



TEST DATA

Test Data Number: 3158189MIN-001
Project Number: 3158189

Testing performed on the
URH-PCS, Universal Radio Head-PCS

To
47 CFR, Part 24

For
ADC Telecommunications Inc.

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

Test Authorized by:
ADC Telecommunications Inc.
5341 12th Avenue East
Shakopee, MN 55379

Prepared by: SKhazon
Simon Khazon

Date: August 13, 2008

Reviewed by: U. Spector
Uri Spector

Date: August 13, 2008



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1.0 DESCRIPTION OF THE SAMPLE (EUT)

| | |
|------------------------|---|
| Model: | URH-PCS, Universal Radio Head-PCS |
| Type of EUT: | Outdoor Repeater |
| Serial Number: | N/A |
| Company: | ADC Telecommunications Inc. |
| Customer: | Mr. Mark Miska |
| Address: | 1187 Park Place Shakopee, MN 55379 |
| Phone: | 952-403-8340 |
| Fax: | 952-403-8858 |
| Test Standards: | <input type="checkbox"/> EN 55022:2006, Class A <input type="checkbox"/> EN 55011:1998 + A1:1999 + A2:2002, Group <input type="checkbox"/> , Class <input type="checkbox"/> <input type="checkbox"/> 47 CFR, Part 15:2007, §15.107 and §15.109, Class A <input type="checkbox"/> 47 CFR, Part 22:2007 <input checked="" type="checkbox"/> 47 CFR, Part 24:2007 <input type="checkbox"/> 47 CFR, Part 90:2007 <input type="checkbox"/> EN 55014-1:2000 + A1:2001 + A2:2002 <input type="checkbox"/> EN 61326-1:2006 <input type="checkbox"/> Class <input type="checkbox"/> for Radiated and Conducted Emissions <input type="checkbox"/> EN 60601-1-2:2001 +A1:2006 <input type="checkbox"/> Class <input type="checkbox"/> Radiated and Conducted Emissions <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"/> Other <input type="checkbox"/> |

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 | Spurious Enclosure 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

General notes:

1. Test was performed with the EUT tuned to the low frequency (1850MHz), middle frequency (1880MHz), and upper frequency (1910MHz) of the operating band.

Testing was performed in frequency range from 30MHz to 20GHz.

2. The Spurious Radiated Power limits of -13dBm was correlated with field strength reference level of 82.2dB μ V/m during field strength measurements at 3m measurement distance

3.0 TEST RESULTS

3.1 Spurious Radiated Emissions

Tables 1 and 2 show detected Radiated Emissions.

Graphs 1 to 18 show the EUT peak Radiated Emissions.

No emissions were chosen for substitution measurements as the maximum emission is more than 20dB below the reference limit.



TILE Instrument Control System EMI Measurement Software

Radiated Emissions from 30MHz to 1GHz

Date: 08/13-15/2008

Company: ADC Telecommunications Inc.
Model: Universal Radio Head-PCS
Test Engineer: Simon Khazon
Special Info:
Standard: FCC Part 24
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
 Measurements were taken using a Peak detector

Table # 1

| Frequency | Ant. Polarity | Peak Reading dBμV | Ant.Factor dB1/m | Total at 3m dBμV/m | QP Limit dBμV/m | Margin dB |
|-------------------------------------|---------------|-------------------|------------------|--------------------|-----------------|-----------|
| Operating Frequency 1850 MHz | | | | | | |
| 41.897 MHz | V | 35.9 | 14.2 | 50.1 | 82.2 | -32.1 |
| 47.936 MHz | V | 38.9 | 11.0 | 50.0 | 82.2 | -32.2 |
| 51.551 MHz | V | 43.4 | 9.7 | 53.0 | 82.2 | -29.2 |
| Operating Frequency 1880 MHz | | | | | | |
| 44.704 MHz | H | 29.2 | 12.7 | 42.0 | 82.2 | -40.2 |
| 46.108 MHz | H | 29.7 | 12.0 | 41.6 | 82.2 | -40.6 |
| 50.217 MHz | H | 33.6 | 10.1 | 43.7 | 82.2 | -38.5 |
| 829.47 MHz | H | 18.6 | 24.0 | 42.5 | 82.2 | -39.7 |
| Operating Frequency 1910 MHz | | | | | | |
| 41.451 MHz | V | 36.5 | 12.5 | 49.0 | 82.2 | -33.2 |
| 45.582 MHz | V | 39.6 | 10.4 | 50.0 | 82.2 | -32.2 |
| 829.4 MHz | V | 24.7 | 24.6 | 49.3 | 82.2 | -33.0 |
| 43.731 MHz | H | 28.5 | 11.3 | 39.8 | 82.2 | -42.4 |
| 50.225 MHz | H | 33.6 | 8.6 | 42.2 | 82.2 | -40.0 |
| 215.78 MHz | H | 26.7 | 12.0 | 38.7 | 82.2 | -43.5 |
| 583.27 MHz | H | 19.4 | 22.2 | 41.6 | 82.2 | -40.6 |
| 599.96 MHz | H | 19.0 | 22.4 | 41.4 | 82.2 | -40.8 |
| 645.08 MHz | H | 25.9 | 22.8 | 48.7 | 82.2 | -33.5 |
| 706.9 MHz | H | 19.4 | 23.1 | 42.6 | 82.2 | -39.6 |
| 829.4 MHz | H | 20.2 | 24.6 | 44.8 | 82.2 | -37.4 |
| Operating Frequency 1910 MHz | | | | | | |
| 35.333 MHz | V | 41.0 | 15.9 | 56.9 | 82.2 | -25.3 |
| 46.07 MHz | V | 40.9 | 10.2 | 51.1 | 82.2 | -31.1 |
| 50.226 MHz | V | 45.4 | 8.6 | 53.9 | 82.2 | -28.3 |
| 52.096 MHz | V | 41.2 | 8.3 | 49.4 | 82.2 | -32.8 |
| 49.325 MHz | H | 31.3 | 8.9 | 40.2 | 82.2 | -42.0 |
| 142.14 MHz | H | 25.0 | 12.8 | 37.9 | 82.2 | -44.4 |
| 600.61 MHz | H | 20.0 | 22.4 | 42.3 | 82.2 | -39.9 |
| 645.64 MHz | H | 24.5 | 22.8 | 47.3 | 82.2 | -34.9 |
| 706.45 MHz | H | 20.2 | 23.1 | 43.3 | 82.2 | -38.9 |



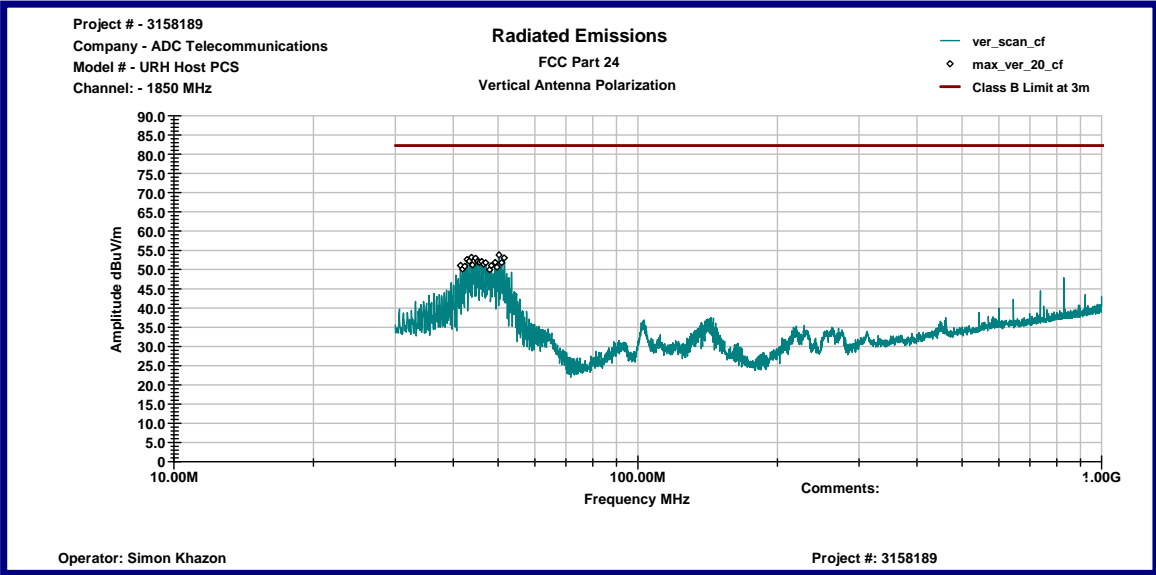
Radiated Emissions from 1GHz to 20GHz

Date: 08/13-15/2008

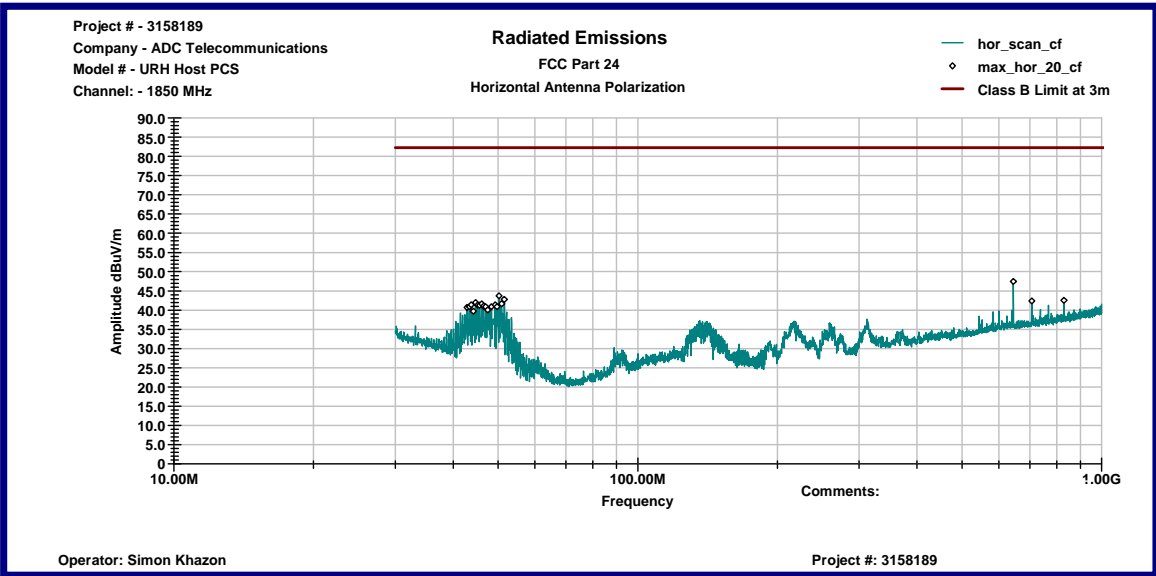
Company: ADC Telecommunications Inc.
Model: Universal Radio Head-PCS
Test Engineer: Simon Khazon
Special Info:
Standard: FCC Part 24
Test Site: 3m Anechoic Chamber, 3m measurement distance
Note: The table shows the worst case radiated emissions
 All measurements were taken using a Peak detector

Table # 2

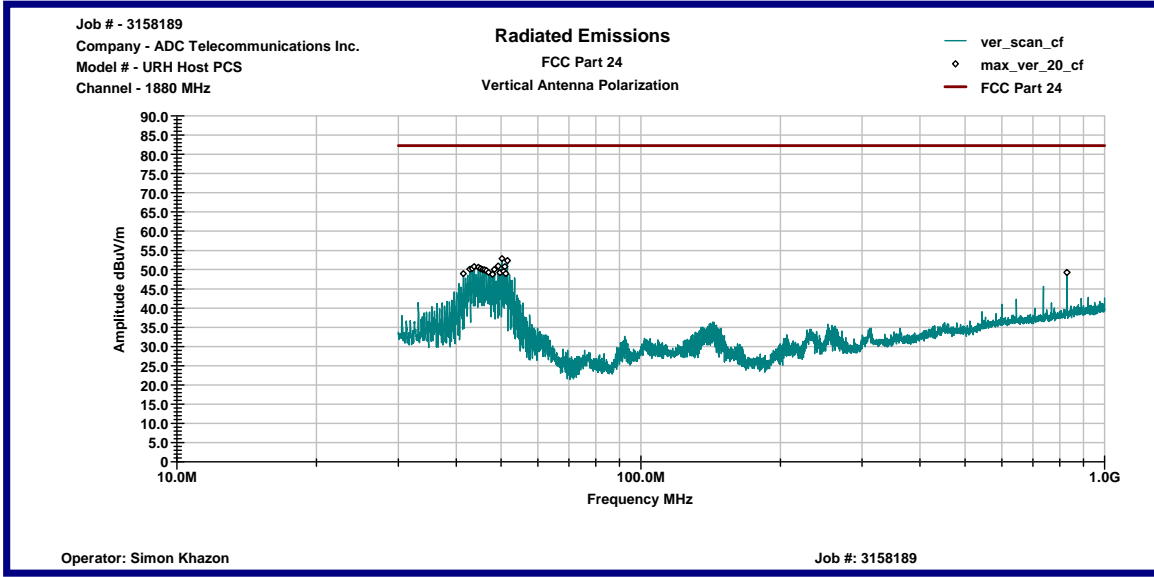
| Frequency MHz | Antenna Polarity | Reading dBµV | Total C.F. dB1/m | Pre-Amp. Gain (dB) | Total at 3m dBµV/m | QP Limit dBµV/m | Margin dB |
|------------------------------------|------------------|--------------|------------------|--------------------|--------------------|-----------------|-----------|
| Operating Frequency 1850MHz | | | | | | | |
| 1.2477 GHz | V | 74.2 | 27.5 | 39.6 | 62.3 | 82.2 | -20.1 |
| 1.6606 GHz | V | 65.1 | 28.9 | 39.1 | 54.9 | 82.2 | -27.3 |
| 3.1371 GHz | V | 55.2 | 33.6 | 37.9 | 50.9 | 82.2 | -31.3 |
| 13.745 GHz | V | 43.5 | 48.1 | 35.2 | 56.4 | 82.2 | -25.8 |
| 17.917 GHz | V | 42.6 | 53.9 | 35.5 | 61.0 | 82.2 | -21.2 |
| Operating Frequency 1880MHz | | | | | | | |
| 1.2477 GHz | H | 64.7 | 27.5 | 39.6 | 52.6 | 82.2 | -29.6 |
| 13.745 GHz | H | 43.7 | 48.1 | 35.2 | 56.6 | 82.2 | -25.6 |
| 17.995 GHz | H | 42.2 | 54.3 | 35.5 | 61.1 | 82.2 | -21.1 |
| Operating Frequency 1880MHz | | | | | | | |
| 1.2477 GHz | V | 73.5 | 27.5 | 39.6 | 61.4 | 82.2 | -20.8 |
| 13.735 GHz | V | 44.4 | 48.1 | 35.2 | 57.3 | 82.2 | -24.9 |
| 17.995 GHz | V | 41.5 | 54.3 | 35.5 | 60.4 | 82.2 | -21.8 |
| Operating Frequency 1910MHz | | | | | | | |
| 1.2477 GHz | H | 64.4 | 27.5 | 39.6 | 52.3 | 82.2 | -29.9 |
| 13.755 GHz | H | 43.7 | 48.1 | 35.2 | 56.6 | 82.2 | -25.6 |
| 17.956 GHz | H | 41.9 | 54.1 | 35.5 | 60.5 | 82.2 | -21.7 |
| Operating Frequency 1910MHz | | | | | | | |
| 1.2477 GHz | V | 73.7 | 27.5 | 39.6 | 61.6 | 82.2 | -20.6 |
| 14.867 GHz | V | 43.8 | 48.7 | 36.1 | 56.4 | 82.2 | -25.8 |
| 17.908 GHz | V | 42.3 | 53.8 | 35.5 | 60.6 | 82.2 | -21.6 |
| Operating Frequency 1910MHz | | | | | | | |
| 6.1437 GHz | H | 50.2 | 39.4 | 36.5 | 53.1 | 82.2 | -29.1 |
| 14.542 GHz | H | 42.9 | 49.0 | 35.7 | 56.2 | 82.2 | -26.0 |
| 17.913 GHz | H | 42.3 | 53.8 | 35.5 | 60.7 | 82.2 | -21.6 |



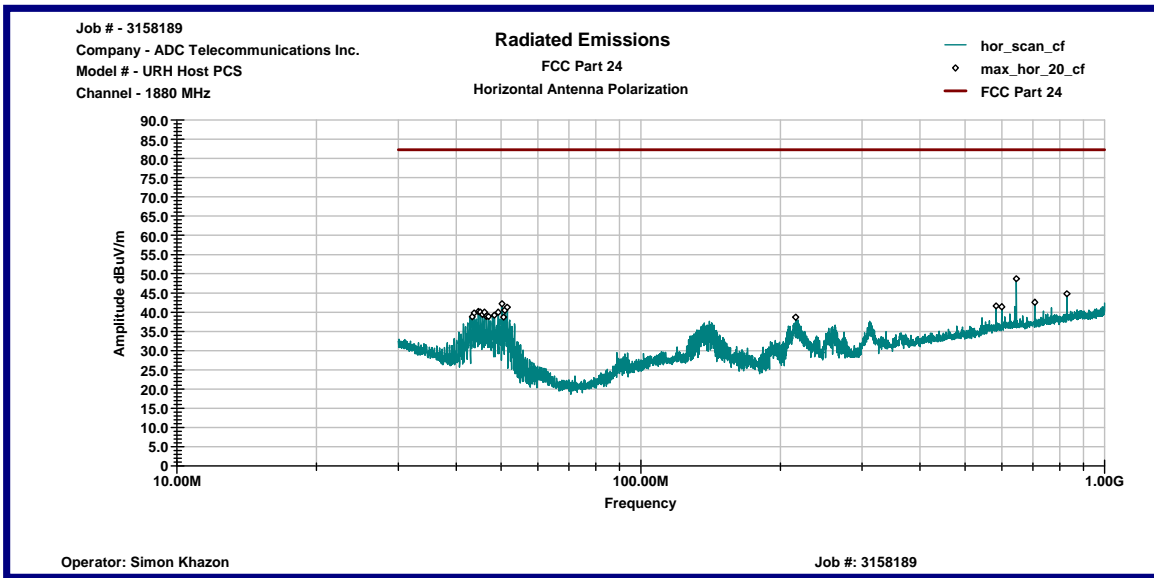
Graph 1



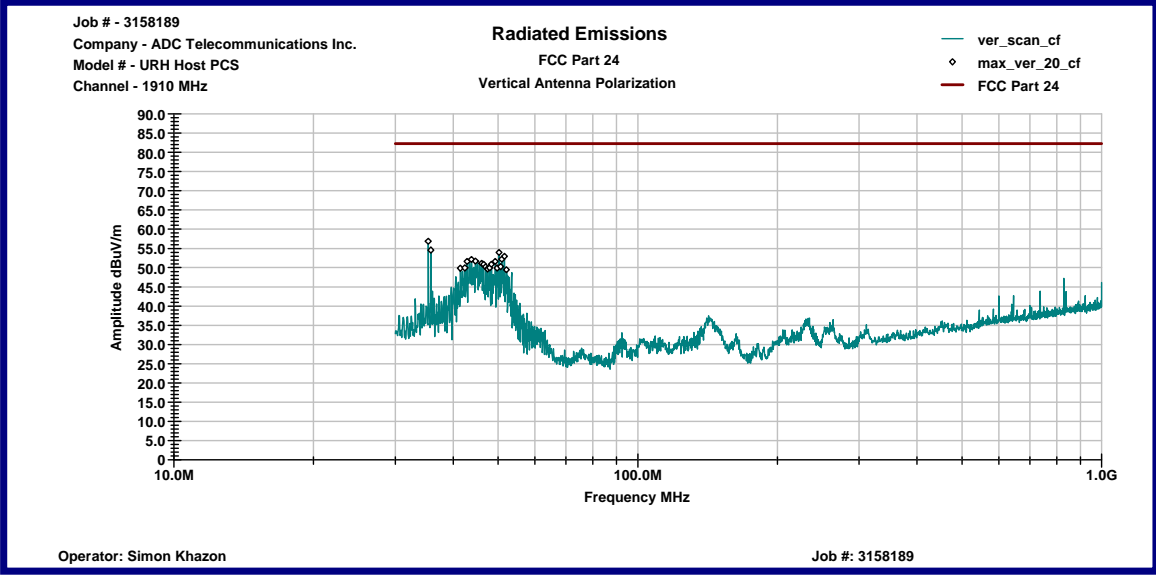
Graph 2



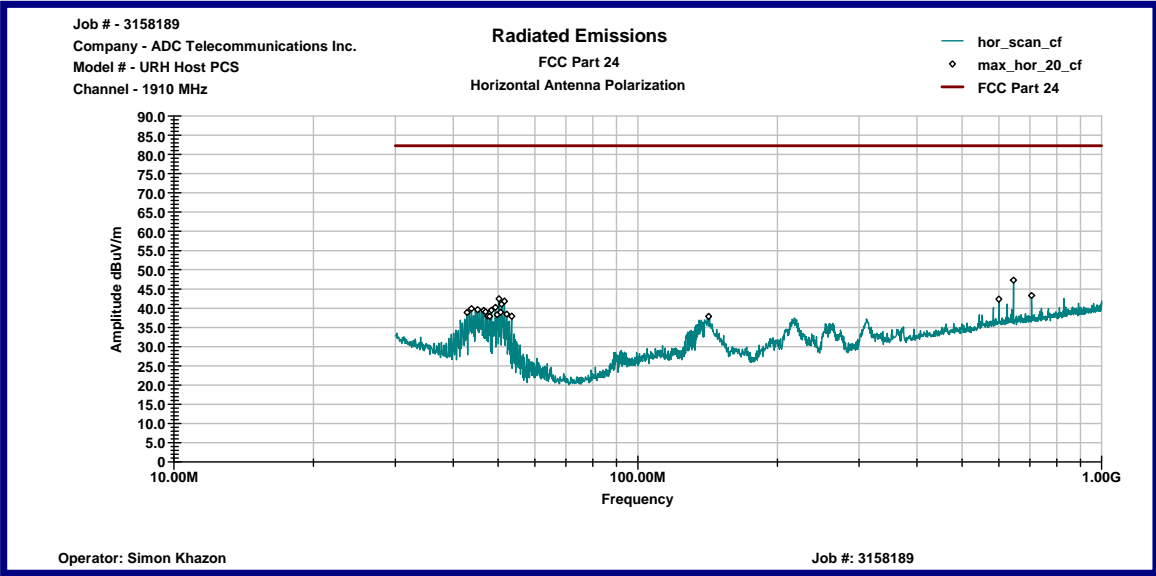
Graph 3



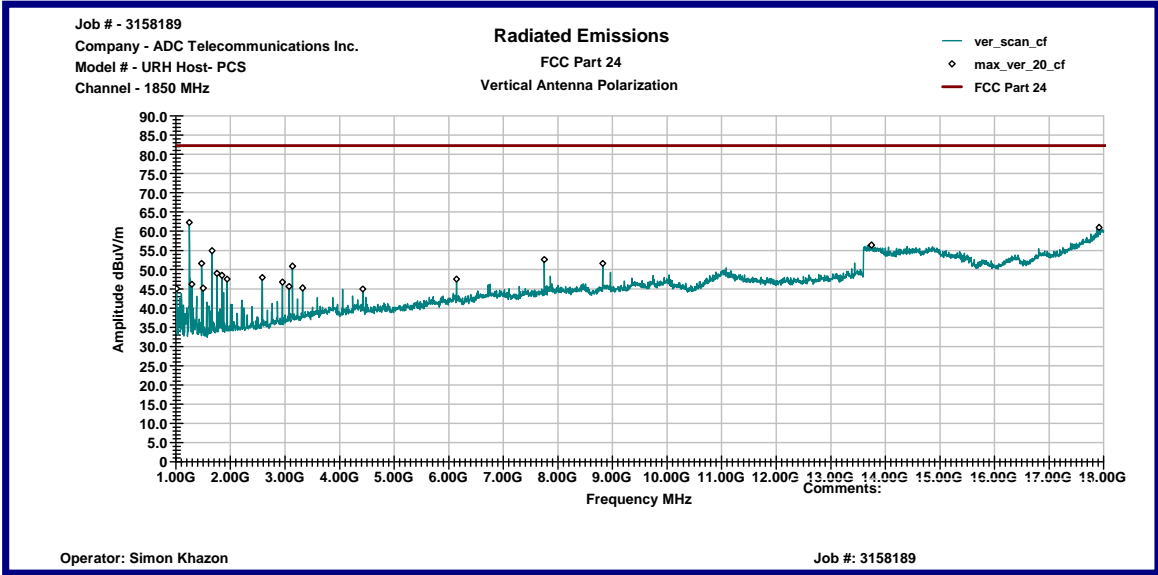
Graph 4



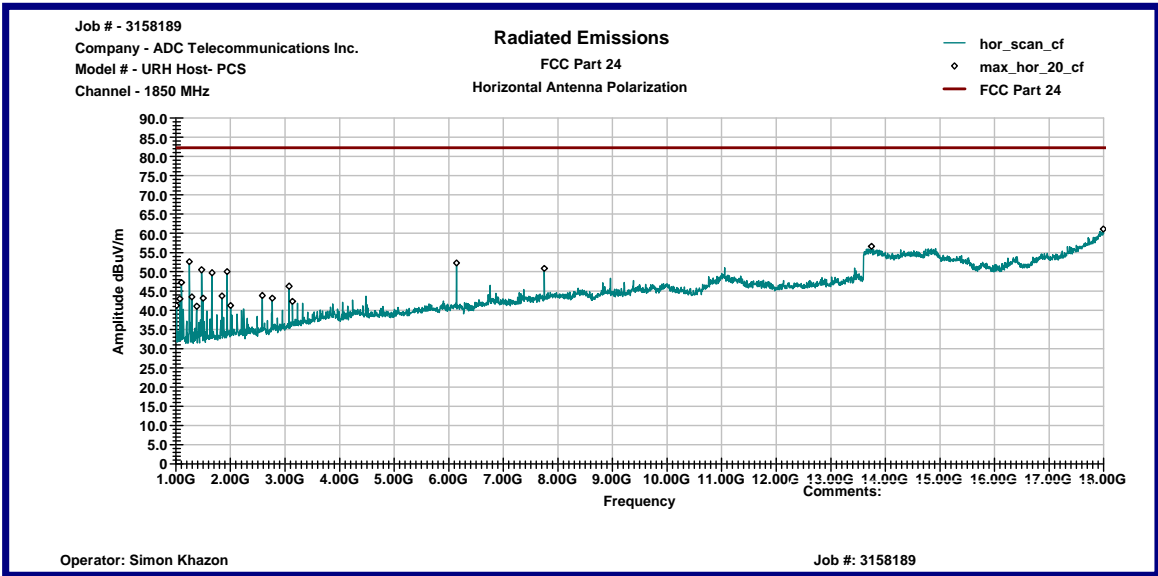
Graph 5



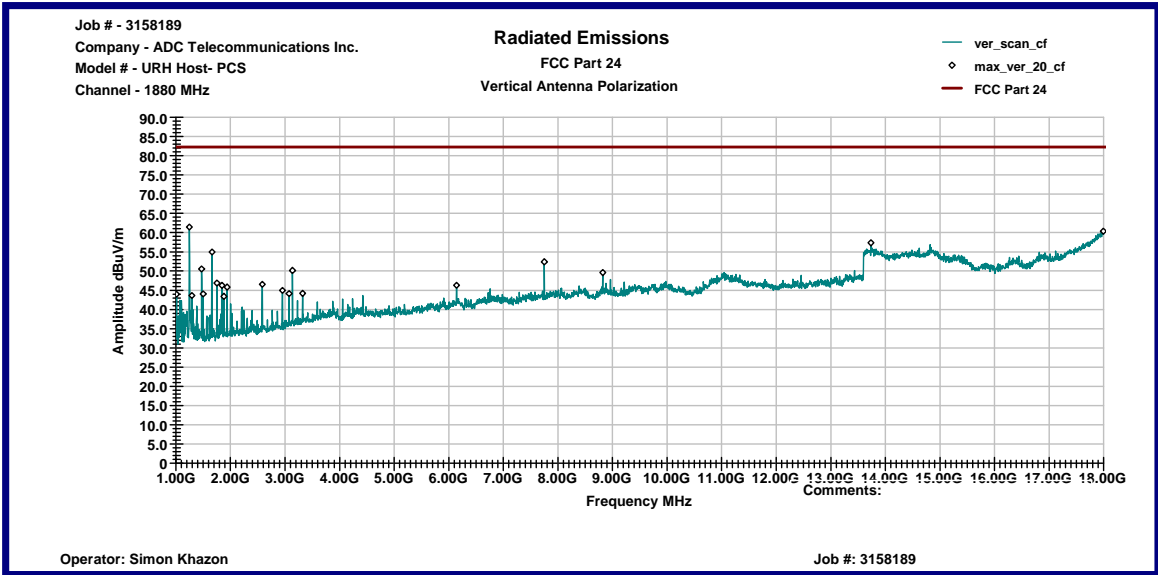
Graph 6



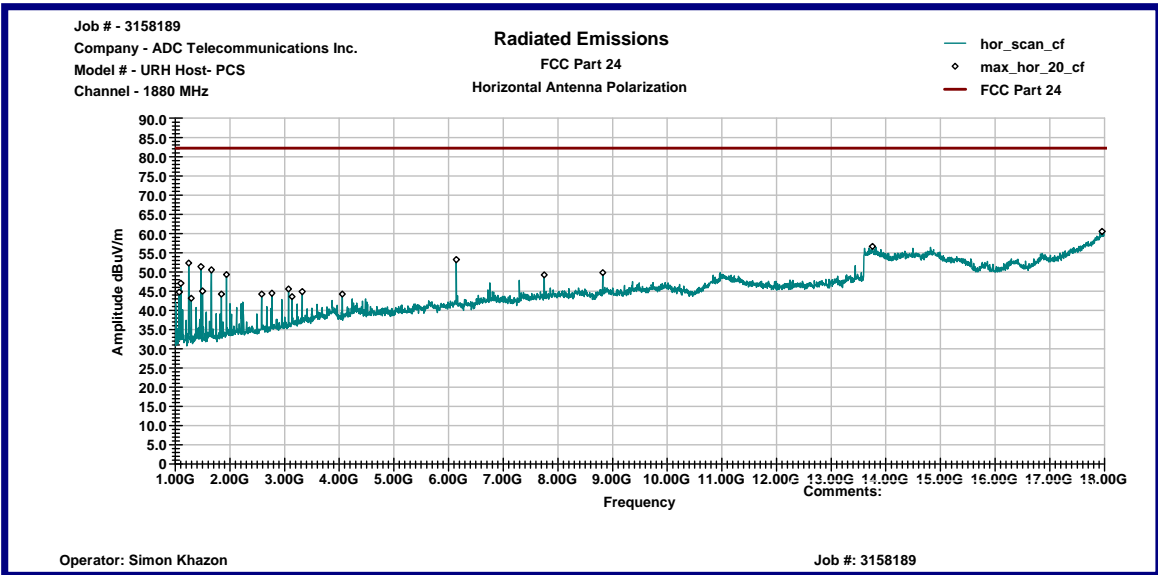
Graph 7



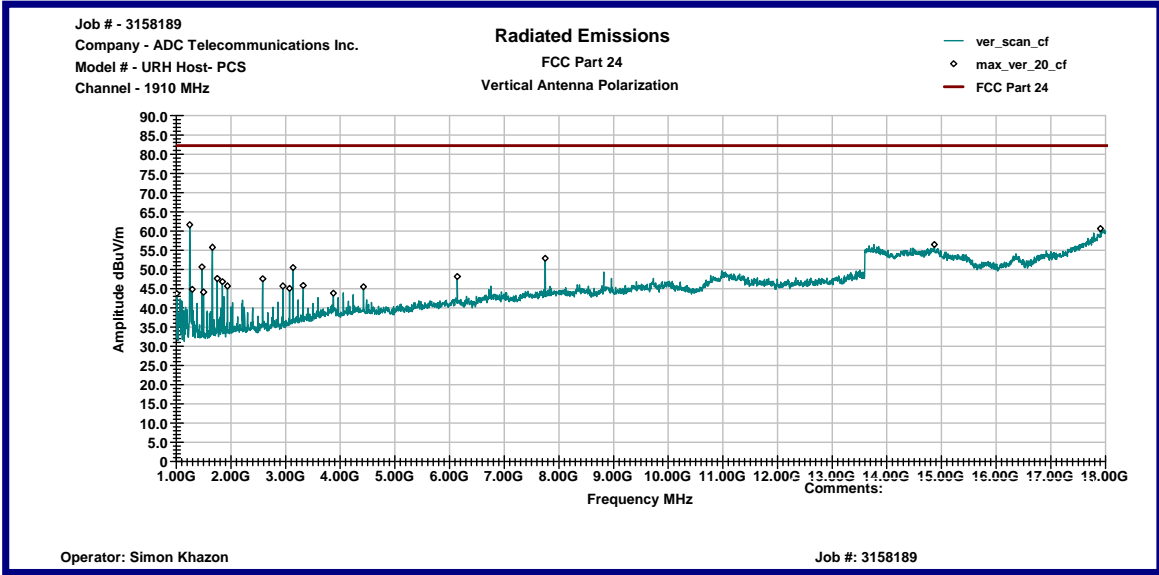
Graph 8



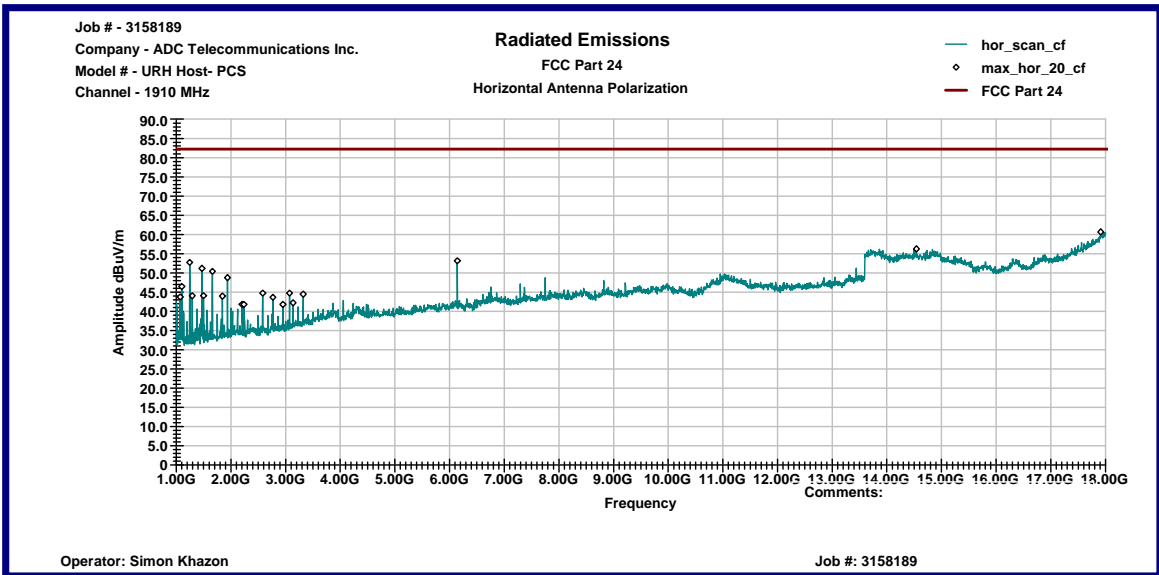
Graph 9



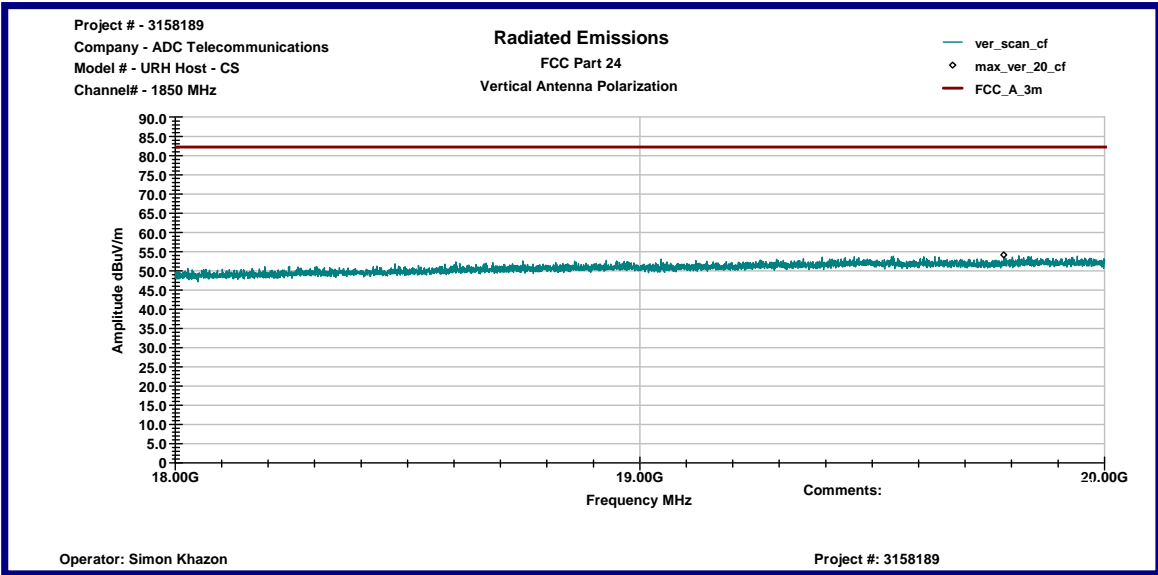
Graph 10



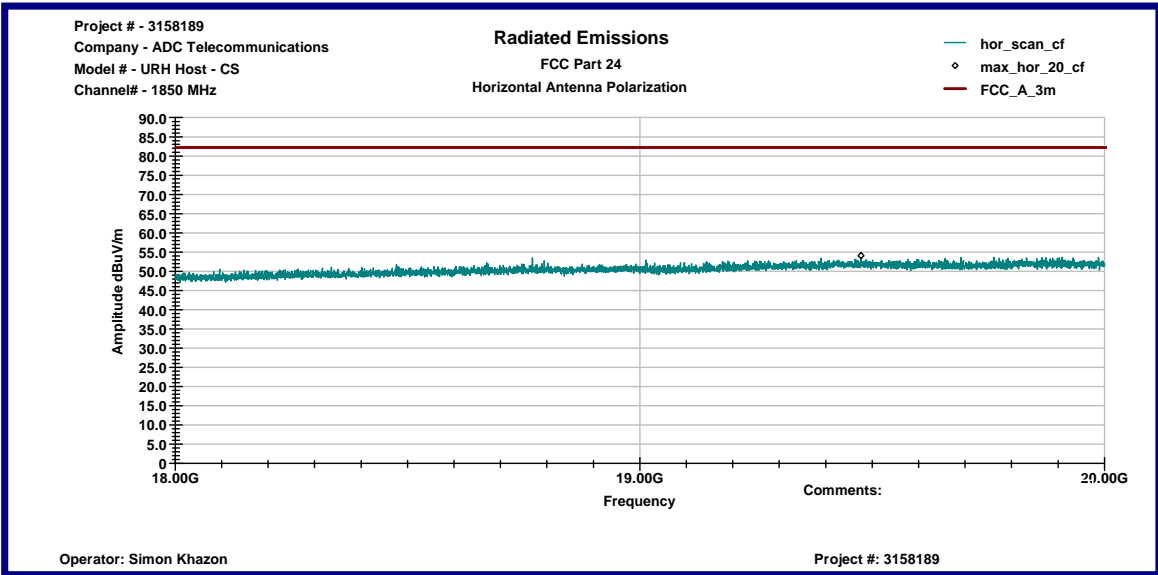
Graph 11



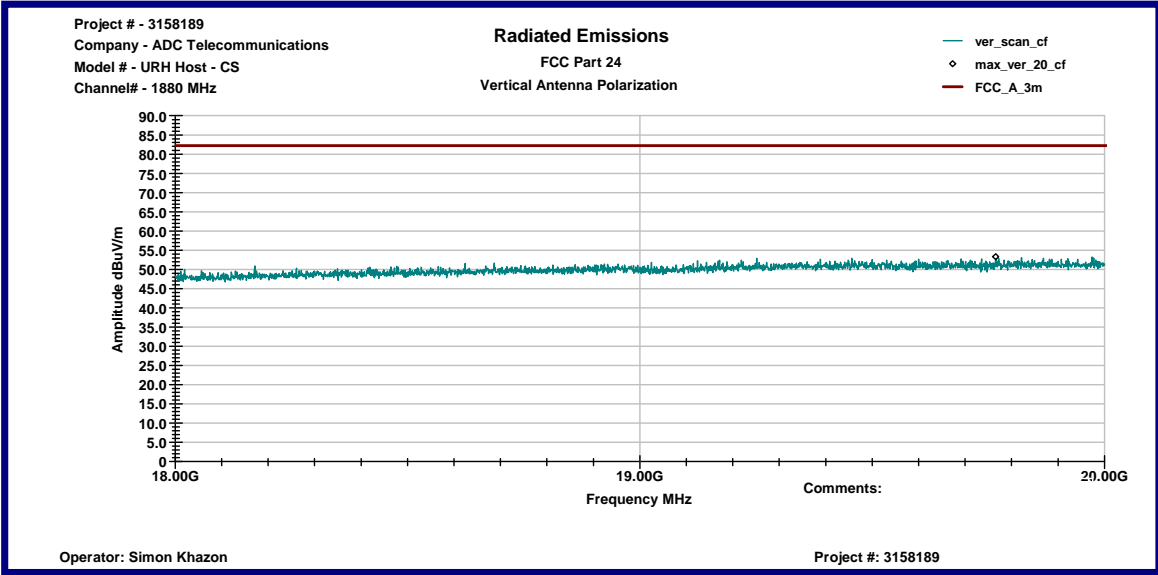
Graph 12



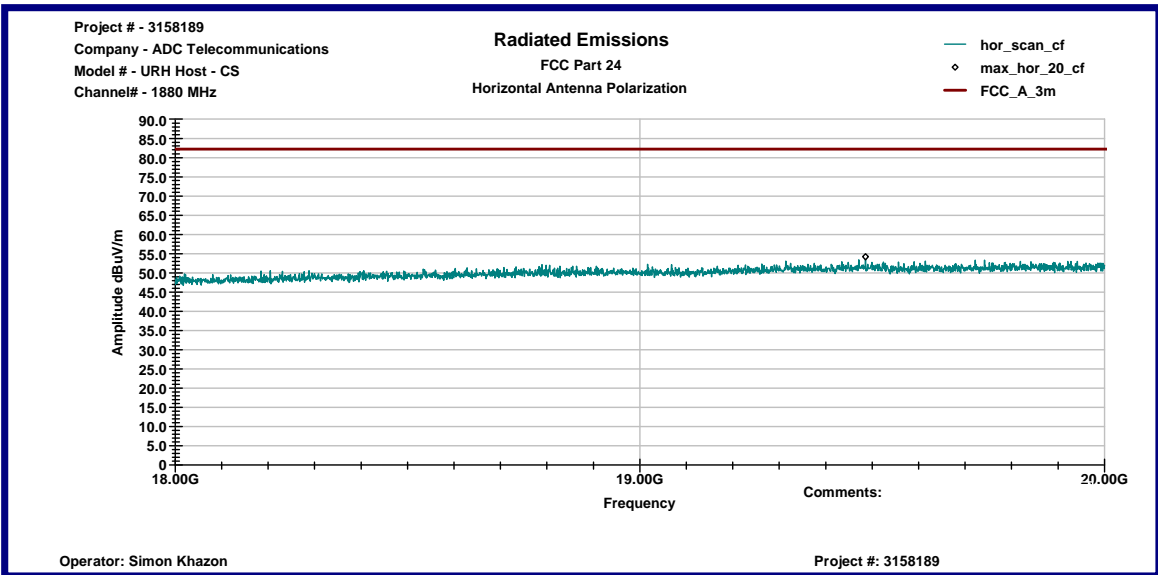
Graph 13



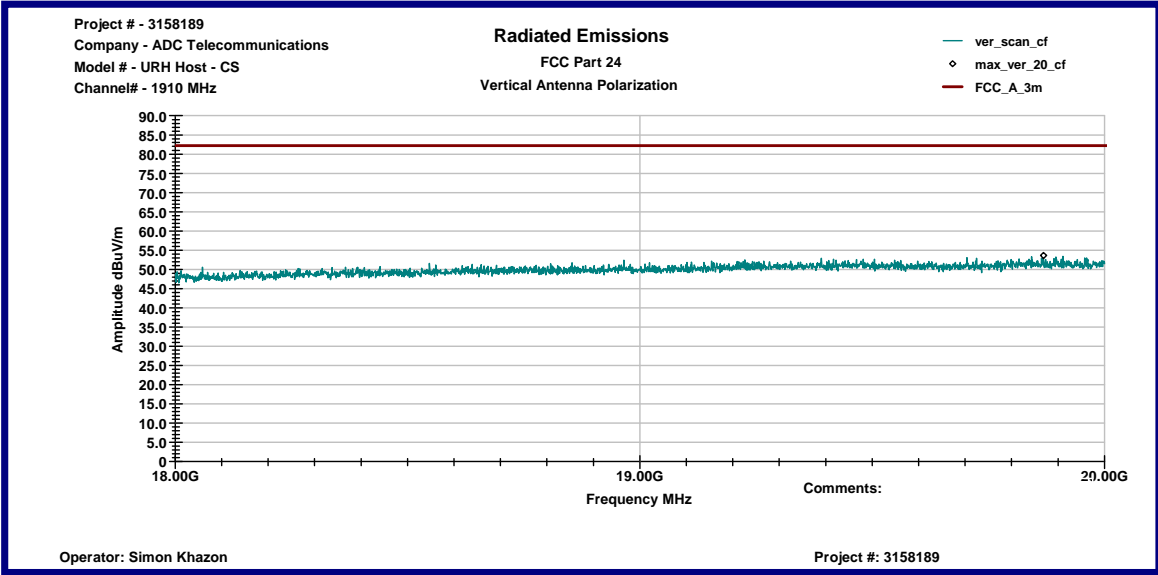
Graph 14



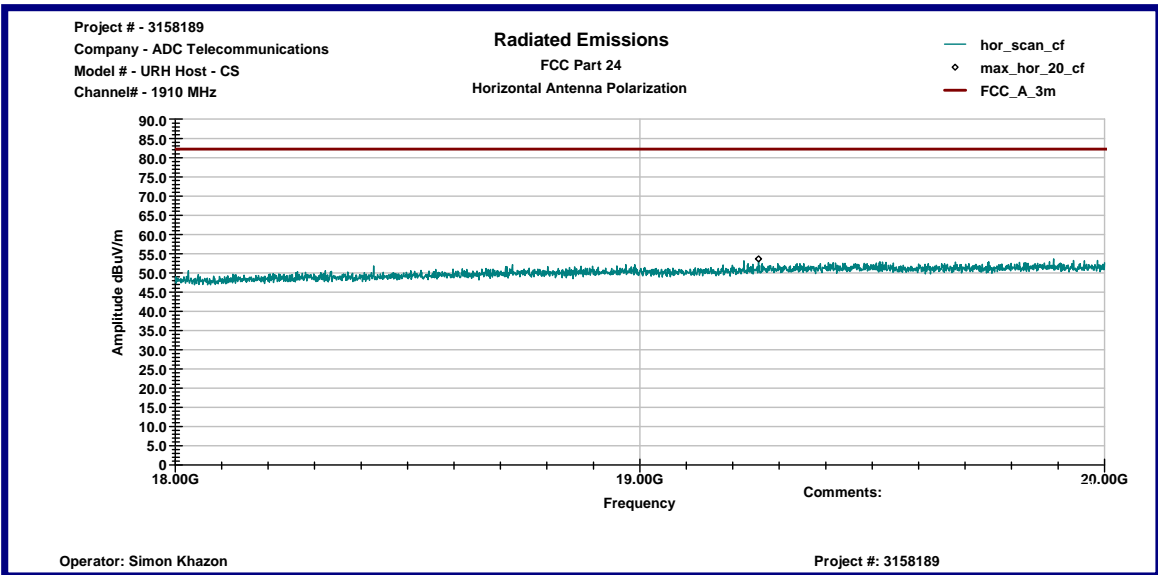
Graph 15



Graph 16



Graph 17



Graph 18

3.2 Environmental conditions

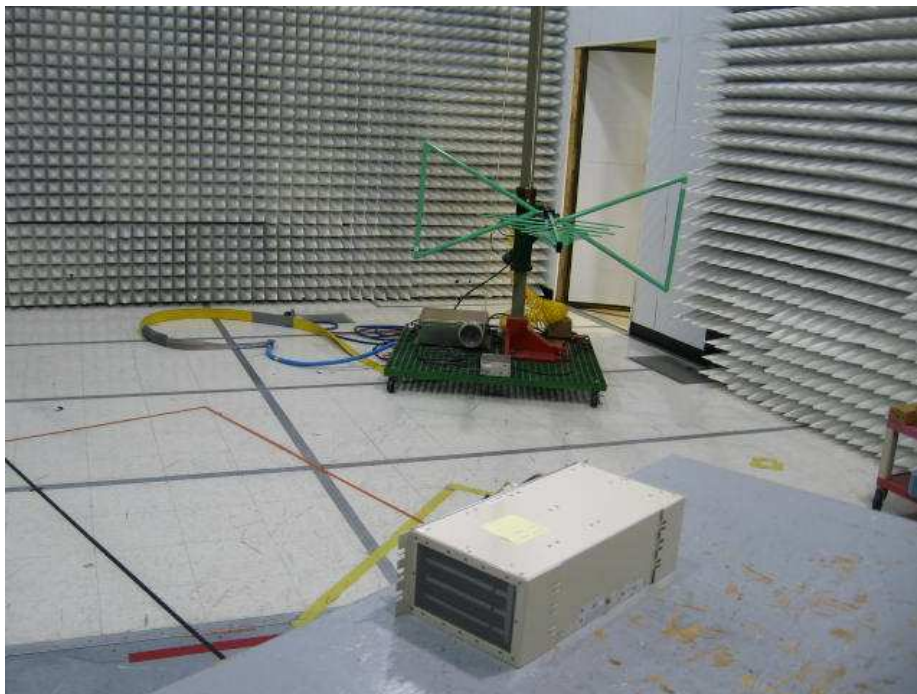
During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 °C

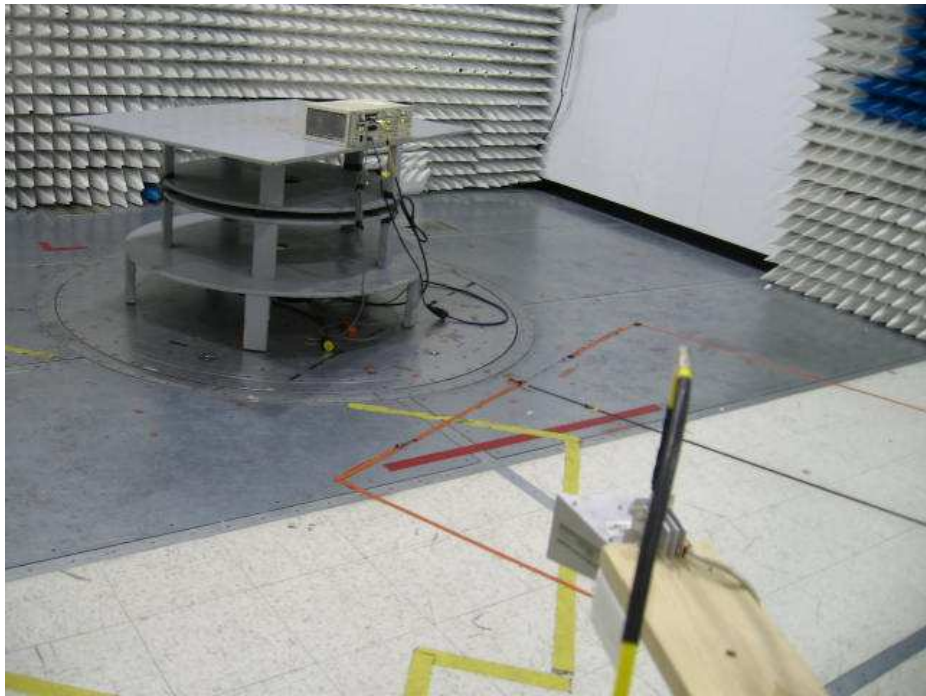
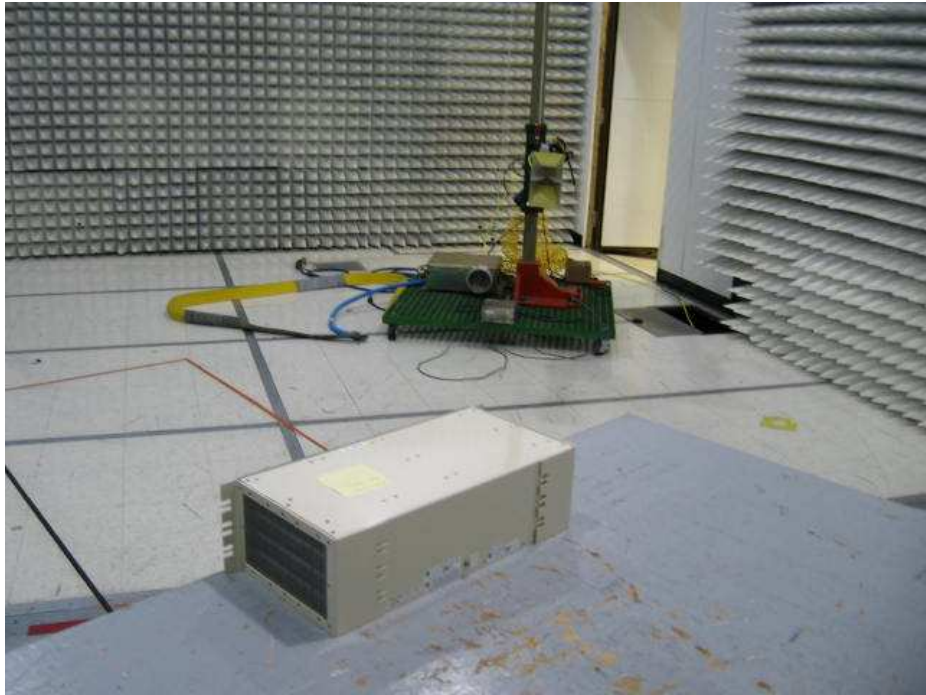
Humidity: 30-60 %

Atmospheric pressure: 86-106 kPa

4.0 PHOTOS



Test Setup Photos



Test Setup Photos



5.0 TEST EQUIPMENT

| DESCRIPTION | MANUFACTURER | MODEL | SERIAL NO. | CAL DUE | USED |
|------------------------|--------------------------|------------------------|---------------|------------|-------------------------------------|
| Spectrum Analyzer | R & S | FSP 40 | 100024 | 08/23/2008 | <input checked="" type="checkbox"/> |
| Spectrum Analyzer | R & S | ESCI | 100358 | 05/07/2009 | <input checked="" type="checkbox"/> |
| Bicono-Log Antenna | Schaffner-Chase | CBL 6112 B | 2630 | 09/07/2008 | <input checked="" type="checkbox"/> |
| Horn Antenna | EMCO | 3115 | 9507-4513 | 02/13/2009 | <input checked="" type="checkbox"/> |
| Waveguide Horn Antenna | EMCO | 3116 | 9904-2423 | 07/20/2009 | <input checked="" type="checkbox"/> |
| Pre-Amplifier | MITEQ | AMF-5D-00501800-28-13P | 1122951 | 04/28/2009 | <input checked="" type="checkbox"/> |
| Pre-Amplifier | MITEQ | AMF-6F-16002600-25-10P | 1222383 | 01/17/2009 | <input checked="" type="checkbox"/> |
| System | TILE! Instrument Control | | Ver. 3.4.K.29 | VBU | <input checked="" type="checkbox"/> |

