



## TEST DATA REPORT

Report Number: 100616121MIN-001  
Project Number: G100616121

Testing performed on the  
SPT-S1-8519-22

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

For  
ADC Telecommunications Inc. - a TE Connectivity Company

Test Performed by:  
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Oakdale, MN 55128 USA

Test Authorized by:  
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Company  
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Date: January 23, 2012

Reviewed by: Norman Shpilsher  
Norman Shpilsher

Date: January 23, 2012

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## 1.0 DESCRIPTION OF THE SAMPLE (EUT)

<b>Model:</b>	SPT-S1-8519-22
<b>Type of EUT:</b>	CELLP2_PCSP2_SRAU
<b>Frequency Range:</b>	869-894MHz (CELL Band) 1930-1990MHz (PCS Band)
<b>Company:</b>	ADC Telecommunications Inc. - a TE Connectivity Company
<b>Customer:</b>	Sue Cyr
<b>Address:</b>	541 E. Trimble Road San Jose, CA 95131 USA
<b>Phone:</b>	408-952-2445
<b>Fax:</b>	408-952-2645
<b>e-mail:</b>	<a href="mailto:sue.cyr@te.com">sue.cyr@te.com</a>
<b>Test Standards:</b>	<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 24:2010, Enclosure Spurious Radiated Emissions <input checked="" type="checkbox"/> 47 CFR, Part 22:2010, 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
<b>Date Sample Submitted:</b>	January 17, 2012
<b>Test Work Started:</b>	January 19, 2012
<b>Test Work Completed:</b>	January 20, 2012
<b>Test Sample Conditions:</b>	<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 24	Enclosure Spurious Radiated Emissions	Pass
Part 22	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:  $\pm 4$  dB at 10m and  $\pm 5.4$  dB at 3m

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

### 3.0 EQUIPMENT UNDER TEST

#### 3.1 Power Configuration

<b>Rated voltage:</b>	<input type="checkbox"/> 120VAC <input type="checkbox"/> 230VAC <input type="checkbox"/> 400VAC <input checked="" type="checkbox"/> 54VDC from external support Power Supply <input type="checkbox"/> Other: <input type="text"/>
<b>Rated current:</b>	<input type="text"/> Amp.
<b>Rated frequency:</b>	<input type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz
<b>Number of phases:</b>	<input 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 transmitting at 870MHz, 881MHz, and 893MHz
2	Continuous transmitting at 1931MHz, 1960MHz, and 1989MHz
3	RF Input setting: -11dBm; 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	SMR 20	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

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### 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

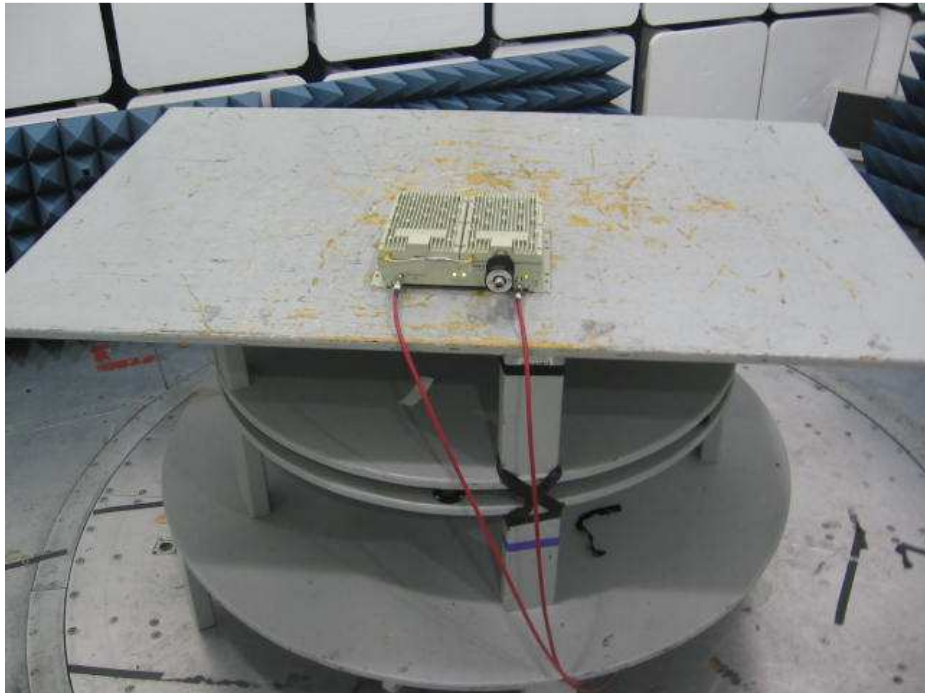
**Test distance:**         10 meters     3 meters

**Test result:**            **Pass**

**Frequency range:**            30MHz-10GHz for CELL Band  
    30MHz-20GHz for PCS Band

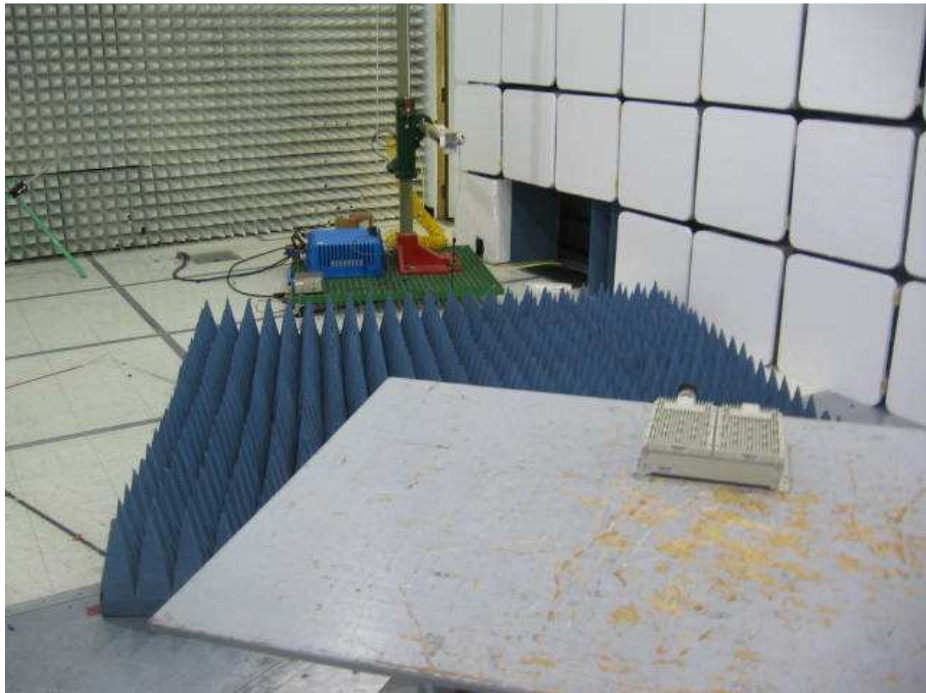
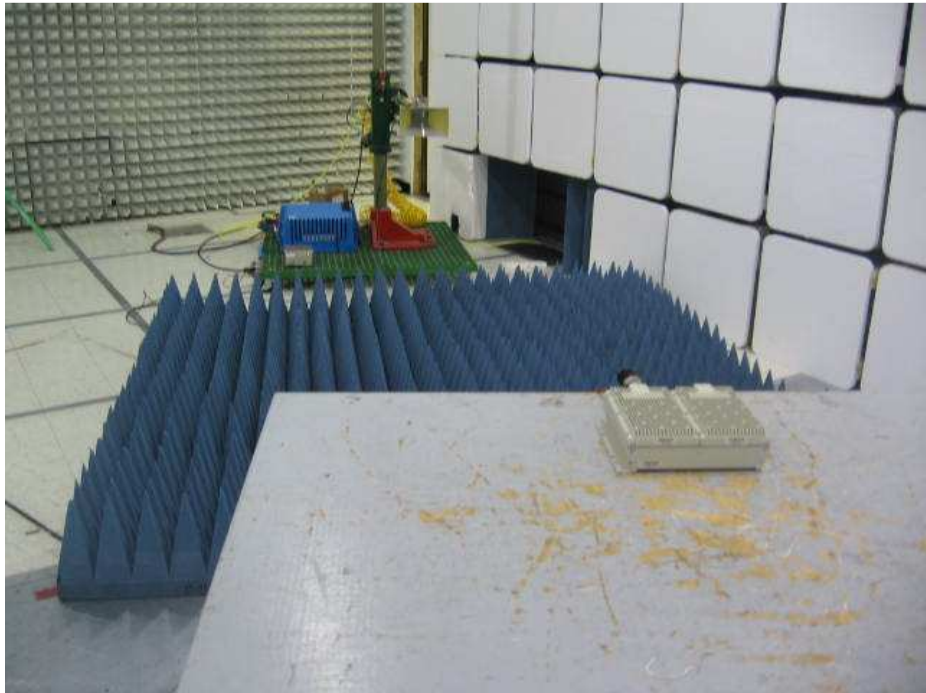
**Max. Emissions margin:**        21.9 dB below the Limits

- Notes:**
1. The Radiated Emissions testing was performed in the Anechoic chamber at 3m measurement distance (see Tables 1, 2, 3 and 4 and Graphs 1-48)
  2. The Spurious Radiated Power limits of -13dBm was correlated with field strength Reference Limit of 82.2dB $\mu$ V/m during field strength reference testing at 3m measurement distance (Graphs 1-30)
  3. No emissions were chosen for substitution measurements as the maximum field strength emission is more than 20dB below the Reference Limit
  4. Emissions at operating frequencies were excluded from the Tables
-



Test Setup Photos





Test Setup Photos



<b>Date:</b>	January 20, 2012	<b>Result: Pass</b>
<b>Tested by:</b>	Richard Blonigen	
<b>Standard:</b>	FCC Part 22, AWS Band	
<b>Test Point:</b>	Enclosure	
<b>Operation mode:</b>	See page 5	
<b>Note:</b>	Frequency Range: 30MHz-10GHz	

**Table 1**

Frequency	Ant. Polarity	Peak Reading dB $\mu$ V	Ant.Factor dB1/m	Total at 3m dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB
<b>870MHz</b>						
31.449 MHz	V	13.2	19.5	32.7	82.2	-49.5
44.007 MHz	V	20.4	12.8	33.2	82.2	-49.0
120.89 MHz	V	13.9	14.0	27.8	82.2	-54.4
348.84 MHz	V	14.6	17.4	32.0	82.2	-50.2
359.48 MHz	V	15.8	17.9	33.7	82.2	-48.5
96.656 MHz	H	22.5	11.8	34.3	82.2	-48.0
98.599 MHz	H	22.4	12.2	34.5	82.2	-47.7
99.603 MHz	H	23.1	12.4	35.5	82.2	-46.7
100.57 MHz	H	23.9	12.5	36.3	82.2	-45.9
101.58 MHz	H	23.3	12.6	35.9	82.2	-46.3
<b>881MHz</b>						
31.542 MHz	V	12.4	19.5	31.9	82.2	-50.3
43.974 MHz	V	20.2	12.8	33.1	82.2	-49.1
54.966 MHz	V	18.2	8.2	26.5	82.2	-55.7
61.824 MHz	V	16.6	7.1	23.7	82.2	-58.5
125.59 MHz	V	14.1	14.0	28.1	82.2	-54.1
31.624 MHz	H	12.2	19.4	31.7	82.2	-50.5
85.308 MHz	H	14.4	9.5	23.9	82.2	-58.3
120.02 MHz	H	13.6	13.9	27.6	82.2	-54.6
<b>893MHz</b>						
31.075 MHz	V	12.9	19.7	32.6	82.2	-49.6
44.396 MHz	V	20.4	12.6	33.1	82.2	-49.1
54.657 MHz	V	19.3	8.4	27.6	82.2	-54.6
63.132 MHz	V	16.9	7.0	23.9	82.2	-58.4
124.28 MHz	V	13.7	14.0	27.6	82.2	-54.6
30.0 MHz	H	11.8	20.3	32.1	82.2	-50.1
116.53 MHz	H	13.0	13.8	26.7	82.2	-55.5

**Table 2**

Frequency MHz	Antenna Polarity	Peak Reading dB $\mu$ V	Total C.F. dB1/m	Pre-Amp. Gain (dB)	Total at 3m dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB
<b>870MHz</b>							
2.437 GHz	V	55.0	31.5	43.5	43.0	82.2	-39.2
4.048 GHz	V	53.7	36.6	42.9	47.3	82.2	-34.9
9.115 GHz	V	44.1	43.6	40.4	47.2	82.2	-35.0
<b>881MHz</b>							
2.437 GHz	V	54.7	31.5	43.5	42.8	82.2	-39.4
4.048 GHz	V	53.3	36.6	42.9	46.9	82.2	-35.3
8.845 GHz	V	44.5	43.3	40.3	47.5	82.2	-34.7
<b>893MHz</b>							
2.437 GHz	V	57.7	31.5	43.5	45.7	82.2	-36.5
4.048 GHz	V	53.7	36.6	42.9	47.4	82.2	-34.8
9.73 GHz	V	44.8	44.1	41.1	47.9	82.2	-34.4
<b>870MHz</b>							
1.816 GHz	H	51.6	29.2	43.4	37.5	82.2	-44.7
2.452 GHz	H	61.8	31.5	43.5	49.8	82.2	-32.4
9.643 GHz	H	44.7	44.0	41.0	47.8	82.2	-34.4

<b>Date:</b>	January 19, 2012	<b>Result: Pass</b>
<b>Tested by:</b>	Richard Blonigen	
<b>Standard:</b>	FCC Part 22, PCS Band	
<b>Test Point:</b>	Enclosure	
<b>Operation mode:</b>	See page 5	
<b>Note:</b>	Frequency Range: 30MHz-20GHz	

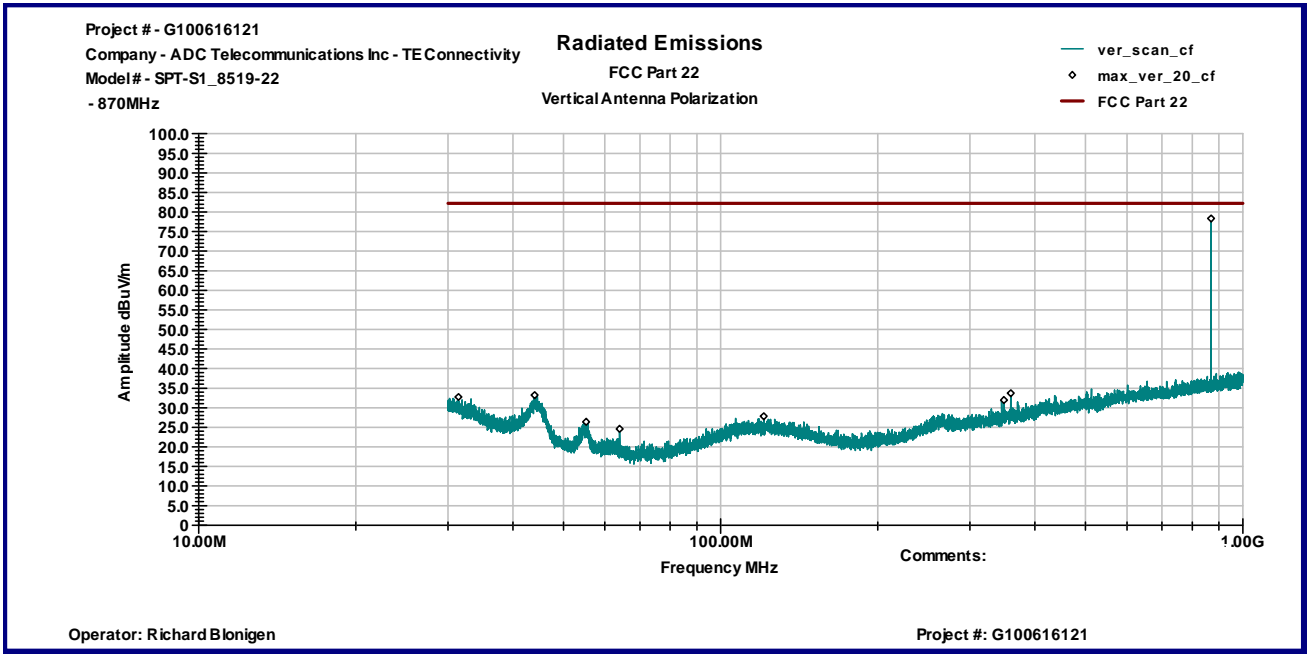
**Table 3**

Frequency	Ant. Polarity	Peak Reading dB $\mu$ V	Ant.Factor dB1/m	Total at 3m dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB
<b>1931MHz</b>						
31.122 MHz	V	11.8	19.7	31.5	82.2	-50.7
45.192 MHz	V	19.5	12.3	31.8	82.2	-50.5
66.607 MHz	V	21.6	7.0	28.6	82.2	-53.6
119.23 MHz	V	14.8	13.9	28.7	82.2	-53.5
957.06 MHz	V	13.9	25.9	39.8	82.2	-42.4
31.041 MHz	H	11.7	19.8	31.5	82.2	-50.7
61.751 MHz	H	14.8	7.1	21.8	82.2	-60.4
129.67 MHz	H	13.2	13.8	27.0	82.2	-55.2
968.99 MHz	H	13.2	26.1	39.3	82.2	-42.9
<b>1960MHz</b>						
31.274 MHz	V	12.4	19.6	32.0	82.2	-50.2
45.273 MHz	V	18.1	12.2	30.3	82.2	-51.9
62.771 MHz	V	23.4	7.0	30.4	82.2	-51.8
271.24 MHz	V	14.4	15.7	30.1	82.2	-52.1
991.22 MHz	V	12.9	26.3	39.2	82.2	-43.0
30.335 MHz	H	11.1	20.1	31.3	82.2	-50.9
122.04 MHz	H	13.9	14.0	27.9	82.2	-54.3
944.38 MHz	H	12.9	25.8	38.7	82.2	-43.5
<b>1989MHz</b>						
30.514 MHz	V	11.3	20.0	31.4	82.2	-50.8
46.263 MHz	V	18.0	11.8	29.7	82.2	-52.5
64.892 MHz	V	21.6	6.9	28.5	82.2	-53.7
65.749 MHz	V	20.7	7.0	27.6	82.2	-54.6
999.61 MHz	V	12.5	26.4	39.0	82.2	-43.2
30.362 MHz	H	11.0	20.1	31.1	82.2	-51.1
117.88 MHz	H	13.1	13.8	27.0	82.2	-55.3
992.39 MHz	H	12.5	26.4	38.8	82.2	-43.4

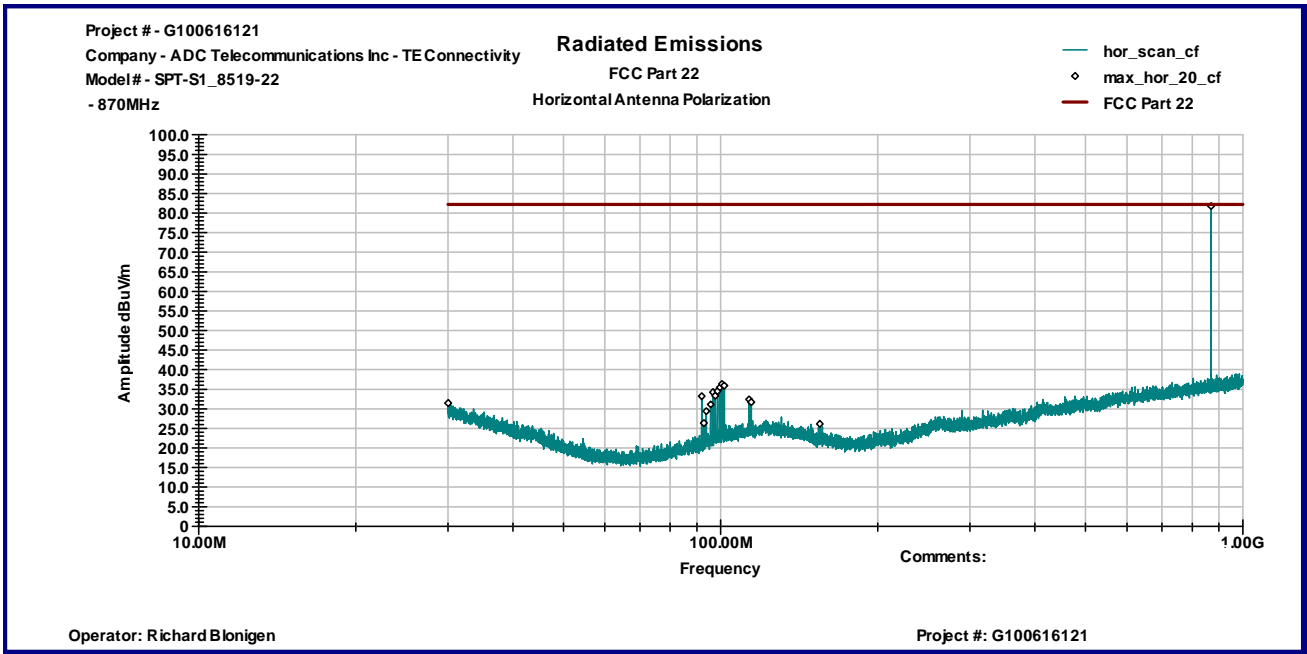


Table 4

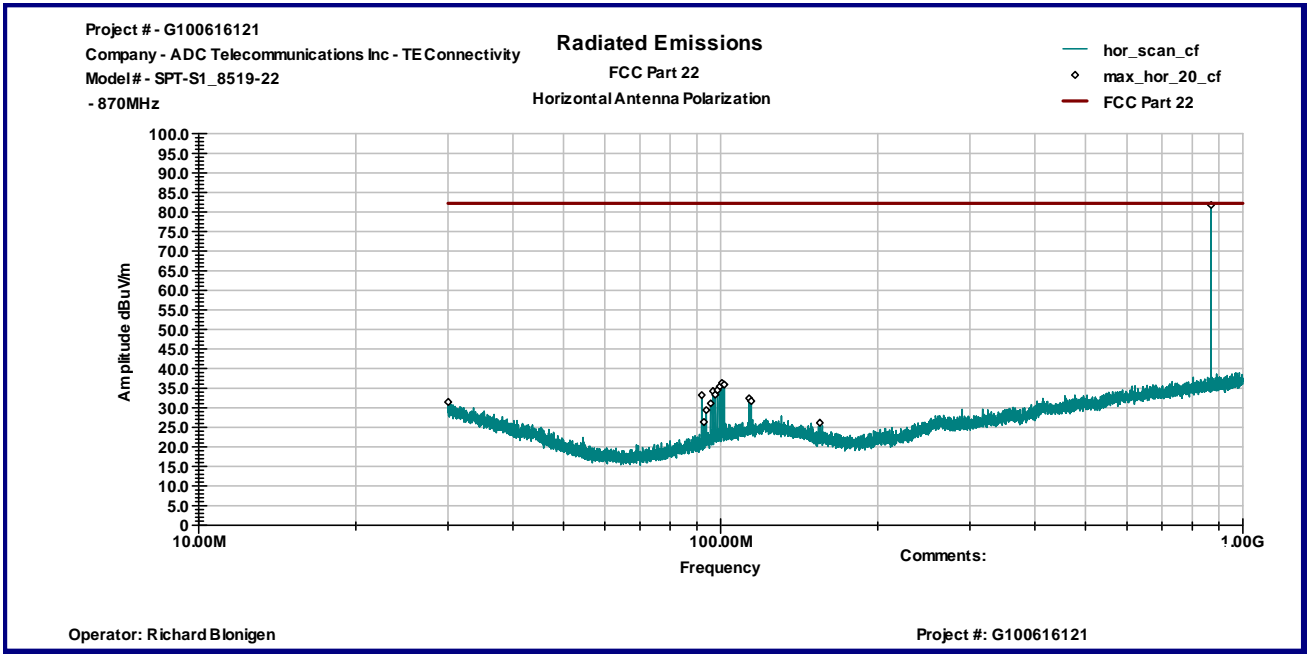
Frequency MHz	Antenna Polarity	Peak Reading dB $\mu$ V	Total C.F. dB1/m	Pre-Amp. Gain (dB)	Total at 3m dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB
<b>1931MHz</b>							
2.4348 GHz	V	55.6	31.5	43.5	43.7	82.2	-38.6
4.0498 GHz	V	52.3	36.6	42.9	45.9	82.2	-36.3
13.923 GHz	V	52.7	48.5	41.3	59.9	82.2	-22.3
19.944 GHz	V	51.6	54.1	49.1	56.6	82.2	-25.7
2.4348 GHz	H	51.2	31.4	43.5	39.2	82.2	-43.1
13.985 GHz	H	52.0	48.6	41.2	59.4	82.2	-22.8
19.944 GHz	H	51.6	54.1	49.1	56.6	82.2	-25.7
<b>1960MHz</b>							
2.4348 GHz	V	54.9	31.5	43.5	43.0	82.2	-39.3
2.4586 GHz	V	55.1	31.6	43.5	43.2	82.2	-39.0
4.0498 GHz	V	52.9	36.6	42.9	46.6	82.2	-35.6
14.855 GHz	V	52.7	48.3	41.1	59.8	82.2	-22.4
19.996 GHz	V	51.3	54.1	49.1	56.3	82.2	-25.9
2.4348 GHz	H	51.9	31.4	43.5	39.8	82.2	-42.4
13.835 GHz	H	52.6	48.3	41.4	59.6	82.2	-22.7
19.812 GHz	H	52.0	53.8	49.1	56.7	82.2	-25.5
<b>1989MHz</b>							
2.4382 GHz	V	55.5	31.5	43.5	43.6	82.2	-38.6
4.0498 GHz	V	53.0	36.6	42.9	46.6	82.2	-35.6
13.91 GHz	V	53.1	48.5	41.3	60.3	82.2	-21.9
19.976 GHz	V	51.6	54.1	49.1	56.7	82.2	-25.5
2.4382 GHz	H	51.0	31.4	43.5	38.9	82.2	-43.3
14.505 GHz	H	51.1	49.3	41.2	59.2	82.2	-23.0
19.656 GHz	H	52.2	53.7	49.2	56.7	82.2	-25.5



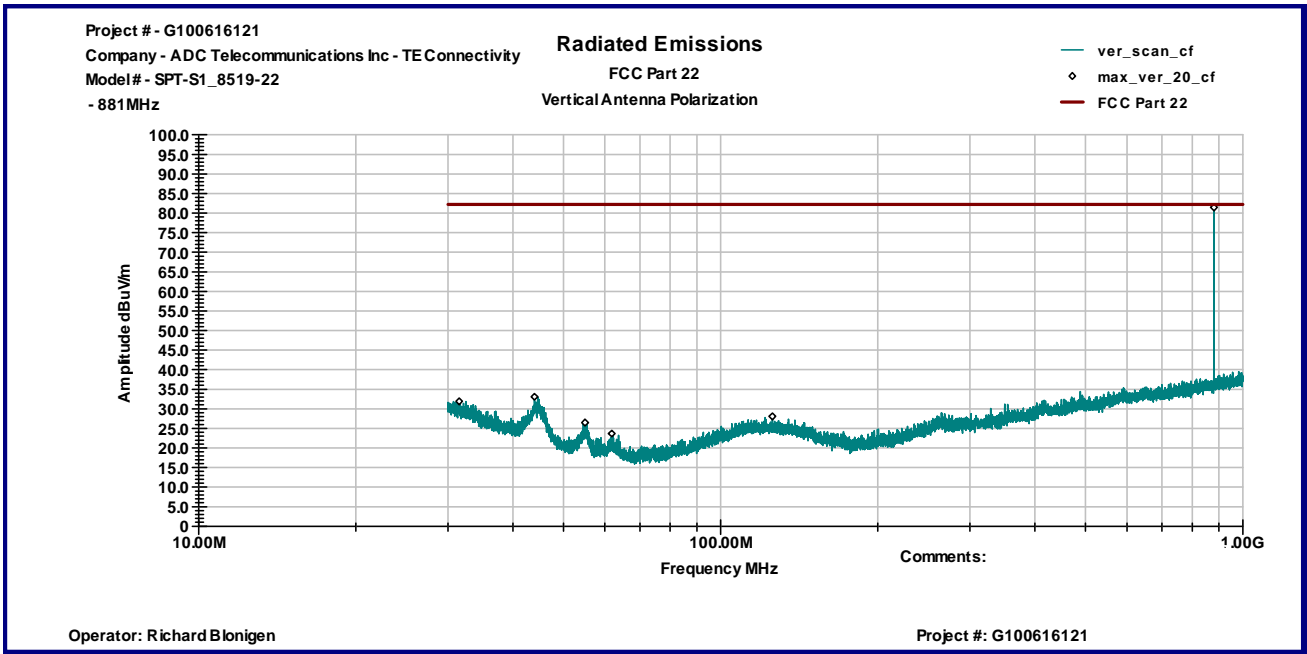
Graph 1



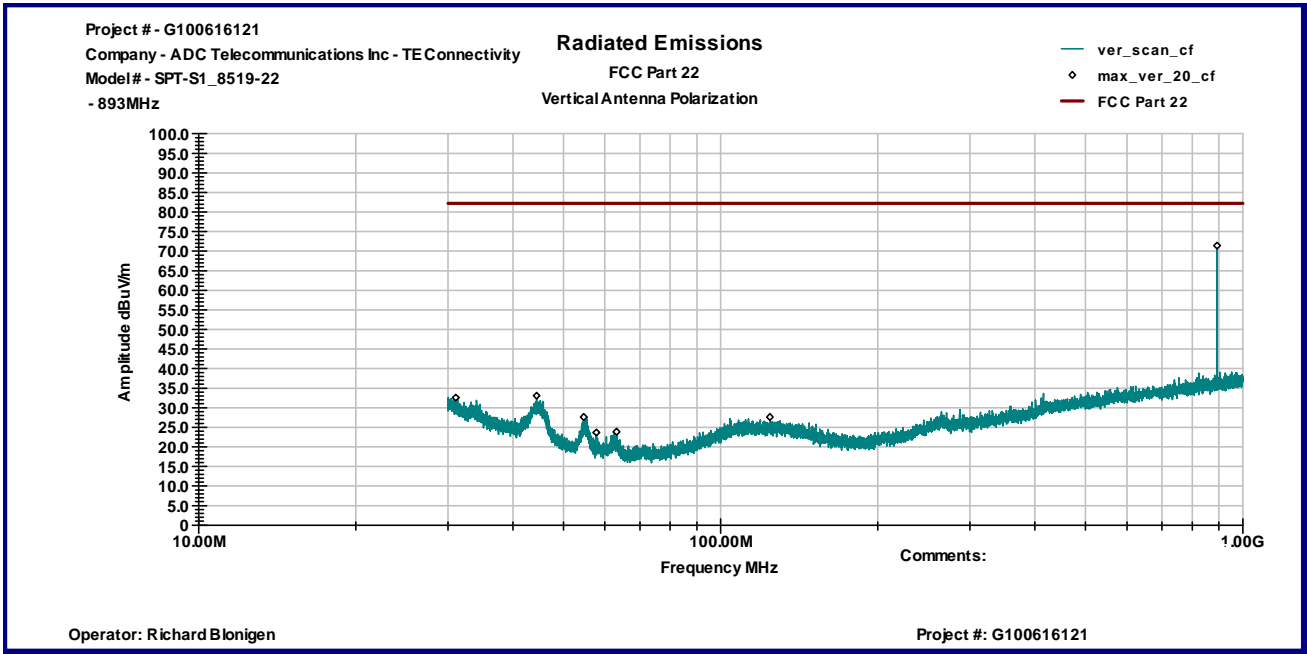
Graph 2



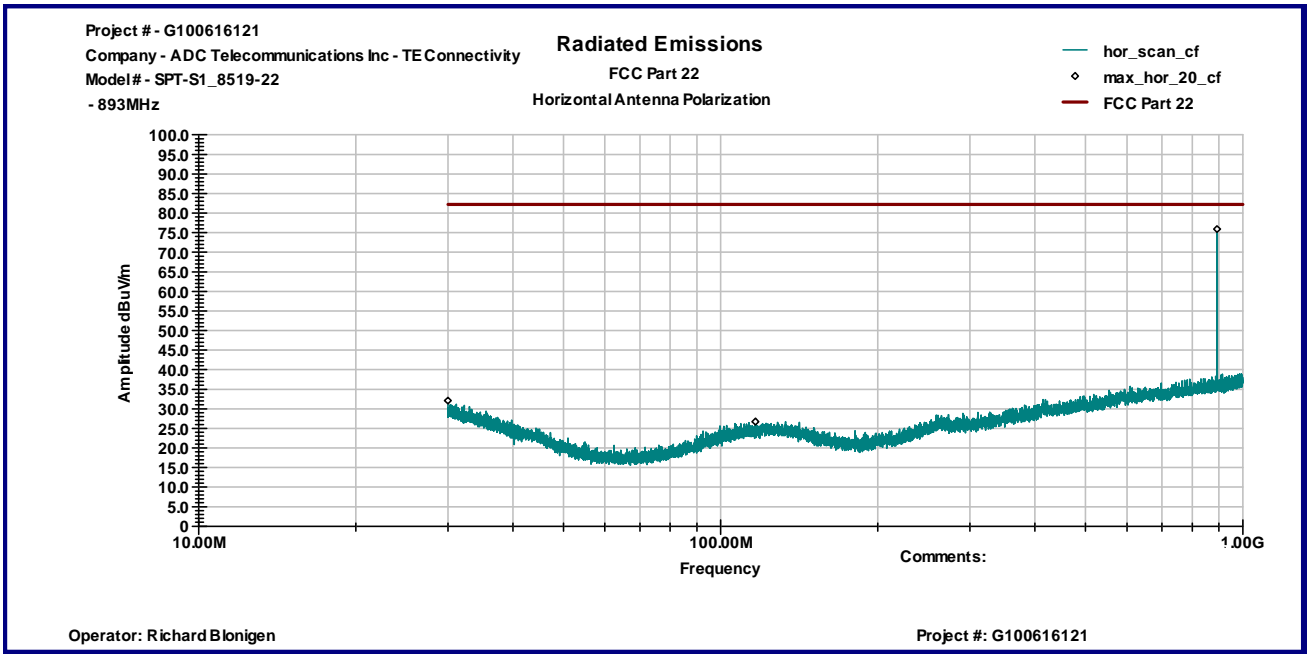
Graph 3



Graph 4

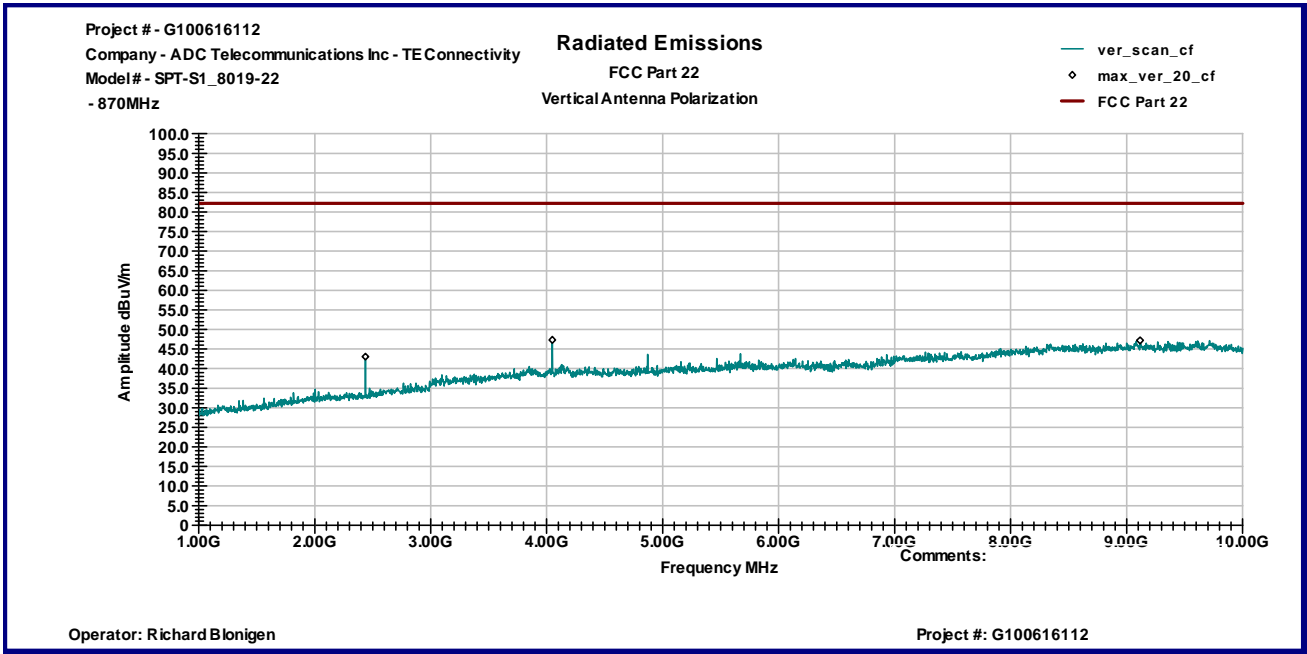


Graph 5

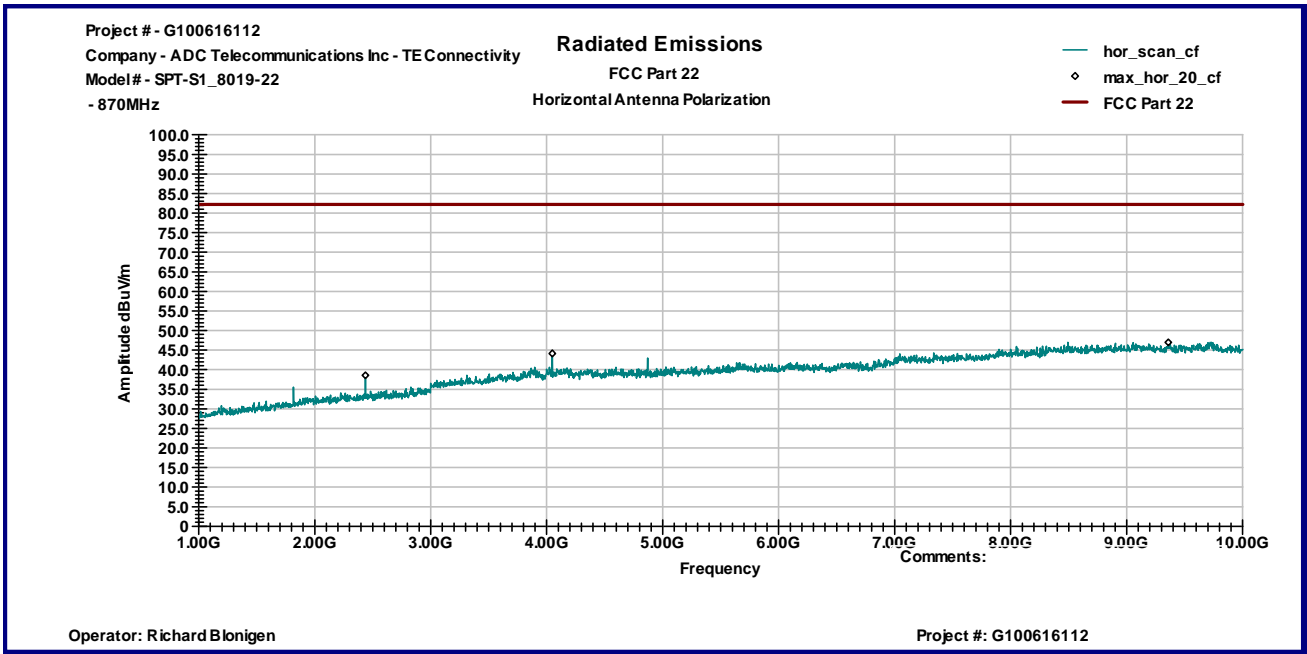


Graph 6

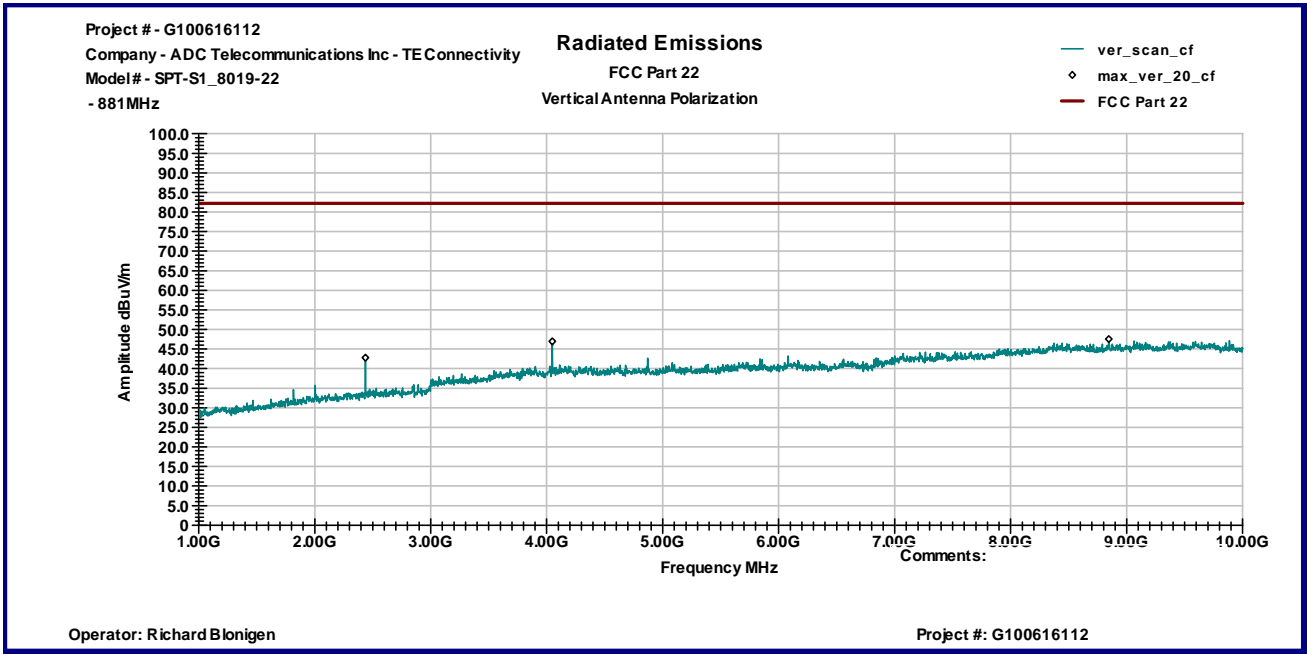




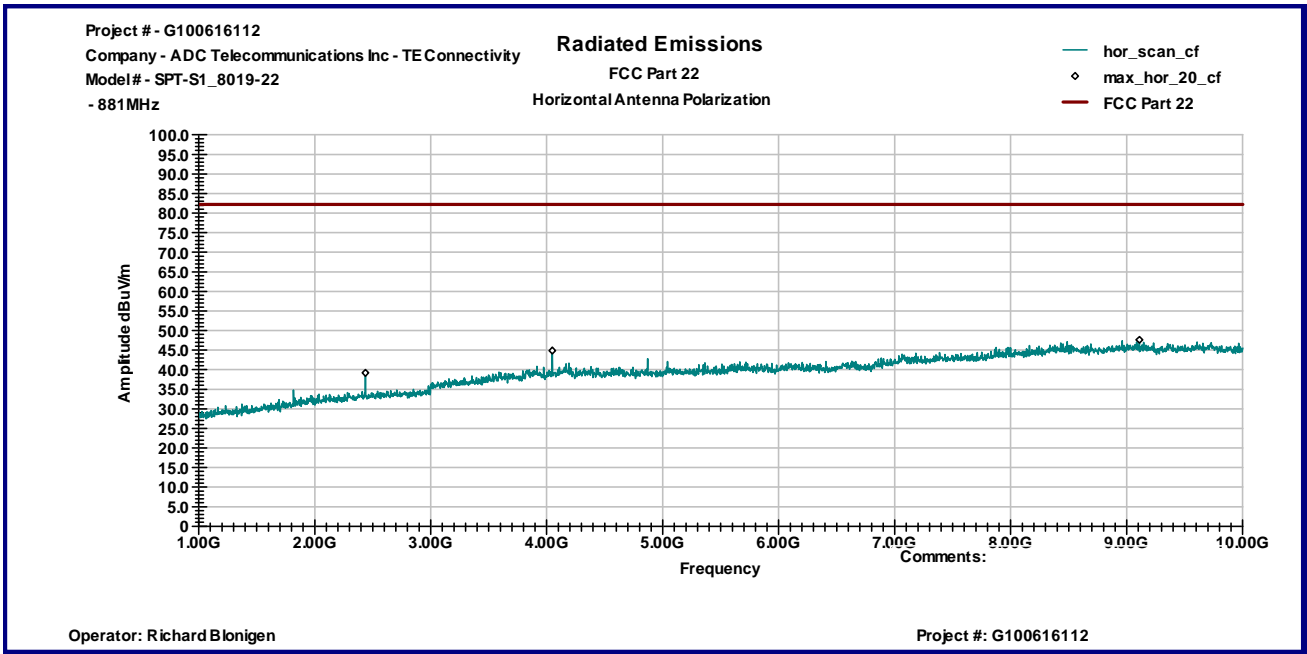
Graph 7



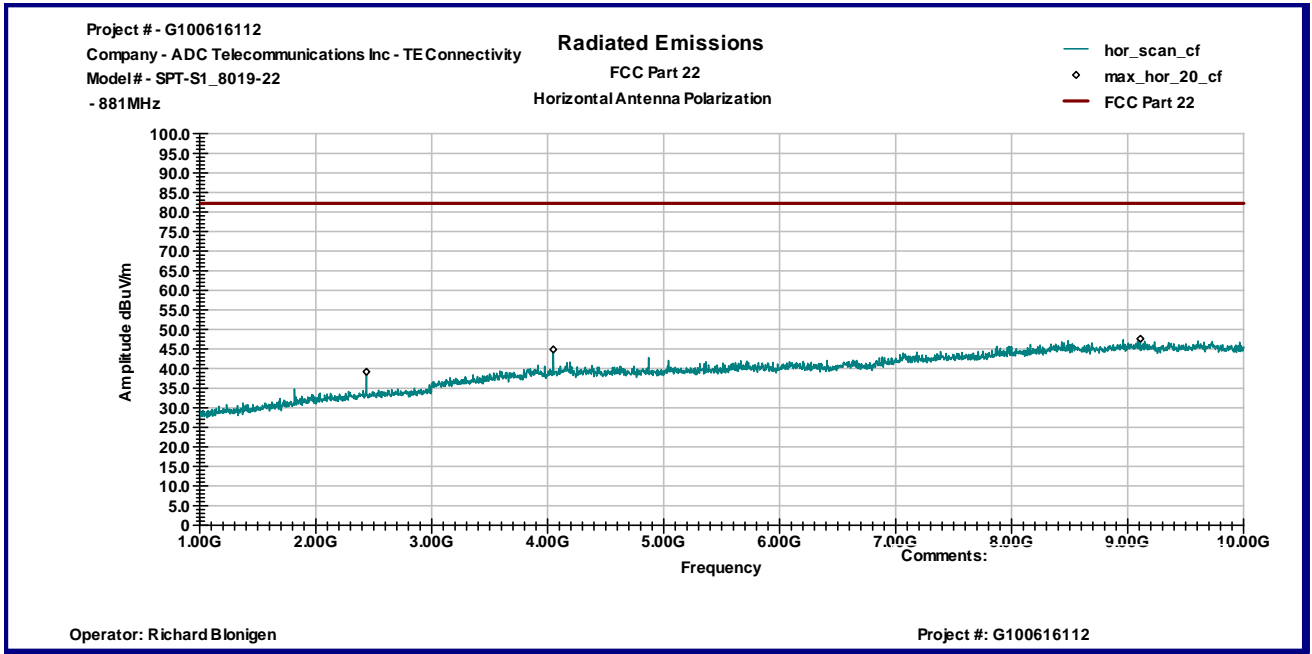
Graph 8



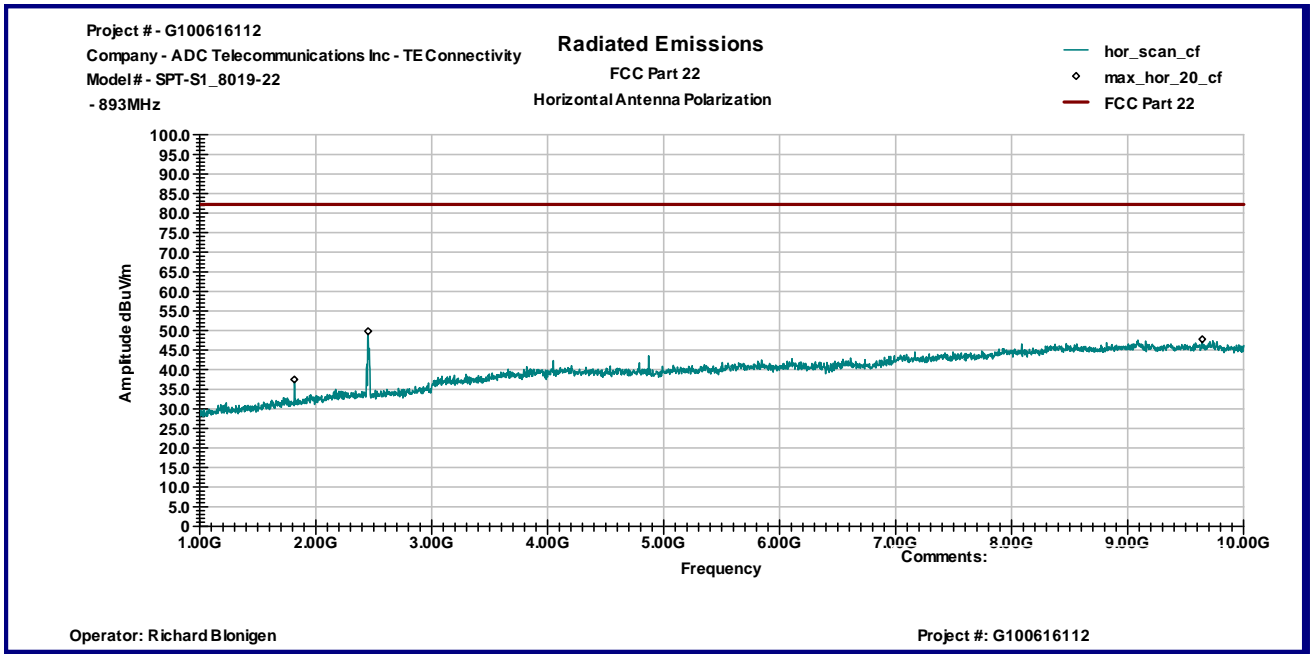
Graph 9



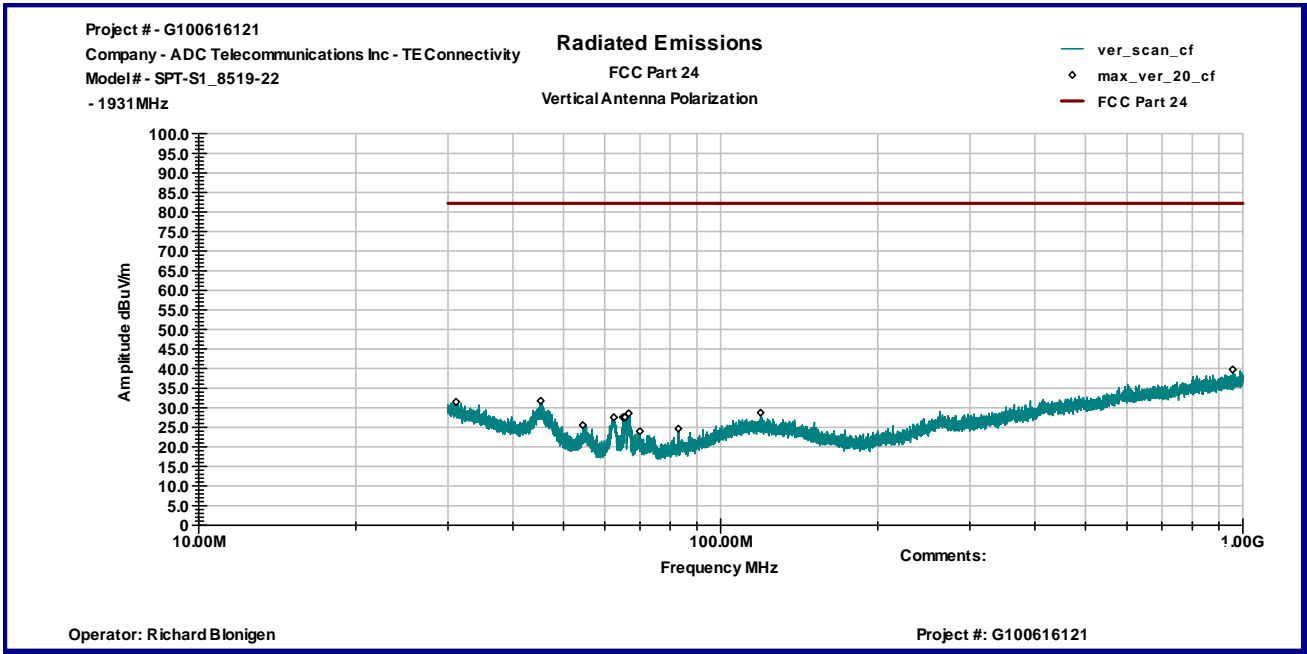
Graph 10



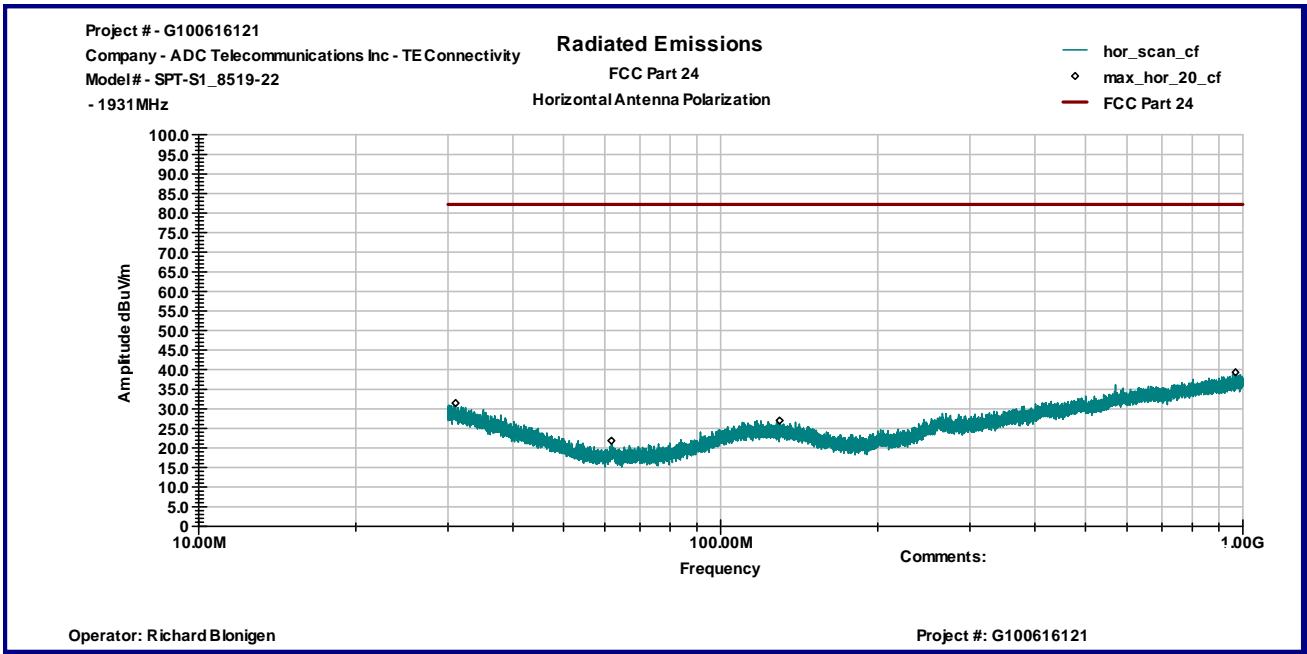
Graph 11



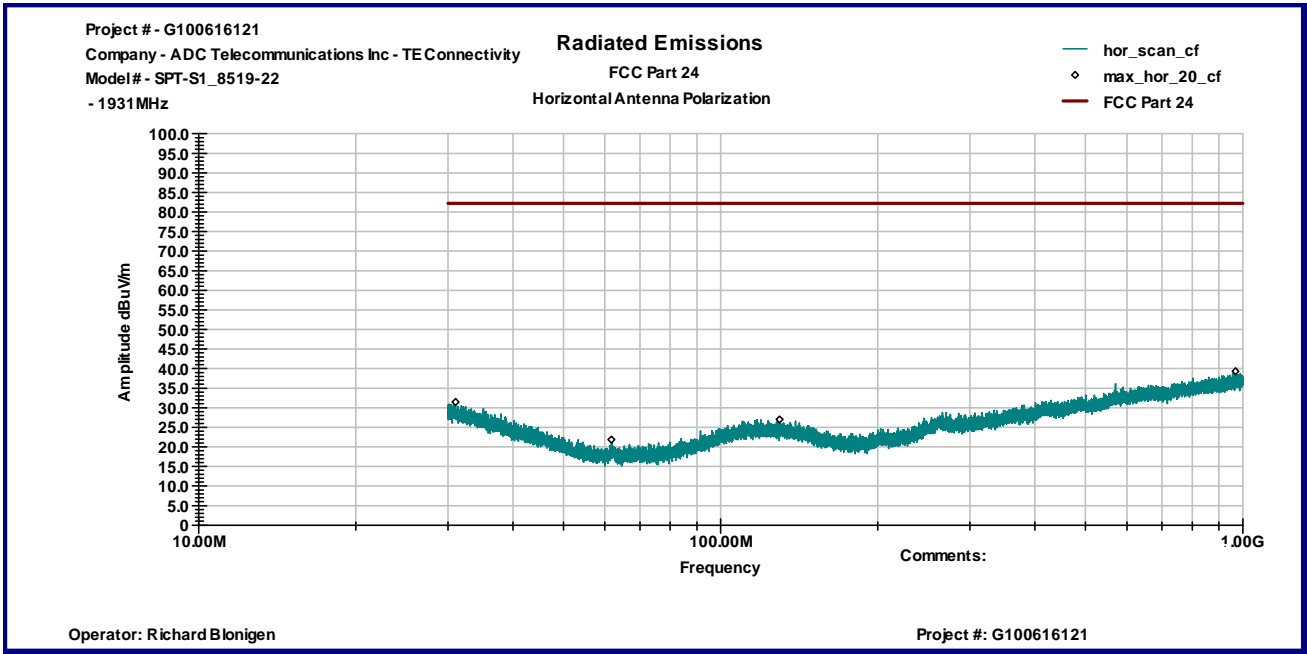
Graph 12



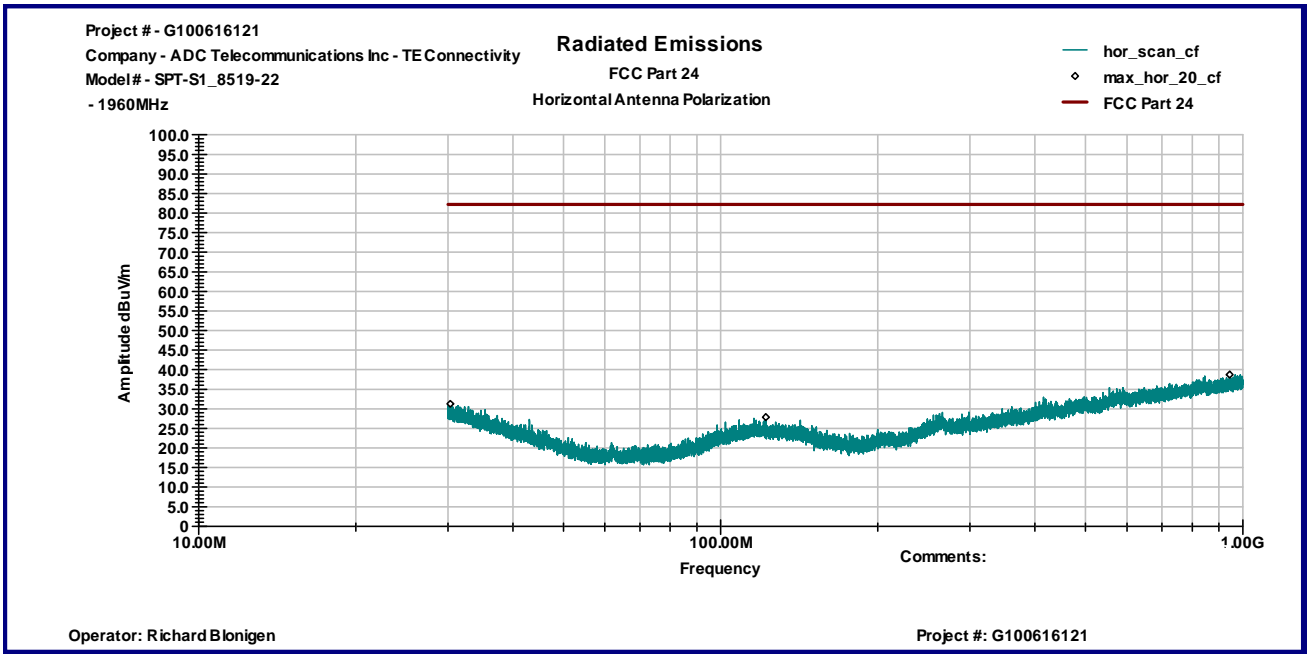
Graph 13



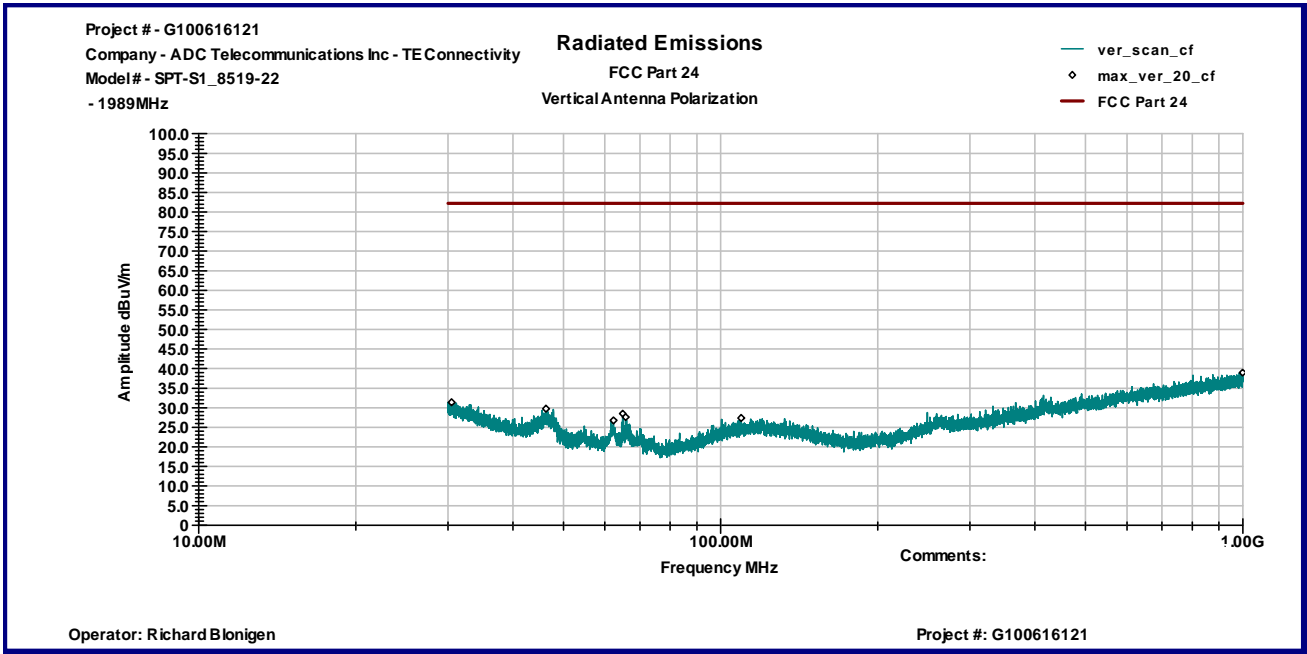
Graph 14



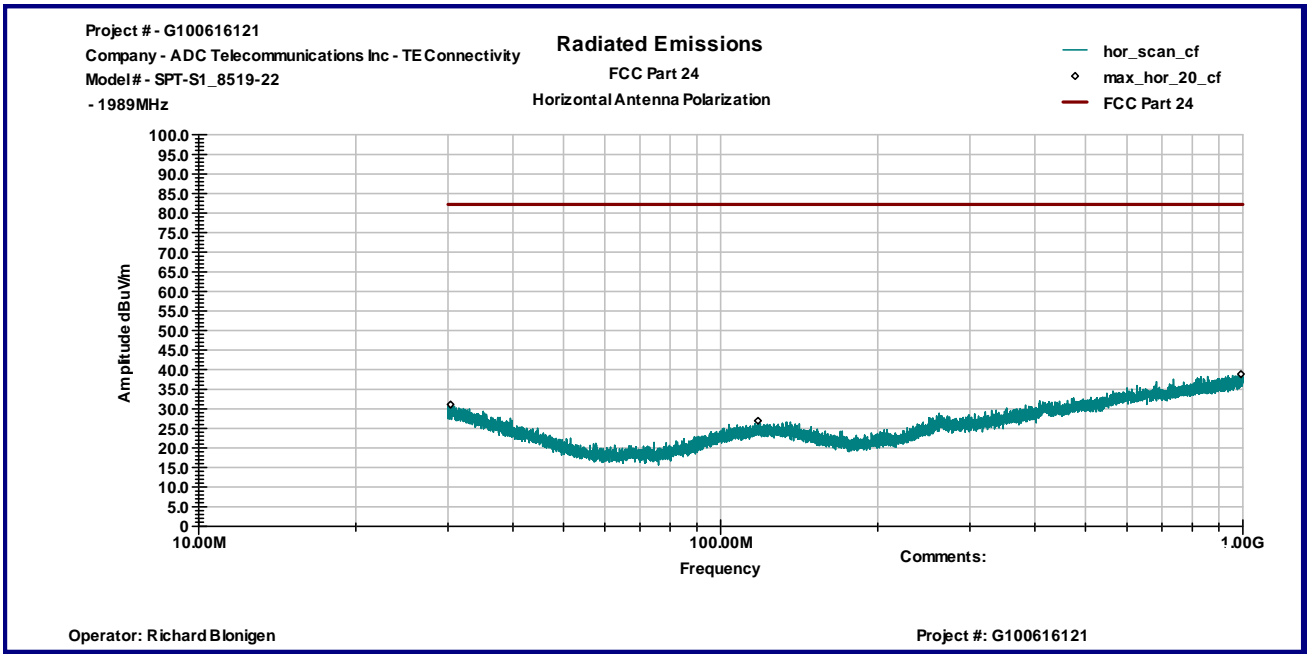
Graph 15



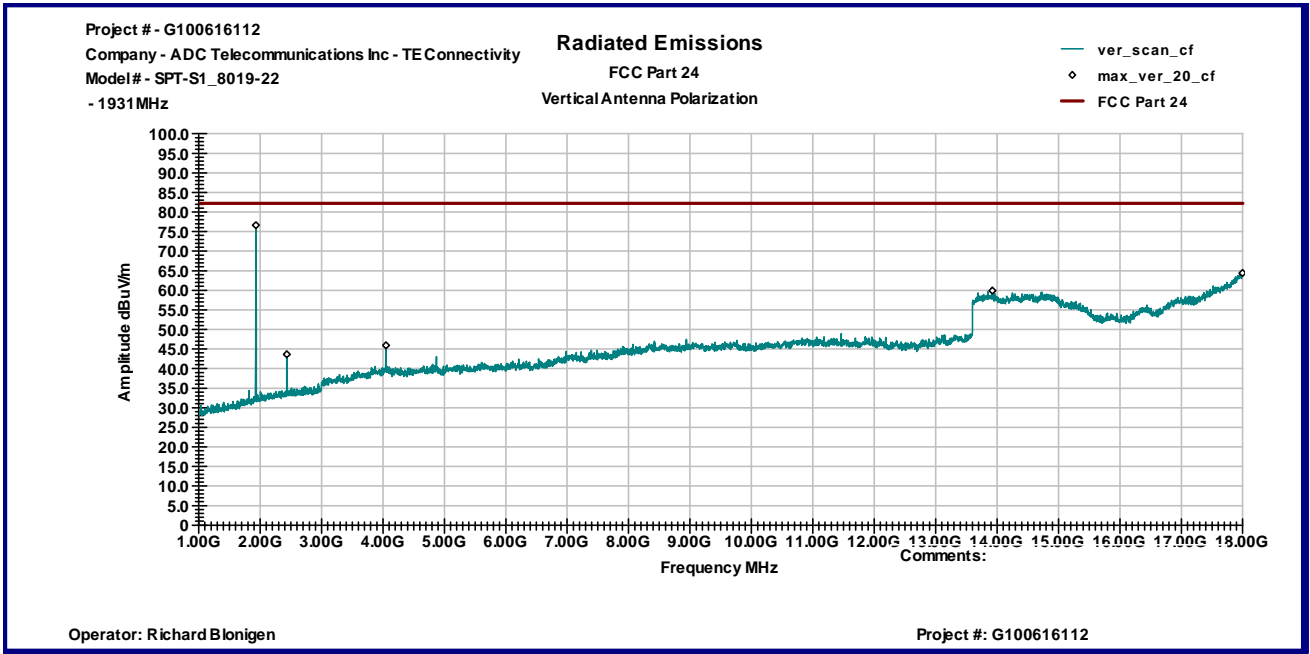
Graph 16



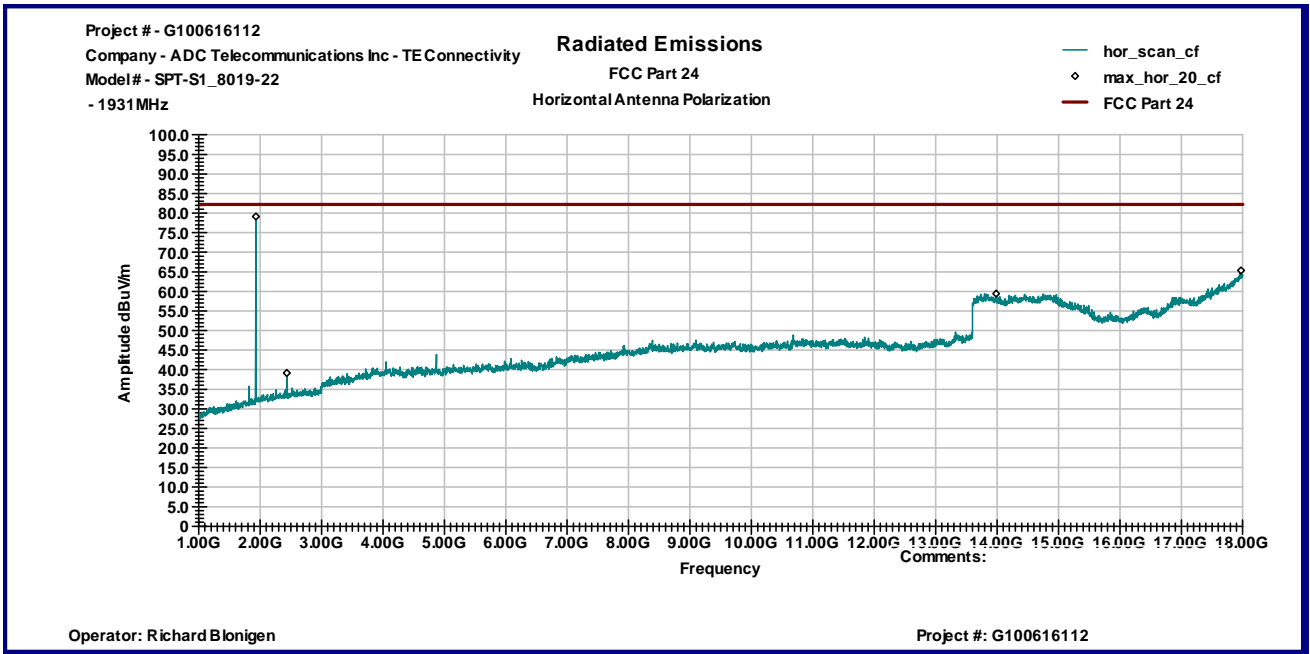
Graph 17



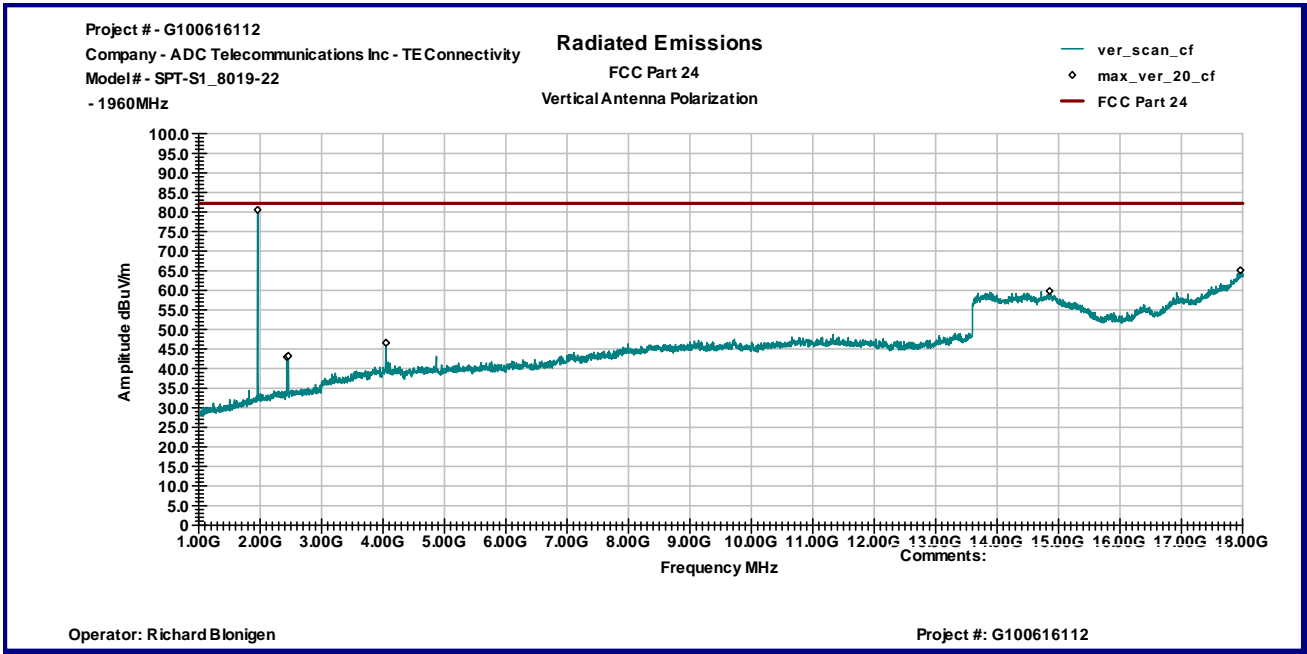
Graph 18



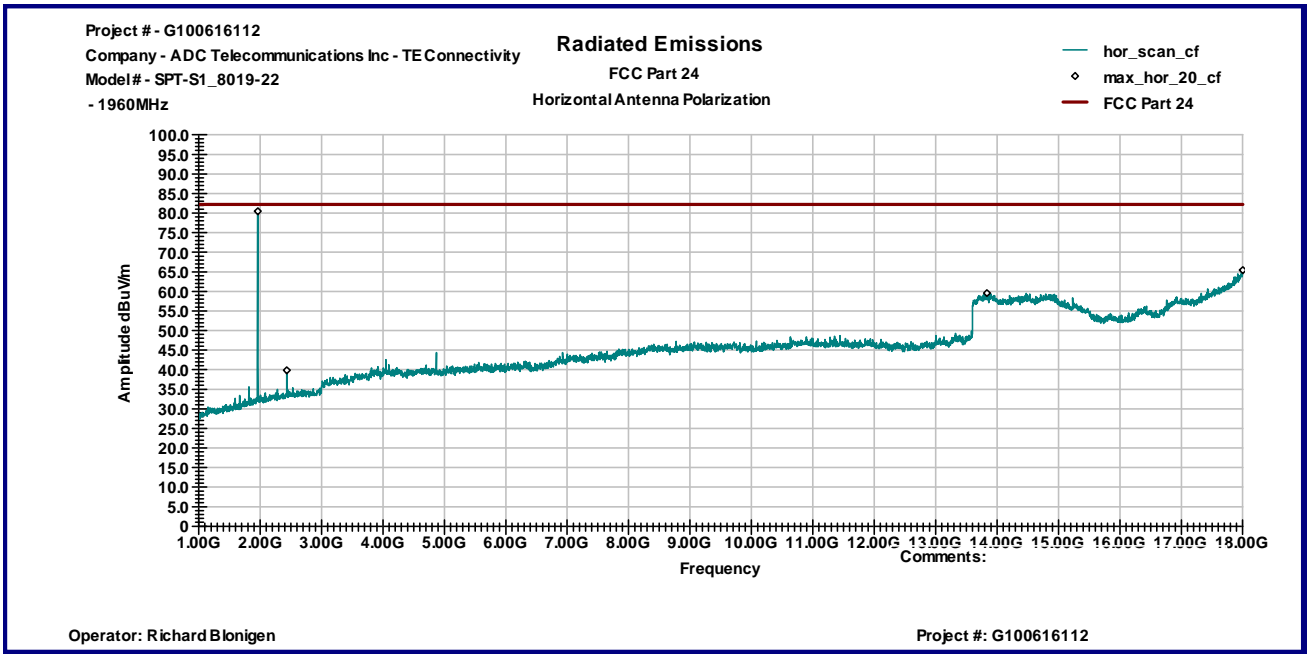
Graph 19



Graph 20

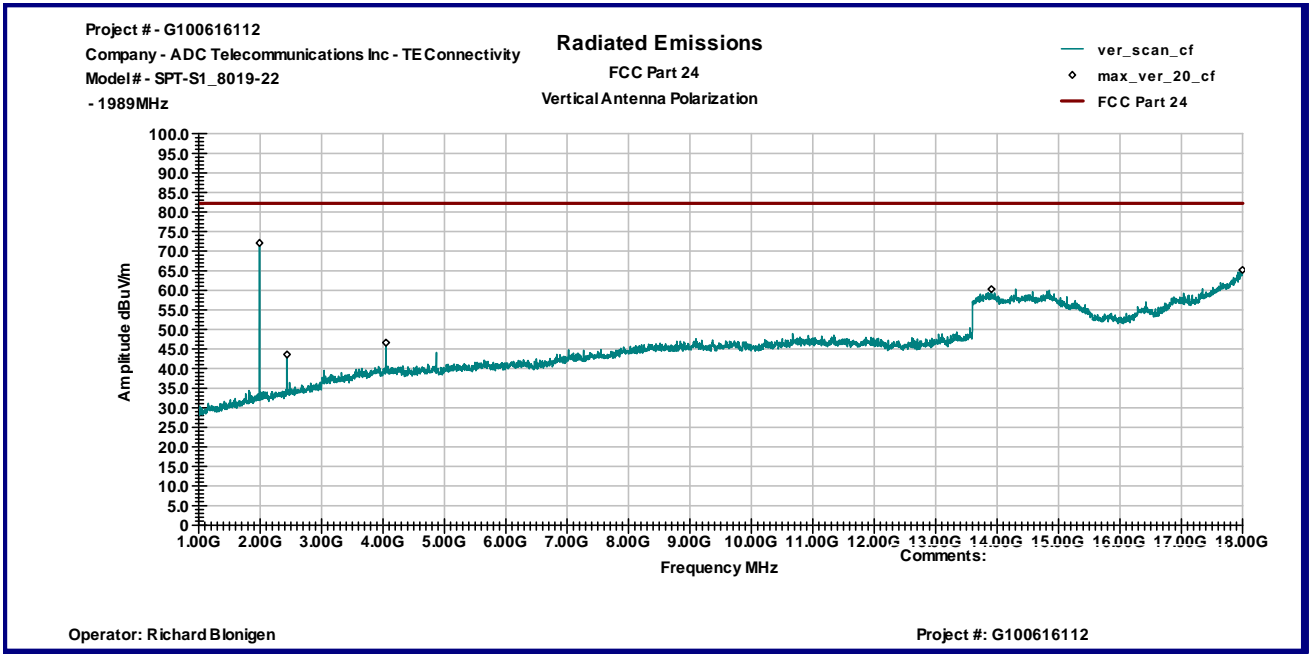


Graph 21

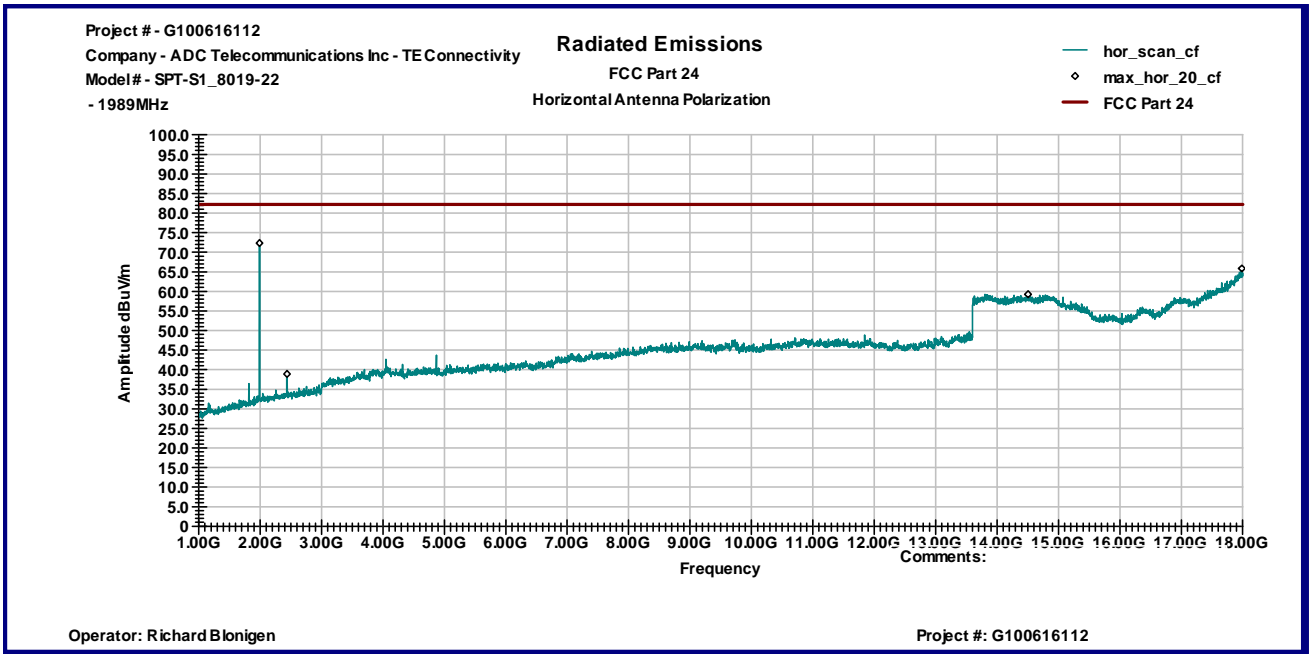


Graph 22

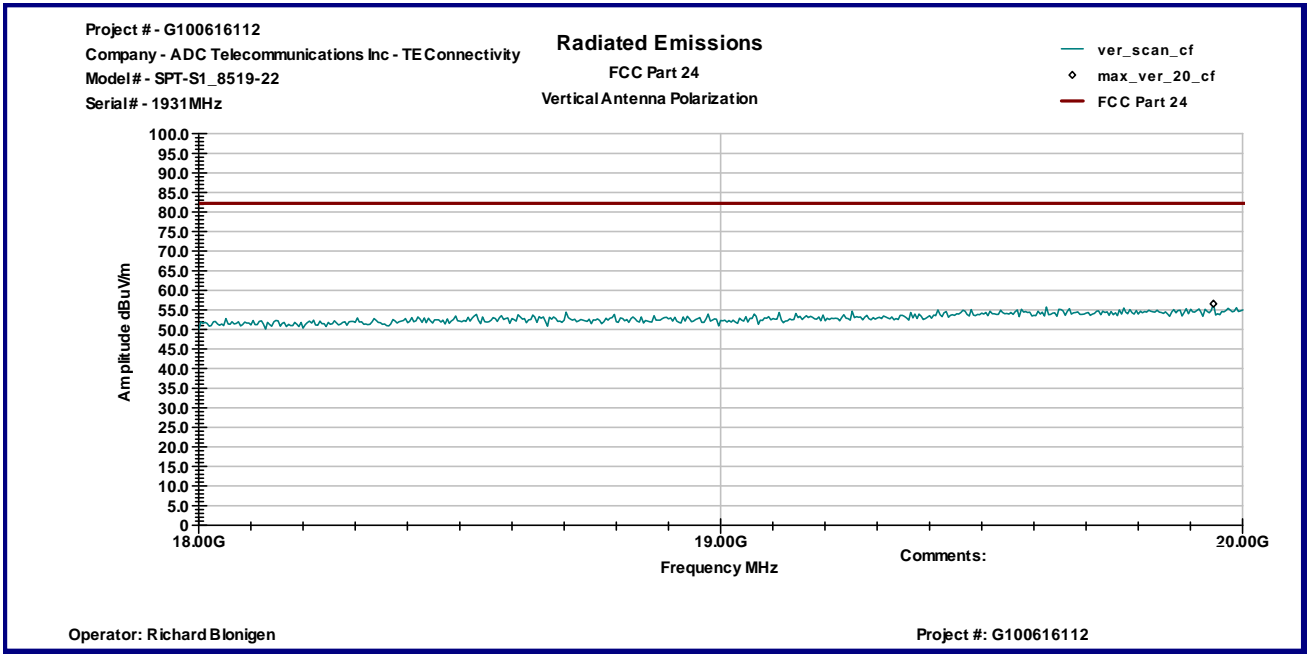




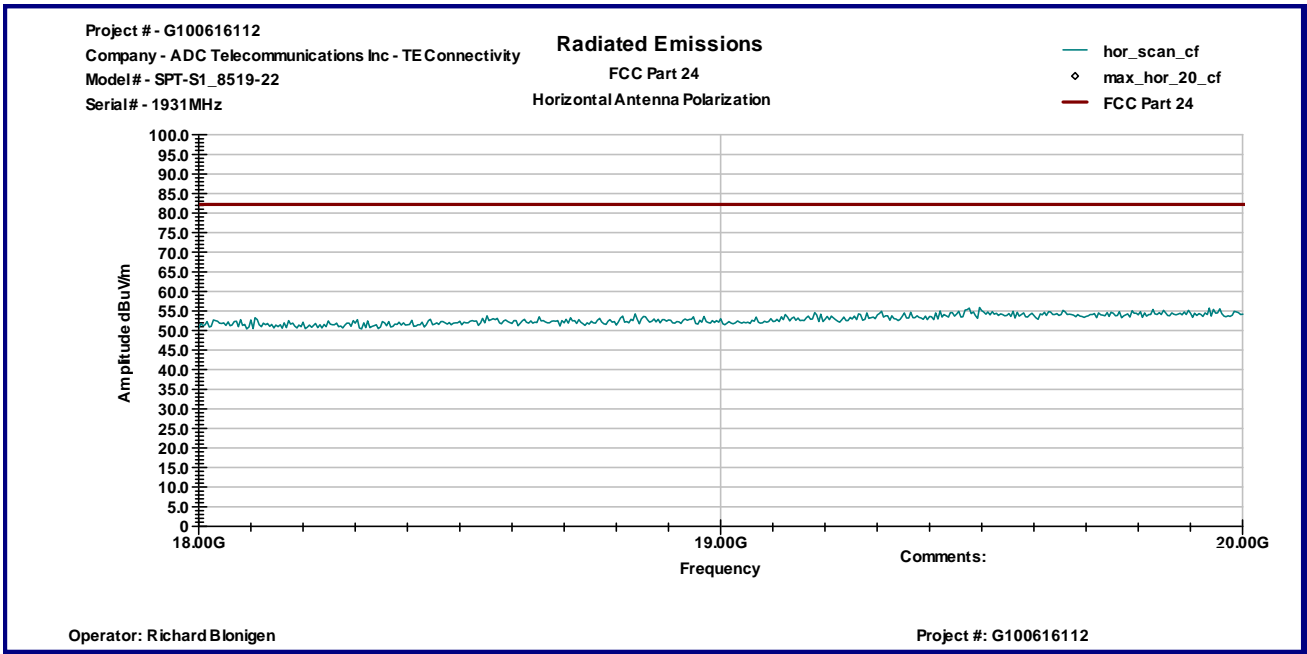
Graph 23



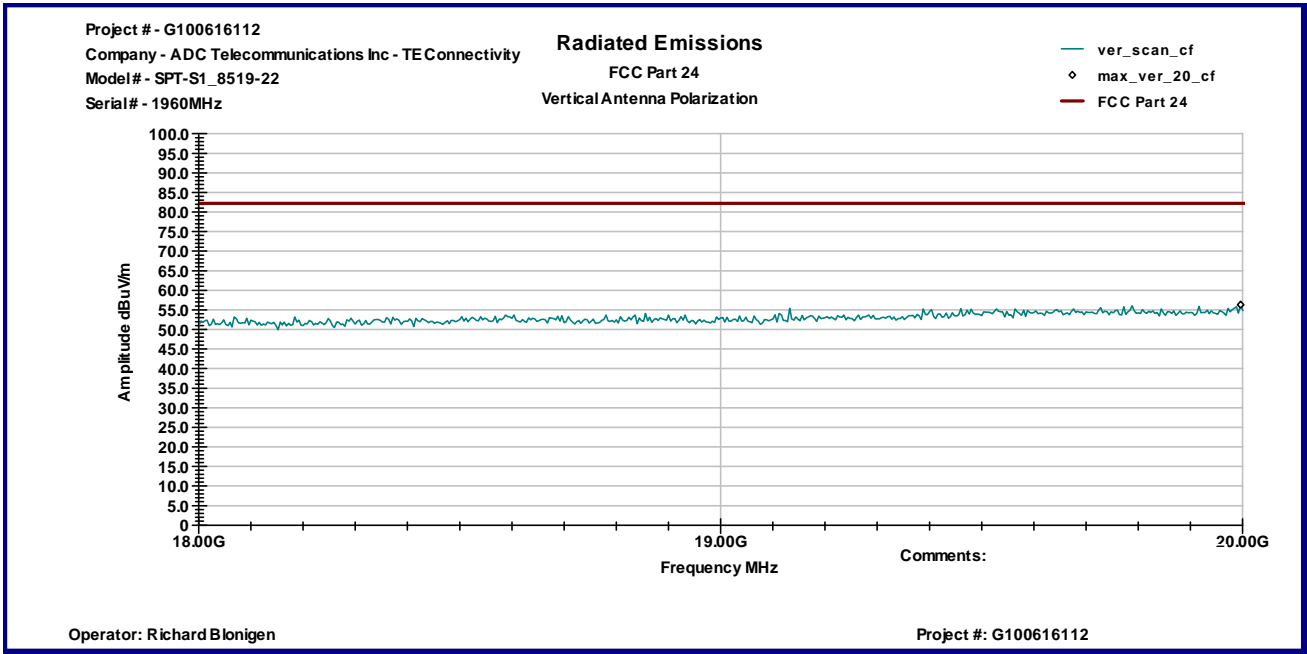
Graph 24



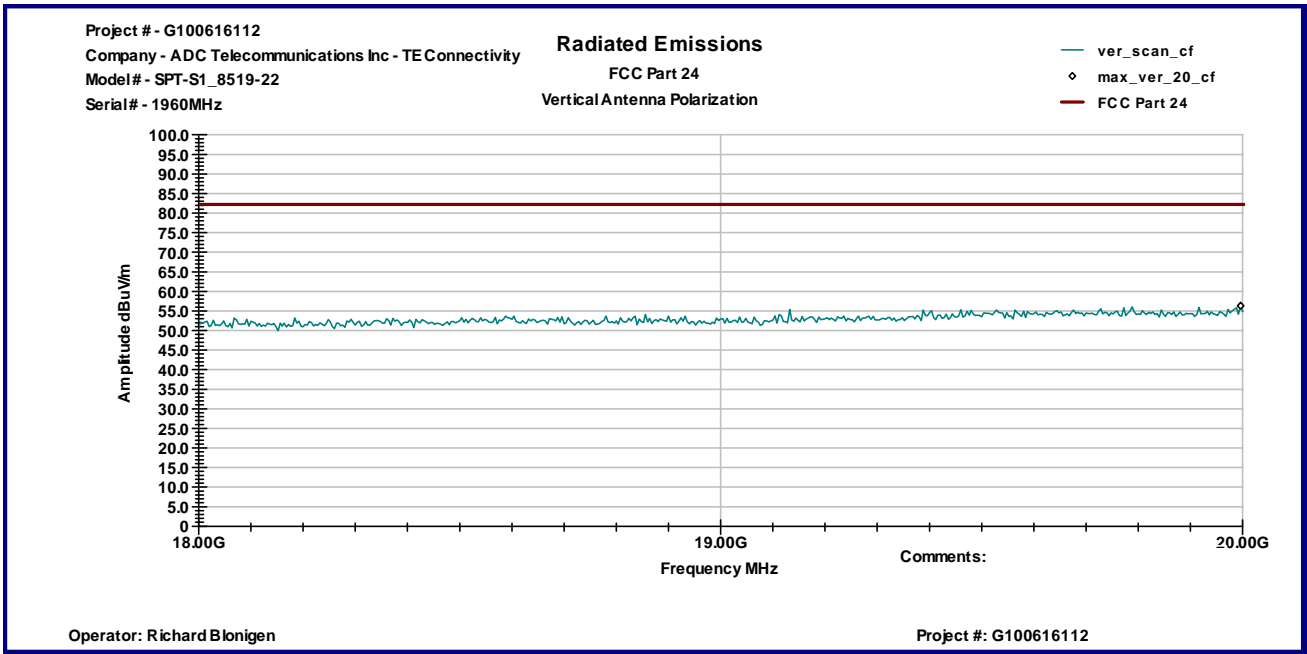
Graph 25



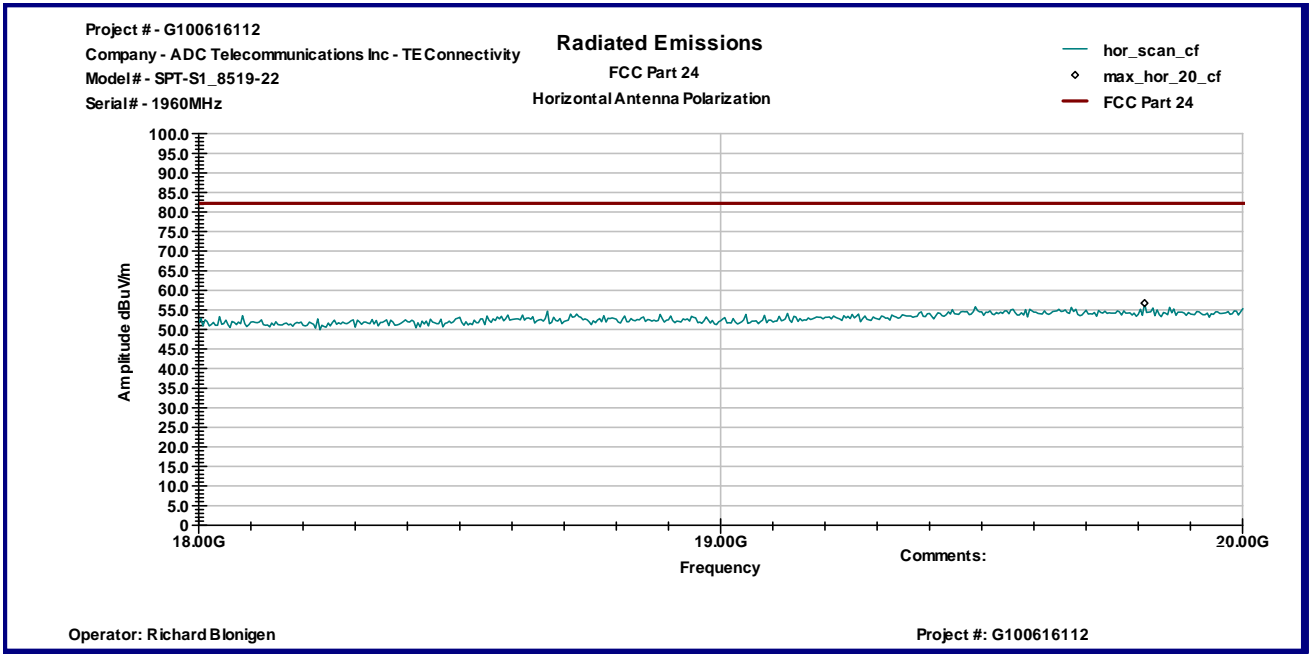
Graph 26



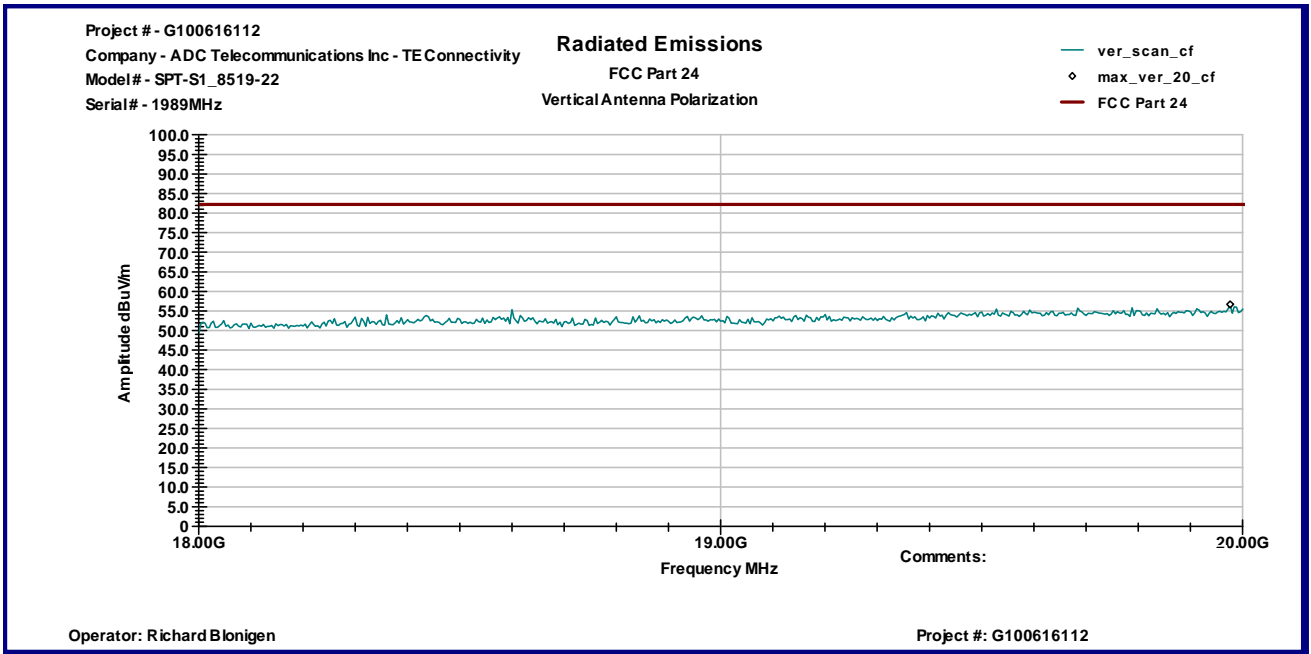
Graph 27



Graph 28



Graph 29



Graph 30



## 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	<input checked="" type="checkbox"/>
Spectrum Analyzer	R & S	ESU	100398	25283	12/09/2012	<input checked="" type="checkbox"/>
Bicono-Log Antenna	Schaffner-Chase	CBL 6112 B	2468	9734	11/08/2012	<input checked="" type="checkbox"/>
Horn Antenna	EMCO	3115	9507-4513	9936	04/29/2012	<input checked="" type="checkbox"/>
Pre-Amplifier	MITEQ	AMF-5D-00501800-28-13P	1402232	172081	10/31/2012	<input checked="" type="checkbox"/>
System	TILE! Instrument Control		Ver. 3.4.K.29	15259	VBU	<input checked="" type="checkbox"/>
Waveguide Horn Antenna	EMCO	3116	9904-2423	9705	10/31/2012	<input checked="" type="checkbox"/>
Pre-Amplifier	MITEQ	AMF-6F-16002600-25-10P	1222383	MIN-0065	10/31/2012	<input checked="" type="checkbox"/>

