TEST REPORT

Report Number: 101716480MIN-001
Project Number: G101716480

Testing performed on the
FWP – B4MT000MOD
to
47 CFR, Part 22:2010, Enclosure Spurious Radiated Emissions
RSS-132 Issue 3, 2013

For
TE Connectivity Company / ADC Telecommunications Inc

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

Test Authorized by:
TE Connectivity Company / ADC
Telecommunications Inc
541 E Trimble Road
San Jose, CA 95131 USA

Prepared by: _____ Date: July 9, 2014
Simon Khazon

Reviewed by: _____ Date: July 9, 2014
Norman Shpilsher

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1.0 DESCRIPTION OF THE SAMPLE (EUT)

Model:	FWP – B4MT000MOD
Type of EUT:	850 CELL MIMO
Serial Number / Intertek Sample ID:	869-894MHz
Company:	TE Connectivity 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:	☐ EN 55022:2006 +A1:2007, Class ☐ EN 55011:2007 +A2:2007, Group , Class ☒ 47 CFR, Part 22:2010, Enclosure Spurious Radiated Emissions ☒ RSS-132 Issue 3, 2013 ☐ 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:	July 9, 2014
Test Work Started:	July 9, 2014
Test Work Completed:	July 9, 2014
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

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:	☒ 120VAC ☐ 230VAC ☐ 400VAC Supply ☐ 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 transmission of RF signals at 870MHz, 881MHz and 893MHz into two paths.
2	The EUT antenna ports were 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 E4421B (located outside Test site)	Signal Generator
2	Prism Host Unit	
3	Prism Host 28VDC Power Supply	
4	30dB Attenuator (2)	
5	Prism Remote Chassis FPI – 10000002121R4	

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

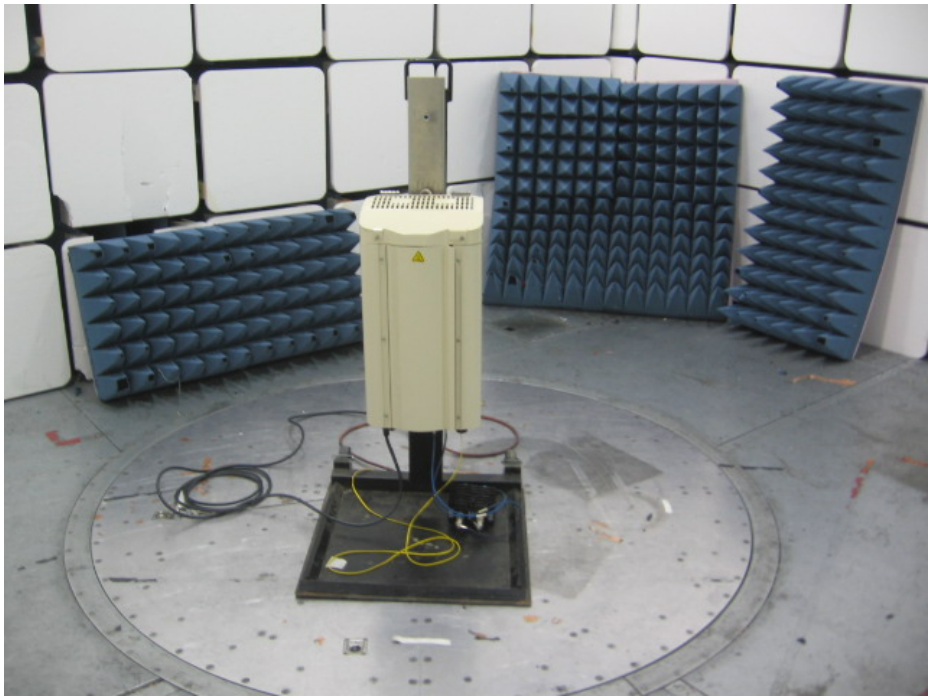
Test result: **Pass**

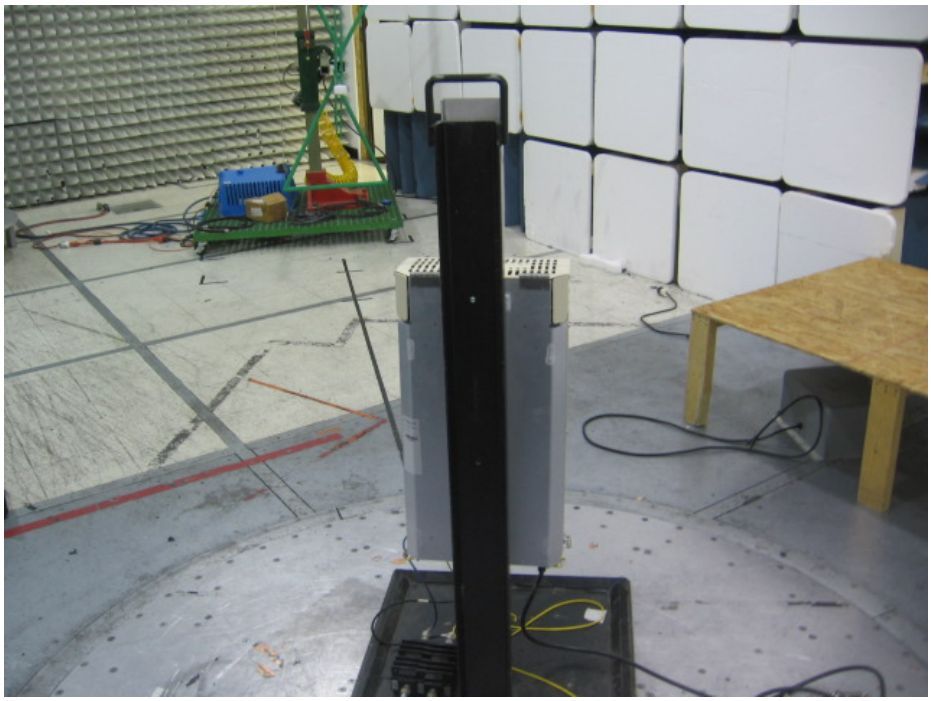
Frequency range: 30MHz-10GHz

Max. Emissions margin: 28.9dB below the Limits

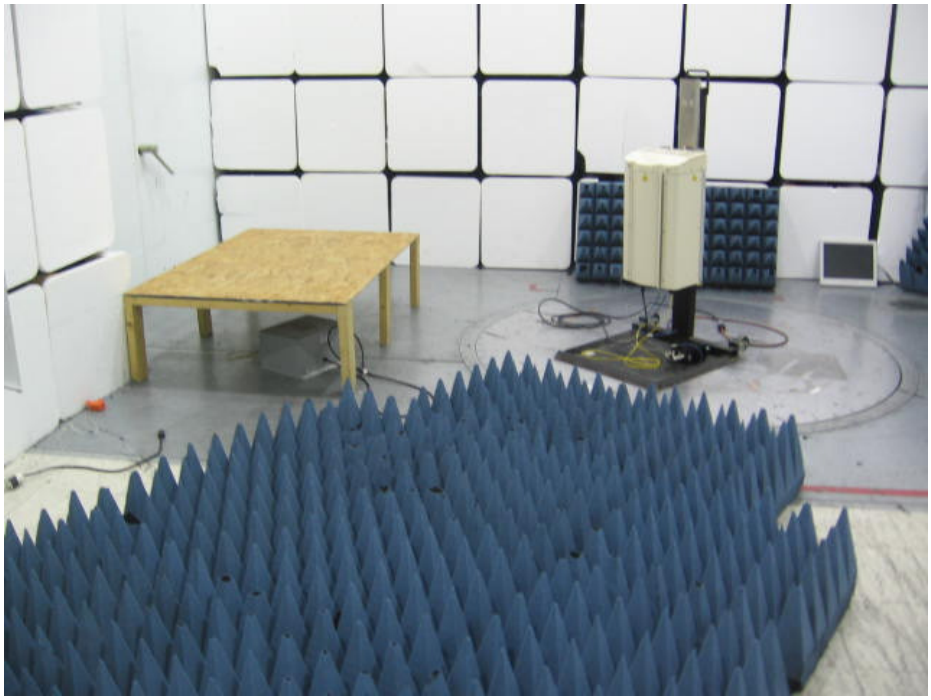
Notes:

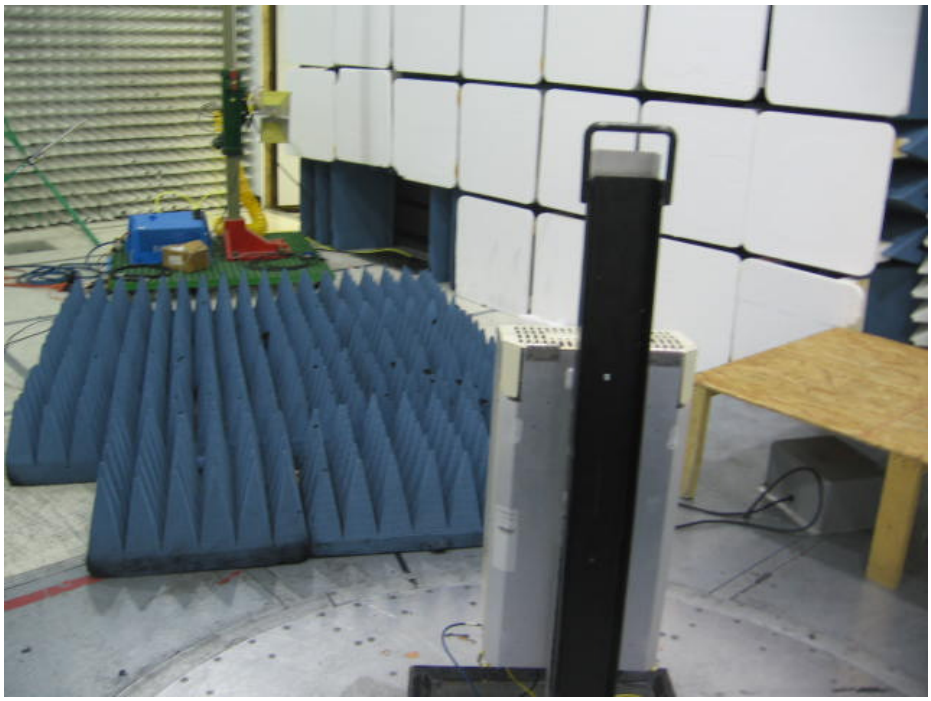
1. The Radiated Emissions testing was performed in the Anechoic chamber at 3m measurement distance (see Tables 1 and 2 and Graphs 1-12).
2. The Spurious Radiated Power limits of -13dBm was correlated with field strength Reference Limits of 82.2dBµV/m during field strength reference testing at 3m measurement distance (Graphs 1-12).
3. No emissions were chosen for substitution measurements as the maximum field strength emission is more than 20dB below the Reference Limits.
4. Emissions at operating frequencies were excluded from the Tables.





Test Setup Photos





Test Setup Photos

Date:	July 9, 2014	**Result:** **Pass**
Tested by:	Simon Khazon	
Standard:	FCC Part 24	
Test Point:	Line 1 and Line 2	
Operation mode:	See page 5	
Note:	Frequency Range 30-1000MHz	

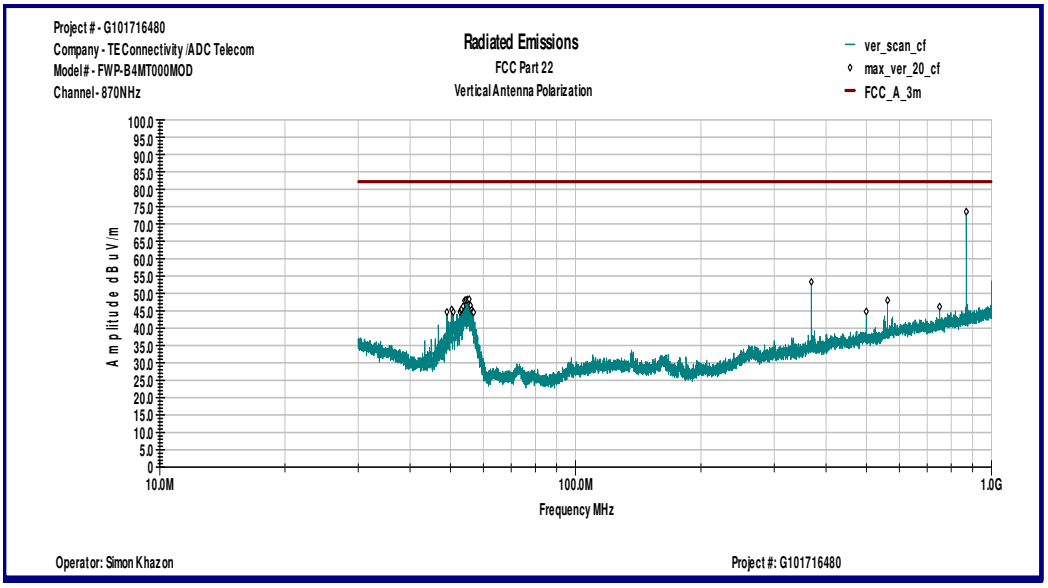
Table 1

Frequency	Ant. Polarity	Peak Reading dBµV	Ant.Factor dB1/m	Total at 3m dBµV/m	Limit dBµV/m	Margin dB
		Channel 870MHz				
54.56 MHz	V	39.7	8.4	48.1	82.2	-34.1
55.453 MHz	V	40.2	8.1	48.4	82.2	-33.8
368.71 MHz	V	35.3	18.0	53.3	82.2	-28.9
32.147 MHz	H	18.0	19.1	37.2	82.2	-45.0
368.57 MHz	H	30.7	18.0	48.7	82.2	-33.5
562.52 MHz	H	28.8	21.9	50.7	82.2	-31.5
		Channel 881MHz				
48.52 MHz	V	36.2	10.8	46.9	82.2	-35.3
54.024 MHz	V	39.7	8.6	48.3	82.2	-33.9
368.71 MHz	V	35.2	18.0	53.2	82.2	-29.1
30.485 MHz	H	18.3	20.1	38.4	82.2	-43.8
368.57 MHz	H	29.0	18.0	47.0	82.2	-35.2
562.52 MHz	H	28.6	21.9	50.5	82.2	-31.7
		Channel 893MHz				
50.663 MHz	V	39.5	9.9	49.4	82.2	-32.8
53.992 MHz	V	42.5	8.6	51.1	82.2	-31.2
368.71 MHz	V	35.2	18.0	53.2	82.2	-29.1
250.01 MHz	H	26.5	14.7	41.2	82.2	-41.0
368.57 MHz	H	29.1	18.0	47.1	82.2	-35.1
562.52 MHz	H	29.1	21.9	51.0	82.2	-31.2

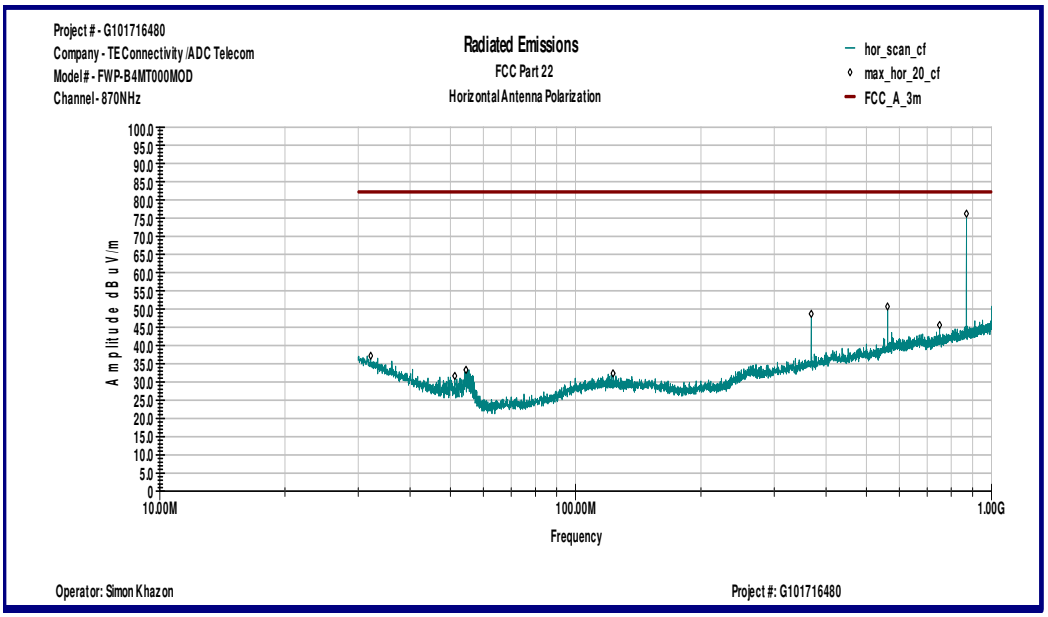
Date:	July 9, 2014	**Result:** **Pass**
Tested by:	Simon Khazon	
Standard:	FCC Part 24	
Test Point:	Line 1 and Line 2	
Operation mode:	See page 5	
Note:	Frequency Range 1GHz-10GHz	

Table 2

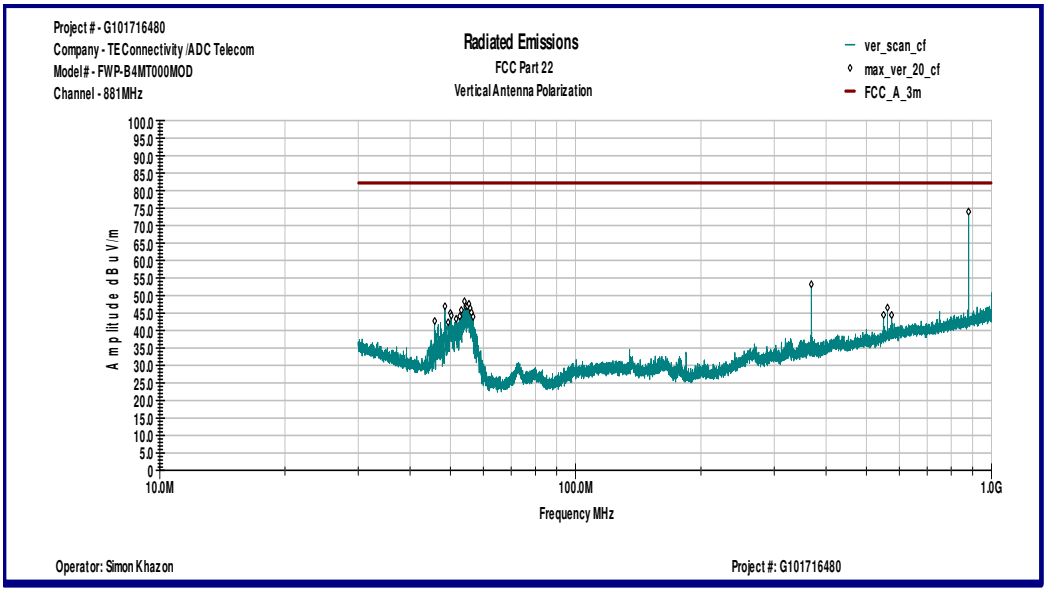
Frequency MHz	Antenna Polarity	Peak Reading dBµV	Total C.F. dB1/m	Pre-Amp. Gain (dB)	Total at 3m dBµV/m	Limit dBµV/m	Margin dB
		Channel 870MHz					
1.2484 GHz	V	61.0	26.6	42.0	45.6	82.2	-36.6
2.1124 GHz	V	61.2	30.4	40.8	50.8	82.2	-31.4
4.0348 GHz	V	49.2	36.6	40.0	45.7	82.2	-36.5
1.2484 GHz	H	59.5	26.6	42.0	44.1	82.2	-38.1
1.7416 GHz	H	55.1	28.7	41.4	42.4	82.2	-39.8
2.1124 GHz	H	62.5	30.2	40.8	51.9	82.2	-30.3
		Channel 881MHz					
1.2484 GHz	V	61.1	26.6	42.0	45.7	82.2	-36.5
1.7632 GHz	V	58.7	28.9	41.4	46.3	82.2	-35.9
2.1124 GHz	V	61.4	30.4	40.8	51.0	82.2	-31.2
1.2484 GHz	H	59.5	26.6	42.0	44.2	82.2	-38.1
2.1124 GHz	H	62.6	30.2	40.8	52.0	82.2	-30.2
5.1832 GHz	H	45.5	37.8	38.9	44.4	82.2	-37.8
		Channel 893MHz					
1.2484 GHz	V	61.6	26.6	42.0	46.2	82.2	-36.0
1.7848 GHz	V	60.7	29.0	41.3	48.4	82.2	-33.8
2.1124 GHz	V	61.4	30.4	40.8	51.0	82.2	-31.2
1.2484 GHz	H	59.3	26.6	42.0	43.9	82.2	-38.3
1.7848 GHz	H	63.9	28.9	41.3	51.5	82.2	-30.7
2.1124 GHz	H	62.5	30.2	40.8	52.0	82.2	-30.2



Graph 1



Graph 2



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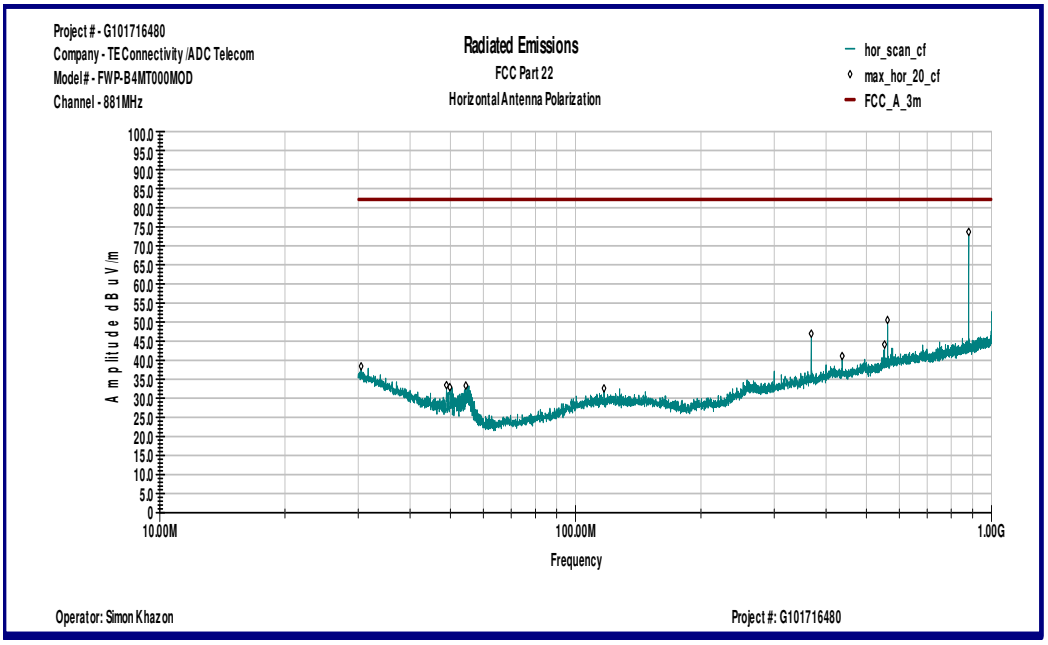
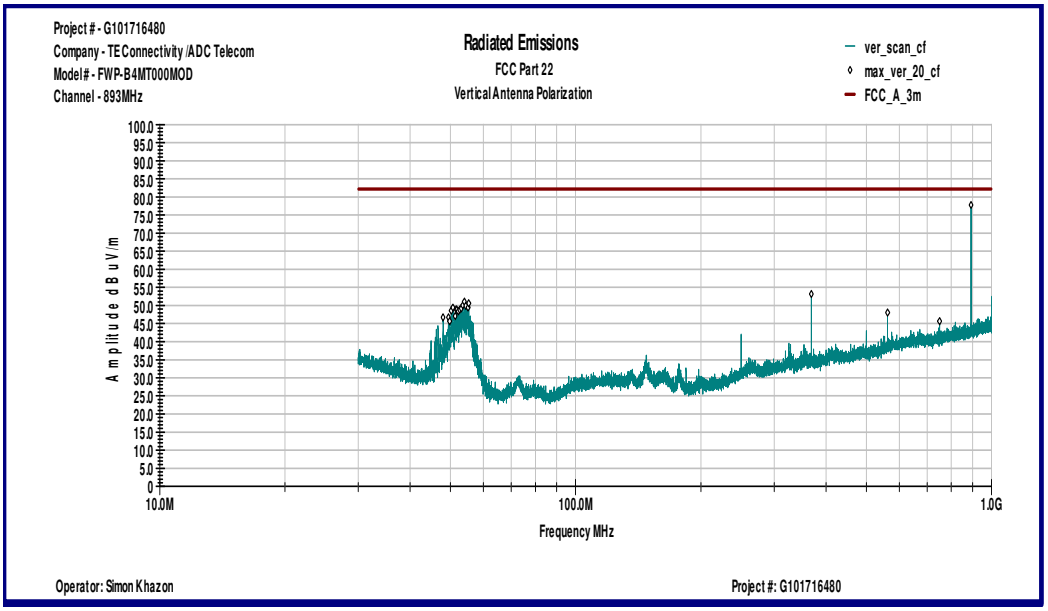
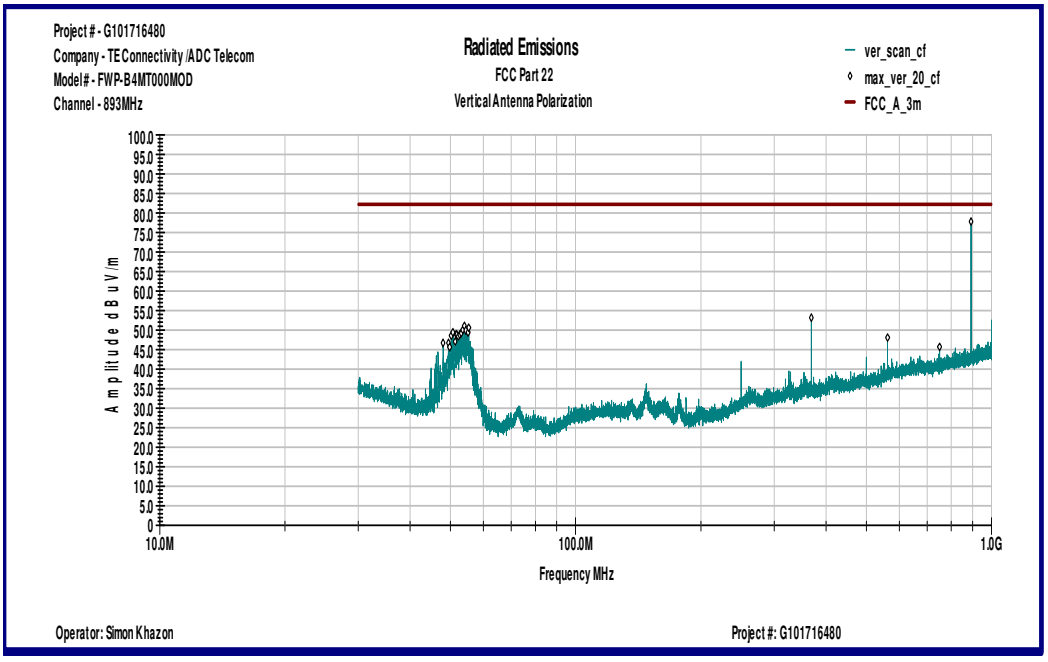


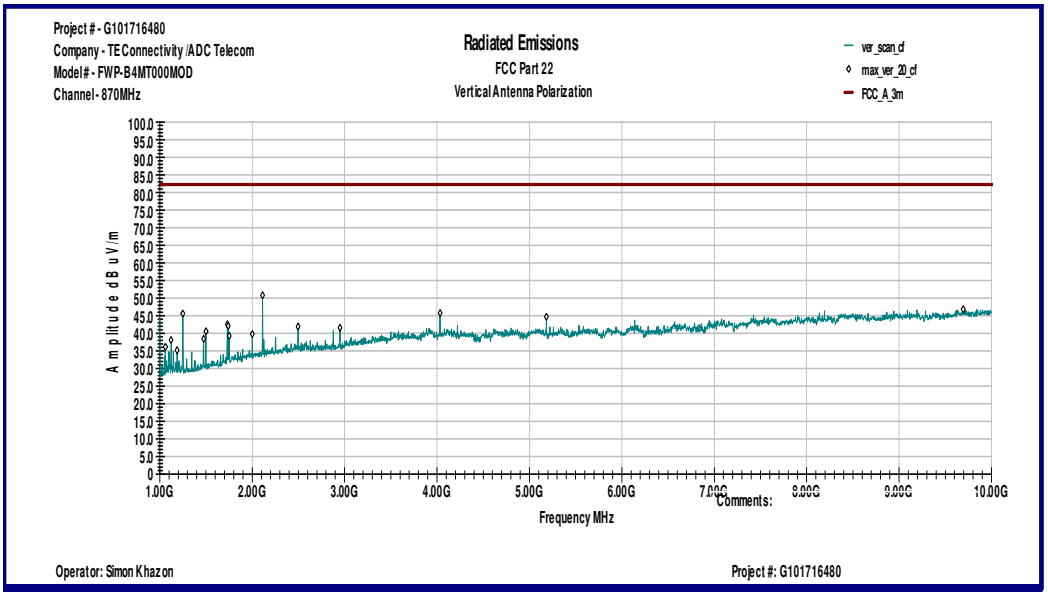
Graph 4



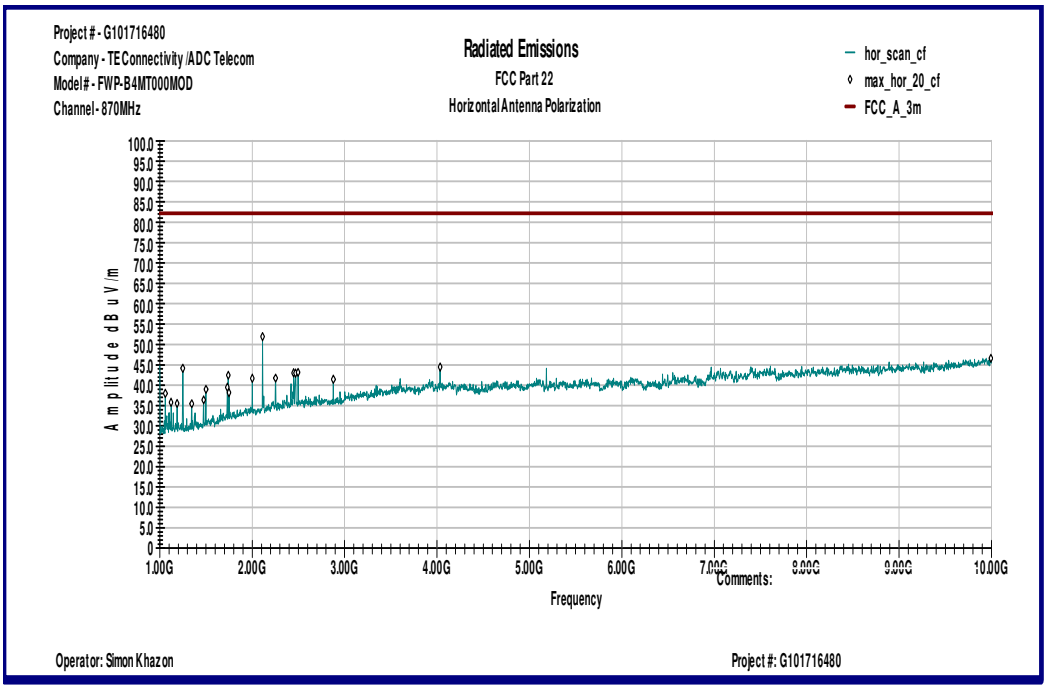
Graph 5



Graph 6



Graph 7



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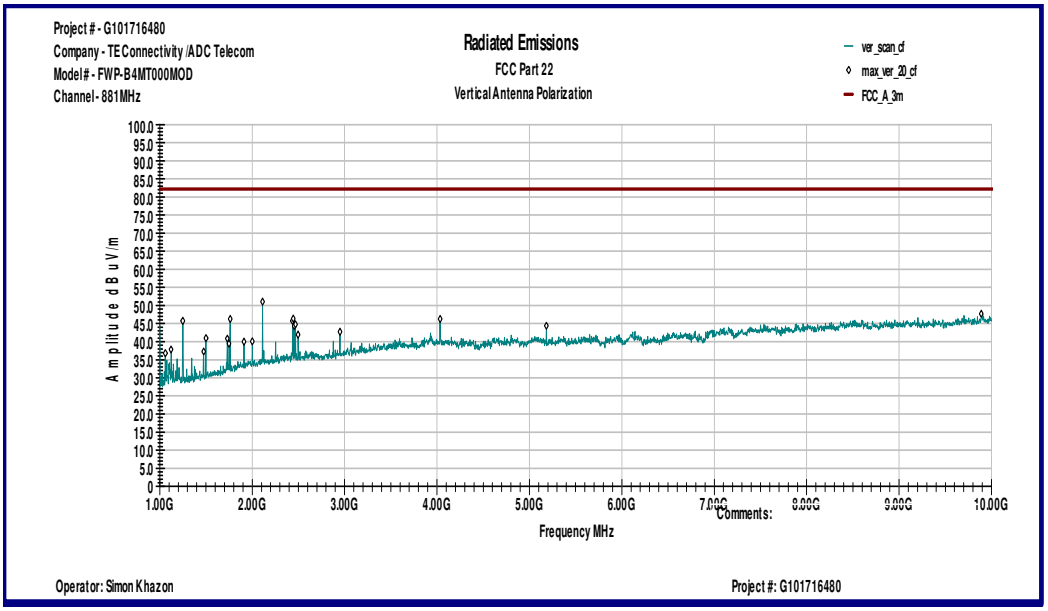
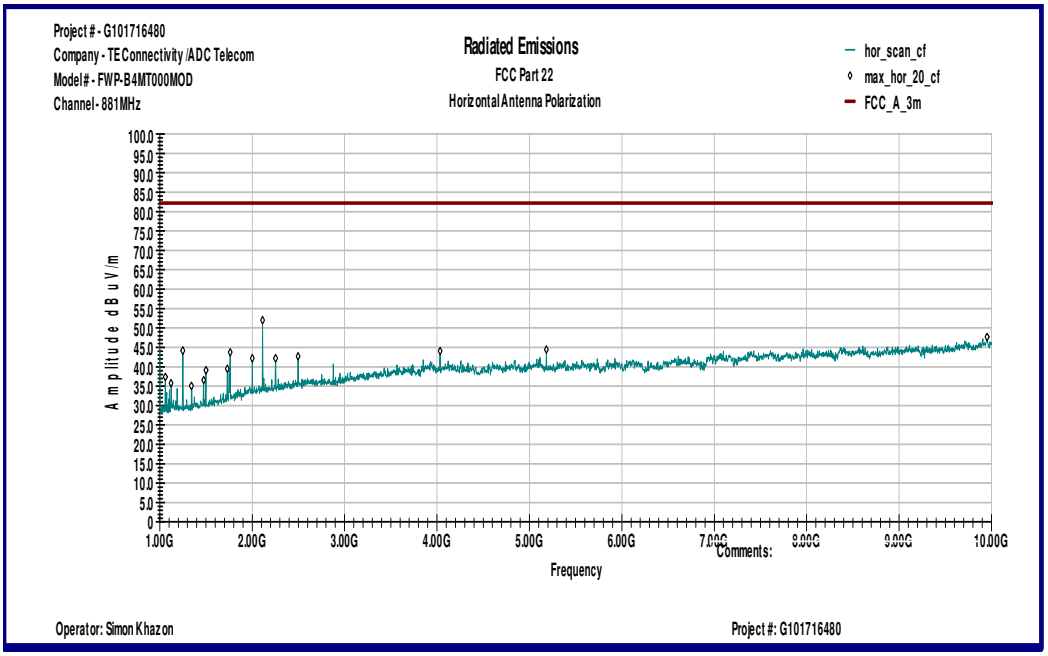


Graph 9



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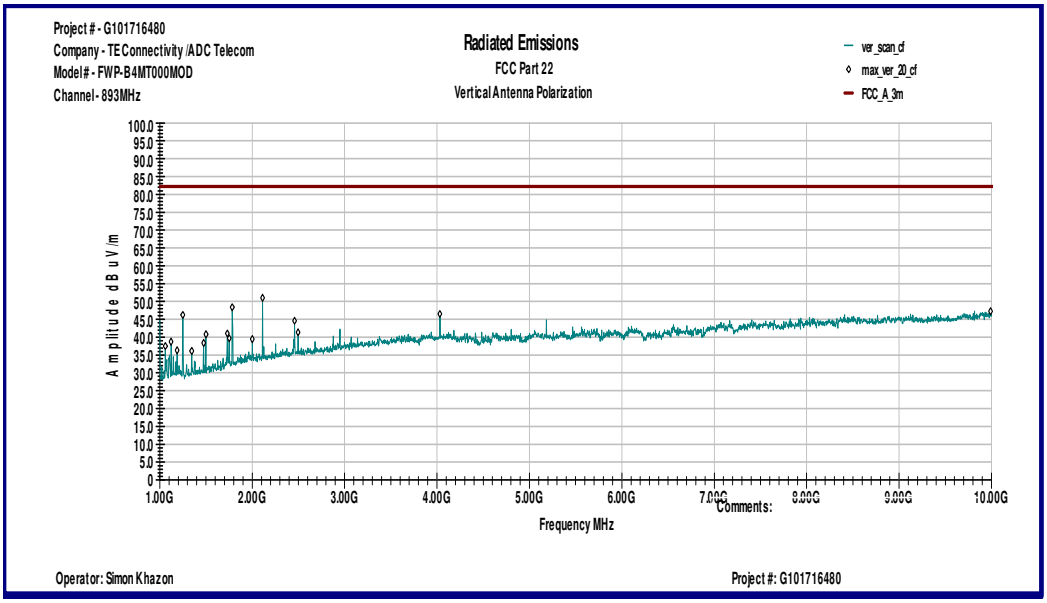
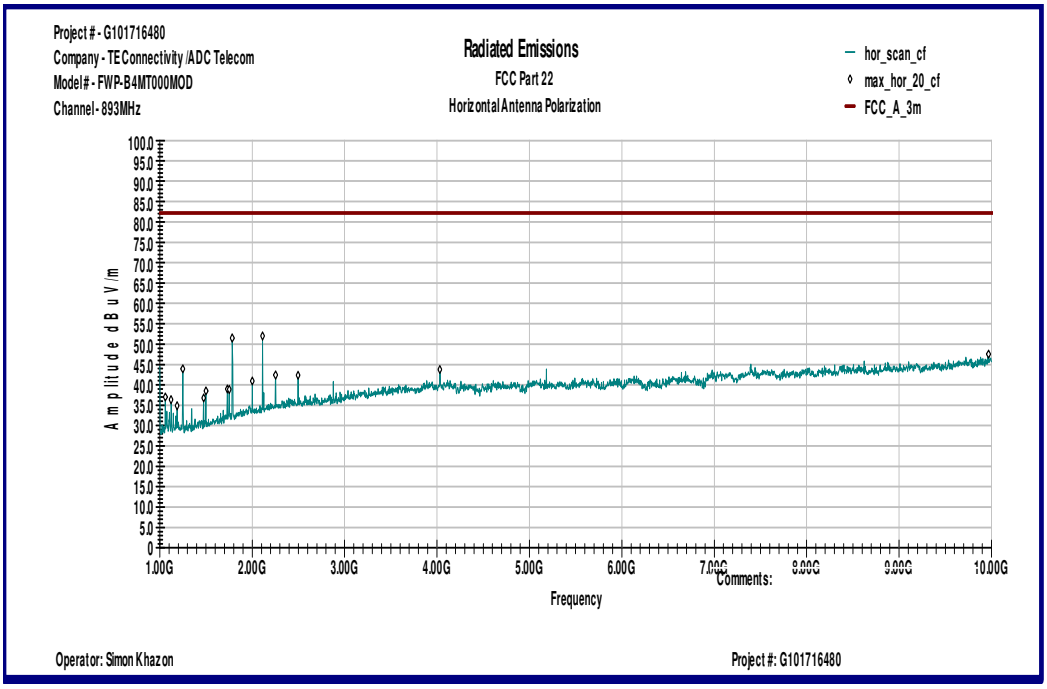


Graph 11



Graph 12

5.0 TEST EQUIPMENT

DESCRIPTION	MANUFACTURER	MODEL	SERIAL NO.	INTERTEK ID	CAL DUE	USED
Spectrum Analyzer	R & S	FSP 40	100024	12559	12/12/2014	☒
Spectrum Analyzer	R & S	ESU	100398	25283	01/07/2015	☒
Horn Antenna	EMCO	3115	9507-4513	9936	06/27/2015	☒
Pre-Amplifier	MITEQ	AMF-5D-00501800-28-13P	1402232	172081	11/12/2014	☒
System	Quantum Change	TILE! Instrument Control	Ver. 3.4.K.29	15259	VBU	☒