TEST REPORT

Report Number: 100789990MIN-001
Project Number: G100789990

Testing performed on the
Spectrum 700p1/700p2 MIMO SRAU

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

For
ADC Telecommunications Inc. - a TE Connectivity Company

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

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

Prepared by: _____ Date: July 20, 2012
Richard Blonigen

Reviewed by: _____ Date: July 20, 2012
Norman Shpilsher

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1.0 DESCRIPTION OF THE SAMPLE (EUT)

Model:	Spectrum 700p1/700p2 MIMO SRAU: SPT-S1-7070-1-MIMO
Type of EUT:	Repeater / Booster
Operating Frequency Range:	728 – 757MHz
Company:	ADC Telecommunications Inc. - 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 27:2010, 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:	July 16, 2012
Test Work Started:	July 16, 2012
Test Work Completed:	July 20, 2012
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 27	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 ☒ 54VDC from external support Power
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 729MHz, 742MHz, and 756MHz at 20dBm output power
1	Transmitting power was set to 20dB at EUT

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	Aeroflex IRF 3413	Signal Generator
2	Prism Host Unit p/n 1449226	Host Unit
3	IFEU p/n MR2216G7	54 V Power Supply
4	Prism DRU unit	DRU
5	Spectrum IFEU Unit	IFEU
6	Spectrum Main RAU	Remote Antenna

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

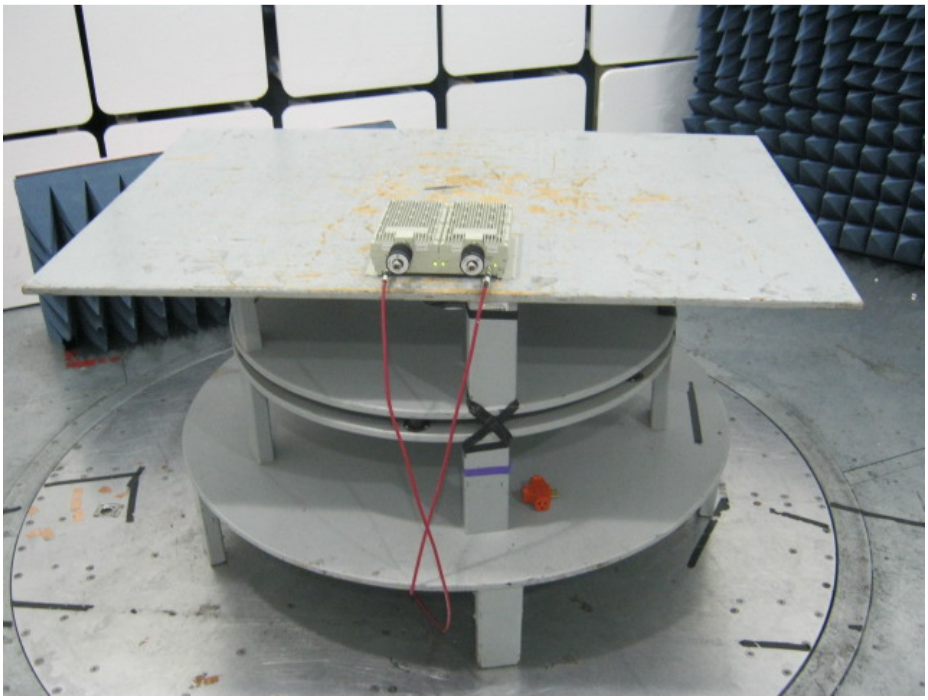
4.1 Enclosure Spurious Radiated Emissions

Description of the test location

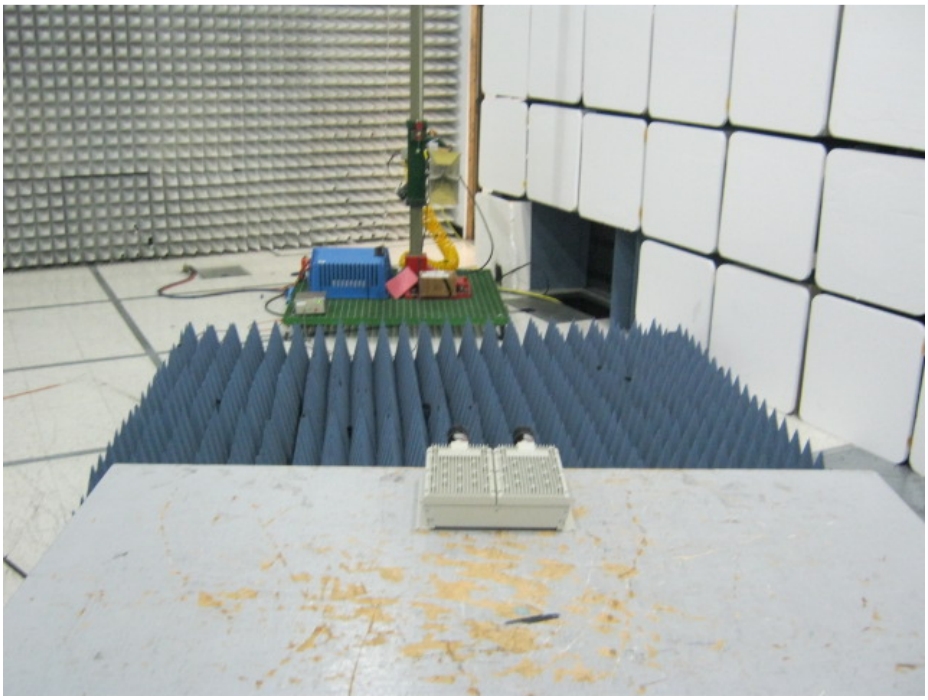
Test location:	☐ OATS	☒ Anechoic Chamber
Test distance:	☐ 10 meters	☒ 3 meters
Test result:	**Pass**	
Frequency range:		30MHz-10GHz
Max. Emissions margin:		31.9 dB below the Reference Limits

Notes:

1. The Radiated Emissions testing was performed in the Anechoic chamber at 3m measurement distance (see Table 1 and Graphs 1-12)
2. The Spurious Radiated Power limits of -13dBm was correlated with field strength Reference Limit of 82.2dBµV/m during field strength measurements at 3m measurement distance
3. No spurious or harmonic emissions with margin less than 20dB below the Reference Limits were detected; therefore, no emissions were measured with substitution method
4. Emissions at operating frequencies were excluded from the Table



Test Setup Photos

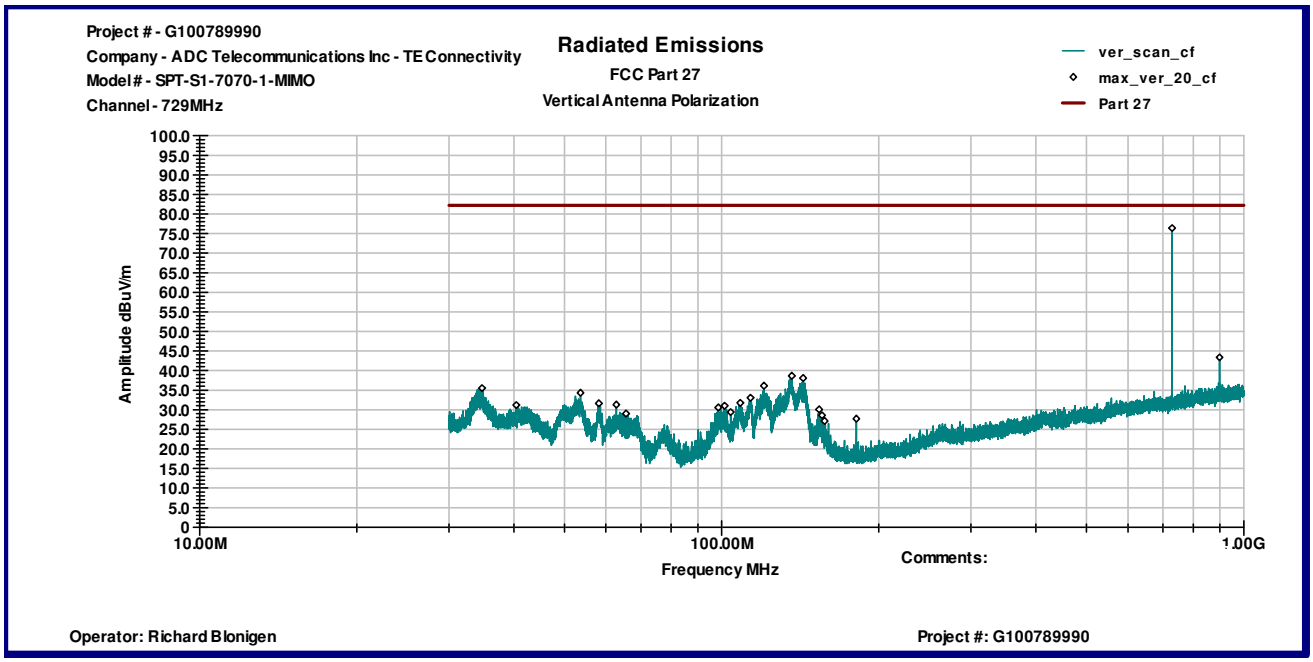


Test Setup Photo

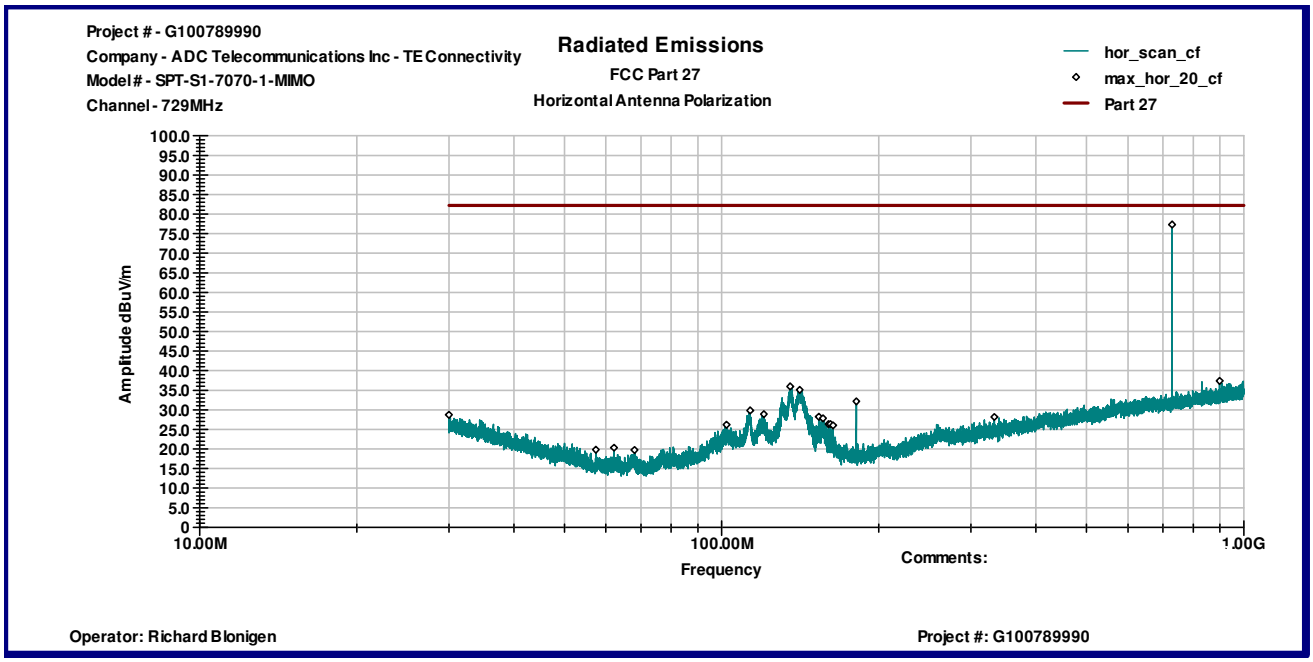
Date:	July 16-20, 2012	**Result:** **Pass**
Tested by:	Richard Blonigen	
Standard:	FCC Part 27	
Test Point:	Enclosure	
Operation mode:	See page 5	
Note:	Channels 728-756MHz Frequency Range 30MHz-10GHz	

Table 1

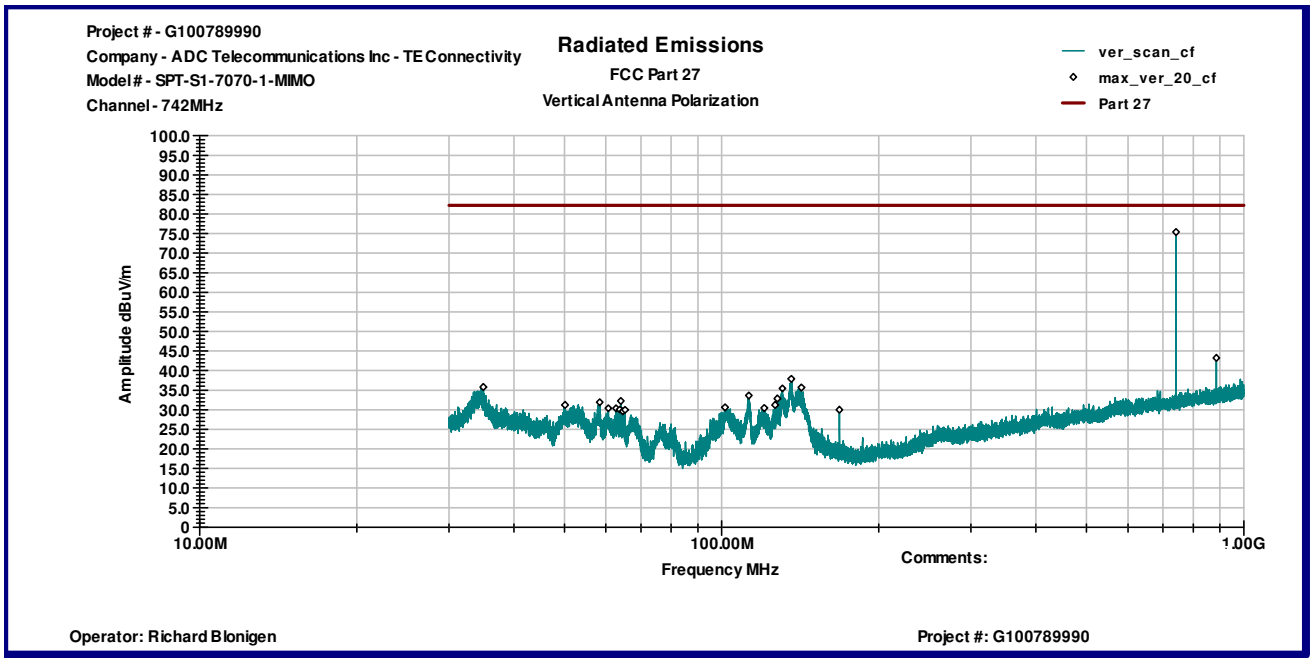
Frequency MHz	Antenna Polarity	Peak Reading dBµV	Total C.F. dB1/m	Pre-Amp. Gain (dB)	Total at 3m dBµV/m	Limit dBµV/m	Margin dB
Channel 729MHz							
136.27 MHz	V	25.0	13.6	0.0	38.6	82.2	-43.6
143.26 MHz	V	24.9	13.2	0.0	38.1	82.2	-44.1
899.11 MHz	V	18.0	25.4	0.0	43.4	82.2	-38.8
1.459 GHz	V	61.8	27.5	43.0	46.3	82.2	-35.9
1.675 GHz	V	53.2	28.5	43.2	38.4	82.2	-43.8
135.28 MHz	H	22.3	13.7	0.0	36.0	82.2	-46.2
141.05 MHz	H	21.8	13.3	0.0	35.1	82.2	-47.1
899.25 MHz	H	12.0	25.4	0.0	37.4	82.2	-44.8
1.459 GHz	H	61.4	27.4	43.0	45.8	82.2	-36.4
1.72 GHz	H	53.4	28.6	43.3	38.8	82.2	-43.4
Channel 742MHz							
135.91 MHz	V	24.2	13.7	0.0	37.9	82.2	-44.3
142.08 MHz	V	22.4	13.2	0.0	35.7	82.2	-46.6
886.15 MHz	V	17.9	25.3	0.0	43.2	82.2	-39.0
1.483 GHz	V	65.7	27.6	43.0	50.3	82.2	-31.9
1.675 GHz	V	53.6	28.5	43.2	38.9	82.2	-43.3
135.15 MHz	H	20.9	13.7	0.0	34.6	82.2	-47.6
142.23 MHz	H	22.7	13.2	0.0	35.9	82.2	-46.3
984.13 MHz	H	10.4	26.2	0.0	36.6	82.2	-45.6
1.483 GHz	H	62.4	27.5	43.0	46.9	82.2	-35.3
1.879 GHz	H	53.2	29.3	43.4	39.2	82.2	-43.1
Channel 756MHz							
118.51 MHz	V	23.2	13.9	0.0	37.1	82.2	-45.1
129.05 MHz	V	22.9	13.8	0.0	36.7	82.2	-45.5
872.17 MHz	V	17.2	25.1	0.0	42.2	82.2	-40.0
1.513 GHz	V	65.5	27.7	43.0	50.2	82.2	-32.0
1.675 GHz	V	52.9	28.5	43.2	38.2	82.2	-44.0
133.88 MHz	H	19.6	13.7	0.0	33.3	82.2	-48.9
139.42 MHz	H	20.8	13.4	0.0	34.2	82.2	-48.1
999.13 MHz	H	10.8	26.4	0.0	37.2	82.2	-45.0
1.513 GHz	H	62.6	27.6	43.0	47.2	82.2	-35.0
1.72 GHz	H	52.1	28.6	43.3	37.5	82.2	-44.7



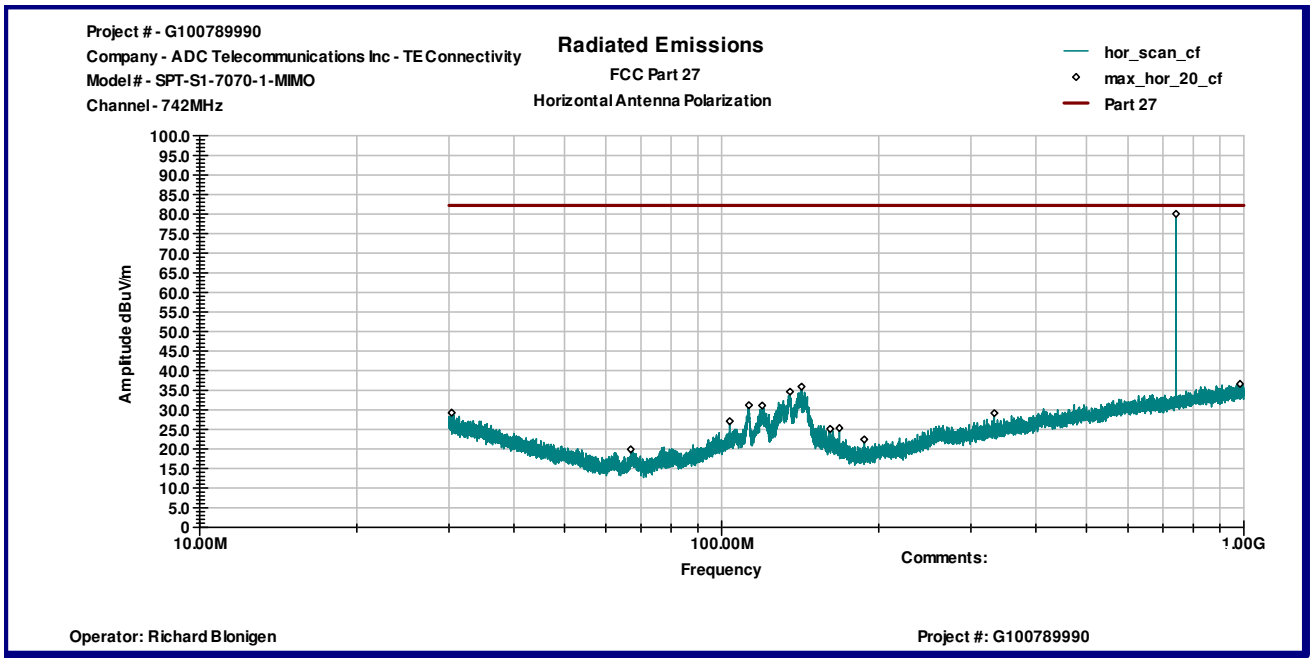
Graph 1



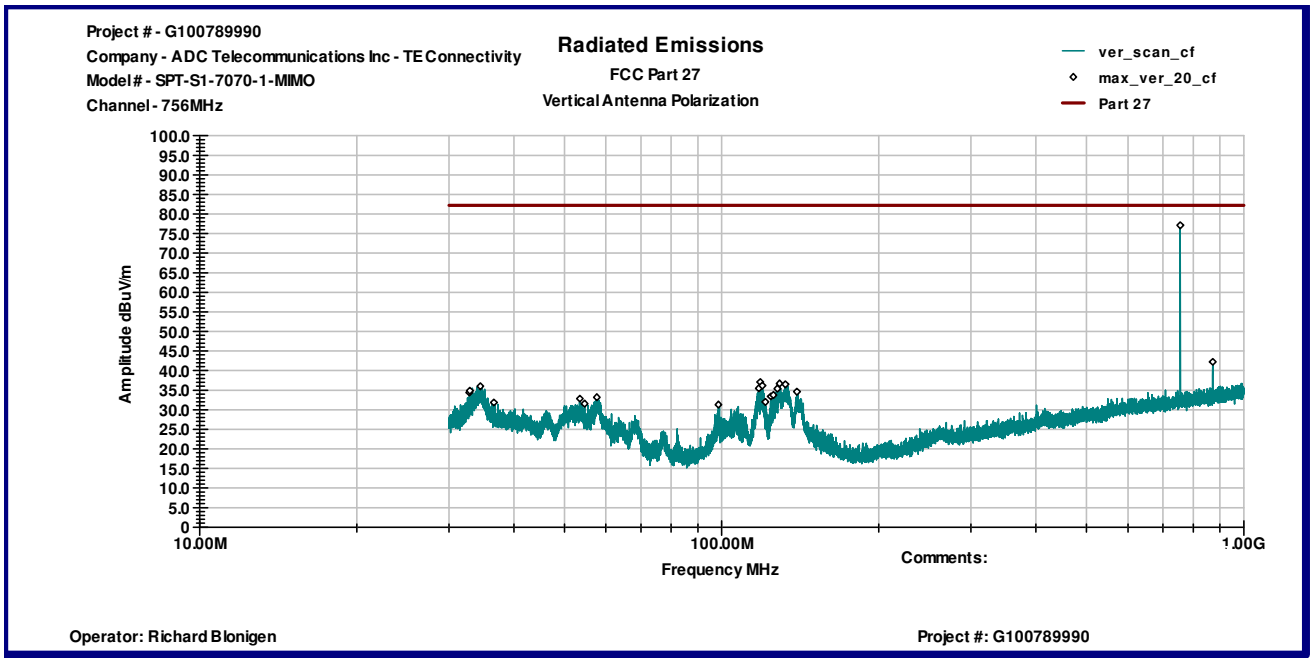
Graph 2



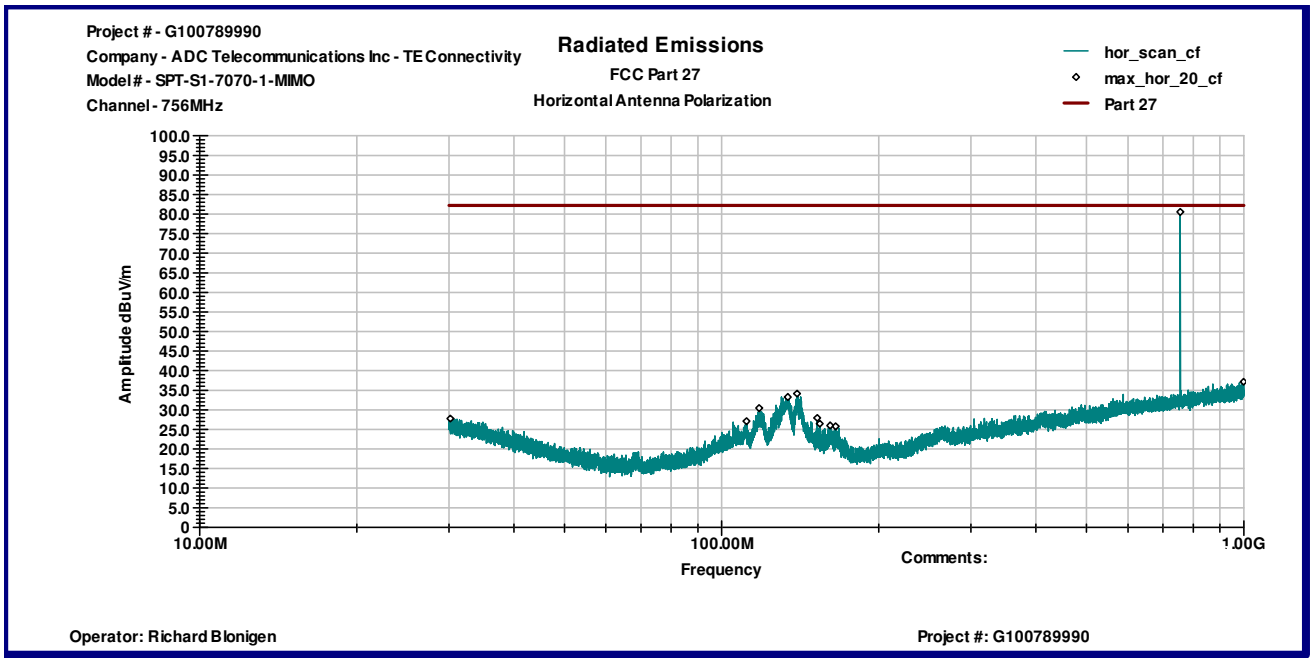
Graph 3



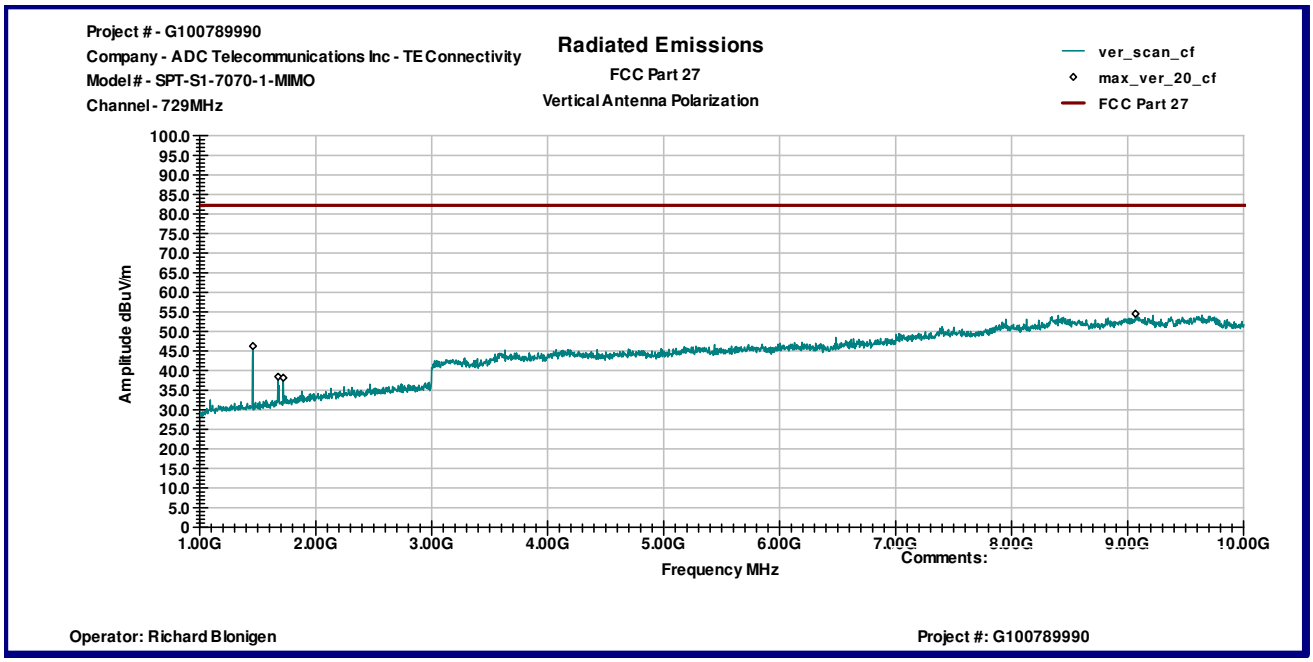
Graph 4



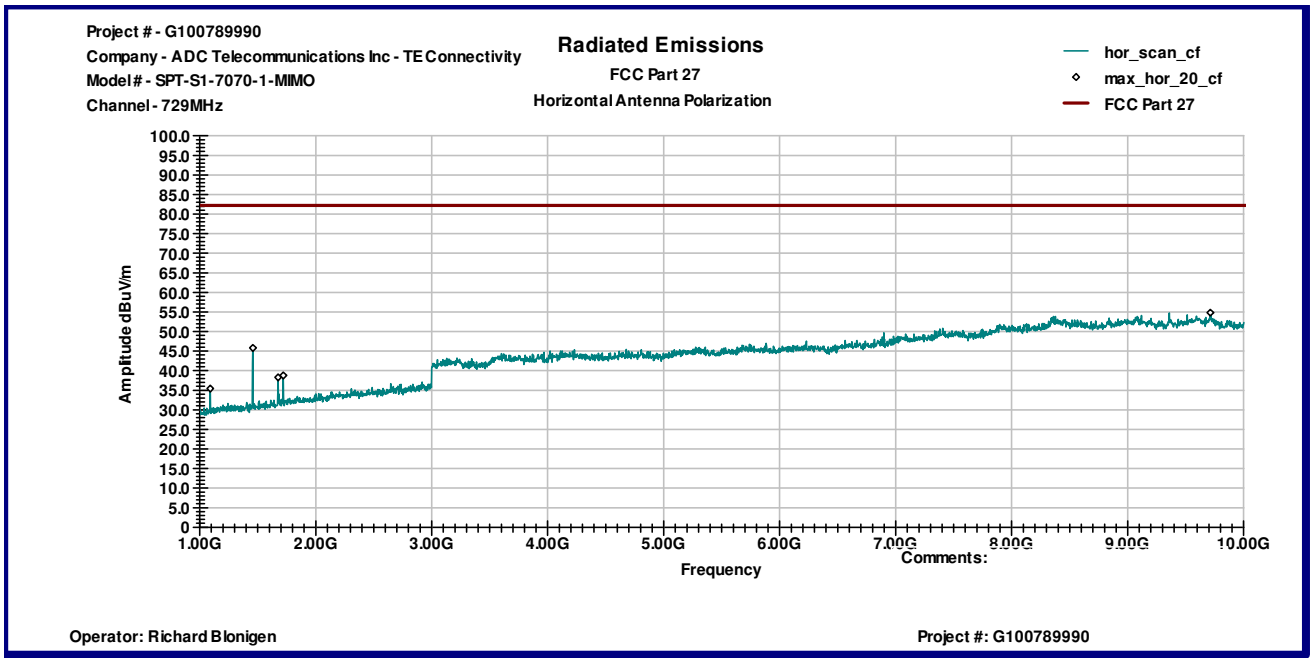
Graph 5



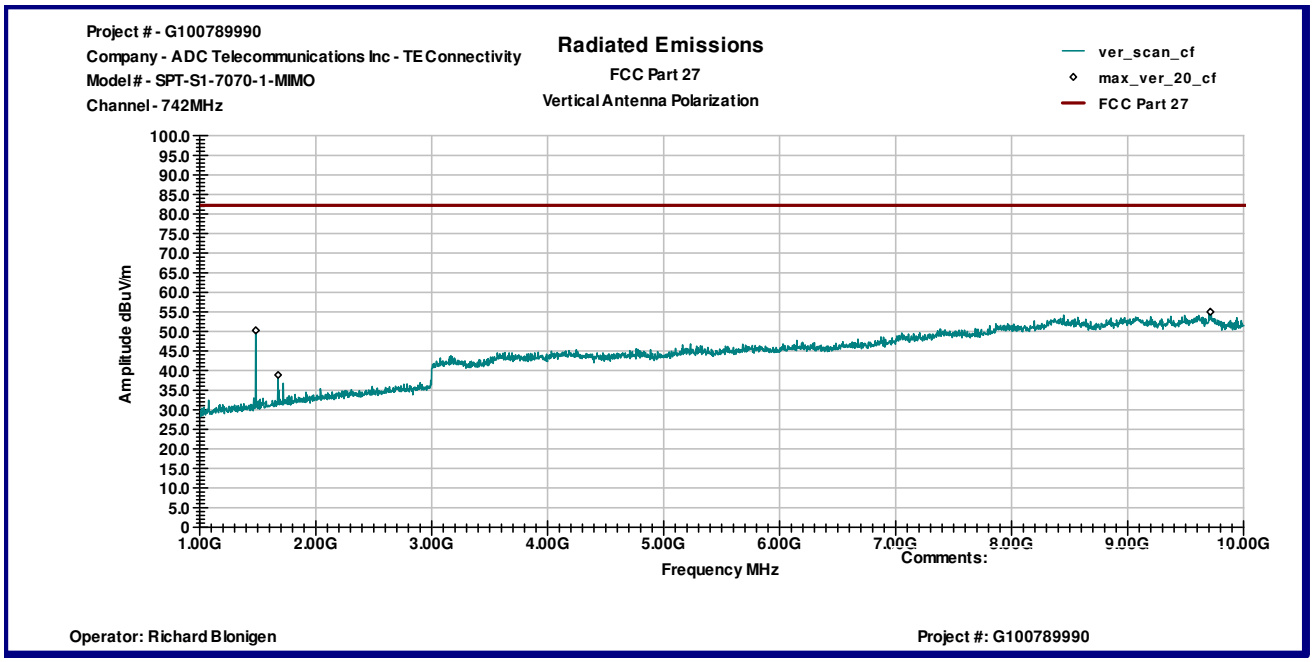
Graph 6



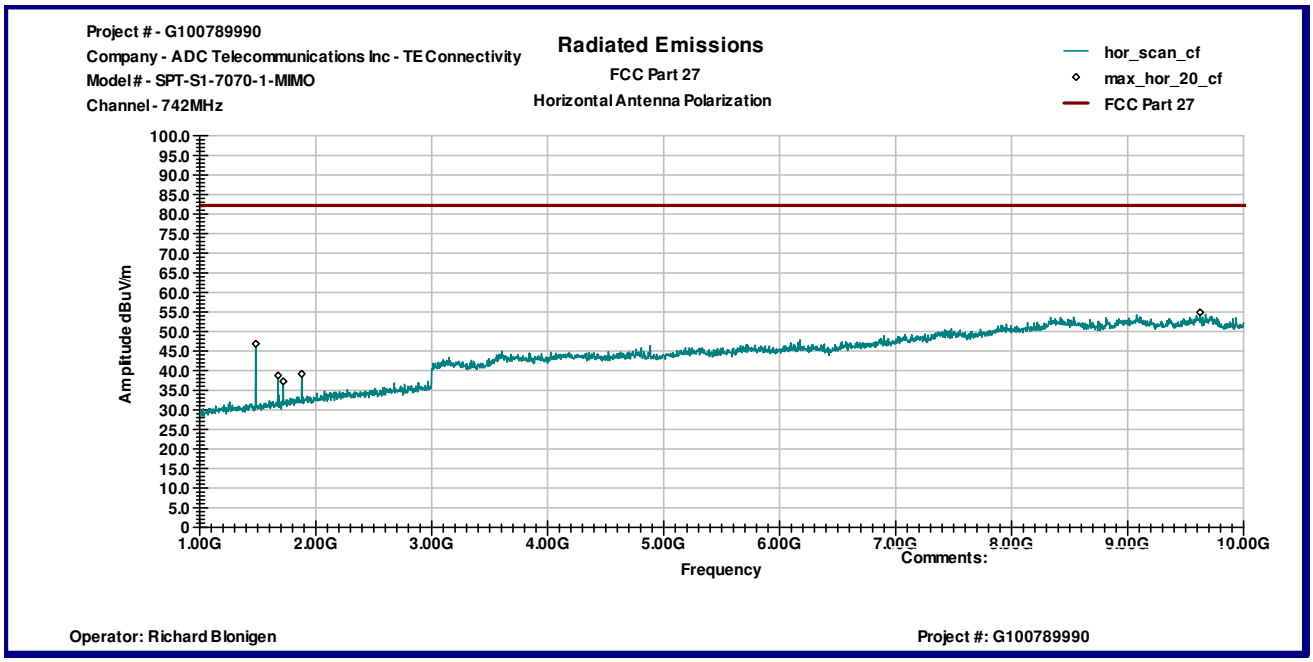
Graph 7



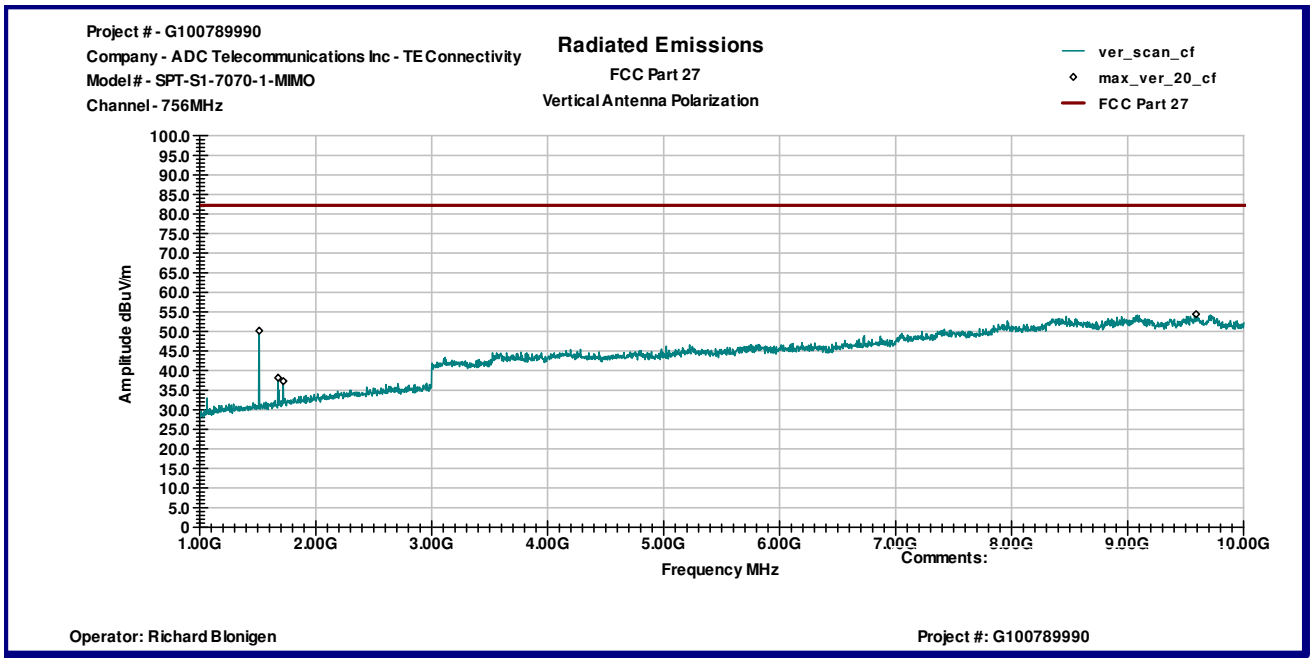
Graph 8



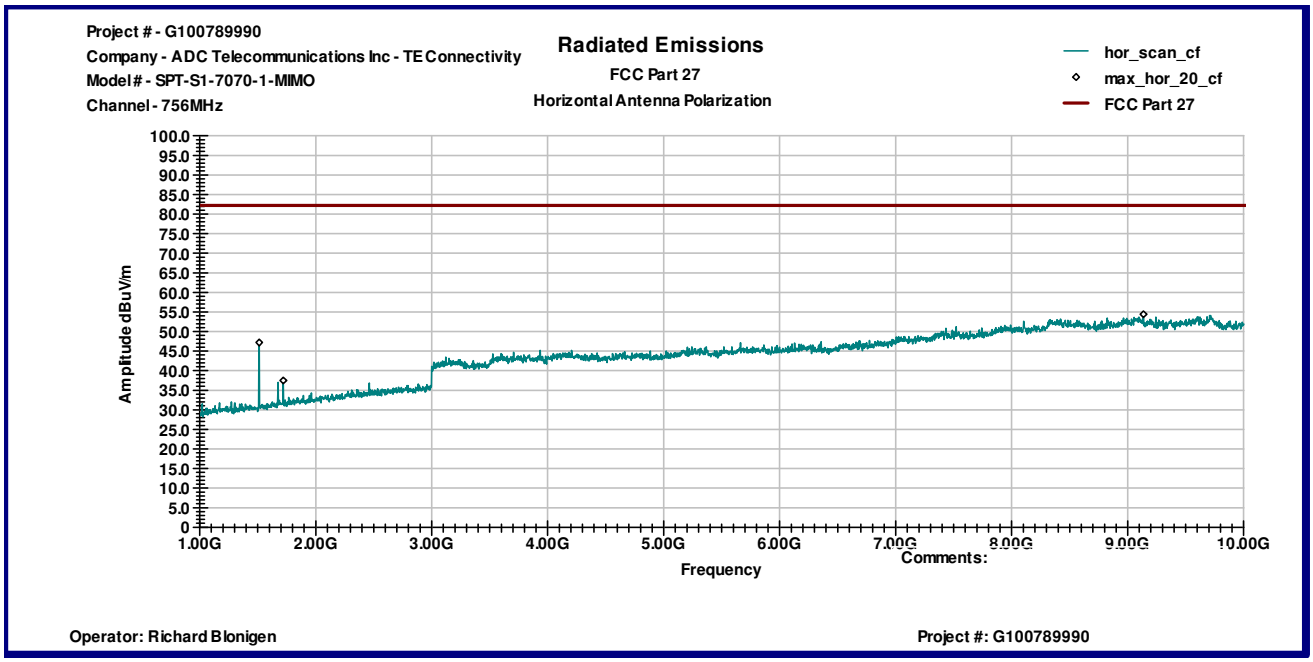
Graph 9



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	11/17/2012	☒
Spectrum Analyzer	R & S	ESU	100398	25283	12/09/2012	☒
Bicono-Log Antenna	Schaffner-Chase	CBL 6112 B	2468	9734	11/08/2012	☒
Horn Antenna	EMCO	3115	9507-4513	9936	05/16/2013	☒
Waveguide Horn Antenna	EMCO	3116	9904-2423	9705	10/31/2012	☒
Pre-Amplifier	MITEQ	AMF-5D-00501800-28-13P	1402232	172081	10/31/2012	☒
System	Quantum Change	TILE! Instrument Control	Ver. 3.4.K.29	15259	VBU	☒