# TEST REPORT

**Report Number: 100658121MIN-005B**
**Project Number: G100658121**

**Testing performed on the**
**Sirona / ECG Monitor**

**FCC ID: POMRX92369**

**To**
**47 CFR Part 15. 249:2010**
**RSS- 210, Issue 8, 2010**
**47 CFR, Part 15:2009, §15.107 and §15.109, Class B**

**For**
**IntriCon Corporation**

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

Test Authorized by:
IntriCon Corporation
1260 Red Fox Road
Arden Hills, MN 55112-6944, USA

Prepared by: _____ Date: September 4, 2012
Simon Khazon

Reviewed by: _____ Date: September 4, 2012
Uri Specotr

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## 1.0 GENERAL DESCRIPTION

| | |
|---|---|
| **Model:** | Sirona |
| **Type of EUT:** | ECG Monitor |
| **FCC ID:** | POMRX92369 |
| **Related Submittal(s) Grants:** | None |
| **Company:** | IntriCon Corporation. |
| **Customer:** | Mr. Vijay Sundermurthy |
| **Address:** | 1260 Red Fox Road<br>Arden Hills, MN 55112-6944, USA |
| **Phone:** | (651) 604-9534 |
| **Fax:** | (612) 636-8944 |
| **e-mail:** | VSundermurthy@intricon.com |
| **Test Standards:** | ☒ 47 CFR, Part 15:2010, §15.249<br>☒ RSS–210, Issue 8, 20010<br>☒ RSS-Gen, Issue 3, 2010<br>☒ 47 CFR, Part 15:2010, §15.107 and §15.109, Class B<br>☒ ICES-003, Issue 4:2004<br>☐ Other |
| **Type of radio:** | ☒ Stand -alone ☐ Module ☐ Hybrid |
| **Date Sample Submitted:** | March 2, 2012 |
| **Test Work Started:** | March 2, 2012 |
| **Test Work Completed:** | March 19, 2012 |
| **Test Sample Conditions:** | ☐ Damaged ☐Poor (Usable) ☒ Good |

## 1.1 Product Description; Test Facility

| | |
|---|---|
| **Product Description:** | Transceiver |
| **Operating Frequency** | 2400-2483.5 MHz |
| **Modulation:** | FSK |
| **Antenna(s) Info:** | Type Integral Gain 2.0dBi |
| **Antenna Installation:** | ☐ User ☒ Professional ☐ Factory |
| **Transmitter Power Configuration:** | ☒ Internal battery ☐ External power source<br>☐ 120VAC ☐ 230VAC ☐ 400VAC ☐ VDC ☐ Other:<br>Amp.<br>☐ 50Hz ☐ 60Hz |
| **Special Test Arrangement:** | Testing was performed on the EUT with fully charged internal battery. |
| **Test Facility Accreditation:** | A2LA (Certificate No. 1427.01) |
| **Test Methodology:** | Measurements performed according to the procedures in ANSI C63.10-2009 |

## 1.2 EUT Configuration

The equipment under test was operated during the measurement under the following conditions:

☐ - Standby
☒ - Continuous
☐ - Test program (customer specific)
☐ -

**Operating modes of the EUT:**

| No. | Description |
|---|---|
| 1 | The device was pre-programmed to transmit continuously in three separate frequency channels, low, middle, and upper frequency channel, one channel being transmitted at a given time. |
| 2 | Standby/Receiving mode |

**Cables:**

| No. | Type | Length | Designation | Note |
|---|---|---|---|---|
| | None | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**Support equipment/Services**:

| No. | Item | Description |
|---|---|---|
| | None | |

## 1.3 Environmental conditions

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

☒ **Normal**

**Temperature:** 15-35 ° C

**Humidity:** 30-60 %

**Atmospheric pressure:** 86-106 kPa

## 1.4 Measurement uncertainty

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

## 1.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured emissions reading on the EMI Receiver.
The basic equation with a sample calculation is as follows:
FS = RA + AF + CF - AG

Where: FS = Field Strength in dB(μV/m)
RA = Receiver Amplitude in dB(μV)
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB($m^{-1}$)
AG = Amplifier Gain in dB

Assume a receiver reading of 48.1 dB(μV) is obtained. The antenna factor of 7.4 dB($m^{-1}$) and cable factor of 1.6 dB is added and amplifier gain of 16.0 dB is subtracted giving field strength of 41.1 dB(μV/m).

RA = 48.1 dB(μV)
AF = 7.4 dB($m^{-1}$)
CF = 1.6 dB
AG = 16.0 dB
FS = RA + AF + CF - AG
FS = 48.1 + 7.4 + 1.6 – 16.0
FS = 41.1 dB(μV/m)

**General notes:** None

## 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 SPECIFICATION | TEST PARAMETERS | RESULT |
|---|---|---|
| 15.249(a) / RSS-210 A2.9(a) | Field strength of fundamental | Pass |
| 15.249(a) / RSS-210 A2.9(a) | Field strength of harmonics | Pass |
| 15.249(d) / RSS-210 A2.9(b) | Field strength of spurious emissions | Pass |
| 15.215(c) / RSS- Gen 4.6.1 | Bandwidth of the emission | Pass |
| 15.207/RSS-Gen 7.2.2 | Transmitter Power Line conducted emissions | N/A |
| 15.109/ICES-003 | Receiver/digital device radiated emissions | Pass |
| 15.107/ ICES-003 | Digital device conducted emissions | N/A |

## 3.0 TEST CONDITIONS AND RESULTS

### 3.1 Field strength of fundamental

**Test location:** ☐ OATS ☒ Anechoic Chamber ☐ Other

**Test distance:** ☐ 10 meters ☒ 3 meters

**Frequency range of measurements:** 30MHz-26GHz

**Test result:** **Pass**

**Max. Emissions margin at fundamental:** 3.5dB below the limits

**Notes:** None

| | | |
|---|---|---|
| **Date:** | March 8, 2012 | **Result:** **Pass** |
| **Standard:** | FCC 15.249(a) / RSS-210 A2.9 | |
| **Tested by:** | Simon Khazon | |
| **Test Point:** | Enclosure with antenna | |
| **Operation mode:** | See Page 5 | |
| **Note:** | None | |

**Table 3.1.1**

| Frequency MHz | Antenna Polarity | Antenna Hts(cm) | Ant. CF dB1/m | Cable loss dB | Pre-amp Gain (dB) | Peak Reading dBµV | Total @ 3m dBµV/m | Limit dBµV/m | Margin dB | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Channel 2402** | | | | | | |
| 2402.17 | V | 100 | 28.5 | 2.9 | 0.0 | 56.4 | 87.8 | 94.0 | -6.2 | |
| 2402.17 | H | 247 | 28.5 | 2.9 | 0.0 | 56.3 | 87.7 | 94.0 | -6.3 | |
| | | | | | | | | | | |
| | | | | **Channel 2441** | | | | | | |
| 2440.18 | V | 100 | 28.6 | 2.9 | 0.0 | 56.8 | 88.3 | 94.0 | -5.7 | |
| 2440.18 | H | 250 | 28.6 | 2.9 | 0.0 | 57.0 | 88.5 | 94.0 | -5.5 | |
| | | | | | | | | | | |
| | | | | **Channel 2481** | | | | | | |
| 2480.05 | V | 100 | 28.7 | 3.0 | 0.0 | 58.6 | 90.3 | 94.0 | -3.7 | |
| 2480.05 | H | 239 | 28.7 | 3.0 | 0.0 | 58.8 | 90.5 | 94.0 | -3.5 | |
| | | | | | | | | | | |

### 3.2 Field strength of harmonics and spurious emissions

**Test location:** ☐ OATS ☒ Anechoic Chamber ☐ Other

**Test distance:** ☐ 10 meters ☒ 3 meters

**Frequency range of measurements:** 30MHz-26GHz

**Test result:** **Pass**

**Max. margin of harmonics and spurious emissions:** 1.5dB below the limits

**Notes:** None

| | | |
|---|---|---|
| **Date:** | March 8-9, 2012 | **Result:** **Pass** |
| **Standard:** | FCC 15.249(a) / RSS-210 A2.9 | |
| **Tested by:** | Simon Khazon | |
| **Test Point:** | Enclosure with antenna | |
| **Operation mode:** | See Page 5 | |
| **Note:** | Spurious emissions below 1 GHz | |

**Table 3.2.1**

| Frequency | Ant. Polarity | Peak Reading dBµV | Ant.Factor dB1/m | Total at 3m dBµV/m | Limit dBµV/m | Margin dB |
|---|---|---|---|---|---|---|
| | | **Channel 2402** | | | | |
| 30.797 MHz | V | 7.6 | 19.9 | 27.4 | 40.0 | -12.6 |
| 136.71 MHz | V | 11.5 | 13.6 | 25.1 | 40.0 | -14.9 |
| 984.79 MHz | V | 10.3 | 26.2 | 36.5 | 47.0 | -10.5 |
| 31.385 MHz | H | 7.8 | 19.6 | 27.4 | 40.0 | -12.6 |
| 118.36 MHz | H | 11.1 | 13.9 | 24.9 | 40.0 | -15.1 |
| 978.07 MHz | H | 10.6 | 26.1 | 36.7 | 47.0 | -10.3 |
| | | **Channel 2441** | | | | |
| 30.554 MHz | V | 8.2 | 20.0 | 28.2 | 40.0 | -11.8 |
| 60.65 MHz | V | 21.1 | 7.1 | 28.2 | 40.0 | -11.8 |
| 66.275 MHz | V | 25.4 | 7.0 | 32.4 | 40.0 | -7.6 |
| 68.513 MHz | V | 25.5 | 7.1 | 32.6 | 40.0 | -7.4 |
| 91.121 MHz | V | 13.5 | 10.4 | 23.9 | 40.0 | -16.1 |
| 94.479 MHz | V | 16.7 | 11.3 | 28.0 | 40.0 | -12.0 |
| 106.27 MHz | V | 12.3 | 13.2 | 25.5 | 40.0 | -14.5 |
| 31.074 MHz | H | 8.9 | 19.7 | 28.6 | 40.0 | -11.4 |
| 68.588 MHz | H | 17.1 | 7.1 | 24.2 | 40.0 | -15.8 |
| 128.28 MHz | H | 10.4 | 13.9 | 24.2 | 40.0 | -15.8 |
| 980.19 MHz | H | 9.9 | 26.1 | 36.0 | 47.0 | -11.0 |
| | | **Channel 2481** | | | | |
| 30.519 MHz | V | 7.5 | 20.0 | 27.5 | 40.0 | -12.5 |
| 61.378 MHz | V | 23.1 | 7.1 | 30.2 | 40.0 | -9.8 |
| 66.722 MHz | V | 27.3 | 7.0 | 34.3 | 40.0 | -5.7 |
| 68.513 MHz | V | 26.3 | 7.1 | 33.4 | 40.0 | -6.6 |
| 91.121 MHz | V | 13.7 | 10.4 | 24.0 | 40.0 | -16.0 |
| 94.554 MHz | V | 17.4 | 11.4 | 28.8 | 40.0 | -11.2 |
| 106.34 MHz | V | 11.8 | 13.2 | 25.0 | 40.0 | -15.0 |
| 132.61 MHz | V | 11.8 | 13.8 | 25.5 | 40.0 | -14.5 |
| 974.18 MHz | V | 11.0 | 26.2 | 37.2 | 47.0 | -9.8 |
| 30.069 MHz | H | 7.5 | 20.3 | 27.8 | 40.0 | -12.2 |
| 61.412 MHz | H | 16.2 | 7.1 | 23.3 | 40.0 | -16.8 |
| 65.454 MHz | H | 18.0 | 6.9 | 24.9 | 40.0 | -15.1 |
| 66.871 MHz | H | 18.9 | 7.0 | 25.9 | 40.0 | -14.1 |
| 137.9 MHz | H | 10.3 | 13.5 | 23.8 | 40.0 | -16.2 |
| 884.0 MHz | H | 10.9 | 25.3 | 36.2 | 47.0 | -10.8 |
| | | | | | | |

| | | |
|---|---|---|
| **Date:** | March 8-9, 2012 | **Result:** **Pass** |
| **Standard:** | FCC 15.249(a) / RSS-210 A2.9 | |
| **Tested by:** | Simon Khazon | |
| **Test Point:** | Enclosure with antenna | |
| **Operation mode:** | See Page 5 | |
| **Note:** | Spurious and Harmonics emissions above 1 GHz and Band Edge Compliance | |

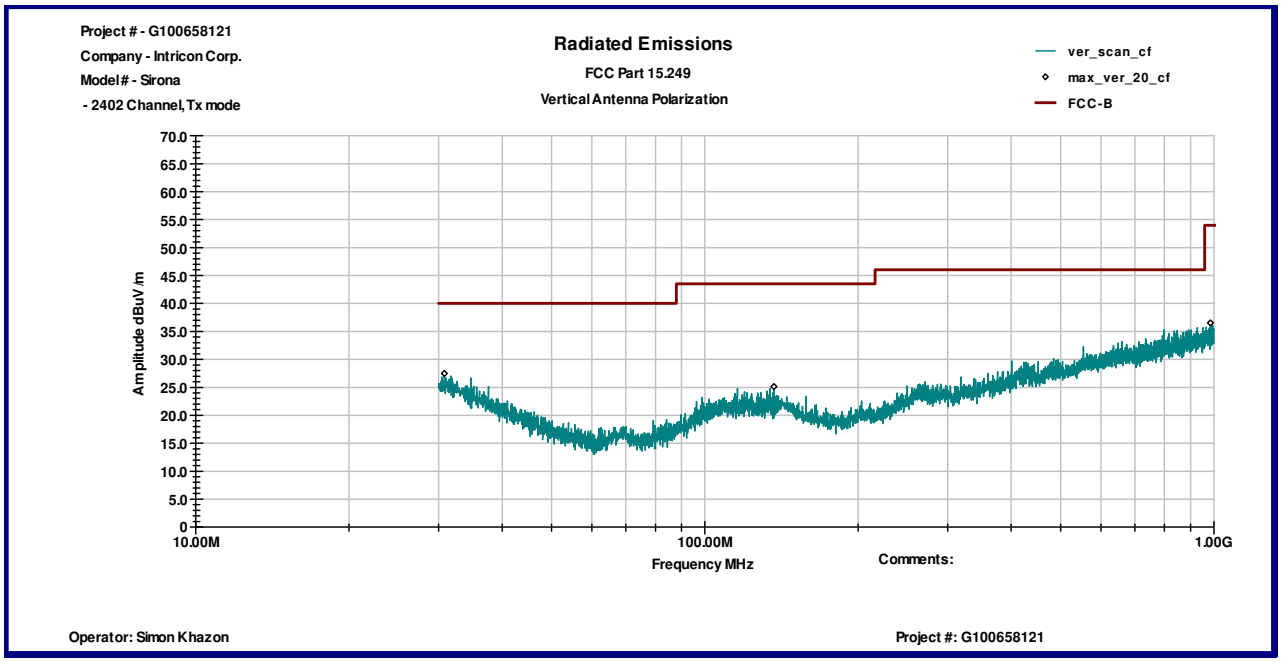
**Table 3.2.2**

| Frequency MHz | Antenna Polarity | Antenna Hts(cm) | Ant. CF dB1/m | Cable loss dB | Pre-amp Gain (dB) | Reading dBµV | Total @ 3m dBµV/m | Limit dBµV/m | Margin dB | Comments |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | **Channel 2402MHz** | | | | | | |
| 4804.41 | H | 162 | 33.2 | 4.1 | 42.0 | 53.9 | 49.2 | 54.0 | -4.8 | Peak |
| 4804.41 | V | 100 | 33.2 | 4.1 | 42.0 | 49.1 | 44.4 | 54.0 | -9.6 | Peak |
| | | | | | | | | | | |
| 9608.13 | H | 230 | 38.2 | 5.8 | 40.9 | 45.9 | 49.0 | 54.0 | -5.0 | Peak |
| 9608.13 | V | 108 | 38.2 | 5.8 | 40.9 | 42.3 | 45.4 | 54.0 | -8.6 | Peak |
| | | | | **Band Edge Compliance** | | | | | | |
| 2400.00 | V | 100 | 28.5 | 2.9 | 0.0 | 9.3 | 40.7 | 54.0 | -13.3 | Peak |
| 2400.00 | H | 172 | 28.5 | 2.9 | 0.0 | 7.2 | 38.6 | 54.0 | -15.4 | Peak |
| | | | | | | | | | | |
| | | | | **Channel 2441MHz** | | | | | | |
| 4879.37 | H | 159 | 33.4 | 4.2 | 42.0 | 65.7 | 61.3 | 74.0 | -12.7 | Peak |
| 4879.37 | V | 100 | 33.4 | 4.2 | 42.0 | 61.7 | 57.2 | 74.0 | -16.8 | Peak |
| | | | | | | | | | | |
| 4879.37 | H | 159 | 33.4 | 4.2 | 42.0 | 57.0 | 52.5 | 54.0 | -1.5 | Average |
| 4879.37 | V | 100 | 33.4 | 4.2 | 42.0 | 53.1 | 48.6 | 54.0 | -5.4 | Average |
| | | | | | | | | | | |
| | | | | **Channel 2481MHz** | | | | | | |
| 4961.30 | H | 164 | 33.5 | 4.2 | 41.9 | 51.0 | 46.7 | 54.0 | -7.3 | Peak |
| 4961.30 | V | 100 | 33.5 | 4.2 | 41.9 | 49.3 | 45.0 | 54.0 | -9.0 | Peak |
| | | | | **Band Edge Compliance** | | | | | | |
| 2483.50 | V | 100 | 28.7 | 3.0 | 0.0 | 2.6 | 34.3 | 54.0 | -19.7 | Peak |
| 2483.50 | H | 180 | 28.7 | 3.0 | 0.0 | 2.3 | 34.0 | 54.0 | -20.0 | Peak |
| | | | | | | | | | | |

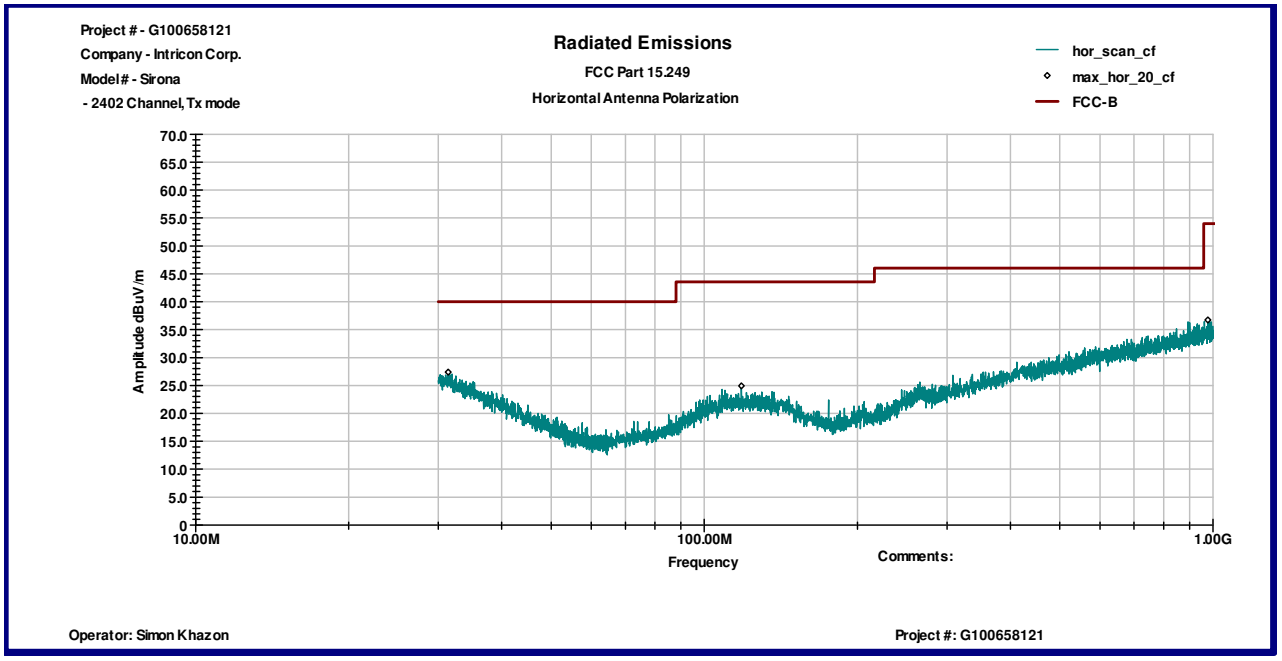
**Note:** Measurements were taken using a Peak detector or Average Value (RBW 1MHz, VBW 1Hz) - see Comments

**Graph 3.2.1**

## Vertical antenna polarization

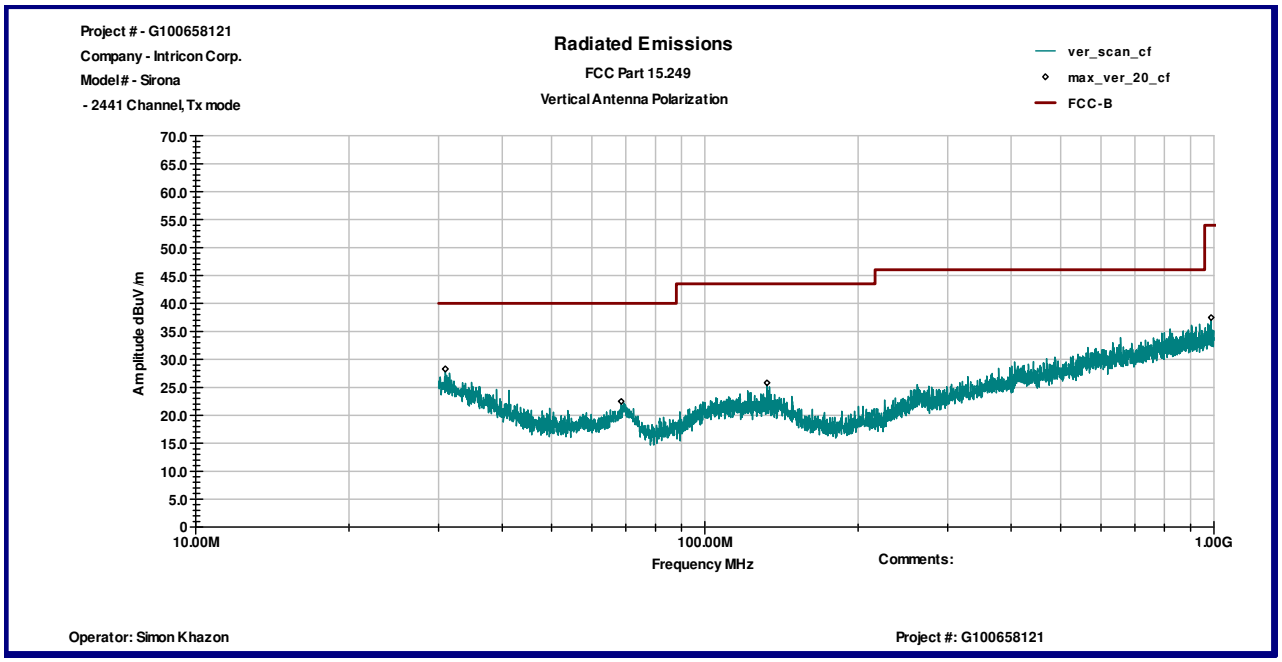



## Horizontal antenna polarization

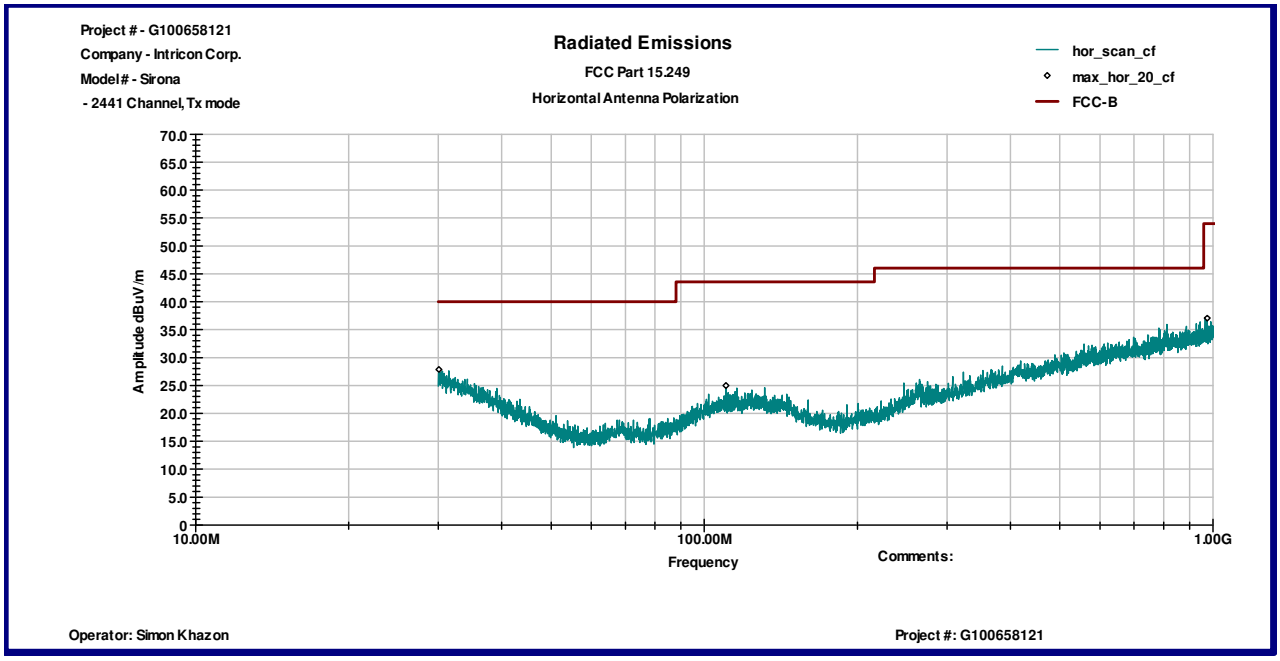


**Graph 3.2.2**

## Vertical antenna polarization

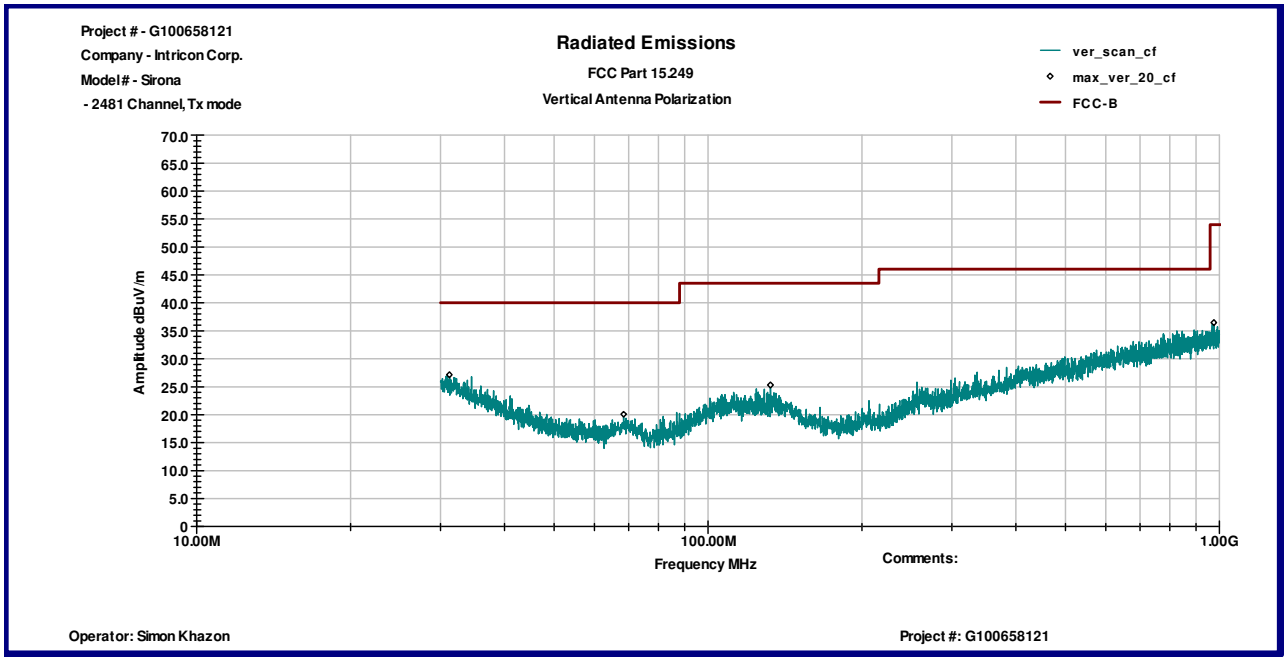



## Horizontal antenna polarization

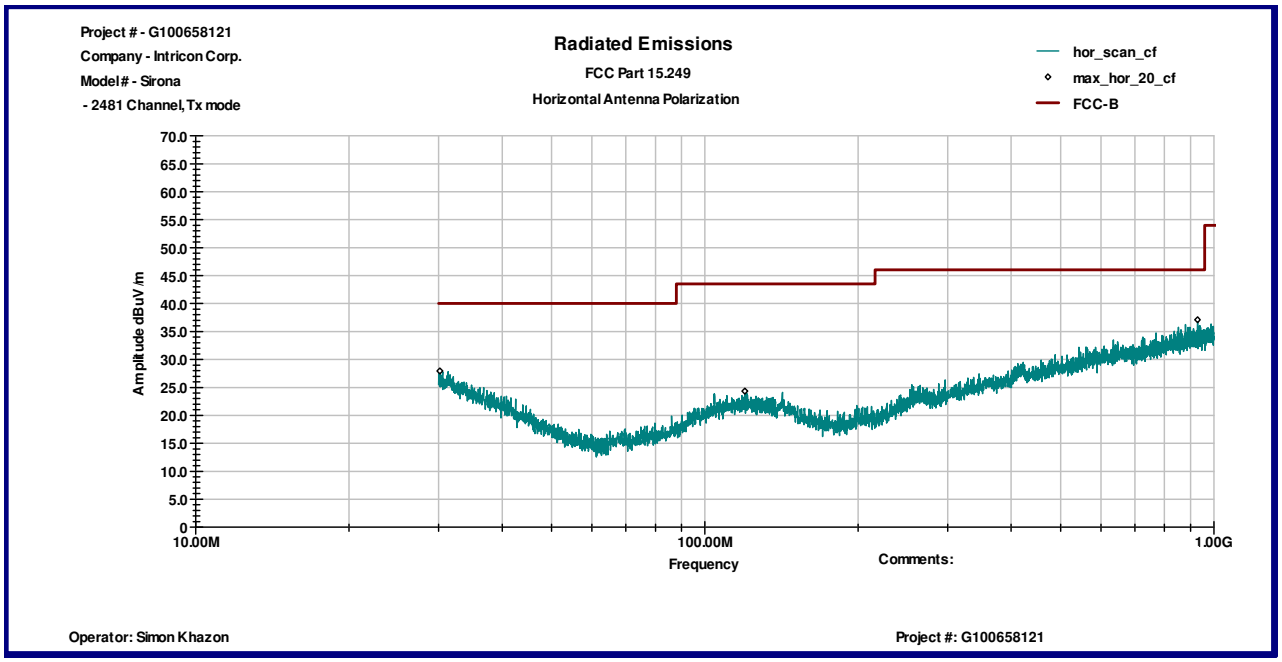


## Graph 3.2.3

### Vertical antenna polarization

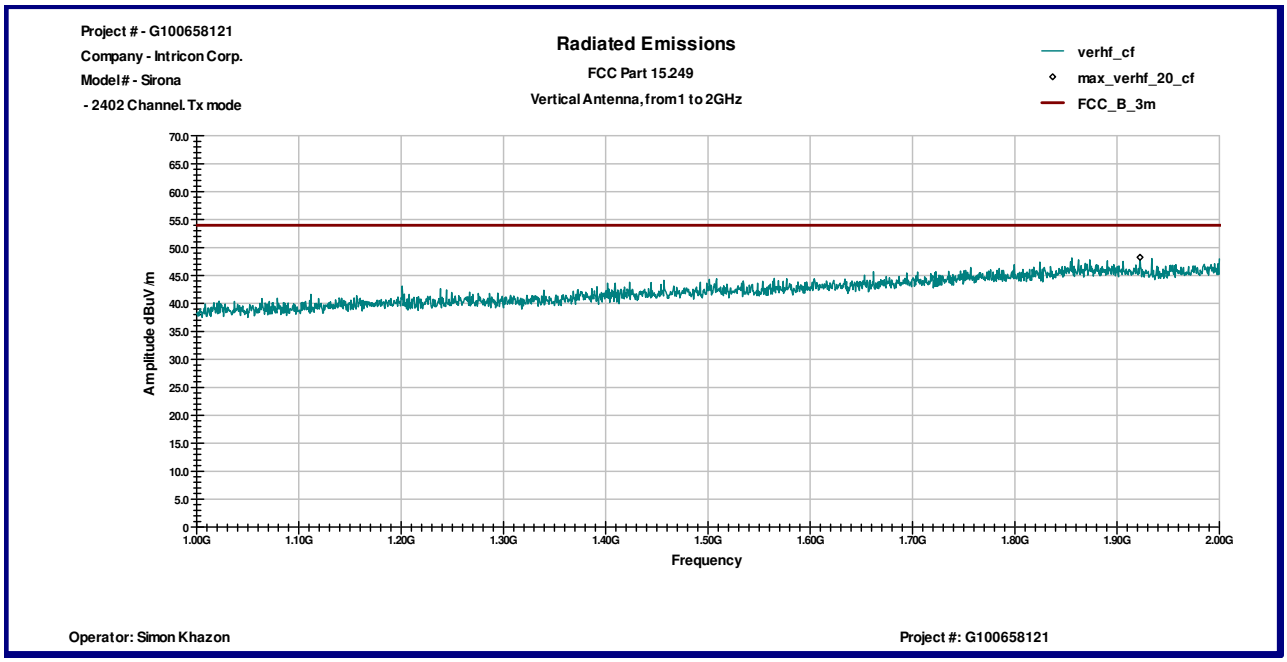



### Horizontal antenna polarization

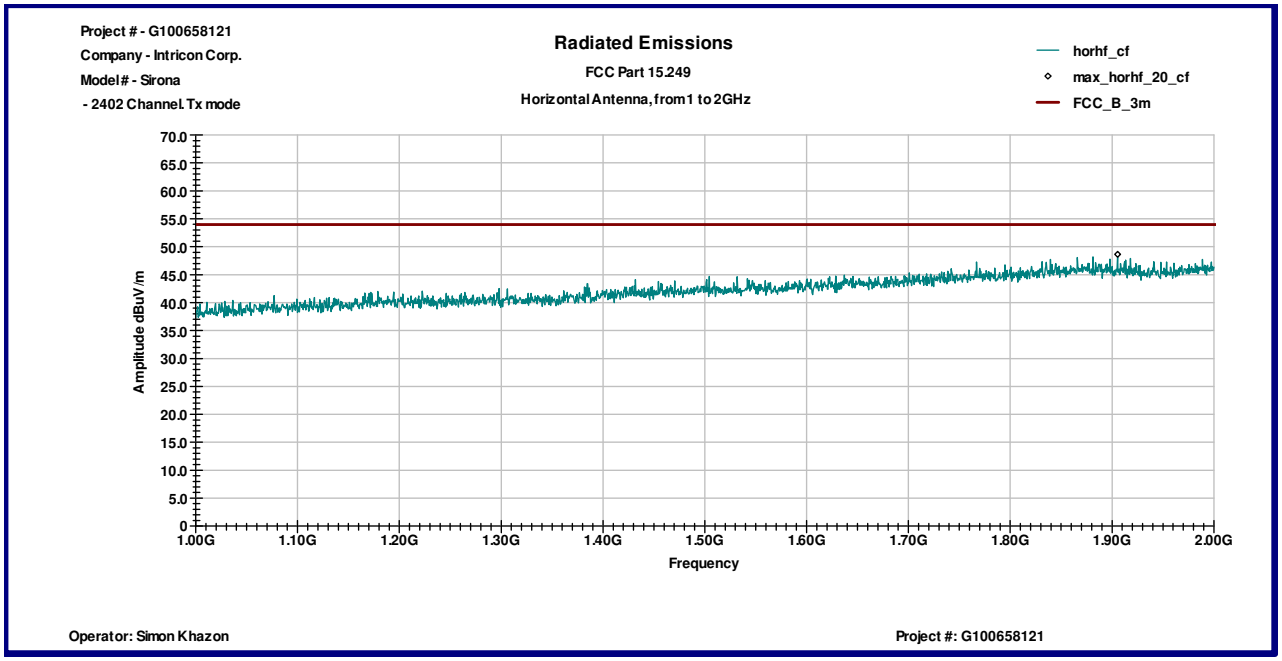


**Graph 3.2.4**

## Vertical antenna polarization

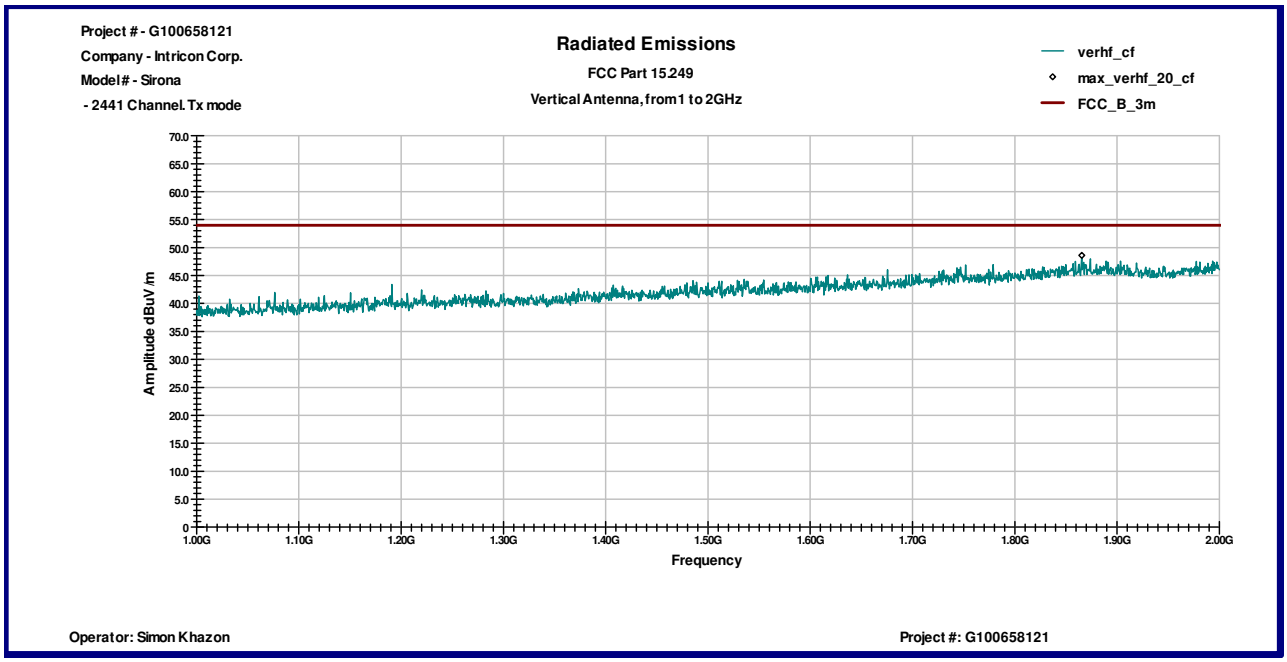



## Horizontal antenna polarization

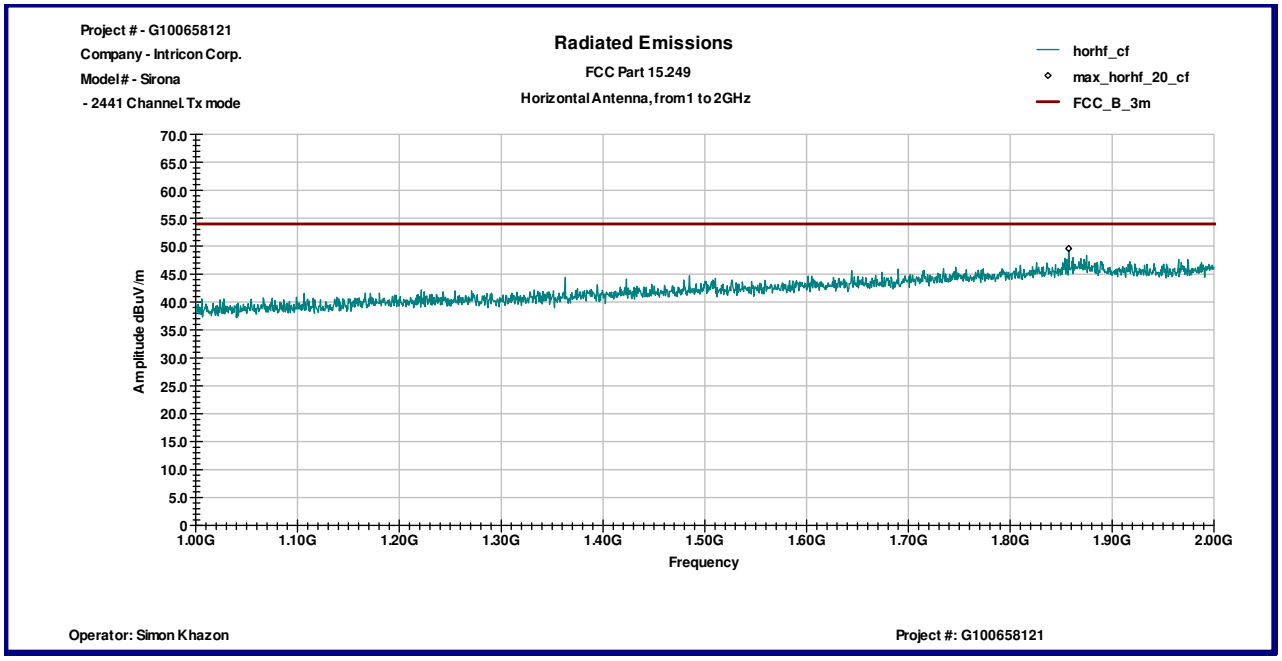


## Graph 3.2.5

### Vertical antenna polarization

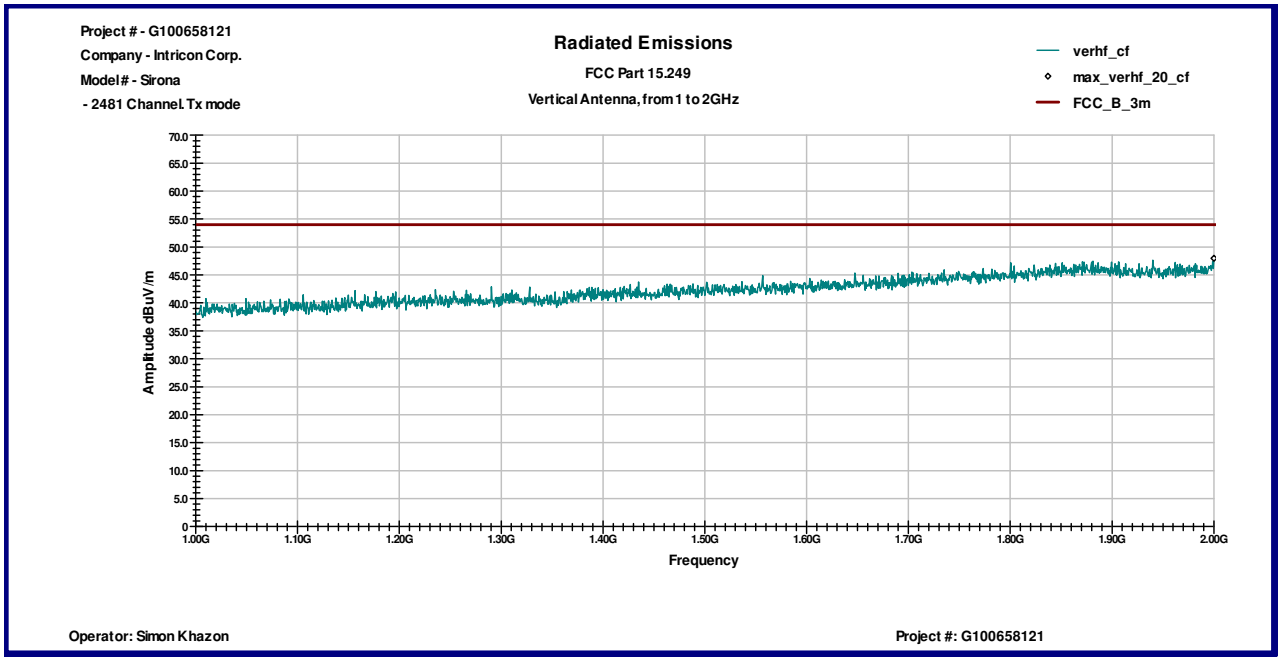



### Horizontal antenna polarization

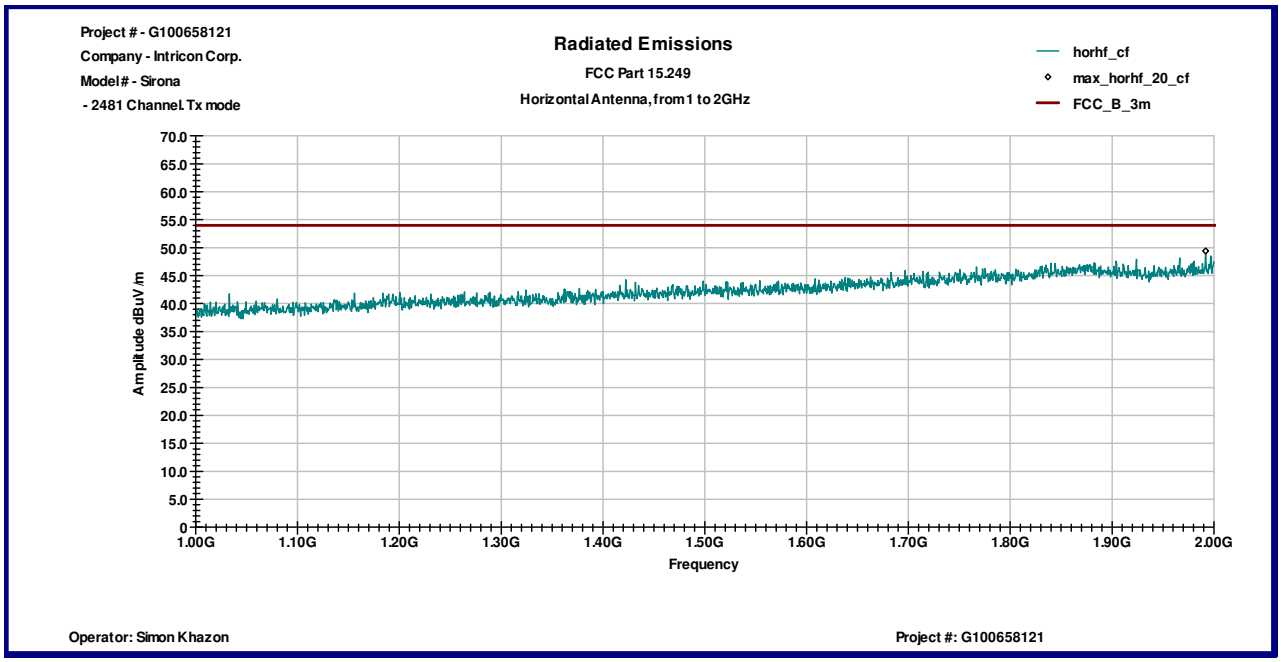


## Graph 3.2.6

### Vertical antenna polarization

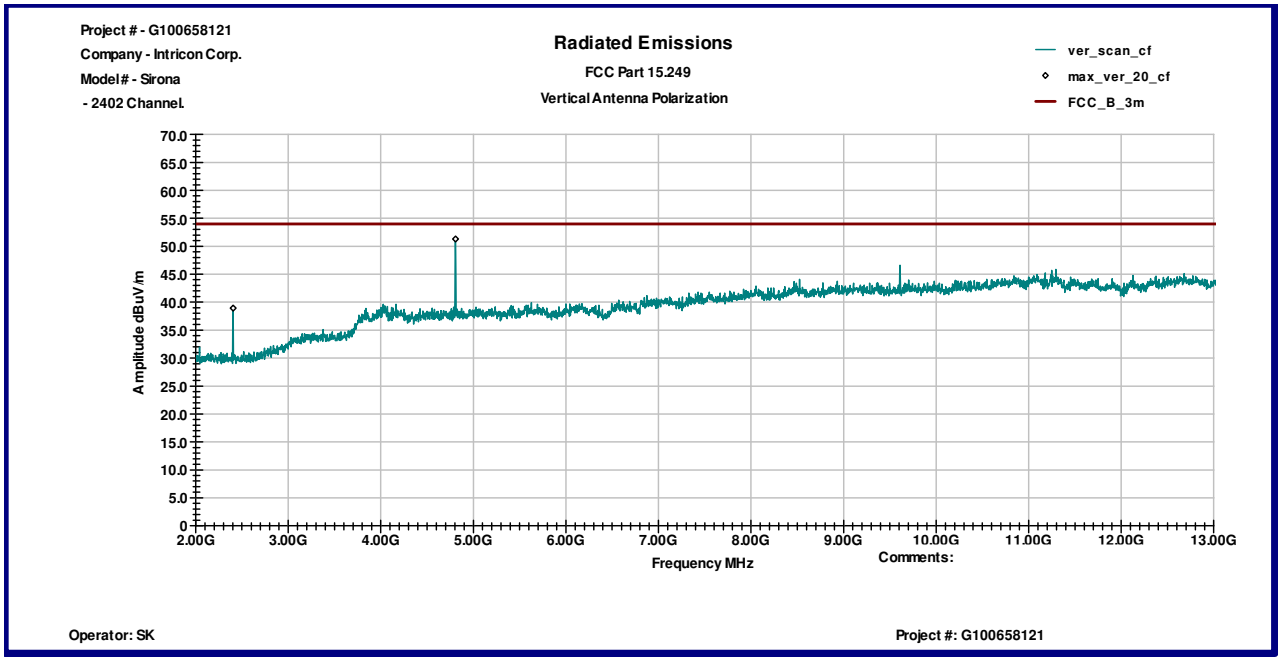



### Horizontal antenna polarization

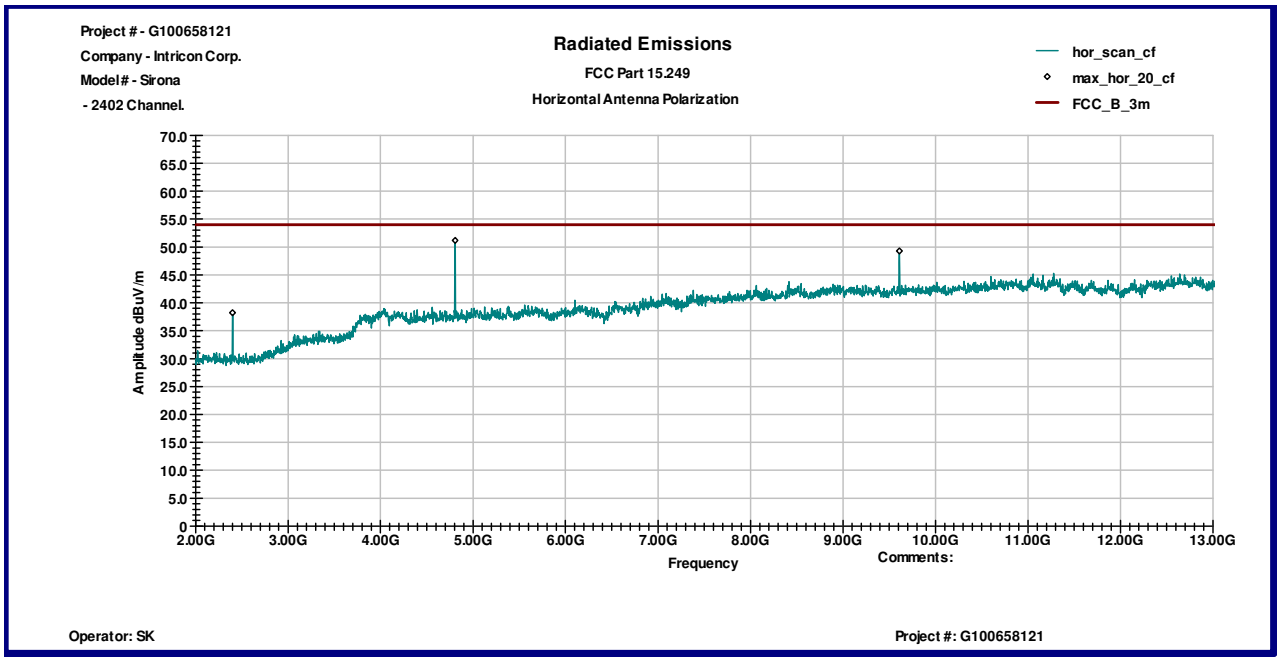


## Graph 3.2.7

### Vertical antenna polarization

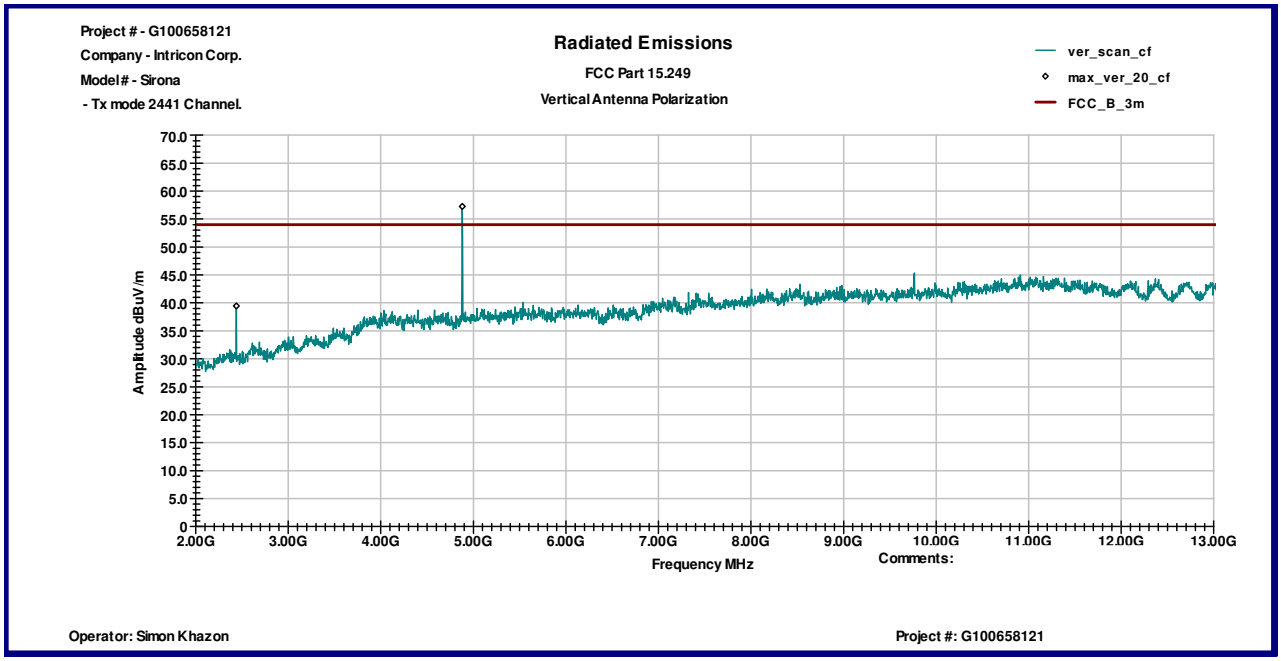



### Horizontal antenna polarization

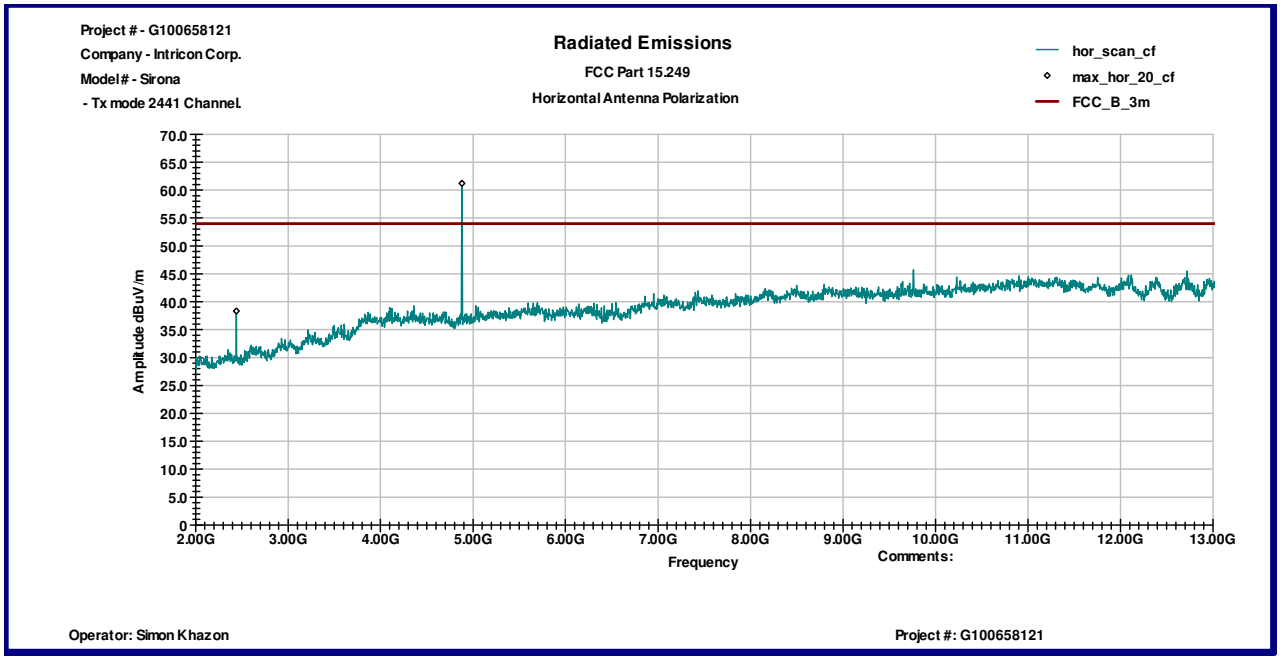


**Graph 3.2.8**

## Vertical antenna polarization

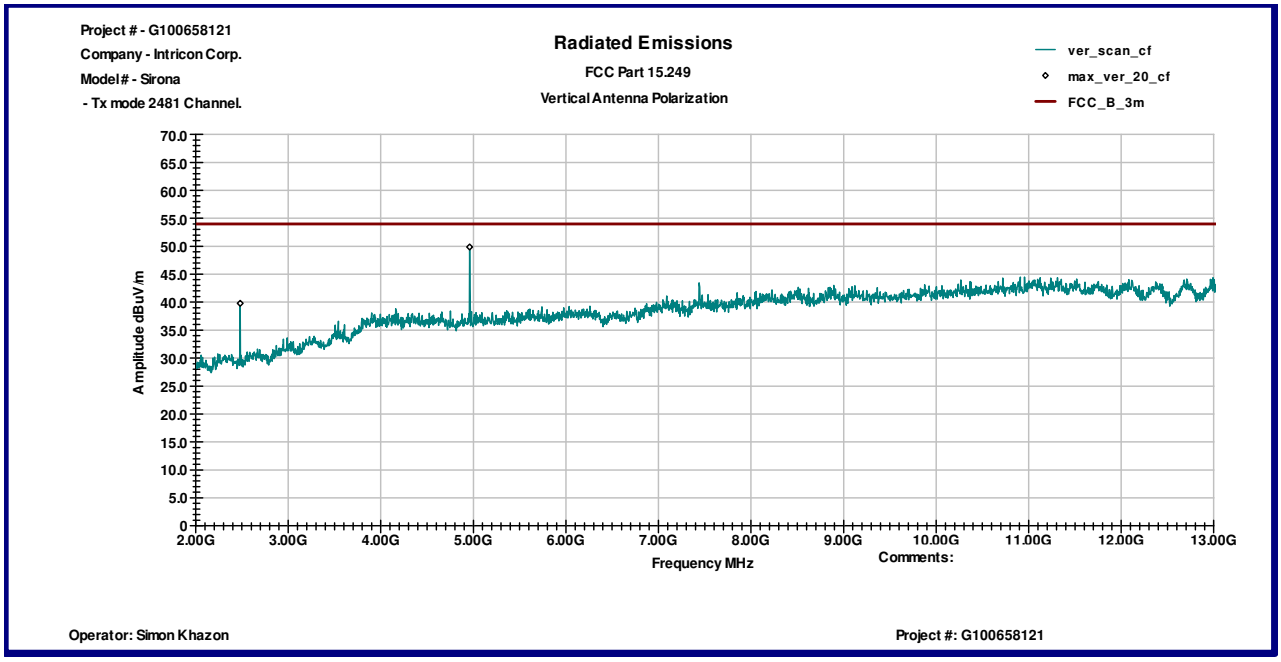



## Horizontal antenna polarization

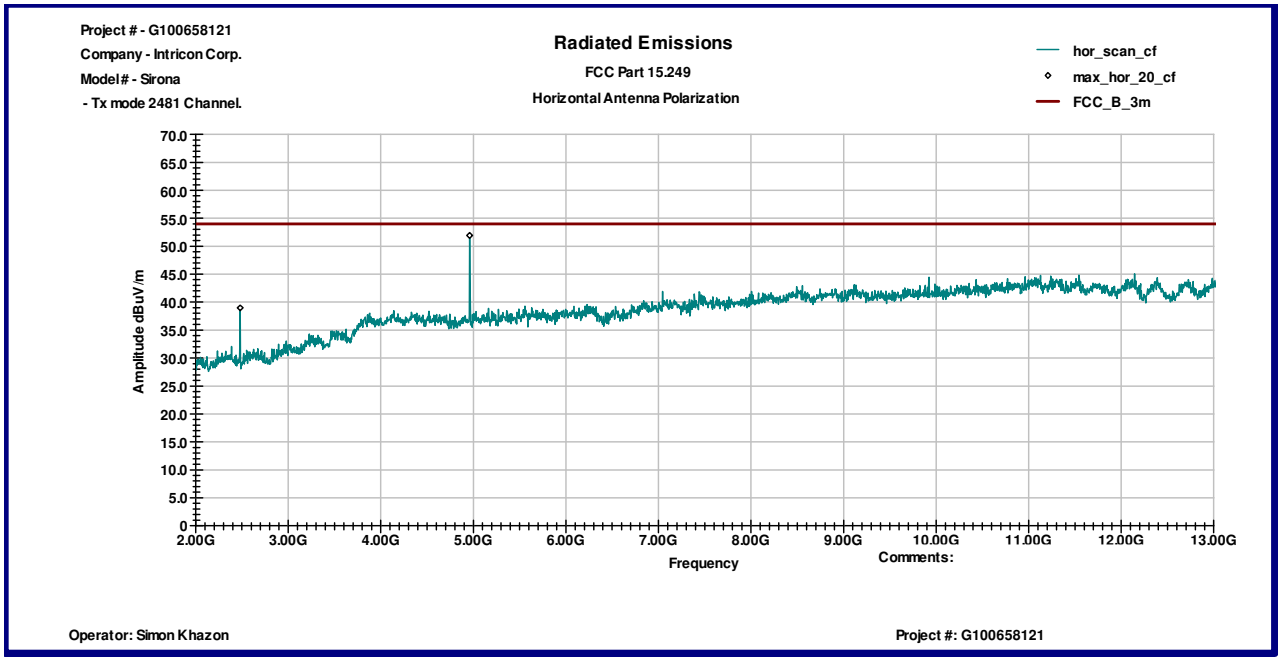


**Graph 3.2.9**

## Vertical antenna polarization

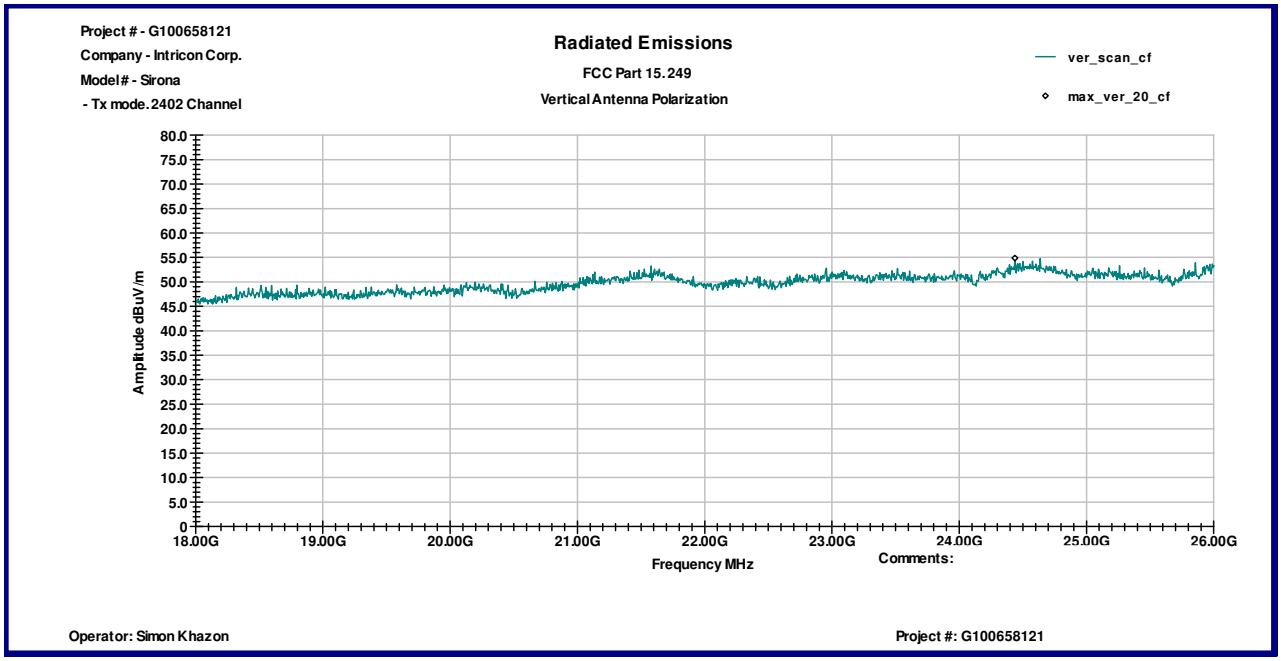



## Horizontal antenna polarization

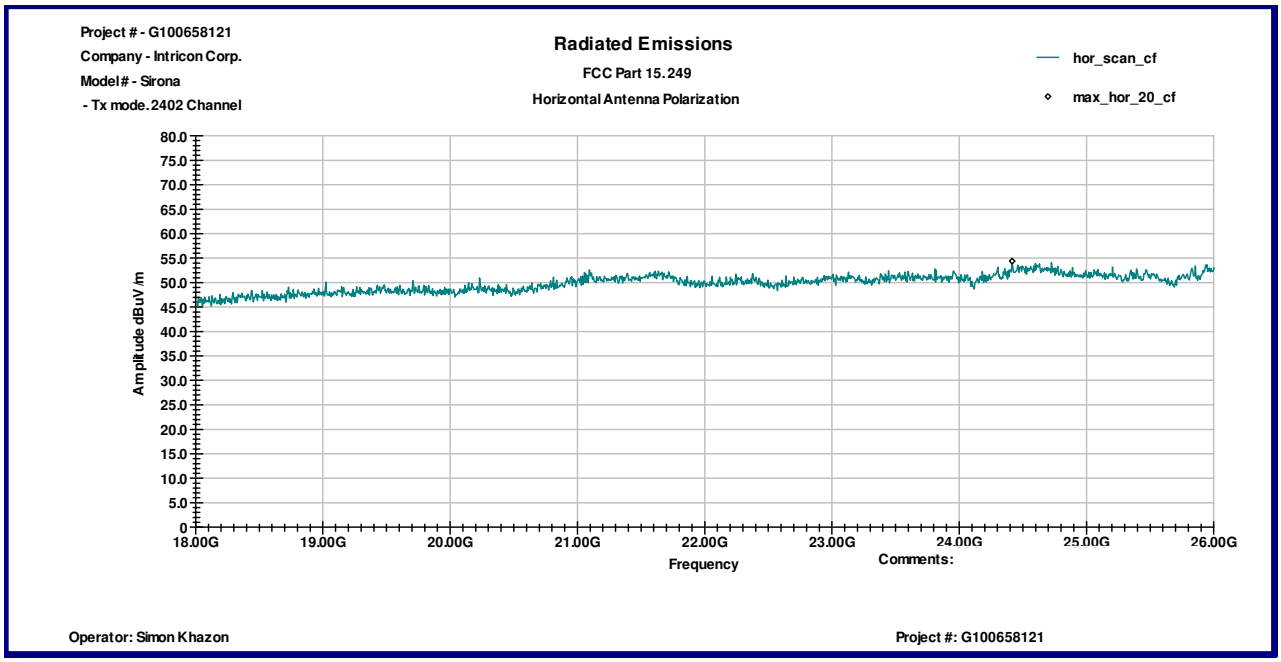


**Graph 3.2.10**

## Vertical antenna polarization

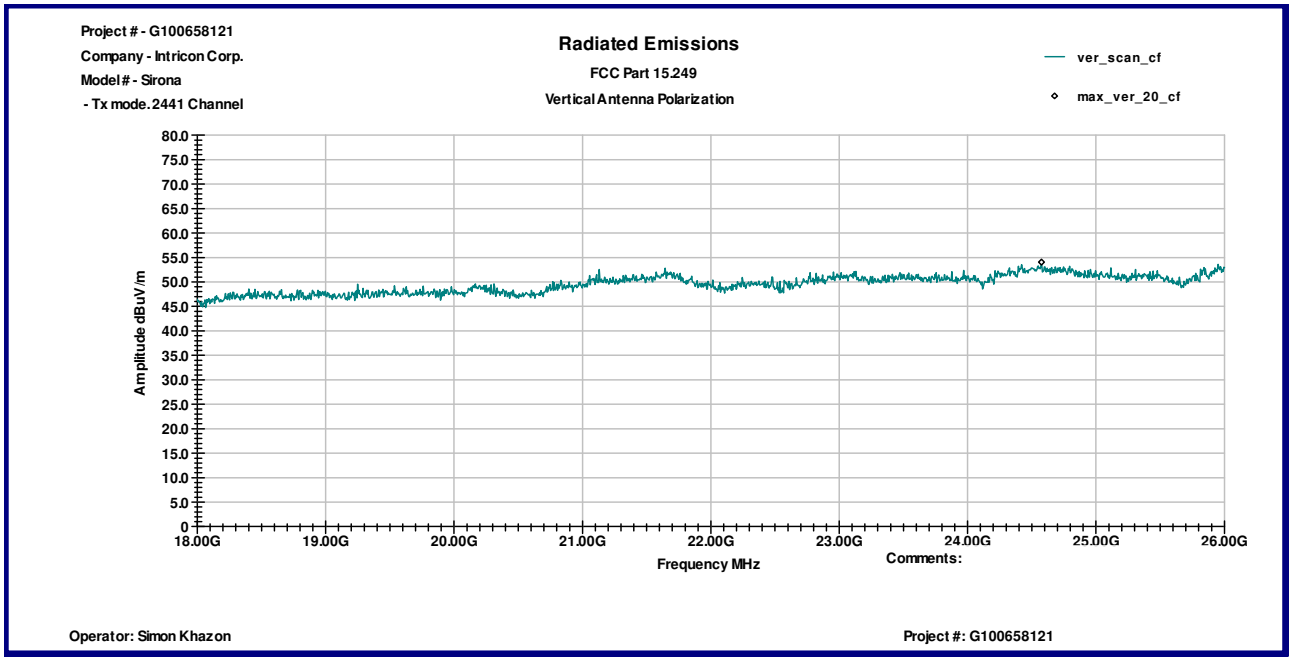



## Horizontal antenna polarization

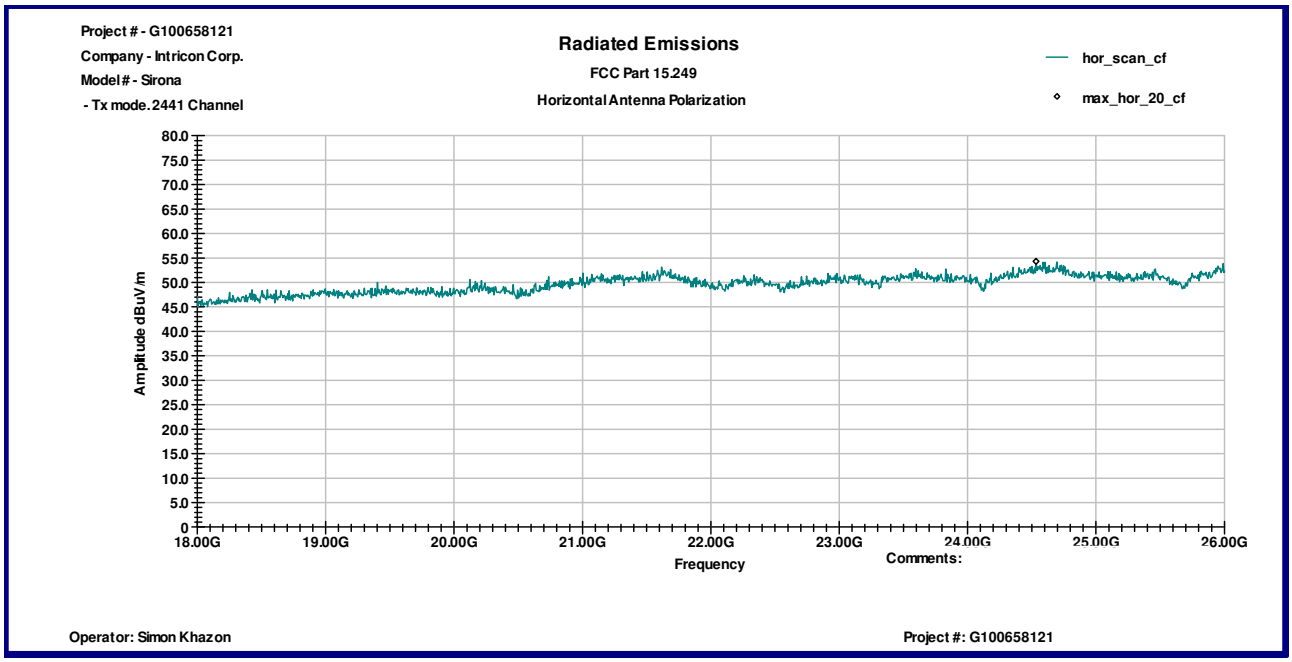


**Graph 3.2.11**

## Vertical antenna polarization

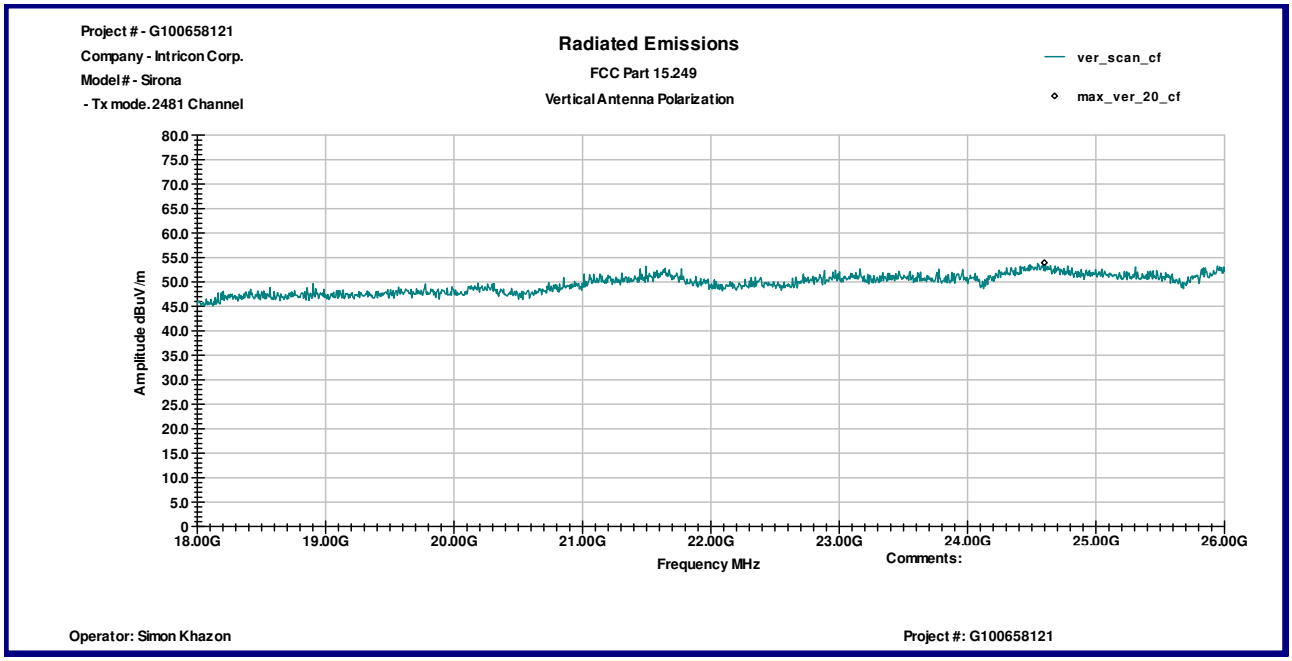



## Horizontal antenna polarization

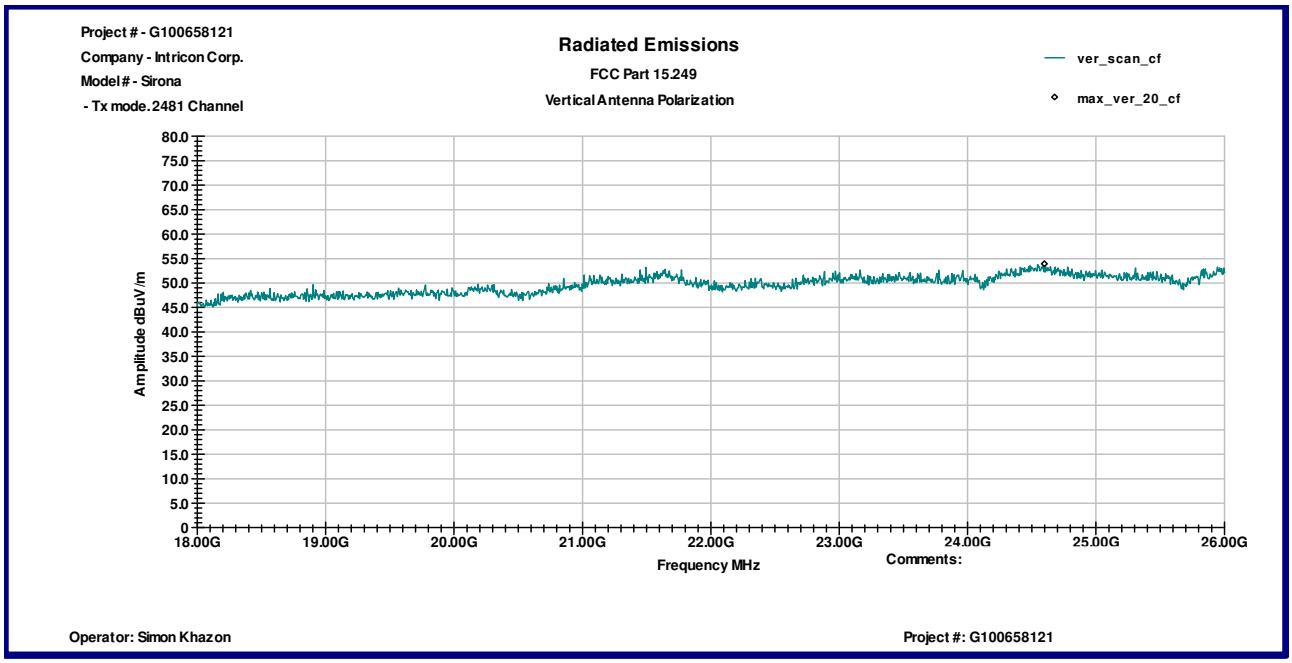


**Graph 3.2.12**

## Vertical antenna polarization




## Horizontal antenna polarization



### 3.3 Bandwidth of Emissions

| Center Frequency of operation MHz | Measured 20dB bandwidth MHz | Measured 99% bandwidth MHz |
|---|---|---|
| 2402 | 2.77 | 2.30 |
| 2441 | 2.43 | 2.14 |
| 2481 | 2.42 | 2.17 |

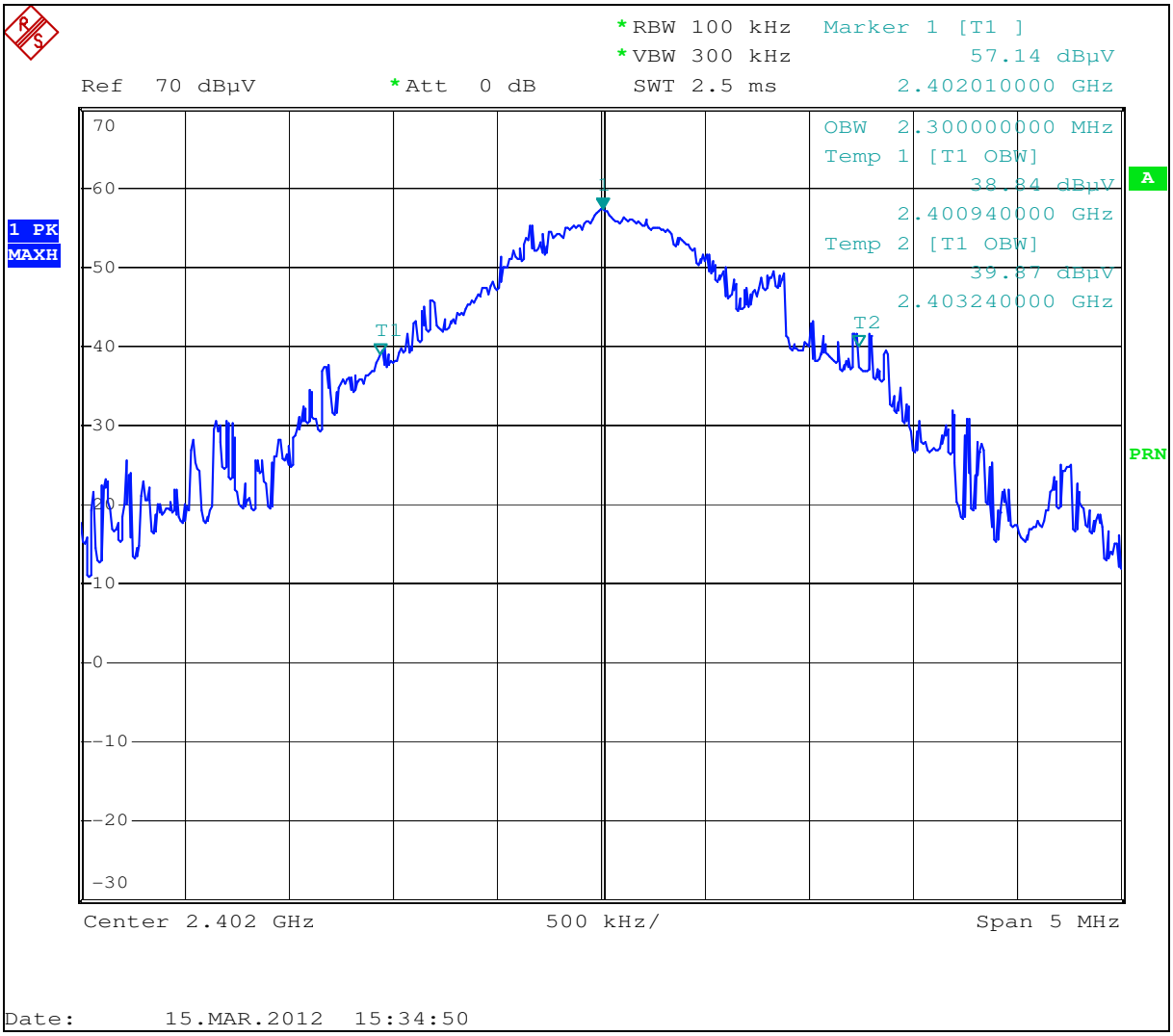
Graphs from 3-3-1 to 3-3-6 show bandwidth of emissions

**Notes:** The bandwidth of emissions is contained within the frequency band of operation

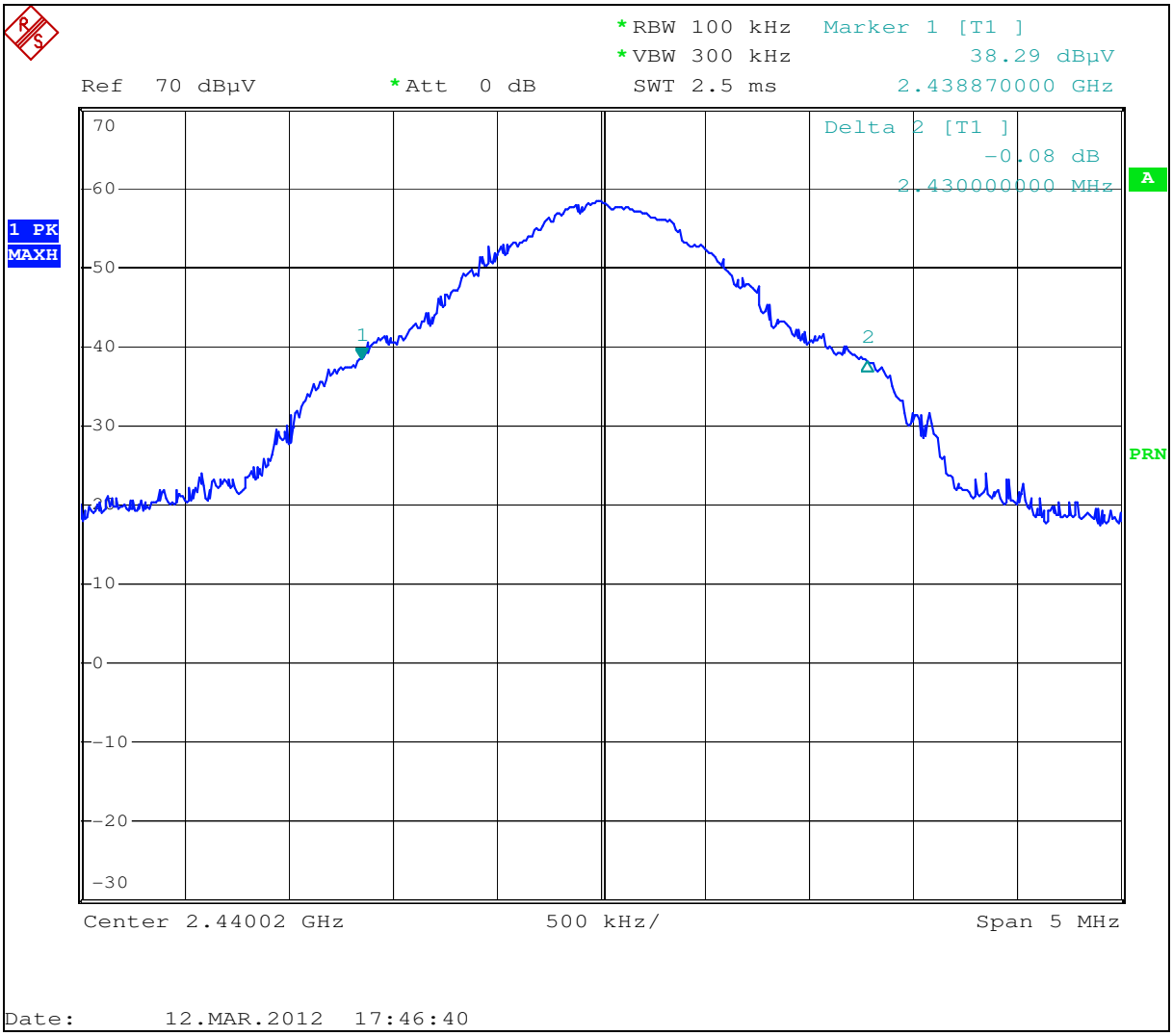
**Graph 3.3.1**


*RBW 100 kHz
*VBW 300 kHz
*SWT 50 ms
Marker 1 [T1 ]
36.91 dBµV
2.400660000 GHz
Ref 70 dBµV
*Att 0 dB
Delta 2 [T1 ]
0.01 dB
2.770000000 MHz
1 PK
MAXH
A
PRN
70
60
50
40
30
20
10
0
-10
-20
-30
Center 2.402 GHz
500 kHz/
Span 5 MHz
Date: 12.MAR.2012 17:33:21

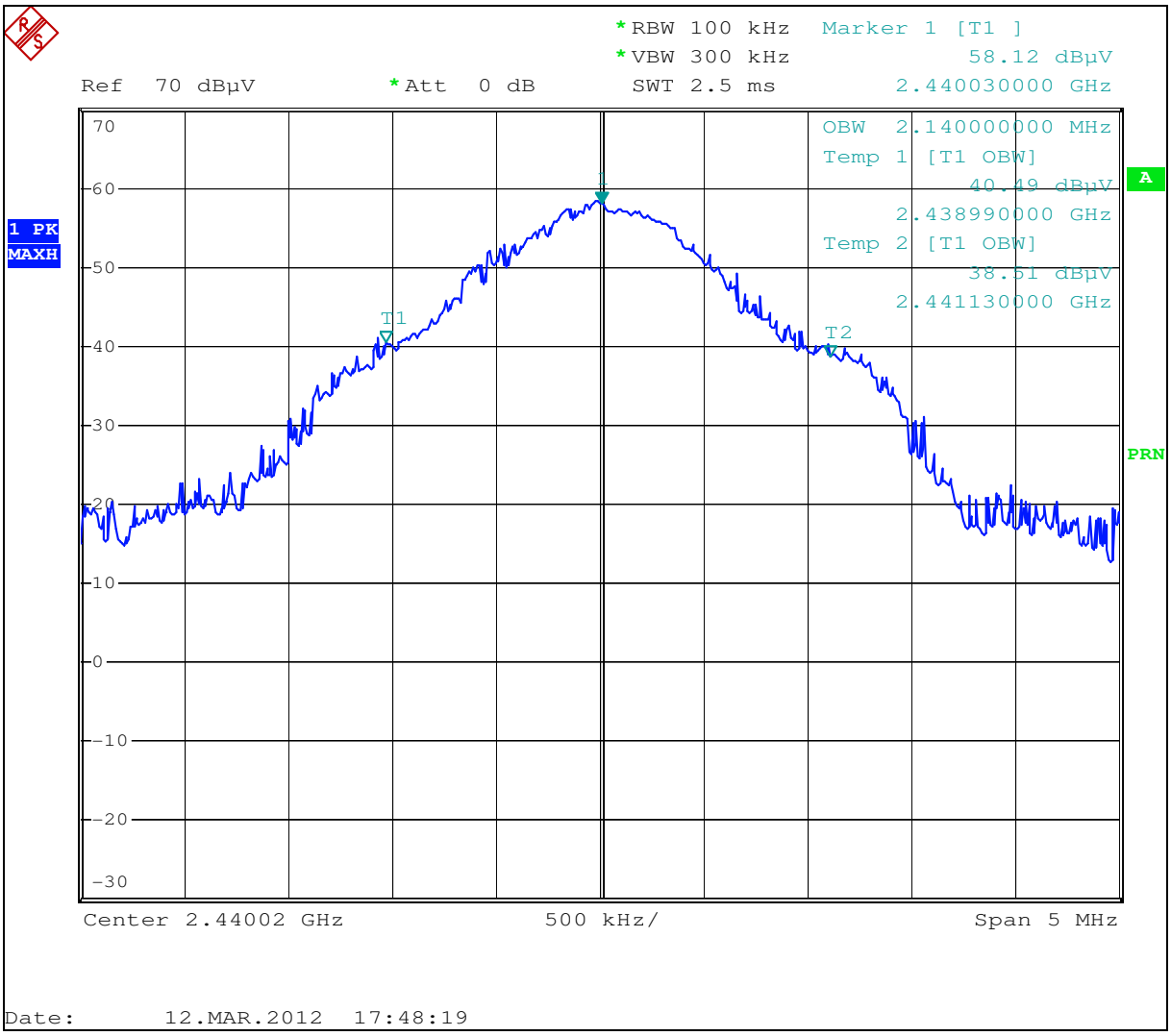
**Graph 3.3.2**


*RBW 100 kHz
*VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1 ]
57.14 dBµV
2.402010000 GHz
Ref 70 dBµV
*Att 0 dB
OBW 2.300000000 MHz
Temp 1 [T1 OBW]
38.84 dBµV
2.400940000 GHz
Temp 2 [T1 OBW]
39.87 dBµV
2.403240000 GHz
1 PK
MAXH
A
PRN
T1
T2
70
60
50
40
30
20
10
0
-10
-20
-30
Center 2.402 GHz
500 kHz/
Span 5 MHz
Date: 15.MAR.2012 15:34:50

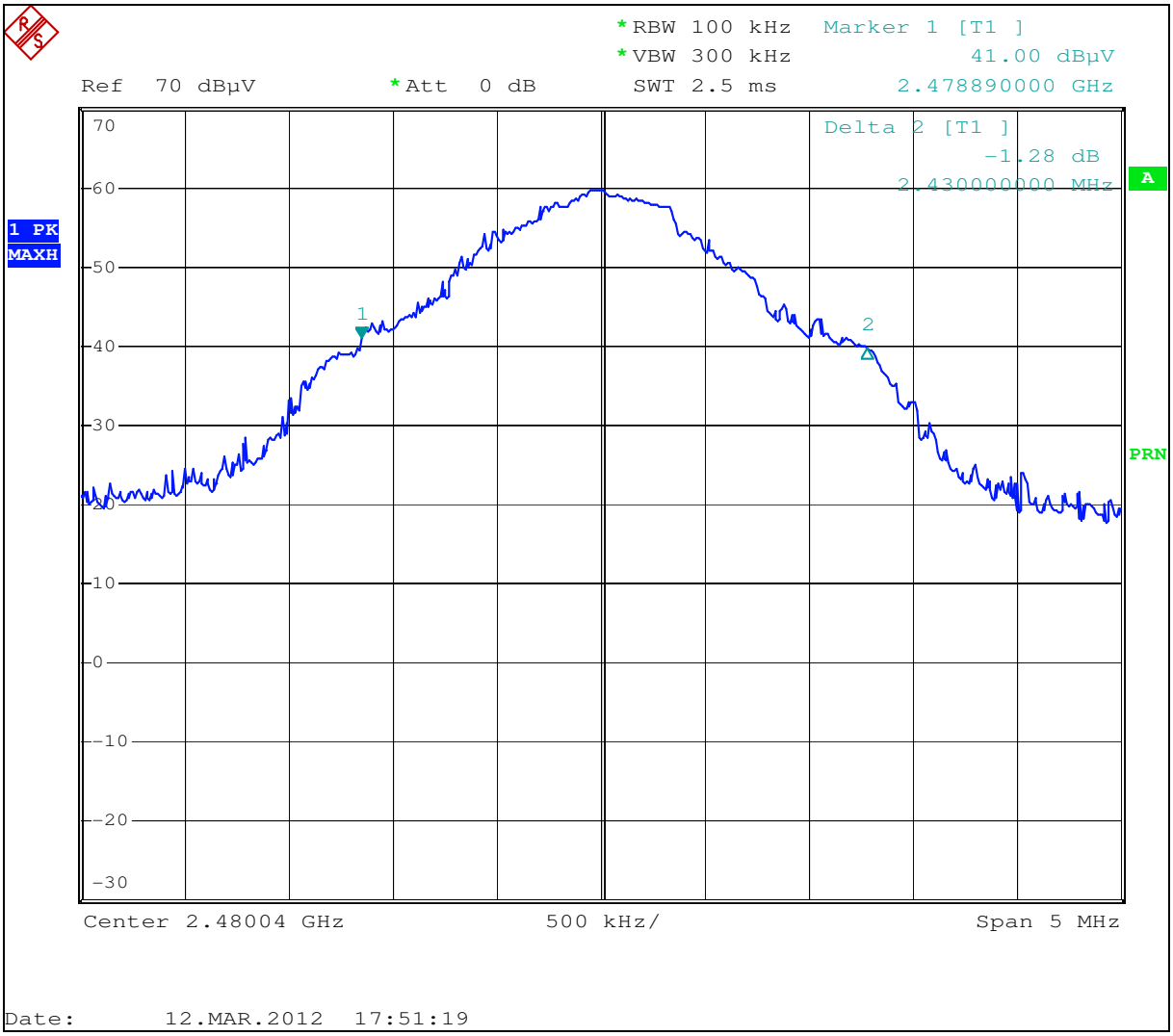
**Graph 3.3.3**


*RBW 100 kHz
*VBW 300 kHz
Ref 70 dBµV
*Att 0 dB
SWT 2.5 ms
Marker 1 [T1 ]
38.29 dBµV
2.438870000 GHz
Delta 2 [T1 ]
-0.08 dB
2.430000000 MHz
1 PK
MAXH
A
PRN
70
60
50
40
30
20
10
0
-10
-20
-30
Center 2.44002 GHz
500 kHz/
Span 5 MHz
Date: 12.MAR.2012 17:46:40

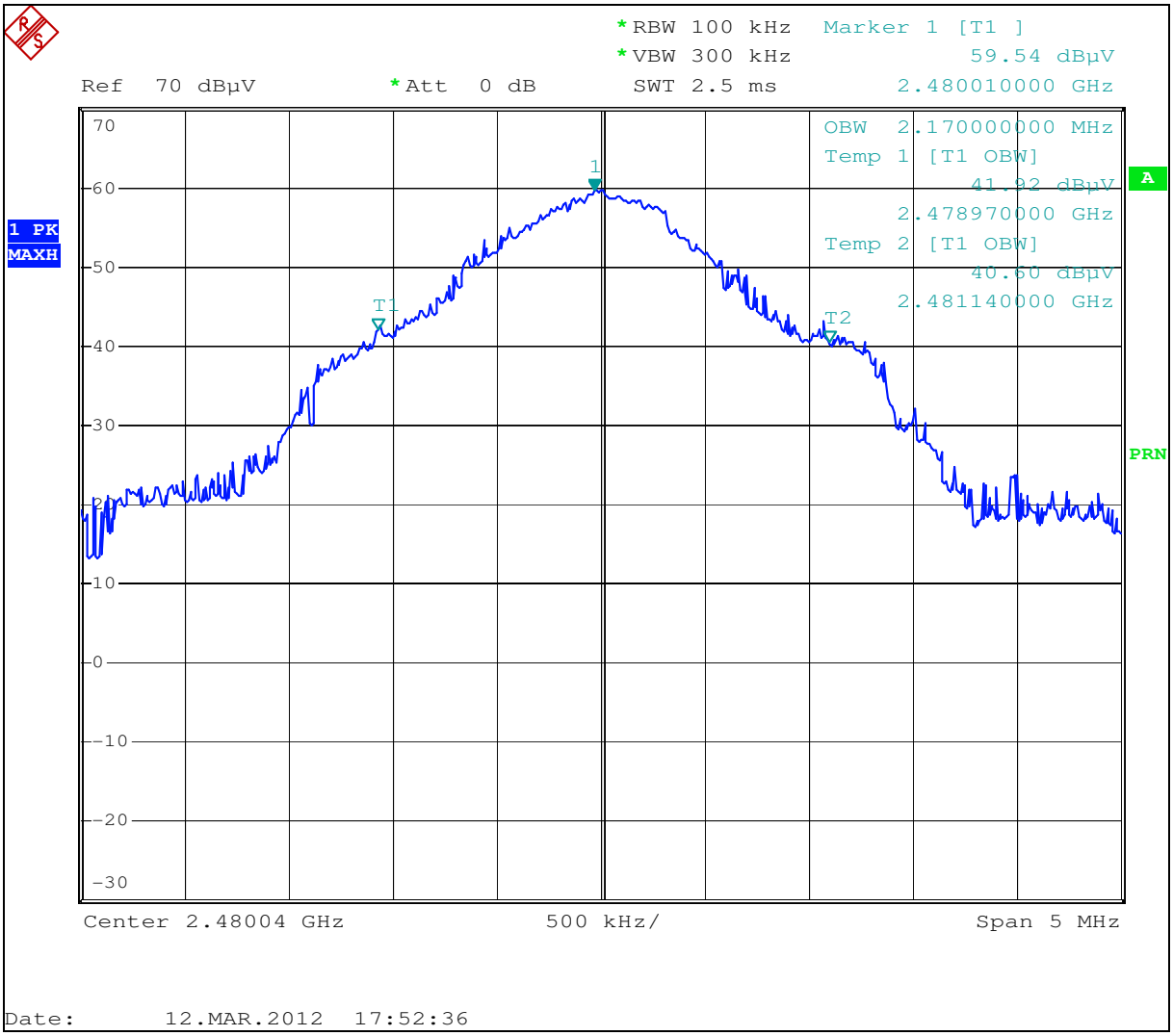
**Graph 3.3.4**


*RBW 100 kHz
*VBW 300 kHz
Ref 70 dBµV
*Att 0 dB
SWT 2.5 ms
Marker 1 [T1 ]
58.12 dBµV
2.440030000 GHz
OBW 2.140000000 MHz
Temp 1 [T1 OBW]
40.49 dBµV
2.438990000 GHz
Temp 2 [T1 OBW]
38.51 dBµV
2.441130000 GHz
1 PK
MAXH
A
PRN
T1
T2
70
60
50
40
30
20
10
0
-10
-20
-30
Center 2.44002 GHz
500 kHz/
Span 5 MHz
Date: 12.MAR.2012 17:48:19

**Graph 3.3.5**


*RBW 100 kHz
*VBW 300 kHz
SWT 2.5 ms
Marker 1 [T1 ]
41.00 dBµV
2.478890000 GHz
Ref 70 dBµV
*Att 0 dB
Delta 2 [T1 ]
-1.28 dB
2.430000000 MHz
1 PK
MAXH
A
PRN
70
60
50
40
30
20
10
0
-10
-20
-30
Center 2.48004 GHz
500 kHz/
Span 5 MHz
Date: 12.MAR.2012 17:51:19

**Graph 3.3.6**


*RBW 100 kHz
*VBW 300 kHz
Ref 70 dBµV
*Att 0 dB
SWT 2.5 ms
Marker 1 [T1 ]
59.54 dBµV
2.480010000 GHz
OBW 2.170000000 MHz
Temp 1 [T1 OBW]
41.92 dBµV
2.478970000 GHz
Temp 2 [T1 OBW]
40.60 dBµV
2.481140000 GHz
1 PK
MAXH
A
PRN
T1
T2
70
60
50
40
30
10
0
-10
-20
-30
Center 2.48004 GHz
500 kHz/
Span 5 MHz
Date: 12.MAR.2012 17:52:36

### 3.4 Transmitter power line conducted emissions

**Test location:** ☐ OATS ☐ Anechoic Chamber ☐ Other

**Test result:** **N/A**

**Frequency range:** 0.15MHz-30MHz

**Max. Emissions margin:**

**Notes:** EUT is battery operated unit.

### 3.5 Receiver/digital device radiated emissions

**Test location:** ☐ OATS ☒ Anechoic Chamber

**Test distance:** ☐ 10 meters ☒ 3 meters

**Test result:** **Pass**

**Frequency range:** 30MHz-13GHz

**Max. Emissions margin:** 5.7dB below the limits

**Notes:** The Radiated Emissions test was performed in the Anechoic chamber at 3m measurement distance (see Table 3.5.1 and Graphs 3.5.1 to 3.5.6)

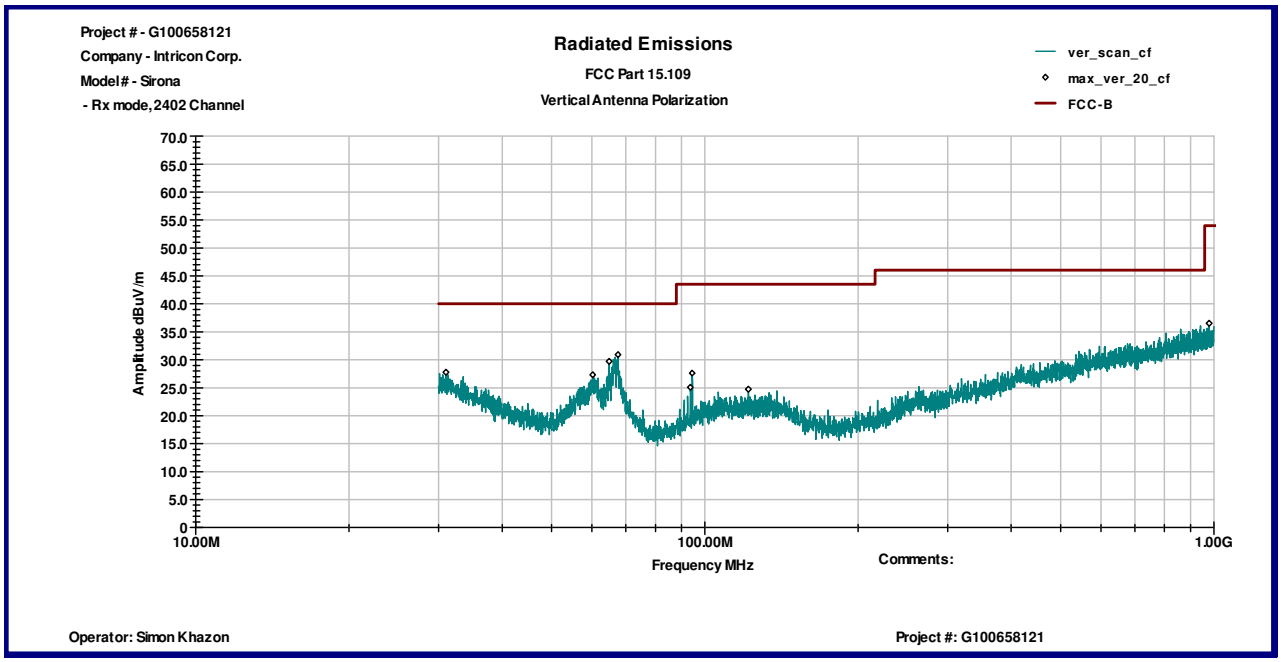
| | | |
|---|---|---|
| **Date:** | March 10-15, 2012 | **Result:** **Pass** |
| **Standard:** | FCC Part 15.109, Class B | |
| **Tested by:** | Simon Khazon | |
| **Test Point:** | Enclosure | |
| **Operation mode:** | Standby mode/Receiver mode | |
| **Note:** | None | |

**Table 3.5.1**

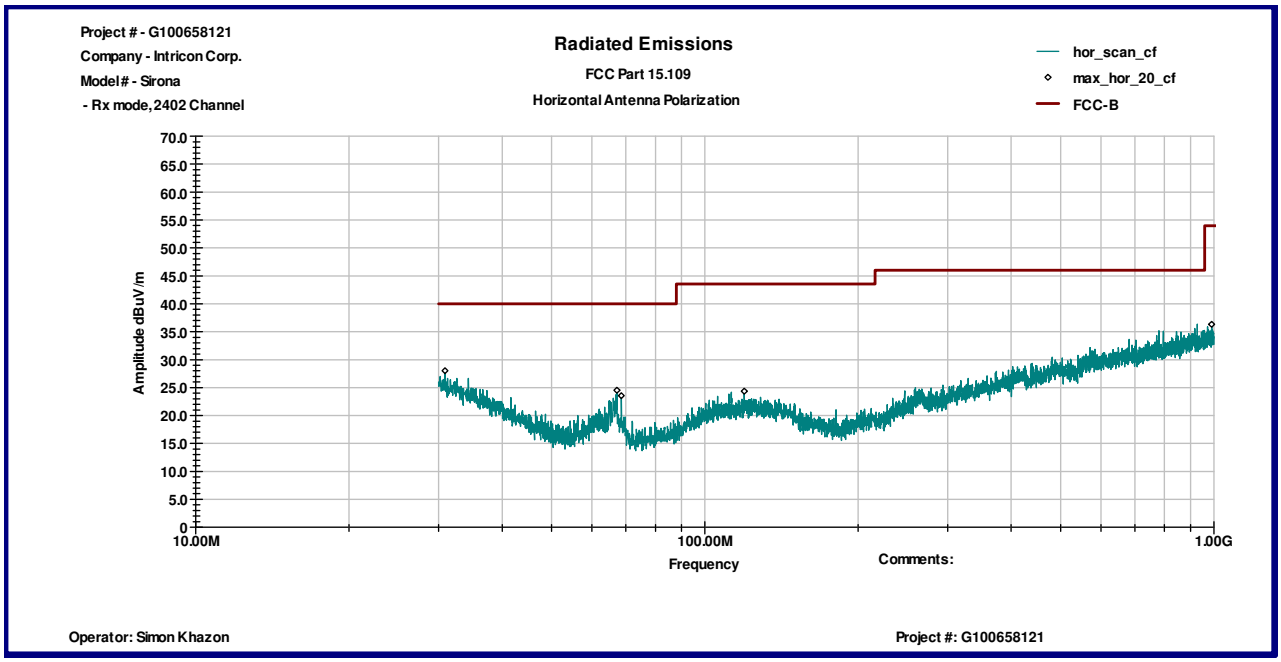
| Frequency | Ant. Polarity | Peak Reading dBµV | Ant.Factor dB1/m | Total at 3m dBµV/m | Limit dBµV/m | Margin dB |
|---|---|---|---|---|---|---|
| | | **Channel 2402** | | | | |
| 31.004 MHz | V | 8.0 | 19.8 | 27.8 | 40.0 | -12.3 |
| 60.235 MHz | V | 20.1 | 7.2 | 27.3 | 40.0 | -12.7 |
| 64.932 MHz | V | 22.8 | 6.9 | 29.7 | 40.0 | -10.3 |
| 67.543 MHz | V | 23.8 | 7.1 | 30.9 | 40.0 | -9.1 |
| 30.9 MHz | H | 8.2 | 19.8 | 28.0 | 40.0 | -12.0 |
| 68.588 MHz | H | 16.4 | 7.1 | 23.6 | 40.0 | -16.5 |
| 119.62 MHz | H | 10.4 | 13.9 | 24.3 | 40.0 | -15.7 |
| | | | | | | |
| | | **Channel 2441** | | | | |
| 30.554 MHz | V | 8.2 | 20.0 | 28.2 | 40.0 | -11.8 |
| 66.275 MHz | V | 25.4 | 7.0 | 32.4 | 40.0 | -7.6 |
| 94.479 MHz | V | 16.7 | 11.3 | 28.0 | 40.0 | -12.0 |
| 31.074 MHz | H | 8.9 | 19.7 | 28.6 | 40.0 | -11.4 |
| 68.588 MHz | H | 17.1 | 7.1 | 24.2 | 40.0 | -15.8 |
| 128.28 MHz | H | 10.4 | 13.9 | 24.2 | 40.0 | -15.8 |
| | | | | | | |
| | | **Channel 2481** | | | | |
| 30.519 MHz | V | 7.5 | 20.0 | 27.5 | 40.0 | -12.5 |
| 61.378 MHz | V | 23.1 | 7.1 | 30.2 | 40.0 | -9.8 |
| 66.722 MHz | V | 27.3 | 7.0 | 34.3 | 40.0 | -5.7 |
| 68.513 MHz | V | 26.3 | 7.1 | 33.4 | 40.0 | -6.6 |
| 94.554 MHz | V | 17.4 | 11.4 | 28.8 | 40.0 | -11.2 |
| 30.069 MHz | H | 7.5 | 20.3 | 27.8 | 40.0 | -12.2 |
| 61.412 MHz | H | 16.2 | 7.1 | 23.3 | 40.0 | -16.8 |
| 137.9 MHz | H | 10.3 | 13.5 | 23.8 | 40.0 | -16.2 |
| 884.0 MHz | H | 10.9 | 25.3 | 36.2 | 47.0 | -10.8 |
| | | | | | | |

**Graph 3.5.1**

## Vertical antenna polarization

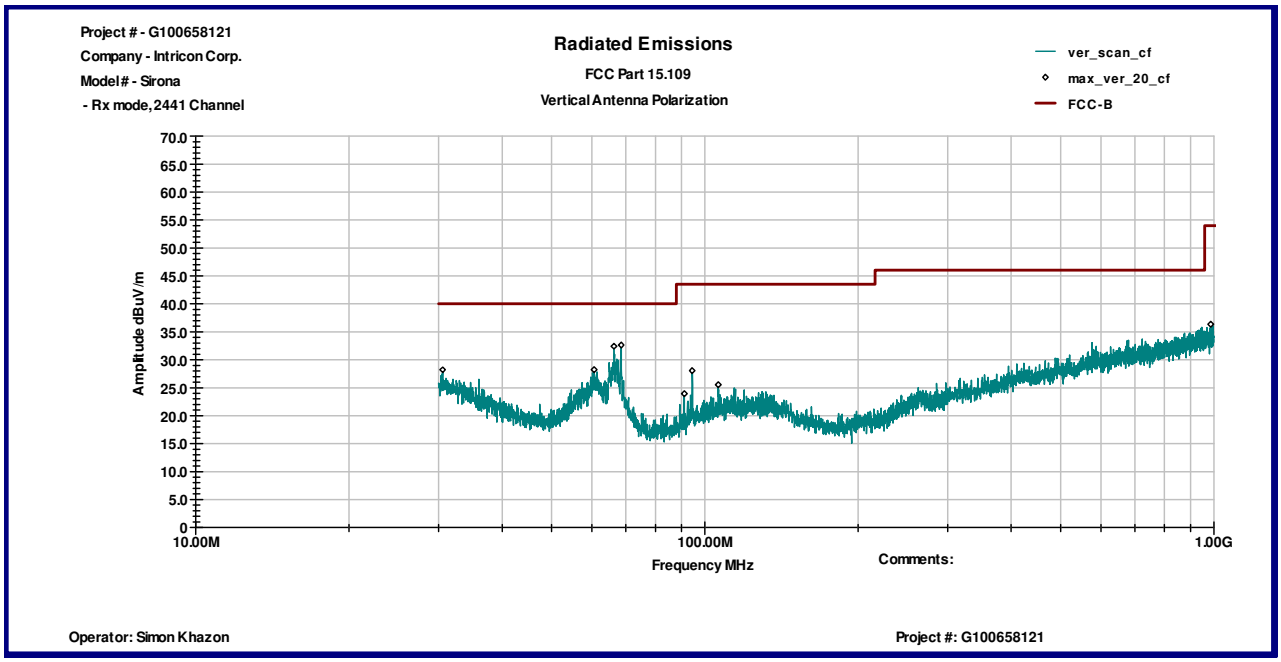



## Horizontal antenna polarization

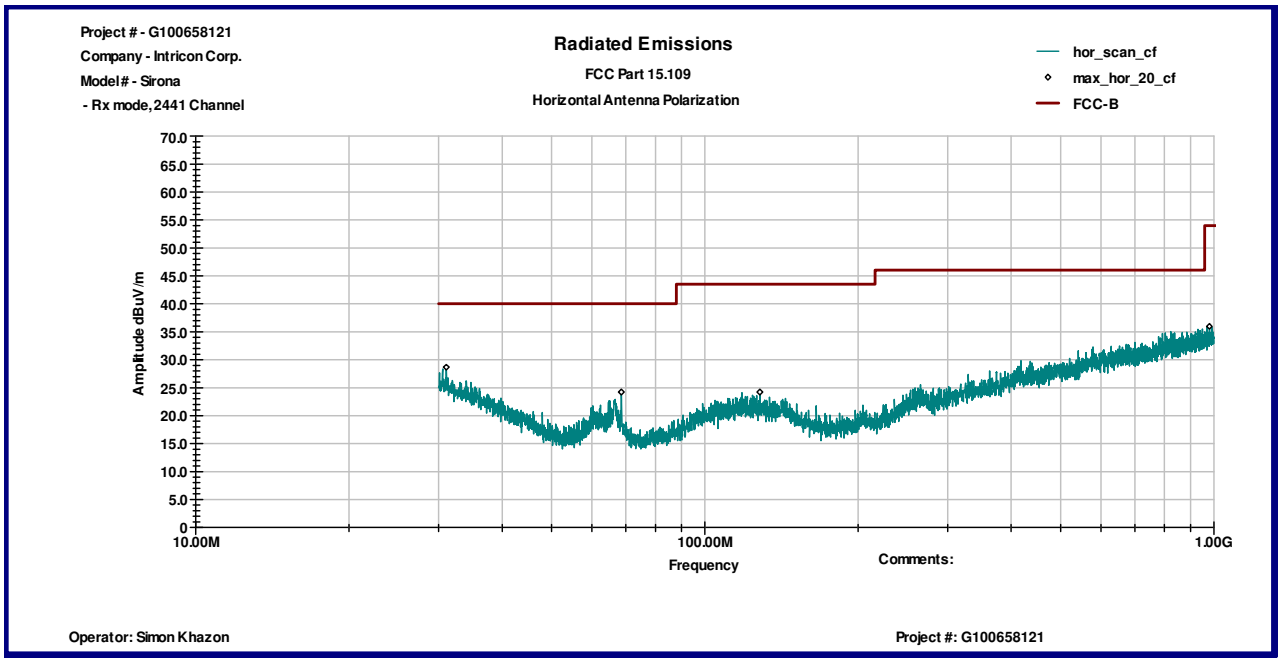


**Graph 3.5.2**

## Vertical antenna polarization

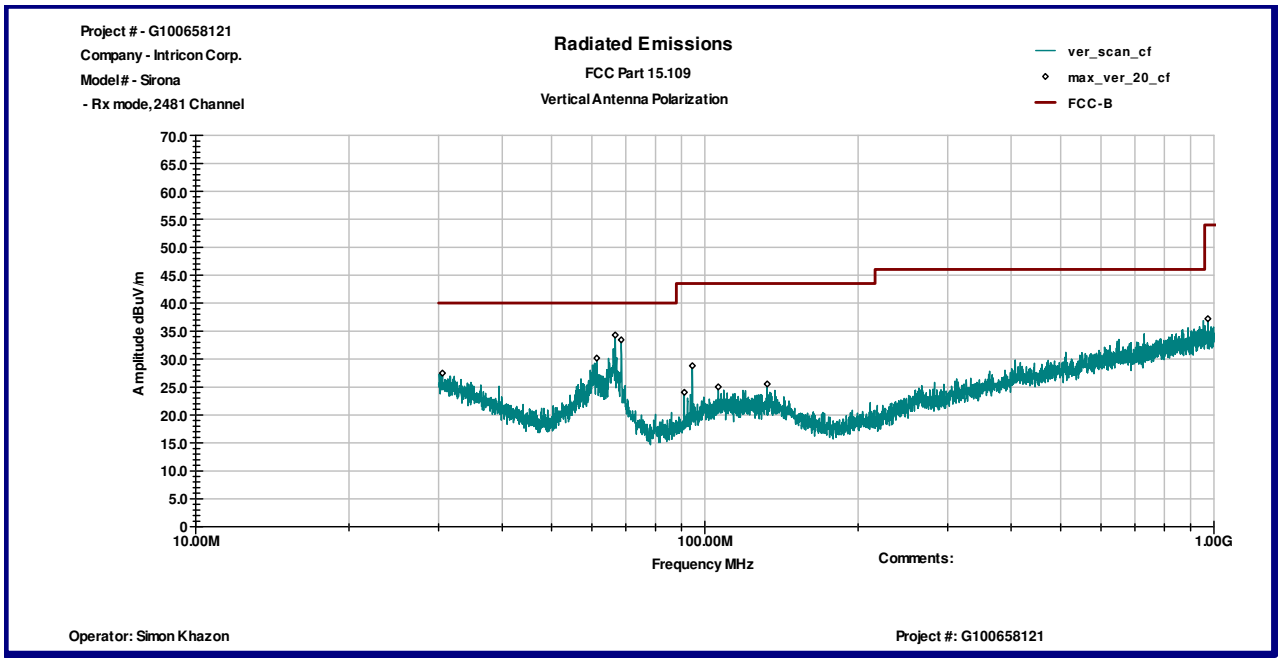



## Horizontal antenna polarization

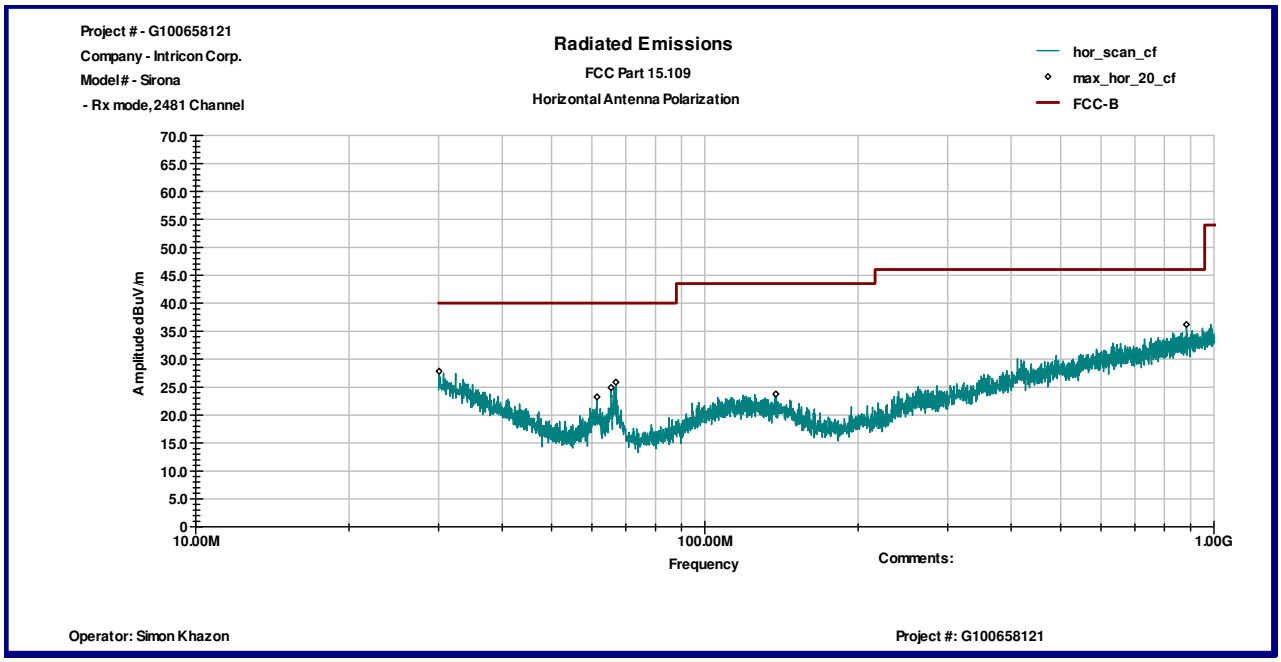


**Graph 3.5.3**

## Vertical antenna polarization

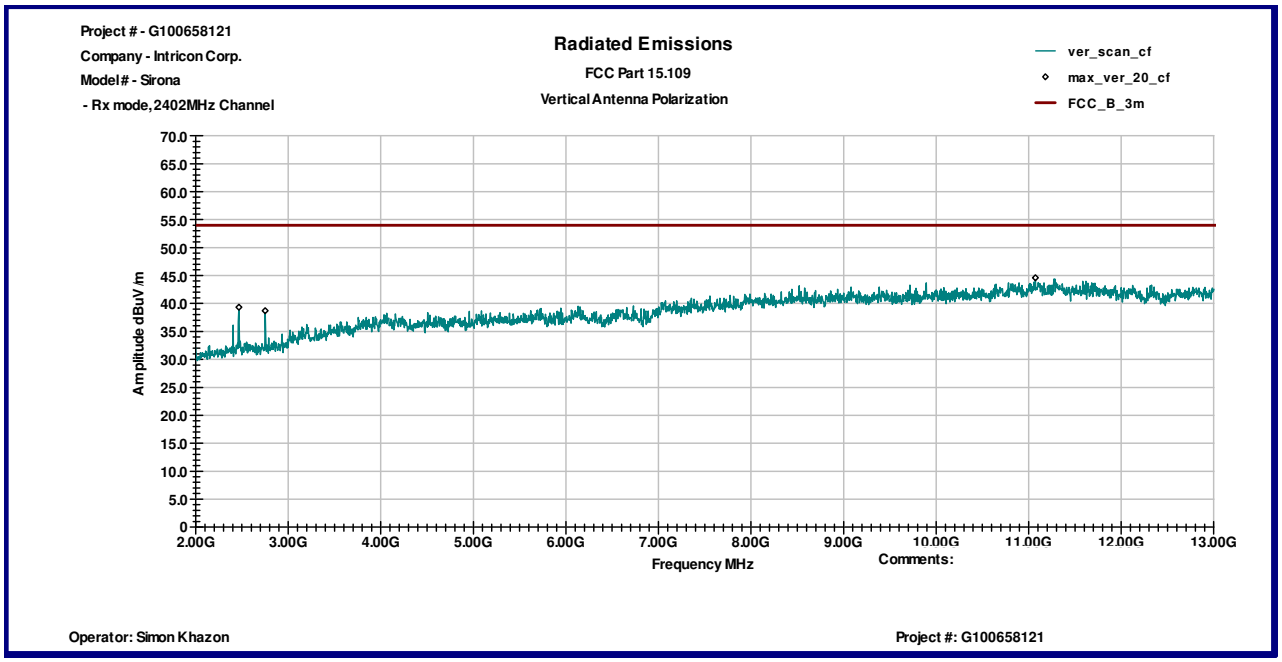



## Horizontal antenna polarization

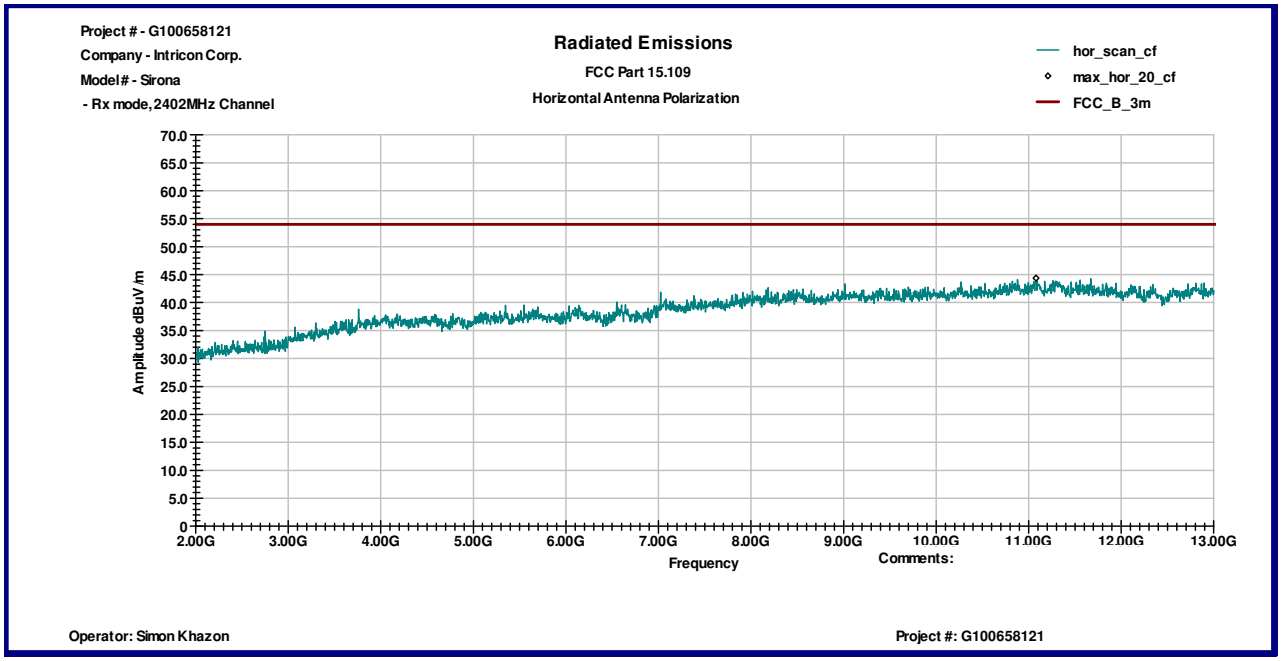


**Graph 3.5.4**

## Vertical antenna polarization

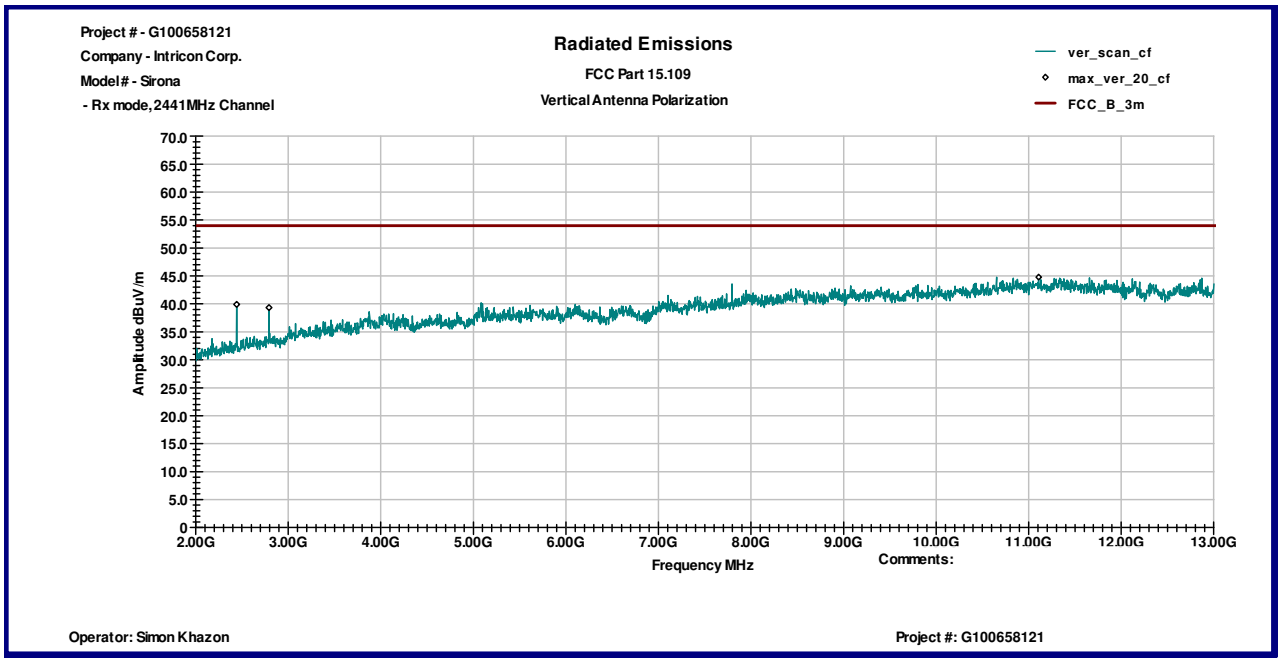



## Horizontal antenna polarization

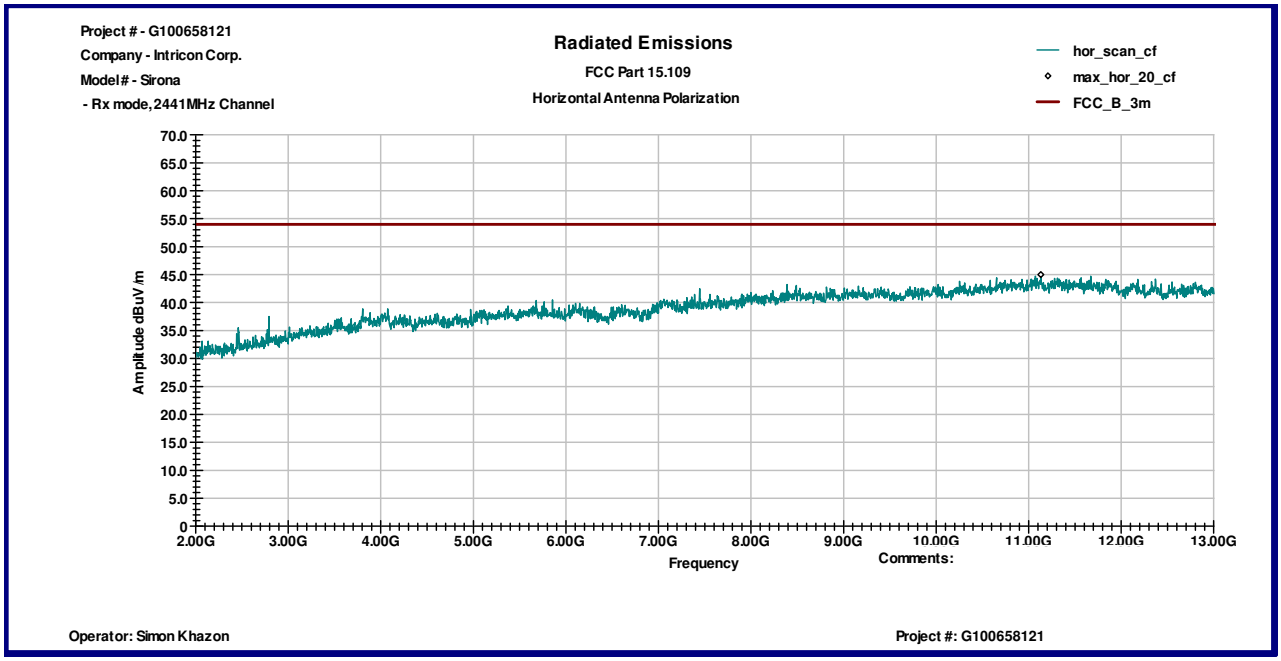


**Graph 3.5.5**

## Vertical antenna polarization

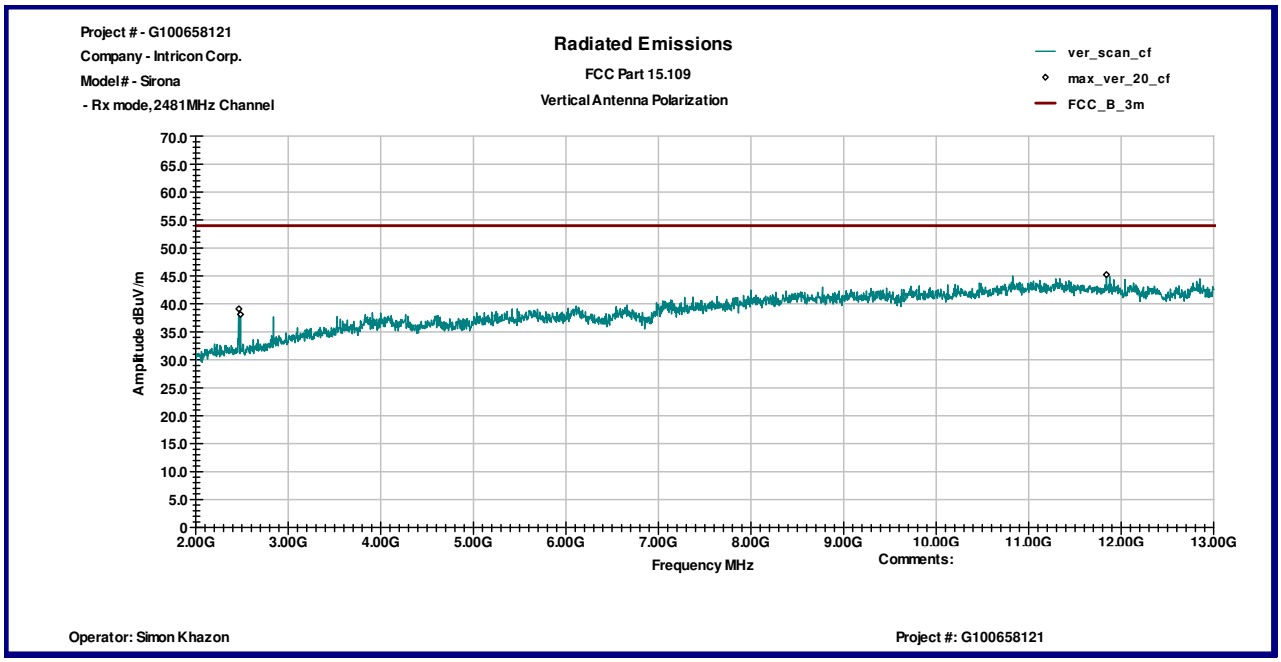



## Horizontal antenna polarization

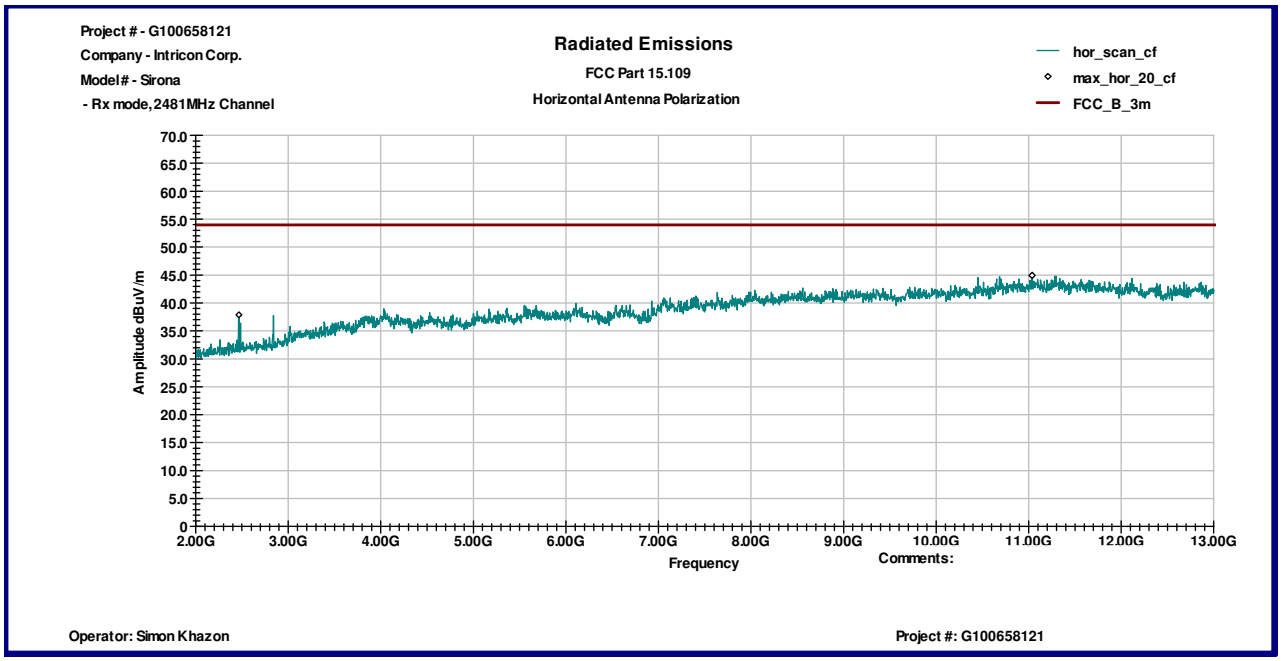


**Graph 3.5.6**

## Vertical antenna polarization




## Horizontal antenna polarization



### 3.6 Digital device conducted emissions

**Test location:** ☐ OATS ☐ Anechoic Chamber ☐ Other

**Test result:** **N/A**

**Frequency range:** 0.15MHz-30MHz

**Max. Emissions margin:**

Notes: EUT is battery operated device.

## 4.0 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 | 04/29/2012 | ☒ |
| Horn Antenna | EMCO | 3115 | 6579 | 15580 | 05/25/2012 | ☒ |
| LISN | Fischer Custom Communications | FCC-LISN-50-25-2 | 2014 | 9665 | 03/23/2012 | ☐ |
| High Pass Filter | Reactel | 7HS-4G-S12 | 0223 | 015274 | VBU | ☒ |
| Pre-Amplifier | MITEQ | AMF-5D-00501800-28-13P | 1122951 | 13475 | 10/31/2012 | ☒ |
| Pre-Amplifier | MITEQ | AMF-6F-26004000-40-8P | 13224444 | MIN-0064 | 10/31/2012 | ☒ |
| System | TILE! Instrument Control | | Ver. 3.4.K.29 | 15259 | VBU | ☒ |