



TEST DATA REPORT

Report Number: 100521481MIN-001

Project Number: G100521481

Testing performed on the
SPT-S1-AWS19-12

to

47 CFR, Part 24:2010, Enclosure Spurious Radiated Emissions
47 CFR, Part 27:2010, Enclosure Spurious Radiated Emissions

For

ADC Telecommunications Inc. - a TE Connectivity Company

Test Performed by:
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Test Authorized by:
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Date: October 5, 2011

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Norman Shpilsher

Date: October 5, 2011

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1.0 DESCRIPTION OF THE SAMPLE (EUT)

Model:	SPT-S1-AWS19-12
Type of EUT:	Spectrum AWSP1 / PCSP2 SRAU Repeater
Frequency Range:	1930-1990MHz (PCS Band) 2110-2155MHz (AWS Band)
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
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e-mail:	sue.cyr@te.com
Test Standards:	<input type="checkbox"/> EN 55022:2006 +A1:2007, Class  <input type="checkbox"/> EN 55011:2007 +A2:2007, Group  , Class  <input checked="" type="checkbox"/> 47 CFR, Part 24:2010, Enclosure Spurious Radiated Emissions <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  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:	October 4, 2011
Test Work Started:	October 4, 2011
Test Work Completed:	October 5, 2011
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 24	Enclosure Spurious Radiated Emissions	Pass
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:	<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:
Rated current:	Amp.
Rated frequency:	<input type="checkbox"/> 50Hz <input type="checkbox"/> 60Hz
Number of phases:	<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 2111MHz, 2132MHz, and 2154MHz
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	Agilent 8648C	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

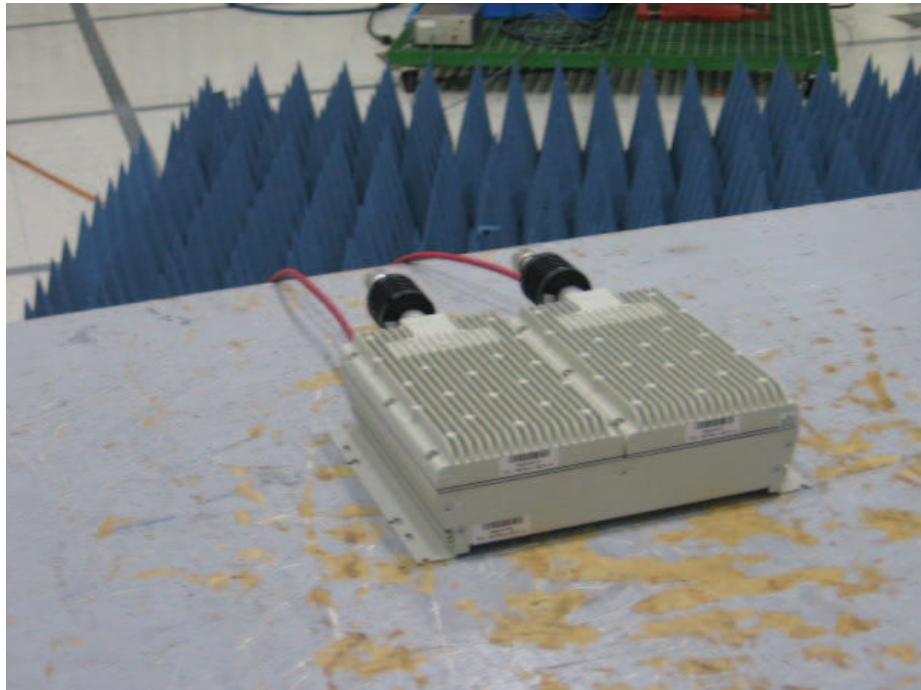
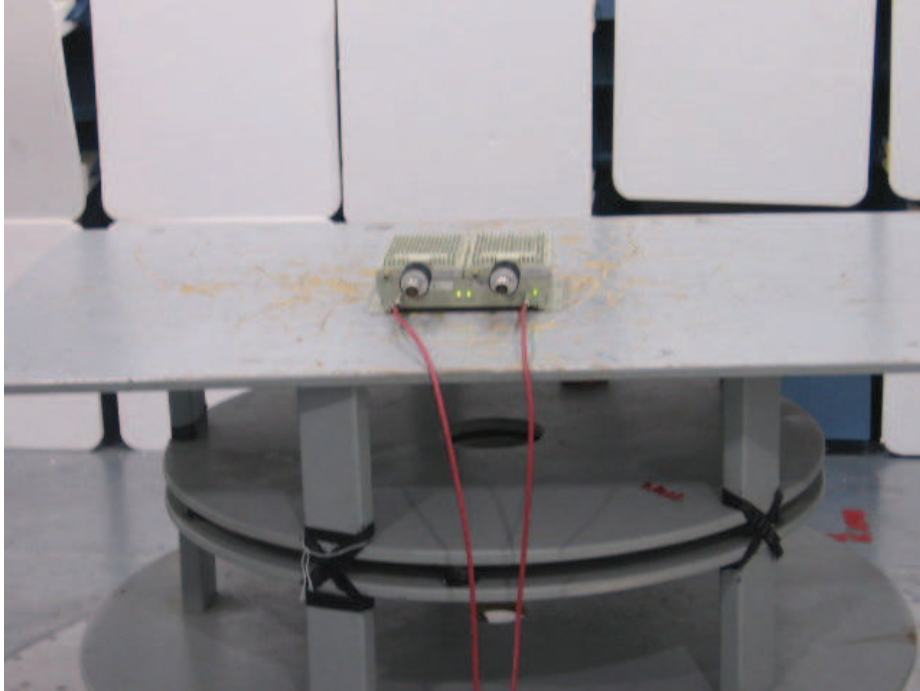
Test distance: ☐ 10 meters ☒ 3 meters

Test result: **Pass**

Frequency range: 30MHz-22GHz for AWS Band
30MHz-20GHz for PCS Band

Max. Emissions margin: 21.0dB 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 μ V/m during field strength reference testing at 3m measurement distance (Graphs 1-48)
 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

Date:	October 4-5, 2011	Result: Pass
Tested by:	Uri Spector	
Standard:	FCC Part 24, PCS Band	
Test Point:	Enclosure	
Operation mode:	See page 5	
Note:	None	

Table 1

Frequency	Ant. Polarity	Peak Reading dBμV	Ant.Factor dB1/m	Total at 3m dBμV/m	QP Limit dBμV/m	Margin dB
1931MHz						
30.485 MHz	V	14.6	20.1	34.6	82.2	-47.6
48.979 MHz	V	21.8	10.4	32.2	82.2	-50.0
63.802 MHz	V	27.6	6.9	34.6	82.2	-47.7
89.256 MHz	V	18.8	10.2	29.1	82.2	-53.1
91.047 MHz	V	19.1	10.6	29.7	82.2	-52.5
117.16 MHz	V	18.0	14.0	31.9	82.2	-50.3
30.208 MHz	H	13.6	20.2	33.8	82.2	-48.4
65.379 MHz	H	19.9	6.9	26.9	82.2	-55.3
116.71 MHz	H	19.2	14.0	33.2	82.2	-49.0
1960MHz						
30.416 MHz	V	17.2	20.1	37.3	82.2	-44.9
64.01 MHz	V	27.2	6.9	34.2	82.2	-48.0
91.047 MHz	V	17.6	10.6	28.2	82.2	-54.0
117.61 MHz	V	17.2	14.0	31.2	82.2	-51.0
30.139 MHz	H	14.2	20.2	34.4	82.2	-47.8
65.23 MHz	H	20.1	6.9	27.0	82.2	-55.2
118.21 MHz	H	19.9	14.0	33.9	82.2	-48.3
1989MHz						
30.416 MHz	V	17.3	20.1	37.4	82.2	-44.8
64.633 MHz	V	26.8	6.9	33.7	82.2	-48.5
89.256 MHz	V	17.7	10.2	27.9	82.2	-54.3
117.76 MHz	V	16.8	14.0	30.8	82.2	-51.4
30.485 MHz	H	14.0	20.1	34.1	82.2	-48.2
65.23 MHz	H	21.3	6.9	28.3	82.2	-54.0
117.61 MHz	H	18.3	14.0	32.2	82.2	-50.0

Table 2

Frequency MHz	Antenna Polarity	Reading dB μ V	Total C.F. dB1/m	Pre-Amp. Gain (dB)	Total at 3m dB μ V/m	QP Limit dB μ V/m	Margin dB
1931MHz							
1.816 GHz	V	48.4	29.8	38.6	39.6	82.2	-42.6
4.185 GHz	V	45.6	40.5	37.0	49.1	82.2	-33.1
5.58 GHz	V	47.3	42.9	36.4	53.9	82.2	-28.4
6.3825 GHz	V	43.2	43.1	36.8	49.5	82.2	-32.8
12.0 GHz	V	37.4	50.3	35.5	52.2	82.2	-30.0
4.185 GHz	H	49.4	40.5	37.0	52.9	82.2	-29.3
5.58 GHz	H	51.3	43.0	36.4	57.9	82.2	-24.3
12.0 GHz	H	38.0	50.3	35.5	52.8	82.2	-29.4
1960MHz							
1.816 GHz	V	48.7	29.8	38.6	39.9	82.2	-42.3
2.848 GHz	V	43.6	33.6	37.7	39.5	82.2	-42.8
4.2675 GHz	V	57.6	40.6	37.0	61.2	82.2	-21.0
5.58 GHz	V	46.3	42.9	36.4	52.8	82.2	-29.4
6.3825 GHz	V	43.2	43.1	36.8	49.4	82.2	-32.8
12.24 GHz	V	46.0	50.1	35.7	60.4	82.2	-21.8
1.816 GHz	H	48.7	29.8	38.6	39.9	82.2	-42.3
2.848 GHz	H	43.6	33.6	37.7	39.5	82.2	-42.8
5.58 GHz	H	51.7	43.0	36.4	58.4	82.2	-23.8
10.793 GHz	H	34.5	49.8	34.7	49.6	82.2	-32.6
1989MHz							
1.816 GHz	V	49.2	29.8	38.6	40.4	82.2	-41.8
4.35 GHz	V	50.6	40.7	36.9	54.4	82.2	-27.9
5.58 GHz	V	46.1	42.9	36.4	52.6	82.2	-29.6
6.3825 GHz	V	45.1	43.1	36.8	51.4	82.2	-30.8
12.48 GHz	V	38.4	49.9	36.0	52.3	82.2	-29.9
16.545 GHz	V	35.4	50.7	36.5	49.6	82.2	-32.6
4.35 GHz	H	49.0	40.6	36.9	52.8	82.2	-29.5
5.58 GHz	H	49.7	43.0	36.4	56.4	82.2	-25.9
12.48 GHz	H	37.1	49.9	36.0	51.1	82.2	-31.1
16.545 GHz	H	37.1	50.5	36.5	51.2	82.2	-31.0

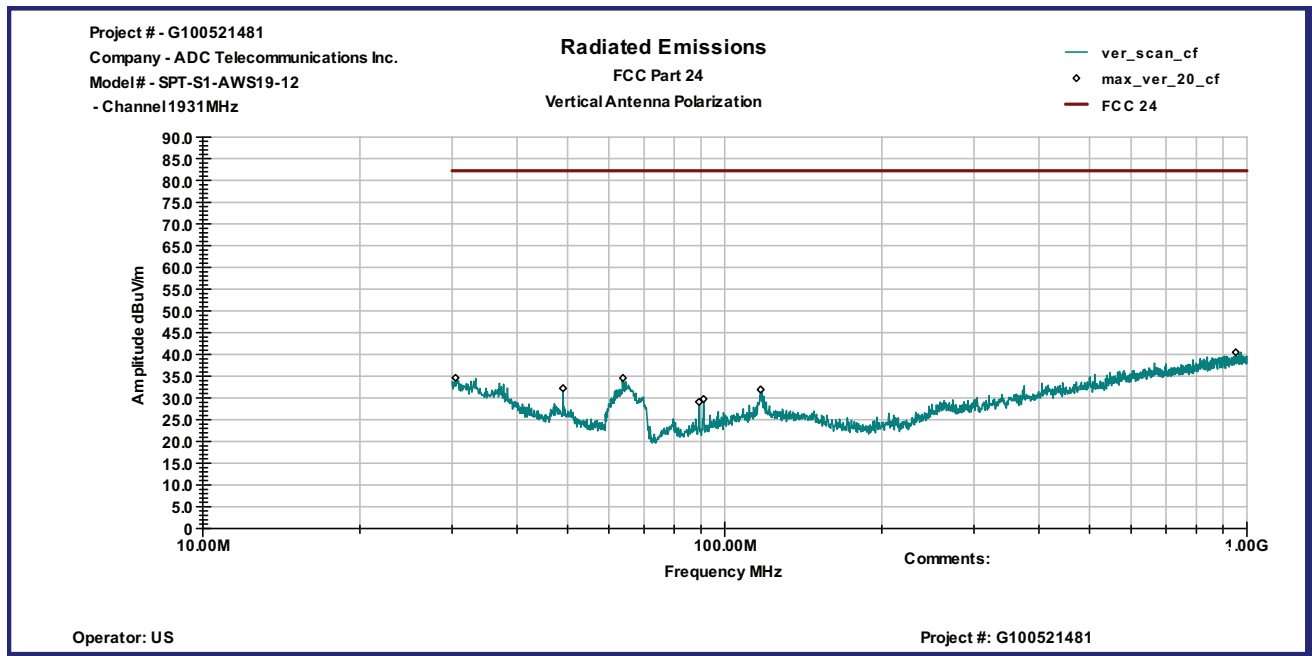
Date:	October 4-5, 2011	Result: Pass
Tested by:	Uri Spector	
Standard:	FCC Part 27, AWS Band	
Test Point:	Enclosure	
Operation mode:	See page 5	
Note:	None	

Table 3

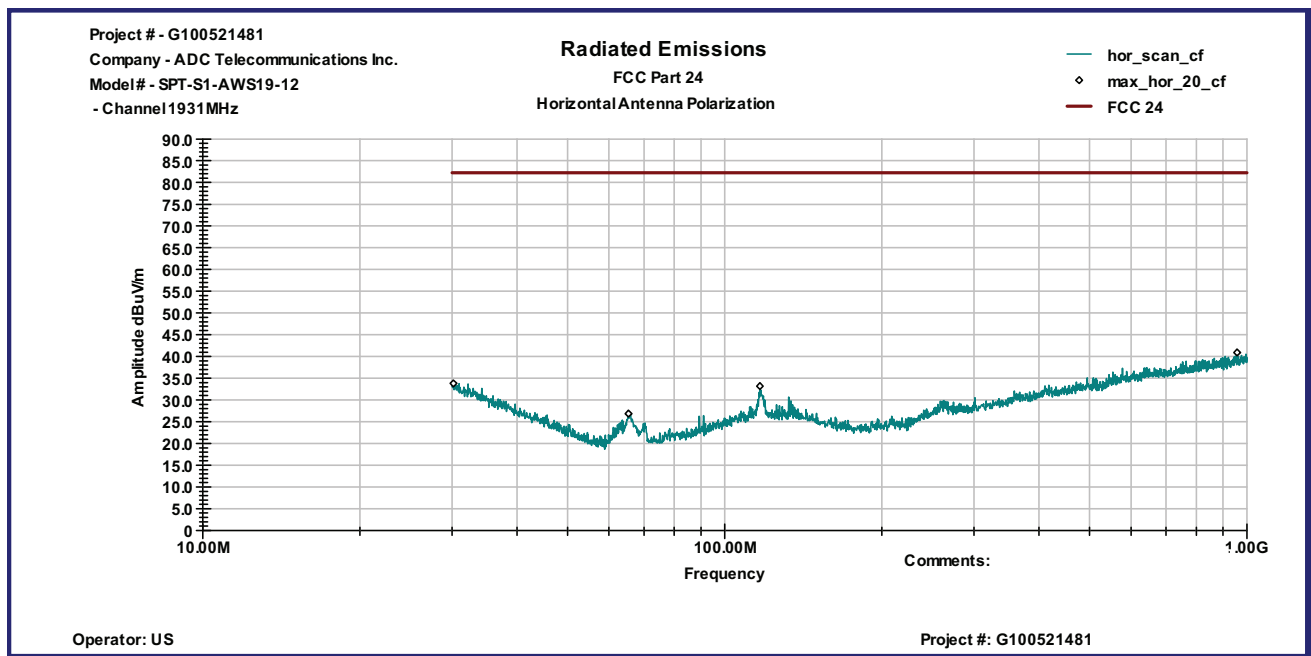
Frequency	Ant. Polarity	Peak Reading dBμV	Ant.Factor dB1/m	Total at 3m dBμV/m	QP Limit dBμV/m	Margin dB
2111MHz						
30.277 MHz	V	17.3	20.2	37.4	82.2	-44.8
48.563 MHz	V	19.9	10.6	30.5	82.2	-51.7
66.871 MHz	V	27.2	7.1	34.3	82.2	-47.9
89.256 MHz	V	19.4	10.2	29.7	82.2	-52.5
91.047 MHz	V	18.8	10.6	29.3	82.2	-52.9
92.39 MHz	V	23.7	10.9	34.6	82.2	-47.6
116.56 MHz	V	17.5	13.9	31.4	82.2	-50.8
30.0 MHz	H	13.8	20.3	34.1	82.2	-48.1
66.722 MHz	H	21.1	7.1	28.1	82.2	-54.1
117.46 MHz	H	19.4	14.0	33.3	82.2	-48.9
2132MHz						
36.511 MHz	V	19.6	16.7	36.3	82.2	-45.9
61.932 MHz	V	28.9	7.0	35.9	82.2	-46.3
89.256 MHz	V	17.6	10.2	27.9	82.2	-54.3
117.46 MHz	V	18.2	14.0	32.2	82.2	-50.0
30.97 MHz	H	14.4	19.8	34.2	82.2	-48.1
65.678 MHz	H	20.1	7.0	27.1	82.2	-55.1
117.31 MHz	H	18.2	14.0	32.1	82.2	-50.1
2154MHz						
30.346 MHz	V	16.9	20.1	37.1	82.2	-45.1
67.17 MHz	V	28.0	7.1	35.1	82.2	-47.1
89.256 MHz	V	17.9	10.2	28.1	82.2	-54.1
91.047 MHz	V	17.6	10.6	28.2	82.2	-54.0
118.06 MHz	V	17.0	14.0	31.0	82.2	-51.3
30.139 MHz	H	13.6	20.2	33.8	82.2	-48.4
62.832 MHz	H	19.6	7.0	26.6	82.2	-55.6
91.047 MHz	H	17.8	10.6	28.4	82.2	-53.8
118.06 MHz	H	18.8	14.0	32.8	82.2	-49.4

Table 4

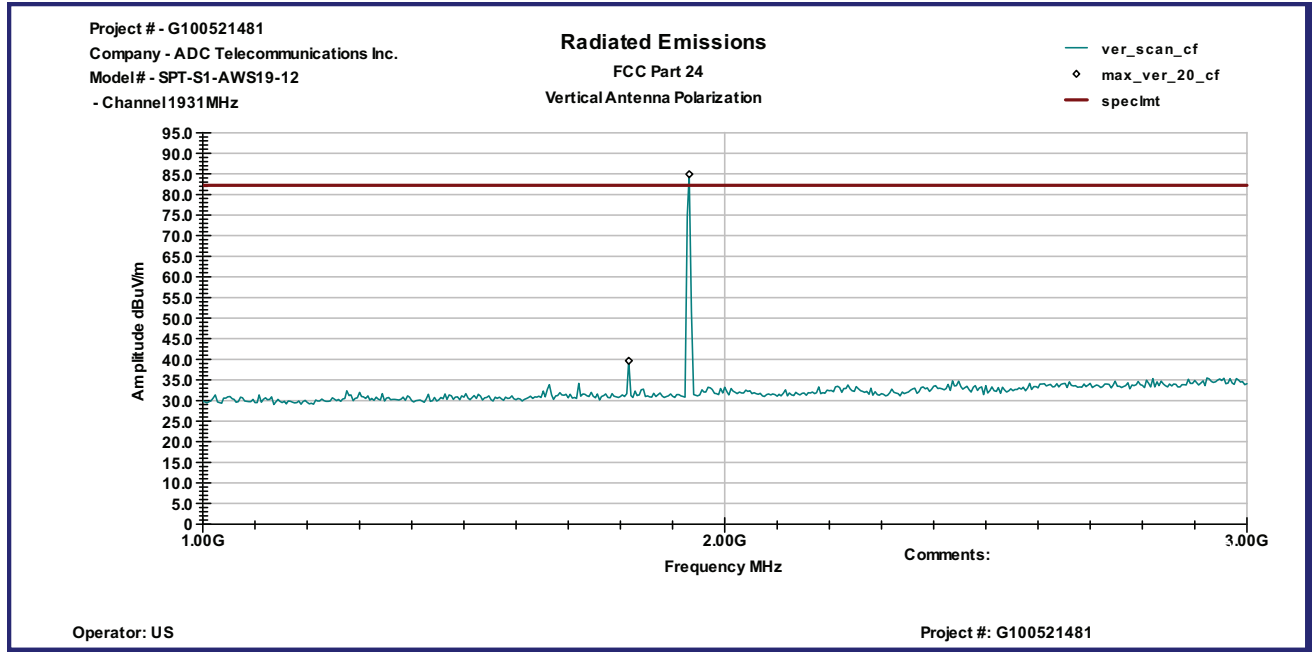
Frequency MHz	Antenna Polarity	Reading dB μ V	Total C.F. dB1/m	Pre-Amp. Gain (dB)	Total at 3m dB μ V/m	QP Limit dB μ V/m	Margin dB
2111MHz							
1.816 GHz	V	47.1	29.8	38.6	38.3	82.2	-43.9
5.58 GHz	V	46.1	42.9	36.4	52.6	82.2	-29.6
6.3825 GHz	V	44.5	43.1	36.8	50.8	82.2	-31.4
10.74 GHz	V	34.2	49.7	34.7	49.1	82.2	-33.1
13.072 GHz	V	33.8	51.3	36.6	48.5	82.2	-33.7
5.58 GHz	H	49.6	43.0	36.4	56.2	82.2	-26.0
10.77 GHz	H	34.5	49.7	34.7	49.5	82.2	-32.7
2132MHz							
1.816 GHz	V	47.1	29.8	38.6	38.3	82.2	-43.9
5.58 GHz	V	44.4	42.9	36.4	51.0	82.2	-31.2
6.3825 GHz	V	44.6	43.1	36.8	50.8	82.2	-31.4
10.845 GHz	V	33.2	50.0	34.7	48.4	82.2	-33.8
5.58 GHz	H	50.5	43.0	36.4	57.1	82.2	-25.1
6.3825 GHz	H	40.6	43.1	36.8	46.9	82.2	-35.3
10.762 GHz	H	34.2	49.7	34.7	49.2	82.2	-33.0
2154MHz							
1.816 GHz	V	47.5	29.8	38.6	38.7	82.2	-43.5
5.58 GHz	V	44.1	42.9	36.4	50.7	82.2	-31.6
6.3825 GHz	V	44.7	43.1	36.8	51.0	82.2	-31.3
10.47 GHz	V	34.0	49.0	34.8	48.2	82.2	-34.0
5.58 GHz	H	50.4	43.0	36.4	57.0	82.2	-25.2
11.37 GHz	H	34.1	50.2	35.1	49.3	82.2	-32.9



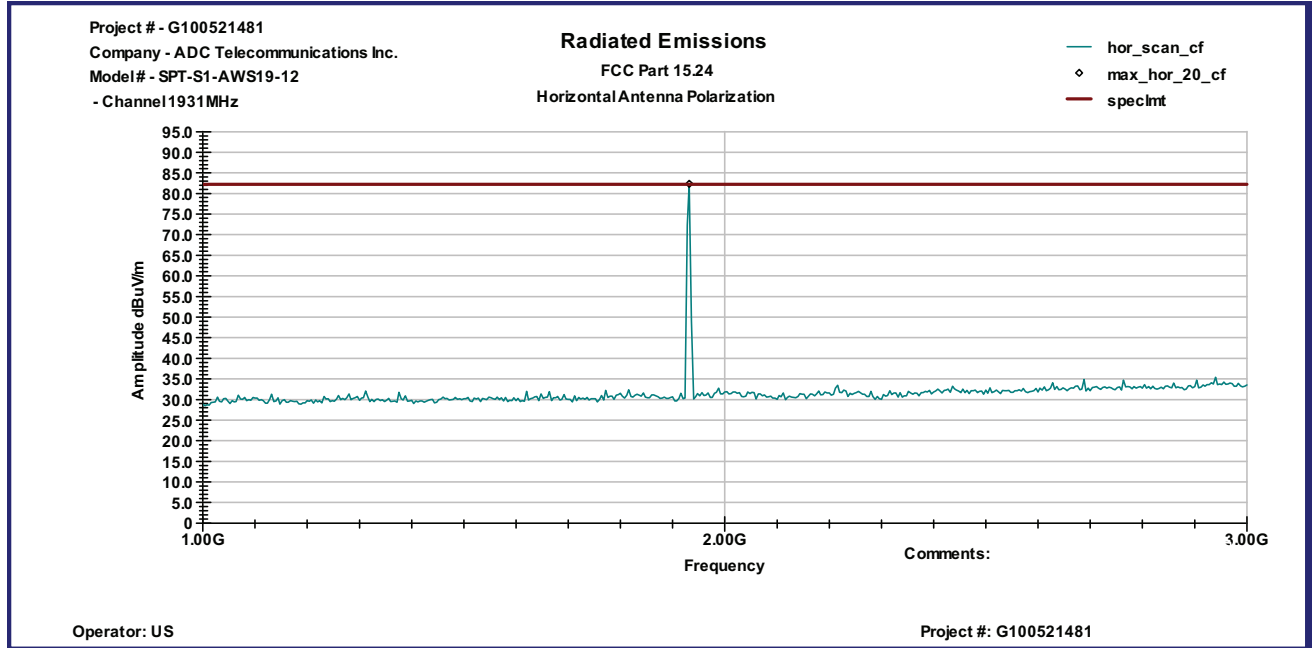
Graph 1



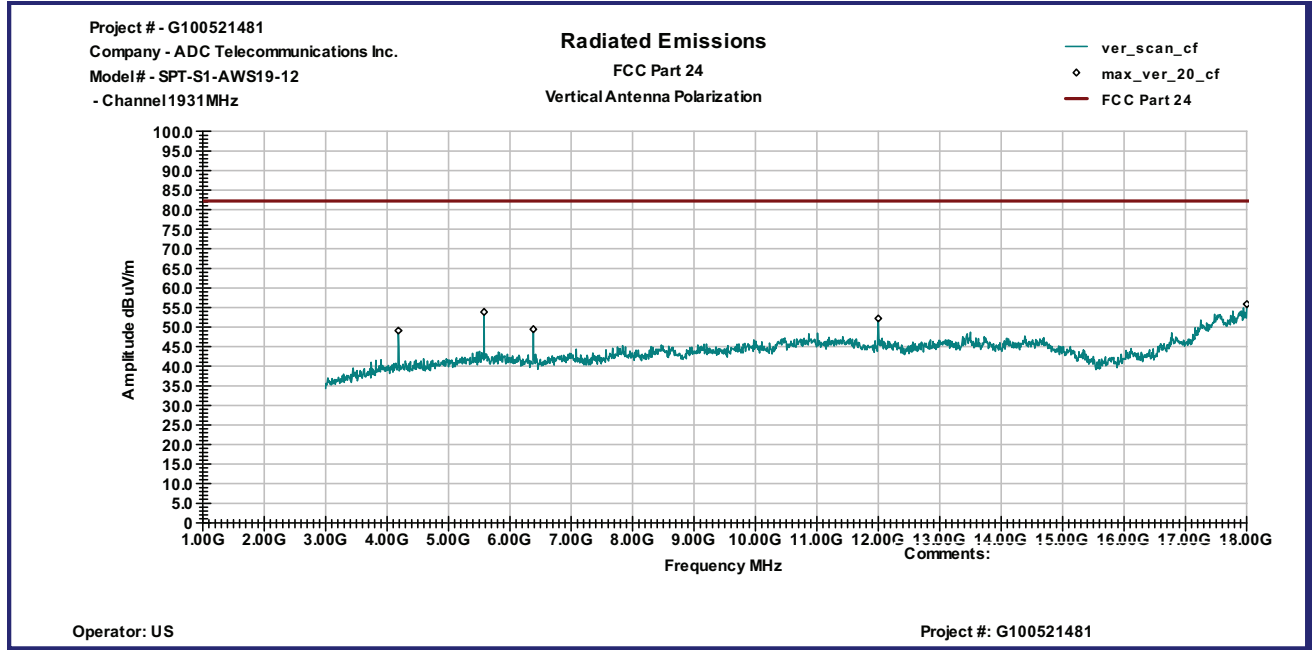
Graph 2



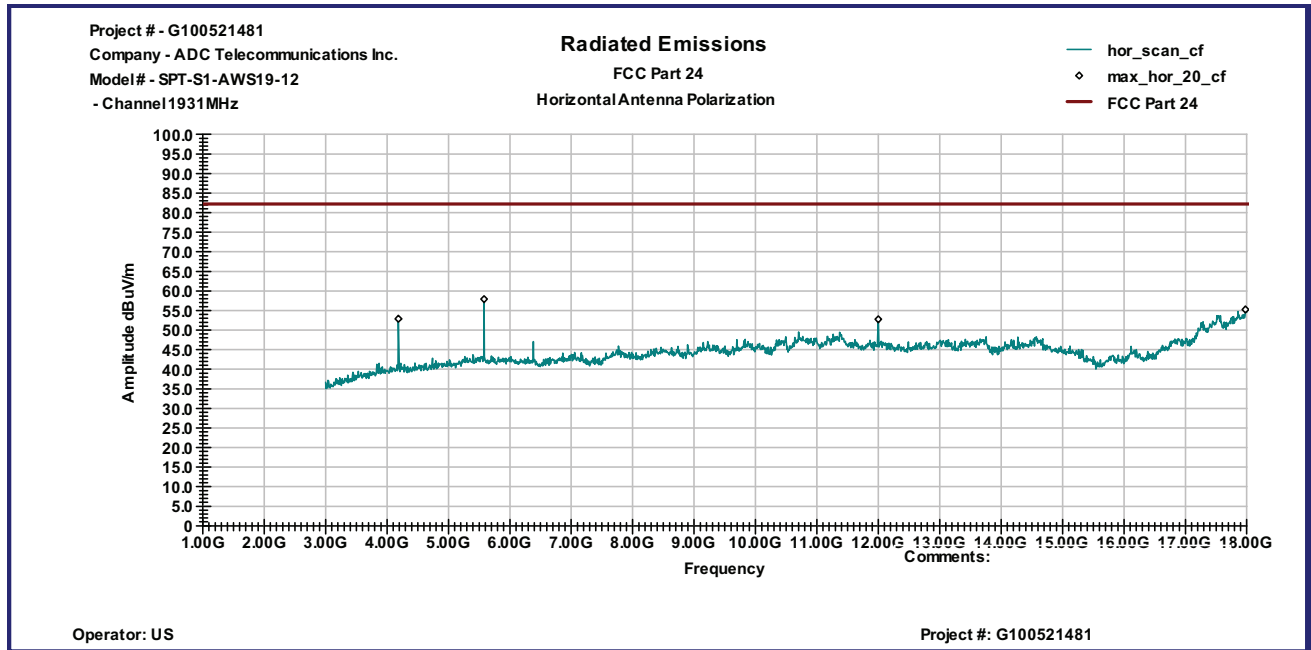
Graph 3



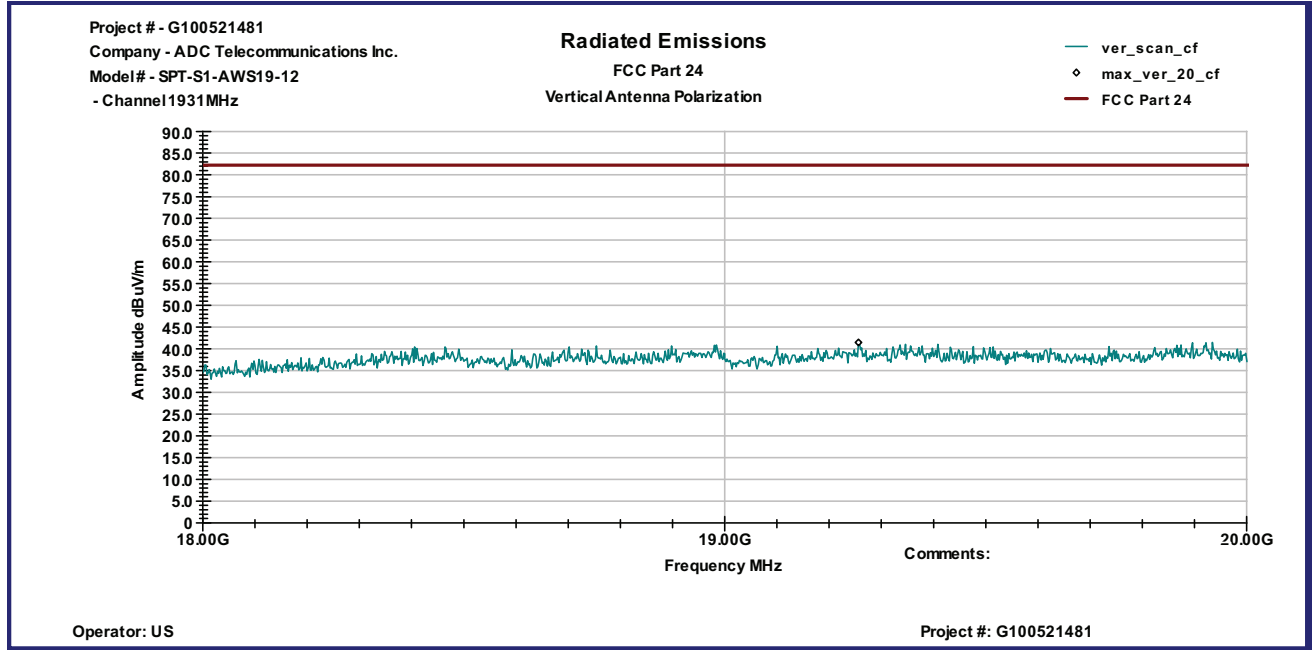
Graph 4



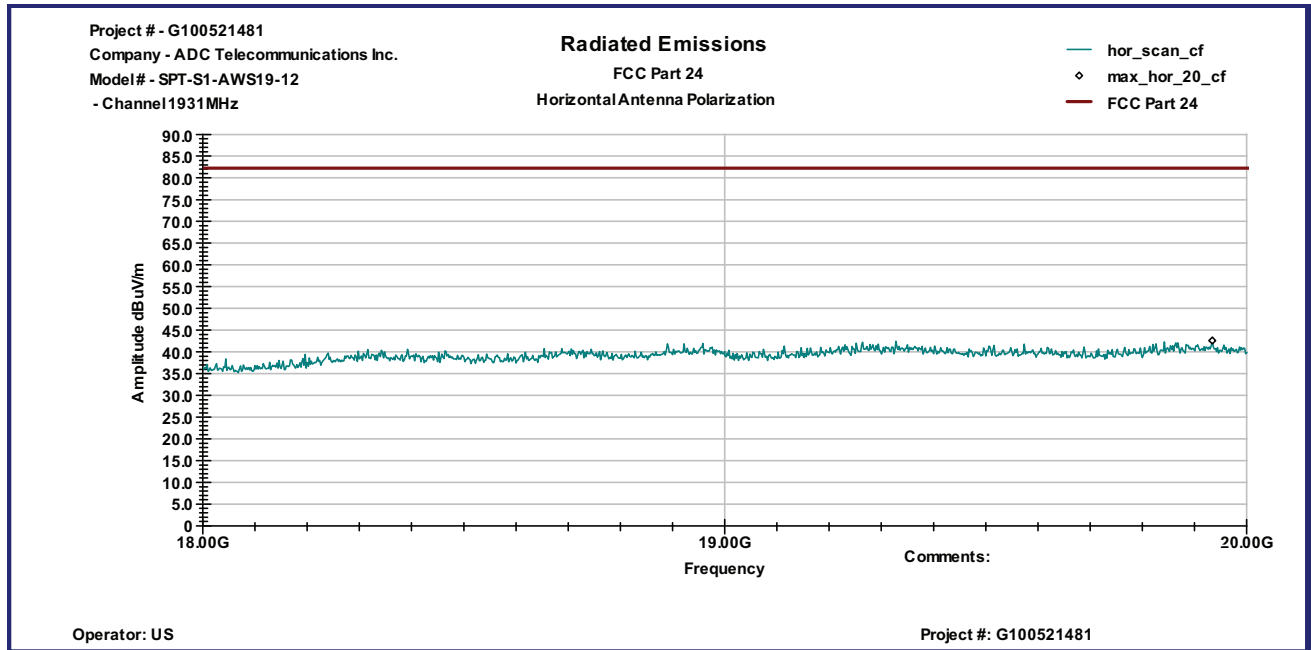
Graph 5



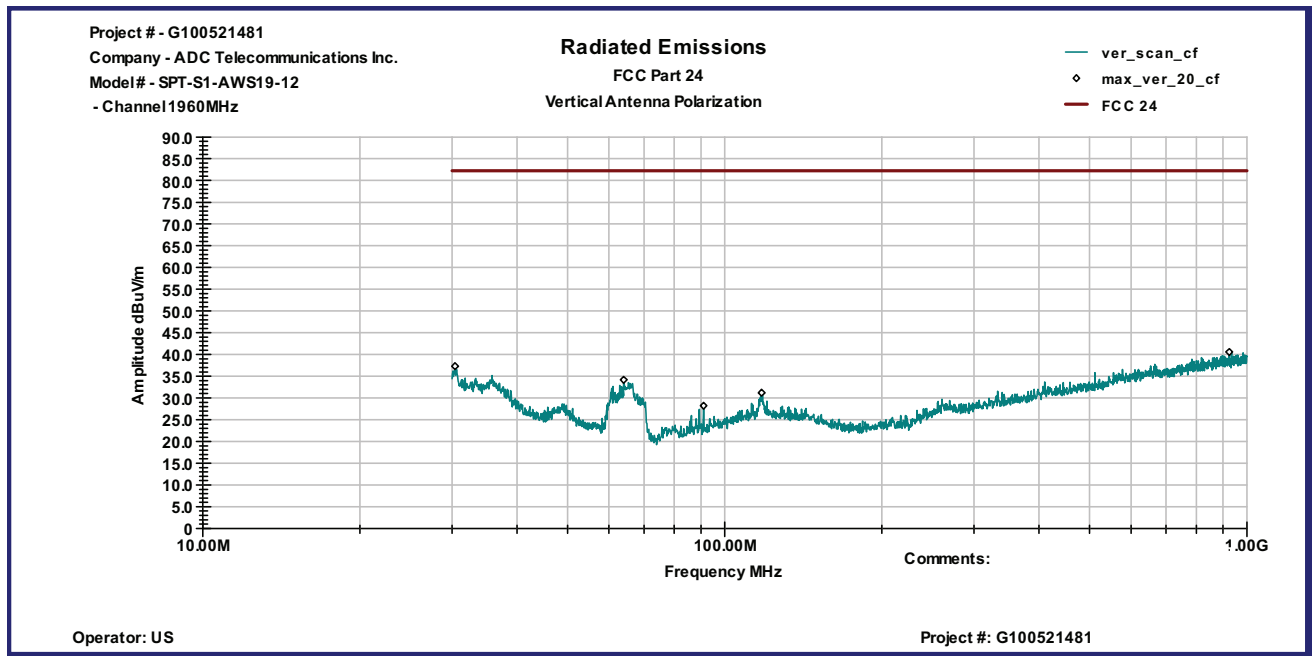
Graph 6



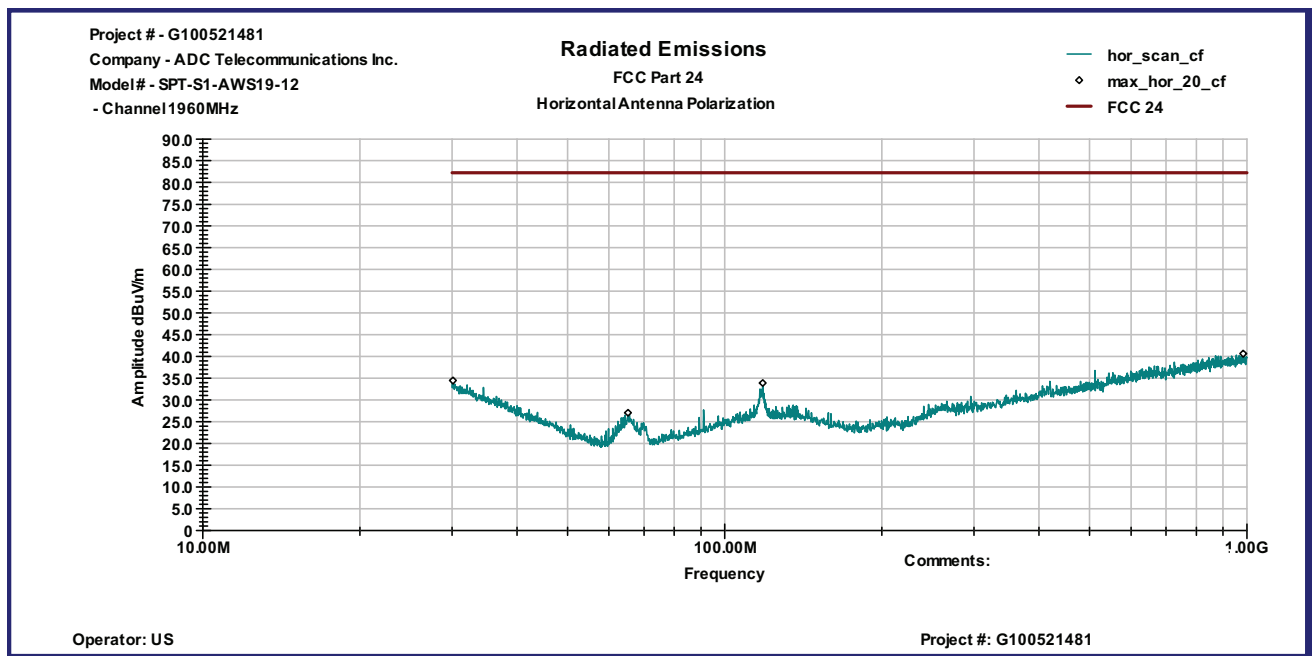
Graph 7



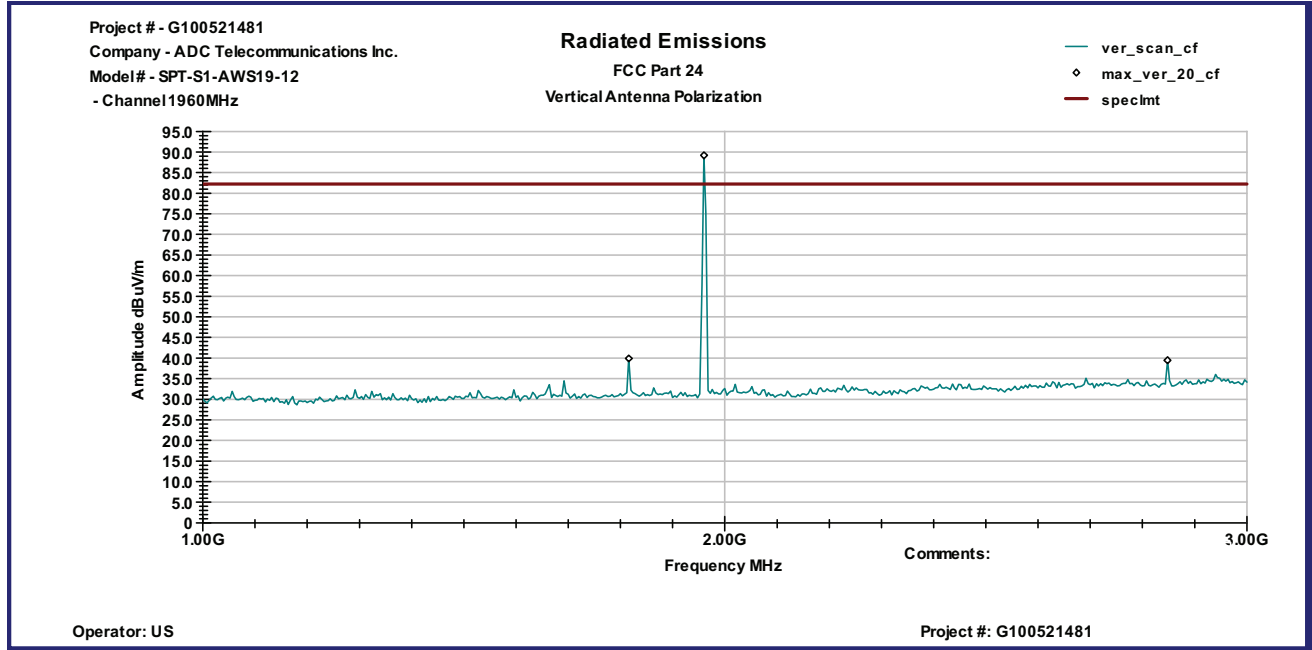
Graph 8



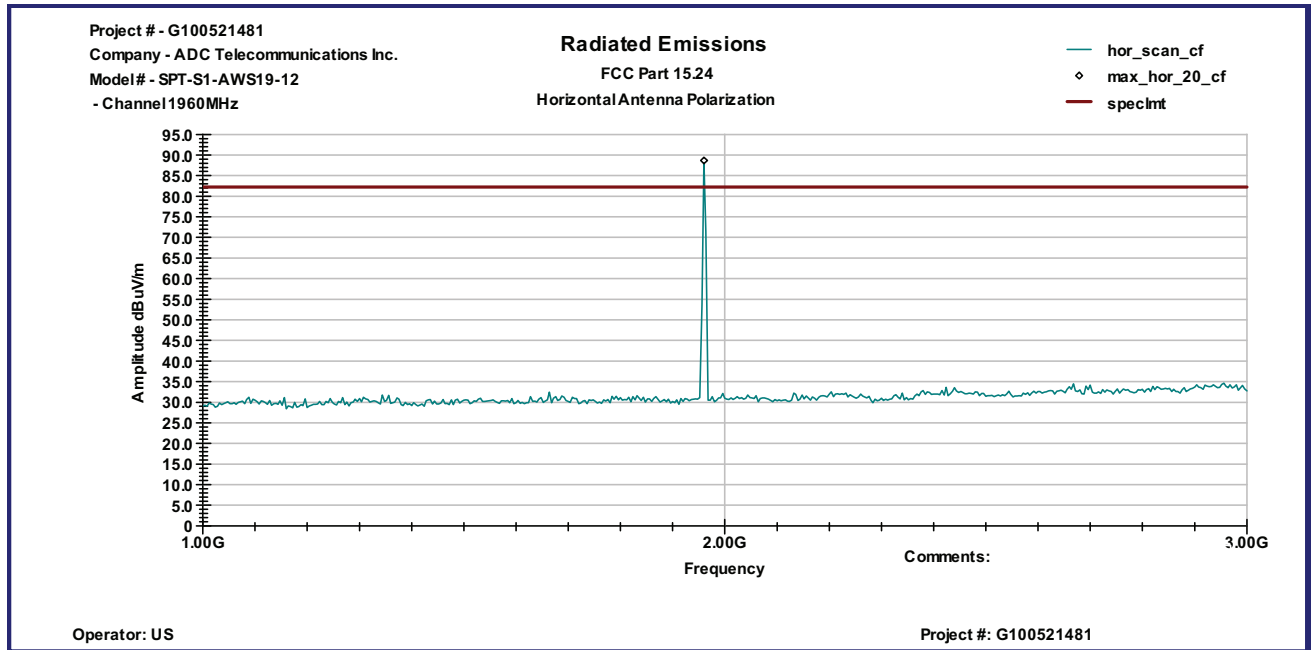
Graph 9



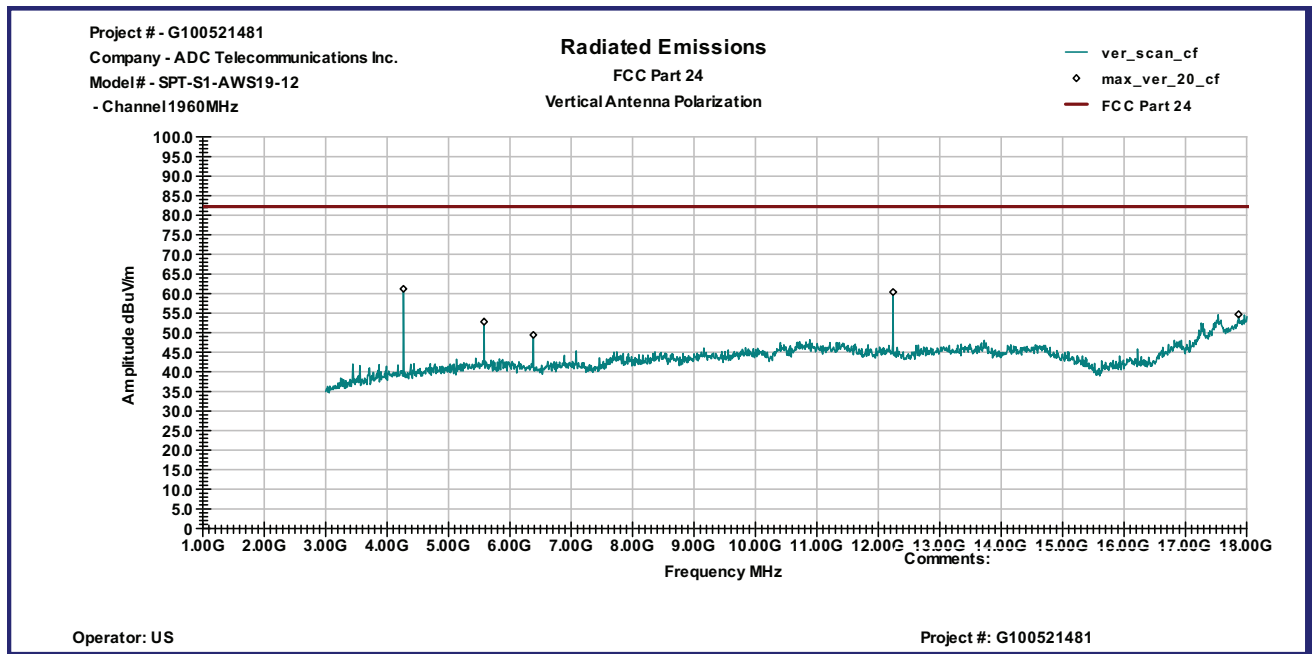
Graph 10



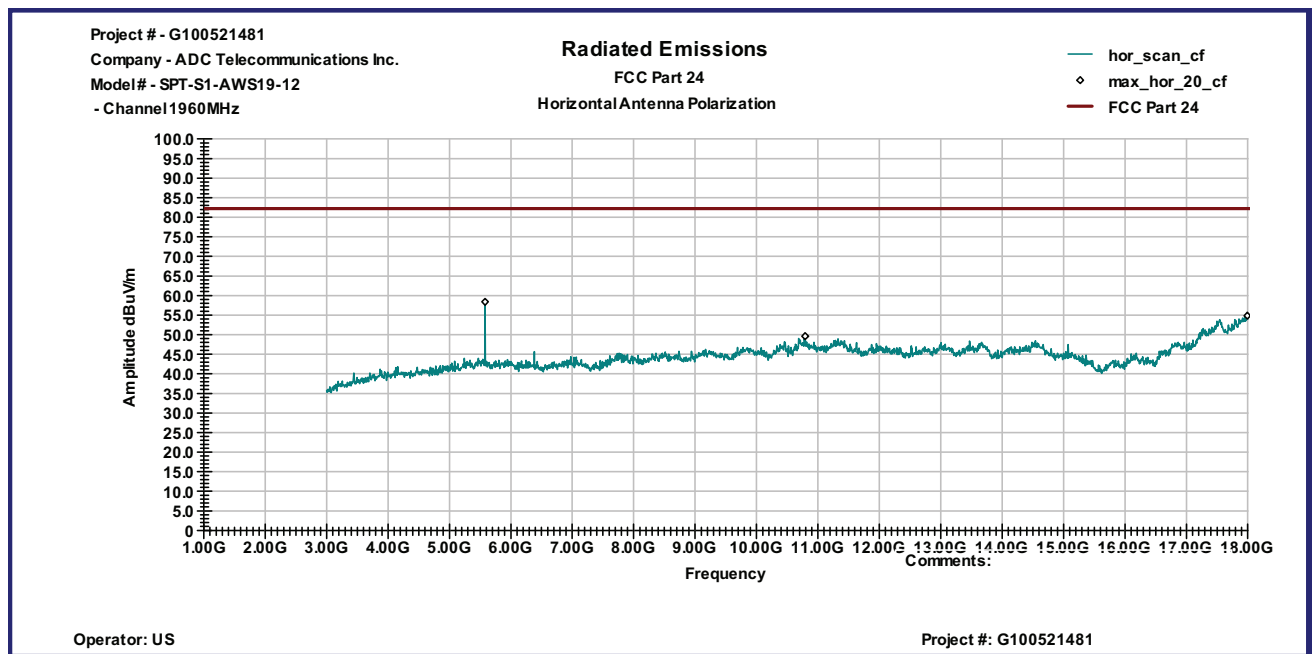
Graph 11



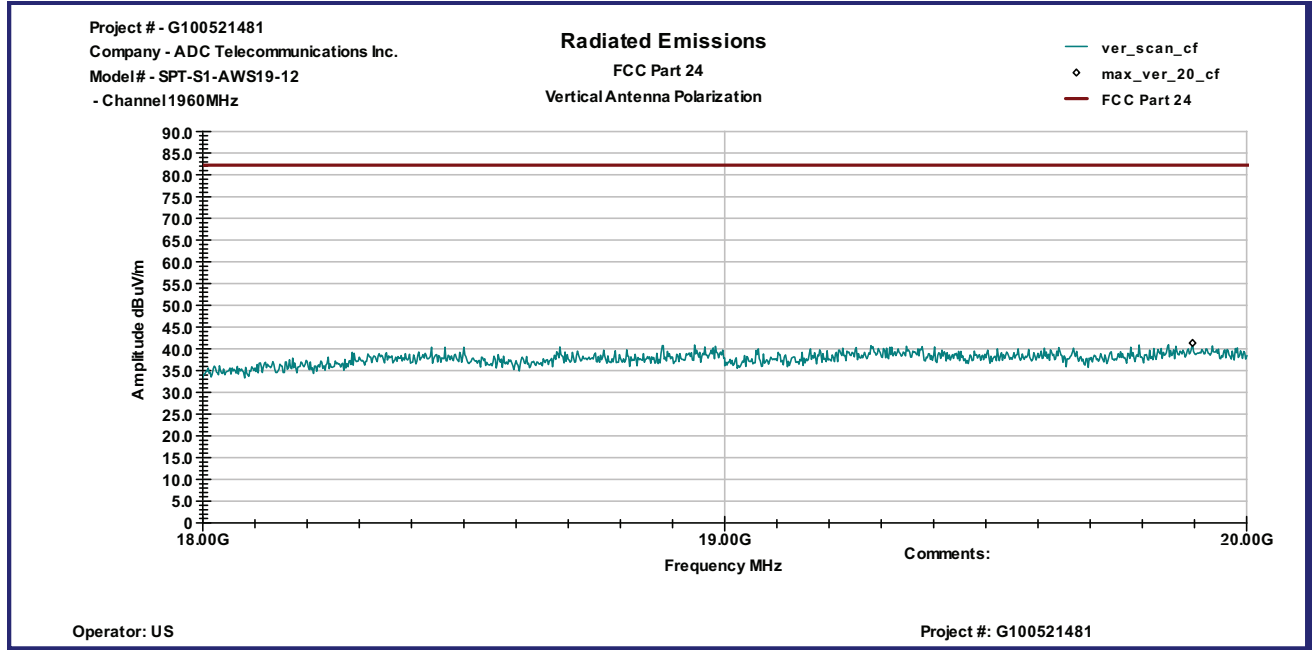
Graph 12



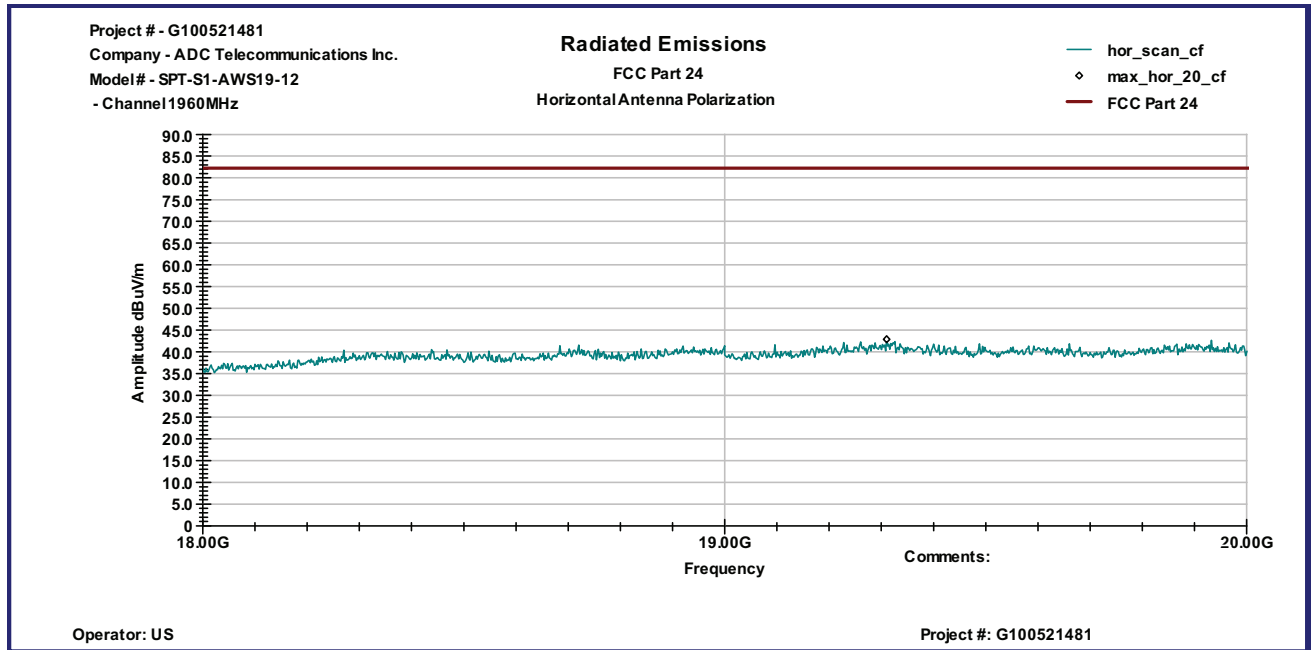
Graph 13



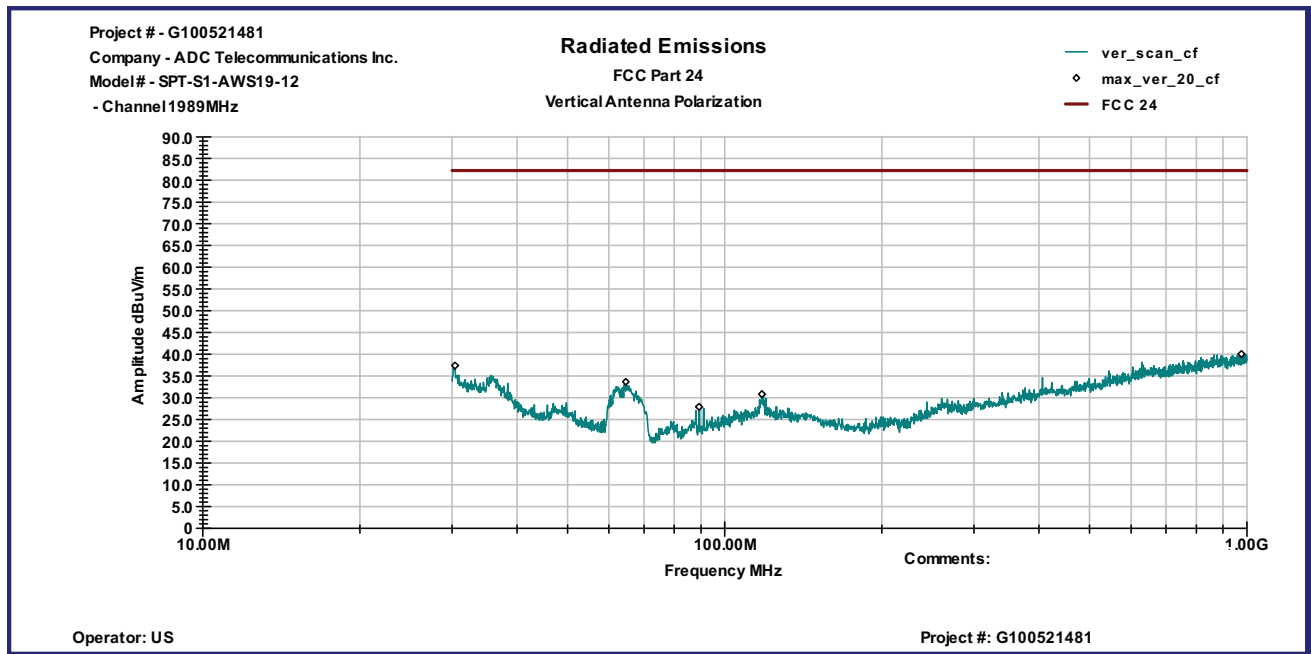
Graph 14



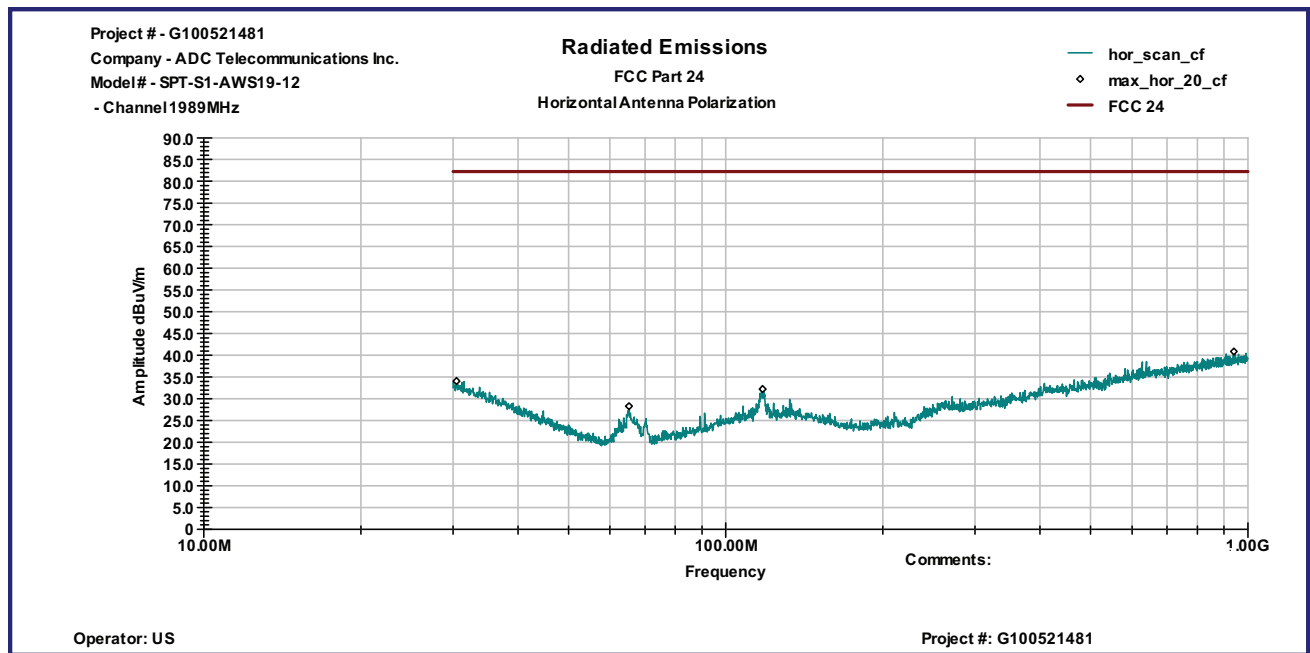
Graph 15



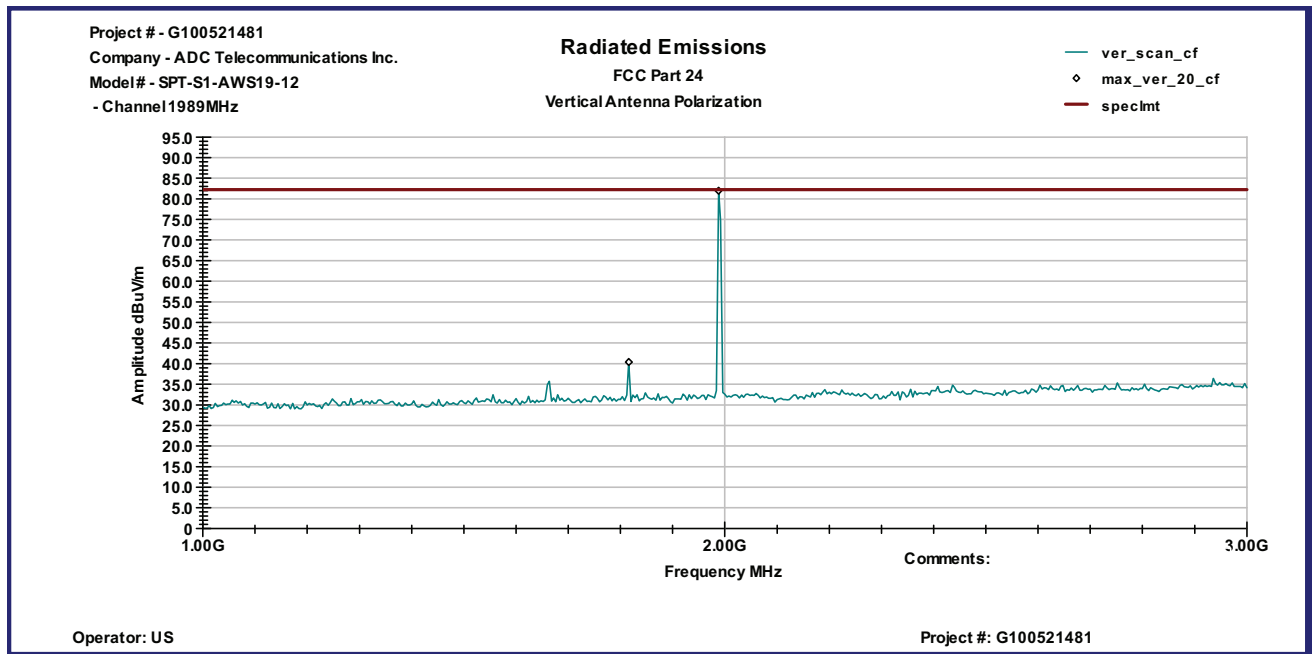
Graph 16



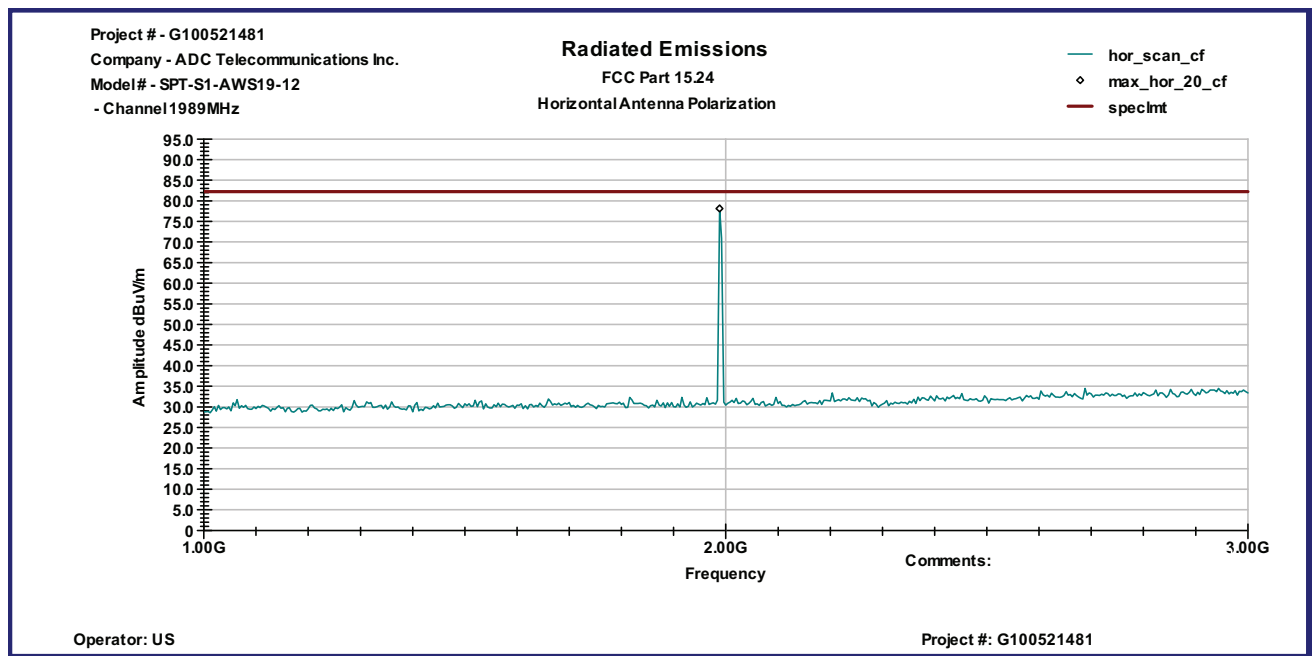
Graph 17



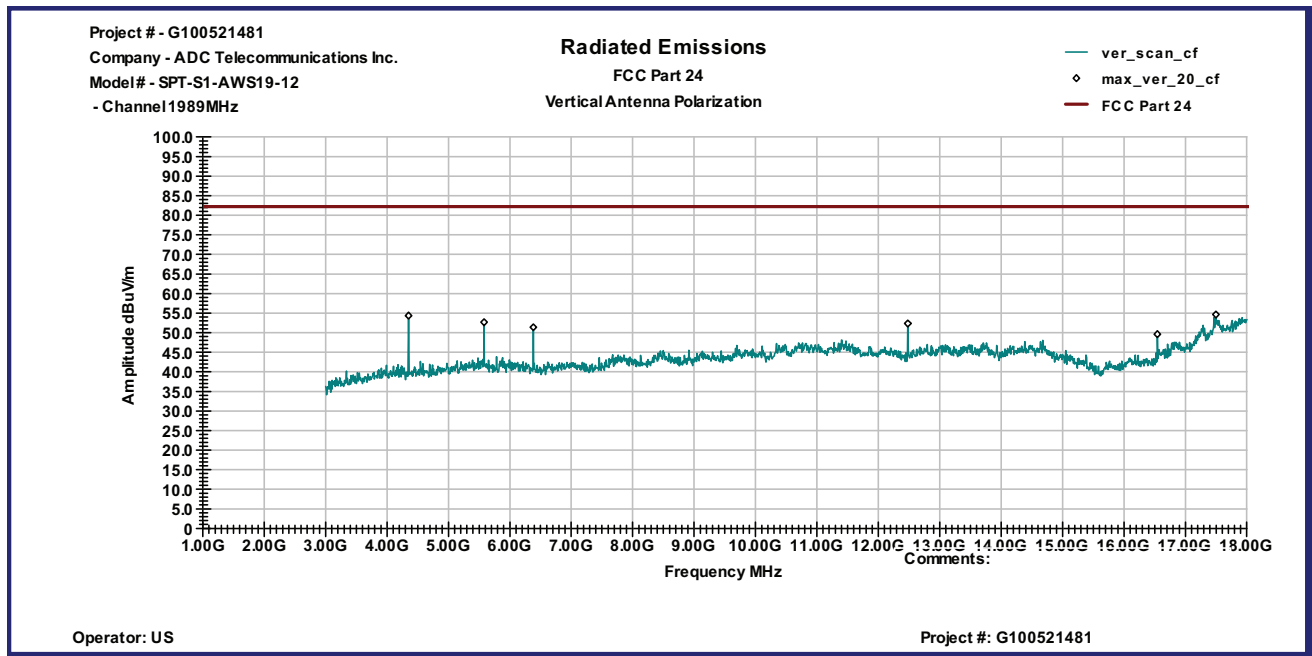
Graph 18



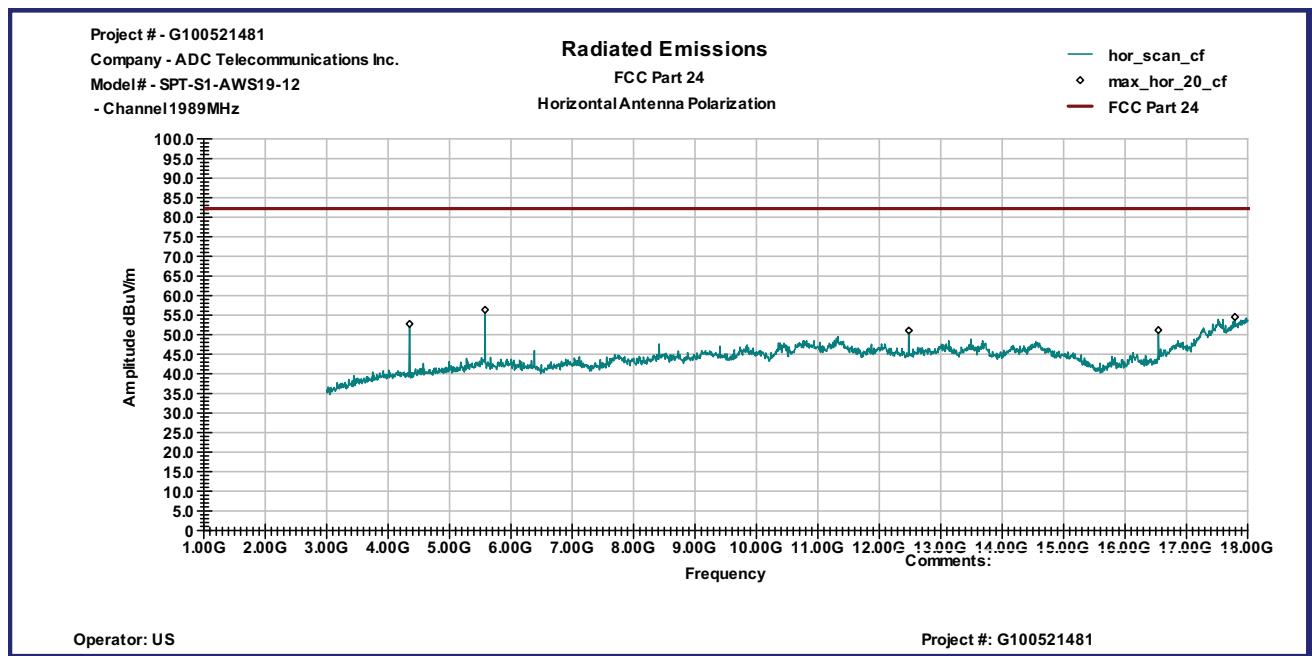
Graph 19



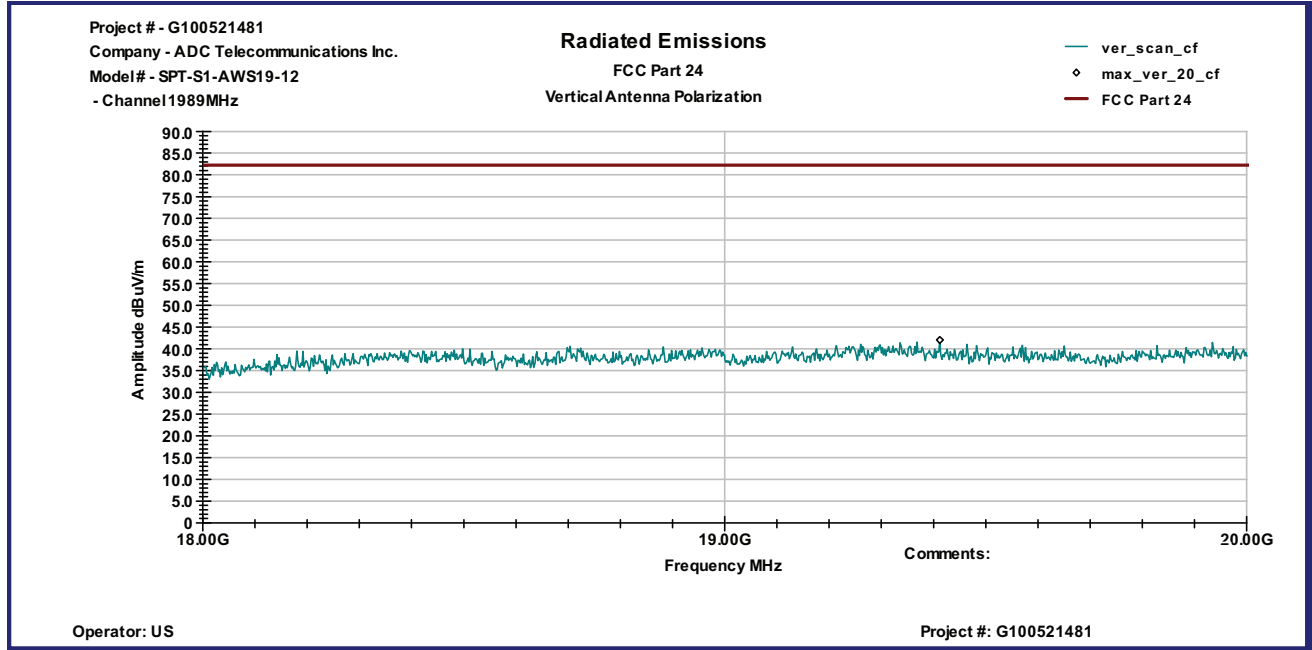
Graph 20



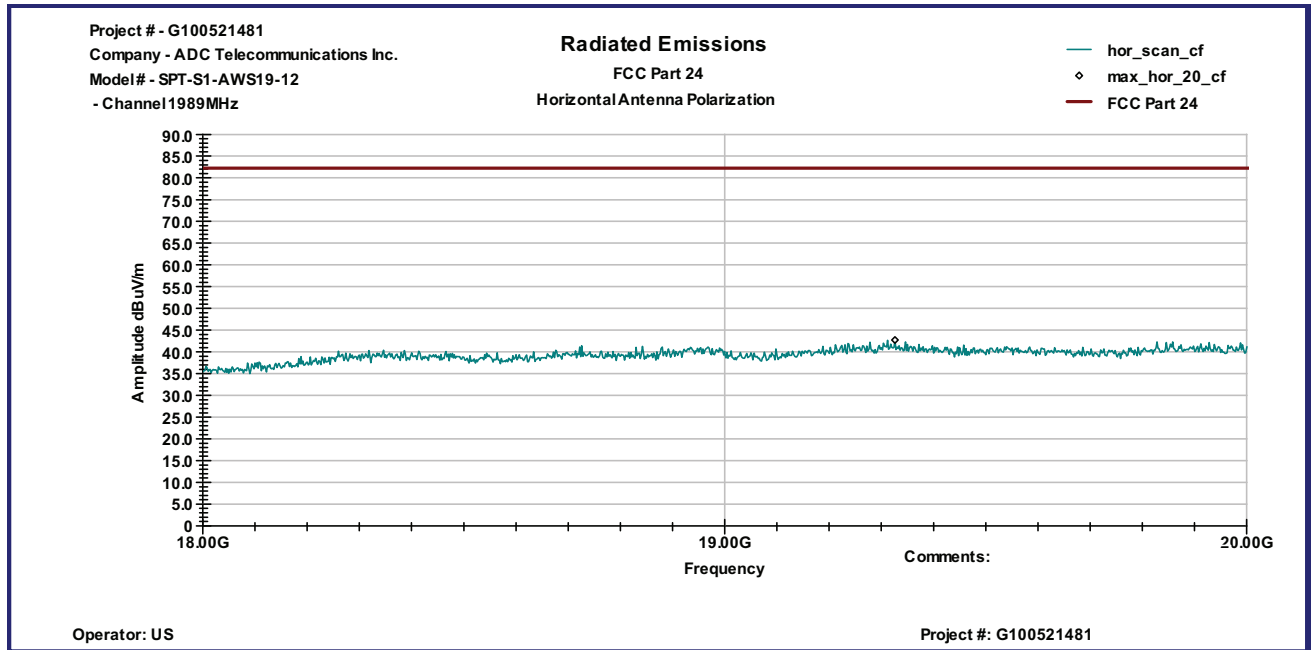
Graph 21



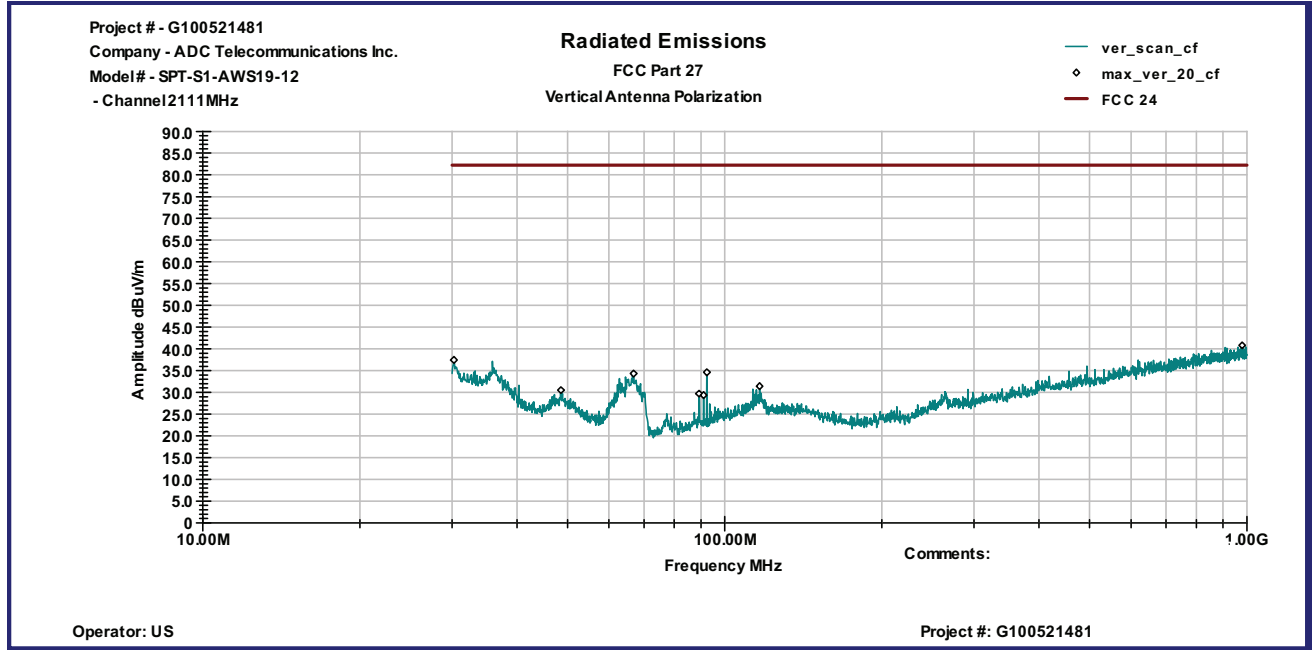
Graph 22



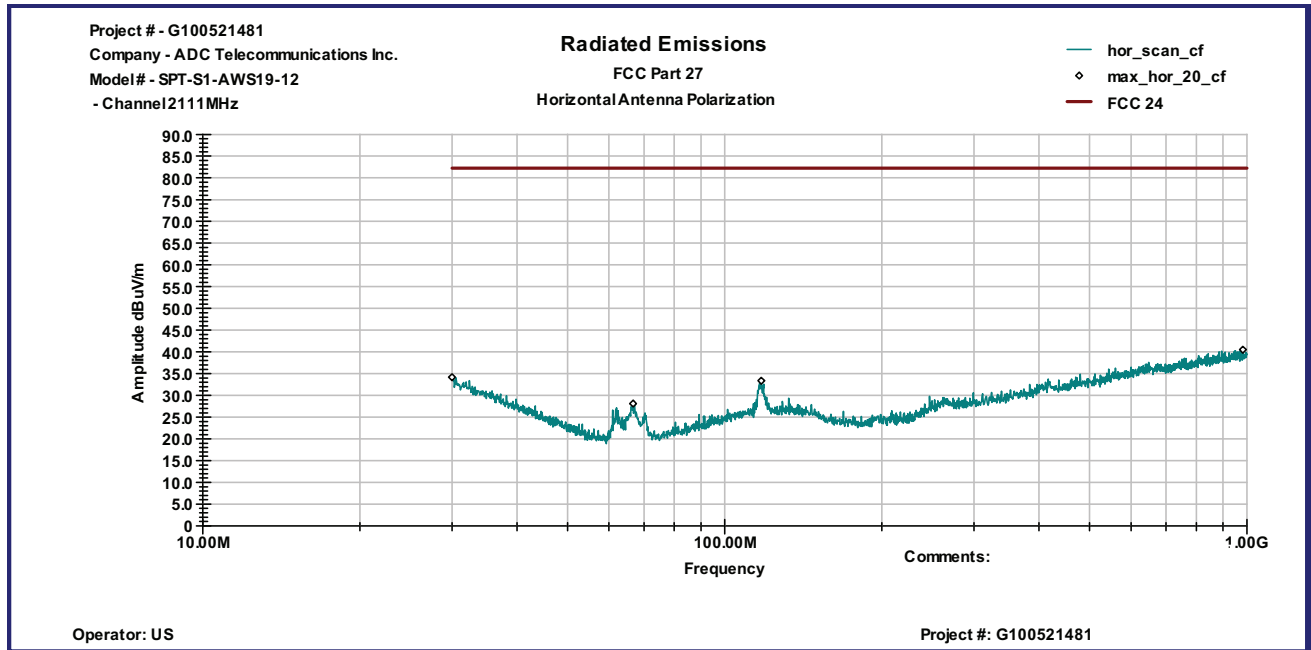
Graph 23



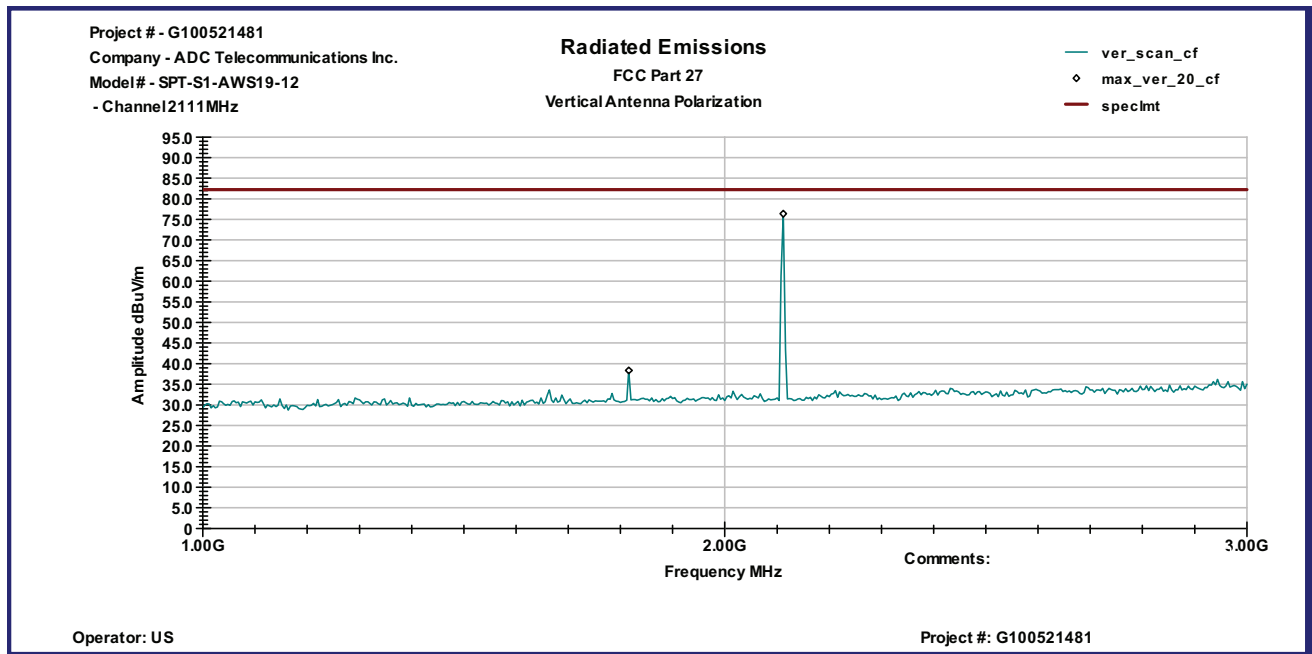
Graph 24



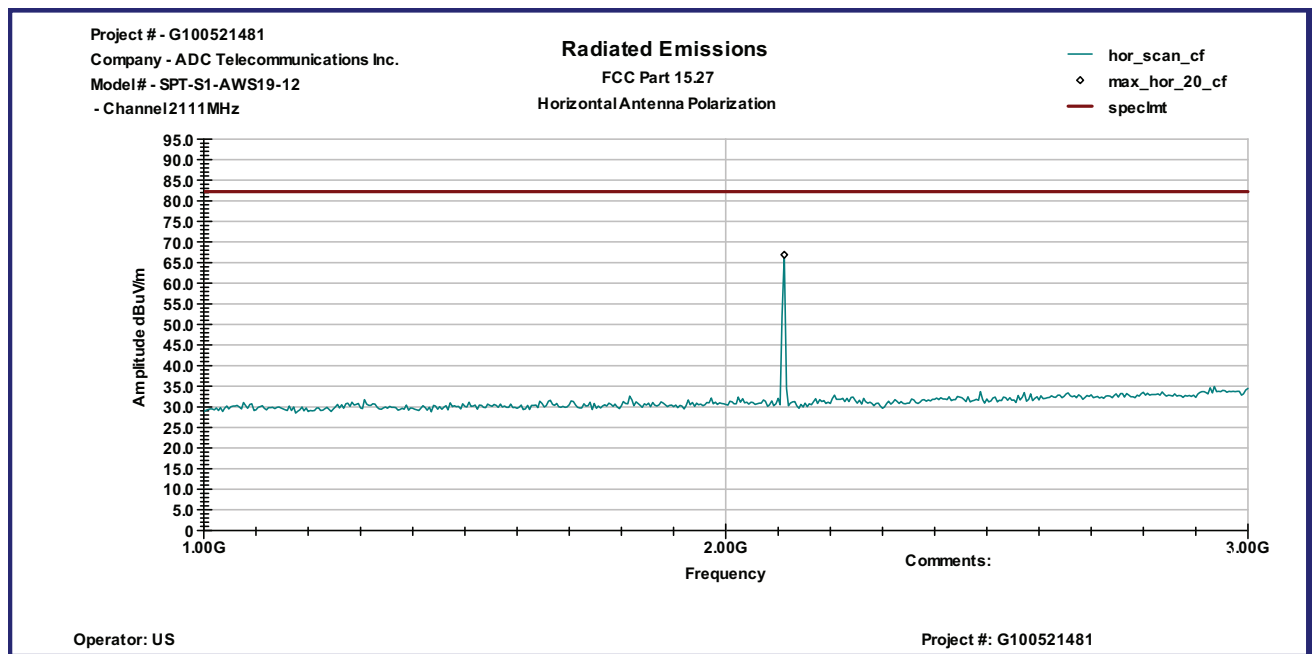
Graph 25



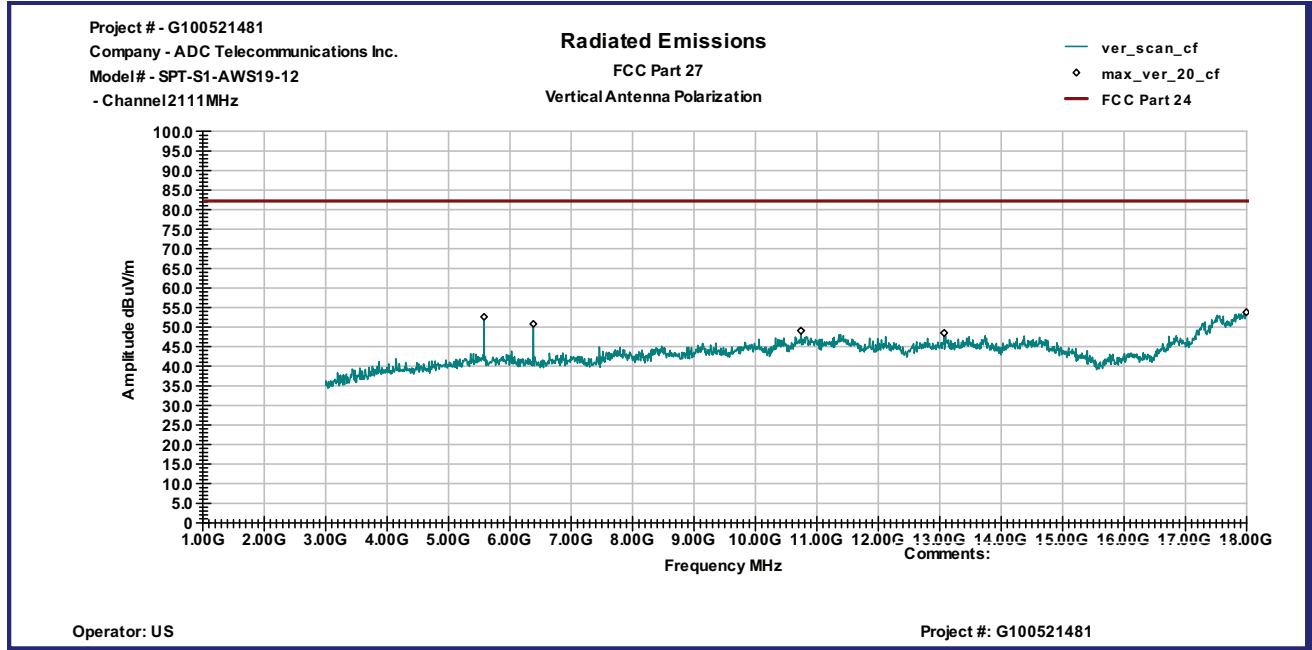
Graph 26



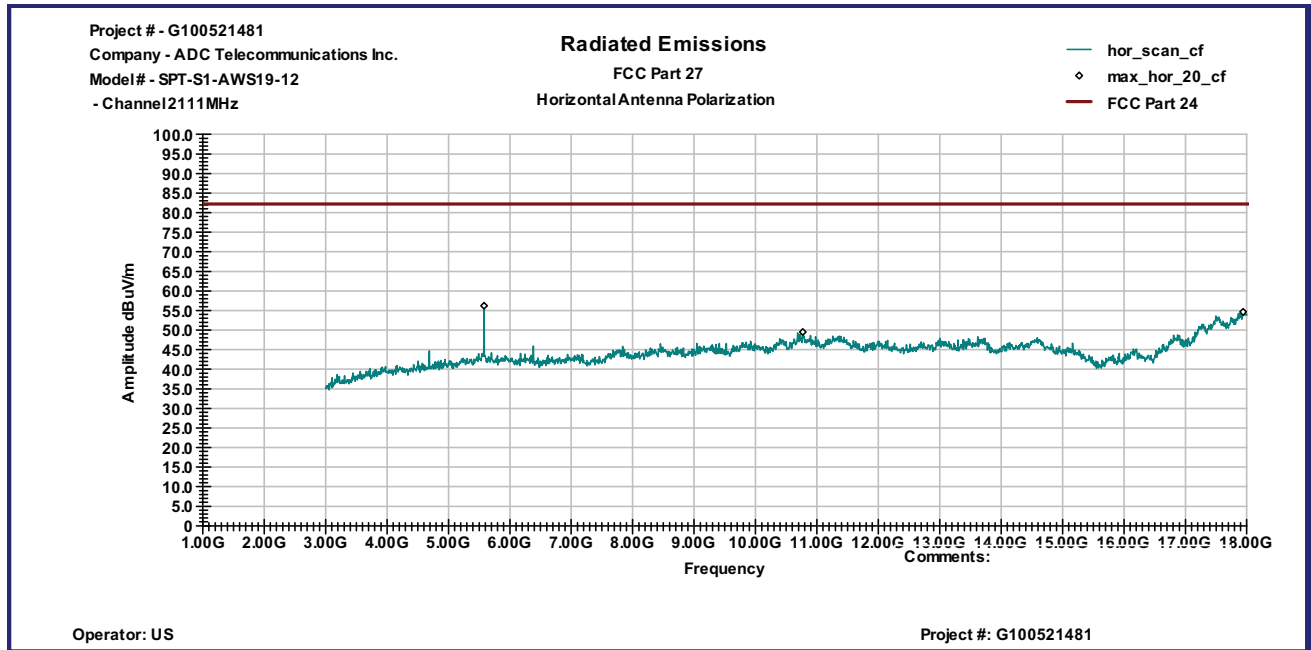
Graph 27



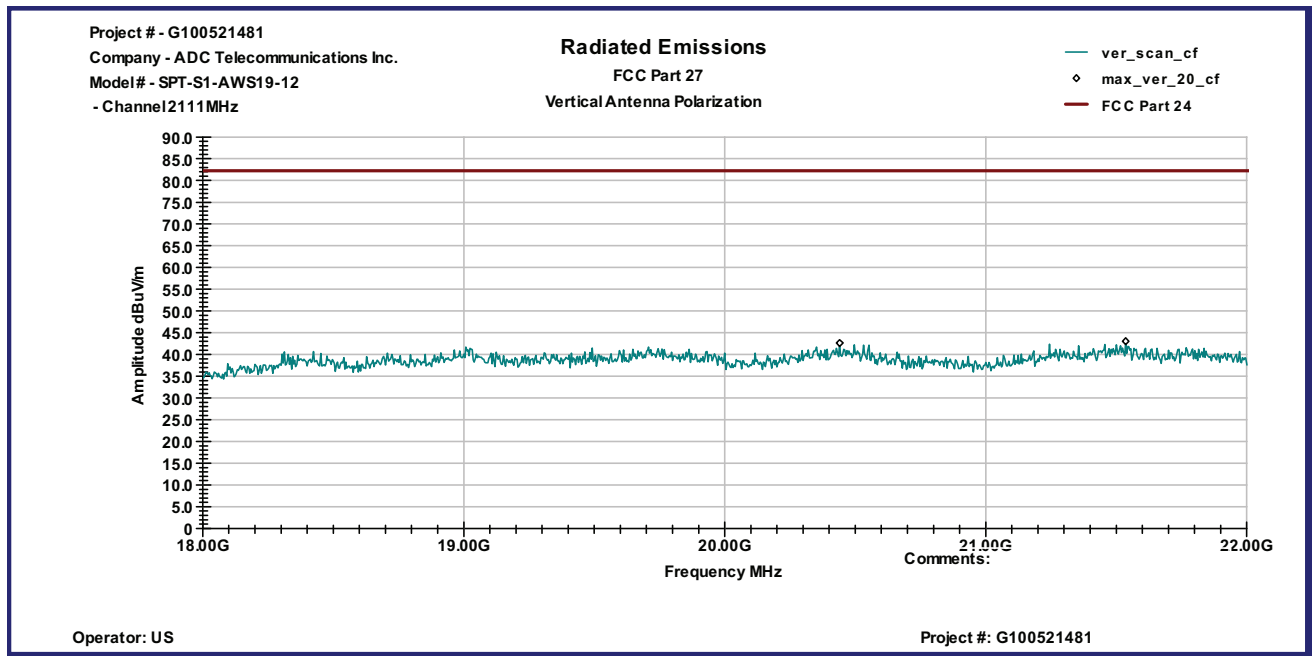
Graph 28



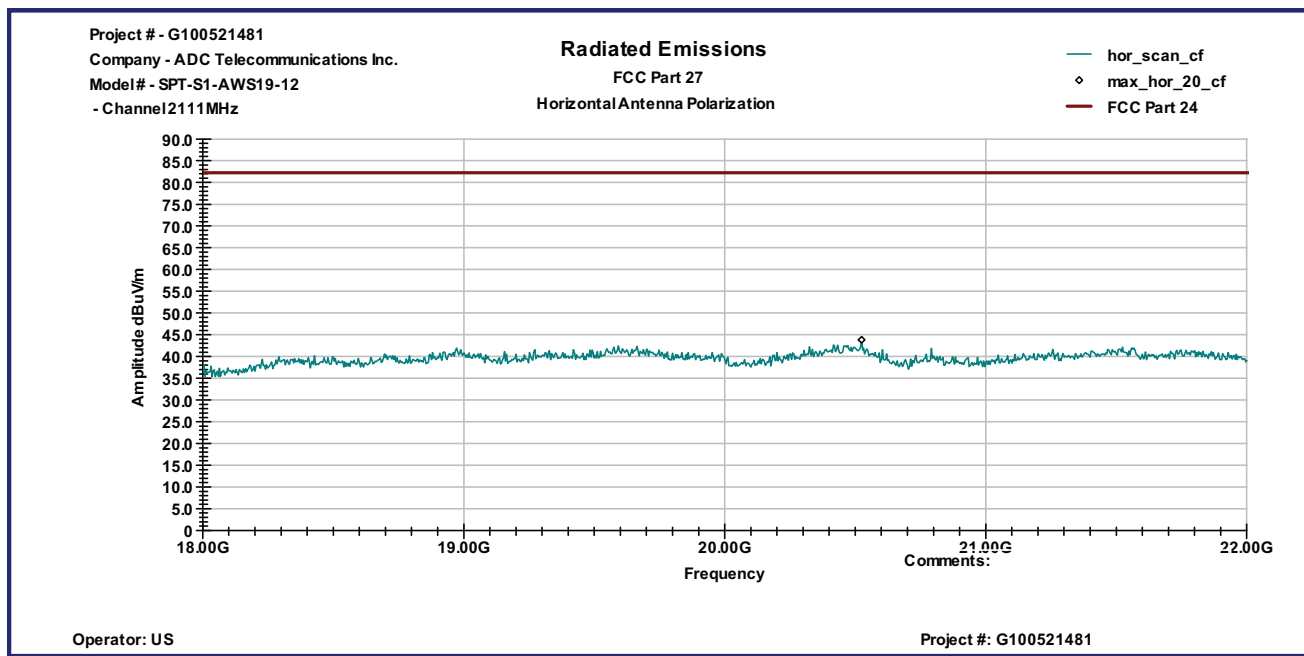
Graph 29



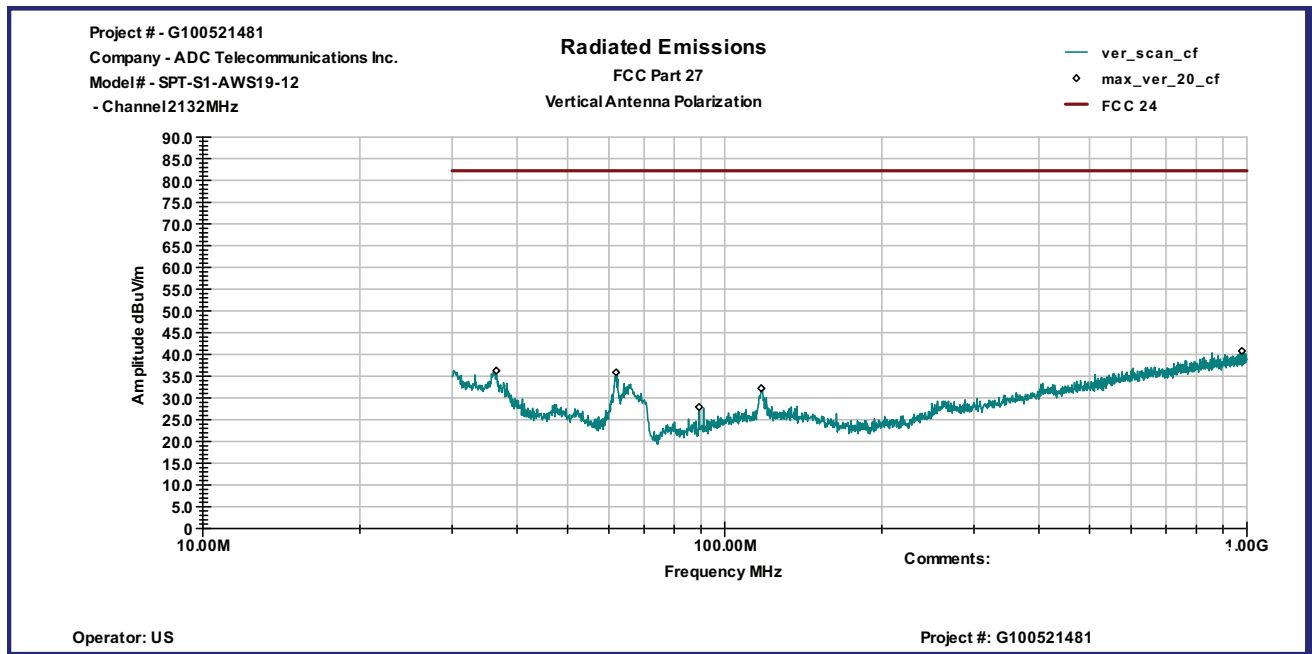
Graph 30



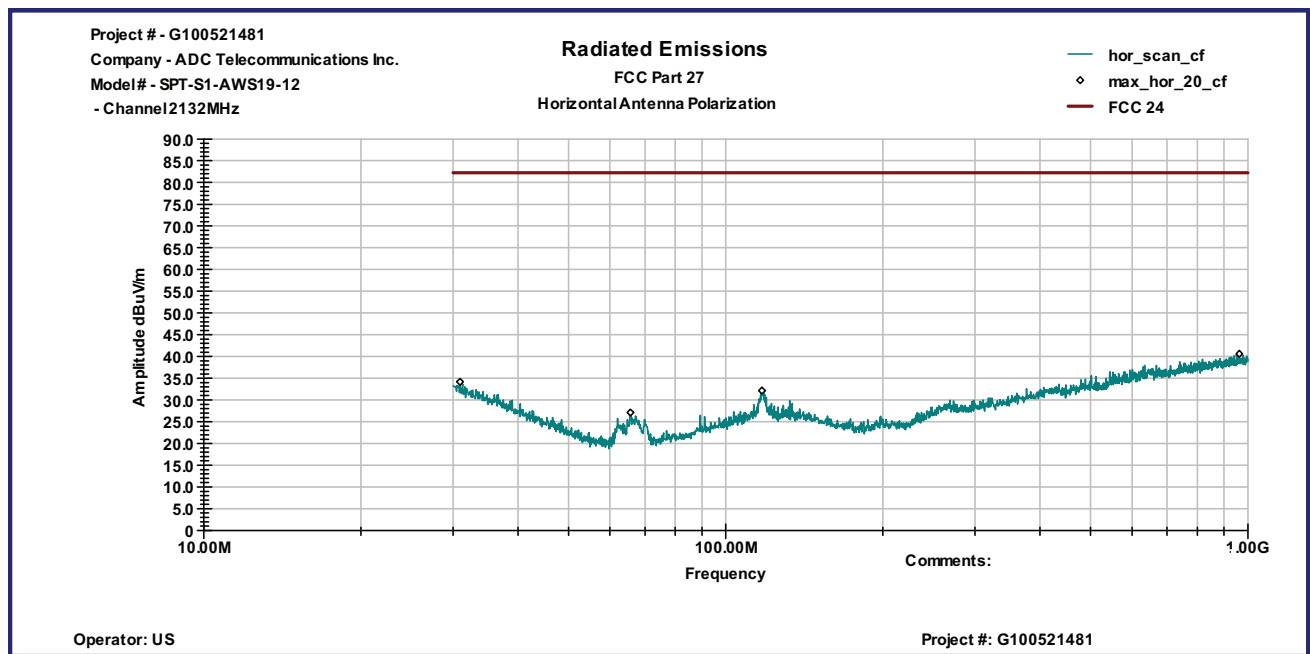
Graph 31



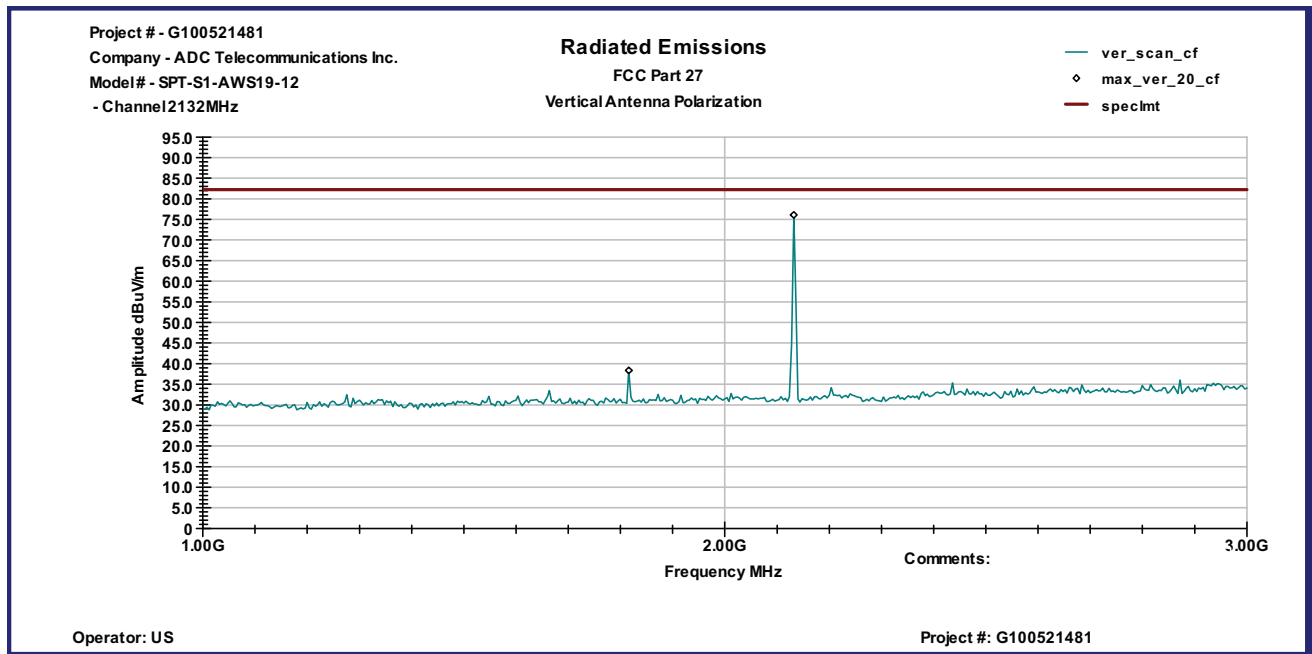
Graph 32



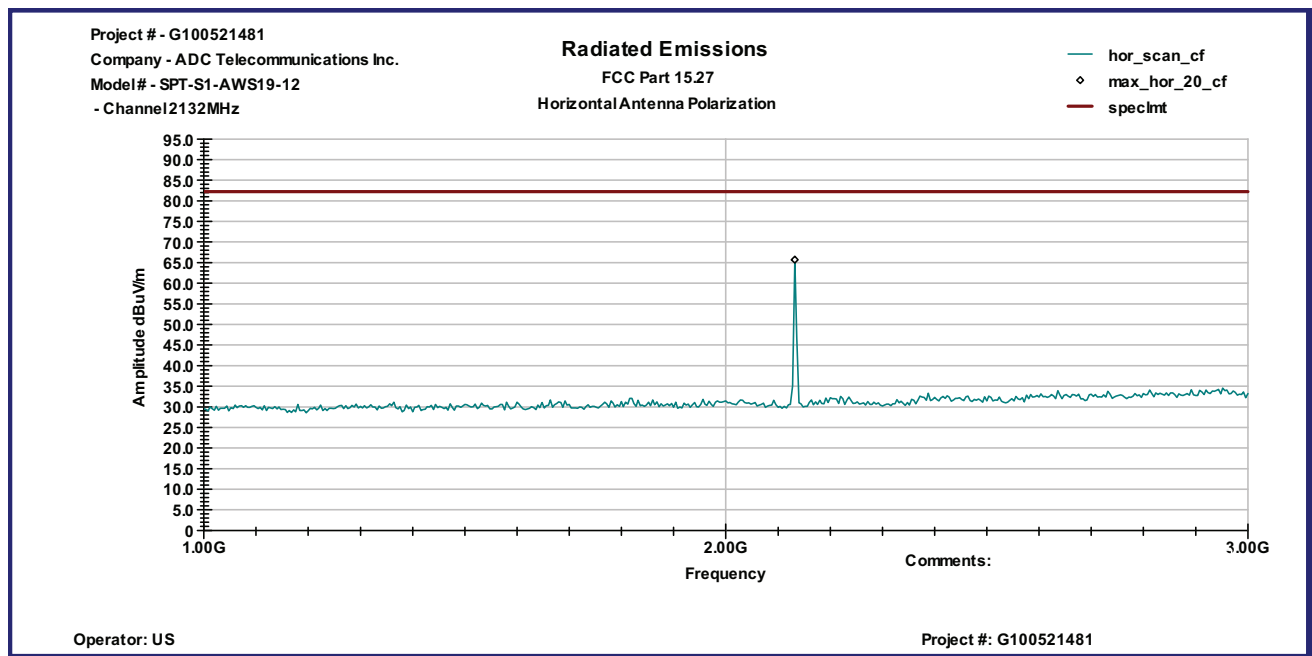
Graph 33



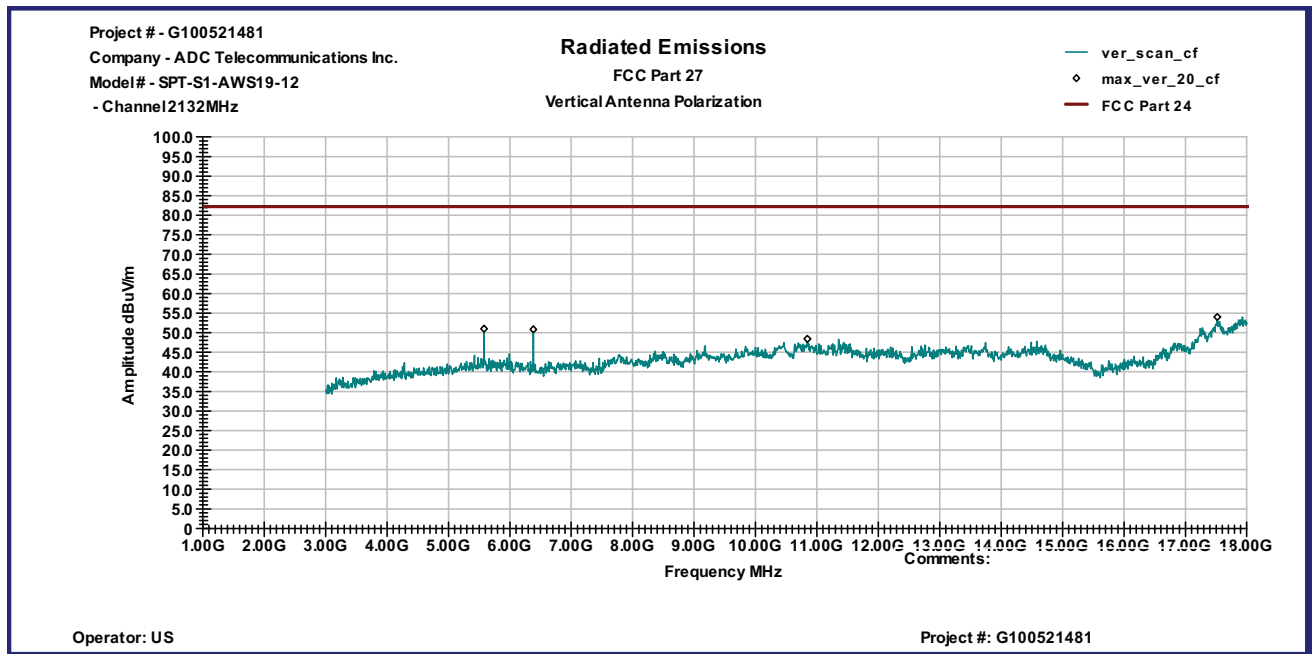
Graph 34



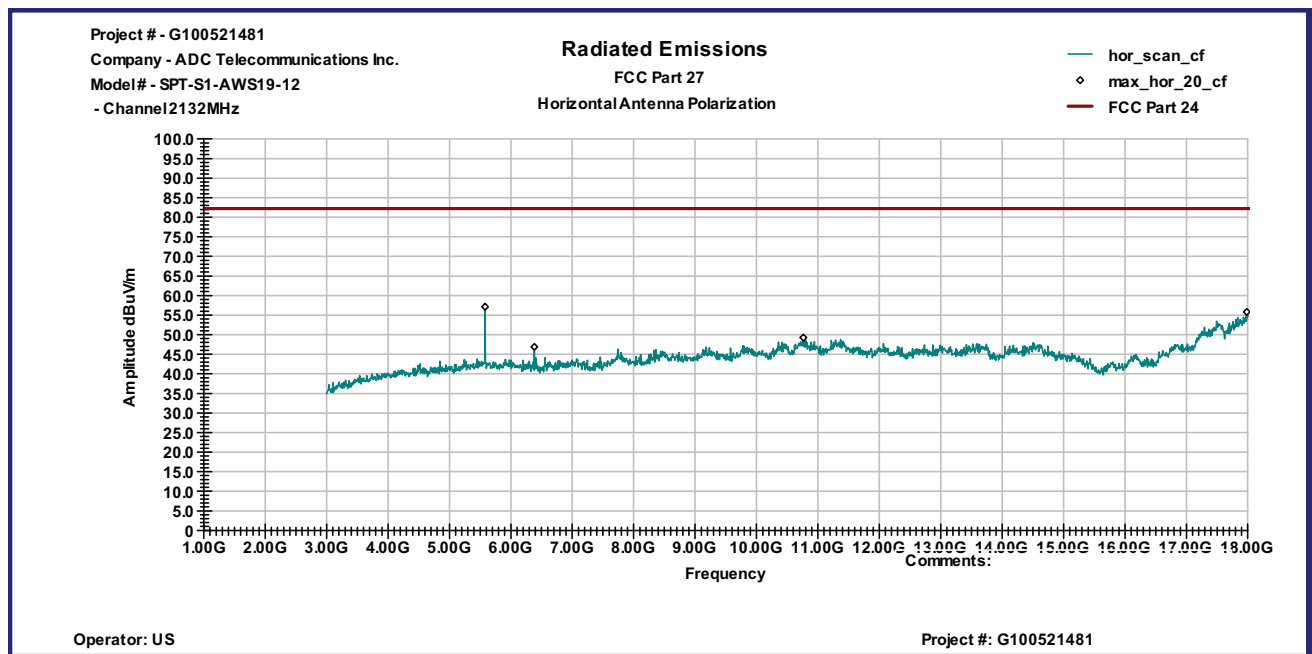
Graph 35



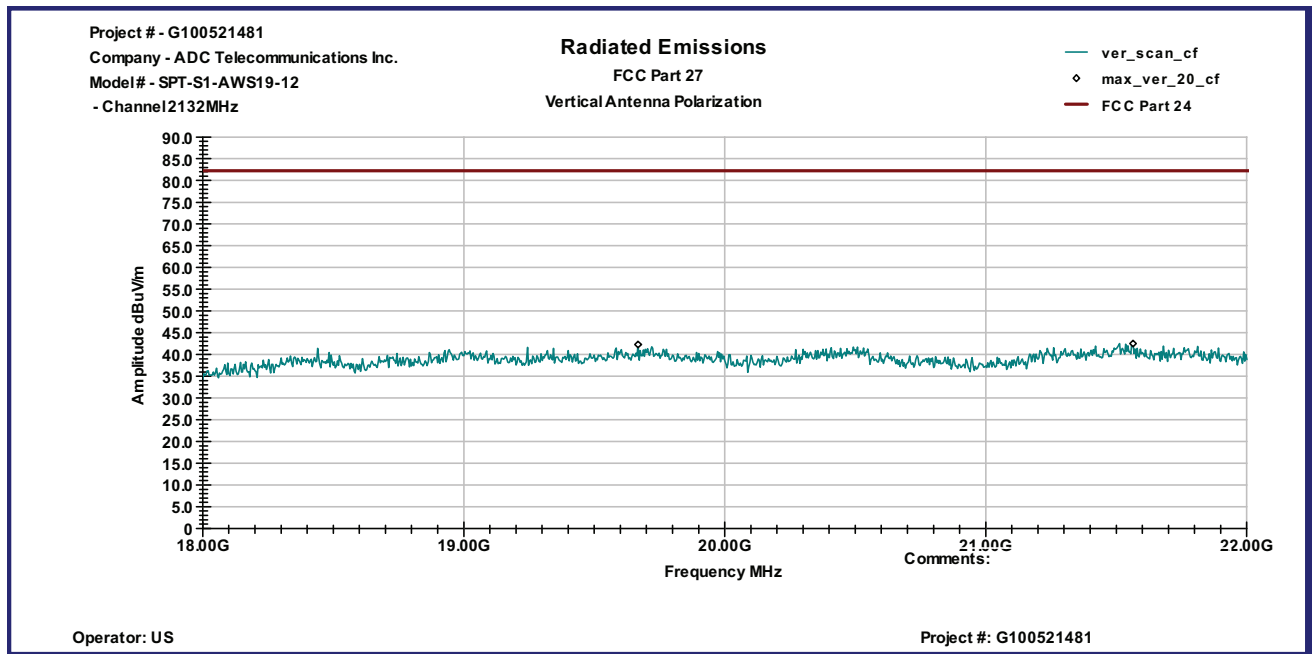
Graph 36



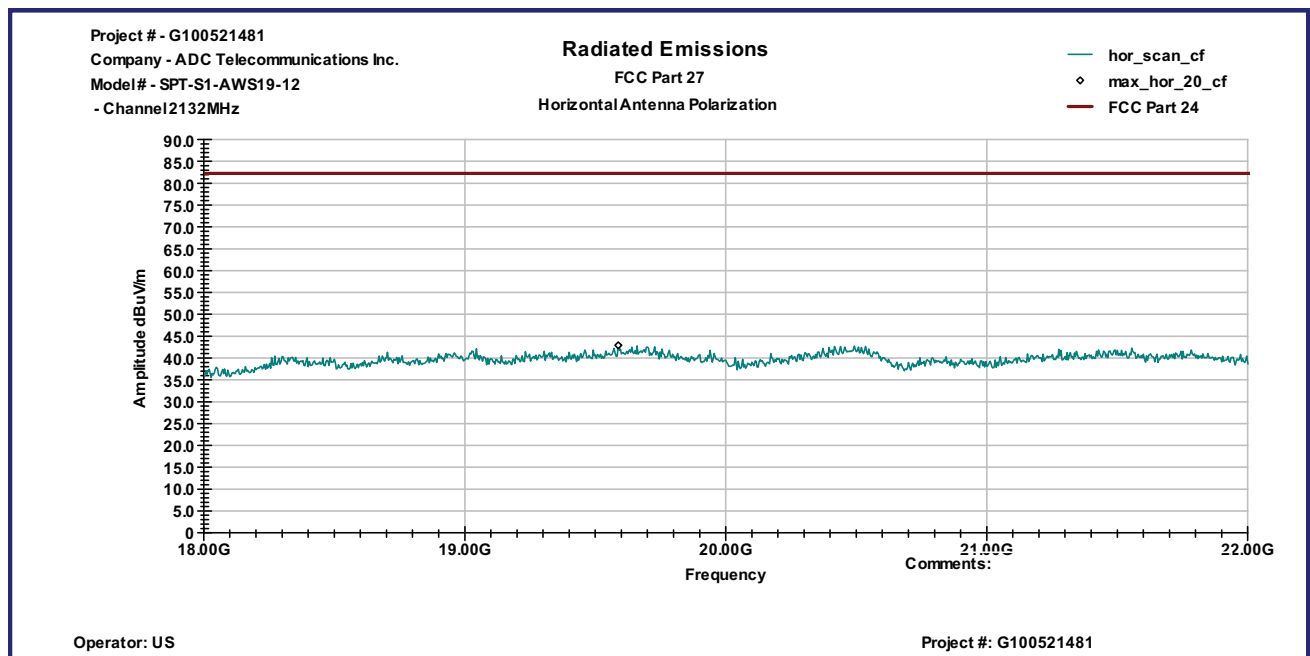
Graph 37



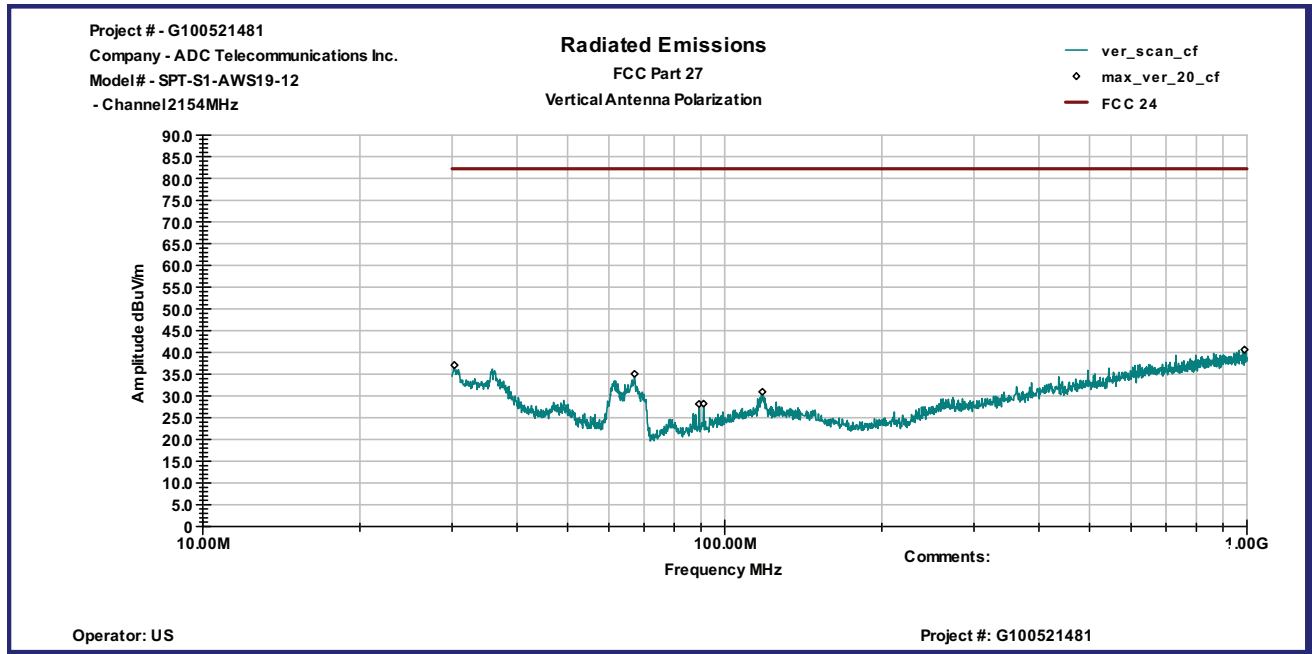
Graph 38



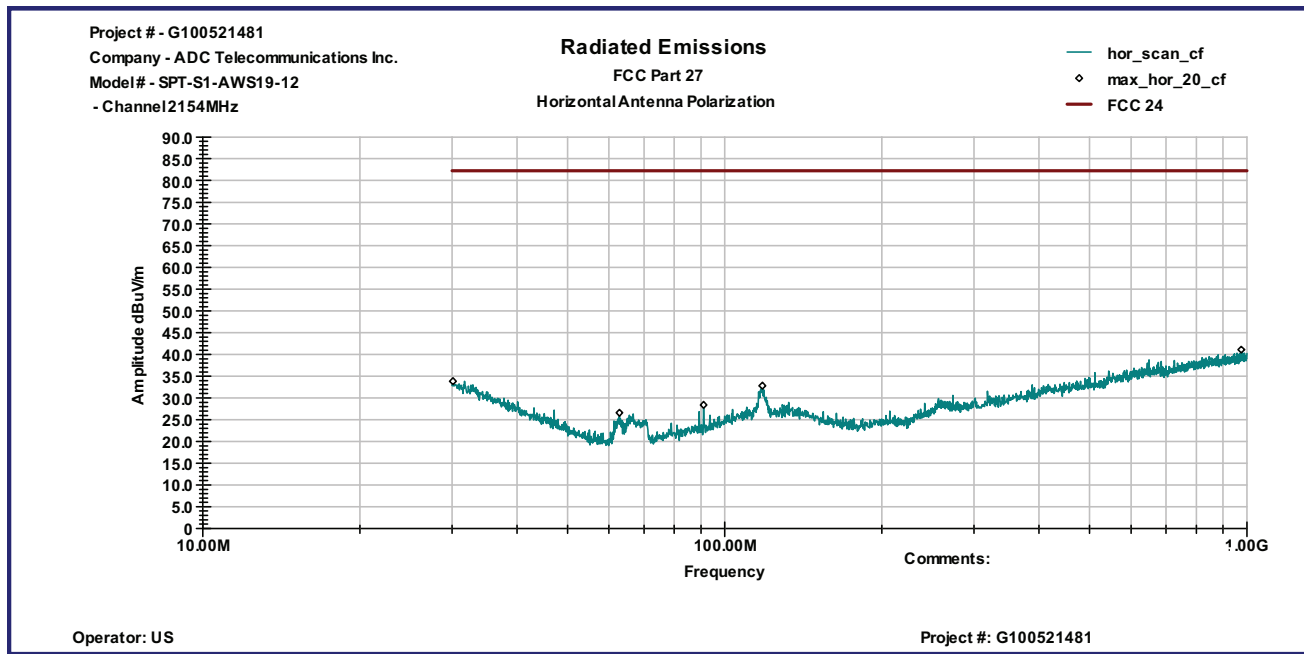
Graph 39



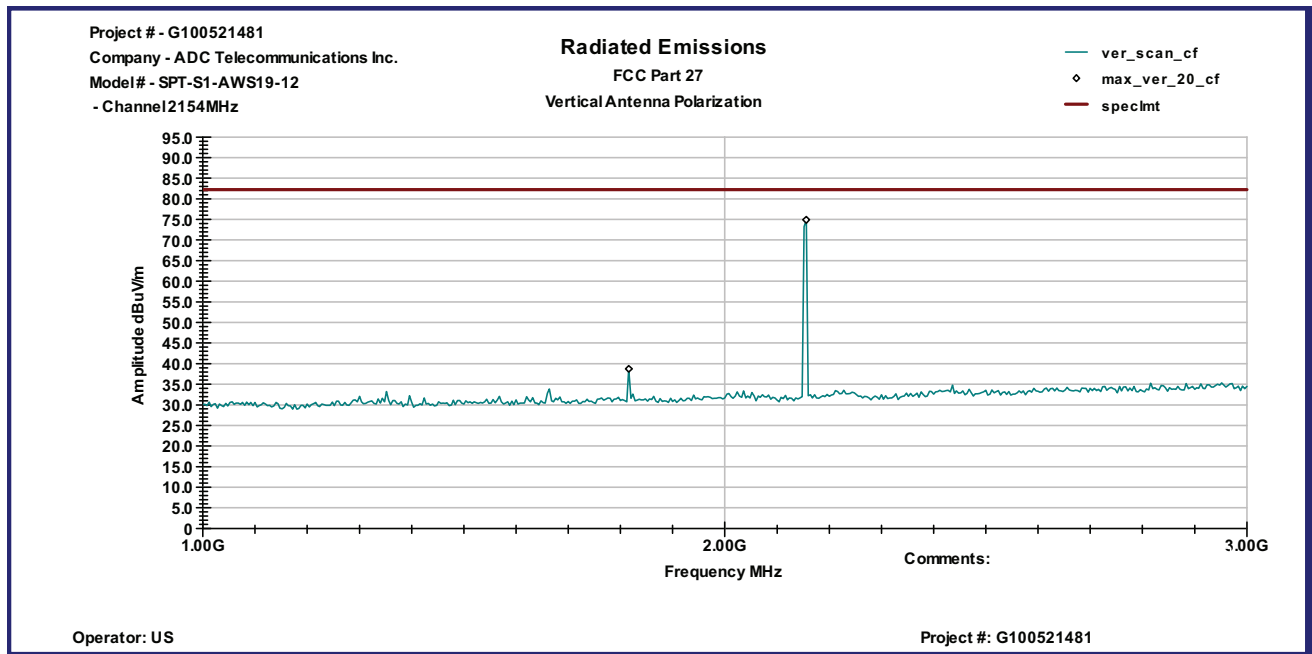
Graph 40



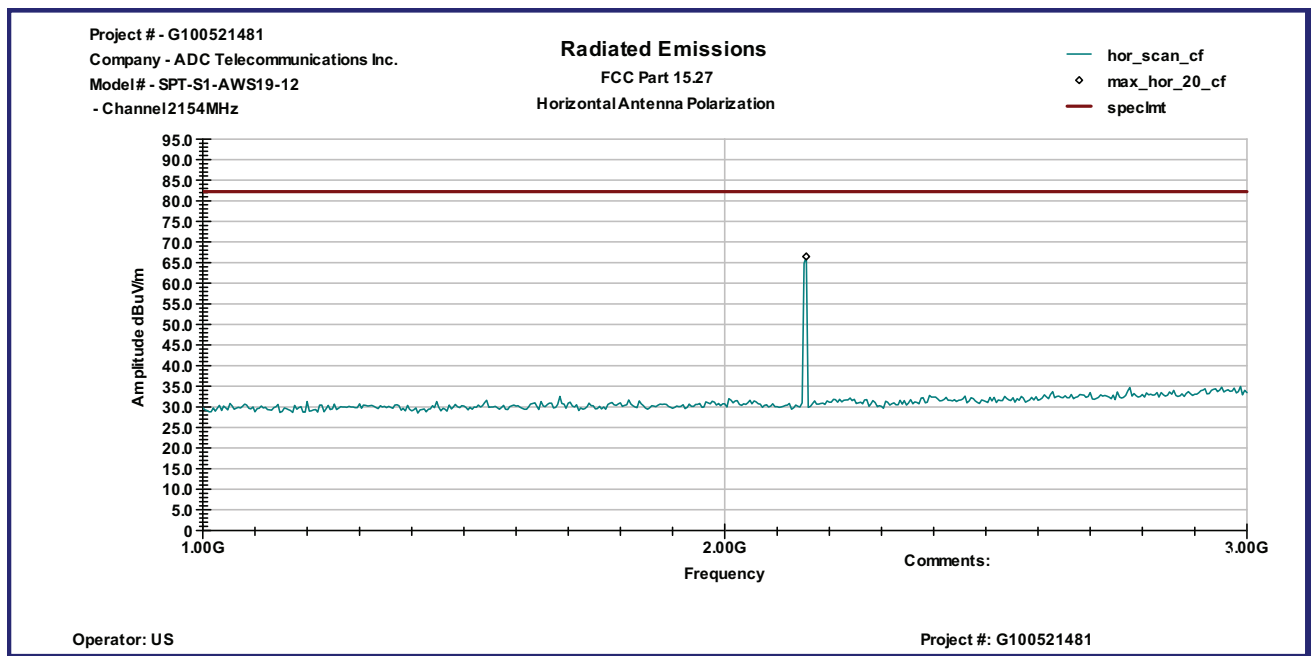
Graph 41



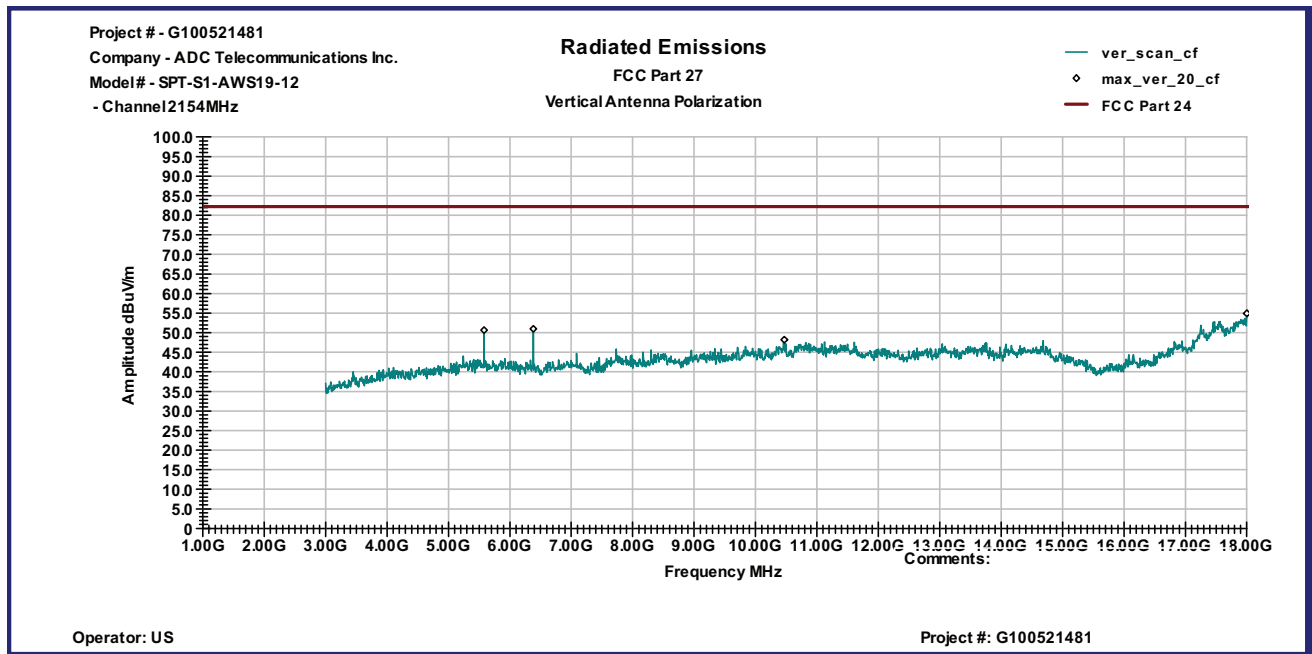
Graph 42



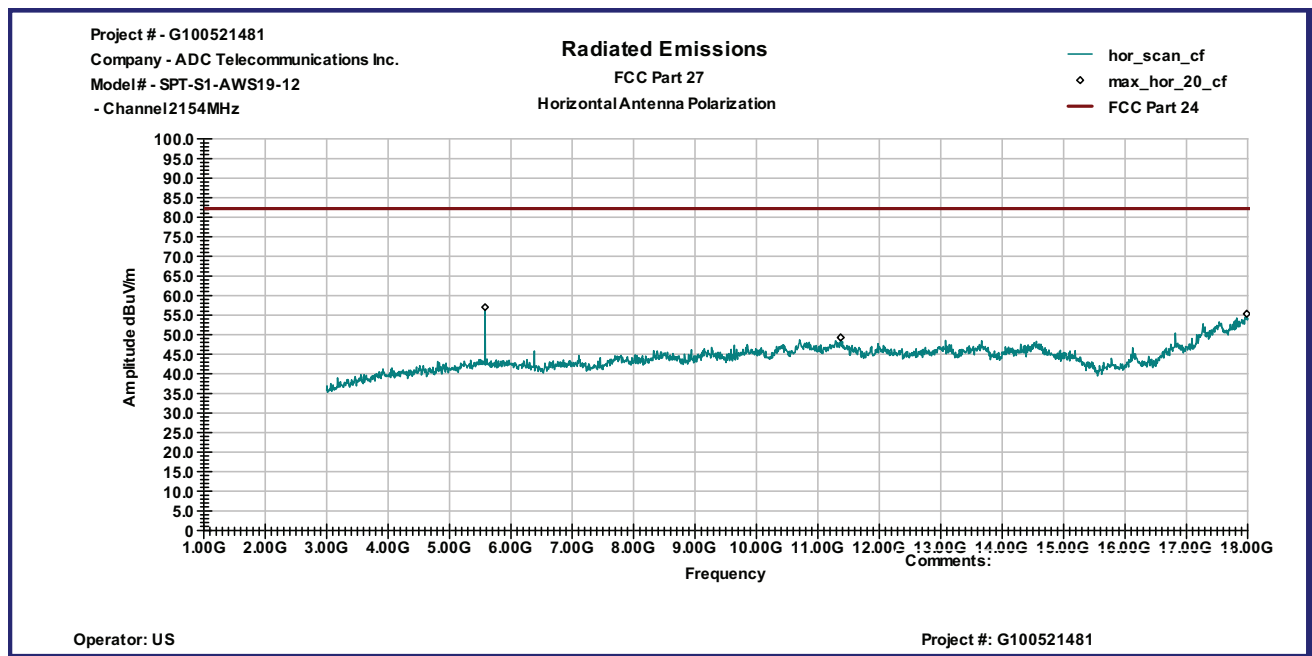
Graph 43



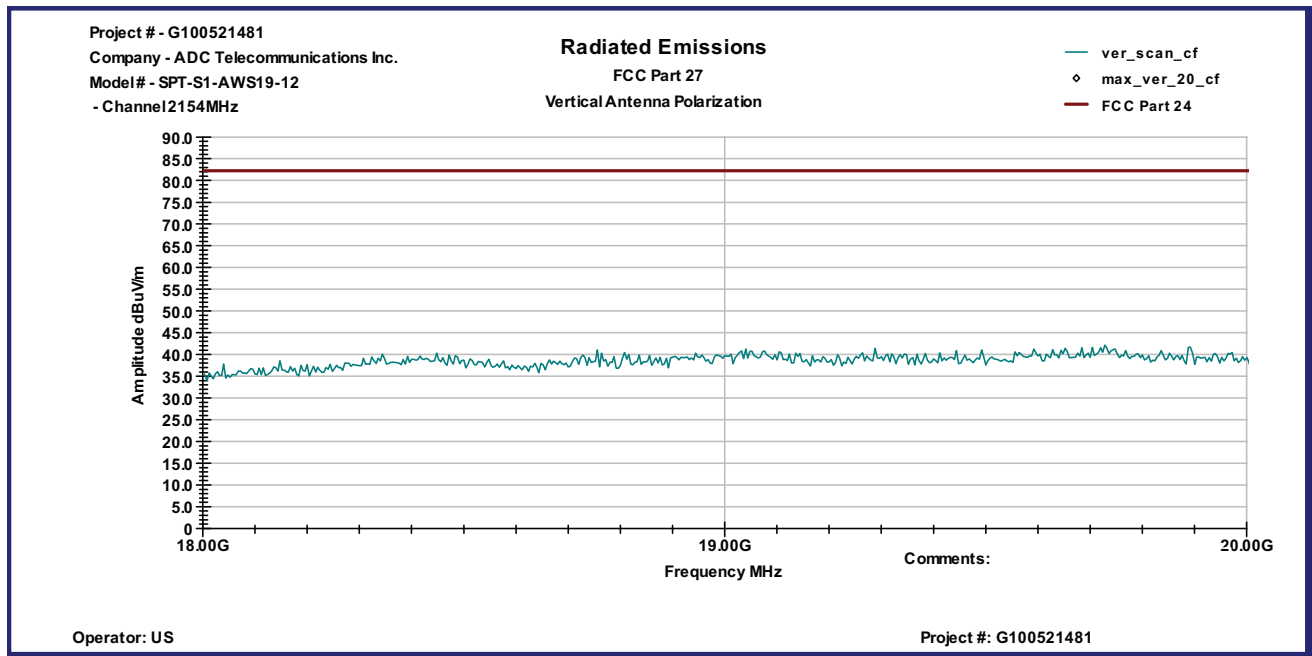
Graph 44



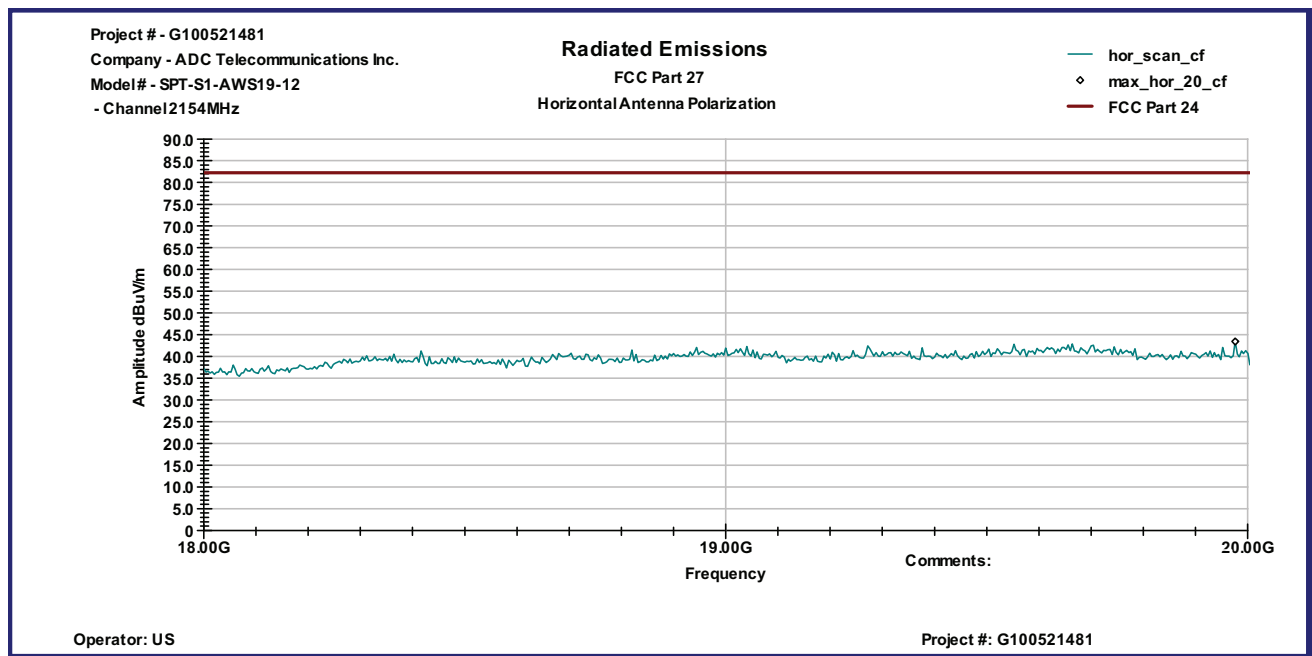
Graph 45



Graph 46



Graph 47



Graph 48

5.0 TEST EQUIPMENT

DESCRIPTION	MANUFACTURER	MODEL	SERIAL NO.	INTERTEK ID	CAL DUE	USED
Spectrum Analyzer	R & S	FCV 30	1307.9002K30.1 010-TC	12559	11/09/2011	<input checked="" type="checkbox"/>
Spectrum Analyzer	R & S	ESCI	100358	12909	05/12/2012	<input checked="" type="checkbox"/>
Bicono-Log Antenna	Schaffner-Chase	CBL 6112 B	2468	14459	10/18/2011	<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	1122951	13475	10/06/2011	<input checked="" type="checkbox"/>
System	TILE! Instrument Control		Ver. 3.4.K.29	15259	VBV	<input checked="" type="checkbox"/>
Waveguide Horn Antenna	EMCO	3116	9904-2423	9705	10/06/2011	<input checked="" type="checkbox"/>
Pre-Amplifier	MITEQ	AMF-6F-16002600-25- 10P	1222383	MIN-0065	10/06/2011	<input checked="" type="checkbox"/>

