 GHz	H	63.8	27.6	41.8	49.5	82.2	-32.7
1.783 GHz	H	54.9	28.88	41.3	42.4	82.2	-39.8
2.1124 GHz	H	64.2	30.2	40.8	53.6	82.2	-28.6
2.3338 GHz	H	57.9	31.0	40.5	48.3	82.2	-33.9
2.9476 GHz	H	56.1	33.2	40.5	48.8	82.2	-33.4
Channel 745_755MHz							
1.2502 GHz	V	60.3	26.6	42.0	44.9	82.2	-37.3
2.1124 GHz	V	55.3	30.4	40.8	44.9	82.2	-37.3
2.3338 GHz	V	49.2	31.1	40.5	39.8	82.2	-42.4
2.98 GHz	V	51.9	33.3	40.5	44.7	82.2	-37.5
9.397 GHz	V	37.6	43.72	37.1	44.2	82.2	-38.0
1.2502 GHz	H	67.0	26.6	42.0	51.7	82.2	-30.5
2.1124 GHz	H	64.0	30.2	40.8	53.5	82.2	-28.7
2.3338 GHz	H	58.1	31.0	40.5	48.5	82.2	-33.7
2.98 GHz	H	53.1	33.3	40.5	45.9	82.2	-36.3
9.694 GHz	H	36.7	43.9	37.1	43.5	82.2	-38.7



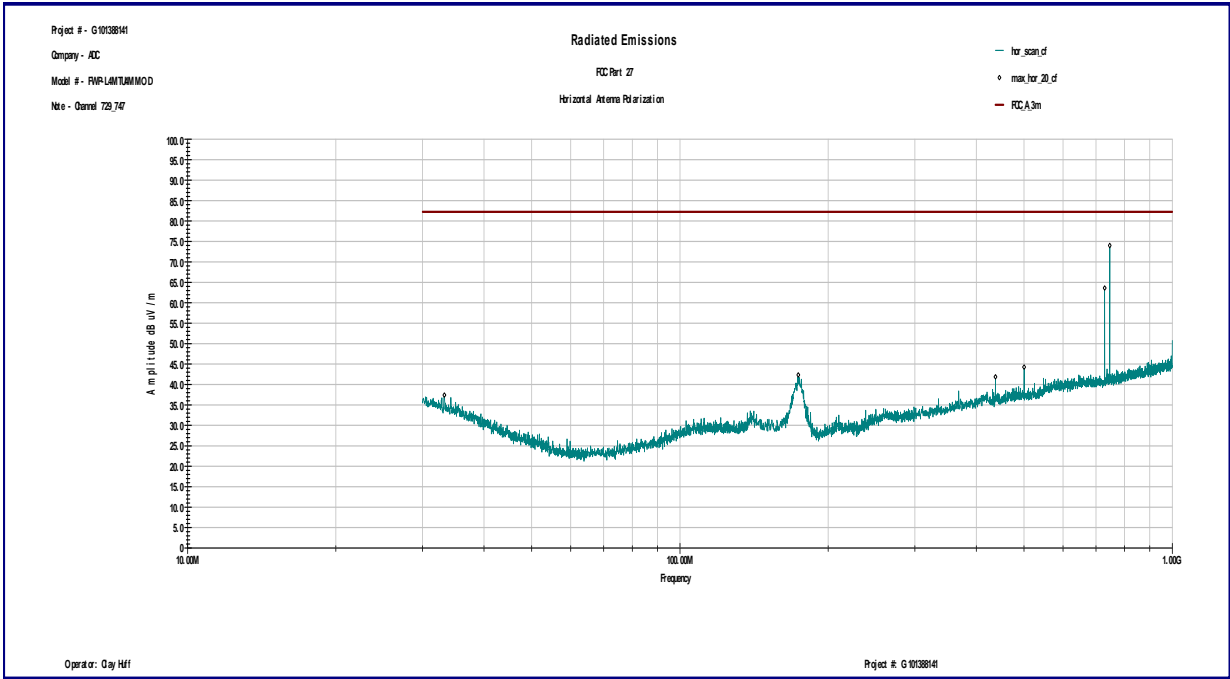
Date:	November 8, 2013	Result: Pass
Tested by:	Clay Huff	
Standard:	FCC Part 27	
Test Point:	Enclosure	
Operation mode:	See page 5	
Note:	Frequency Range 30MHz-1GHz	

Table 2

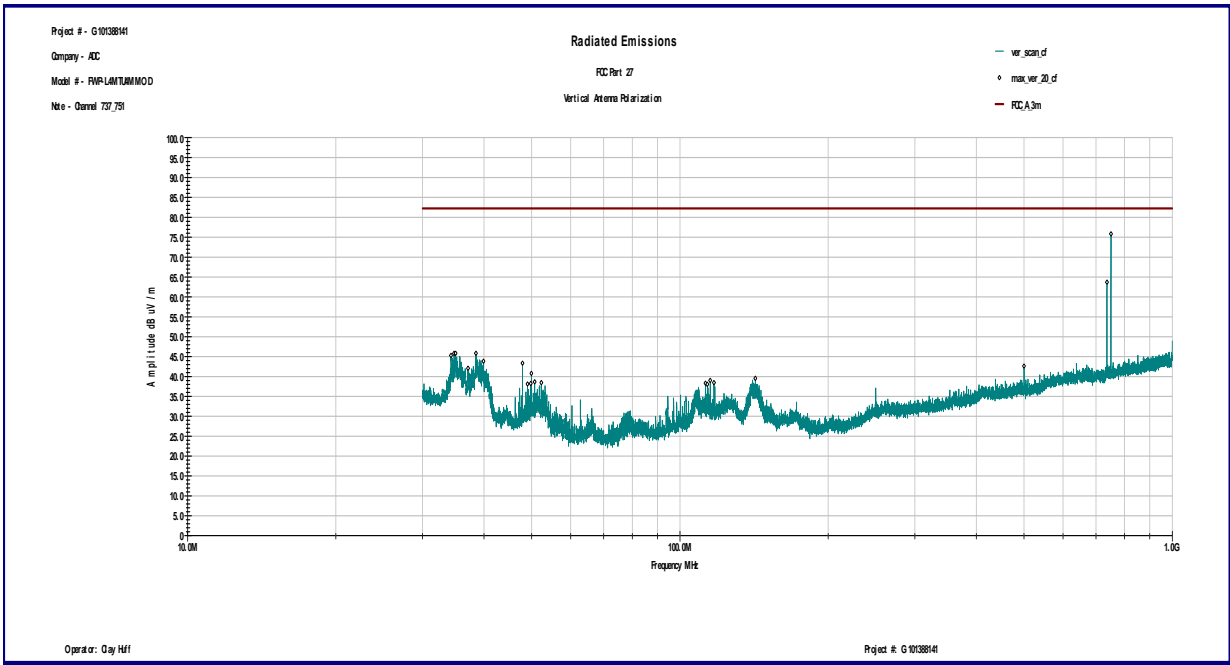
Frequency	Ant. Polarity	Peak Reading dB μ V	Ant.Factor dB1/m	Total at 3m dB μ V/m	Limit dB μ V/m	Margin dB
Channels 729_747MHz						
34.358 MHz	V	28.9	17.9	46.8	82.2	-35.4
35.258 MHz	V	29.2	17.4	46.6	82.2	-35.6
36.66 MHz	V	28.6	16.6	45.3	82.2	-37.0
37.116 MHz	V	28.2	16.4	44.5	82.2	-37.7
38.063 MHz	V	29.2	15.8	45.0	82.2	-37.2
38.495 MHz	V	29.4	15.6	45.0	82.2	-37.2
173.97 MHz	H	30.9	11.4	42.3	82.2	-39.9
500.18 MHz	H	23.6	20.7	44.3	82.2	-37.9
Channel 737_751MHz						
34.277 MHz	V	27.3	18.0	45.3	82.2	-36.9
34.756 MHz	V	28.1	17.7	45.8	82.2	-36.4
35.024 MHz	V	28.3	17.6	45.8	82.2	-36.4
38.518 MHz	V	30.3	15.6	45.8	82.2	-36.4
39.885 MHz	V	29.0	14.8	43.8	82.2	-38.4
47.887 MHz	V	32.3	11.1	43.3	82.2	-38.9
499.98 MHz	V	21.9	20.7	42.6	82.2	-39.6
173.81 MHz	H	33.3	11.4	44.7	82.2	-37.5
437.49 MHz	H	22.9	19.6	42.5	82.2	-39.7
500.18 MHz	H	23.7	20.7	44.4	82.2	-37.8
Channel 745_755MHz						
34.288 MHz	V	26.8	18.0	44.8	82.2	-37.4
35.714 MHz	V	27.3	17.2	44.5	82.2	-37.8
37.069 MHz	V	26.4	16.4	42.8	82.2	-39.4
39.441 MHz	V	30.4	15.0	45.4	82.2	-36.8
140.62 MHz	V	27.0	13.3	40.3	82.2	-41.9
499.98 MHz	V	21.5	20.7	42.2	82.2	-40.0
816.13 MHz	V	21.3	24.6	45.9	82.2	-36.3
173.49 MHz	H	33.6	11.4	45.0	82.2	-37.2
500.18 MHz	H	24.3	20.7	45.0	82.2	-37.2



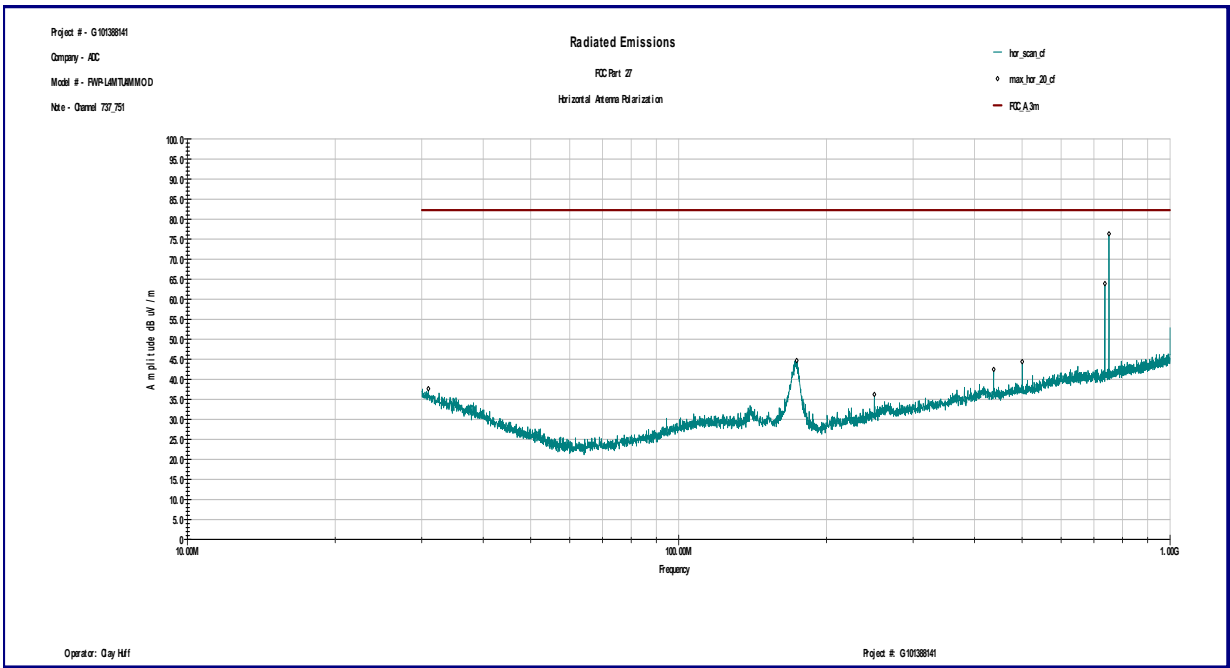
Graph 1



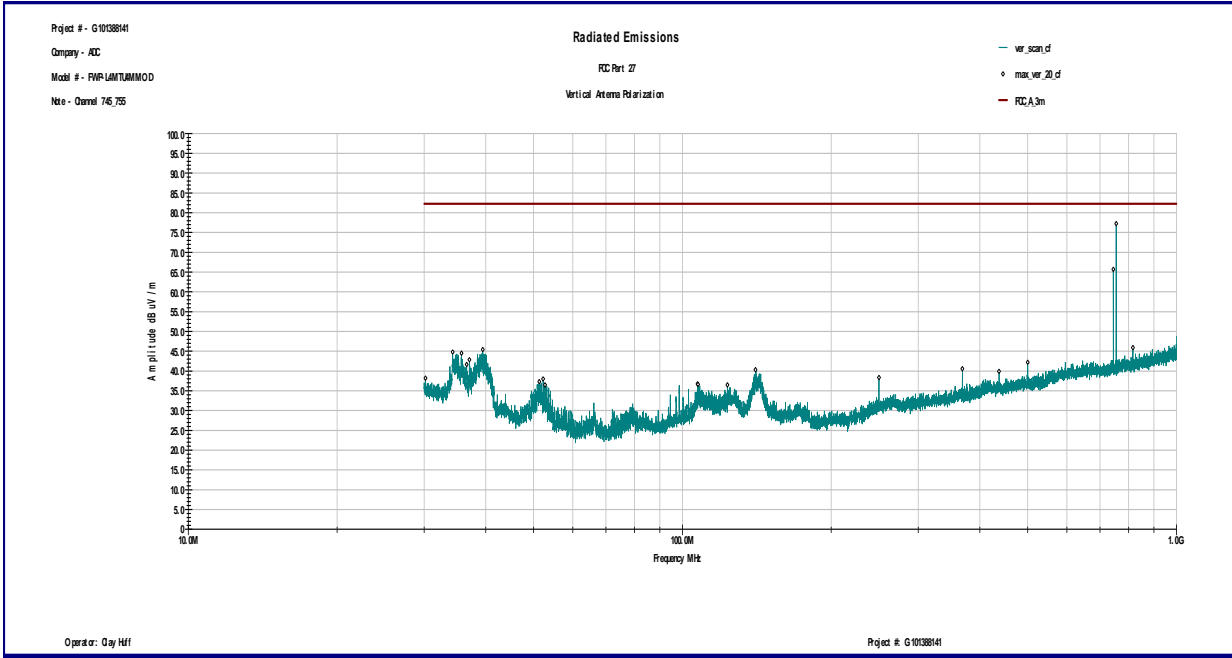
Graph 2



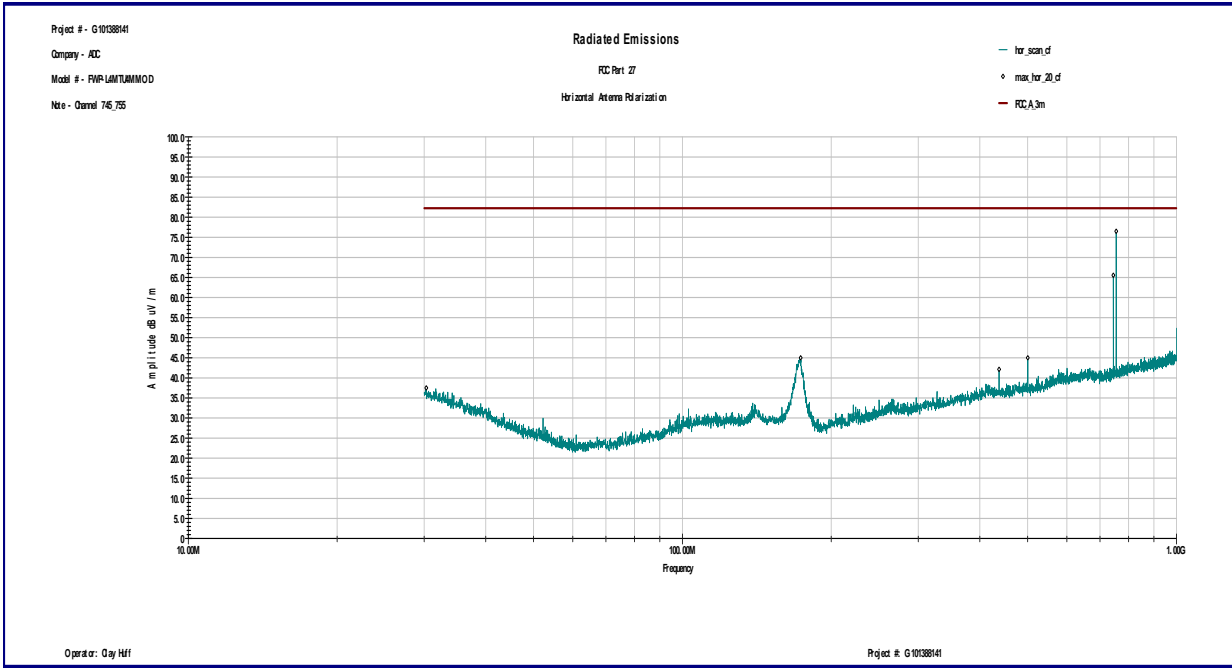
Graph 3



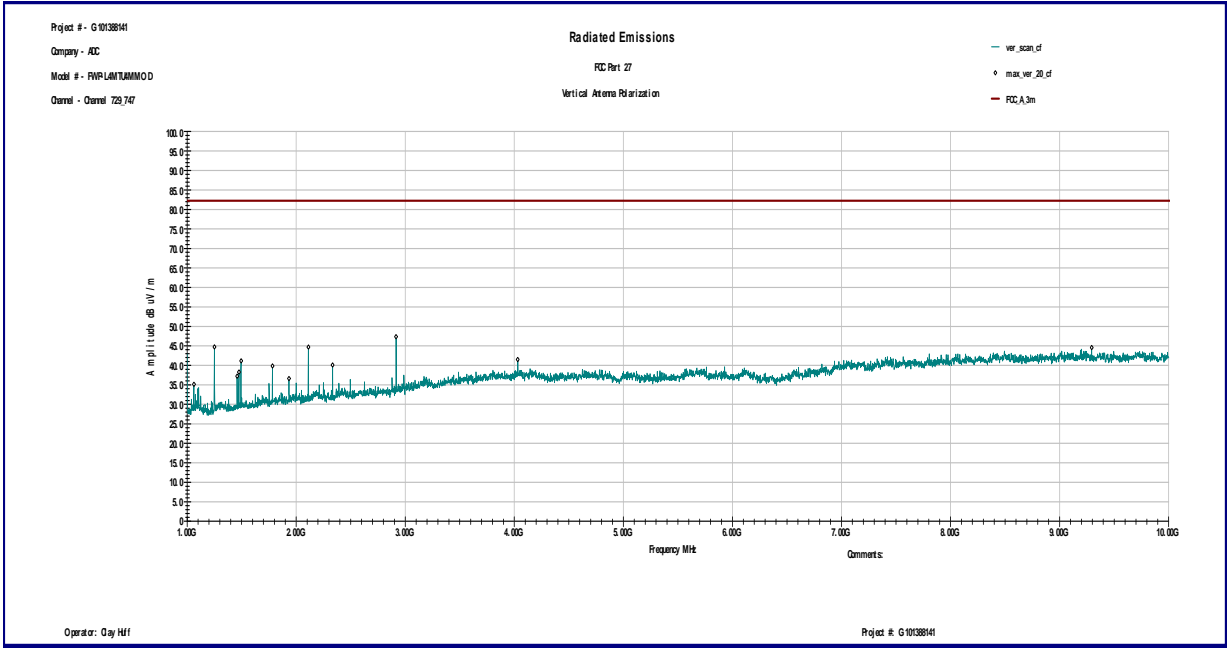
Graph 4



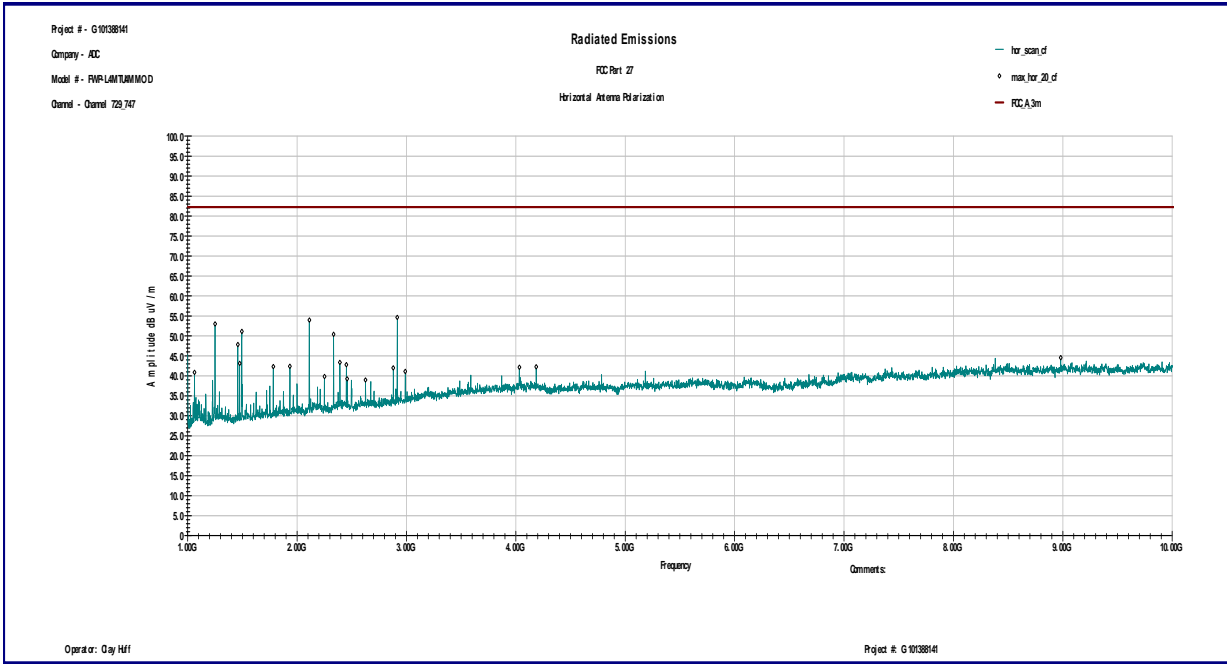
Graph 5



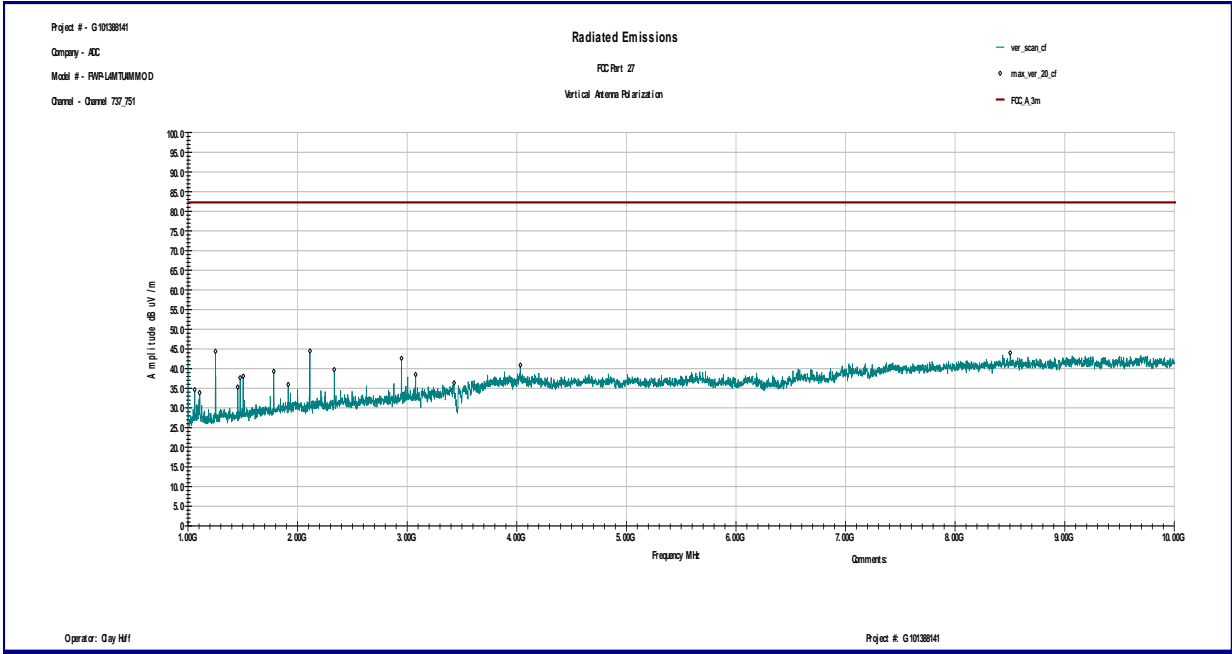
Graph 6



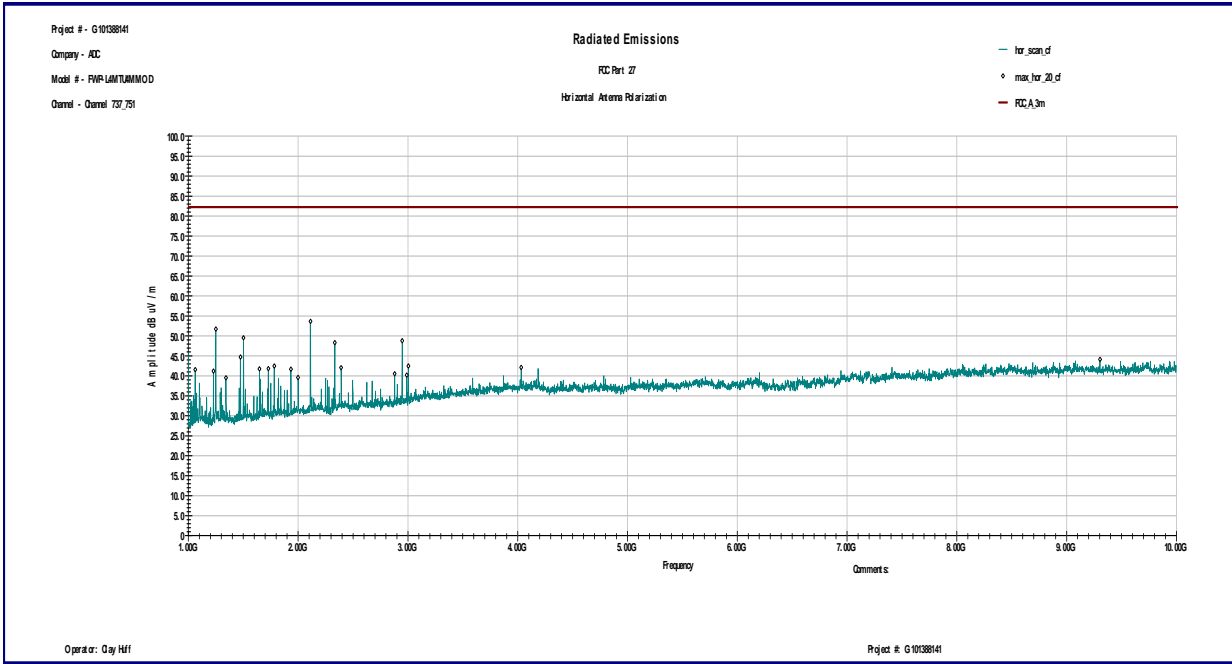
Graph 7



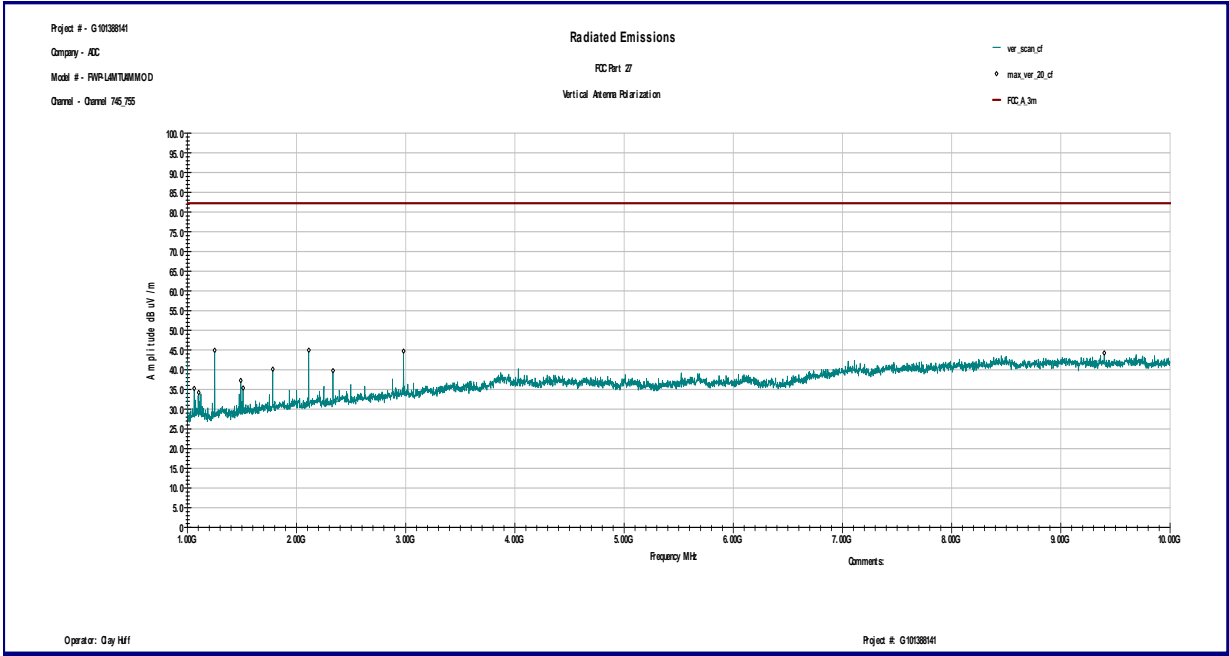
Graph 8



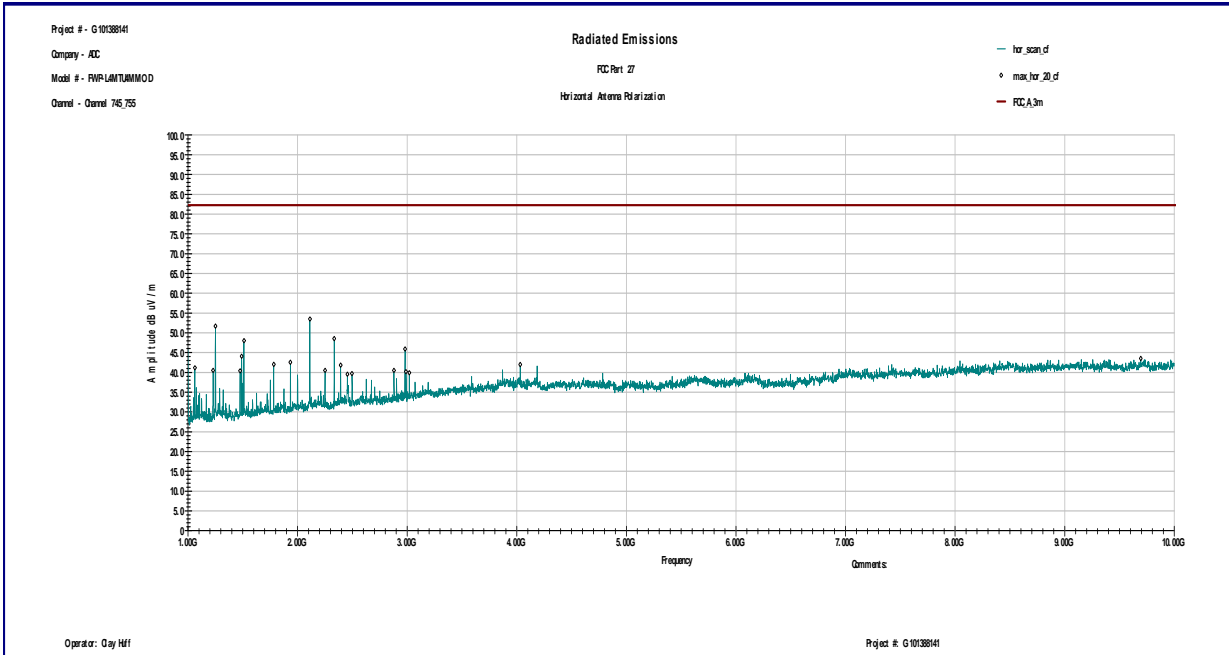
Graph 9



Graph 10



Graph 11



Graph 12



5.0 TEST EQUIPMENT

DESCRIPTION	MANUFACTURER	MODEL	SERIAL NO.	INTERTEK ID	CAL DUE	USED
Spectrum Analyzer	R & S	FSP 40	100024	12559	11/29/2013	<input checked="" type="checkbox"/>
Spectrum Analyzer	R & S	ESU	100398	25283	12/19/2013	<input checked="" type="checkbox"/>
Bicono-Log Antenna	Teseq	CBL6112D	32859	25289	08/30/2014	<input checked="" type="checkbox"/>
Horn Antenna	EMCO	3115	9507-4513	9936	05/28/2014	<input checked="" type="checkbox"/>
Waveguide Horn Antenna	EMCO	3116	9904-2423	9705	11/07/2013	<input checked="" type="checkbox"/>
Pre-Amplifier	MITEQ	AMF-5D-00501800-28-13P	1402232	172081	11/12/2014	<input checked="" type="checkbox"/>
System	Quantum Change	TILE! Instrument Control	Ver. 3.4.K.29	15259	VBU	<input checked="" type="checkbox"/>