

FCC Certification Test Report

For the
Nixon, Inc.
The Ultratide
Model: A476

FCC ID: 2ADQ8-A476

REPORT# 14WB1113033F-2 Rev 0
Jan.02, 2015

Prepared for:

Nixon, Inc.
701 South Coast Highway, Encinitas, CA 92024, USA

Prepared by:
WASHINGTON TECHNOLOGY INTERNATIONAL LIMITED

This report applies only to the sample evaluated prior to the preparation date stated above.

This report must be copied in its entirety, including all technical documents.

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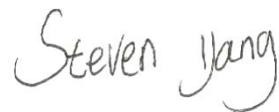
WLL REPORT# 14WB1113033F-2 Rev 0
Jan.02, 2015

Prepared by:



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Abstract

This report has been prepared on behalf of Nixon, Inc. to support the attached Application for Equipment Authorization. The test report and application are submitted for a Spread Spectrum Transceiver under Part 15.247 of the FCC Rules and Regulations. This Federal Communication Commission (FCC) Certification Test Report documents the test configuration and test results for Nixon, Inc. The Ultratide.

And Testing was performed by Audix Technology (Shenzhen) Co., Ltd. has been accepted by the FCC, the FCC Registration Number is 90454.

The Ultratide is a Bluetooth V4.0 compliant device and complies with the limits for a Direct Sequence Spread Spectrum Transmitter device under Part 15.247 of the FCC Rules and Regulations.

| Revision History | Reason | Date |
|------------------|-----------------|--------------|
| Rev 0 | Initial Release | Jan.02, 2015 |
| | | |

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1 Introduction

1.1 Compliance Statement

After the modifications listed in Section 2.7 were installed:

The Nixon, Inc. The Ultratide complies with the limits for a Spread Spectrum Transceiver device under Part 15.247 of the FCC Rules and Regulations.

1.2 Test Scope Summary

Tests for radiated and conducted emissions were performed. All measurements were performed according to the 2009 version of ANSI C63.10

| Test Specification | Specific Description | Result | Modifications (Y/N) | Test Location |
|----------------------|---|----------------|---------------------|---------------------------------------|
| CFR47 Part 15.207 | Conducted Emissions – AC Power Ports | Not Applicable | Not Applicable | Not Applicable |
| CFR47 Part 15.209 | Radiated Emissions | Complied | No | Audix Technology (Shenzhen) Co., Ltd. |
| CFR47 Part 15.247 | RF Power Output | Complied | No | Audix Technology (Shenzhen) Co., Ltd. |
| CFR47 Part 15.247(b) | Spurious Emissions at Antenna Terminals | Complied | No | Audix Technology (Shenzhen) Co., Ltd |
| CFR47 Part 15.247(c) | Radiated Spurious Emissions | Complied | No | Audix Technology (Shenzhen) Co., Ltd. |
| CFR47 Part 15.247 | RF Power Spectral Density | Complied | No | Audix Technology (Shenzhen) Co., Ltd. |
| CFR47 Part 15.247 | Occupied Bandwidth | Complied | No | Audix Technology (Shenzhen) Co., Ltd. |
| CFR47 Part 15.247 | Band Edge Measurement (Conducted) | Complied | No | Audix Technology (Shenzhen) Co., Ltd. |
| CFR47 Part 15.247 | Band Edge Measurement (Radiated) | Complied | No | Audix Technology (Shenzhen) Co., Ltd. |

NOTE: The EUT is also considered as a kind of other class B digital device it has been verified to comply with the requirements of FCC Part 15B Class B (Verification) the test report has been issued by WTIL.

1.3 Contract Information

Customer: Nixon, Inc.
701 South Coast Highway, Encinitas, CA 92024, USA

1.4 Test and Support Personnel

1.5 Abbreviations

| | |
|-------------|---|
| A | Ampere |
| ac | alternating current |
| AM | Amplitude Modulation |
| Amps | Ampères |
| b/s | bits per second |
| BW | BandWidth |
| CE | Conducted Emission |
| cm | centimeter |
| CW | Continuous Wave |
| dB | deciBel |
| dc | direct current |
| EMI | Electromagnetic Interference |
| EUT | Equipment Under Test |
| FM | Frequency Modulation |
| G | giga - prefix for 10^9 multiplier |
| Hz | Hertz |
| IF | Intermediate Frequency |
| k | kilo - prefix for 10^3 multiplier |
| LISN | Line Impedance Stabilization Network |
| M | Mega - prefix for 10^6 multiplier |
| m | meter |
| μ | micro - prefix for 10^{-6} multiplier |
| NB | Narrowband |
| QP | Quasi-Peak |
| RE | Radiated Emissions |
| RF | Radio Frequency |
| rms | root-mean-square |
| SN | Serial Number |
| S/A | Spectrum Analyzer |
| V | Volt |

2 Equipment Under Test

2.1 EUT Identification

The results obtained relate only to the item(s) tested.

Table 1: Overview of The Ultratide, Equipment Under Test

| ITEM | DESCRIPTION |
|------------------------------------|----------------------------------|
| FCC ID Number | 2ADQ8-A476 |
| EUT Name: | The Ultratide |
| Test Model: | A476 |
| FCC Rule Parts: | §15.247 |
| Frequency Range: | 2402MHz – 2480MHz |
| Maximum Output Power: | -0.282dBm |
| Modulation Technology: | GFSK |
| Necessary Bandwidth: | N/A |
| Keying: | Automatic |
| Type of Information: | Bluetooth V4.0: GFSK |
| Number of Channels: | 40 |
| Antenna Type | PIFA |
| Antenna Gain | -4.5dBi |
| Frequency Tolerance: | N/A |
| Emission Type(s): | N/A |
| Interface Cables: | None |
| Power Source & Voltage: | 3 VDC from button battery |

2.2 EUT Description

Product Name: The Ultratide

Model No. : A476

EUT Rated Voltage: DC 3V button battery

Equipment Configuration

The EUT were set up as outlined in Figure 1. The EUT was comprised of the following equipment. (All Modules, PCBs, etc. listed were considered as part of the EUT, as tested.)

2.3 Test Configuration

The Nixon, Inc. The Ultratide, Equipment Under Test (EUT), was operated from 3VDC button battery.

The EUT firmware/software was set up to control power, bit rate, and channel selection.

Conducted test setup :

Not Applicable

Radiated test setup:

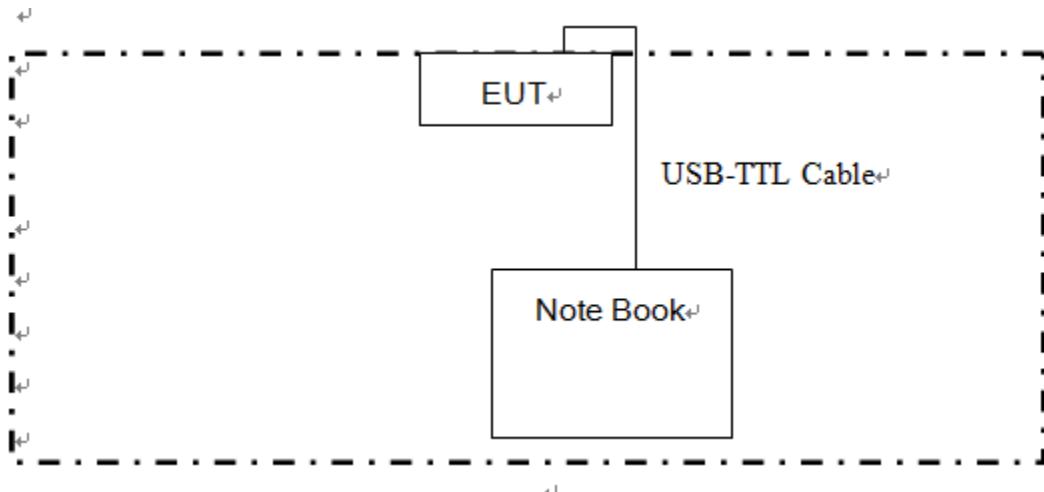


Figure 1: Test Configuration

2.4 Equipment Configuration

The EUT was set up as outlined in Figure 1. The EUT was comprised of the following equipment. (All Modules, PCBs, etc. listed were considered as part of the EUT, as tested.)

Table 2: Equipment Configuration

| Name / Description | Model Number | Part Number | Serial Number | Revision |
|--------------------|--------------|-------------|---------------|----------|
| The Ultratide | A476 | / | / | / |

2.5 Interface Cables

Table 3: Interface Cables

| Slot # | Port Identification | Connector Type | Cable Length | Shielded (Y/N) | Termination Point |
|--------|---------------------|------------------------|--------------|----------------|-------------------|
| 1 | USB-TTL Cable | Unshielded, Detachable | <1m | N | AE |

2.6 Support Equipment

The following support equipment was used during testing:

| No. | Description | ACS No. | Manufacturer | Model | Serial Number | Approved type |
|-----|-------------|---------|--------------|-------|---------------|---|
| 1. | Note Book | -- | DELL | PP09S | -- | <input type="checkbox"/> FCC ID <input type="checkbox"/> BSMI ID |

2.7 EUT Modifications

N/A

2.8 Testing Algorithm

The Ultratide was operated continuously by normal operating conditions. During the testing, the EUT connected with Notebook by a USB-TTL Board and controlled by Notebook software to continuously transmit Bluetooth signal at frequency band 2402MHz, 2440MHz and 2480MHz.

2.9 Test Location

And Testing was performed by Audix Technology (Shenzhen) Co., Ltd. has been accepted by the FCC, the FCC Registration Number is 90454.

2.10 Measurements

2.10.1 Measurement Method

All measurements were performed according to the 2009 version of ANSI C63.10 for testing compliance of a wide variety of unlicensed wireless devices

2.10.2 Measurement Uncertainty

All results reported herein relate only to the equipment tested. The basis for uncertainty calculation uses ANSI/NCSL Z540-2-1997 with a type B evaluation of the standard uncertainty. Elements contributing to the standard uncertainty are combined using the method described in Equation 1 to arrive at the total standard uncertainty. The standard uncertainty is multiplied by the coverage factor to determine the expanded uncertainty which is generally accepted for use in commercial, industrial, and regulatory applications and when health and safety are concerned (see Equation 2). A coverage factor was selected to yield a 95% confidence in the uncertainty estimation.

Equation 1: Standard Uncertainty

$$u_c = \pm \sqrt{\frac{a^2}{div_a^2} + \frac{b^2}{div_b^2} + \frac{c^2}{div_c^2} + \dots}$$

where u_c = standard uncertainty
 $a, b, c,..$ = individual uncertainty elements
 $div_{a, b, c}$ = the individual uncertainty element divisor based on the probability distribution
divisor = 1.732 for rectangular distribution
divisor = 2 for normal distribution
divisor = 1.414 for trapezoid distribution

Equation 2: Expanded Uncertainty

$$U = ku_c$$

where U = expanded uncertainty
 k = coverage factor
 $k \leq 2$ for 95% coverage (ANSI/NCSL Z540-2 Annex G)
 u_c = standard uncertainty

The measurement uncertainty complies with the maximum allowed uncertainty from CISPR 16-4-2. Measurement uncertainty is not used to adjust the measurements to determine compliance. The expanded uncertainty values for the various scopes in the WLL accreditation are provided in Table 4 below.

Table 4: Expanded Uncertainty List

| Scope | Expanded Uncertainty |
|--|---------------------------------|
| Uncertainty for Radiation Emission test in 3m chamber | 3.22 dB(30~200MHz, Polarize: H) |
| | 3.23 dB(30~200MHz, Polarize: V) |
| | 3.49 dB(200M~1GHz, Polarize: H) |
| | 3.39 dB(200M~1GHz, Polarize: V) |
| Uncertainty for Radiation Emission test in 3m chamber (1GHz-18GHz) | 4.97 dB (1~6GHz, Distance: 3m) |
| | 4.99 dB (6~18GHz, Distance: 3m) |
| Uncertainty for Radiated Spurious Emission test in RF chamber | 3.57 dB |
| Uncertainty for Conduction Spurious emission test | 2.00 dB |
| Uncertainty for Output power test | 0.73 dB |
| Uncertainty for Power density test | 2.00 dB |
| Uncertainty for Frequency range test | 7×10^{-8} |
| Uncertainty for Bandwidth test | 83 kHz |
| Uncertainty for DC power test | 0.038 % |
| Uncertainty for test site temperature and humidity | 0.6 °C |
| | 3% |

3 Test Equipment

Table 5 shows a list of the test equipment used for measurements along with the calibration information.

Table 5: Test Equipment List

Frequency rang: 30~1000MHz

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|----------------|-----------------|-----------|-----------------|-------------|---------------|
| 1. | 3#Chamber | AUDIX | N/A | N/A | Nov.23, 14 | 1 Year |
| 2. | EMI Spectrum | Agilent | E4407B | MY41440292 | Apr. 28,14 | 1 Year |
| 3. | Test Receiver | Rohde & Schwarz | ESVS10 | 834468/011 | Apr. 28,14 | 1 Year |
| 4. | Amplifier | HP | 8447D | 2648A04738 | Apr. 28,14 | 1 Year |
| 5. | Bilog Antenna | TESEQ | CBL6112D | 35375 | Jun. 18, 14 | 1 Year |
| 6. | RF Cable | MIYAZAKI | CFD400-NL | 3# Chamber No.1 | Apr. 28,14 | 1 Year |
| 7. | Coaxial Switch | Anritsu | MP59B | 6200313662 | Apr. 28,14 | 1 Year |

Frequency rang: above 1000MHz

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------|--------------|-------------|------------|-------------|---------------|
| 1. | Spectrum Analyzer | Agilent | E4446A | US44300459 | Apr. 28,14 | 1 Year |
| 2. | Horn Antenna | ETS | 3115 | 9510-4580 | Jun. 06, 14 | 1 Year |
| 3. | Horn Antenna | ETS | 3116 | 00060089 | Sep.20, 14 | 1 Year |
| 4. | Amplifier | Agilent | 8449B | 3008A02495 | Apr. 28,14 | 1 Year |
| 5. | RF Cable | Hubersuhner | SUCOFLEX106 | 77977/6 | Apr. 28,14 | 1 Year |
| 6. | RF Cable | Hubersuhner | SUCOFLEX106 | 28616/2 | Apr. 28,14 | 1 Year |
| 7. | Horn Antenna | ETS | 3116 | 00060089 | Sep.20, 14 | 1 Year |

4 Test Results

4.1 RF Power Output:

To measure the output power the unit was set to transmit on a low, high and middle channel. The output from the transmitter was connected to an attenuator and then to the input of a detector diode. The output of the detector diode was displayed on an oscilloscope. The trace deflection was recorded and the transmitter was replaced with a signal generator at the same frequency. The output of the signal generator was increased until the trace deflection was the same as it was with the transmitter. The signal from the generator was then connected to a power meter and the level was taken.

4.1.1 Limit (FCC Part 15.247b(3))

For frequency hopping systems operating in the 2400-2483.5 MHz band, employing at least 75 non-overlapping hopping channels, For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

4.1.2 Test Procedure

Connected the EUT's antenna port to Power Sensor, and use power meter to test peak output power.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

4.1.3 Test Data

The EUT The Ultratide complied with the FCC Part 15.247 RF Power Output requirements.

Table 6 provides the test results for RF Power Output.

4.1.4 Areas of Concern

None.

Table 6: RF Power Output

| EUT: The Ultratide | | | |
|-------------------------|-----------------|--------------------------------------|---|
| Model: A476 | | | |
| Test date:2014-12-30 | | Pressure: $101.3 \pm 1.0 \text{kpa}$ | Humidity: $51.4 \pm 3.0\%$ |
| Tested by: Donjon_Huang | | Test site: RF site | Temperature: $23.1 \pm 0.6^\circ\text{C}$ |
| | | | |
| Cable loss: 11 dB | | Attenuator loss: 20 dB | |
| Test Mode | Frequency (MHz) | Peak output Power (dBm) | Limit (dBm) |
| GFSK | 2402 | -0.282 | 30 |
| | 2440 | -0.490 | 30 |
| | 2480 | -0.666 | 30 |
| Conclusion: PASS | | | |

Note1: According exploratory test, EUT will have maximum output power as above bolded data rate, so those data rate were used for all test.

4.2 RF Power Spectral Density

The output from the transmitter was connected to an attenuator and then to the input of the RF Spectrum Analyzer. The analyzer offset was adjusted to compensate for the attenuator and other losses in the system.

4.2.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

4.2.2 Test Procedure

1. Connected the EUT's antenna port to spectrum analyzer device by 20dB attenuator.
2. Set the test frequency as center frequency, Set RBW=3KHz,VBW=10KHz,Span large enough capture the entire frequency, Read out maximum peak level frequency
3. Set the span to 1.5 times of the DTS Bandwidth Detector= Peak; Sweep time= Auto Couple; Trace Mode= Max hold.
4. Allow trace to fully stabilize use the peak marker function to determine the maximum amplitude level within the RBW.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude.

4.2.3 Test Data

The EUT The Ultratide complied with the FCC Part 15.247 RF Power Spectral Density requirements.

Table 7 provides the test results for RF Power Spectral Density.

4.2.4 Areas of Concern

None.

Table 7: RF Power Spectral Density

| | | |
|-------------------------|---------------------------------------|---|
| EUT: The Ultratide | | |
| Model: A476 | | |
| Test date: 2014-12-30 | Pressure: $101.5 \pm 1.0 \text{ kpa}$ | Humidity: $52.3 \pm 3.0\%$ |
| Tested by: Donjon_Huang | Test site: RF site | Temperature: $23.1 \pm 0.6^\circ\text{C}$ |

| Cable loss: 11 dB | | Attenuator loss: 20 dB | |
|-------------------|----------|--------------------------|------------------|
| Test Mode | CH (MHz) | Power density (dBm/3KHz) | Limit (dBm/3KHz) |
| GFSK | 2402 | -12.024 | 8 |
| | 2440 | -12.526 | 8 |
| | 2480 | -12.213 | 8 |
| Conclusion: PASS | | | |

Test Mode: CH0: 2402MH



Test Mode: CH19: 2440MHz



Test Mode: CH39: 2480MHz



4.3 Occupied Bandwidth

Occupied bandwidth was performed by coupling the output of the EUT to the input of a spectrum analyzer.

4.3.1 Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz.

4.3.2 Test Procedure

The transmitter output was connected to a spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.3 Test Data

The EUT The Ultratide complied with the FCC Part 15.247 Occupied bandwidth requirements.

Table 8 provides the test results for Occupied bandwidth.

4.3.4 Areas of Concern

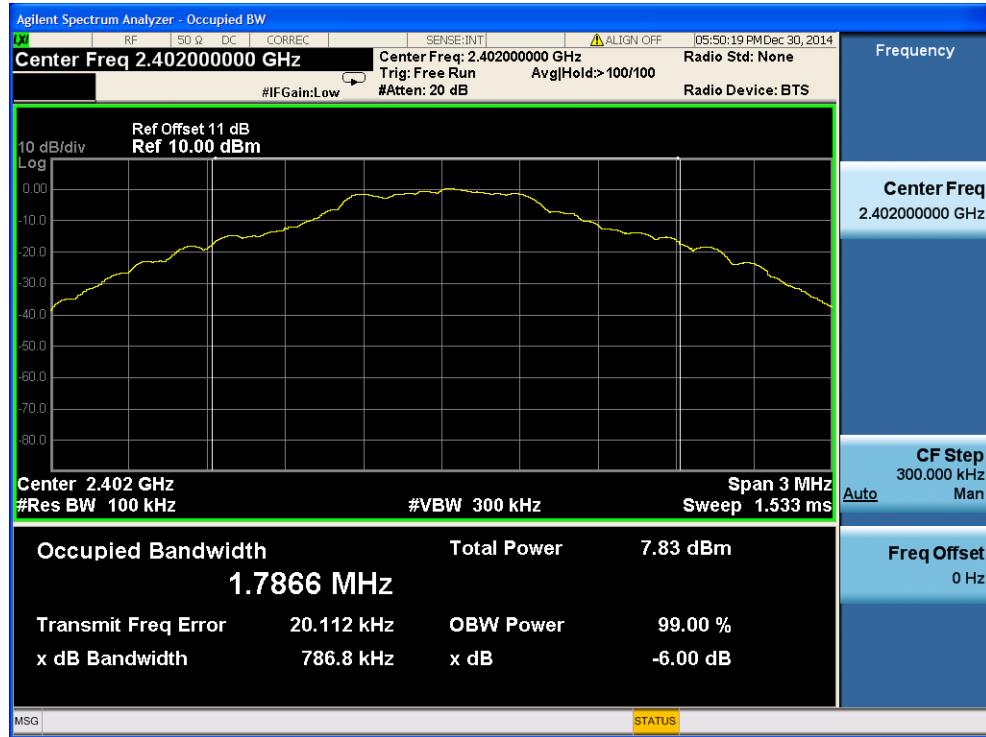
None.

Table 8: Occupied Bandwidth Results

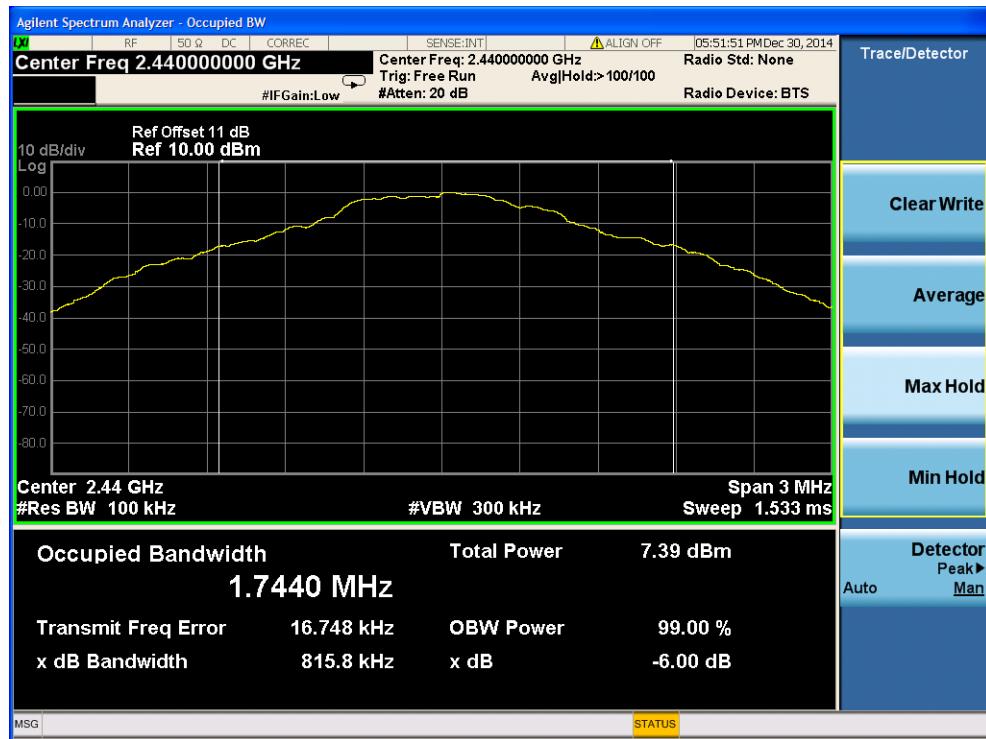
| | | |
|-------------------------|---------------------------------------|---|
| EUT: The Ultratide | | |
| Model: A476 | | |
| Test date:2014-12-30 | Pressure: $101.5 \pm 1.0 \text{ kPa}$ | Humidity: $52.3 \pm 3.0\%$ |
| Tested by: Donjon_Huang | Test site: RF site | Temperature: $22.6 \pm 0.6^\circ\text{C}$ |

| Cable loss: 11 dB | | Attenuator loss: 20 dB | |
|-------------------|----------|------------------------|-------------|
| Test Mode | CH (MHz) | 6 dB bandwidth (kHz) | Limit (kHz) |
| GFSK | 2402 | 786.8 | >500 |
| | 2440 | 815.8 | >500 |
| | 2480 | 787.2 | >500 |
| Conclusion: PASS | | | |

Test Mode: CH0: 2402MHz



Test Mode: CH19: 2440MHz



Test Mode: CH39: 2480MHz



4.4 Spurious Emissions at Antenna Terminals (FCC Part §15.247(b))

4.4.1 Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

4.4.2 Test Procedure

The transmitter output was connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions detected.

4.4.3 Test Data

The EUT The Ultratide complied with the FCC Part 15.247 Spurious Emissions at Antenna Terminals requirements.

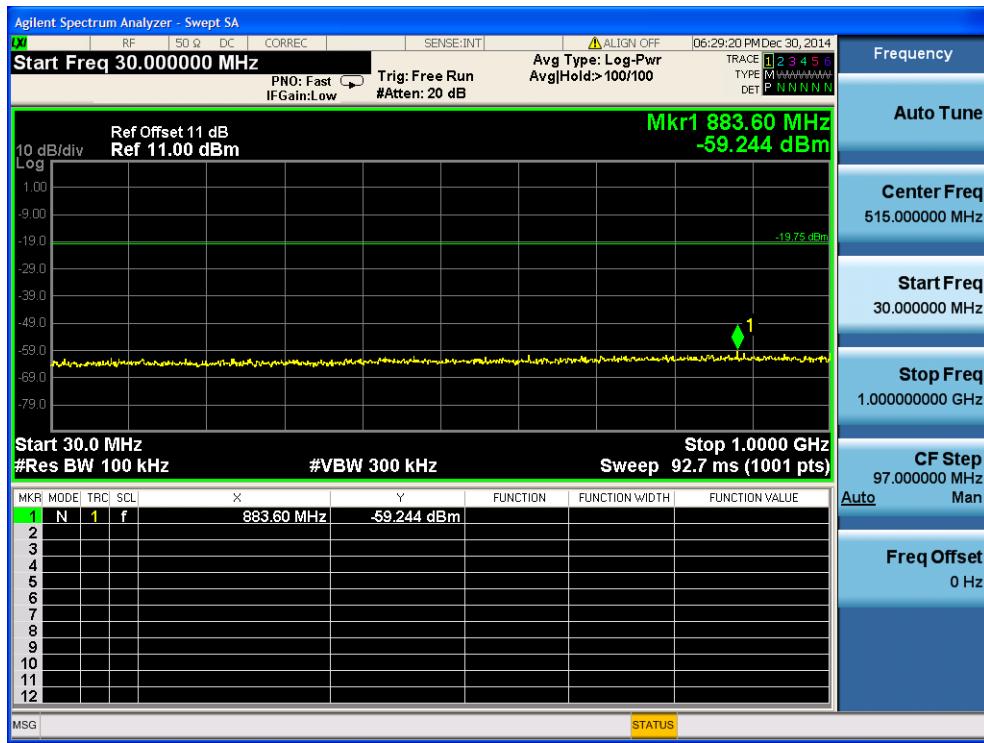
Table 9 provides the test results for Spurious Emissions at Antenna Terminals.

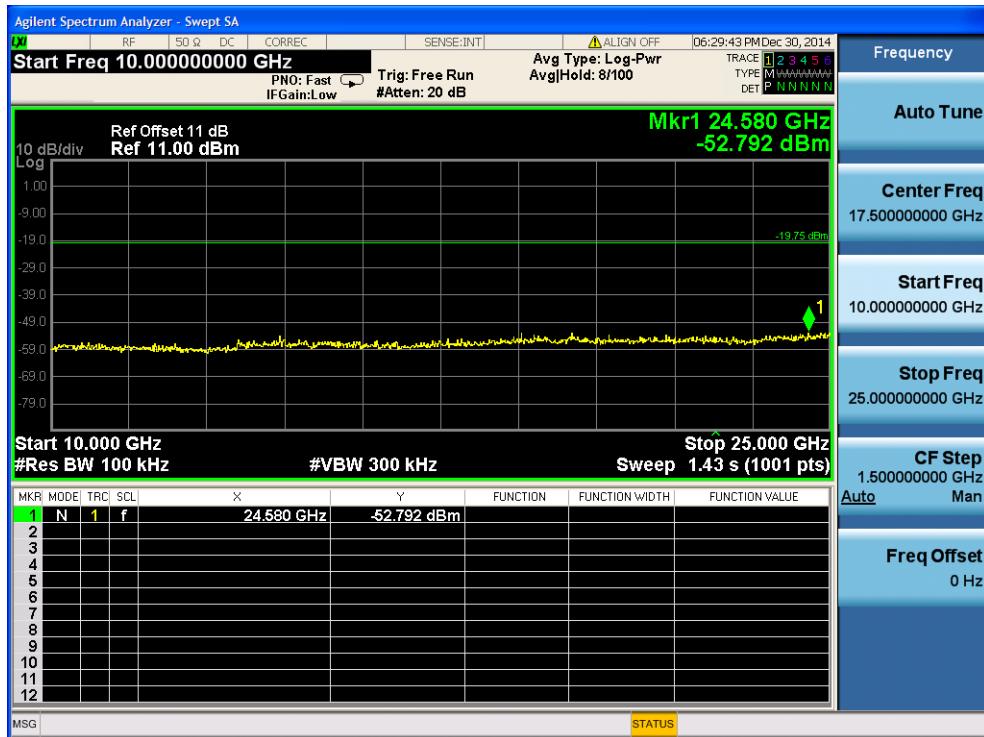
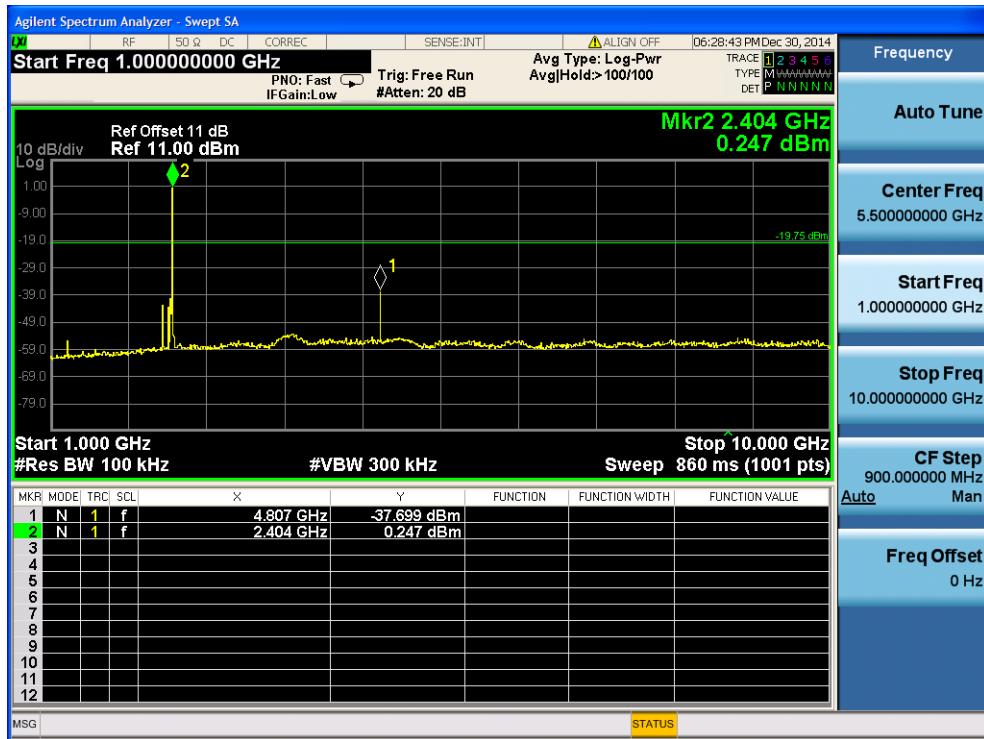
4.4.4 Areas of Concern

None.

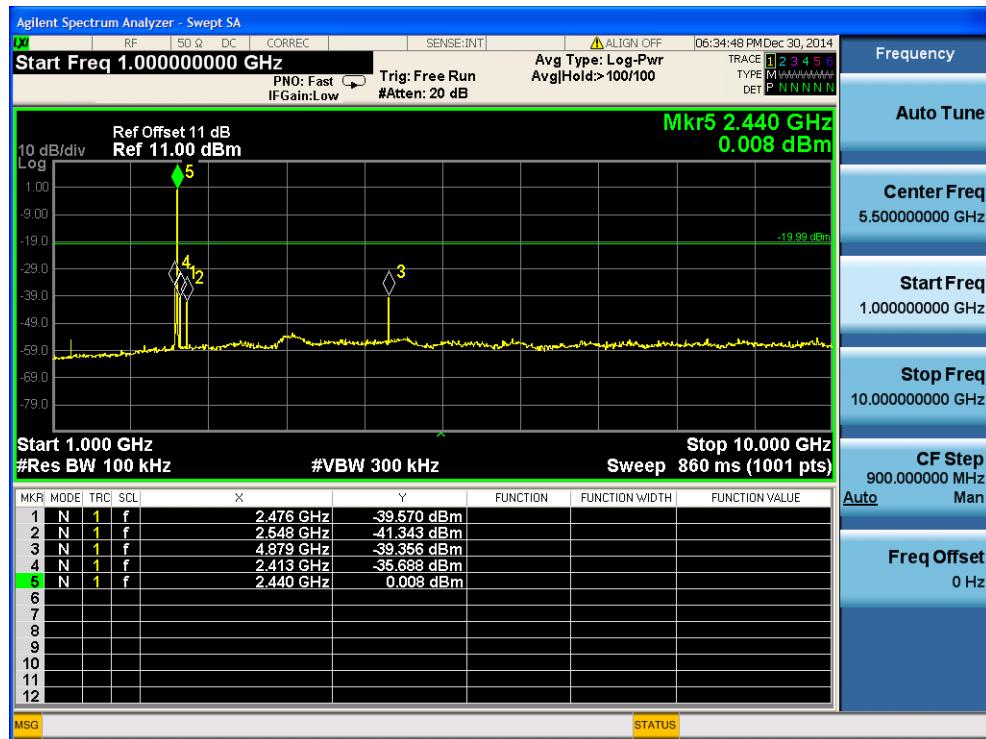
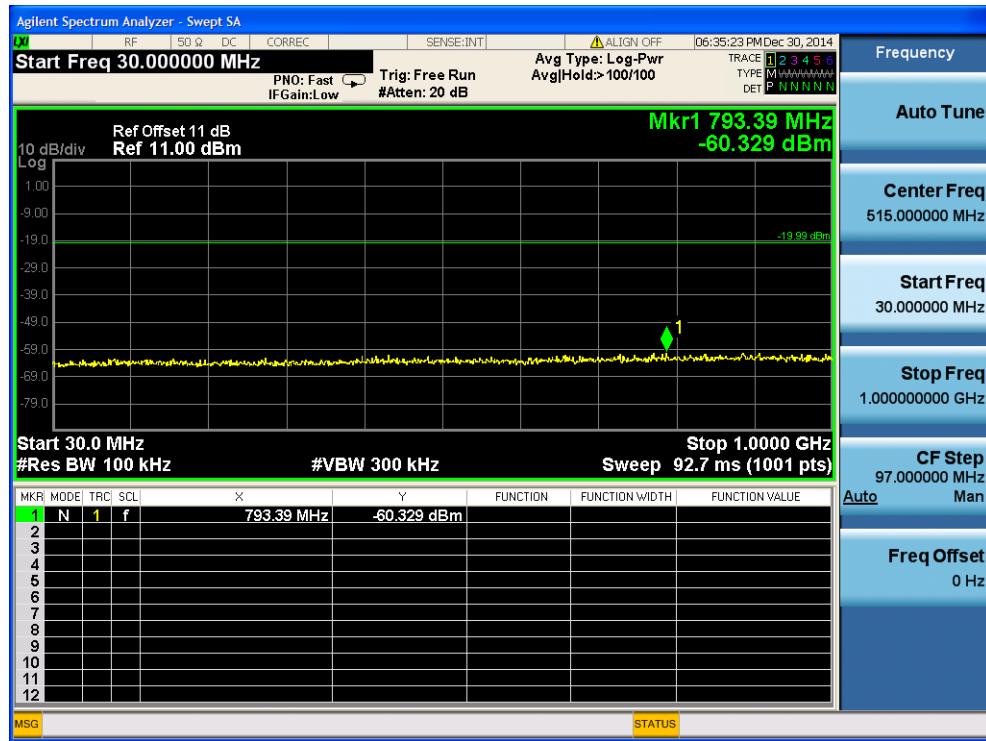
Table 9: Spurious Emissions at Antenna Terminals Results

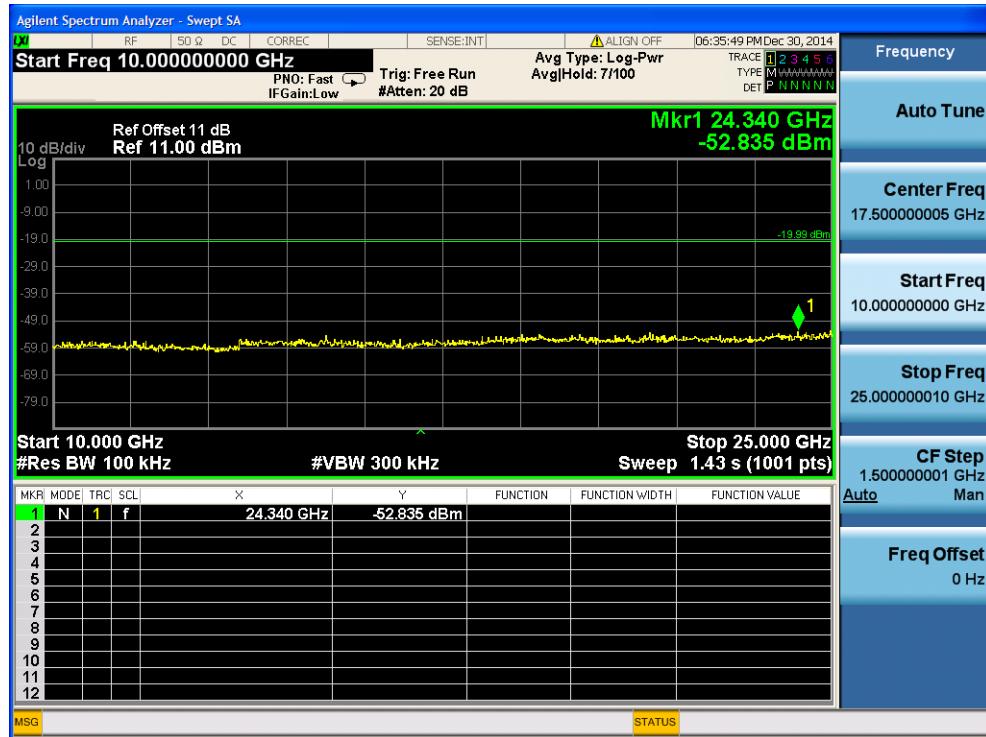
Test Mode: CH0: 2402MHz



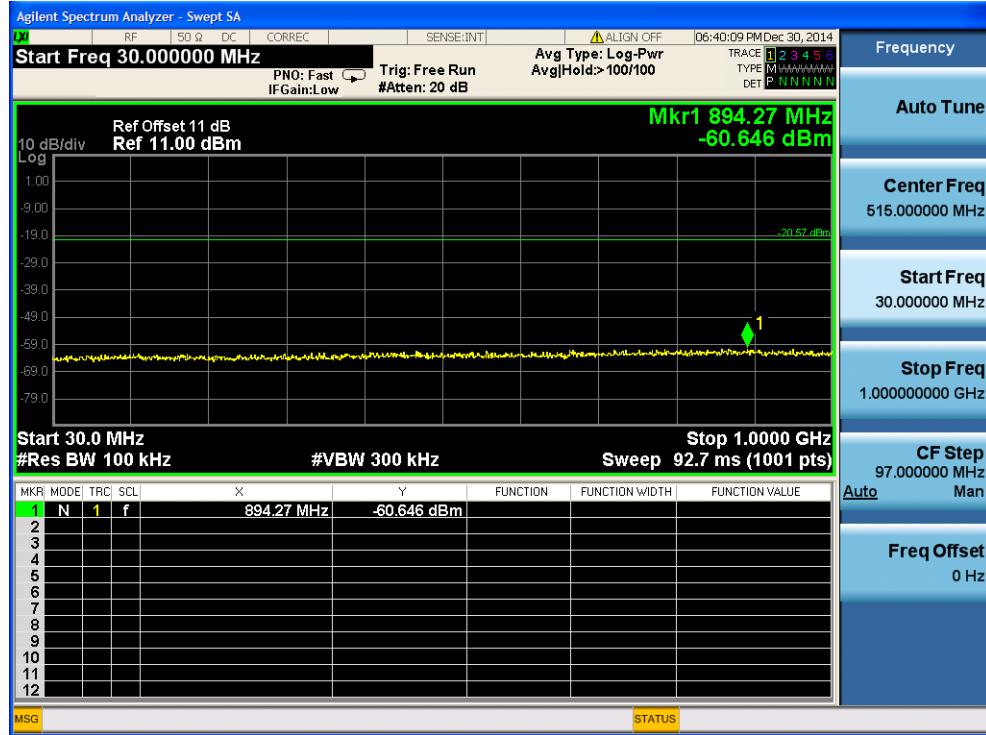


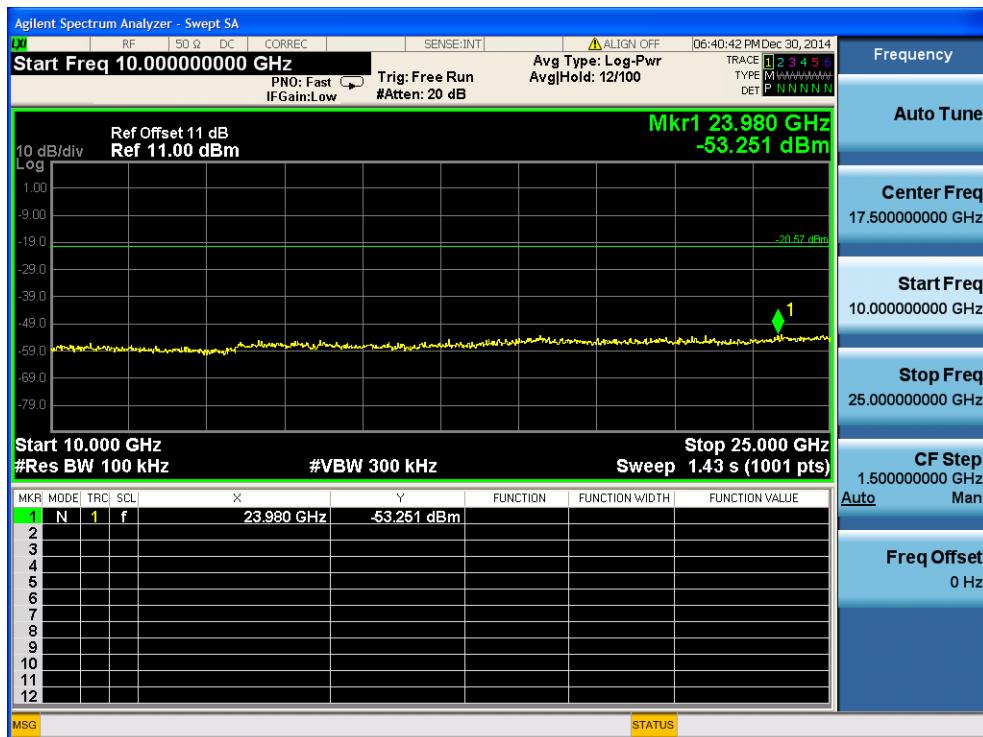
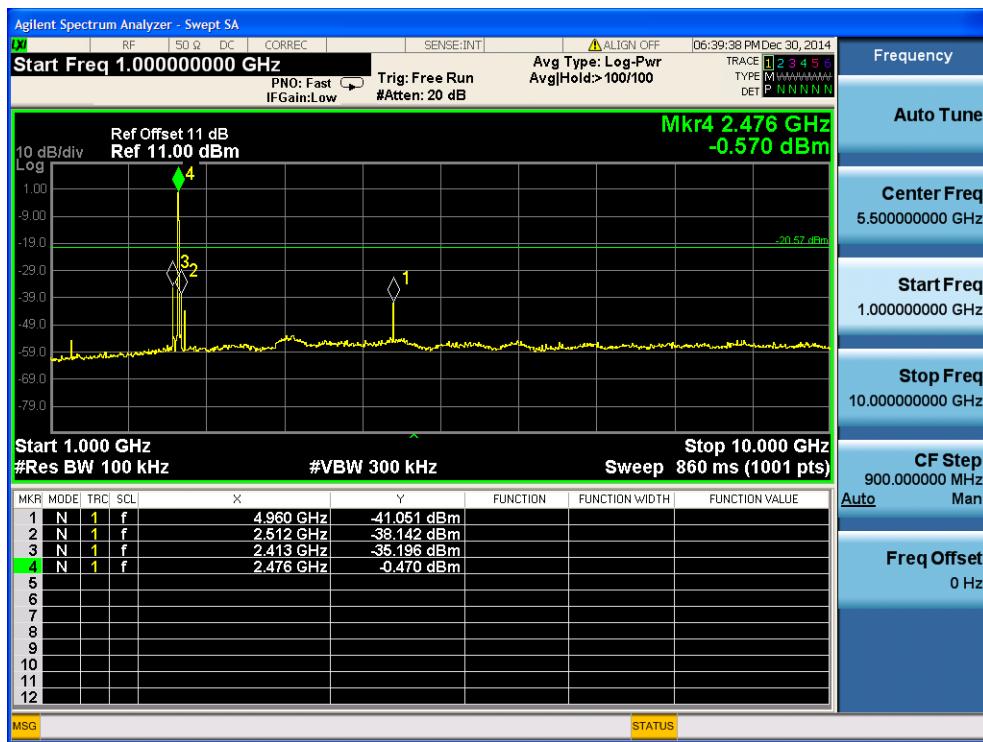
Test Mode: CH19: 2440MHz





Test Mode: CH39: 2480MHz





4.5 Radiated Spurious Emissions: (FCC Part §15.247(c))

Radiated emissions that fall in the restricted bands must comply with the general emissions limits in 15.209(a).

The emissions were measured using the following resolution bandwidths:

| Frequency Range | Resolution Bandwidth | Video Bandwidth |
|-----------------|----------------------|-----------------|
| 30MHz-1000 MHz | 120kHz | >30 kHz |
| >1000 MHz | 1 MHz | <30 Hz |

Harmonic and Spurious emissions that were identified as coming from the EUT were checked in Peak and in Average Mode. The high frequency, which started from 18 to 26.5GHz, was pre-scan and the test result which was 20dB lower than the limit was not reported.

Peak measurements and average measurements are made. All emissions were determined to have a peak-to-average ratio of less than 20 dB.

4.5.1 Test Procedure

The EUT was placed on motorized turntable for radiated testing on a 3-meter open field test site. The emissions from the EUT were measured continuously at every azimuth by rotating the turntable. Receiving antennas were mounted on an antenna mast to determine the height of maximum emissions. The height of the antenna was varied between 1 and 4 meters. The peripherals were placed on the table in accordance with ANSI C63.10-2009. Cables were varied in position to produce maximum emissions. Both the horizontal and vertical field components were measured.

4.5.2 Test Data

The EUT The Ultratide complied with the FCC Part 15.247 Radiated Spurious Emissions requirements.

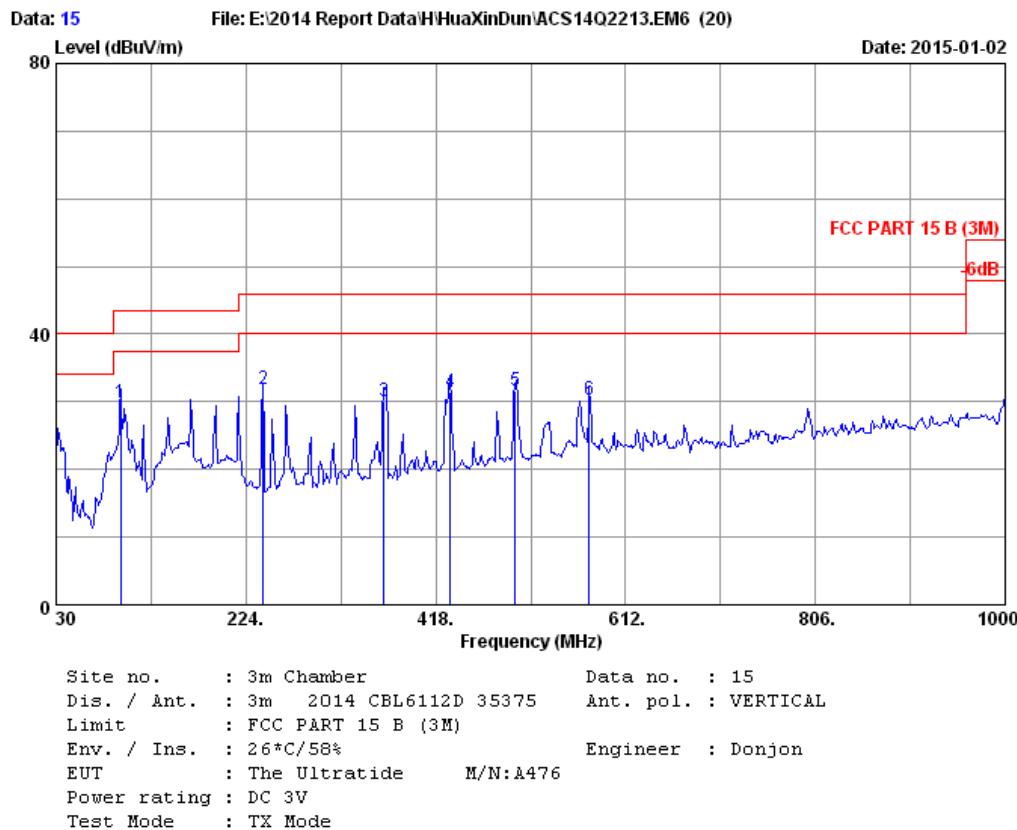
Table 10, 11 provide the test results for Radiated Spurious Emissions.

4.5.3 Areas of Concern

None.

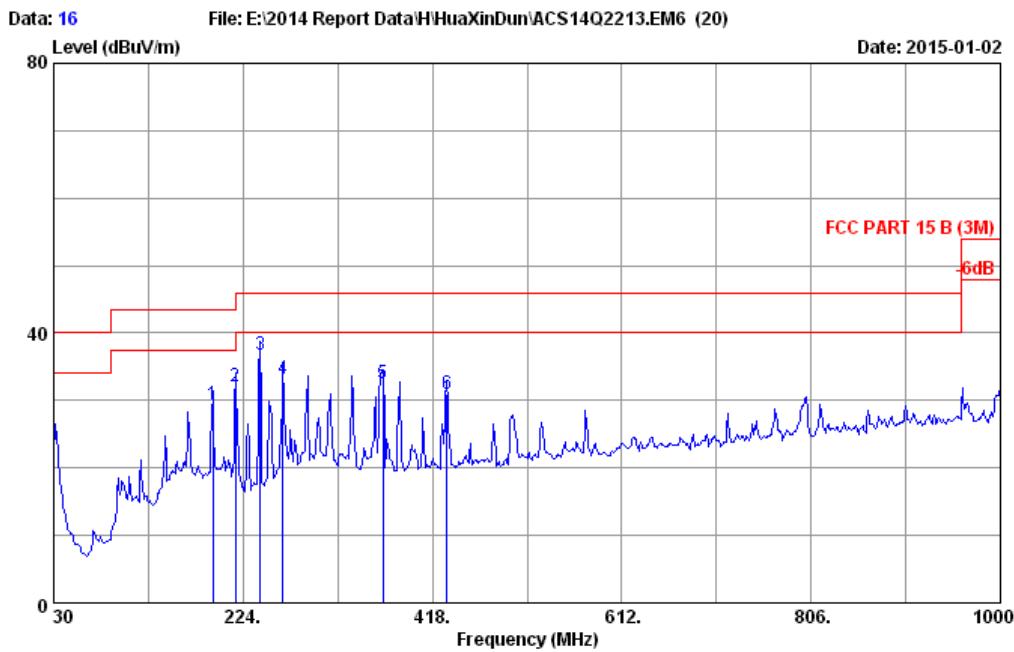
Table 10: Radiated Emission Test Data (Below 1GHz)

Test Mode: TX Mode



| No. | Freq. (MHz) | Factor (dB/m) | Loss (dB) | Emission | | | | |
|-----|----------------|------------------|--------------|-------------------|-------------------|--------------------|----------------|--------|
| | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) | Remark |
| 1 | 95.960 | 10.59 | 1.09 | 18.11 | 29.79 | 43.50 | 13.71 | QP |
| 2 | 241.460 | 12.45 | 2.04 | 17.31 | 31.80 | 46.00 | 14.20 | QP |
| 3 | 364.650 | 15.61 | 2.63 | 11.82 | 30.06 | 46.00 | 15.94 | QP |
| 4 | 432.550 | 17.10 | 2.95 | 11.27 | 31.32 | 46.00 | 14.68 | QP |
| 5 | 499.480 | 18.29 | 3.22 | 10.03 | 31.54 | 46.00 | 14.46 | QP |
| 6 | 575.140 | 19.30 | 3.60 | 7.44 | 30.34 | 46.00 | 15.66 | QP |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

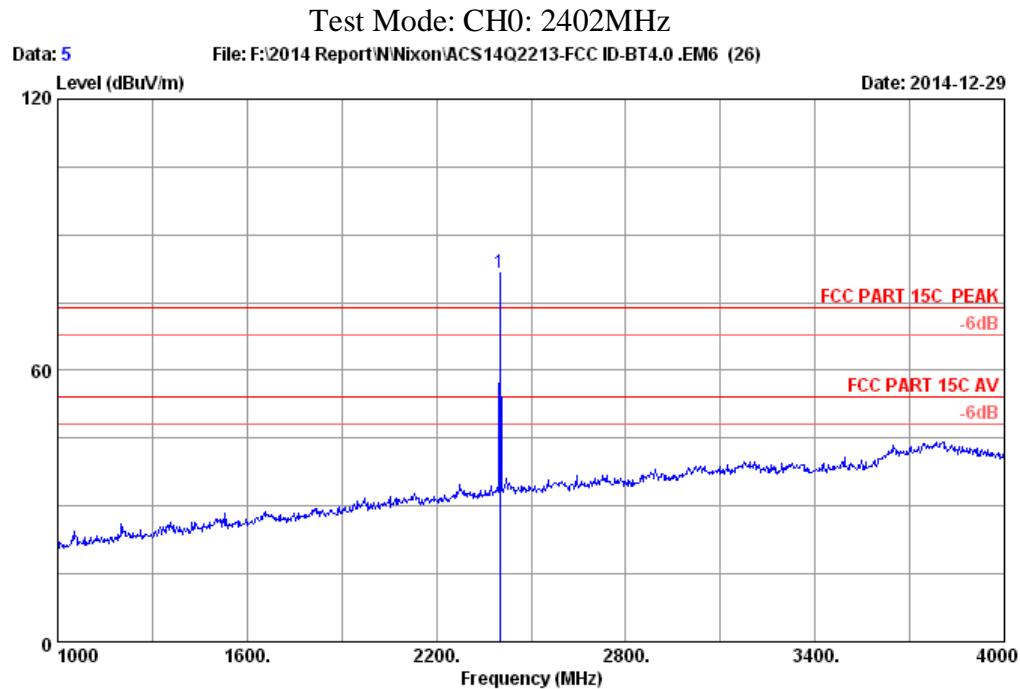


Site no. : 3m Chamber Data no. : 16
Dis. / Ant. : 3m 2014 CBL6112D 35375 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 B (3M)
Env. / Ins. : 26°C/58% Engineer : Donjon
EUT : The Ultratide M/N:A476
Power rating : DC 3V
Test Mode : TX Mode

| No. | Ant. | Cable | Emission | | | | Remark |
|-----|---------|--------|----------|--------|----------|--------|----------|
| | Factor | Loss | Reading | Level | Limits | Margin | |
| | (MHz) | (dB/m) | (dB) | (dBuV) | (dBuV/m) | (dB) | |
| 1 | 192.960 | 9.85 | 1.80 | 17.78 | 29.43 | 43.50 | 14.07 QP |
| 2 | 216.240 | 10.51 | 1.92 | 19.70 | 32.13 | 46.00 | 13.87 QP |
| 3 | 241.460 | 12.45 | 2.04 | 22.24 | 36.73 | 46.00 | 9.27 QP |
| 4 | 264.740 | 13.93 | 2.14 | 17.20 | 33.27 | 46.00 | 12.73 QP |
| 5 | 367.560 | 15.65 | 2.65 | 14.15 | 32.45 | 46.00 | 13.55 QP |
| 6 | 432.550 | 17.10 | 2.95 | 11.03 | 31.08 | 46.00 | 14.92 QP |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

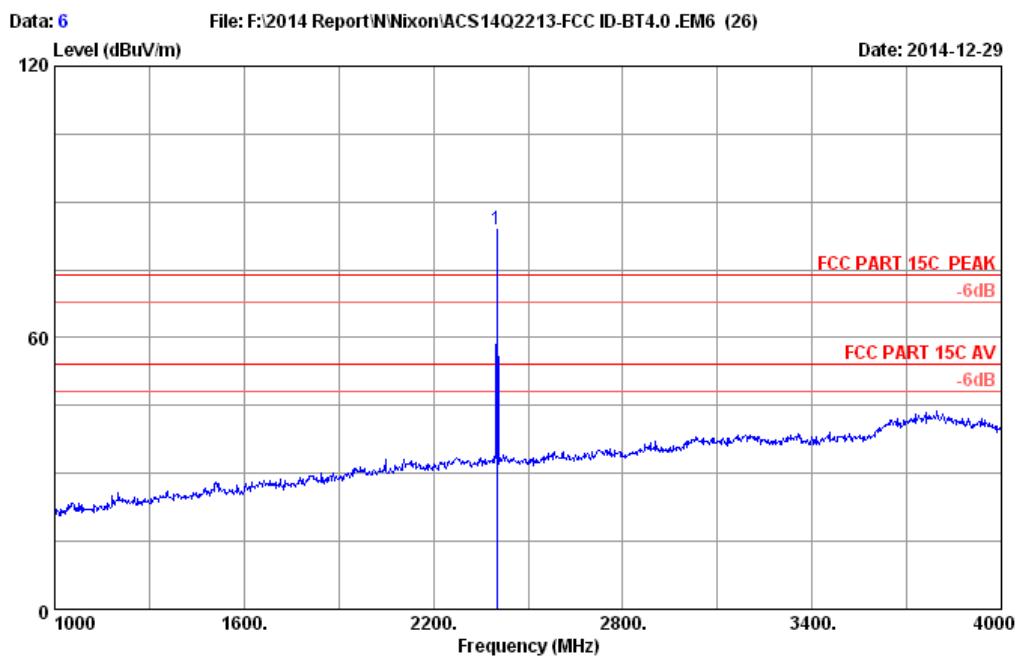
Table 11: Radiated Emission Test Data (Above 1GHz)



Site no. : 3m Chamber Data no. : 5
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratide
 Power rating : DC 3V
 Test Mode : GFSK 2402MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. | Cable | AMP | Emission | | | |
|-----|----------------|------------------|--------------|----------------|-------------------|-------------------|--------------------|----------------|
| | | Factor (dB/m) | Loss (dB) | factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2402.000 | 28.18 | 5.80 | 35.70 | 83.31 | 81.59 | 74.00 | -7.59 Peak |

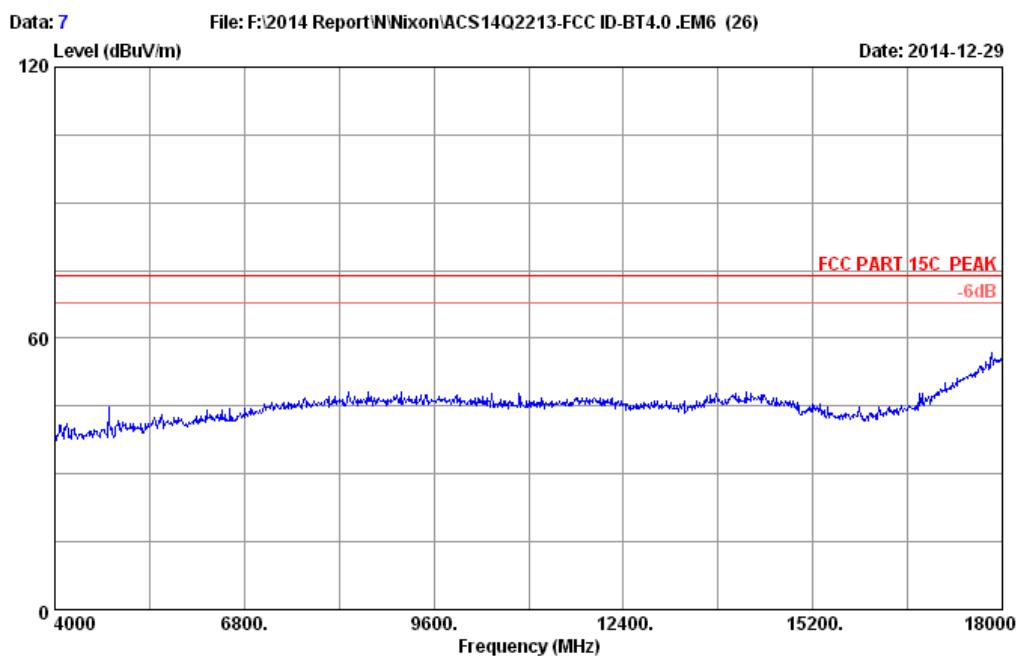
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official limit are not reported.



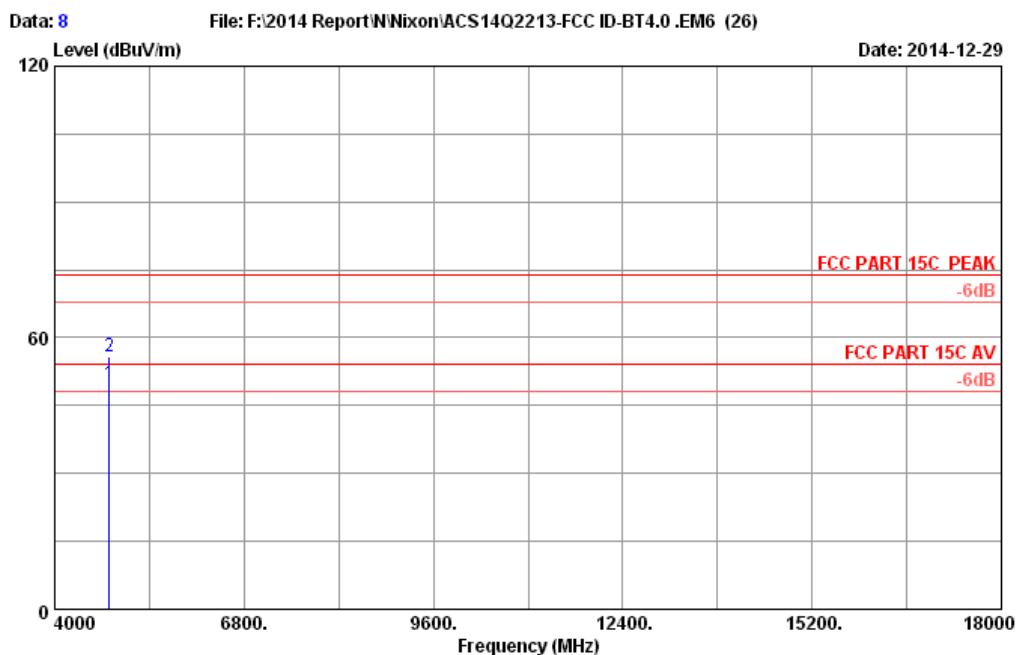
Site no. : 3m Chamber Data no. : 6
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratide
 Power rating : DC 3V
 Test Mode : GFSK 2402MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2402.000 | 28.18 | 5.80 | 35.70 | 85.63 | 83.91 | 74.00 | -9.91 Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



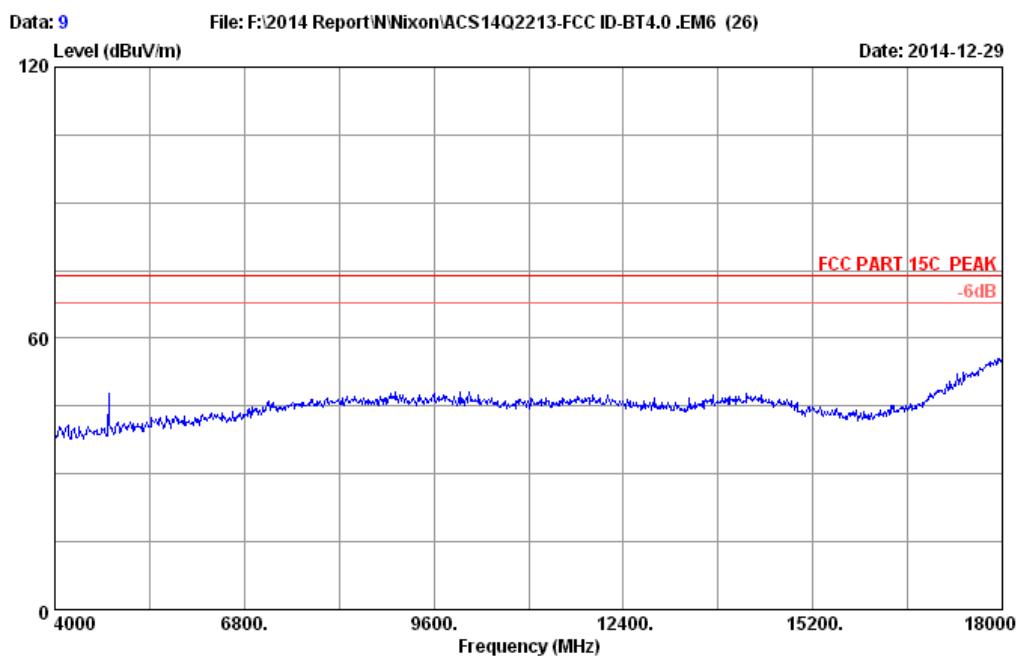
Site no. : 3m Chamber Data no. : 7
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2402MHz
M/N : A476



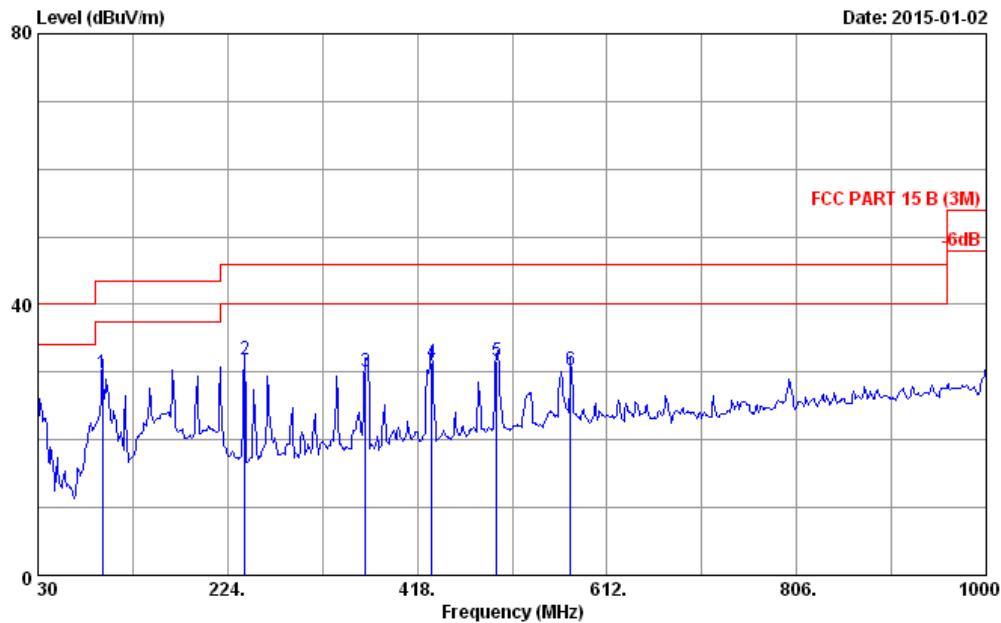
Site no. : 3m Chamber Data no. : 8
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratide
 Power rating : DC 3V
 Test Mode : GFSK 2402MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 4804.000 | 32.85 | 8.56 | 35.70 | 43.94 | 49.65 | 54.00 | 4.35 |
| 2 | 4804.000 | 32.85 | 8.56 | 35.70 | 50.20 | 55.91 | 74.00 | 18.09 |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official
limit are not reported.



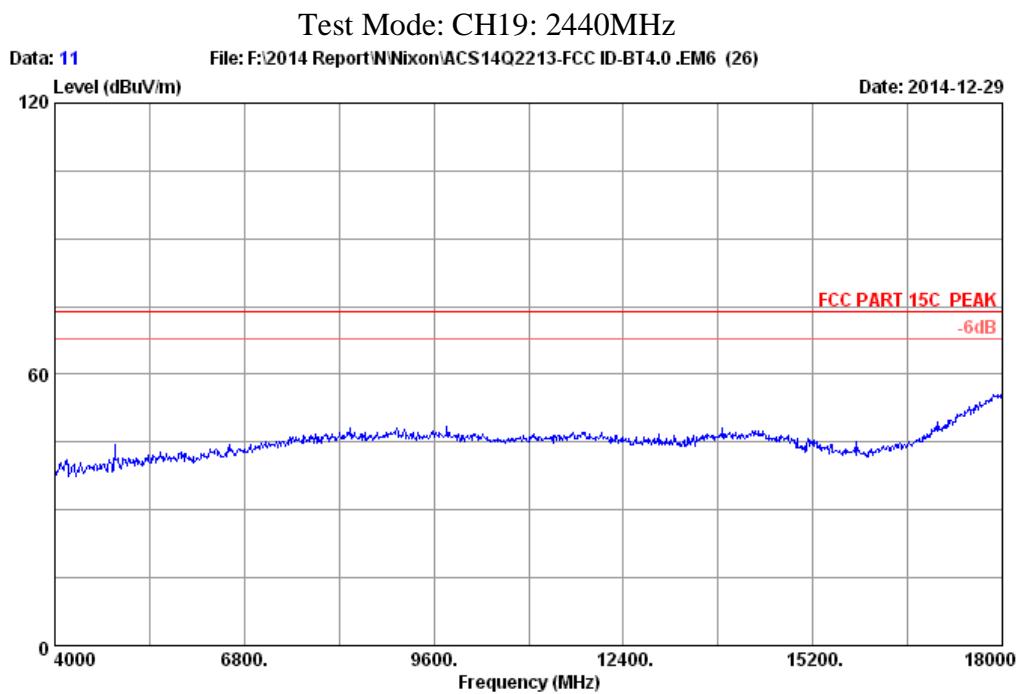
Site no. : 3m Chamber Data no. : 9
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2402MHz
M/N : A476

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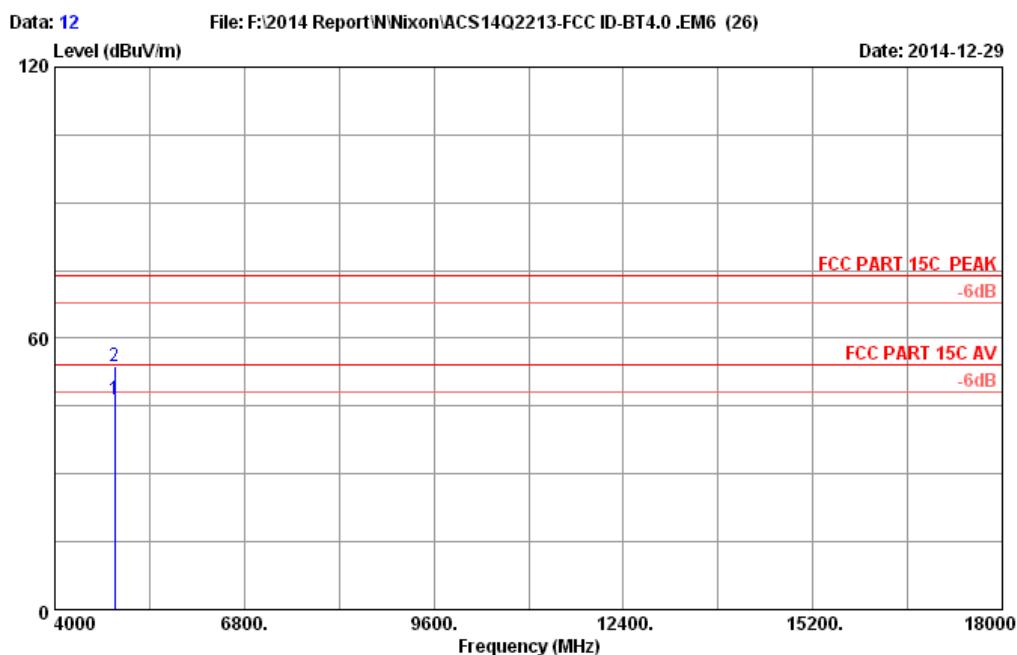
Site no. : 3m Chamber Data no. : 15
 Dis. / Ant. : 3m 2014 CBL6112D 35375 Ant. pol. : VERTICAL
 Limit : FCC PART 15 B (3M)
 Env. / Ins. : 26°C/58% Engineer : Donjon
 EUT : The Ultratide M/N:A476
 Power rating : DC 3V
 Test Mode : TX Mode

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 95.960 | 10.59 | 1.09 | 18.11 | 29.79 | 43.50 | 13.71 QP |
| 2 | 241.460 | 12.45 | 2.04 | 17.31 | 31.80 | 46.00 | 14.20 QP |
| 3 | 364.650 | 15.61 | 2.63 | 11.82 | 30.06 | 46.00 | 15.94 QP |
| 4 | 432.550 | 17.10 | 2.95 | 11.27 | 31.32 | 46.00 | 14.68 QP |
| 5 | 499.480 | 18.29 | 3.22 | 10.03 | 31.54 | 46.00 | 14.46 QP |
| 6 | 575.140 | 19.30 | 3.60 | 7.44 | 30.34 | 46.00 | 15.66 QP |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official
 limit are not reported.



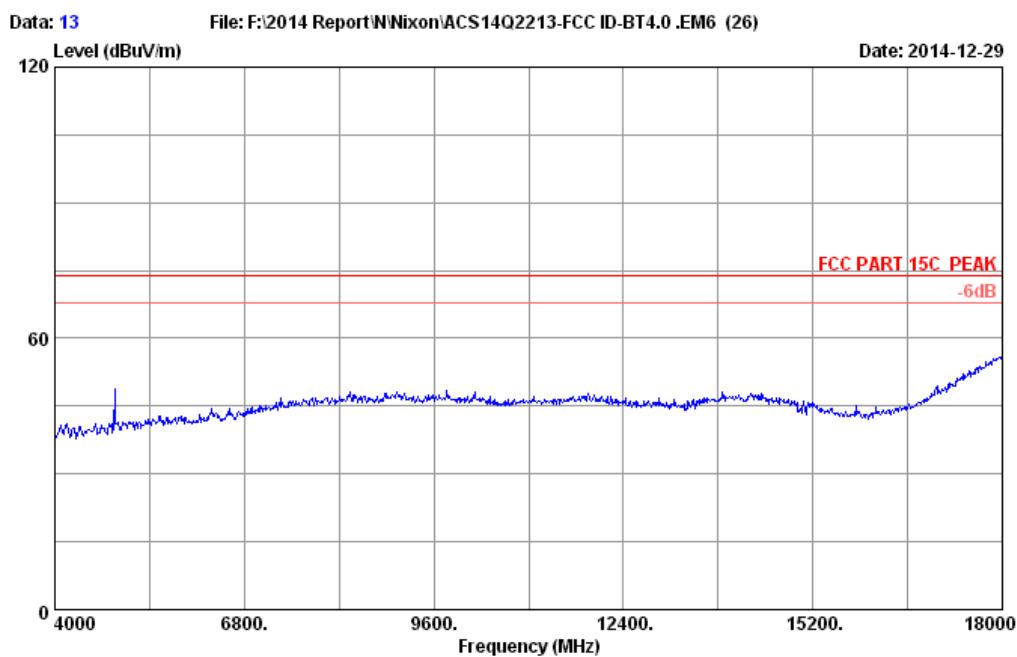
| | | | | | |
|--------------|---|---------------------|-----------|---|----------|
| Site no. | : | 3m Chamber | Data no. | : | 11 |
| Dis. / Ant. | : | 3m 2014 3115 (4580) | Ant. pol. | : | VERTICAL |
| Limit | : | FCC PART 15C PEAK | | | |
| Env. / Ins. | : | 23°C/54% | | | |
| Engineer | : | Donjon | | | |
| EUT | : | The Ultratide | | | |
| Power rating | : | DC 3V | | | |
| Test Mode | : | GFSK 2440MHz | | | |
| M/N | : | A476 | | | |



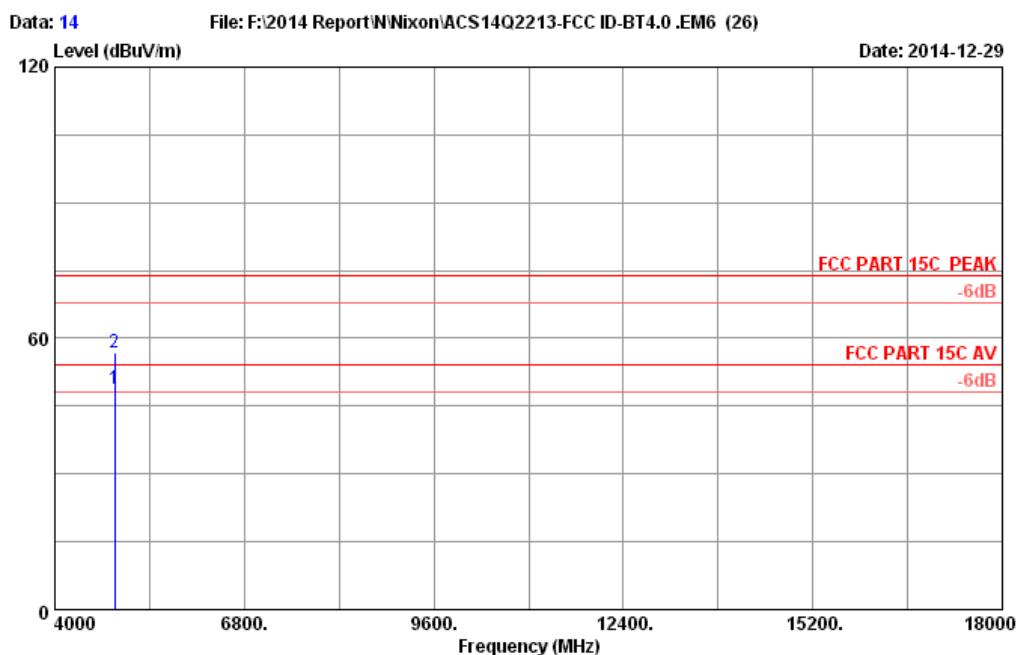
Site no. : 3m Chamber Data no. : 12
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratide
 Power rating : DC 3V
 Test Mode : GFSK 2440MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 4880.000 | 32.98 | 8.64 | 35.70 | 40.67 | 46.59 | 54.00 | 7.41 Average |
| 2 | 4880.000 | 32.98 | 8.64 | 35.70 | 47.95 | 53.87 | 74.00 | 20.13 Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp Factor
 2. The emission levels that are 20dB below the official
 limit are not reported



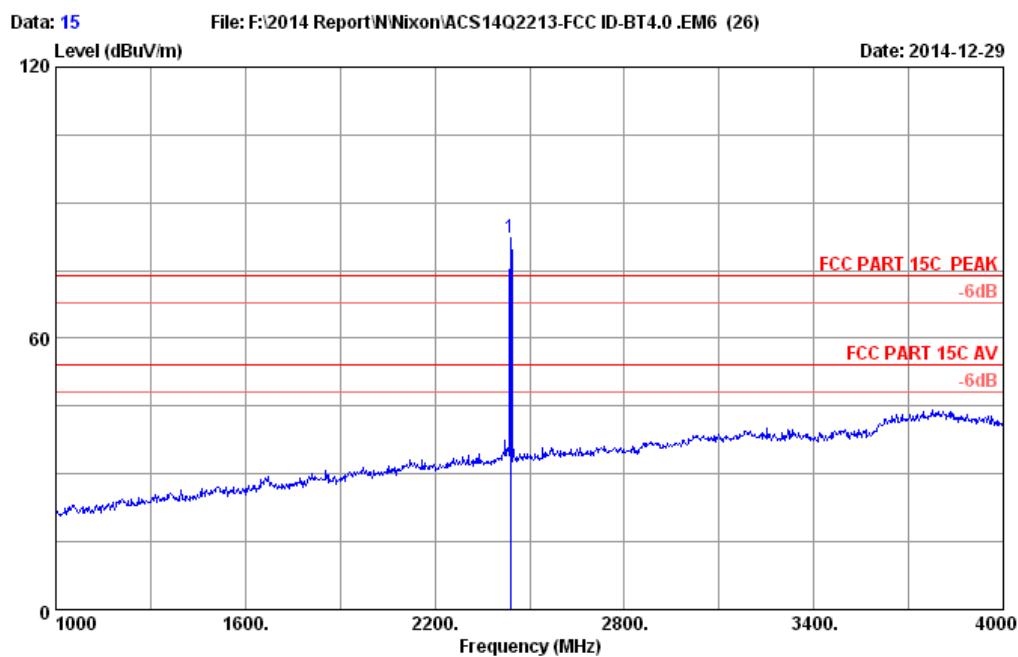
Site no. : 3m Chamber Data no. : 13
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2440MHz
M/N : A476



Site no. : 3m Chamber Data no. : 14
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratide
 Power rating : DC 3V
 Test Mode : GFSK 2440MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 4880.000 | 32.98 | 8.64 | 35.70 | 42.94 | 48.86 | 54.00 | 5.14 Average |
| 2 | 4880.000 | 32.98 | 8.64 | 35.70 | 50.95 | 56.87 | 74.00 | 17.13 Peak |

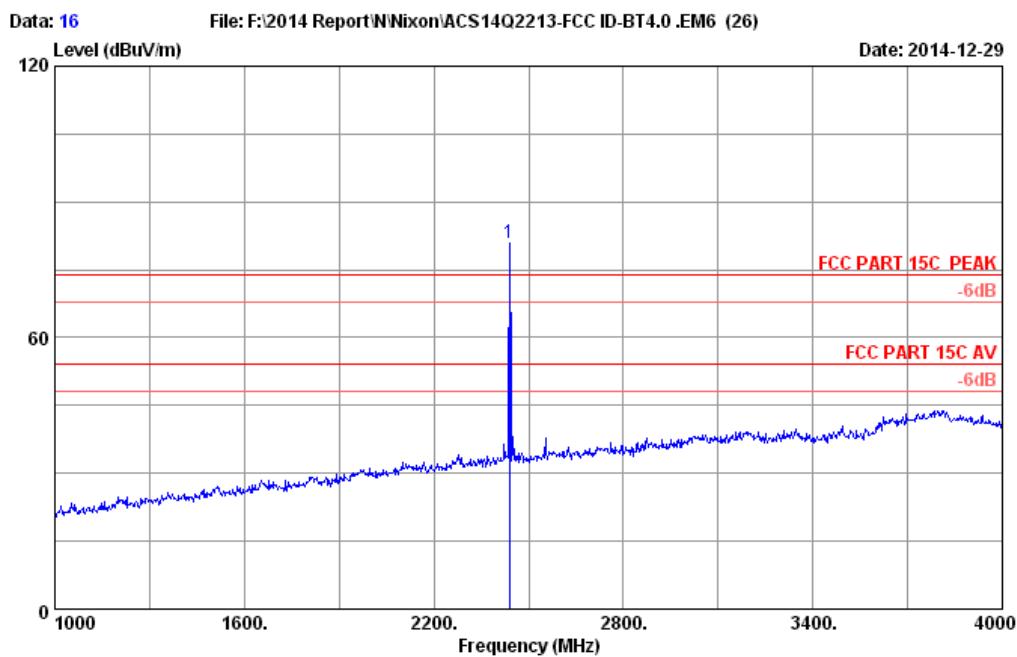
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official
limit are not reported



Site no. : 3m Chamber Data no. : 15
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratrade
 Power rating : DC 3V
 Test Mode : GFSK 2440MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2440.000 | 28.27 | 5.86 | 35.70 | 83.67 | 82.10 | 74.00 | -8.10 Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.

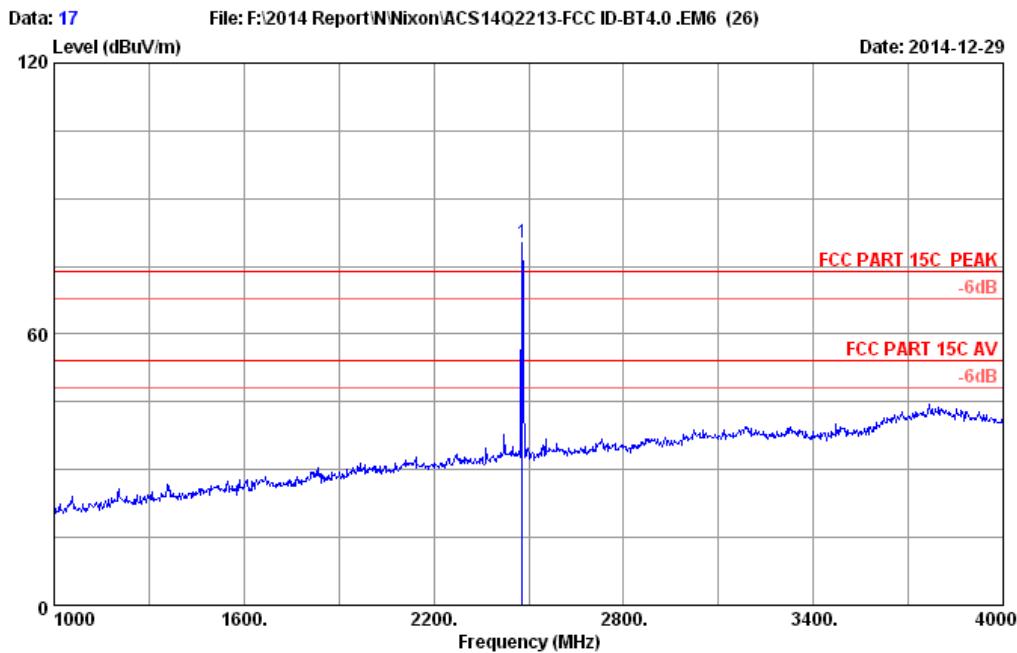


Site no. : 3m Chamber Data no. : 16
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratrade
 Power rating : DC 3V
 Test Mode : GFSK 2440MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2440.000 | 28.27 | 5.86 | 35.70 | 82.39 | 80.82 | 74.00 | -6.82 Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.

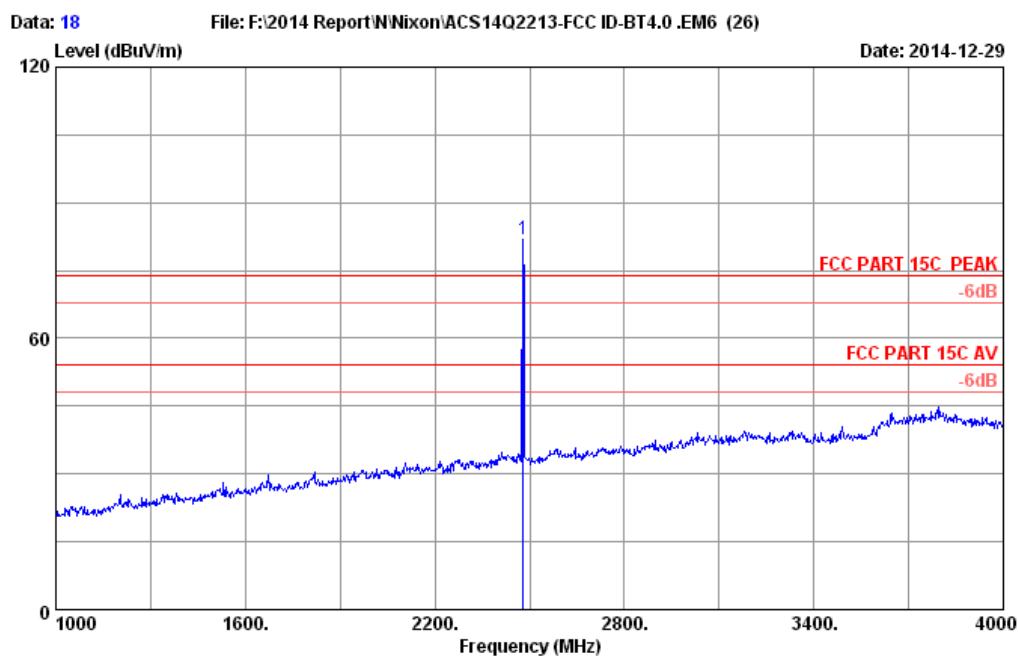
Test Mode: CH39: 2480MHz



Site no. : 3m Chamber Data no. : 17
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratide
 Power rating : DC 3V
 Test Mode : GFSK 2480MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. | Cable | AMP | Emission | | | |
|-----|----------------|------------------|--------------|----------------|-------------------|-------------------|--------------------|----------------|
| | | Factor (dB/m) | Loss (dB) | factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2480.000 | 28.36 | 5.91 | 35.70 | 81.49 | 80.06 | 74.00 | -6.06 Peak |

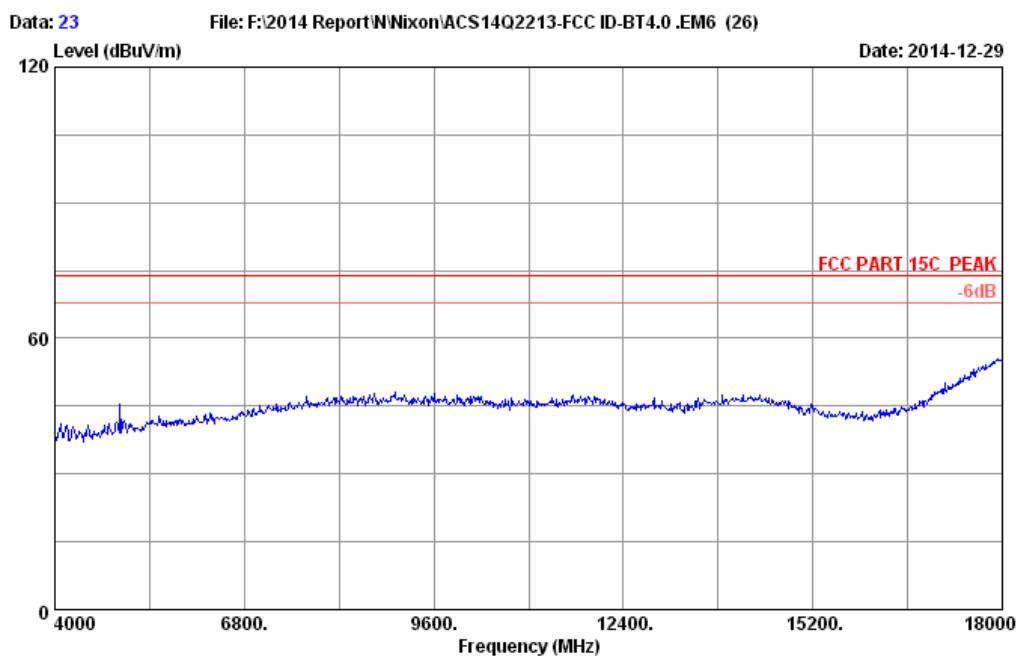
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



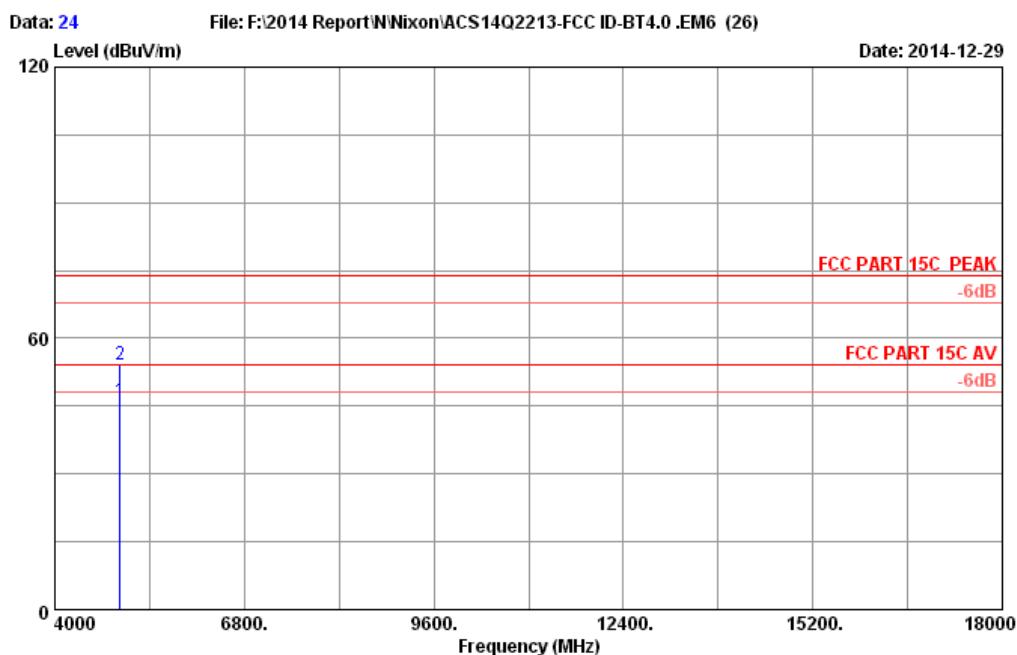
Site no. : 3m Chamber Data no. : 18
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratrade
 Power rating : DC 3V
 Test Mode : GFSK 2480MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2480.000 | 28.36 | 5.91 | 35.70 | 83.17 | 81.74 | 74.00 | -7.74 Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



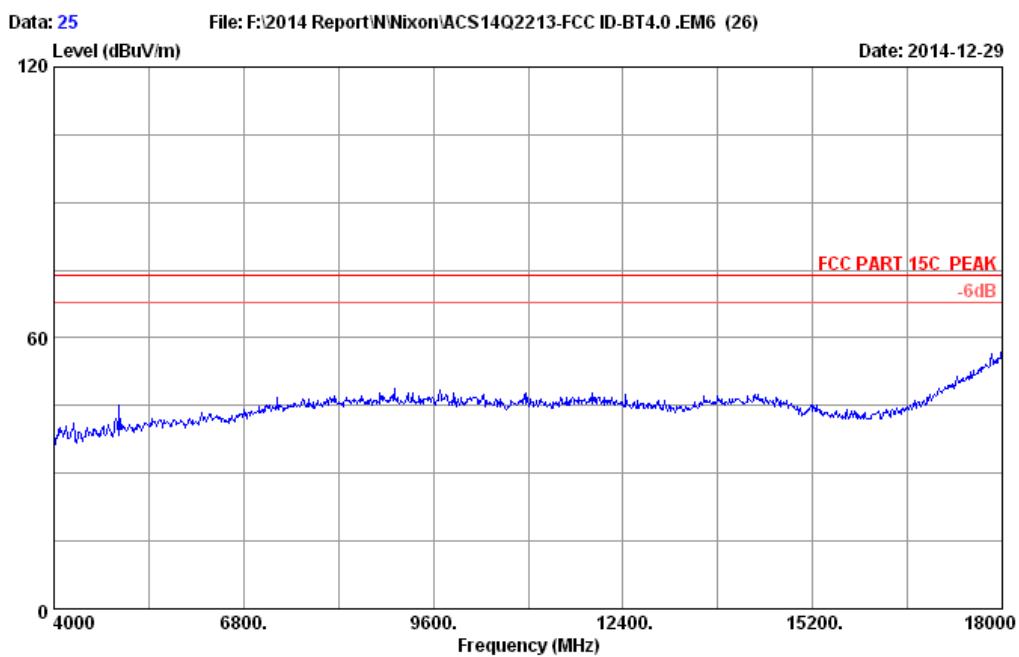
Site no. : 3m Chamber Data no. : 23
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2480MHz
M/N : A476



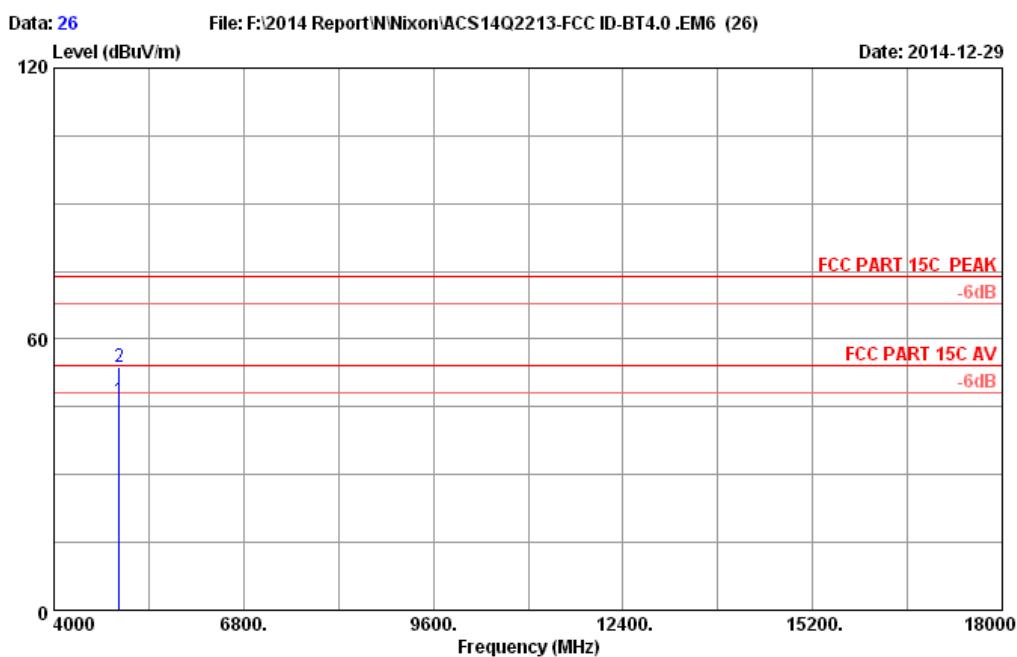
Site no. : 3m Chamber Data no. : 24
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratide
 Power rating : DC 3V
 Test Mode : GFSK 2480MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 4960.000 | 33.13 | 8.72 | 35.70 | 39.88 | 46.03 | 54.00 | 7.97 |
| 2 | 4960.000 | 33.13 | 8.72 | 35.70 | 47.92 | 54.07 | 74.00 | 19.93 |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official
limit are not reported



Site no. : 3m Chamber Data no. : 25
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2480MHz
M/N : A476



Site no. : 3m Chamber Data no. : 26
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratide
 Power rating : DC 3V
 Test Mode : GFSK 2480MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 4960.000 | 33.13 | 8.72 | 35.70 | 40.31 | 46.46 | 54.00 | 7.54 Average |
| 2 | 4960.000 | 33.13 | 8.72 | 35.70 | 47.55 | 53.70 | 74.00 | 20.30 Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.

4.6 Band Edge Measurements (Conducted)

Conducted band edge measurements at 2390MHz and 2483MHz were made with the unit transmitting in the low end of the channel range and the high end closest to the restricted bands respectively. The emissions were made on the shielding room and the table lists the corrected levels of the emissions at the band edge for comparison to the limit.

4.6.1 Test Data

The EUT The Ultratide complied with the FCC Part 15.247 Conducted band edge emissions requirements.

Table 12 provides the test results for Conducted band edge emissions.

4.6.2 Areas of Concern

None.

Table 12: Band Edge Measurements (Conducted)

Test Mode:CH0: 2402MHz



Test Mode:CH39: 2480MHz



4.7 Band Edge Measurements (Radiated)

Radiated band edge measurements at 2390MHz and 2483MHz were made with the unit transmitting in the low end of the channel range and the high end closest to the restricted bands respectively. The emissions were made on the 966 Semi-Chamber. Use (resolution bandwidth (RBW) = 1 MHz, video bandwidth (VBW) = 1 MHz for peak levels and RBW = 1 MHz and VBW = 10 Hz for average levels).

4.7.1 Test Data

The EUT The Ultratide complied with the FCC Part 15.247 Radiated band edge emissions requirements.

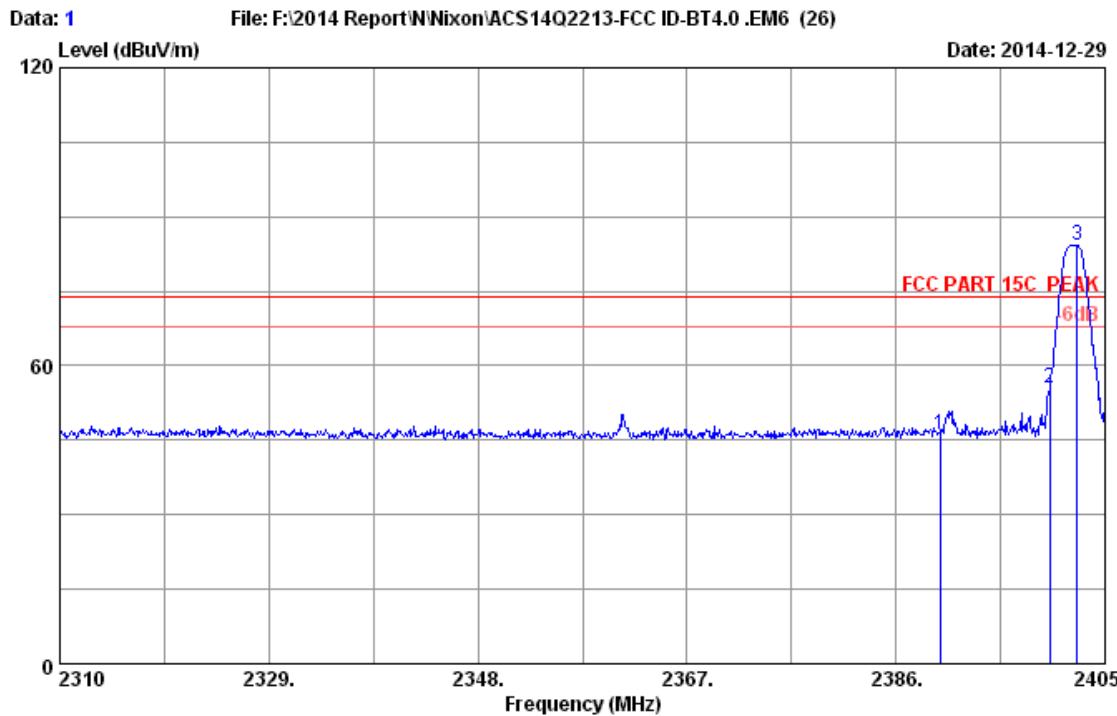
Table 13 provides the test results for Radiated band edge emissions.

4.7.2 Areas of Concern

None.

Table 13: Band Edge Measurements (Radiated)

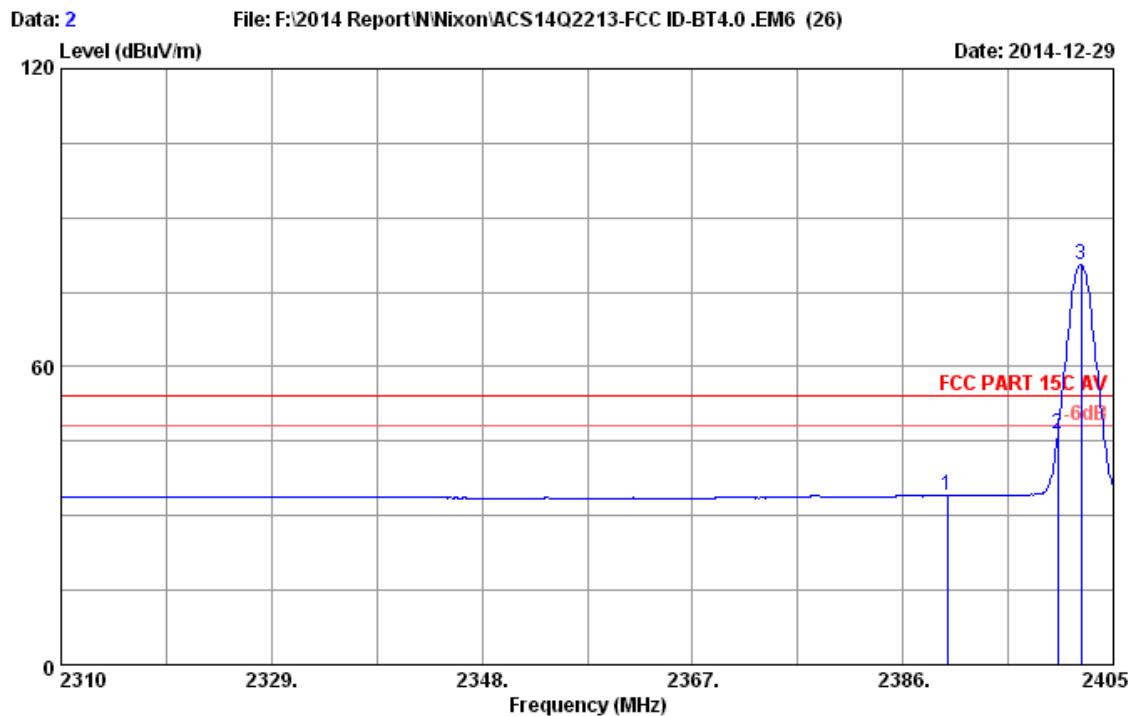
Test Mode: CH0: 2402MHz



Site no. : 3m Chamber Data no. : 1
 Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23°C/54%
 Engineer : Donjon
 EUT : The Ultratide
 Power rating : DC 3V
 Test Mode : GFSK 2402MHz
 M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2389.990 | 28.16 | 5.78 | 35.70 | 47.79 | 46.03 | 74.00 | 27.97 Peak |
| 2 | 2400.000 | 28.18 | 5.80 | 35.70 | 57.05 | 55.33 | 74.00 | 18.67 Peak |
| 3 | 2402.435 | 28.19 | 5.80 | 35.70 | 85.89 | 84.18 | 74.00 | -10.18 Peak |

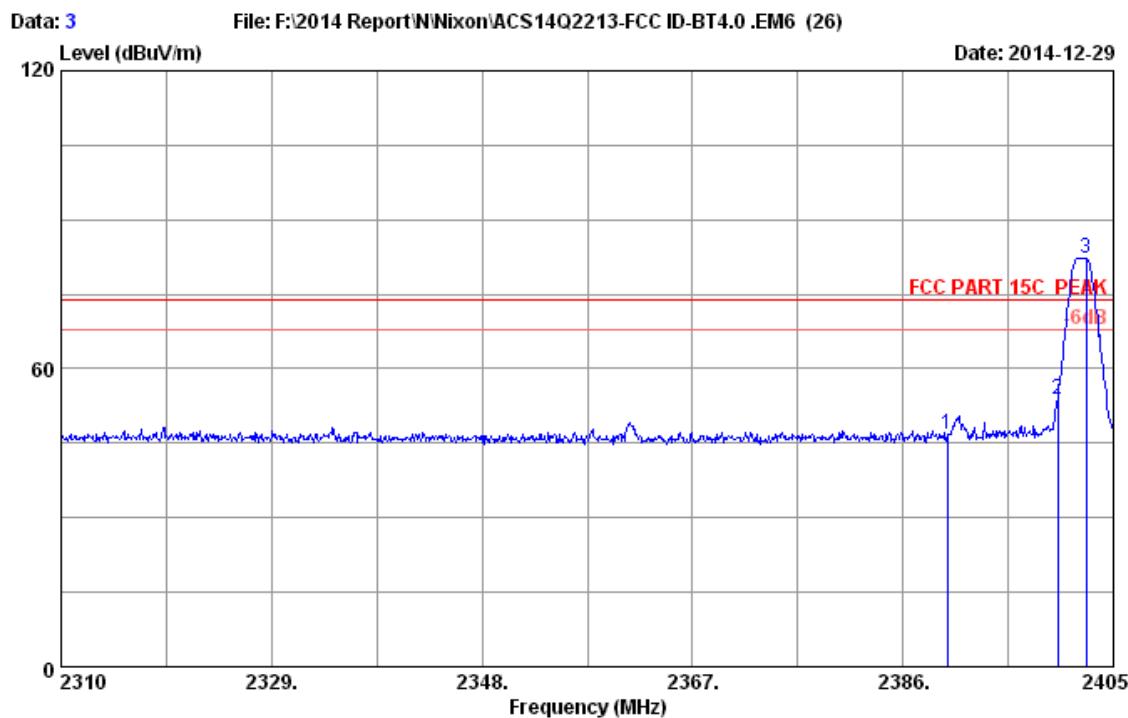
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp Factor
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 2
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2402MHz
M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2390.000 | 28.16 | 5.78 | 35.70 | 35.75 | 33.99 | 54.00 | 20.01 Average |
| 2 | 2400.000 | 28.18 | 5.80 | 35.70 | 48.29 | 46.57 | 54.00 | 7.43 Average |
| 3 | 2402.055 | 28.18 | 5.80 | 35.70 | 82.26 | 80.54 | 54.00 | -26.54 Average |

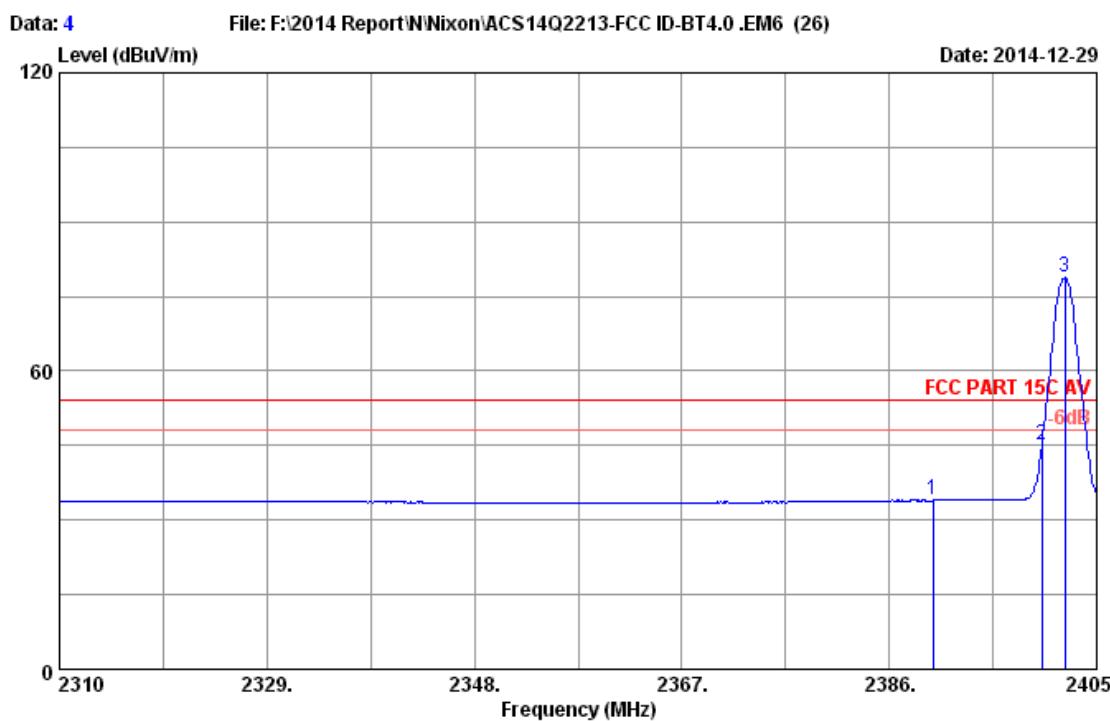
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official
limit are not reported.



Site no. : 3m Chamber Data no. : 3
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2402MHz
M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2390.000 | 28.16 | 5.78 | 35.70 | 48.41 | 46.65 | 74.00 | 27.35 Peak |
| 2 | 2400.000 | 28.18 | 5.80 | 35.70 | 55.53 | 53.81 | 74.00 | 20.19 Peak |
| 3 | 2402.530 | 28.19 | 5.80 | 35.70 | 83.98 | 82.27 | 74.00 | -8.27 Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official
limit are not reported.

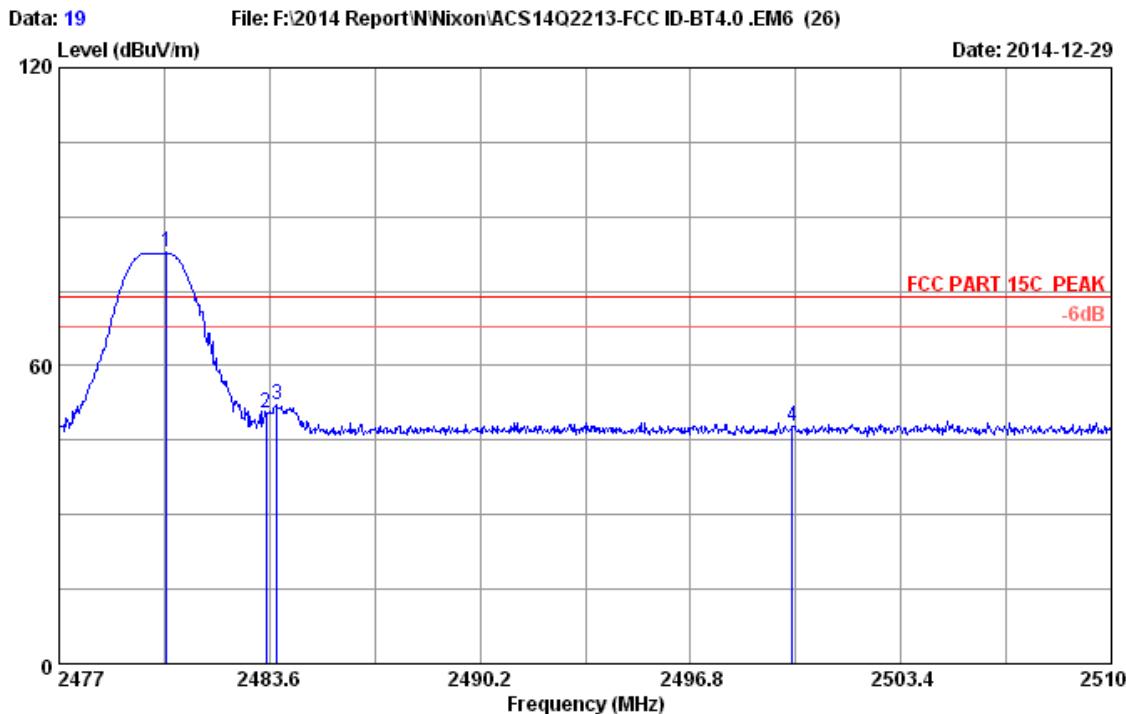


Site no. : 3m Chamber Data no. : 4
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2402MHz
M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2389.990 | 28.16 | 5.78 | 35.70 | 35.72 | 33.96 | 54.00 | 20.04 Average |
| 2 | 2400.000 | 28.18 | 5.80 | 35.70 | 46.92 | 45.20 | 54.00 | 8.80 Average |
| 3 | 2402.055 | 28.18 | 5.80 | 35.70 | 80.48 | 78.76 | 54.00 | -24.76 Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official
limit are not reported.

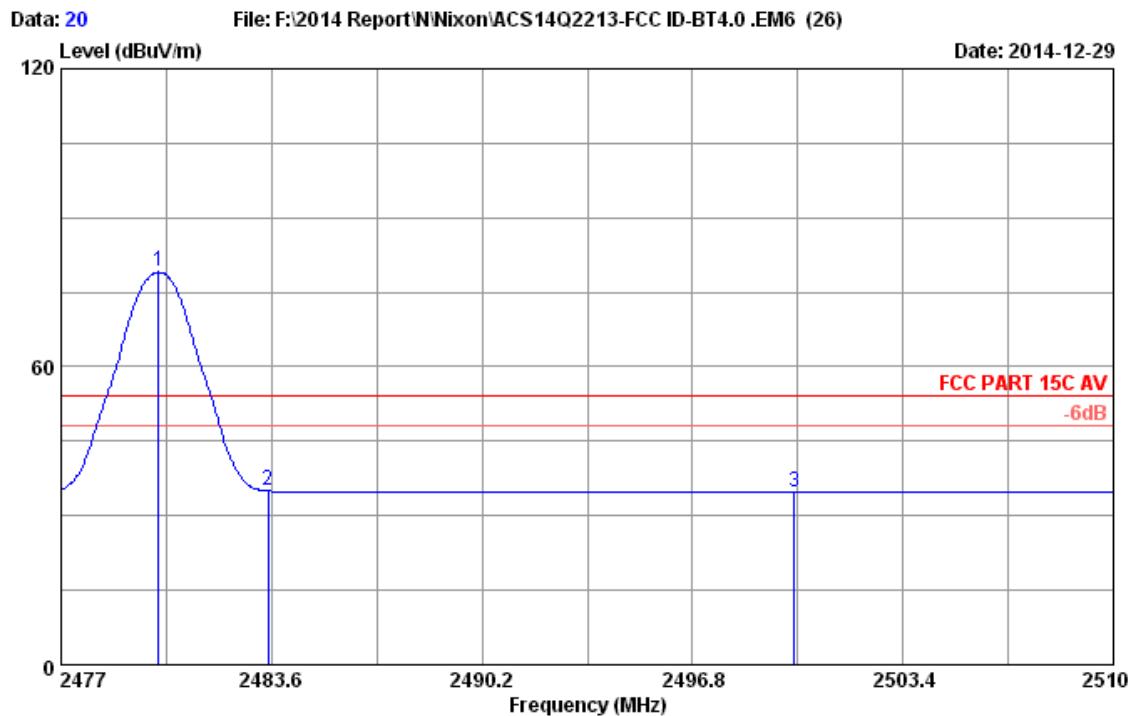
Test Mode: CH39: 2480MHz



Site no. : 3m Chamber Data no. : 19
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2480MHz
M/N : A476

| No. | Freq. (MHz) | Ant. | Cable | AMP | Emission | | | |
|-----|----------------|------------------|--------------|----------------|-------------------|-------------------|--------------------|----------------|
| | | Factor (dB/m) | Loss (dB) | factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2480.366 | 28.36 | 5.91 | 35.70 | 84.17 | 82.74 | 74.00 | -8.74 Peak |
| 2 | 2483.500 | 28.36 | 5.92 | 35.70 | 51.74 | 50.32 | 74.00 | 23.68 Peak |
| 3 | 2483.831 | 28.36 | 5.92 | 35.70 | 53.54 | 52.12 | 74.00 | 21.88 Peak |
| 4 | 2500.000 | 28.40 | 5.94 | 35.70 | 49.20 | 47.84 | 74.00 | 26.16 Peak |

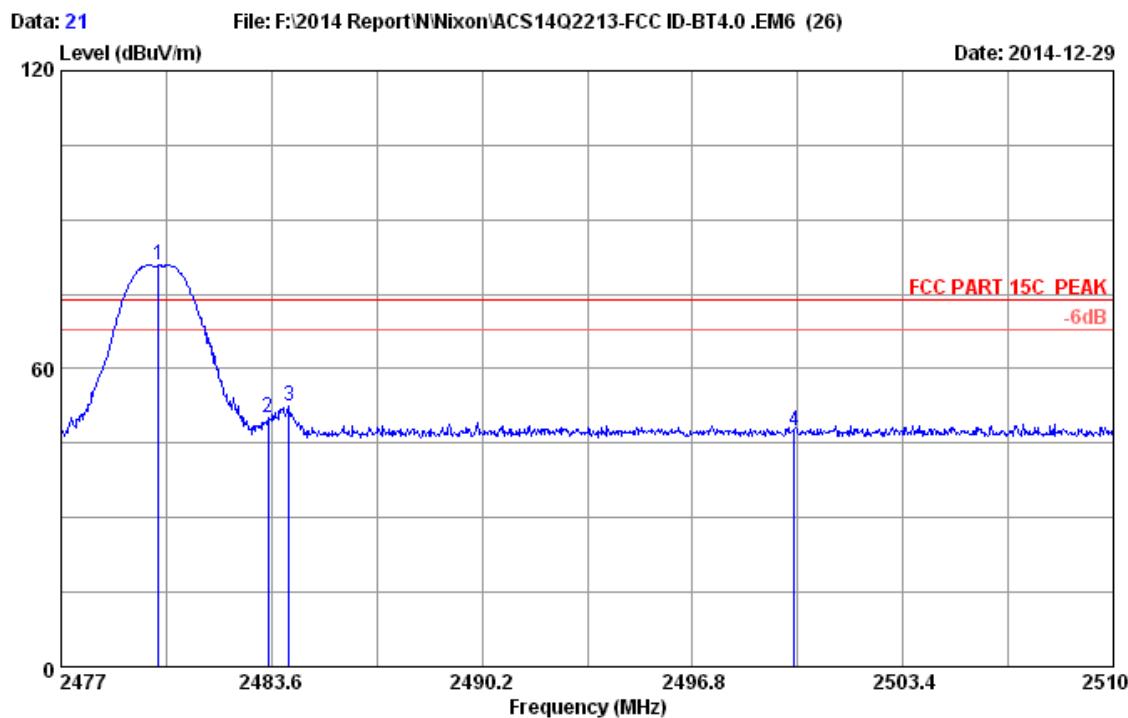
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official
limit are not reported.



Site no. : 3m Chamber Data no. : 20
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2480MHz
M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2480.069 | 28.36 | 5.91 | 35.70 | 80.49 | 79.06 | 54.00 | -25.06 Average |
| 2 | 2483.500 | 28.36 | 5.92 | 35.70 | 36.38 | 34.96 | 54.00 | 19.04 Average |
| 3 | 2500.000 | 28.40 | 5.94 | 35.70 | 36.03 | 34.67 | 54.00 | 19.33 Average |

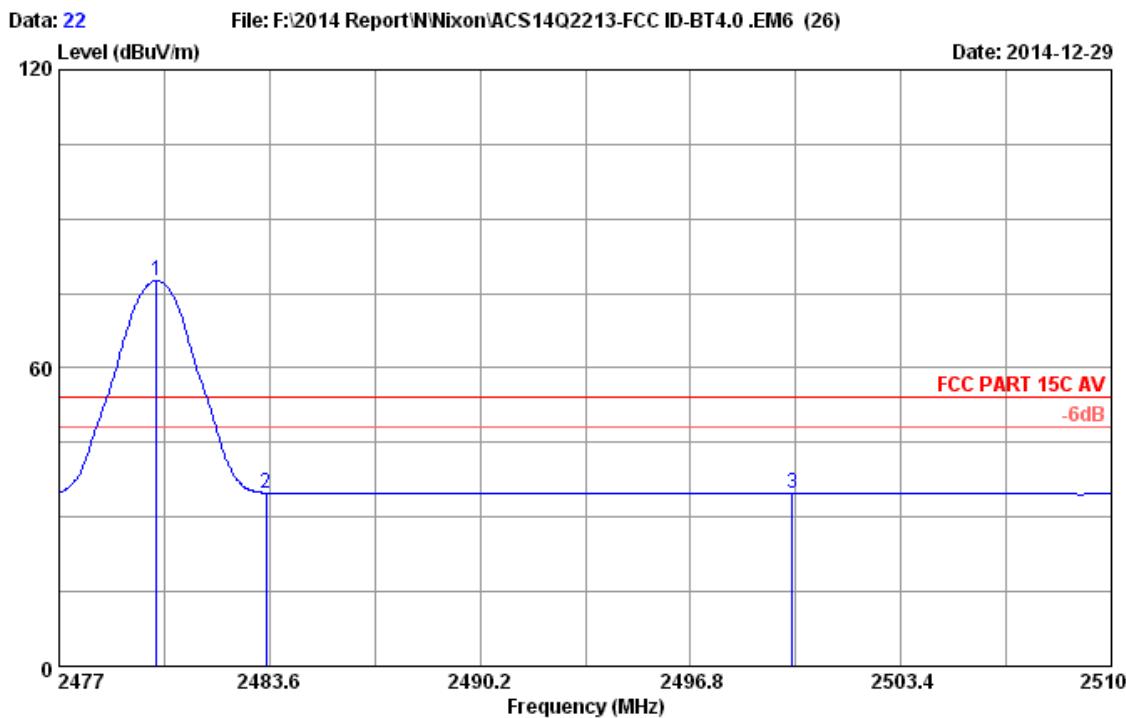
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official
limit are not reported.



Site no. : 3m Chamber Data no. : 21
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2480MHz
M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2480.069 | 28.36 | 5.91 | 35.70 | 82.26 | 80.83 | 74.00 | -6.83 Peak |
| 2 | 2483.500 | 28.36 | 5.92 | 35.70 | 51.65 | 50.23 | 74.00 | 23.77 Peak |
| 3 | 2484.161 | 28.37 | 5.92 | 35.70 | 53.73 | 52.32 | 74.00 | 21.68 Peak |
| 4 | 2500.000 | 28.40 | 5.94 | 35.70 | 48.94 | 47.58 | 74.00 | 26.42 Peak |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official
limit are not reported.



Site no. : 3m Chamber Data no. : 22
Dis. / Ant. : 3m 2014 3115 (4580) Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23°C/54%
Engineer : Donjon
EUT : The Ultratide
Power rating : DC 3V
Test Mode : GFSK 2480MHz
M/N : A476

| No. | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | AMP factor (dB) | Emission | | | |
|-----|----------------|--------------------------|-----------------------|-----------------------|-------------------|-------------------|--------------------|----------------|
| | | | | | Reading (dBuV) | Level (dBuV/m) | Limits (dBuV/m) | Margin (dB) |
| 1 | 2480.069 | 28.36 | 5.91 | 35.70 | 78.97 | 77.54 | 54.00 | -23.54 Average |
| 2 | 2483.500 | 28.36 | 5.92 | 35.70 | 36.29 | 34.87 | 54.00 | 19.13 Average |
| 3 | 2500.000 | 28.40 | 5.94 | 35.70 | 36.06 | 34.70 | 54.00 | 19.30 Average |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
-Amp Factor
2. The emission levels that are 20dB below the official
limit are not reported.

4.8 AC Powerline Conducted Emissions: (FCC Part §15.207)

According to Paragraph (c) of FCC Part 15 section 15.207, Tests to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

-----The End-----