



**FCC 47 CFR PART 15 SUBPART C  
INDUSTRY CANADA RSS-247 ISSUE 1**

**CERTIFICATION TEST REPORT**

**FOR**

**APPLE WATCH**

**MODEL NUMBER: A1802**

**FCC ID: BCG-E3102  
IC: 579C-E3102**

**REPORT NUMBER: 16U23780-E3V3**

**ISSUE DATE: AUGUST 27, 2016**

*Prepared for*  
**APPLE, INC.  
1 INFINITE LOOP  
CUPERTINO, CA 95014, U.S.A.**

*Prepared by*  
**UL VERIFICATION SERVICES INC.  
47173 BENICIA STREET  
FREMONT, CA 94538, U.S.A.  
TEL: (510) 771-1000  
FAX: (510) 661-0888**



**NVLAP LAB CODE 200065-0**

Revision History

| Rev. | Issue Date | Revisions                                 | Revised By       |
|------|------------|-------------------------------------------|------------------|
| V1   | 08/15/2016 | Initial Issue                             | Mengistu Mekuria |
| V2   | 08/26/2016 | Revised report to address TCB's questions | Tina Chu         |
| V3   | 08/27/2016 | Revised Section 5.5 and Section 11        | Tina Chu         |

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** APPLE, INC.  
1 INFINITE LOOP  
CUPERTINO, CA 95014, U.S.A.

**EUT DESCRIPTION:** APPLE WATCH

**MODEL:** A1802

**SERIAL NUMBER:** FM7RM045H91M

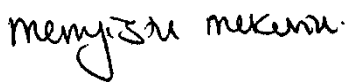
**DATE TESTED:** JUNE 28 – AUGUST 03, 2016

| APPLICABLE STANDARDS            |              |
|---------------------------------|--------------|
| STANDARD                        | TEST RESULTS |
| CFR 47 Part 15 Subpart C        | Pass         |
| INDUSTRY CANADA RSS-247 Issue 1 | Pass         |
| INDUSTRY CANADA RSS-GEN Issue 4 | Pass         |

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For  
UL Verification Services Inc. By:



MENGISTU MEKURIA  
PROJECT LEADER  
UL VERIFICATION SERVICES INC.

Prepared By:



TOM CHEN  
EMC ENGINEER  
UL VERIFICATION SERVICES INC.

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 558074 D01 v03r05, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 1.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

| 47173 Benicia Street               | 47266 Benicia Street                          |
|------------------------------------|-----------------------------------------------|
| <input type="checkbox"/> Chamber A | <input type="checkbox"/> Chamber D            |
| <input type="checkbox"/> Chamber B | <input type="checkbox"/> Chamber E            |
| <input type="checkbox"/> Chamber C | <input checked="" type="checkbox"/> Chamber F |
|                                    | <input type="checkbox"/> Chamber G            |
|                                    | <input type="checkbox"/> Chamber H            |

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned}\text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m}\end{aligned}$$

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER                                | UNCERTAINTY |
|------------------------------------------|-------------|
| Conducted Disturbance, 9KHz to 0.15 MHz  | 3.84 dB     |
| Conducted Disturbance, 0.15 to 30 MHz    | 3.65 dB     |
| Radiated Disturbance, 9KHz to 30 MHz     | 3.15 dB     |
| Radiated Disturbance, 30 to 1000 MHz     | 5.36 dB     |
| Radiated Disturbance, 1000 to 18000 MHz  | 4.32 dB     |
| Radiated Disturbance, 18000 to 26000 MHz | 4.45 dB     |
| Radiated Disturbance, 26000 to 40000 MHz | 5.24 dB     |

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is an Apple Watch with WLAN, Bluetooth and NFC support.

### 5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

| Frequency Range (MHz) | Mode             | Output Power (dBm)  | Output Power (mW) |
|-----------------------|------------------|---------------------|-------------------|
| 2412 - 2472           | 802.11b 1TX      | 22.61               | 182.39            |
| 2412 - 2472           | 802.11g 1TX      | Covered by HT20 1TX |                   |
| 2412 - 2472           | 802.11n HT20 1TX | 25.04               | 319.15            |

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

| Frequency Band (GHz) | Antenna Gain (dBi) |
|----------------------|--------------------|
|                      | Antenna 1          |
| 2.4                  | -10.50             |

### 5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 14S310.

## **5.5. WORST-CASE CONFIGURATION AND MODE**

EUT has 1 type of enclosure and various kinds of metallic and non-metallic wristbands. There are 2 types of metallic bands; Metal Links, and Metal Mesh. The worst-case configuration was investigated within these combinations charging with/without wireless charger by AC/DC adapter and it was determined that EUT with wristband without wireless charger was the worst-case; therefore, all final above 1G radiated testing was performed with this configuration. There is no significant difference among various kinds of wristbands.

Radiated emission below 1G worst case was investigated and was determined that EUT with wristband with wireless charger charging by AC/DC adapter set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X/Y/Z, it was determined that Z - portrait orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in Z - portrait orientation.

Worst-case data rates as provided by the client were:

802.11b mode: 1 Mbps  
802.11g mode: 6 Mbps  
802.11n HT20 mode: MCS0

802.11g and 802.11n HT20 1TX have the same target power and use the same modulation (OFDM). Therefore, 802.11g 1TX is covered by 802.11n HT20 1TX.

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

| Support Equipment List |              |         |                        |          |
|------------------------|--------------|---------|------------------------|----------|
| Description            | Manufacturer | Model   | Serial Number          | FCC ID   |
| Laptop AC/DC adapter   | Lenovo       | 92P1160 | 11S92P1160Z1ZBGH798B12 | N/A      |
| Laptop                 | Lenovo       | 7659    | L3-AL664 08/03         | N/A      |
| Wireless Charger       | Apple        | A1768   | DLC616200ZYHE1Y835     | BCGA1768 |
| AC/DC adapter          | Apple        | A1385   | D293154U2DTDHLHCW      | N/A      |
| Test jig               | Apple        | -       | OYOOH217               | N/A      |

### I/O CABLES (CONDUCTED TEST)

| I/O Cable List |         |                      |                 |             |                  |                       |
|----------------|---------|----------------------|-----------------|-------------|------------------|-----------------------|
| Cable No       | Port    | # of identical ports | Connector Type  | Cable Type  | Cable Length (m) | Remarks               |
| 1              | Antenna | 1                    | SMA             | Un-Shielded | 0.2              | To spectrum Analyzer  |
| 2              | USB     | 1                    | USB to mini USB | Shielded    | 1                | To laptop and fixture |

### I/O CABLES (ABOVE 1G RADIATED TEST)

| I/O Cable List |      |                      |                |            |                  |         |
|----------------|------|----------------------|----------------|------------|------------------|---------|
| Cable No       | Port | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| None used      |      |                      |                |            |                  |         |

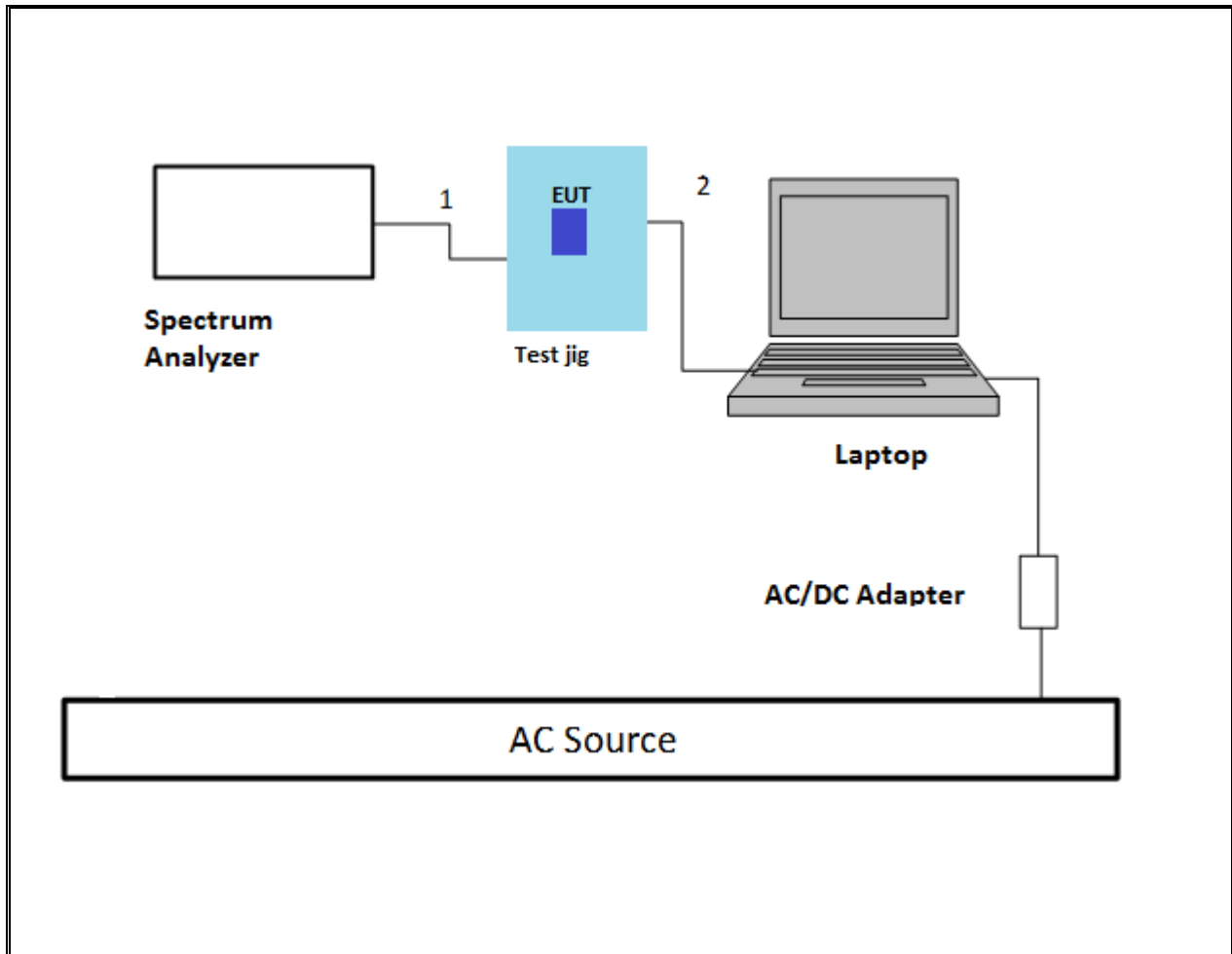
### I/O CABLES (BELOW 1G RADIATED TEST)

| I/O Cable List |      |                      |                |             |                  |                  |
|----------------|------|----------------------|----------------|-------------|------------------|------------------|
| Cable No       | Port | # of identical ports | Connector Type | Cable Type  | Cable Length (m) | Remarks          |
| 1              | USB  | 1                    | USB            | Un-Shielded | 2                | To AC/DC adapter |

### TEST SETUP- CONDUCTED PORT

The EUT was placed in a test jig and test jig connected to a host Laptop via USB cable adapter and spectrum analyzer to antenna port. Test software exercised the EUT.

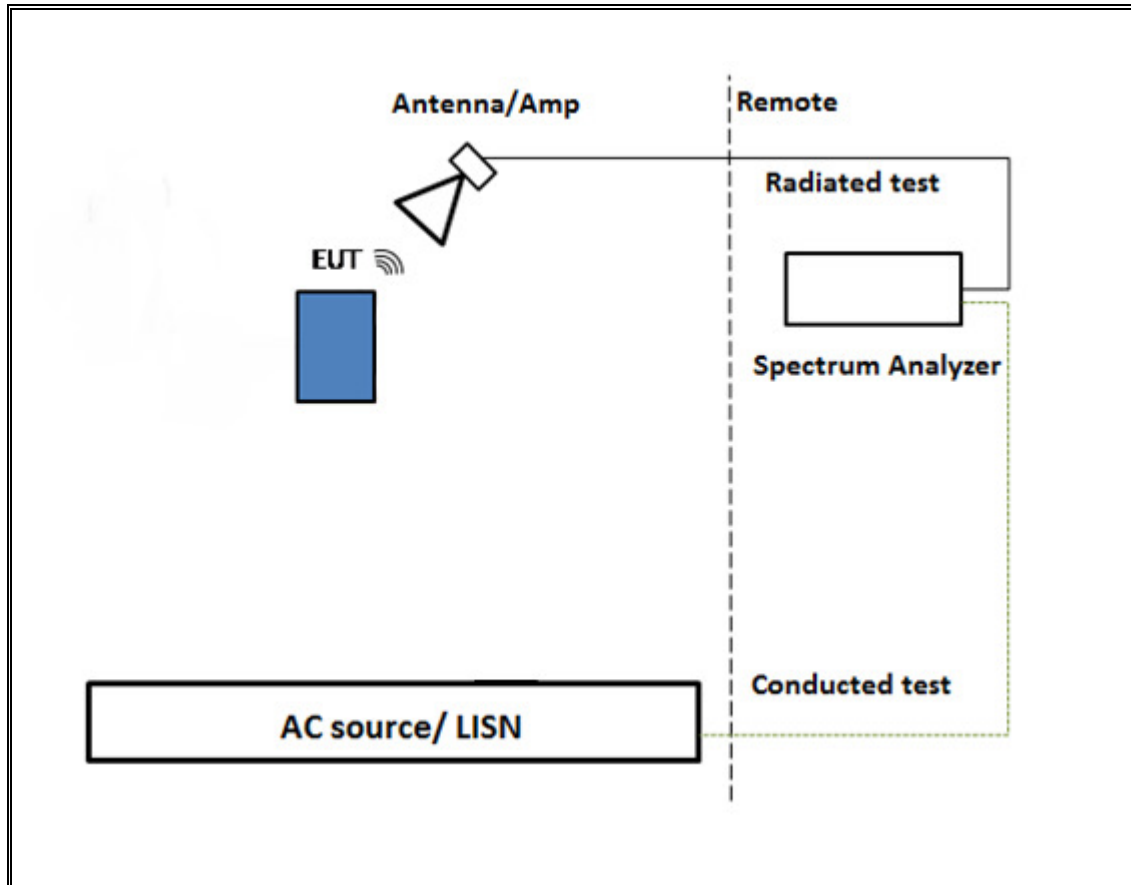
### SETUP DIAGRAM



### **TEST SETUP- ABOVE 1GHZ TESTS**

EUT was powered by battery. Test software exercised the EUT.

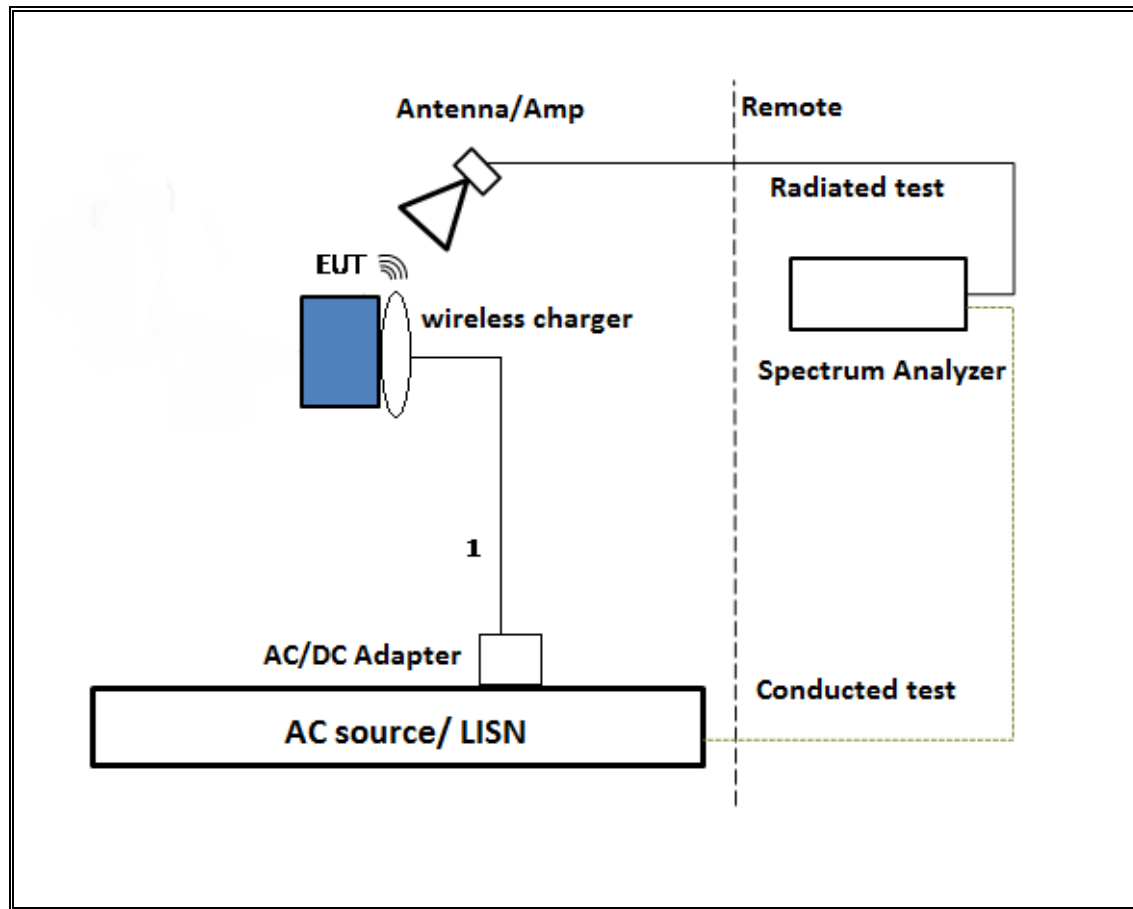
### **SETUP DIAGRAM**



### **TEST SETUP- BELOW 1GHZ TESTS**

EUT was powered by battery and charged by AC/DC adapter via USB cable with wireless charger Test software exercised the EUT.

### **SETUP DIAGRAM**



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| Test Equipment List                                |                |                        |                           |            |
|----------------------------------------------------|----------------|------------------------|---------------------------|------------|
| Description                                        | Manufacturer   | Model                  | T Number                  | Cal Due    |
| Antenna, Horn 1-18GHz                              | ETS Lindgren   | 3117                   | T120                      | 4/5/2017   |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz        | Sunol Sciences | JB3                    | T122                      | 1/29/2017  |
| Amplifier, 10KHz to 1GHz, 32dB                     | Sonoma         | 310N                   | T173                      | 6/17/2017  |
| Spectrum Analyzer, PXA, 3Hz to 44GHz               | Agilent        | N9030A                 | T341                      | 10/14/2016 |
| Antenna, Horn 1-18GHz                              | ETS Lindgren   | 3117                   | T862                      | 4/18/2017  |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz        | Sunol Sciences | JB3                    | T899                      | 5/26/2017  |
| Amplifier, 1 - 18GHz                               | Miteq          | AFS42-00101800-25-S-42 | T491                      | 5/31/2017  |
| Amplifier, 10KHz to 1GHz, 32dB                     | Sonoma         | 310N                   | T834                      | 6/17/2017  |
| Spectrum Analyzer, PXA, 3Hz to 44GHz               | Agilent        | N9030A                 | T905                      | 6/21/2017  |
| **Power Meter, P-series single channel             | Agilent        | N1911A                 | T1271                     | 7/8/2017   |
| Power Sensor, P - series, 50MHz to 18GHz, Wideband | Agilent        | N1921A                 | T1228                     | 6/20/2017  |
| Antenna, Horn 18 to 26.5GHz                        | ARA            | MWH-1826               | T447                      | 6/16/2017  |
| Spectrum Analyzer, 40 GHz                          | Agilent        | 8564E                  | T106                      | 8/13/2016  |
| Amplifier, 1 to 26.5GHz, 23.5dB Gain minimum       | Keysight       | 8449B                  | T402                      | 7/5/2017   |
| UL SOFTWARE                                        |                |                        |                           |            |
| * Radiated Software                                | UL             | UL EMC                 | Ver 9.5, June 24, 2015    |            |
| * Conducted Software                               | UL             | UL EMC                 | Ver 4.0, January 11, 2016 |            |

Note: \* indicates automation software version used in the compliance certification testing  
\*\* equipment was set to test after the calibration.

## 7. MEASUREMENT METHODS

6 dB BW: KDB 558074 D01 v03r05, Section 8.1.

Output Power: KDB 558074 D01 v03r05, Section 9.1.2.

Power Spectral Density: KDB 558074 D01 v03r05, Section 10.2.

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v03r05, Section 11.0.

Out-of-band emissions in restricted bands: KDB 558074 D01 v03r05, Section 12.1.

Band-edge: KDB 558074 D01 v03r05, Section 12.1.

## 8. ANTENNA PORT TEST RESULTS

### ON TIME AND DUTY CYCLE

#### LIMITS

None; for reporting purposes only.

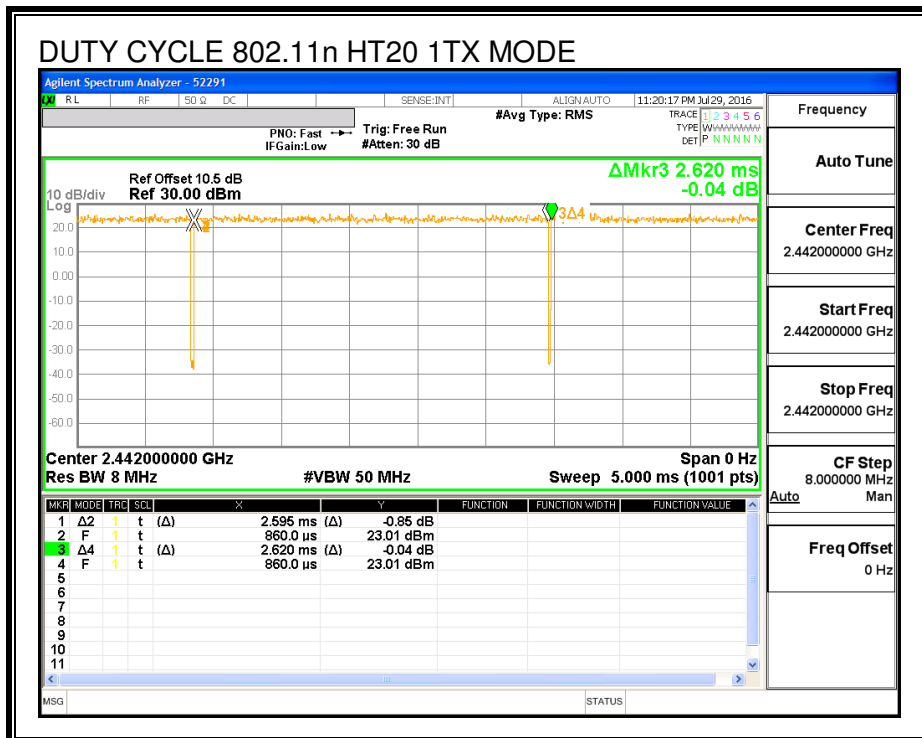
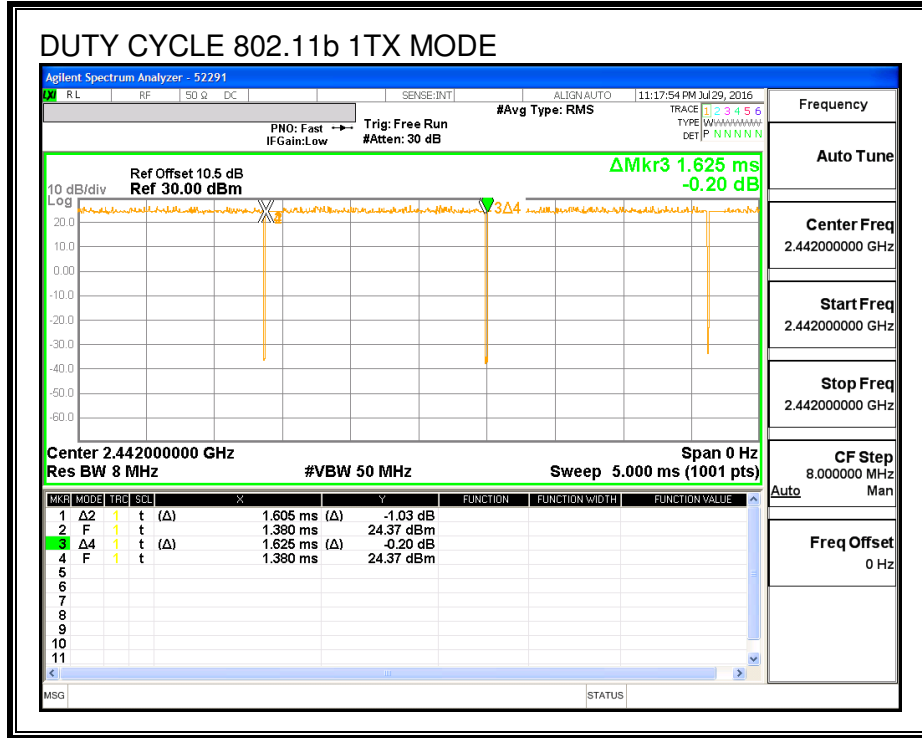
#### PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

### ON TIME AND DUTY CYCLE RESULTS

| Mode               | ON Time<br>B<br>(msec) | Period<br>(msec) | Duty Cycle<br>x<br>(linear) | Duty<br>Cycle<br>(%) | Duty Cycle<br>Correction Factor<br>(dB) | 1/B<br>Minimum VBW<br>(kHz) |
|--------------------|------------------------|------------------|-----------------------------|----------------------|-----------------------------------------|-----------------------------|
| <b>2.4GHz Band</b> |                        |                  |                             |                      |                                         |                             |
| 802.11b 1TX        | 1.605                  | 1.625            | 0.988                       | 98.77%               | 0.00                                    | 0.010                       |
| 802.11n HT20 1TX   | 2.595                  | 2.620            | 0.990                       | 99.05%               | 0.00                                    | 0.010                       |

## DUTY CYCLE PLOTS



## **8.1. 802.11b SISO MODE IN THE 2.4 GHz BAND**

### **8.1.1. 6 dB BANDWIDTH**

#### **LIMITS**

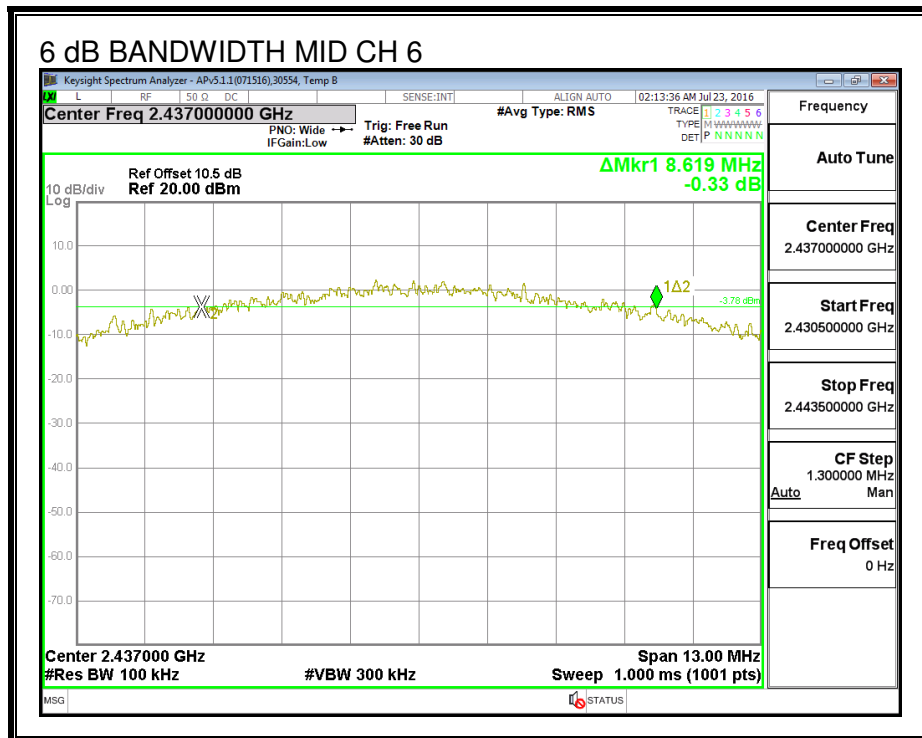
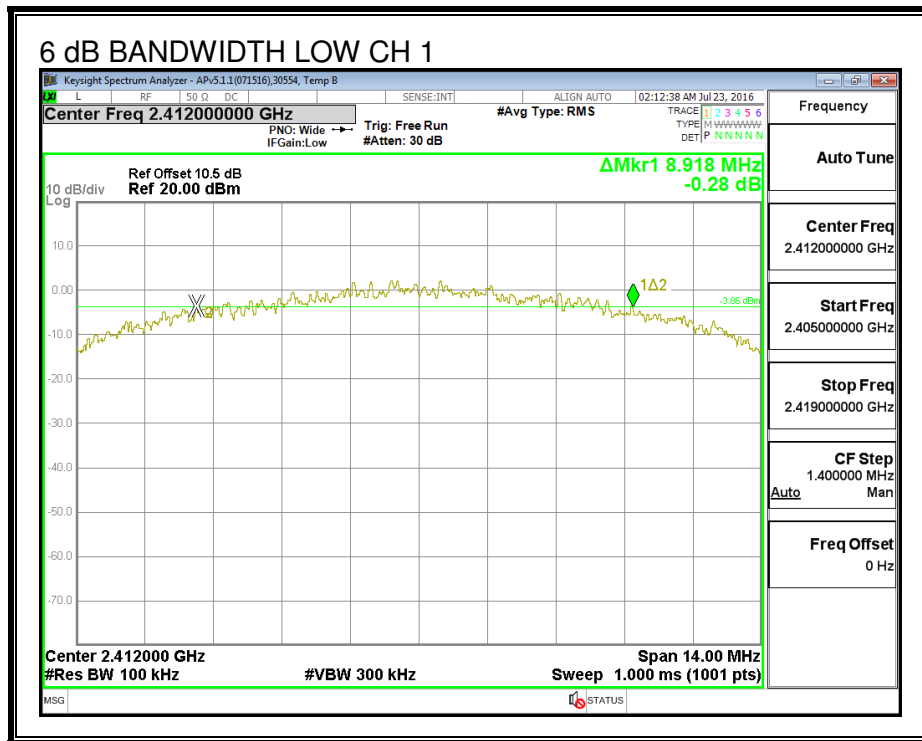
FCC §15.247 (a) (2)

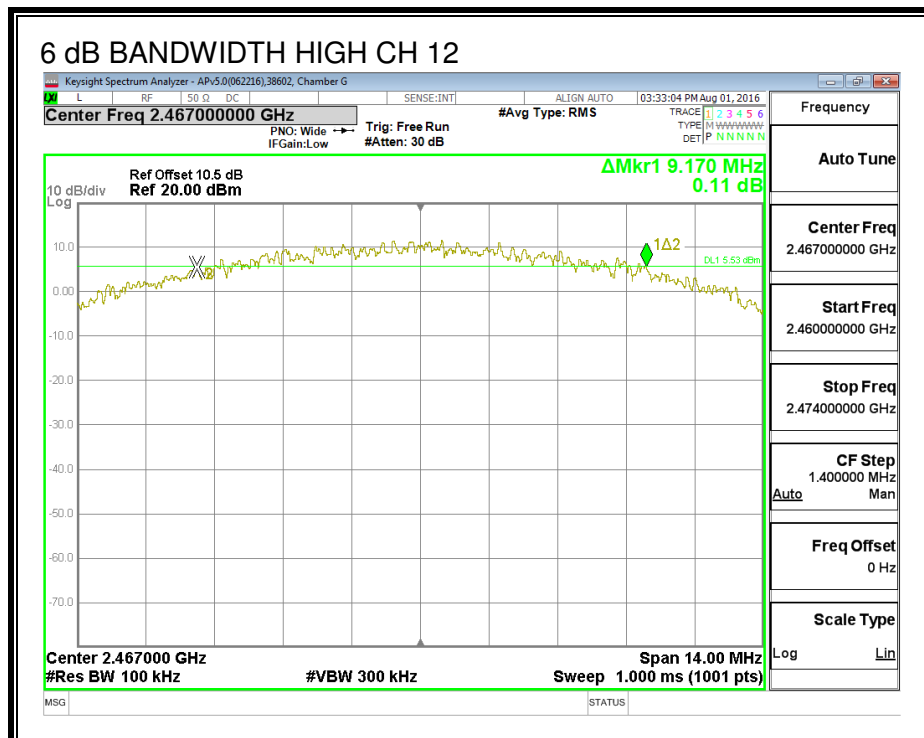
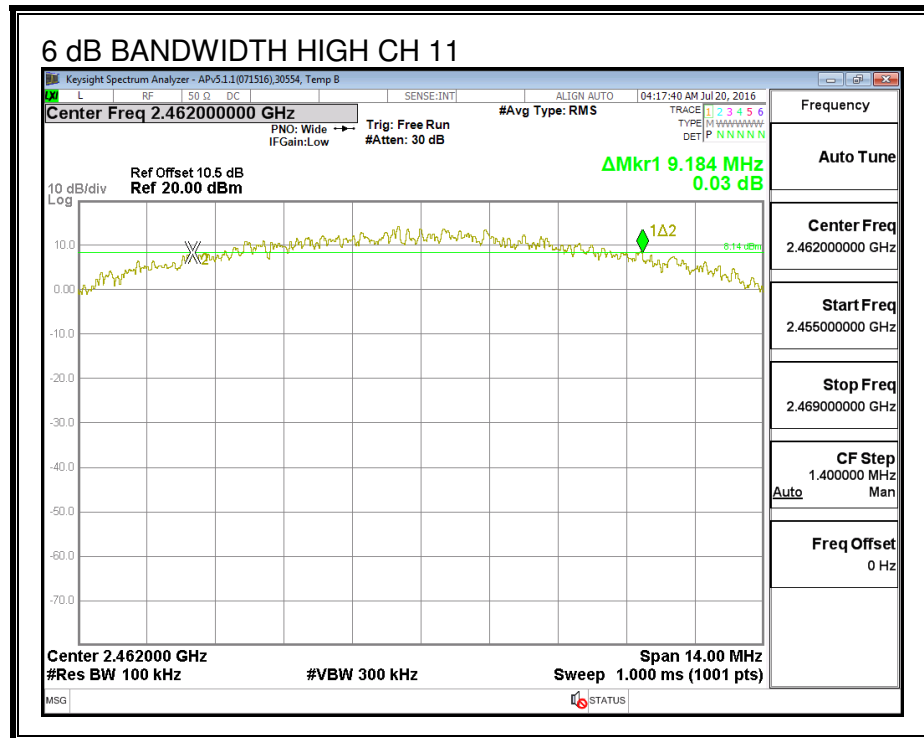
IC RSS-247 (5.2) (1)

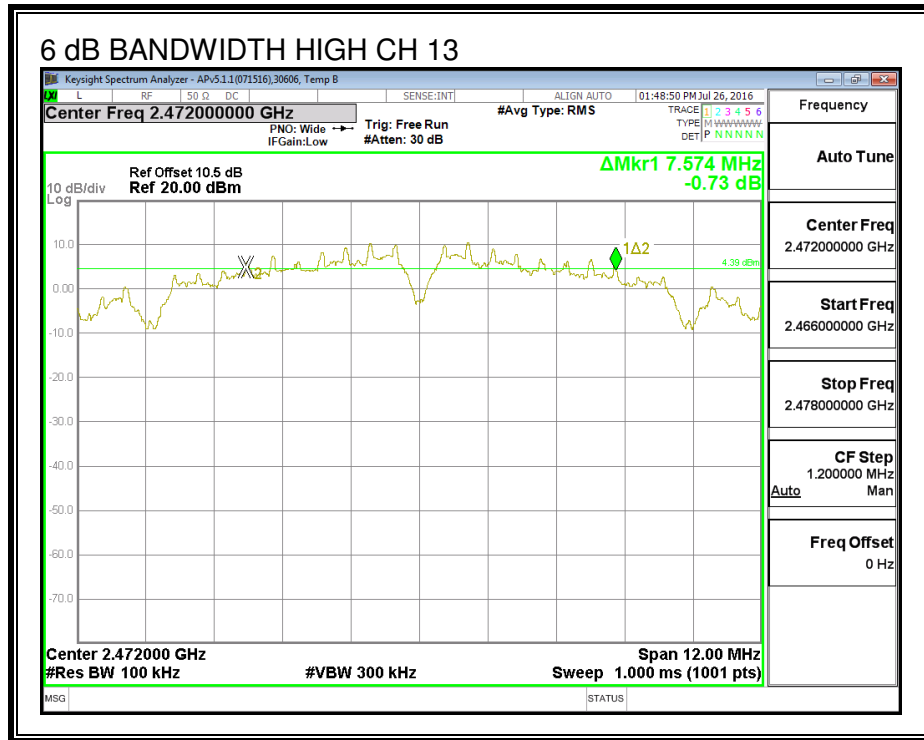
The minimum 6 dB bandwidth shall be at least 500 kHz.

#### **RESULTS**

| Channel | Frequency<br>(MHz) | 6 dB Bandwidth<br>(MHz) | Minimum Limit<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low     | 2412               | 8.918                   | 0.5                    |
| Mid     | 2437               | 8.619                   | 0.5                    |
| High_11 | 2462               | 9.184                   | 0.5                    |
| High_12 | 2467               | 9.170                   | 0.5                    |
| High_13 | 2472               | 7.574                   | 0.5                    |







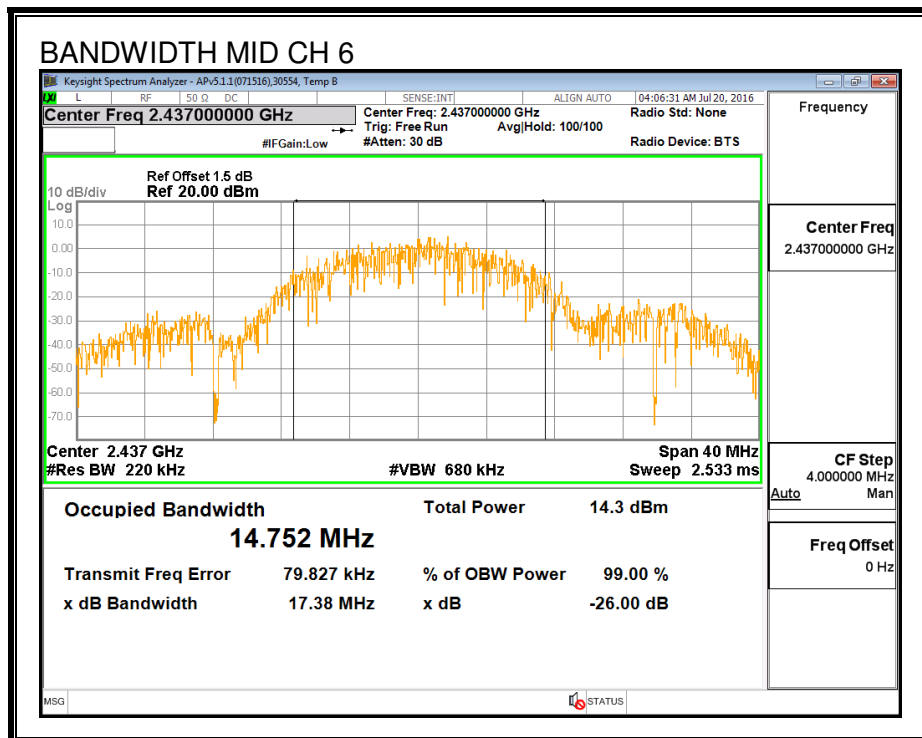
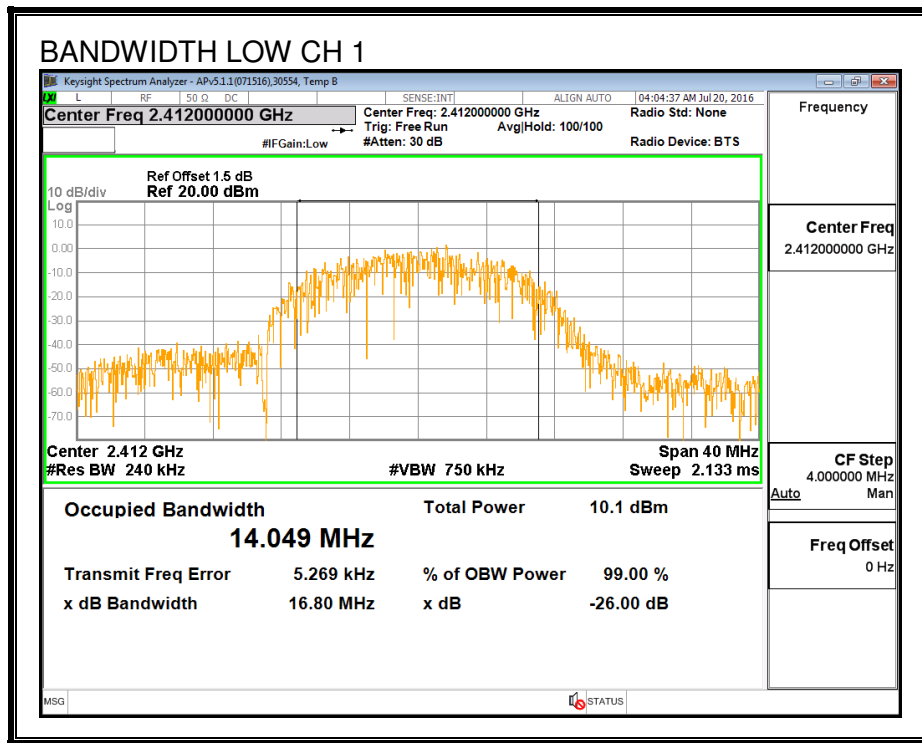
### 8.1.2. 99% BANDWIDTH

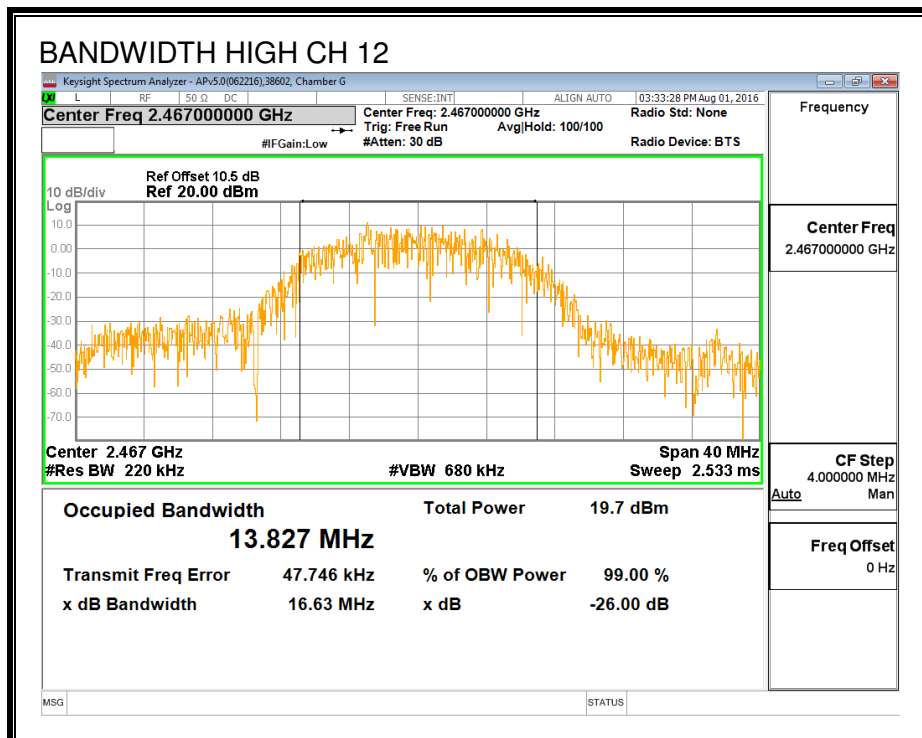
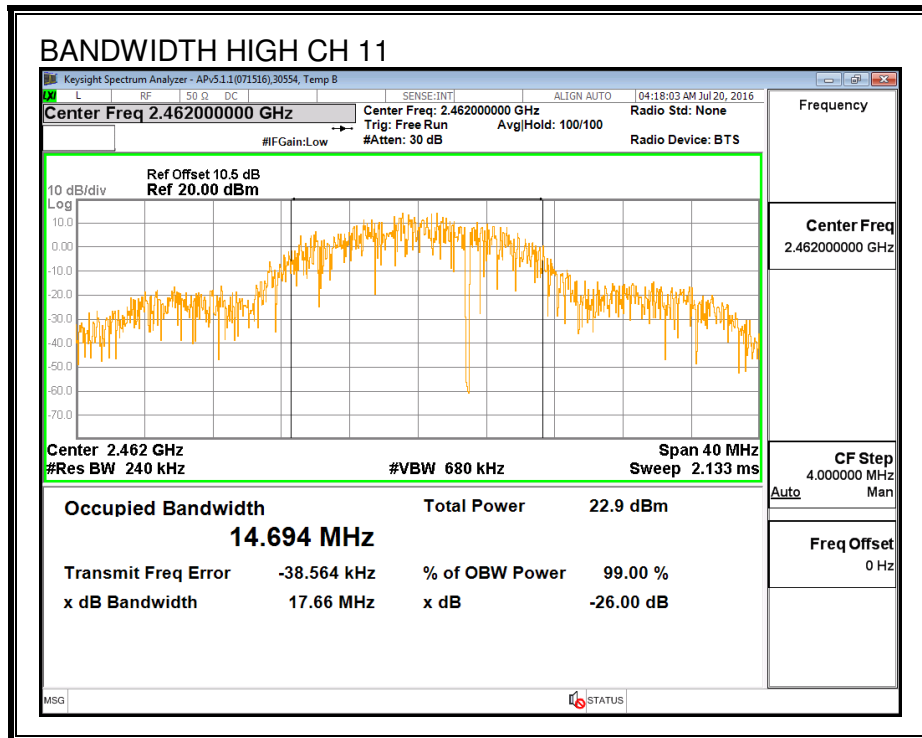
#### LIMITS

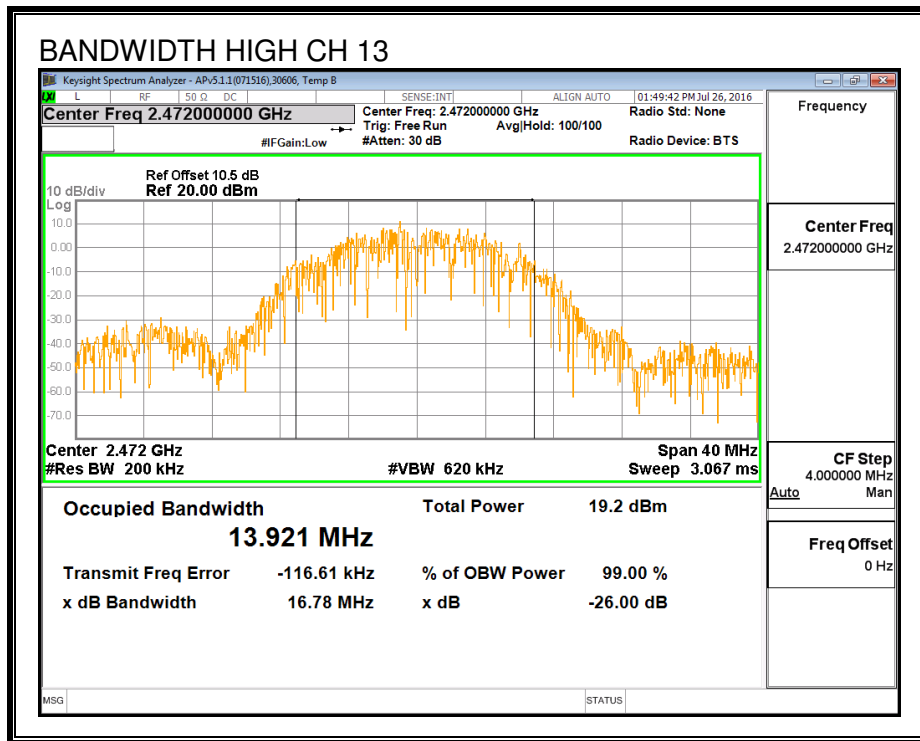
None; for reporting purposes only.

#### RESULTS

| Channel | Frequency<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|------------------------|
| Low 1   | 2412               | 14.049                 |
| Mid 6   | 2437               | 14.752                 |
| High_11 | 2462               | 14.694                 |
| High_12 | 2467               | 13.827                 |
| High_13 | 2472               | 13.921                 |







### 8.1.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### RESULTS

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 44388 | <b>Date:</b> | 7/26/16 |
|------------|-------|--------------|---------|

| Channel | Frequency<br>(MHz) | Power<br>(dBm) |
|---------|--------------------|----------------|
| Low     | 2412               | 19.48          |
| Mid     | 2437               | 20.38          |
| High_11 | 2462               | 20.46          |
| High_12 | 2467               | 20.41          |
| High_13 | 2472               | 18.93          |

#### **8.1.4. OUTPUT POWER**

##### **LIMITS**

FCC §15.247

IC RSS-247 (5.4) (4)

For systems using digital modulation in the 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### **DIRECTIONAL ANTENNA GAIN**

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

## RESULTS

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 44388 | <b>Date:</b> | 7/26/16 |
|------------|-------|--------------|---------|

### Limits

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>(dBi) | FCC<br>Power<br>Limit<br>(dBm) | IC<br>Power<br>Limit<br>(dBm) | IC<br>EIRP<br>Limit<br>(dBm) | Max<br>Power<br>(dBm) |
|---------|--------------------|------------------------------|--------------------------------|-------------------------------|------------------------------|-----------------------|
| Low     | 2412               | -10.50                       | 30.00                          | 30                            | 36                           | 30.00                 |
| Mid     | 2437               | -10.50                       | 30.00                          | 30                            | 36                           | 30.00                 |
| High_11 | 2462               | -10.50                       | 30.00                          | 30                            | 36                           | 30.00                 |
| High_12 | 2467               | -10.50                       | 30.00                          | 30                            | 36                           | 30.00                 |
| High_13 | 2472               | -10.50                       | 30.00                          | 30                            | 36                           | 30.00                 |

|                           |      |                                                 |
|---------------------------|------|-------------------------------------------------|
| <b>Duty Cycle CF (dB)</b> | 0.00 | <b>Included in Calculations of Corr'd Power</b> |
|---------------------------|------|-------------------------------------------------|

### Results

| Channel | Frequency<br>(MHz) | Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Margin<br>(dB) |
|---------|--------------------|------------------------|-----------------------------------|-------------------------|----------------|
| Low     | 2412               | 21.53                  | 21.53                             | 30.00                   | -8.47          |
| Mid     | 2437               | 22.22                  | 22.22                             | 30.00                   | -7.78          |
| High_11 | 2462               | 22.61                  | 22.61                             | 30.00                   | -7.39          |
| High_12 | 2467               | 22.30                  | 22.30                             | 30.00                   | -7.70          |
| High_13 | 2472               | 20.92                  | 20.92                             | 30.00                   | -9.08          |

## 8.1.5. POWER SPECTRAL DENSITY

### LIMITS

FCC §15.247

IC RSS-247 (5.2) (2)

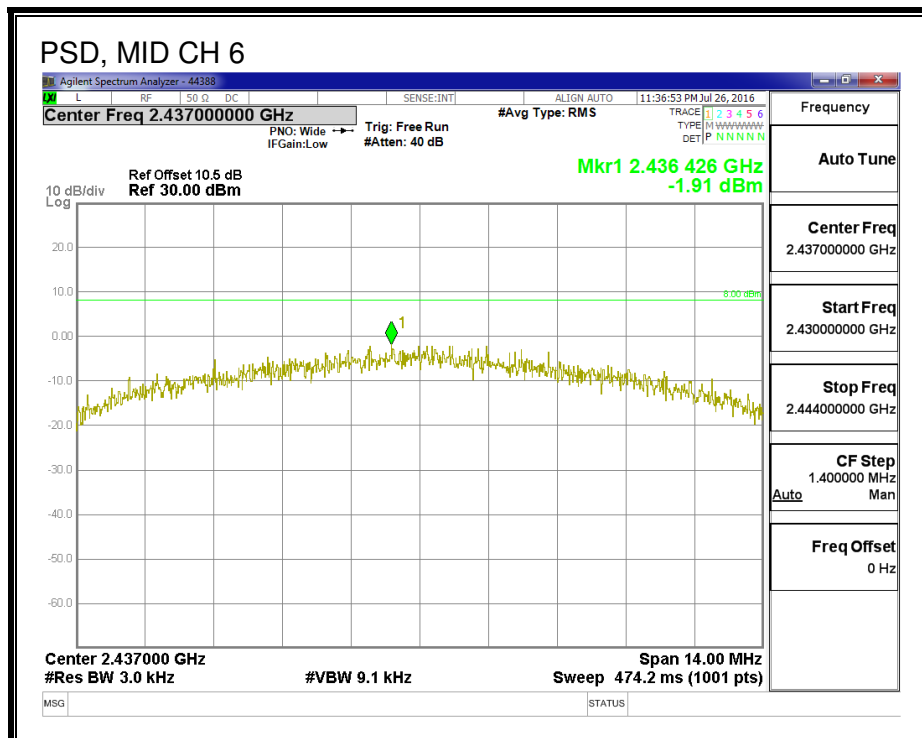
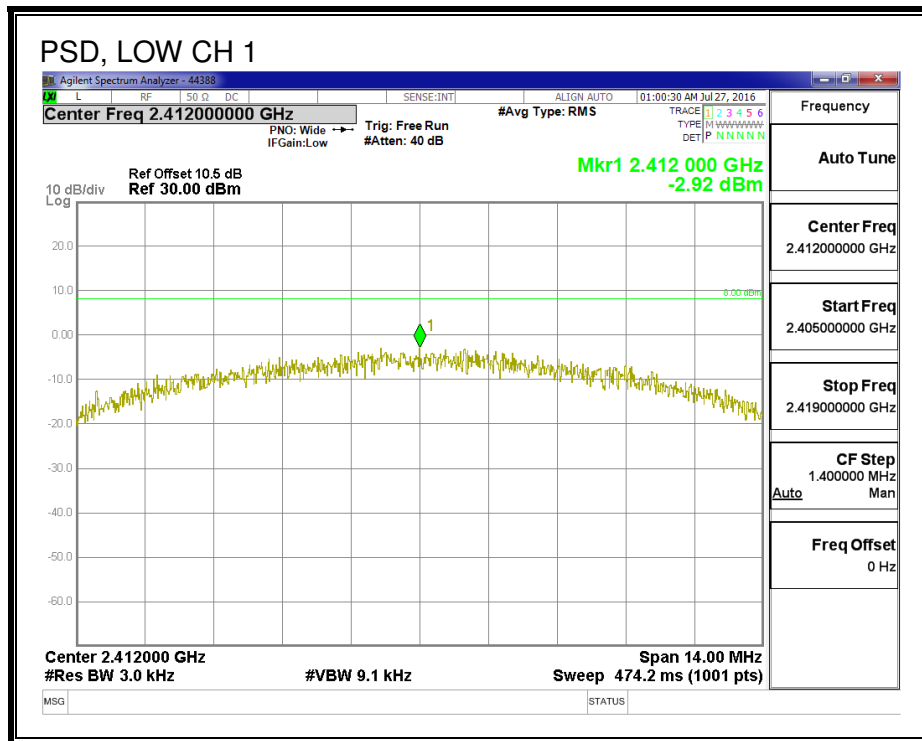
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

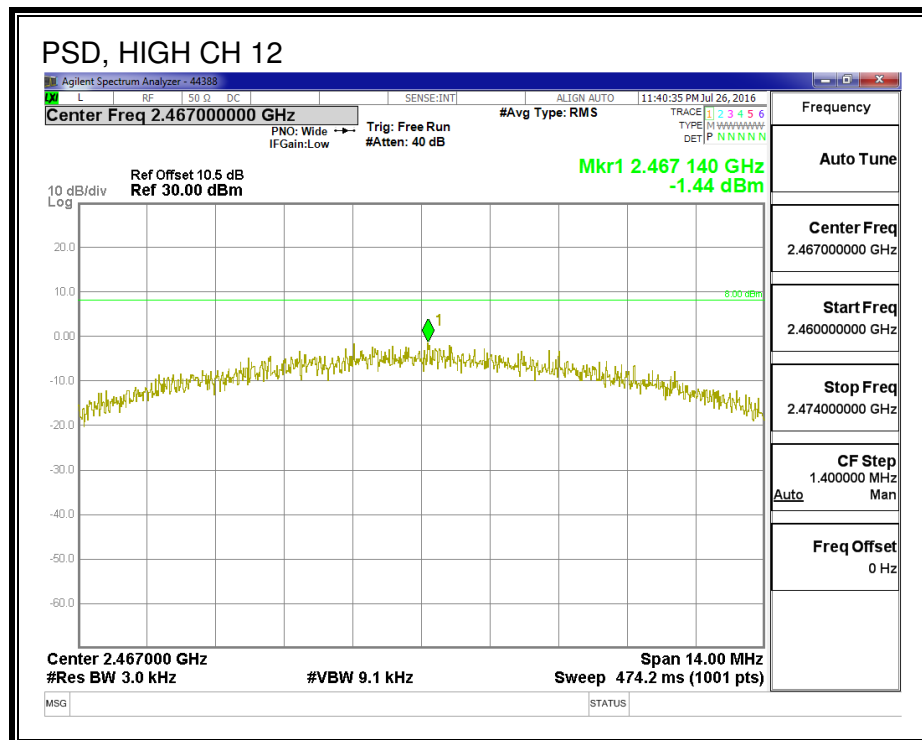
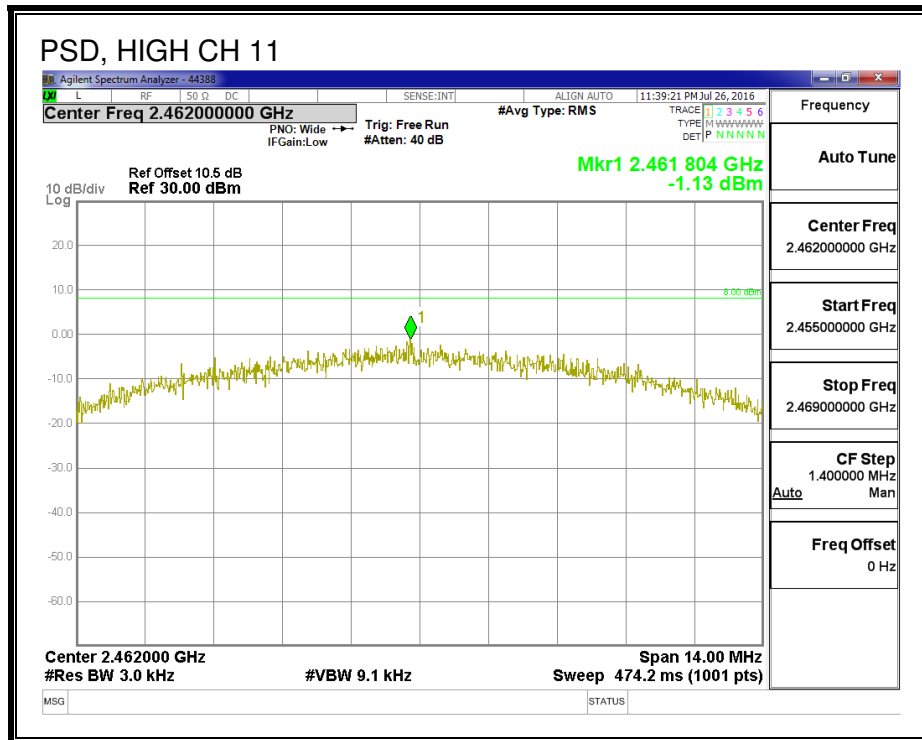
### RESULTS

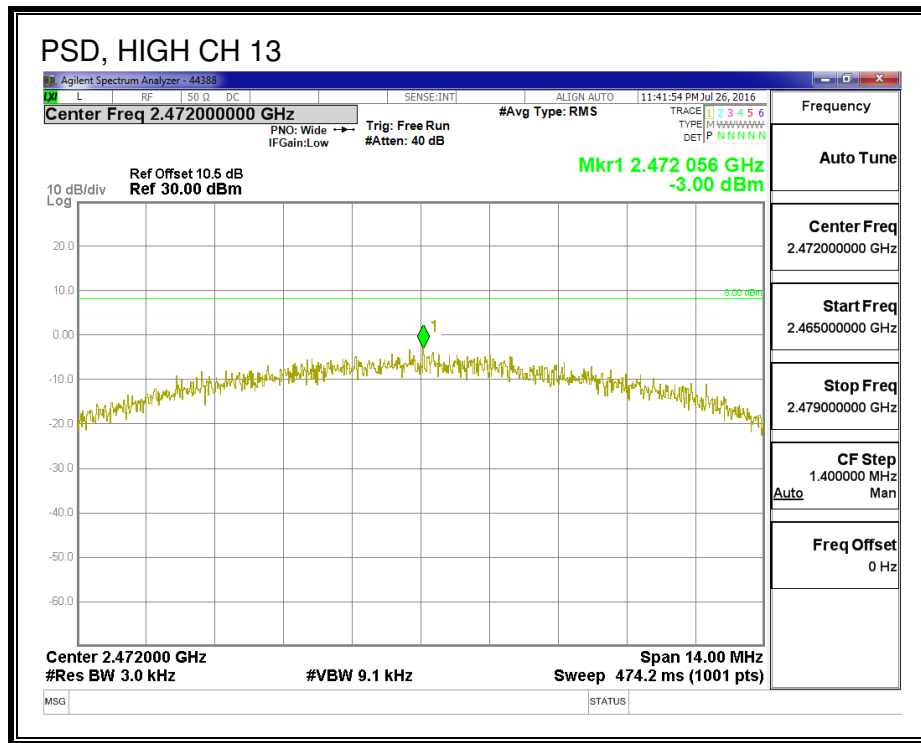
|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

#### PSD Results

| Channel | Frequency<br>(MHz) | Meas<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------|--------------------|---------------|---------------------------------|----------------|----------------|
| Low_1   | 2412               | -2.92         | -2.92                           | 8.0            | -10.9          |
| Mid_6   | 2437               | -1.91         | -1.91                           | 8.0            | -9.9           |
| High_11 | 2462               | -1.13         | -1.13                           | 8.0            | -9.1           |
| High_12 | 2467               | -1.44         | -1.44                           | 8.0            | -9.4           |
| High_13 | 2472               | -3.00         | -3.00                           | 8.0            | -11.0          |







### 8.1.6. OUT-OF-BAND EMISSIONS

#### LIMITS

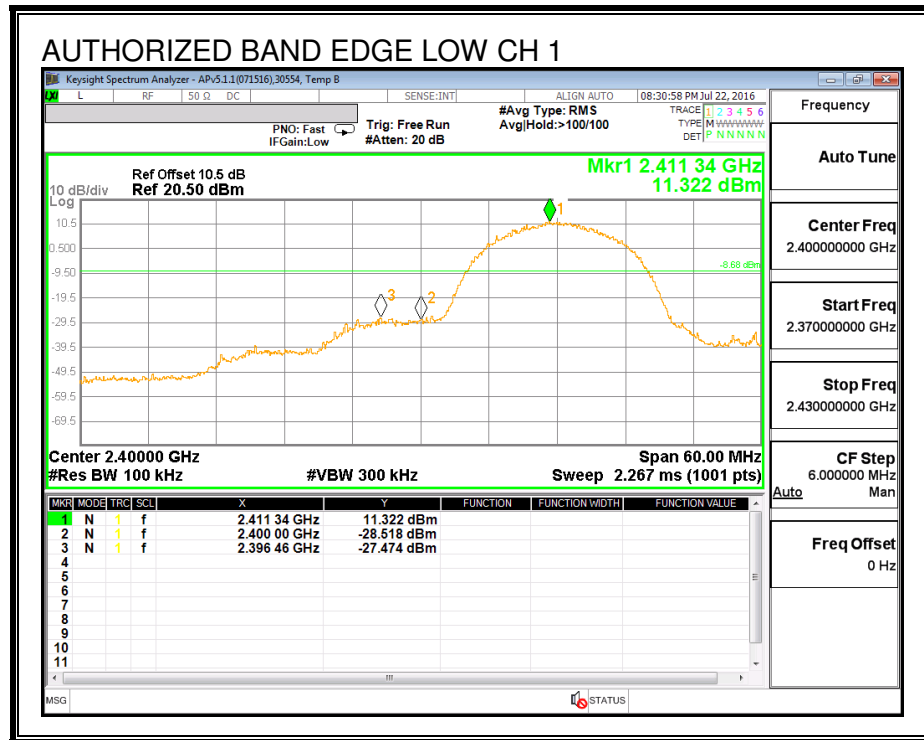
FCC §15.247 (d)

IC RSS-247 (5.5)

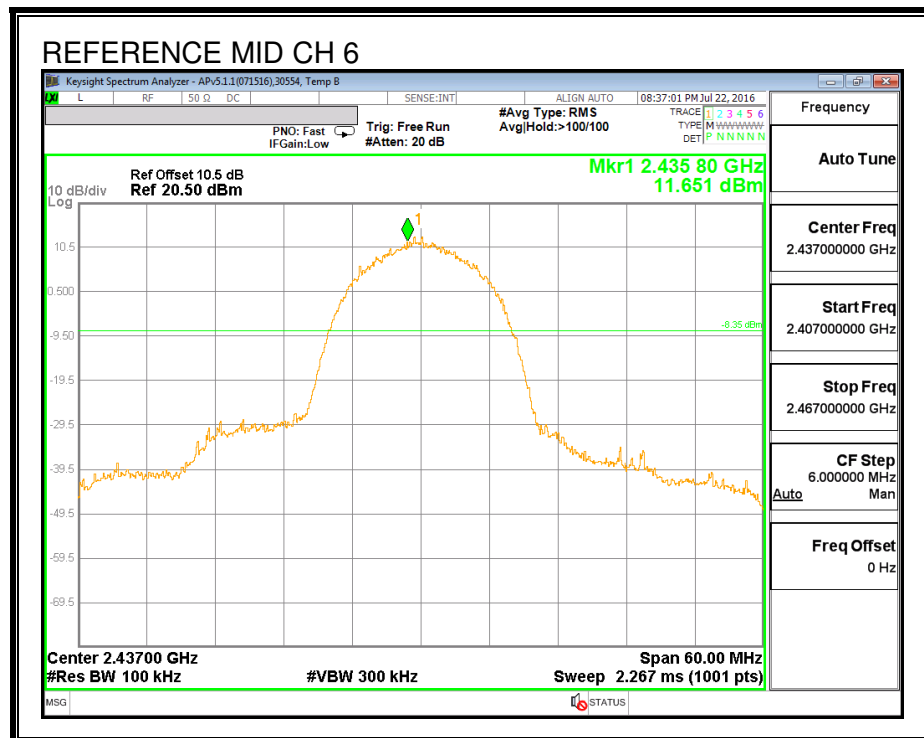
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

## RESULTS

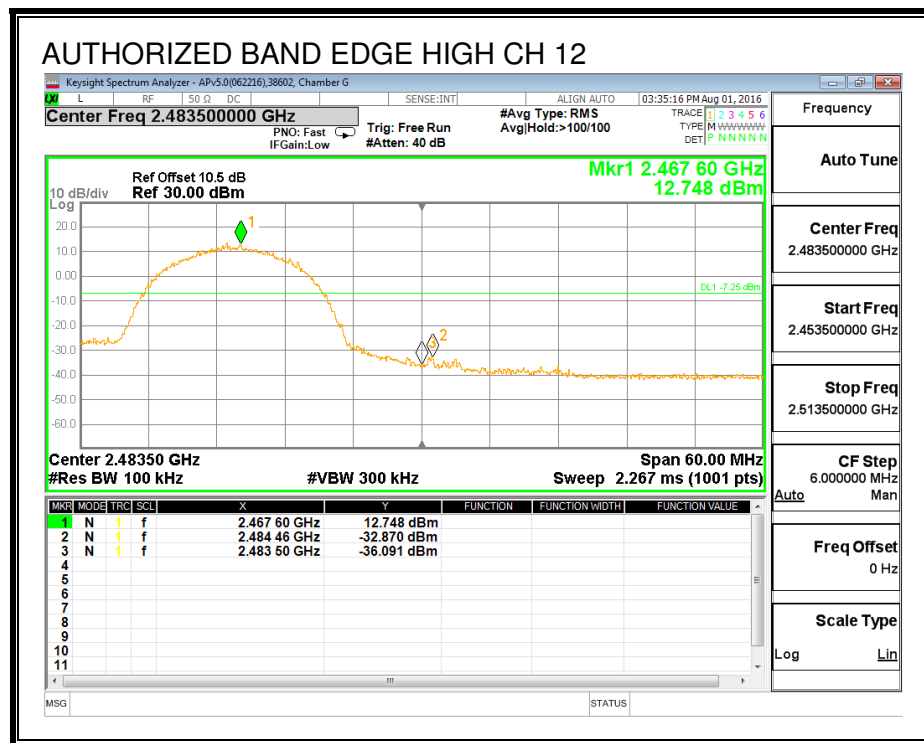
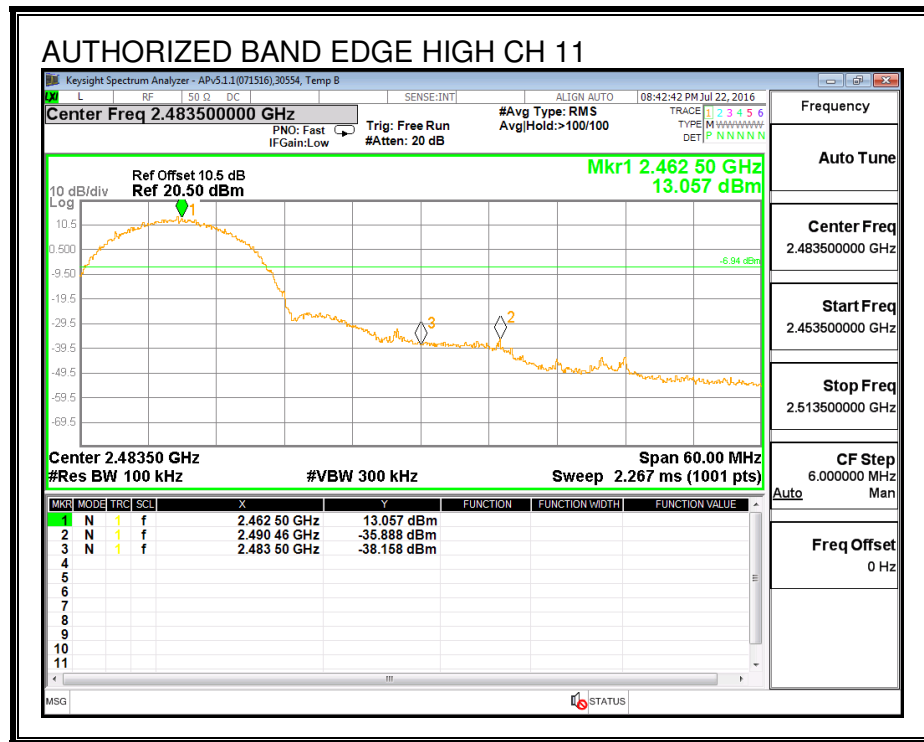
### LOW CHANNEL BANDEDGE

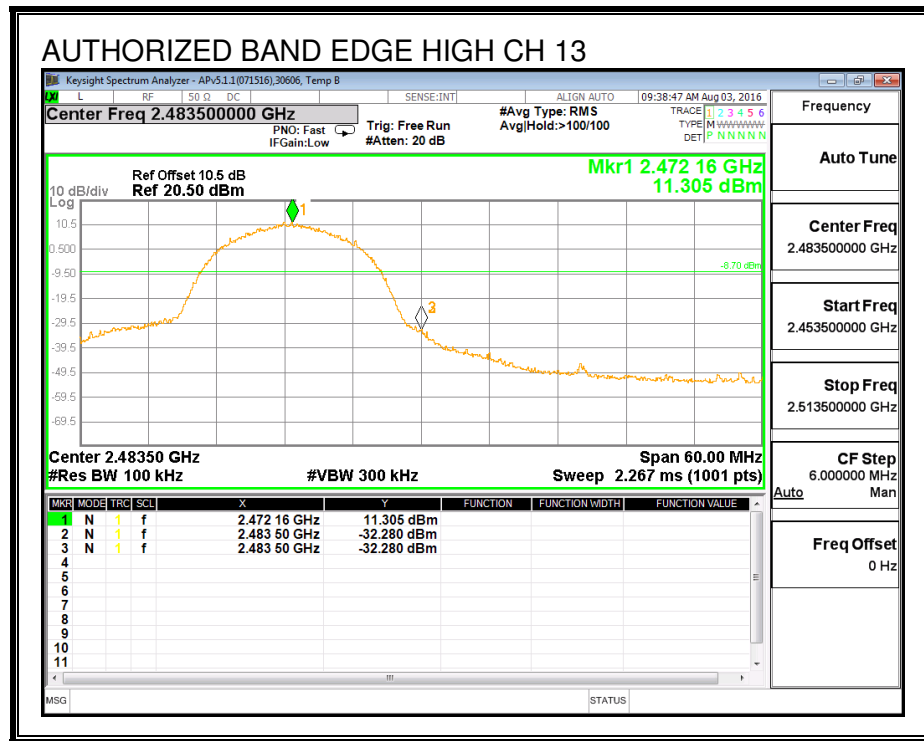


### MID CHANNEL REFERENCE

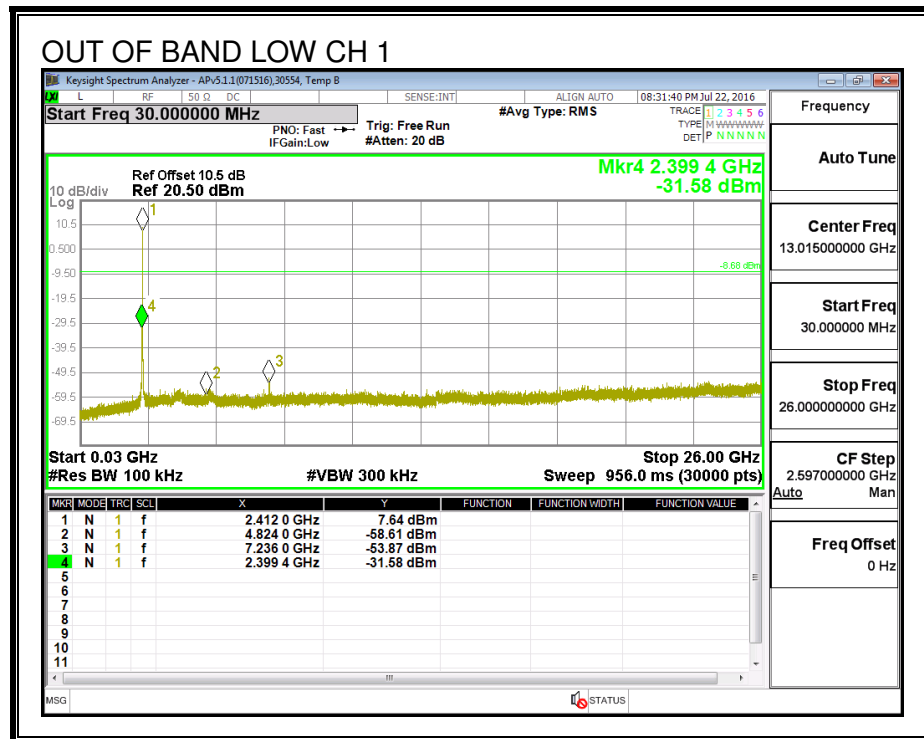


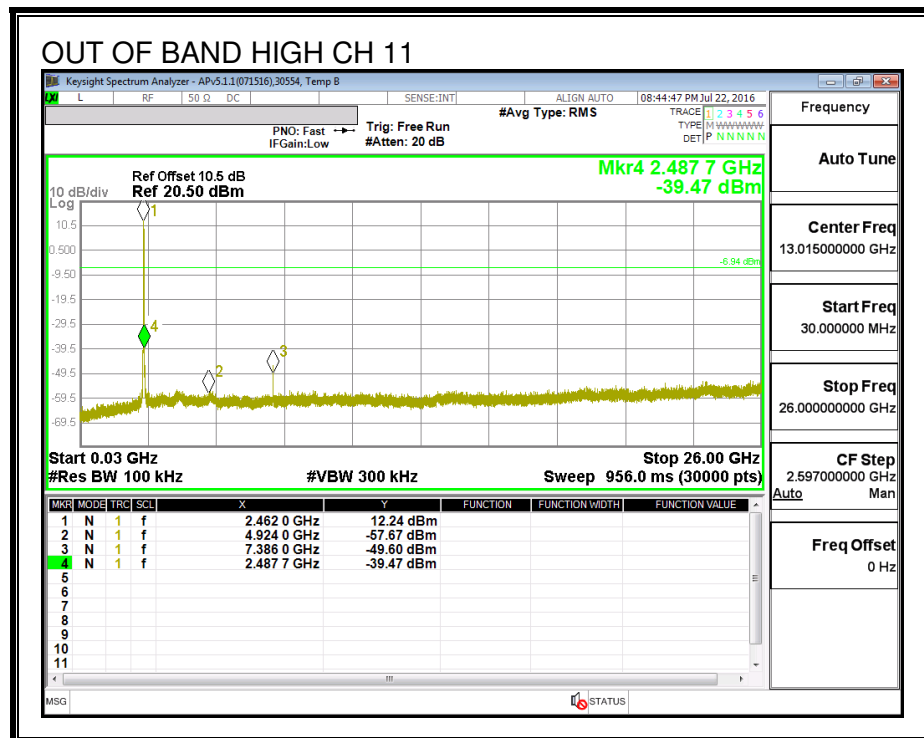
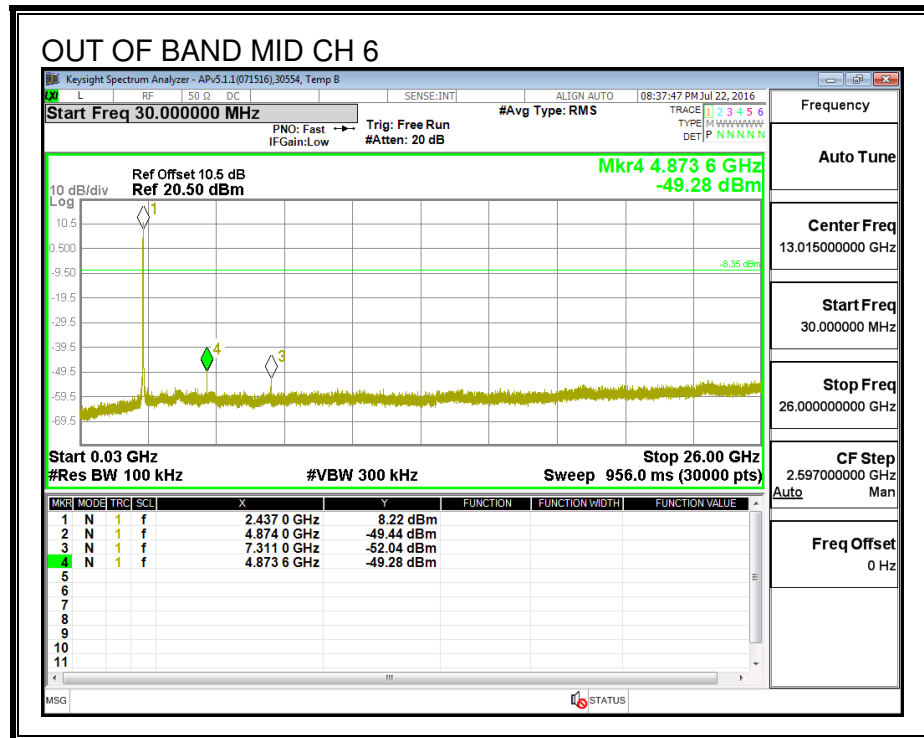
**HIGH CHANNEL BANDEDGE**

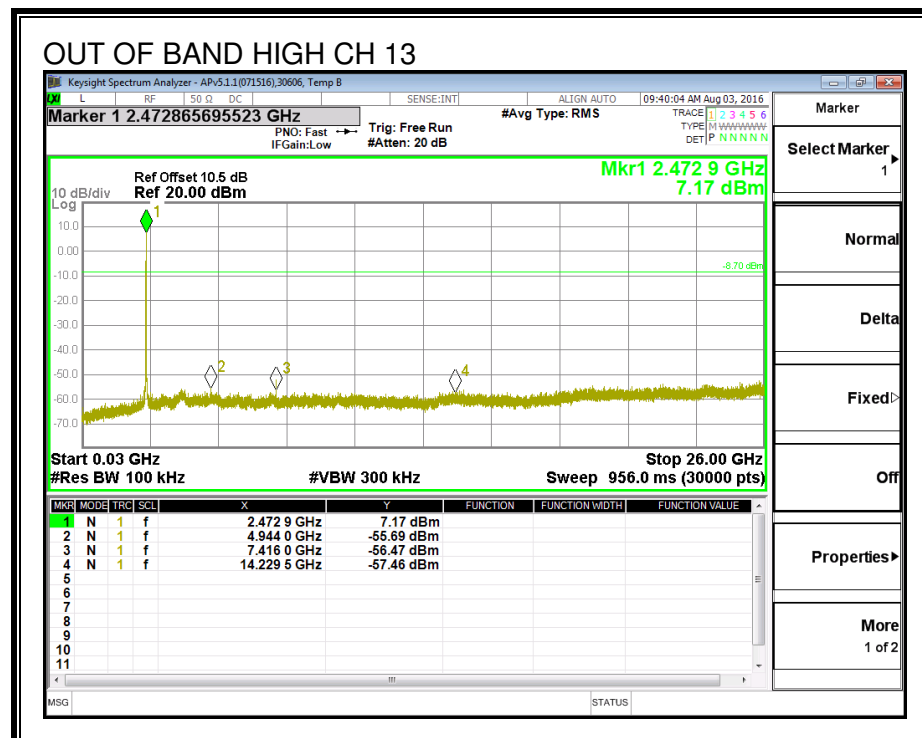
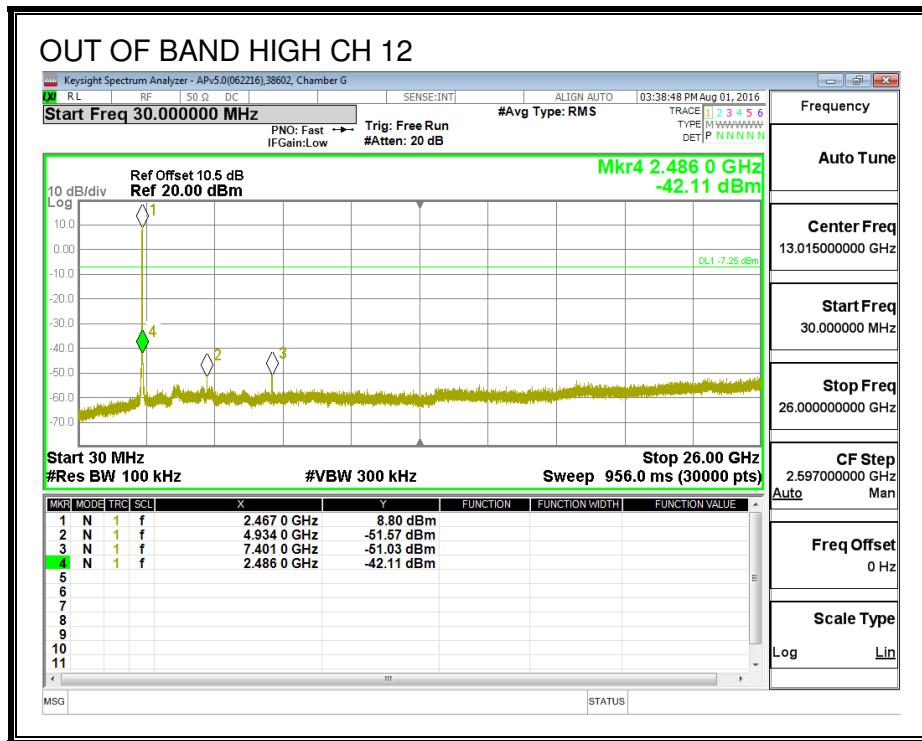




## OUT-OF-BAND EMISSIONS







## **8.2. 802.11g SISO MODE IN THE 2.4 GHz BAND**

**Note:** Covered by 802.11n HT20 SISO MODE.

### **8.3. 802.11n HT20 SISO MODE IN THE 2.4 GHz BAND**

#### **8.3.1. 6 dB BANDWIDTH**

##### **LIMITS**

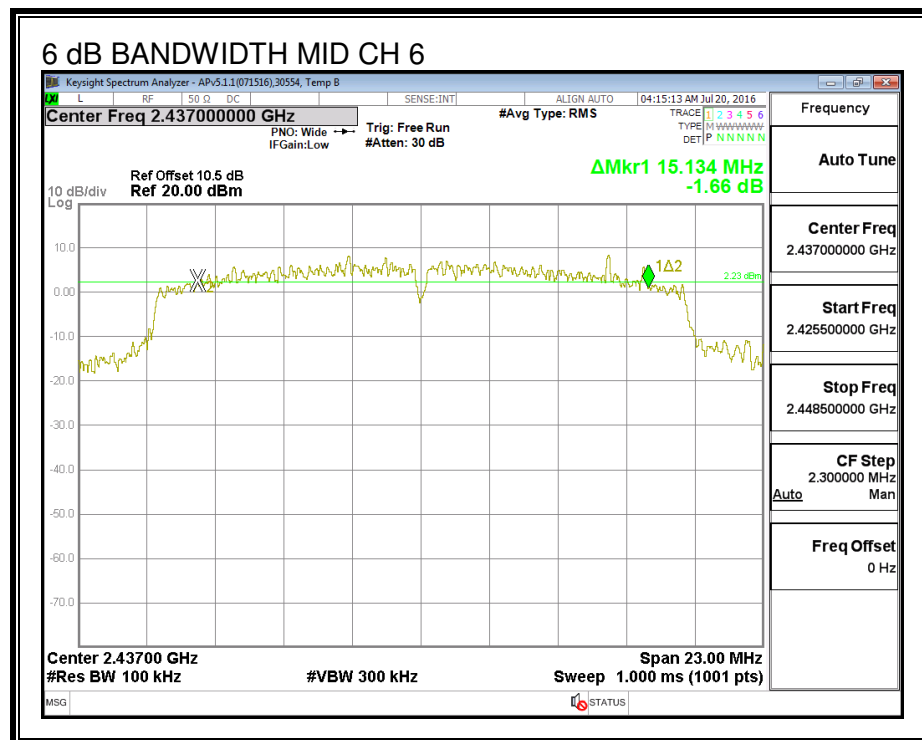
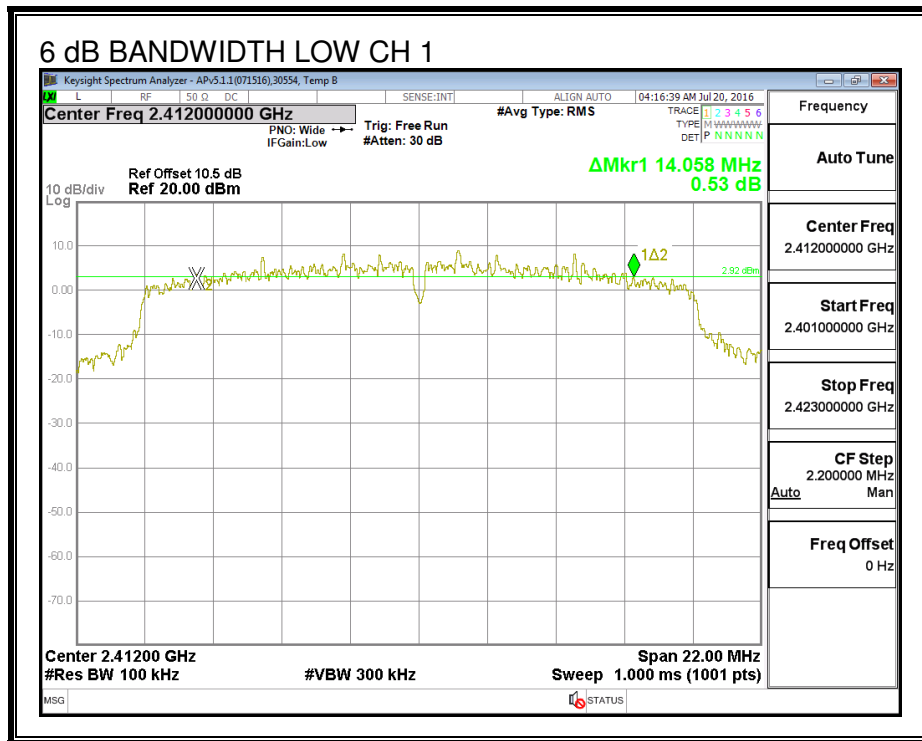
FCC §15.247 (a) (2)

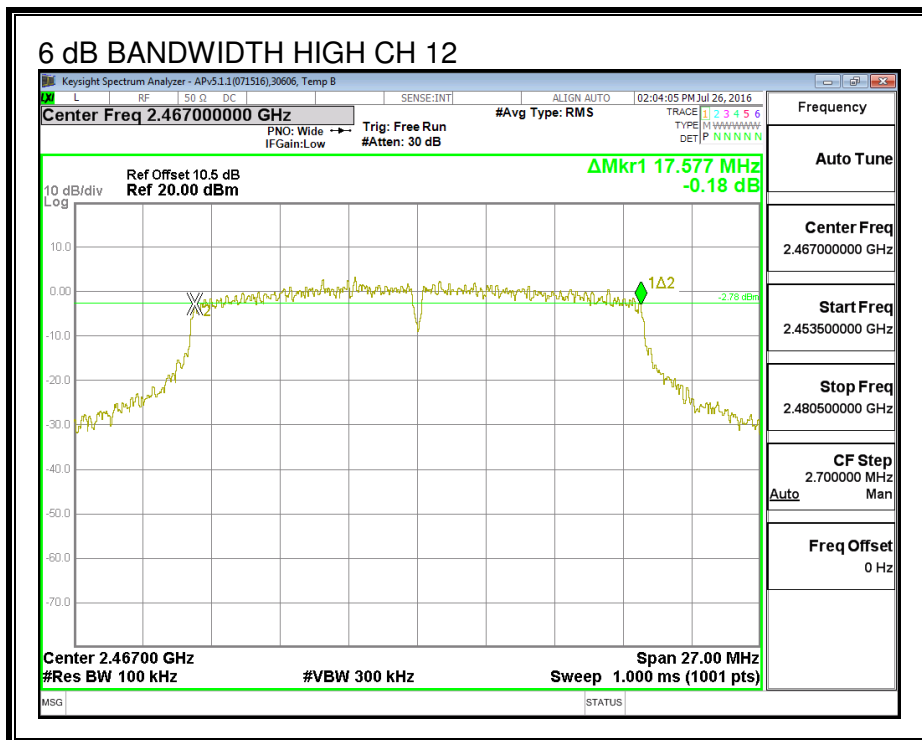
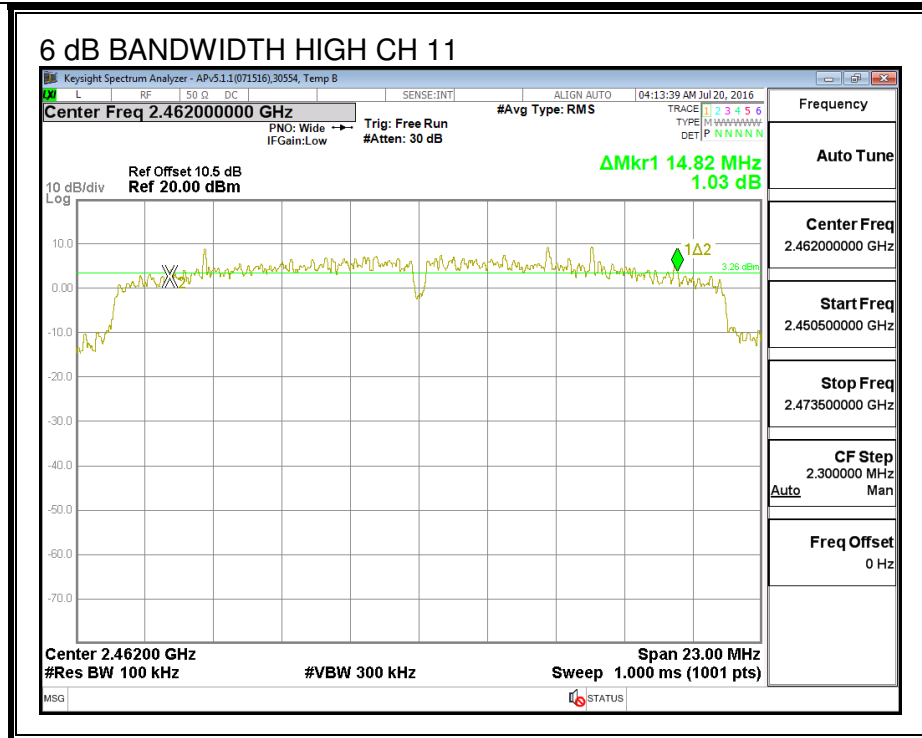
IC RSS-247 (5.2) (1)

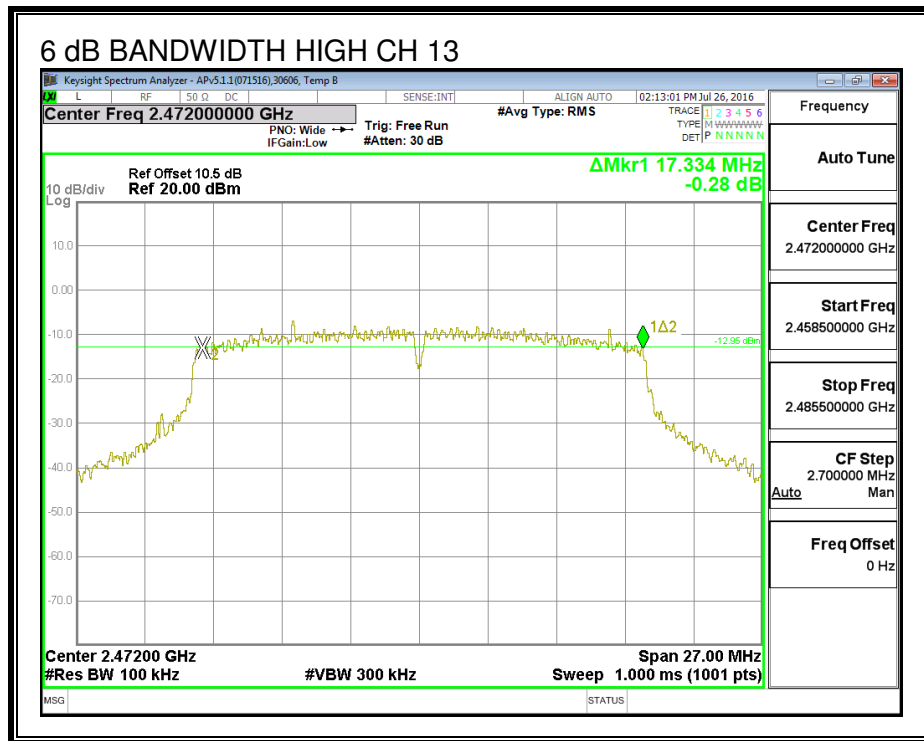
The minimum 6 dB bandwidth shall be at least 500 kHz.

##### **RESULTS**

| Channel | Frequency<br>(MHz) | 6 dB Bandwidth<br>(MHz) | Minimum Limit<br>(MHz) |
|---------|--------------------|-------------------------|------------------------|
| Low_1   | 2412               | 14.058                  | 0.5                    |
| Mid_6   | 2437               | 15.134                  | 0.5                    |
| High_11 | 2462               | 14.820                  | 0.5                    |
| High_12 | 2467               | 17.577                  | 0.5                    |
| High_13 | 2472               | 17.334                  | 0.5                    |







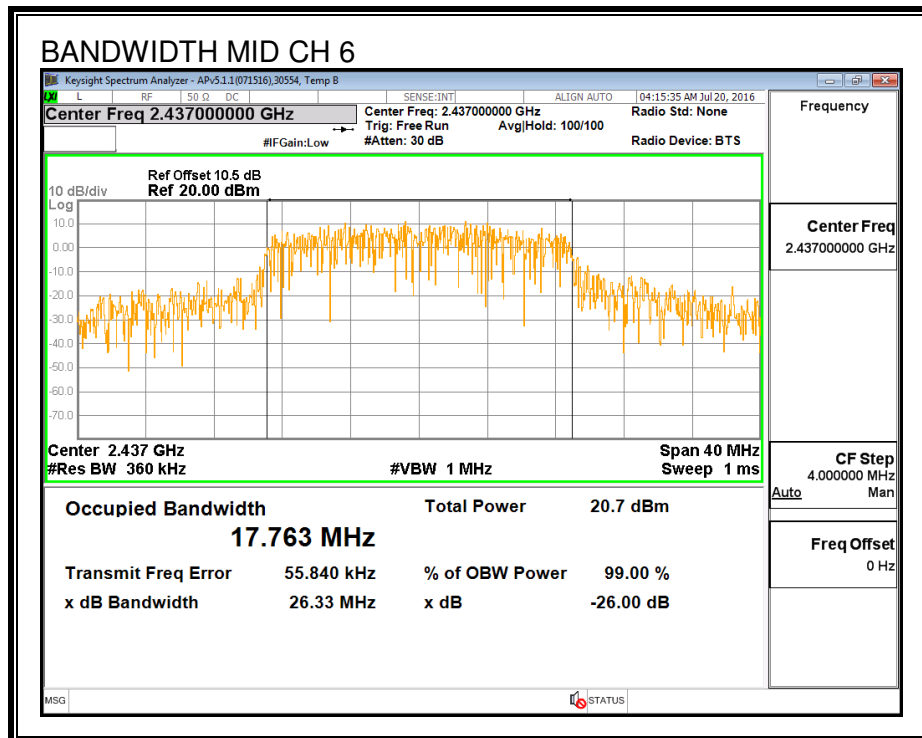
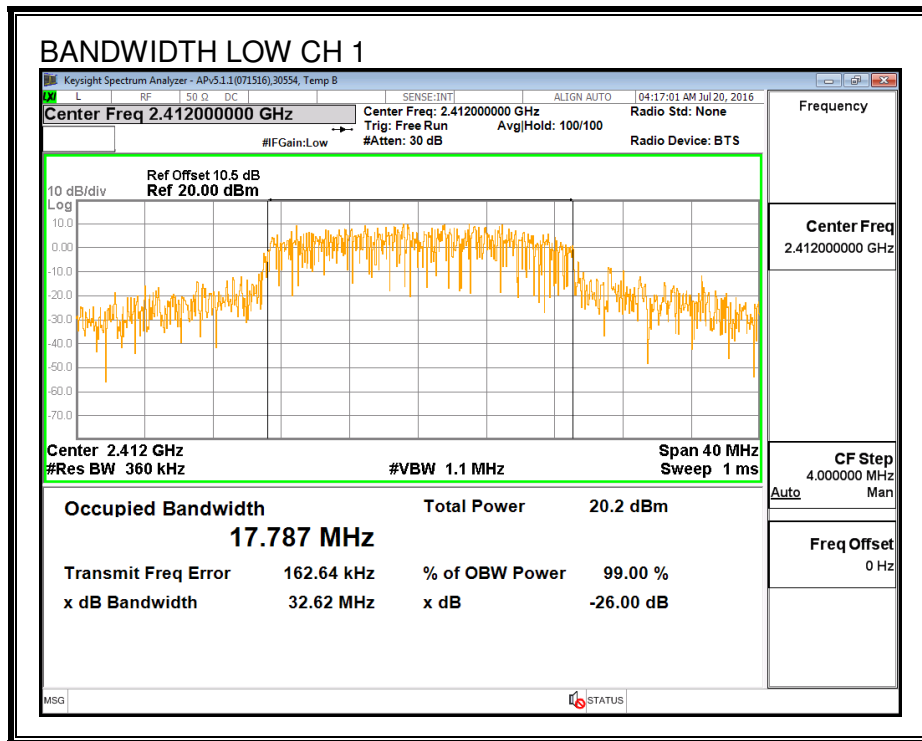
### 8.3.2. 99% BANDWIDTH

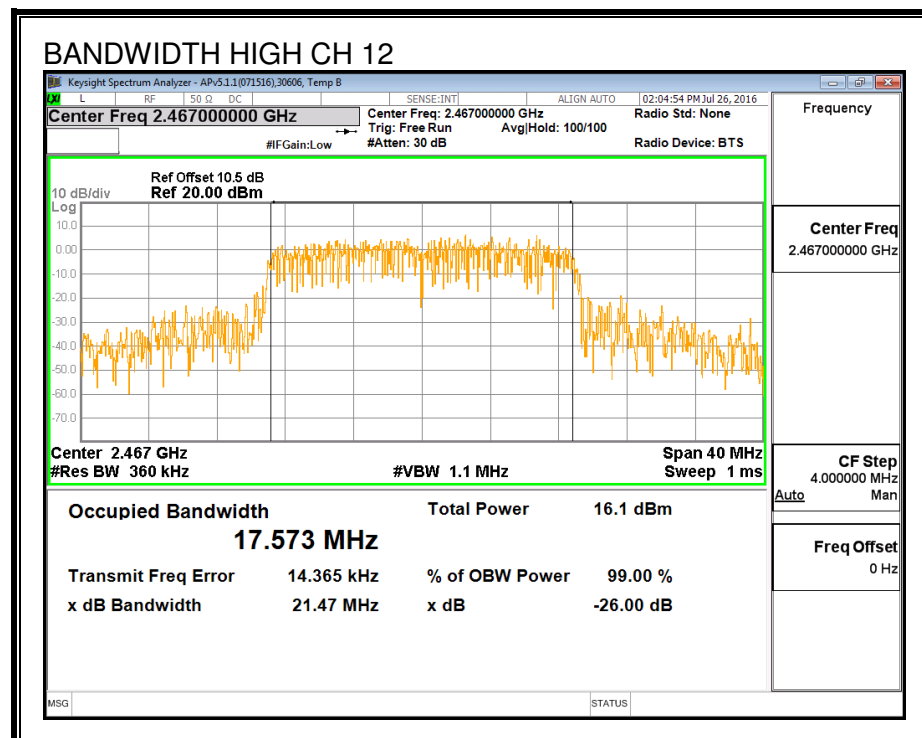
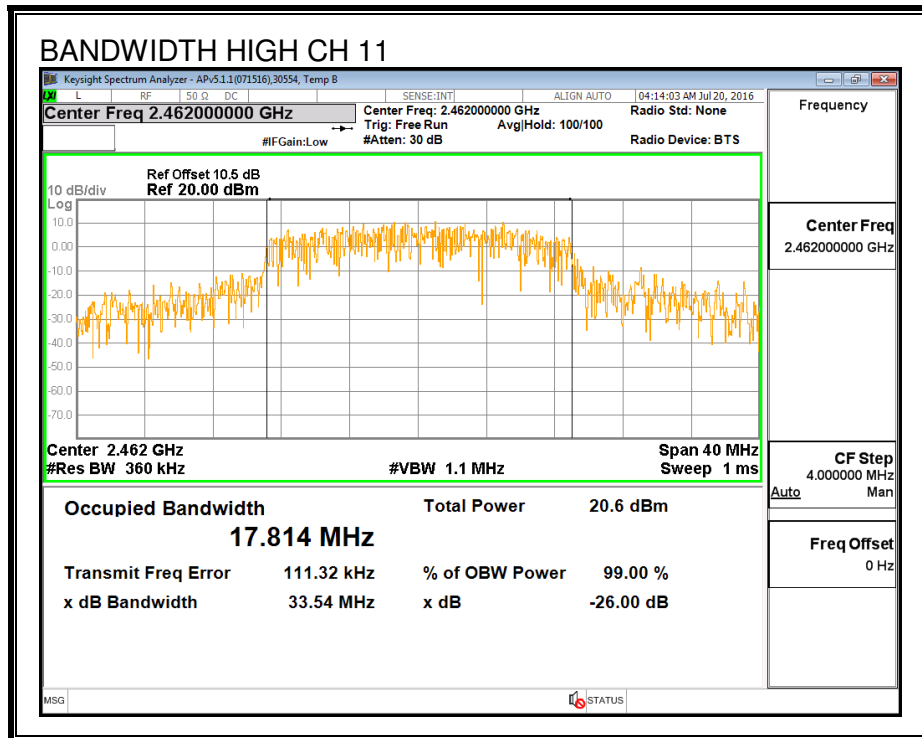
#### LIMITS

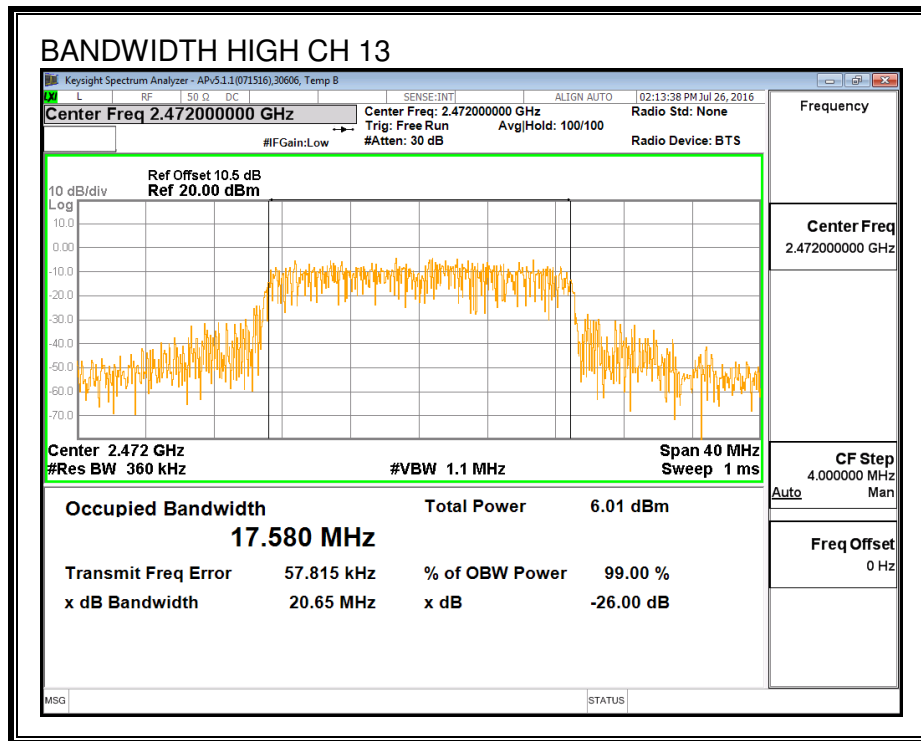
None; for reporting purposes only.

#### RESULTS

| Channel | Frequency<br>(MHz) | 99% Bandwidth<br>(MHz) |
|---------|--------------------|------------------------|
| Low_1   | 2412               | 17.787                 |
| Mid_6   | 2437               | 17.763                 |
| High_11 | 2462               | 17.814                 |
| High_12 | 2467               | 17.573                 |
| High_13 | 2472               | 17.580                 |







### 8.3.3. AVERAGE POWER

#### LIMITS

None; for reporting purposes only.

#### RESULTS

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 44388 | <b>Date:</b> | 7/26/16 |
|------------|-------|--------------|---------|

| Channel | Frequency<br>(MHz) | Power<br>(dBm) |
|---------|--------------------|----------------|
| Low_1   | 2412               | 18.95          |
| Mid_6   | 2437               | 20.46          |
| High_11 | 2462               | 18.71          |
| High_12 | 2467               | 16.40          |
| High_13 | 2472               | 5.93           |

### **8.3.4. OUTPUT POWER**

#### **LIMITS**

FCC §15.247

IC RSS-247 (5.4) (4)

For systems using digital modulation in the 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **DIRECTIONAL ANTENNA GAIN**

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

## RESULTS

|            |       |              |         |
|------------|-------|--------------|---------|
| <b>ID:</b> | 44388 | <b>Date:</b> | 7/26/16 |
|------------|-------|--------------|---------|

### Limits

| Channel | Frequency<br>(MHz) | Directional<br>Gain<br>(dBi) | FCC<br>Power<br>Limit<br>(dBm) | IC<br>Power<br>Limit<br>(dBm) | IC<br>EIRP<br>Limit<br>(dBm) | Max<br>Power<br>(dBm) |
|---------|--------------------|------------------------------|--------------------------------|-------------------------------|------------------------------|-----------------------|
| Low_1   | 2412               | -10.50                       | 30.00                          | 30                            | 36                           | 30.00                 |
| Mid_6   | 2437               | -10.50                       | 30.00                          | 30                            | 36                           | 30.00                 |
| High_11 | 2462               | -10.50                       | 30.00                          | 30                            | 36                           | 30.00                 |
| High_13 | 2472               | -10.50                       | 30.00                          | 30                            | 36                           | 30.00                 |

|                           |      |                                                 |
|---------------------------|------|-------------------------------------------------|
| <b>Duty Cycle CF (dB)</b> | 0.00 | <b>Included in Calculations of Corr'd Power</b> |
|---------------------------|------|-------------------------------------------------|

### Results

| Channel | Frequency<br>(MHz) | Meas<br>Power<br>(dBm) | Total<br>Corr'd<br>Power<br>(dBm) | Power<br>Limit<br>(dBm) | Margin<br>(dB) |
|---------|--------------------|------------------------|-----------------------------------|-------------------------|----------------|
| Low_1   | 2412               | 24.76                  | 24.76                             | 30.00                   | -5.24          |
| Mid_6   | 2437               | 25.04                  | 25.04                             | 30.00                   | -4.96          |
| High_11 | 2462               | 24.64                  | 24.64                             | 30.00                   | -5.36          |
| High_12 | 2467               | 22.45                  | 22.45                             | 30.00                   | -7.55          |
| High_13 | 2472               | 12.51                  | 12.51                             | 30.00                   | -17.49         |

### 8.3.5. POWER SPECTRAL DENSITY

#### LIMITS

FCC §15.247

IC RSS-247 (5.2) (2)

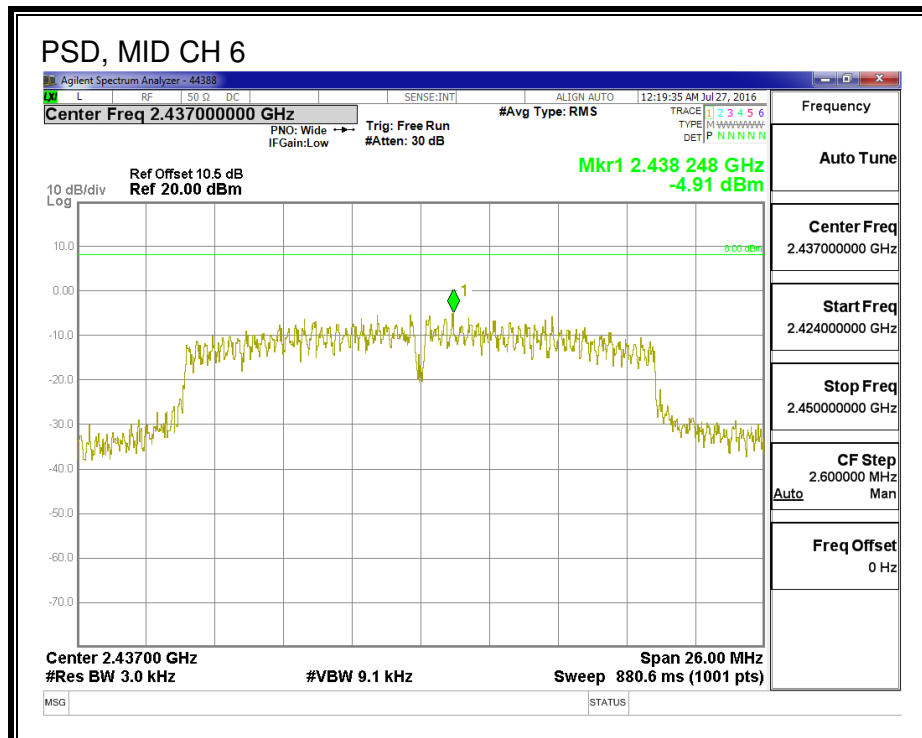
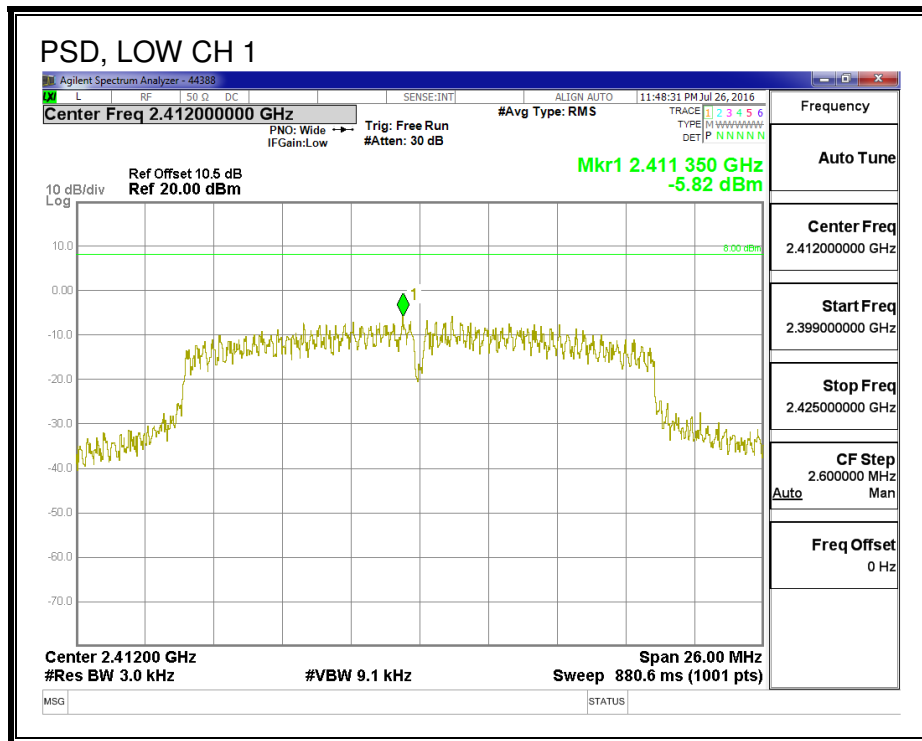
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

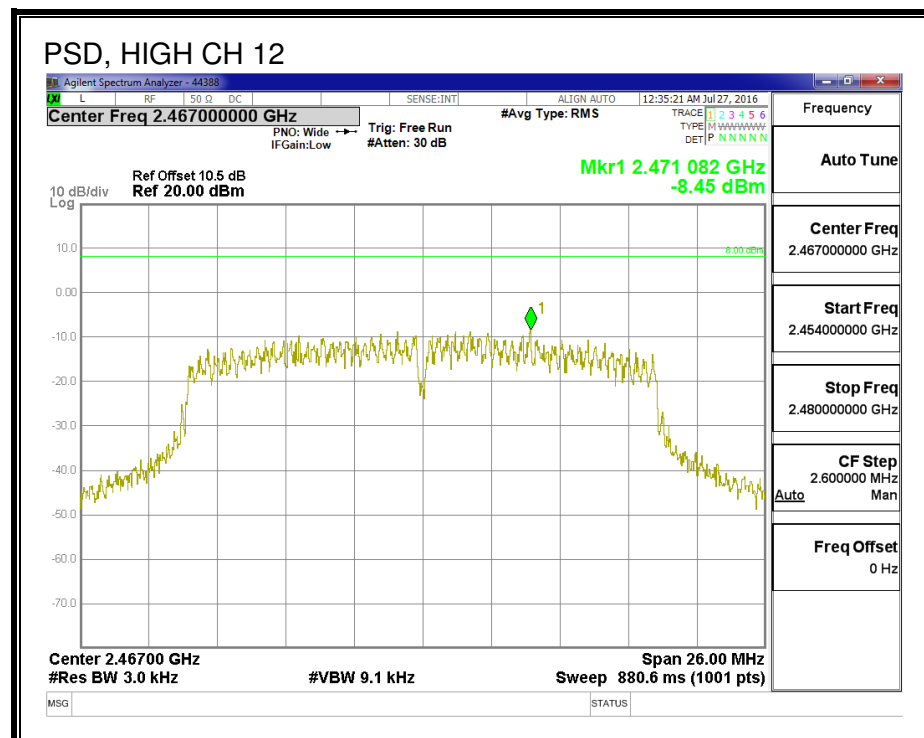
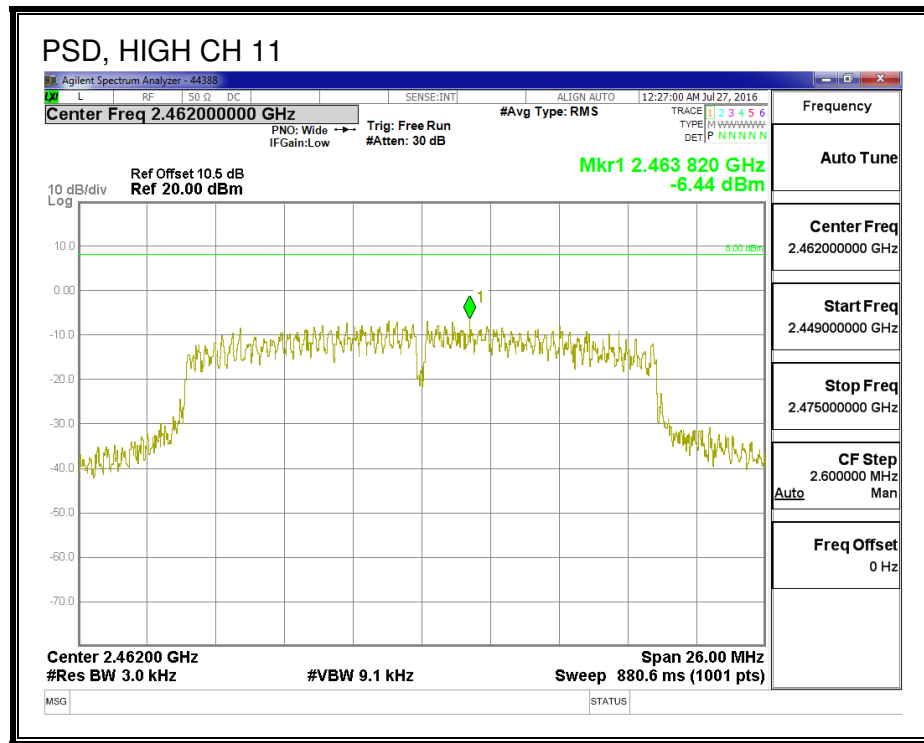
#### RESULTS

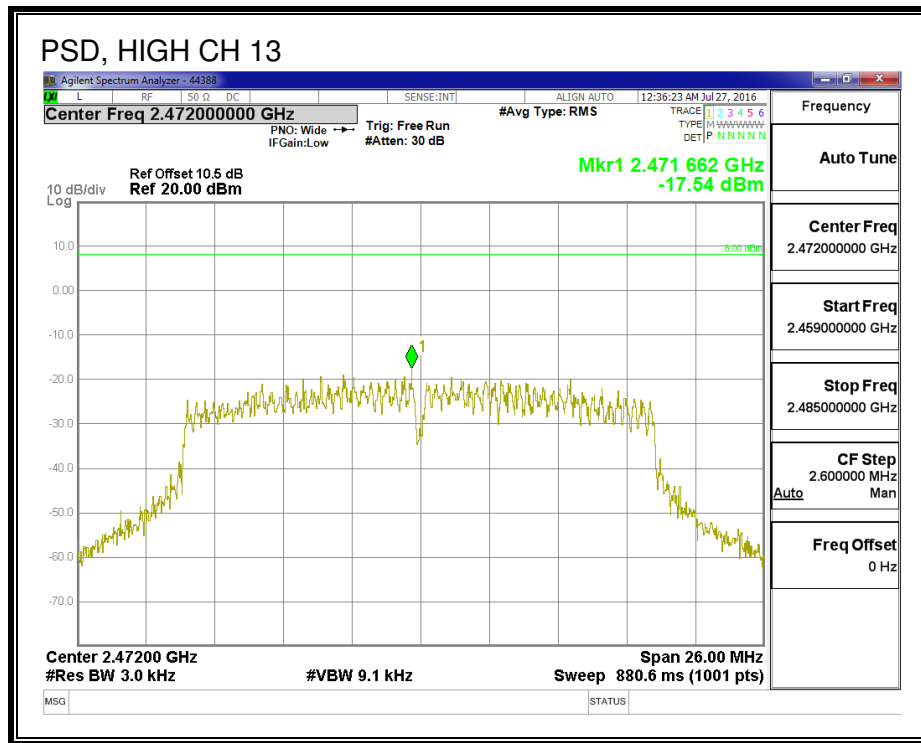
|                    |      |                                        |
|--------------------|------|----------------------------------------|
| Duty Cycle CF (dB) | 0.00 | Included in Calculations of Corr'd PSD |
|--------------------|------|----------------------------------------|

#### PSD Results

| Channel | Frequency<br>(MHz) | Chain 0<br>Meas<br>(dBm) | Total<br>Corr'd<br>PSD<br>(dBm) | Limit<br>(dBm) | Margin<br>(dB) |
|---------|--------------------|--------------------------|---------------------------------|----------------|----------------|
| Low_1   | 2412               | -5.82                    | -5.82                           | 8.0            | -13.8          |
| Mid_6   | 2437               | -4.91                    | -4.91                           | 8.0            | -12.9          |
| High_11 | 2462               | -6.44                    | -6.44                           | 8.0            | -14.4          |
| High_12 | 2467               | -8.45                    | -8.45                           | 8.0            | -16.5          |
| High_13 | 2472               | -17.54                   | -17.54                          | 8.0            | -25.5          |







### 8.3.6. OUT-OF-BAND EMISSIONS

#### LIMITS

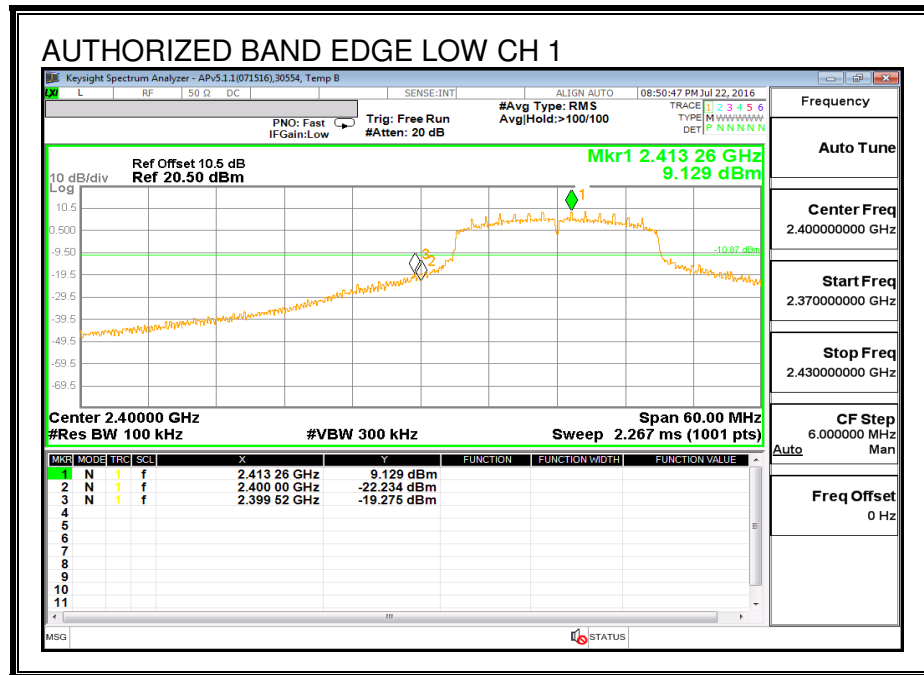
FCC §15.247 (d)

IC RSS-247 (5.5)

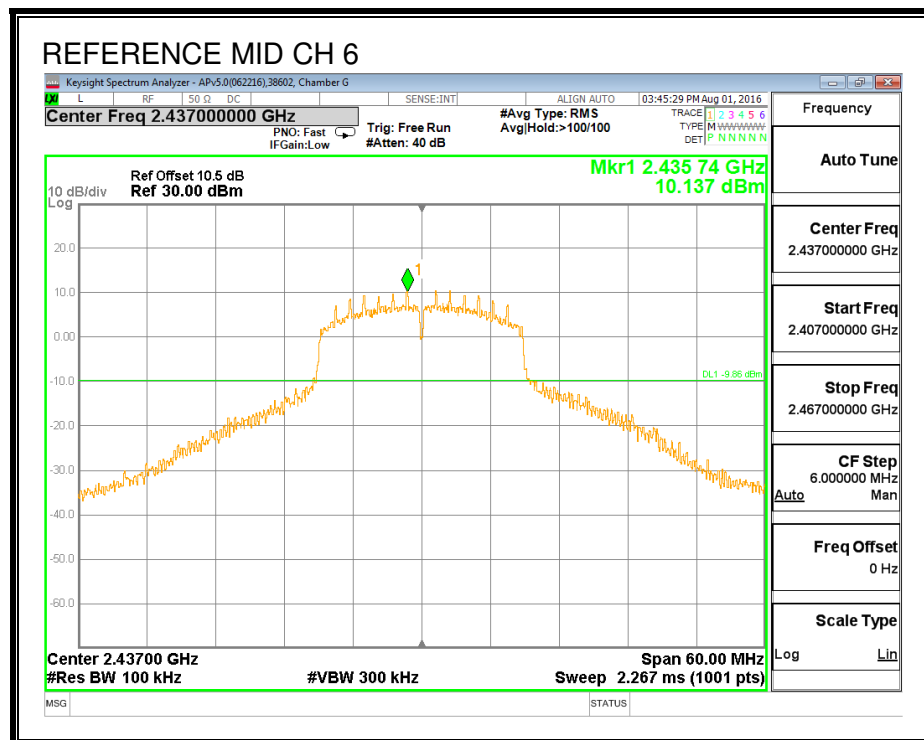
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

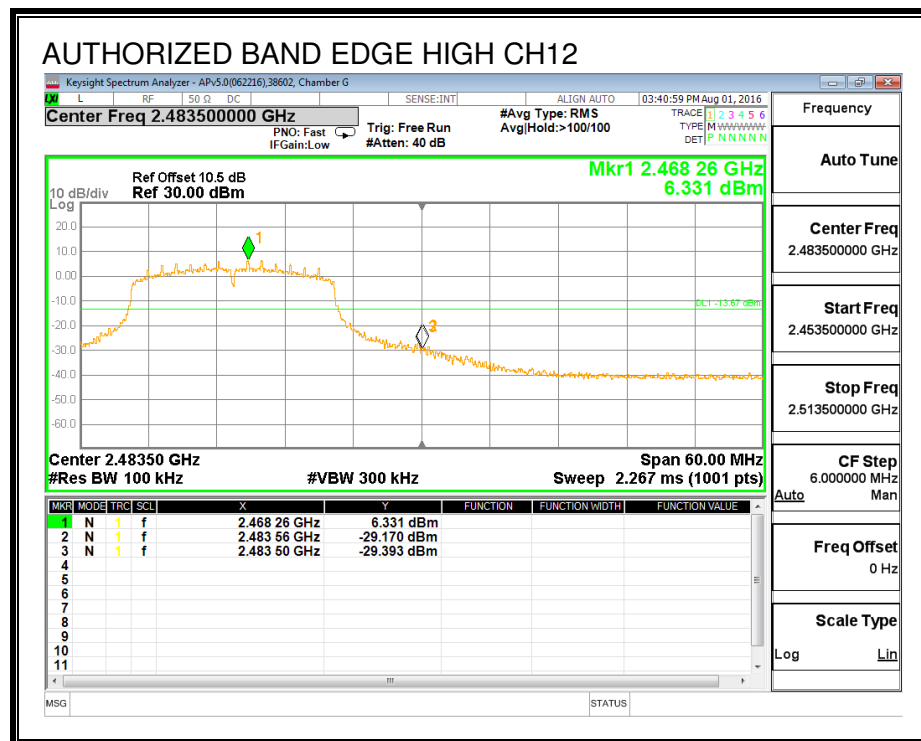
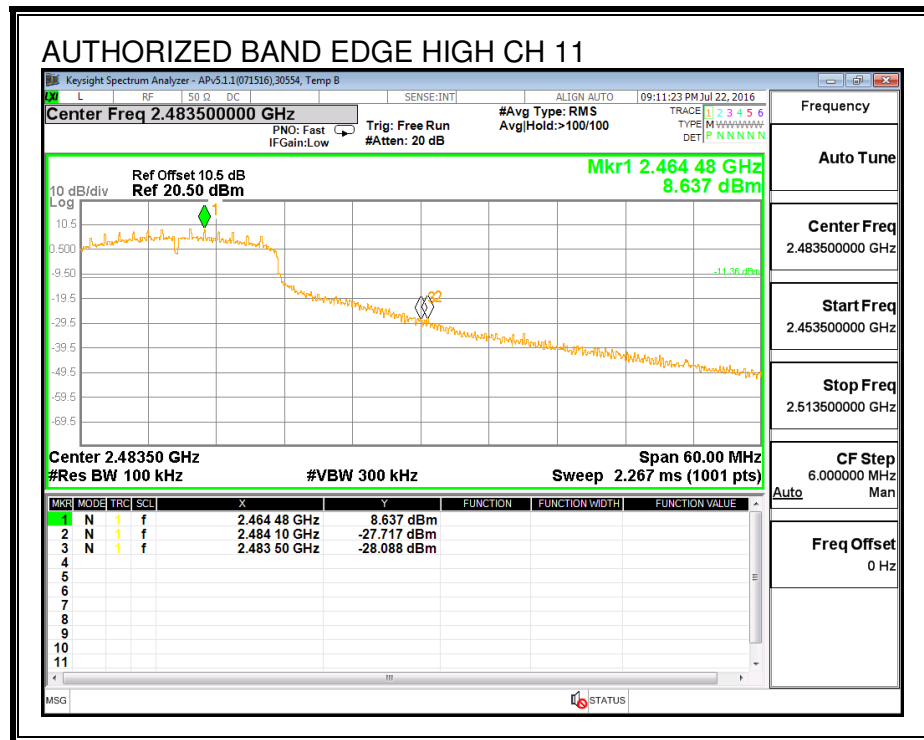
## RESULTS

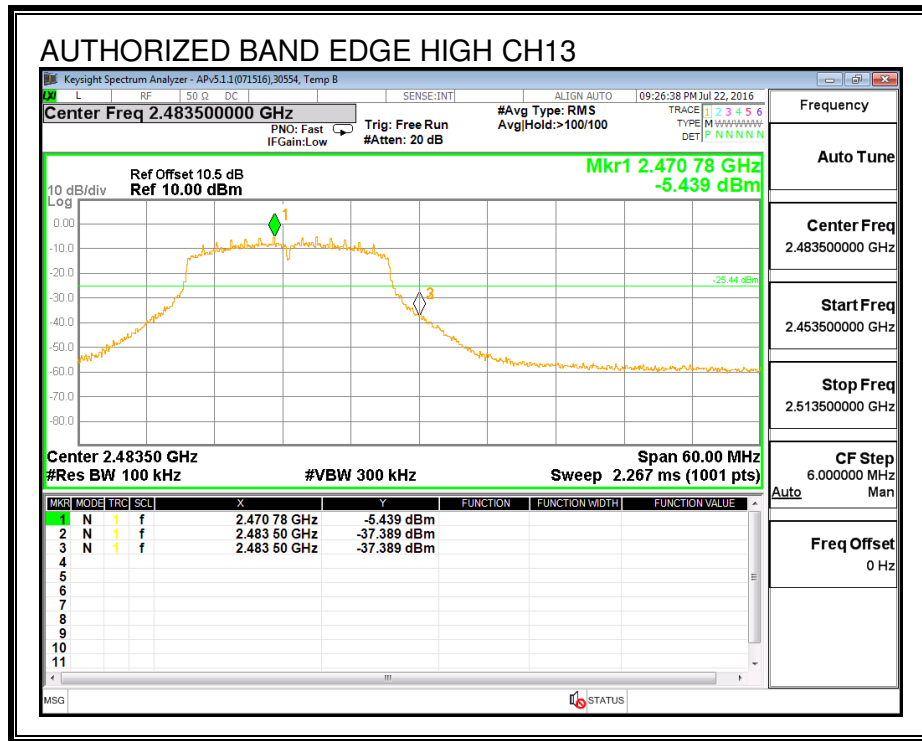
### LOW CHANNEL BANDEDGE



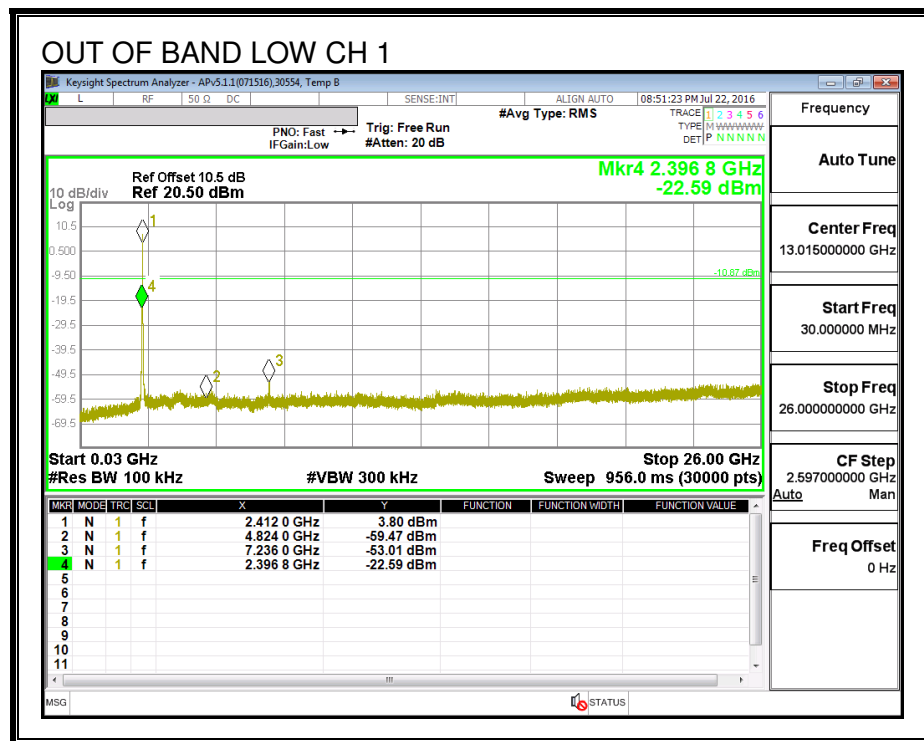
### MID CHANNEL REFERENCE

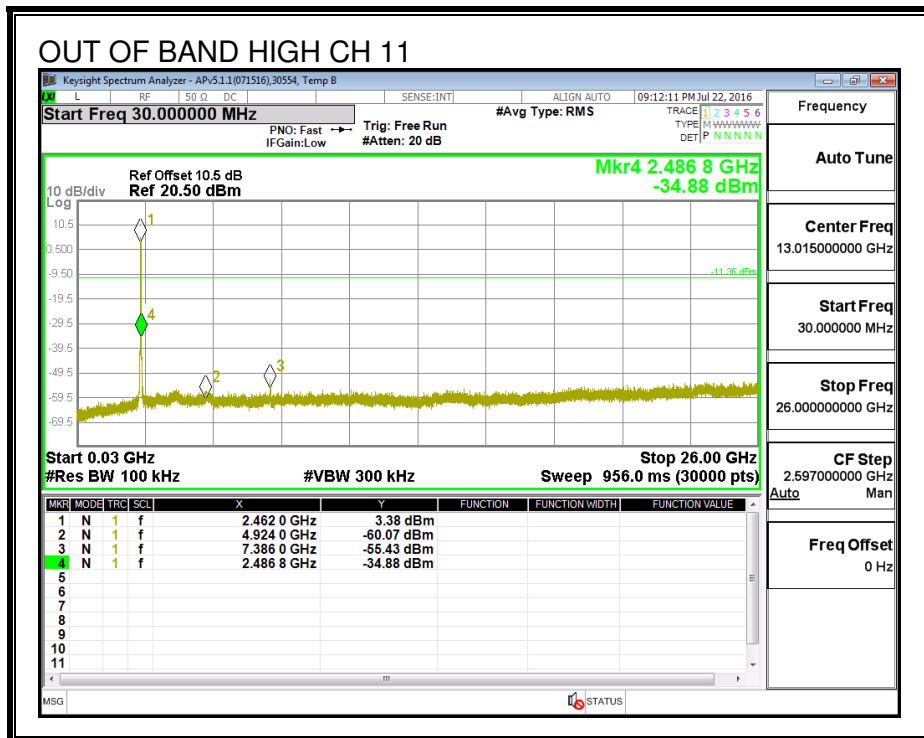
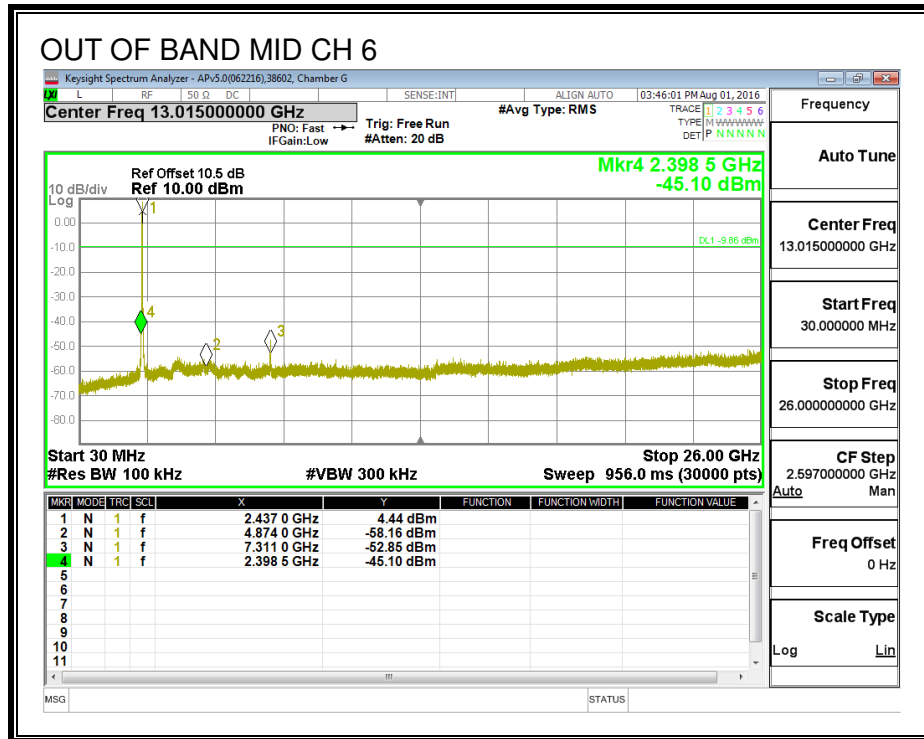


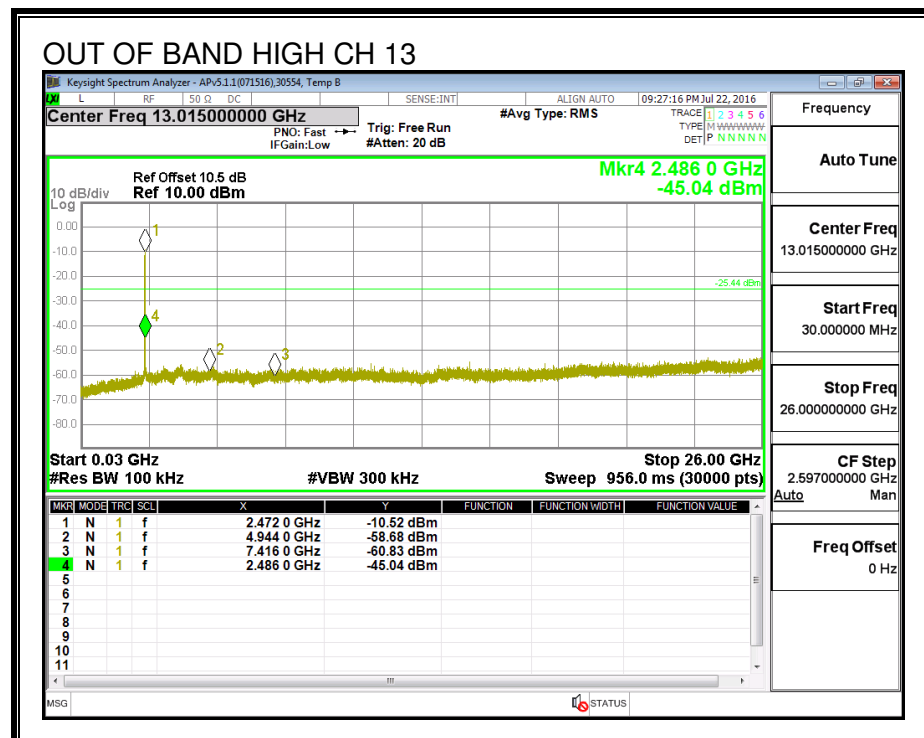
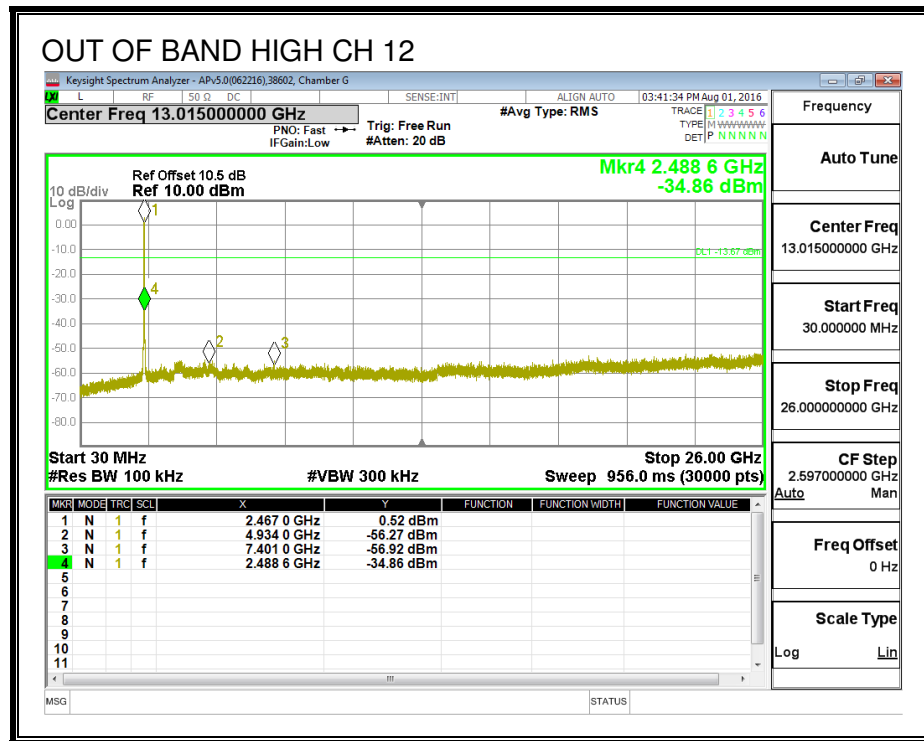




## OUT-OF-BAND EMISSIONS







## 9. RADIATED TEST RESULTS

### 9.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.205 and §15.209

IC RSS-GEN, Section 8.9 and 8.10.

| Frequency Range (MHz) | Field Strength Limit (uV/m) at 3 m | Field Strength Limit (dBuV/m) at 3 m |
|-----------------------|------------------------------------|--------------------------------------|
| 30 - 88               | 100                                | 40                                   |
| 88 - 216              | 150                                | 43.5                                 |
| 216 - 960             | 200                                | 46                                   |
| Above 960             | 500                                | 54                                   |

#### TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

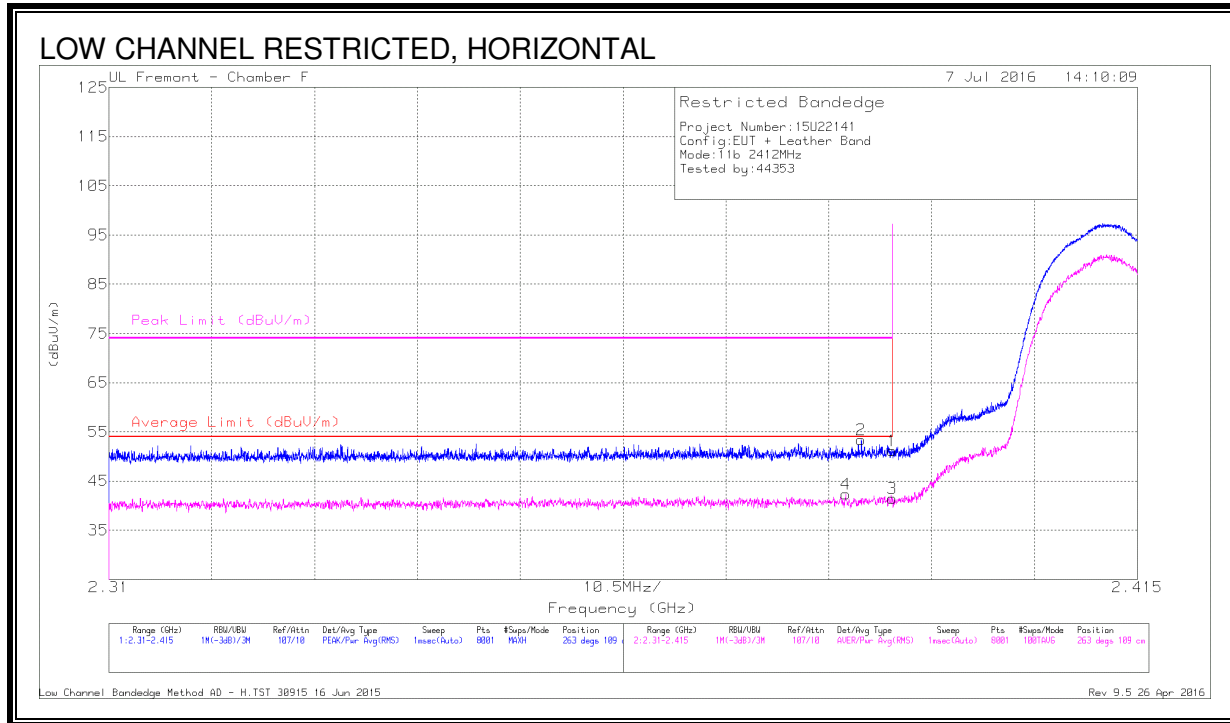
For 2.4 GHz band, the spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions

## 9.2. TRANSMITTER ABOVE 1 GHz

### 9.2.1. 802.11b 1Tx MODE IN THE 2.4 GHz BAND

#### RESTRICTED BANDEDGE (LOW CHANNEL, CH 1)



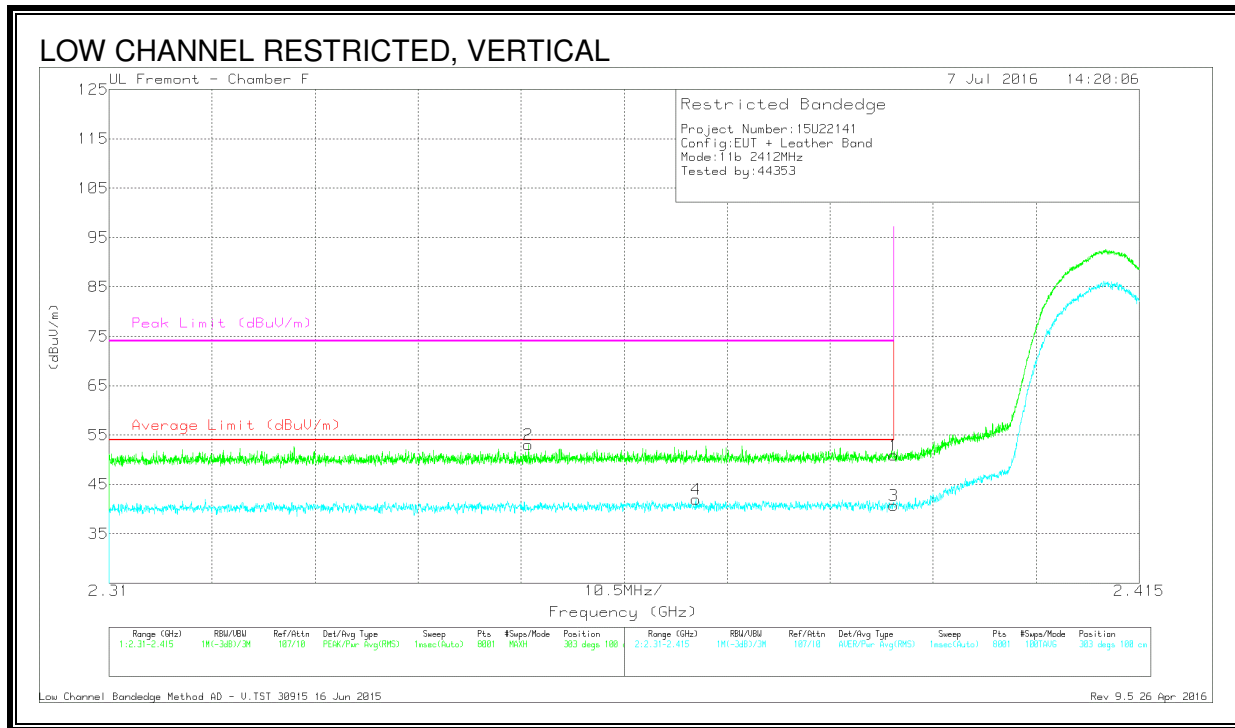
#### DATA

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl/Fltr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|-----------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.39          | 39.93                | Pk  | 32.1           | -20.9                 | 51.13                      | -                      | -           | 74                  | -22.87         | 263            | 109         | H        |
| 2      | * 2.387         | 42.19                | Pk  | 32.1           | -20.9                 | 53.39                      | -                      | -           | 74                  | -20.61         | 263            | 109         | H        |
| 3      | * 2.39          | 30.29                | RMS | 32.1           | -20.9                 | 41.49                      | 54                     | -12.51      | -                   | -              | 263            | 109         | H        |
| 4      | * 2.385         | 31.09                | RMS | 32.1           | -20.9                 | 42.29                      | 54                     | -11.71      | -                   | -              | 263            | 109         | H        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



## DATA

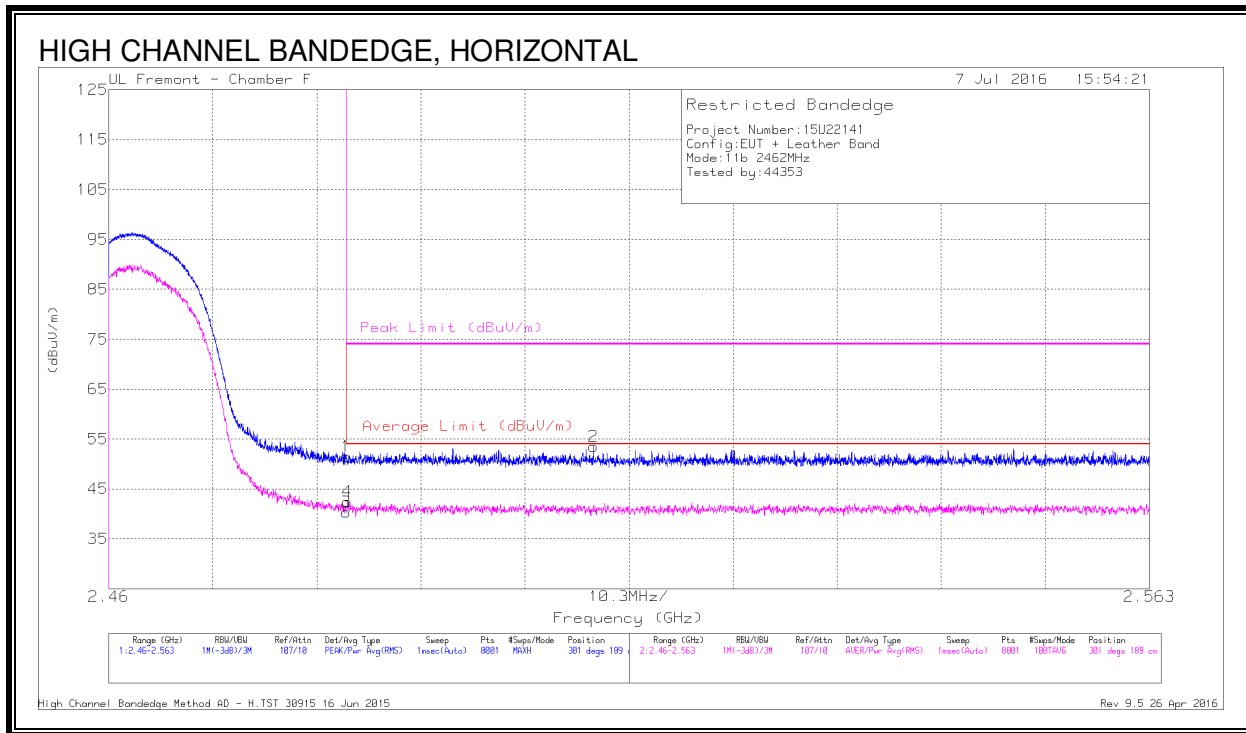
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl/Fltr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|-----------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.39          | 39.75                | Pk  | 32.1           | -20.9                 | 50.95                      | -                      | -           | 74                  | -23.05         | 303            | 100         | V        |
| 2      | * 2.353         | 42.05                | Pk  | 31.9           | -20.9                 | 53.05                      | -                      | -           | 74                  | -20.95         | 303            | 100         | V        |
| 3      | * 2.39          | 29.53                | RMS | 32.1           | -20.9                 | 40.73                      | 54                     | -13.27      | -                   | -              | 303            | 100         | V        |
| 4      | * 2.37          | 30.85                | RMS | 32             | -20.9                 | 41.95                      | 54                     | -12.05      | -                   | -              | 303            | 100         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

**AUTHORIZED BANDEGE (HIGH CHANNEL, CH 11)**



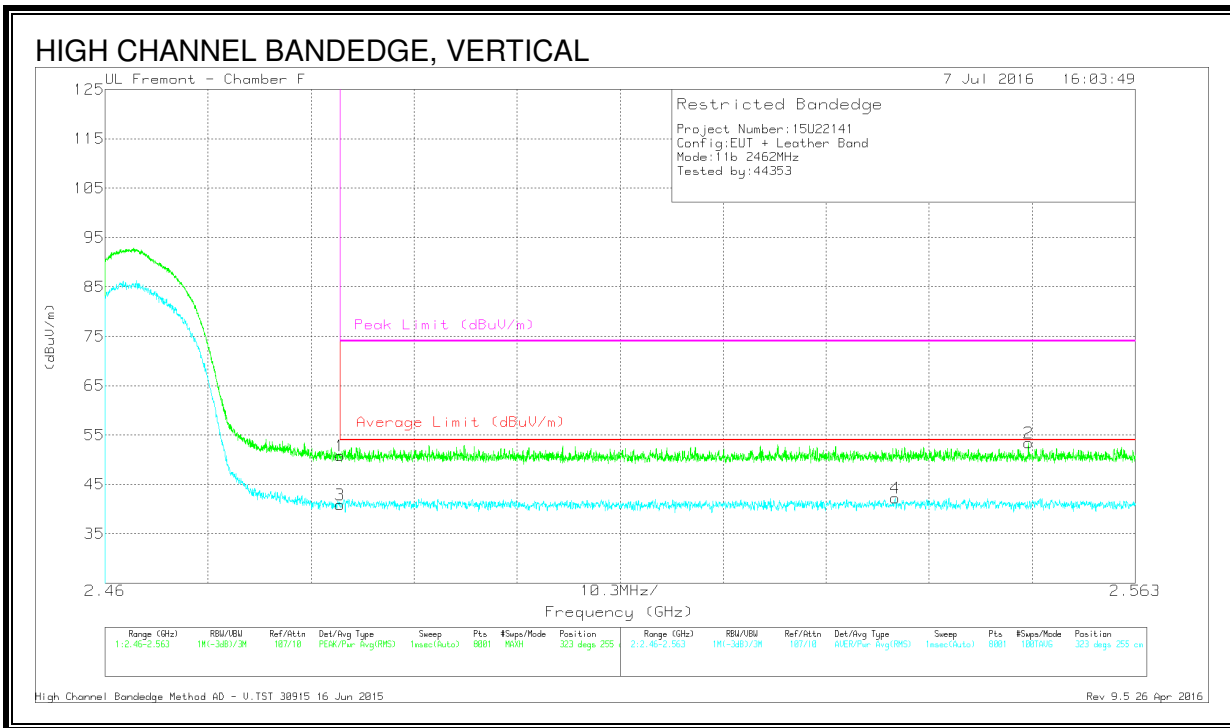
**DATA**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl/Fltr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|-----------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 40.26                | Pk  | 32.3           | -21                   | 51.56                      | -                      | -           | 74                  | -22.44         | 301            | 189         | H        |
| 2      | 2.508           | 42.19                | Pk  | 32.3           | -21                   | 53.49                      | -                      | -           | 74                  | -20.51         | 301            | 189         | H        |
| 3      | * 2.484         | 29.04                | RMS | 32.3           | -21                   | 40.34                      | 54                     | -13.66      | -                   | -              | 301            | 189         | H        |
| 4      | * 2.484         | 31.14                | RMS | 32.3           | -21                   | 42.44                      | 54                     | -11.56      | -                   | -              | 301            | 189         | H        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



## DATA

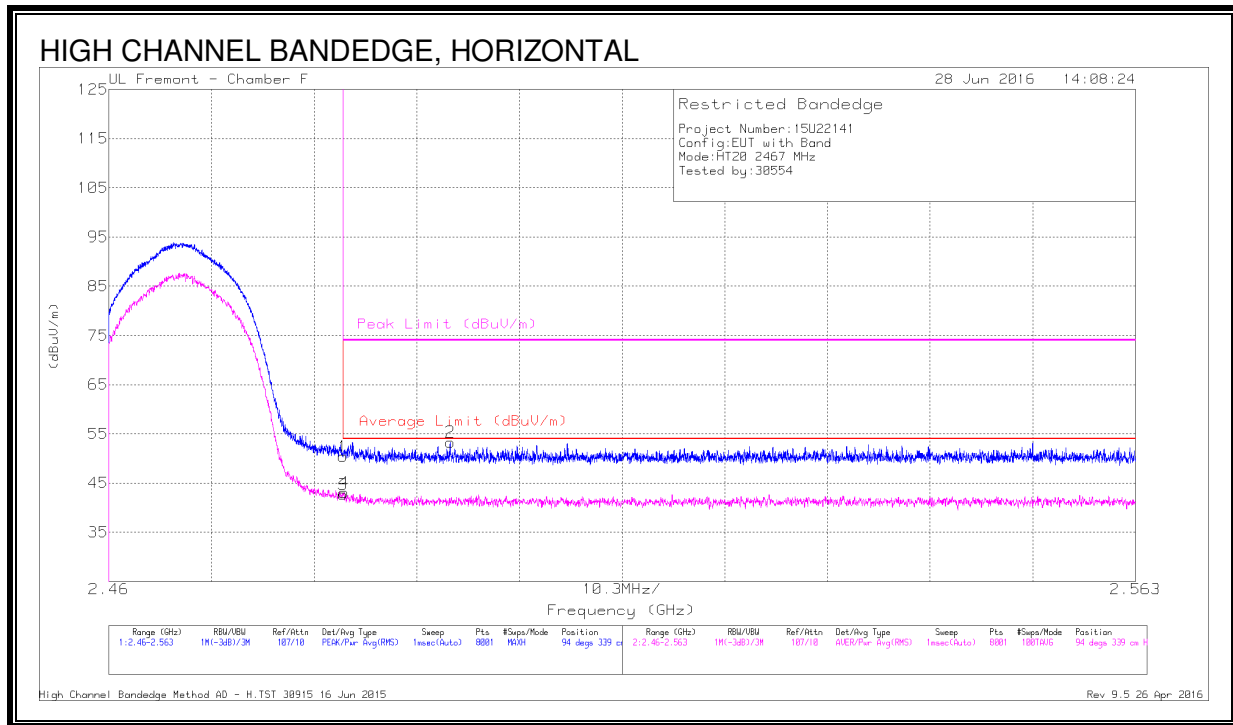
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/C bl/Filtr/ Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|--------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 39.46                | Pk  | 32.3           | -21                      | 50.76                      | -                      | -           | 74                  | -23.24         | 323            | 255         | V        |
| 2      | 2.552           | 42.11                | Pk  | 32.2           | -20.9                    | 53.41                      | -                      | -           | 74                  | -20.59         | 323            | 255         | V        |
| 3      | * 2.484         | 29.6                 | RMS | 32.3           | -21                      | 40.9                       | 54                     | -13.1       | -                   | -              | 323            | 255         | V        |
| 4      | 2.539           | 30.9                 | RMS | 32.2           | -20.9                    | 42.2                       | 54                     | -11.8       | -                   | -              | 323            | 255         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

**AUTHORIZED BANDEGE (HIGH CHANNEL, CH 12)**



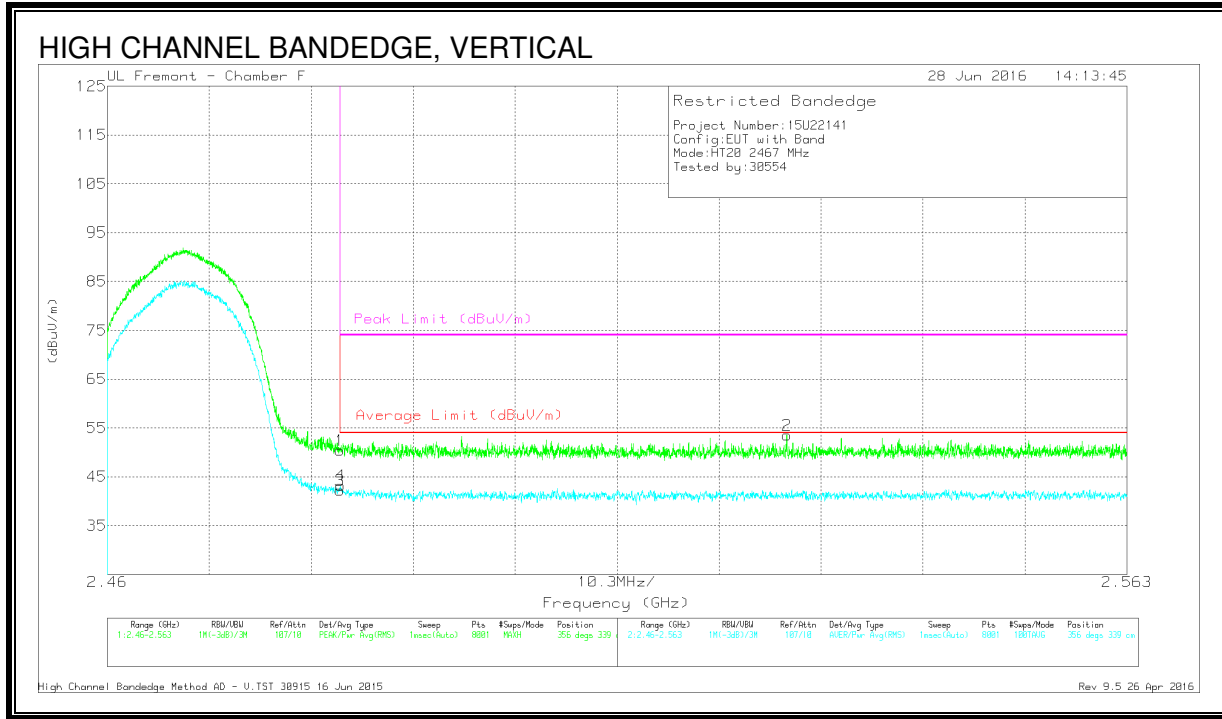
**DATA**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AFT344 (dB/m) | Amp/Cb/Filt/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|----------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 39.09                | Pk  | 32.3          | -21                  | 50.39                      | -                      | -           | 74                  | -23.61         | 94             | 339         | H        |
| 2      | * 2.494         | 41.93                | Pk  | 32.3          | -20.9                | 53.33                      | -                      | -           | 74                  | -20.67         | 94             | 339         | H        |
| 3      | * 2.484         | 31.46                | RMS | 32.3          | -21                  | 42.76                      | 54                     | -11.24      | -                   | -              | 94             | 339         | H        |
| 4      | * 2.484         | 31.77                | RMS | 32.3          | -21                  | 43.07                      | 54                     | -10.93      | -                   | -              | 94             | 339         | H        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



## DATA

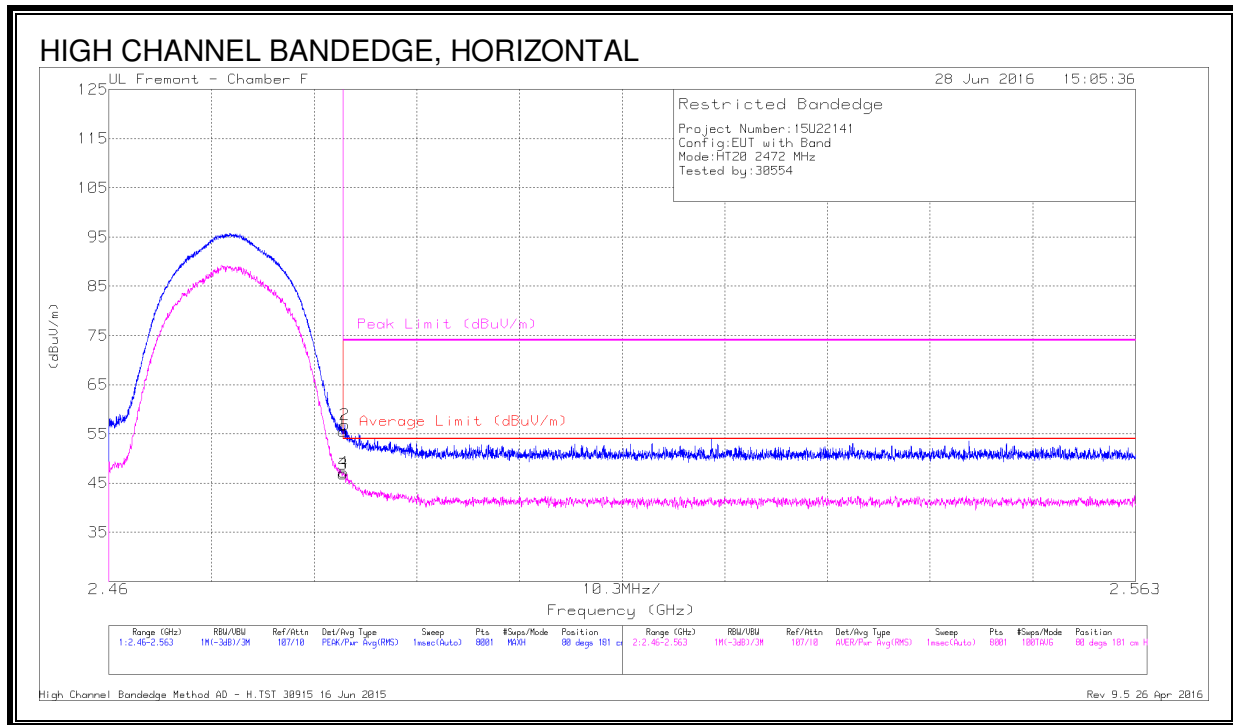
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cb/Ftr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|---------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 39.08                | Pk  | 32.3           | -21                 | 50.38                      | -                      | -           | 74                  | -23.62         | 356            | 339         | V        |
| 2      | 2.529           | 42.12                | Pk  | 32.3           | -20.9               | 53.52                      | -                      | -           | 74                  | -20.48         | 356            | 339         | V        |
| 3      | * 2.484         | 30.93                | RMS | 32.3           | -21                 | 42.23                      | 54                     | -11.77      | -                   | -              | 356            | 339         | V        |
| 4      | * 2.484         | 31.93                | RMS | 32.3           | -21                 | 43.23                      | 54                     | -10.77      | -                   | -              | 356            | 339         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

**AUTHORIZED BANDEGE (HIGH CHANNEL, CH 13)**



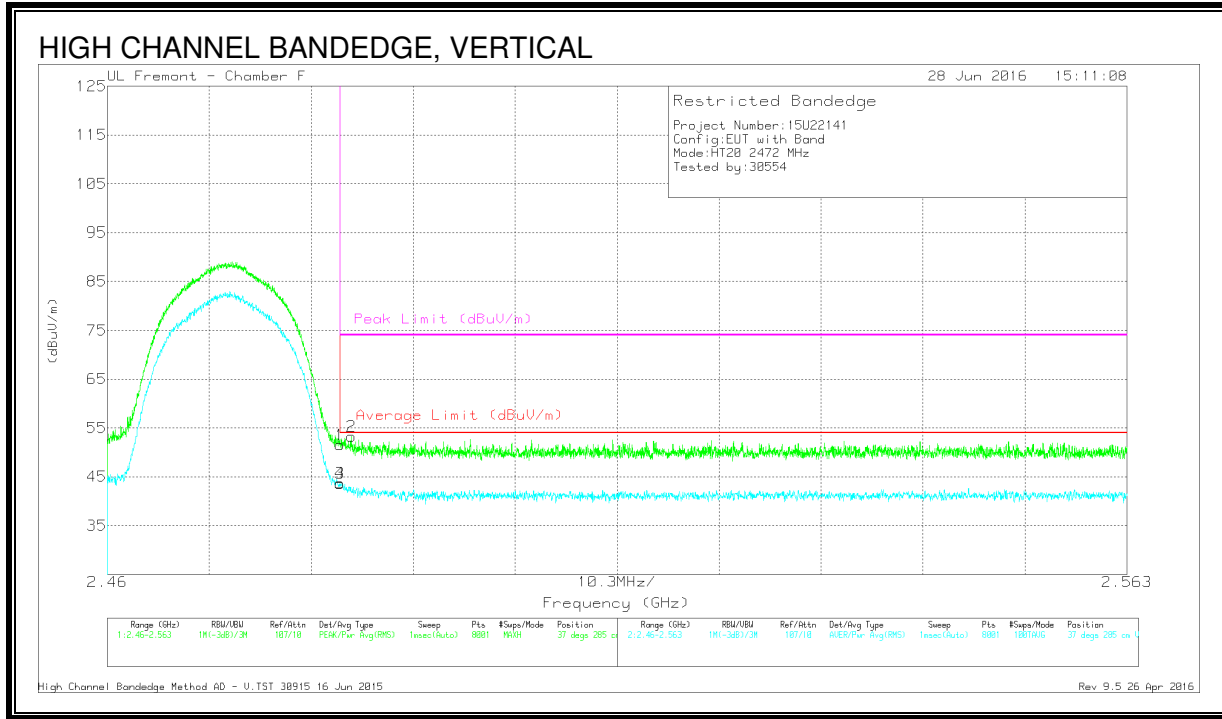
**DATA**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl /Filtr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|-------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 44.18                | Pk  | 32.3           | -21                     | 55.48                      | -                      | -           | 74                  | -18.52         | 80             | 181         | H        |
| 2      | * 2.484         | 45.56                | Pk  | 32.3           | -21                     | 56.86                      | -                      | -           | 74                  | -17.14         | 80             | 181         | H        |
| 3      | * 2.484         | 35.48                | RMS | 32.3           | -21                     | 46.78                      | 54                     | -7.22       | -                   | -              | 80             | 181         | H        |
| 4      | * 2.484         | 35.9                 | RMS | 32.3           | -21                     | 47.2                       | 54                     | -6.8        | -                   | -              | 80             | 181         | H        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



## DATA

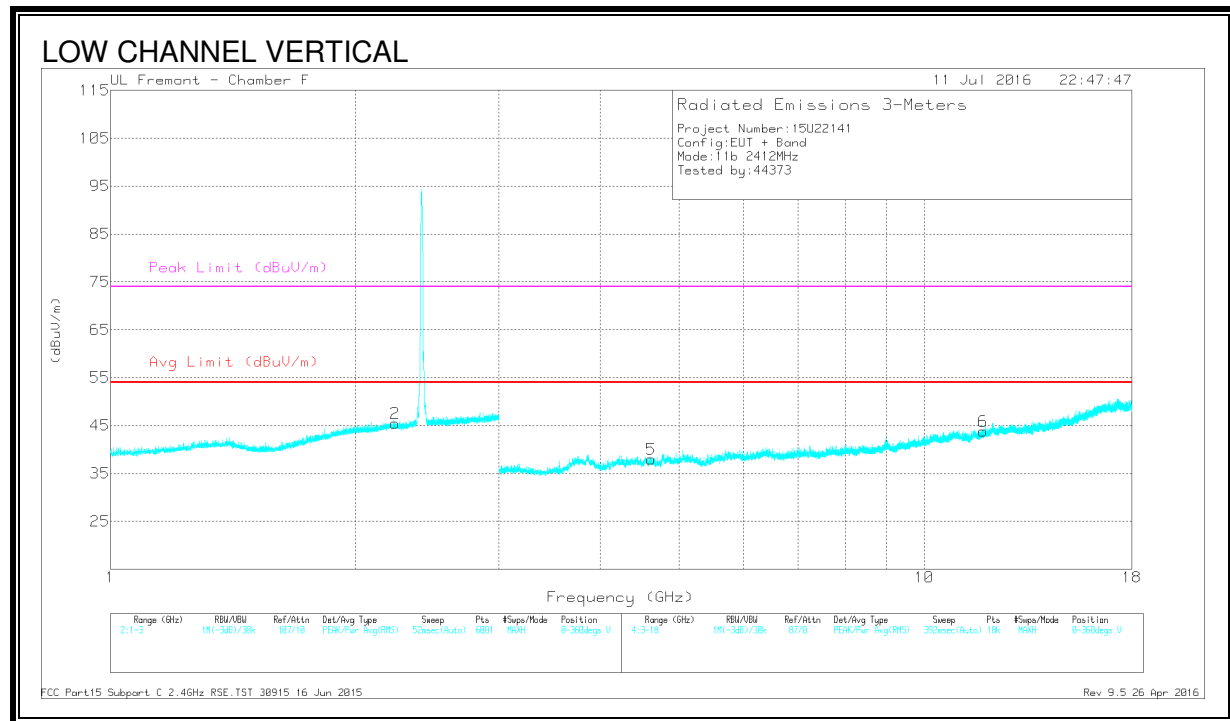
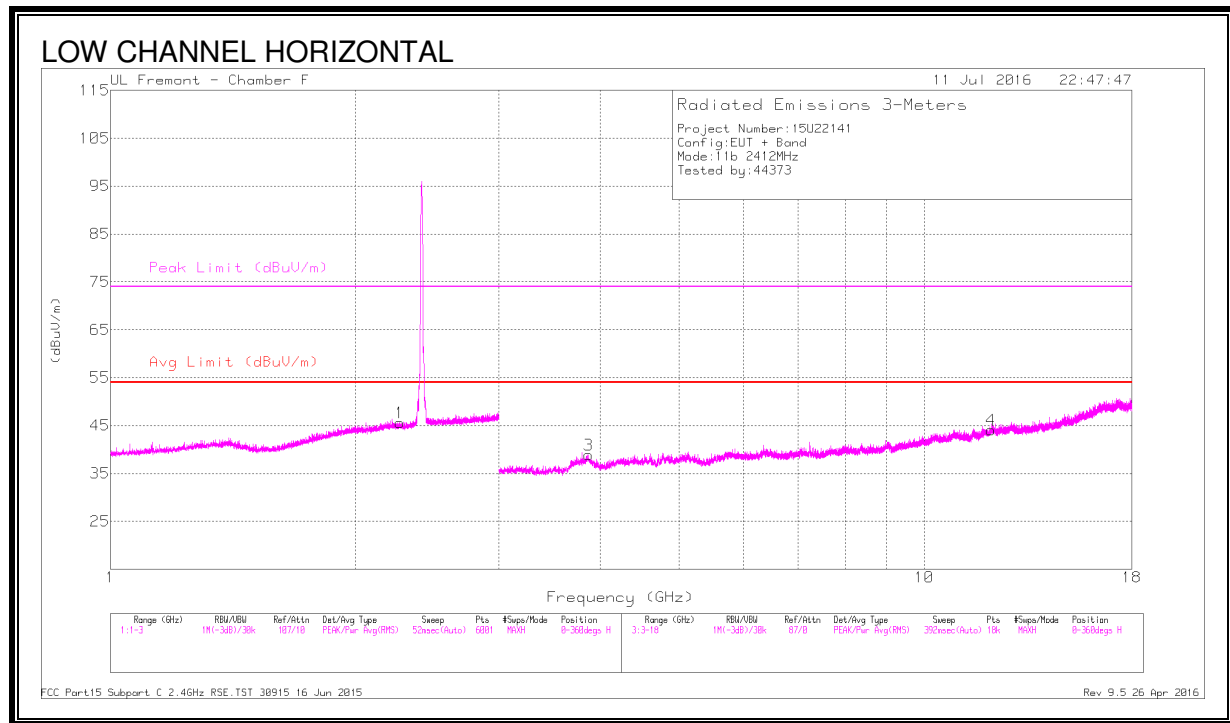
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl/Filtr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 40.23                | Pk  | 32.3           | -21                    | 51.53                      | -                      | -           | 74                  | -22.47         | 37             | 285         | V        |
| 2      | * 2.485         | 41.82                | Pk  | 32.3           | -20.9                  | 53.22                      | -                      | -           | 74                  | -20.78         | 37             | 285         | V        |
| 3      | * 2.484         | 32.35                | RMS | 32.3           | -21                    | 43.65                      | 54                     | -10.35      | -                   | -              | 37             | 285         | V        |
| 4      | * 2.484         | 32.37                | RMS | 32.3           | -21                    | 43.67                      | 54                     | -10.33      | -                   | -              | 37             | 285         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL, CH 1**



# DATA

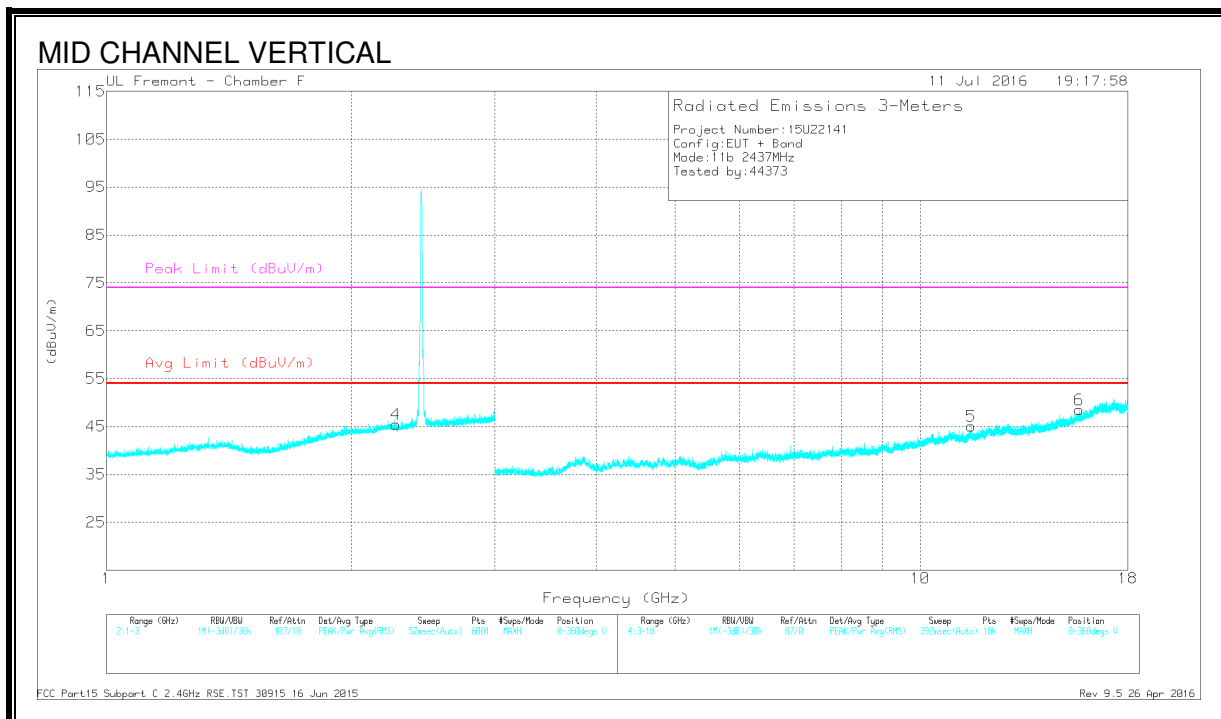
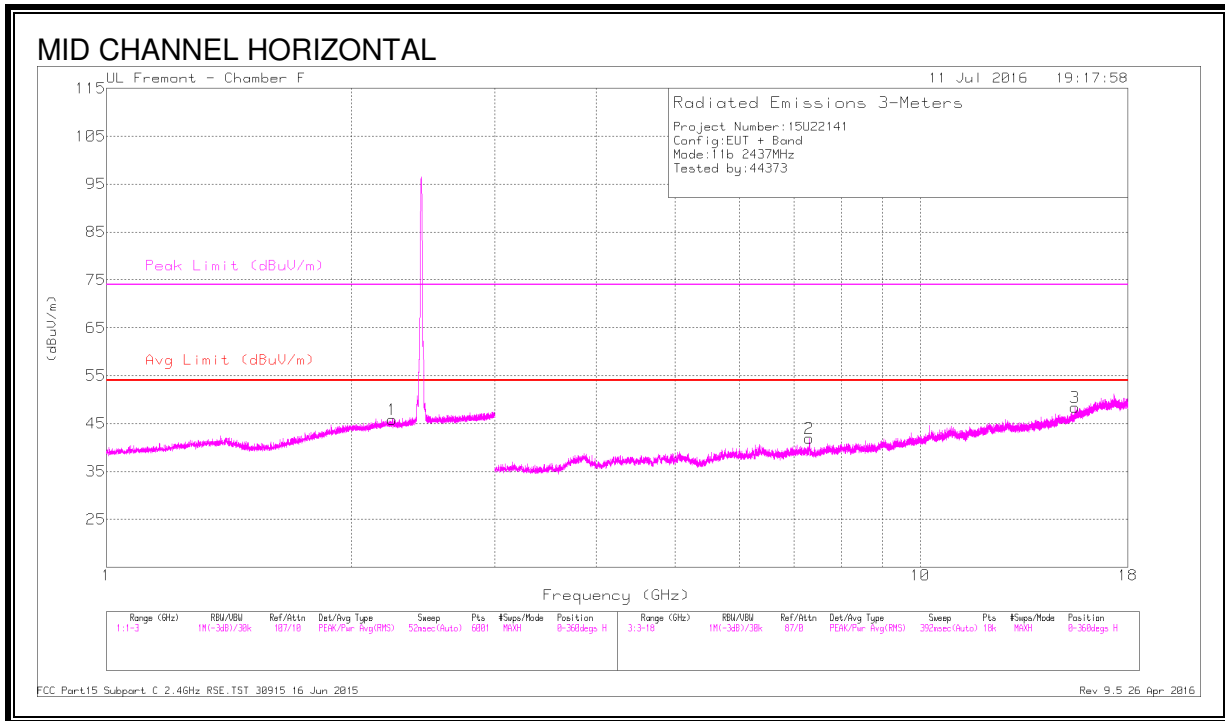
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T344 (dB/m) | Amp/Cbl/Fitr /Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|------|----------------|------------------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.266         | 41.35                | PK2  | 31.8           | -21                    | 52.15                      | -                  | -           | 74                  | -21.85         | 97             | 341         | H        |
| 1      | * 2.269         | 30.37                | MAv1 | 31.7           | -21                    | 41.07                      | 54                 | -12.93      | -                   | -              | 97             | 341         | H        |
| 3      | * 3.871         | 38.18                | PK2  | 33.4           | -28.3                  | 43.28                      | -                  | -           | 74                  | -30.72         | 0              | 118         | H        |
| 3      | * 3.872         | 27.58                | MAv1 | 33.4           | -28.3                  | 32.68                      | 54                 | -21.32      | -                   | -              | 0              | 118         | H        |
| 2      | * 2.236         | 34.66                | PK   | 31.8           | -21                    | 45.46                      | -                  | -           | 74                  | -28.54         | 245            | 201         | V        |
| 2      | * 2.236         | 26.76                | MAv1 | 31.8           | -21                    | 37.56                      | 54                 | -16.44      |                     |                | 245            | 155         | V        |
| 4      | * 12.078        | 33.89                | PK2  | 38.9           | -22.3                  | 50.49                      | -                  | -           | 74                  | -23.51         | 234            | 214         | H        |
| 4      | * 12.08         | 23.57                | MAv1 | 38.9           | -22.3                  | 40.17                      | 54                 | -13.83      | -                   | -              | 234            | 214         | H        |
| 5      | * 4.613         | 37.56                | PK2  | 34.1           | -28                    | 43.66                      | -                  | -           | 74                  | -30.34         | 237            | 290         | V        |
| 5      | * 4.615         | 27.19                | MAv1 | 34.1           | -28                    | 33.29                      | 54                 | -20.71      | -                   | -              | 237            | 290         | V        |
| 6      | * 11.817        | 33.85                | PK2  | 38.4           | -22.1                  | 50.15                      | -                  | -           | 74                  | -23.85         | 135            | 222         | V        |
| 6      | * 11.816        | 23.96                | MAv1 | 38.4           | -22.1                  | 40.26                      | 54                 | -13.74      | -                   | -              | 135            | 222         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

**HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL, CH 6**



# DATA

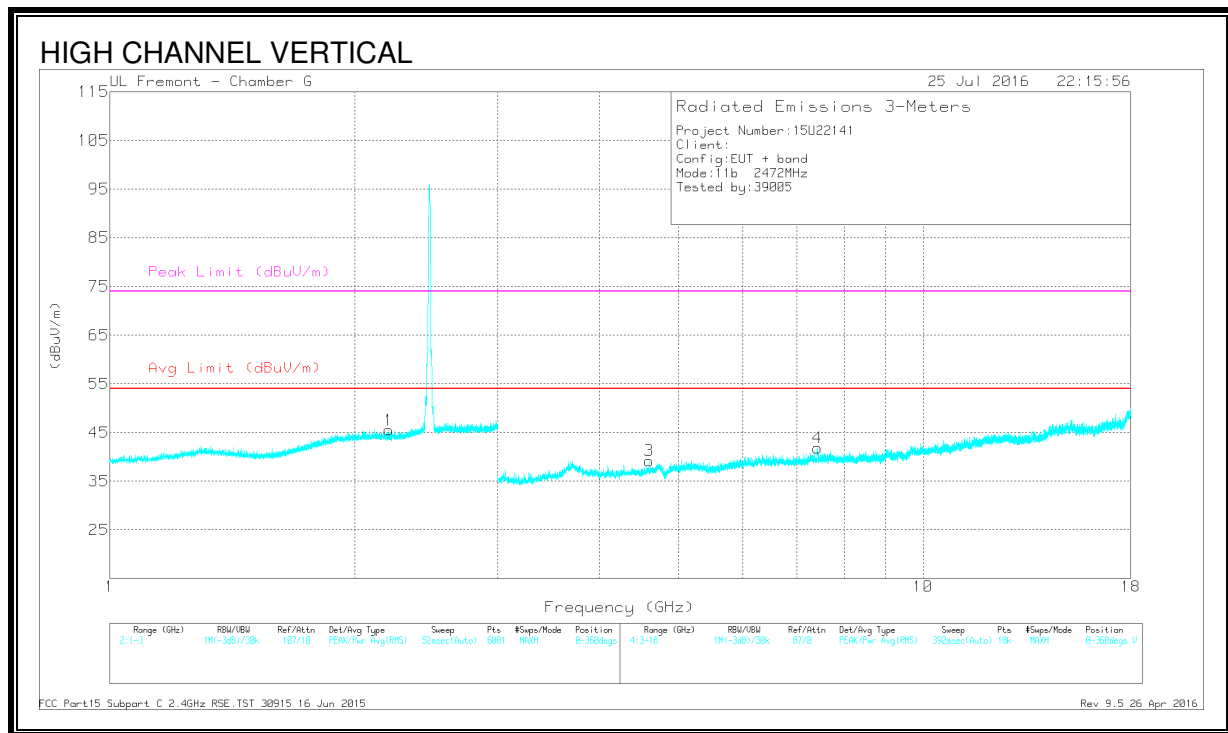
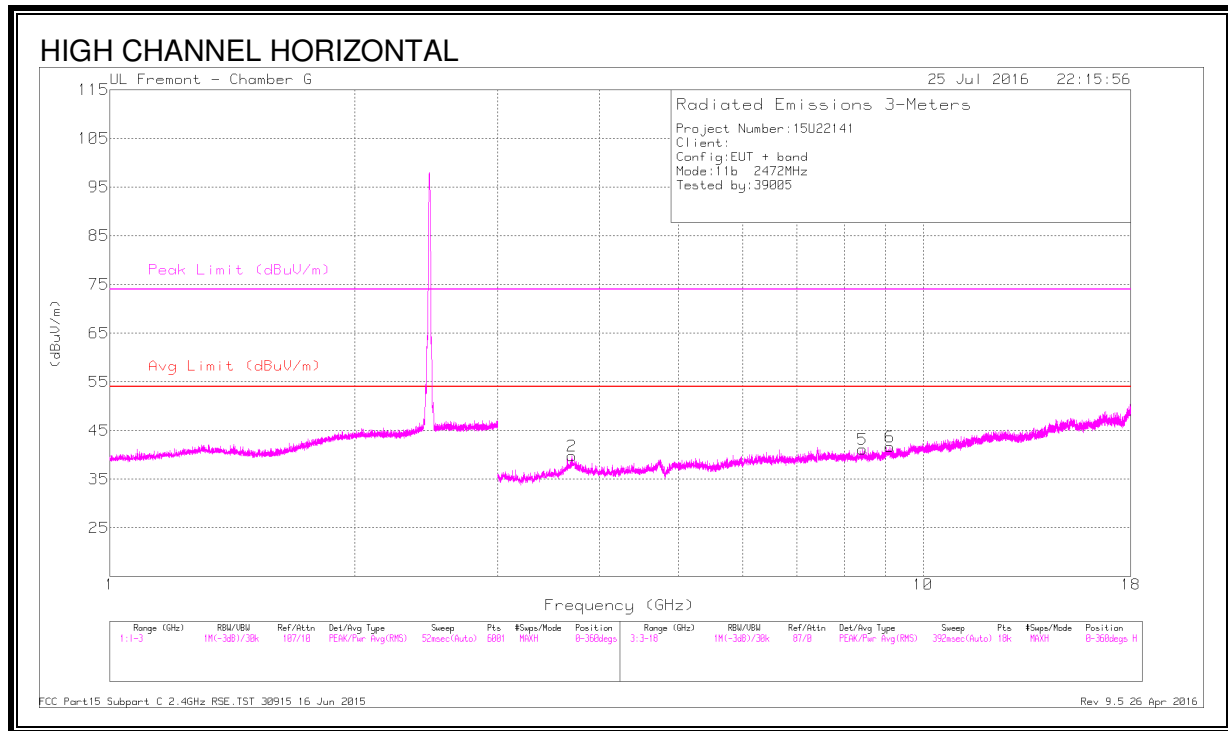
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T344 (dB/m) | Amp/Cbl/Filtr/P ad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|------|----------------|-------------------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.246         | 42.73                | PK2  | 31.8           | -21                     | 53.53                      | -                  | -           | 74                  | -20.47         | 293            | 319         | H        |
|        | * 2.248         | 30.34                | MAv1 | 31.8           | -21                     | 41.14                      | 54                 | -12.86      | -                   | -              | 293            | 319         | H        |
| 2      | * 7.308         | 37.07                | PK2  | 35.5           | -26.5                   | 46.07                      | -                  | -           | 74                  | -27.93         | 148            | 193         | H        |
|        | * 7.31          | 26.89                | MAv1 | 35.5           | -26.5                   | 35.89                      | 54                 | -18.11      | -                   | -              | 148            | 193         | H        |
| 3      | * 15.499        | 35.02                | PK2  | 40.4           | -22.1                   | 53.32                      | -                  | -           | 74                  | -20.68         | 126            | 185         | H        |
|        | * 15.5          | 25.18                | MAv1 | 40.4           | -22.1                   | 43.48                      | 54                 | -10.52      | -                   | -              | 126            | 185         | H        |
| 4      | * 2.267         | 42.13                | PK2  | 31.7           | -21                     | 52.83                      | -                  | -           | 74                  | -21.17         | 157            | 139         | V        |
|        | * 2.268         | 30.31                | MAv1 | 31.7           | -21                     | 41.01                      | 54                 | -12.99      | -                   | -              | 157            | 139         | V        |
| 5      | * 11.561        | 34.1                 | PK2  | 38.1           | -21.5                   | 50.7                       | -                  | -           | 74                  | -23.3          | 76             | 189         | V        |
|        | * 11.564        | 23.62                | MAv1 | 38.1           | -21.5                   | 40.22                      | 54                 | -13.78      | -                   | -              | 76             | 189         | V        |
| 6      | * 15.687        | 35.69                | PK2  | 40.7           | -22                     | 54.39                      | -                  | -           | 74                  | -19.61         | 35             | 150         | V        |
|        | * 15.683        | 25.13                | MAv1 | 40.7           | -22                     | 43.83                      | 54                 | -10.17      | -                   | -              | 35             | 150         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

**HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL, CH 13**



## DATA

| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T136 (dB/m) | Amp/Cbl/Fitr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|-----------------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 2.204         | 44.06                | PK2  | 31.5           | -24                   | 51.56                      | -                  | -           | 74                  | -22.44         | 82             | 201         | V        |
| * 2.205         | 33.41                | MAv1 | 31.5           | -24                   | 40.91                      | 54                 | -13.09      | -                   | -              | 82             | 201         | V        |
| * 3.702         | 42.68                | PK2  | 34.3           | -30.7                 | 46.28                      | -                  | -           | 74                  | -27.72         | 233            | 186         | H        |
| * 3.703         | 31.76                | MAv1 | 34.3           | -30.7                 | 35.36                      | 54                 | -18.64      | -                   | -              | 233            | 186         | H        |
| * 8.429         | 39.58                | PK2  | 35.8           | -28.4                 | 46.98                      | -                  | -           | 74                  | -27.02         | 260            | 188         | H        |
| * 8.428         | 29.72                | MAv1 | 35.8           | -28.4                 | 37.12                      | 54                 | -16.88      | -                   | -              | 260            | 188         | H        |
| * 9.098         | 40.13                | PK2  | 36.1           | -27.8                 | 48.43                      | -                  | -           | 74                  | -25.57         | 255            | 196         | H        |
| * 9.098         | 29.44                | MAv1 | 36.1           | -27.8                 | 37.74                      | 54                 | -16.26      | -                   | -              | 255            | 196         | H        |
| * 4.603         | 42.61                | PK2  | 34.4           | -31.9                 | 45.11                      | -                  | -           | 74                  | -28.89         | 102            | 207         | V        |
| * 4.604         | 31.93                | MAv1 | 34.4           | -31.9                 | 34.43                      | 54                 | -19.57      | -                   | -              | 102            | 207         | V        |
| * 7.415         | 41.36                | PK2  | 35.8           | -30.4                 | 46.76                      | -                  | -           | 74                  | -27.24         | 223            | 190         | V        |
| * 7.415         | 30.23                | MAv1 | 35.8           | -30.4                 | 35.63                      | 54                 | -18.37      | -                   | -              | 223            | 190         | V        |

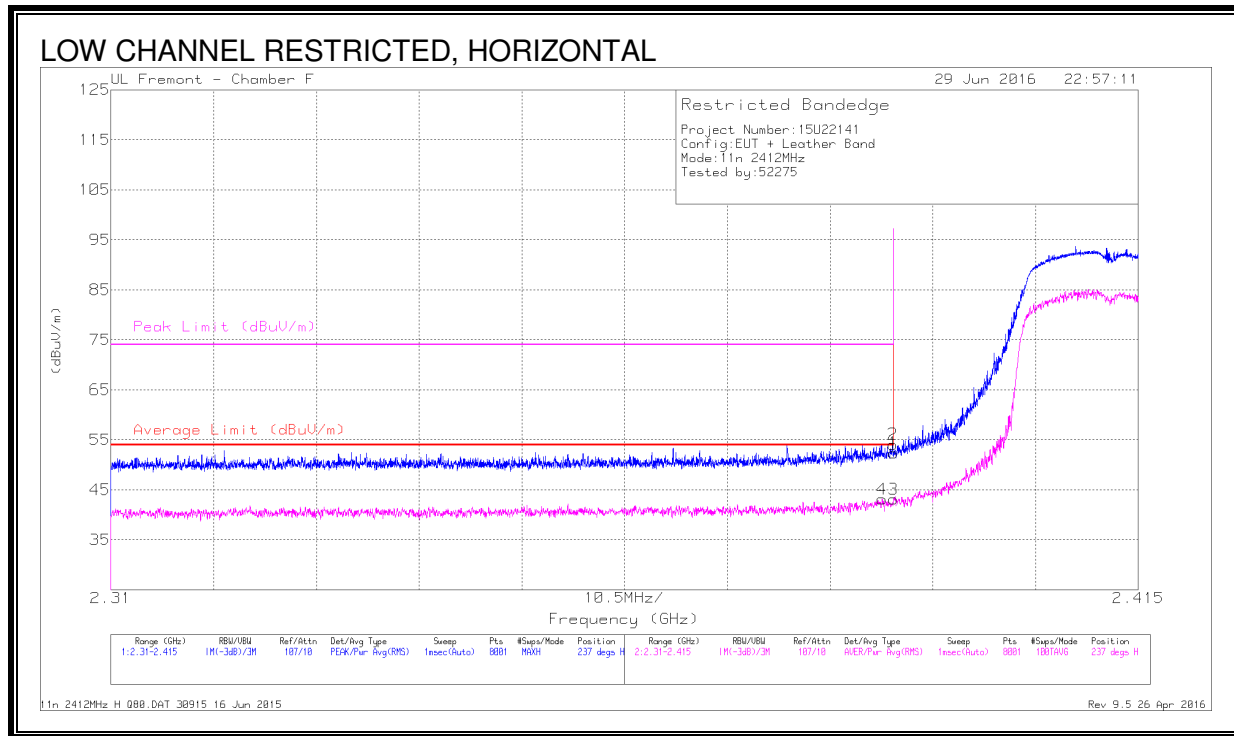
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

## 9.2.2. 802.11HT20 1Tx MODE IN THE 2.4 GHz BAND

### RESTRICTED BANDEDGE (LOW CHANNEL, CH 1)



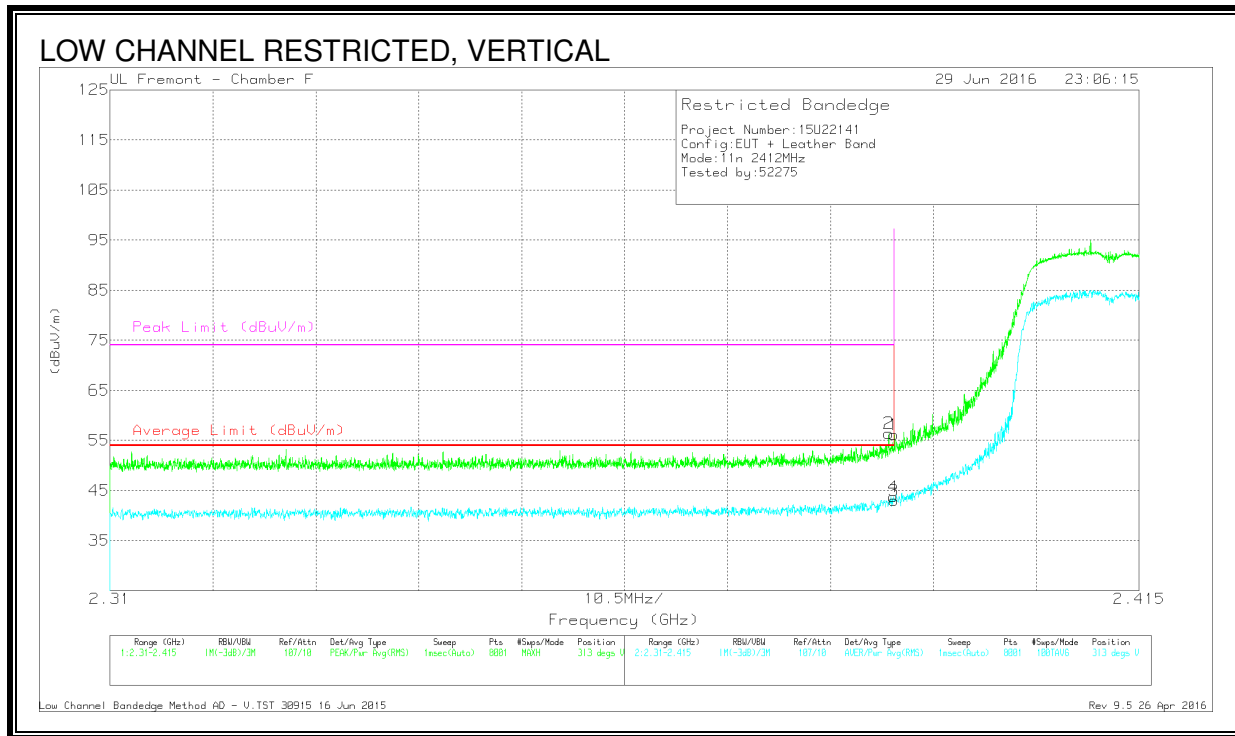
### DATA

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl/F ltr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.39          | 41.19                | Pk  | 32.1           | -20.9                  | 52.39                      | -                      | -           | 74                  | -21.61         | 237            | 334         | H        |
| 2      | * 2.39          | 42.89                | Pk  | 32.1           | -20.9                  | 54.09                      | -                      | -           | 74                  | -19.91         | 237            | 334         | H        |
| 3      | * 2.39          | 31.95                | RMS | 32.1           | -20.9                  | 43.15                      | 54                     | -10.85      | -                   | -              | 237            | 334         | H        |
| 4      | * 2.389         | 31.96                | RMS | 32.1           | -20.9                  | 43.16                      | 54                     | -10.84      | -                   | -              | 237            | 334         | H        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



## DATA

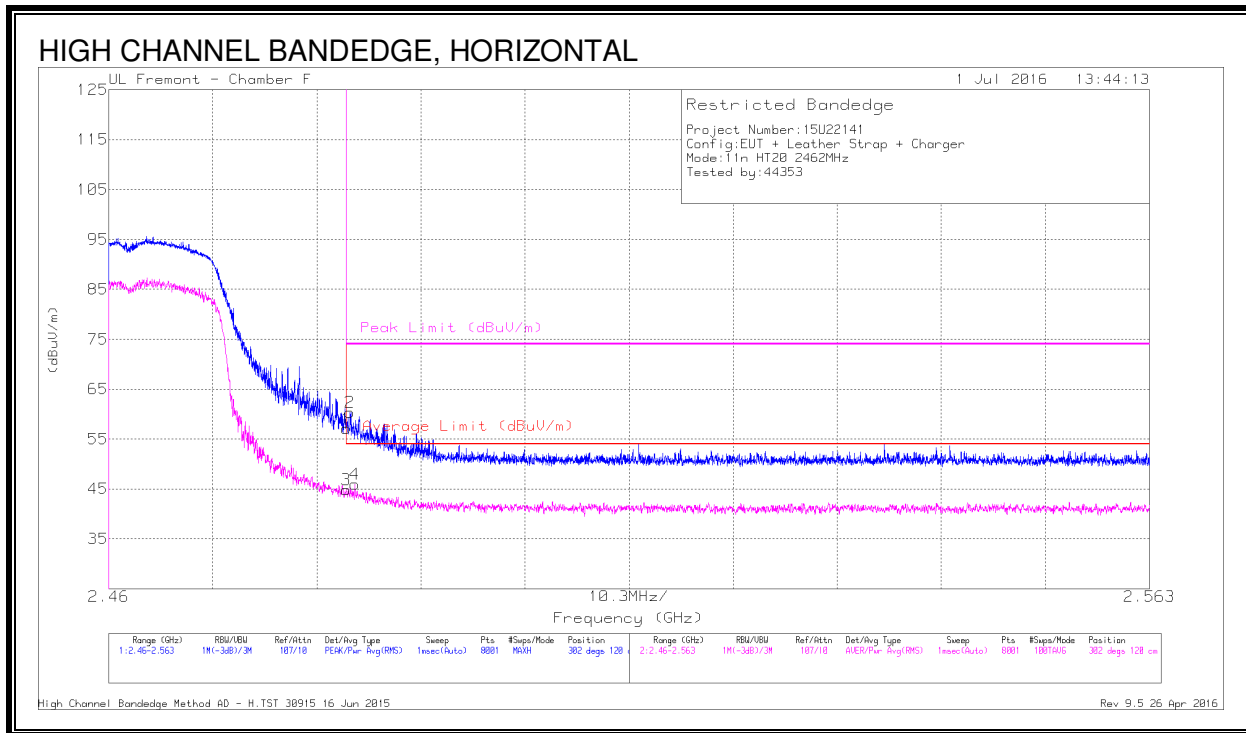
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl /Fltr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.39          | 44.96                | Pk  | 32.1           | -20.9                  | 56.16                      | -                      | -           | 74                  | -17.84         | 313            | 377         | V        |
| 2      | * 2.389         | 45.24                | Pk  | 32.1           | -20.9                  | 56.44                      | -                      | -           | 74                  | -17.56         | 313            | 377         | V        |
| 3      | * 2.39          | 31.81                | RMS | 32.1           | -20.9                  | 43.01                      | 54                     | -10.99      | -                   | -              | 313            | 377         | V        |
| 4      | * 2.39          | 32.53                | RMS | 32.1           | -20.9                  | 43.73                      | 54                     | -10.27      | -                   | -              | 313            | 377         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

**AUTHORIZED BANDEGE (HIGH CHANNEL, CH 11)**



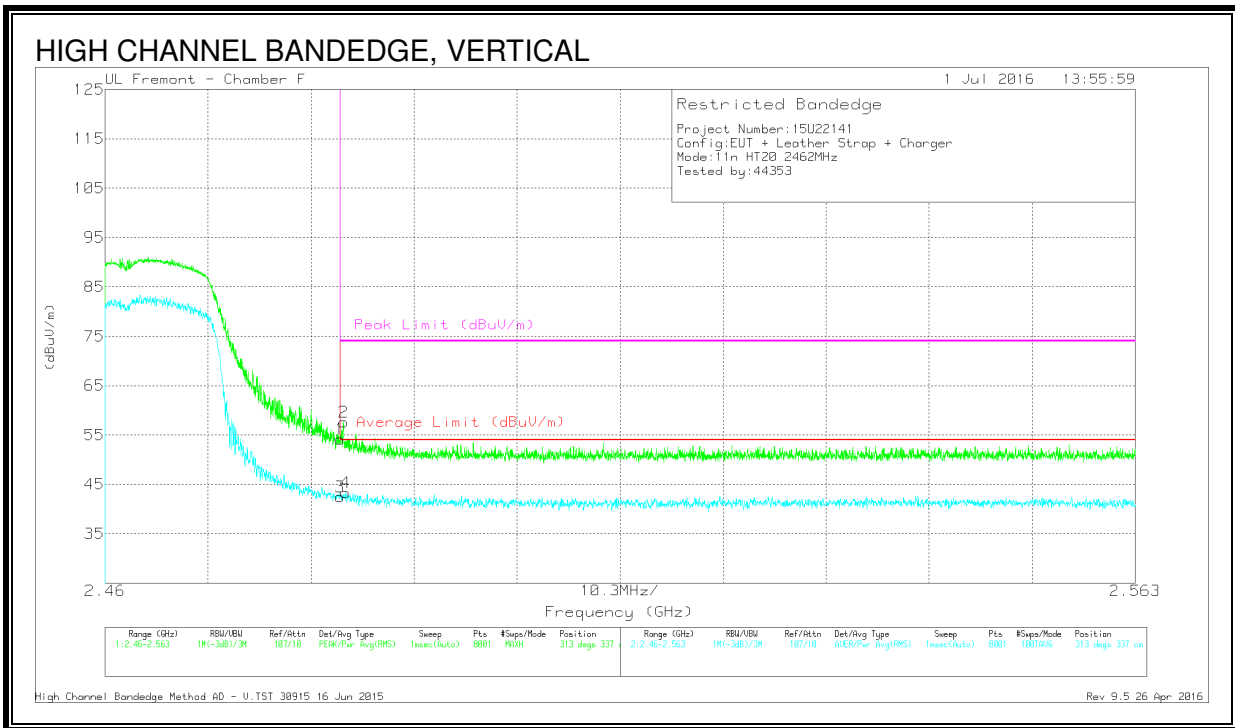
**DATA**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl/Filtr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 45.79                | Pk  | 32.3           | -21                    | 57.09                      | -                      | -           | 74                  | -16.91         | 302            | 120         | H        |
| 2      | * 2.484         | 49.02                | Pk  | 32.3           | -21                    | 60.32                      | -                      | -           | 74                  | -13.68         | 302            | 120         | H        |
| 3      | * 2.484         | 33.56                | RMS | 32.3           | -21                    | 44.86                      | 54                     | -9.14       | -                   | -              | 302            | 120         | H        |
| 4      | * 2.484         | 34.67                | RMS | 32.3           | -21                    | 45.97                      | 54                     | -8.03       | -                   | -              | 302            | 120         | H        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



## DATA

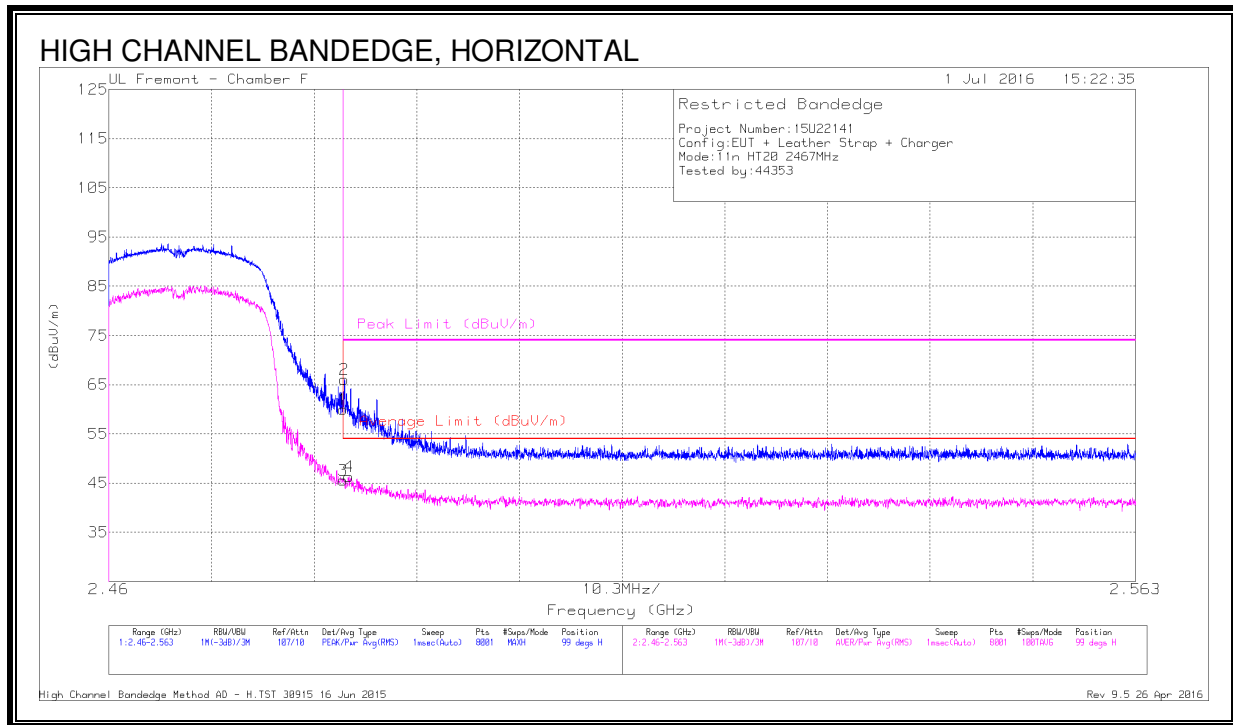
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/ Cbl/FI tr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|-------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 42.9                 | Pk  | 32.3           | -21                     | 54.2                       | -                      | -           | 74                  | -19.8          | 313            | 337         | V        |
| 2      | * 2.484         | 46.26                | Pk  | 32.3           | -21                     | 57.56                      | -                      | -           | 74                  | -16.44         | 313            | 337         | V        |
| 3      | * 2.484         | 31.16                | RMS | 32.3           | -21                     | 42.46                      | 54                     | -11.54      | -                   | -              | 313            | 337         | V        |
| 4      | * 2.484         | 32                   | RMS | 32.3           | -21                     | 43.3                       | 54                     | -10.7       | -                   | -              | 313            | 337         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

**AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 12)**



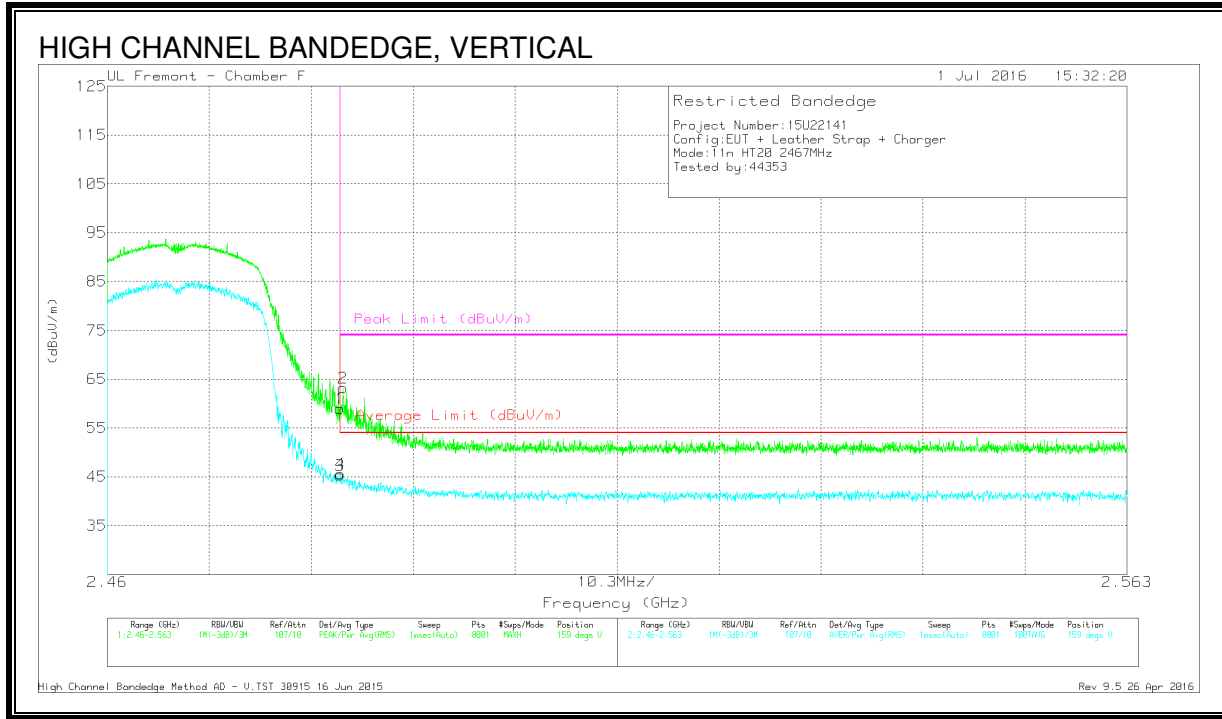
**DATA**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cb/Ftr/Pa d (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|----------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 48.71                | Pk  | 32.3           | -21                  | 60.01                      | -                      | -           | 74                  | -13.99         | 99             | 117         | H        |
| 2      | * 2.484         | 54.72                | Pk  | 32.3           | -21                  | 66.02                      | -                      | -           | 74                  | -7.98          | 99             | 117         | H        |
| 3      | * 2.484         | 34.33                | RMS | 32.3           | -21                  | 45.63                      | 54                     | -8.37       | -                   | -              | 99             | 117         | H        |
| 4      | * 2.484         | 35.02                | RMS | 32.3           | -21                  | 46.32                      | 54                     | -7.68       | -                   | -              | 99             | 117         | H        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



## DATA

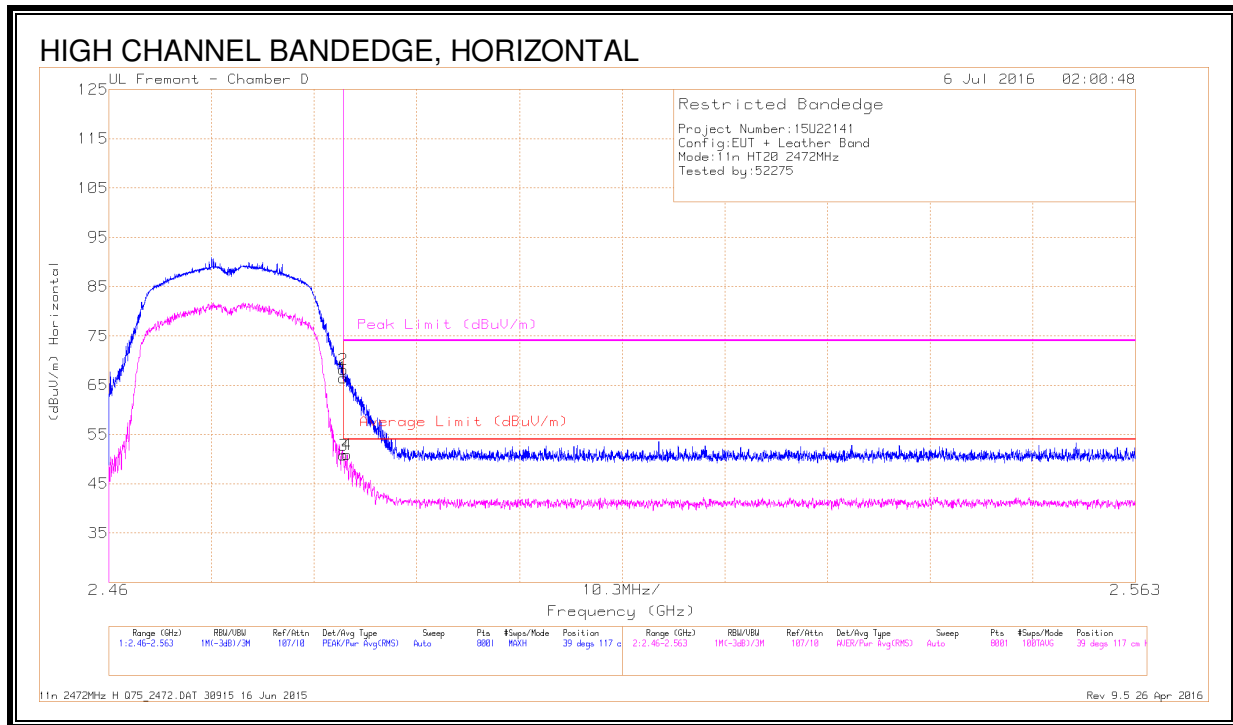
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl/Filtr/Pa d (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|-------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 47.74                | Pk  | 32.3           | -21                     | 59.04                      | -                      | -           | 74                  | -14.96         | 159            | 177         | V        |
| 2      | * 2.484         | 51.93                | Pk  | 32.3           | -21                     | 63.23                      | -                      | -           | 74                  | -10.77         | 159            | 177         | V        |
| 3      | * 2.484         | 34.04                | RMS | 32.3           | -21                     | 45.34                      | 54                     | -8.66       | -                   | -              | 159            | 177         | V        |
| 4      | * 2.484         | 34.29                | RMS | 32.3           | -21                     | 45.59                      | 54                     | -8.41       | -                   | -              | 159            | 177         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

**AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 13)**



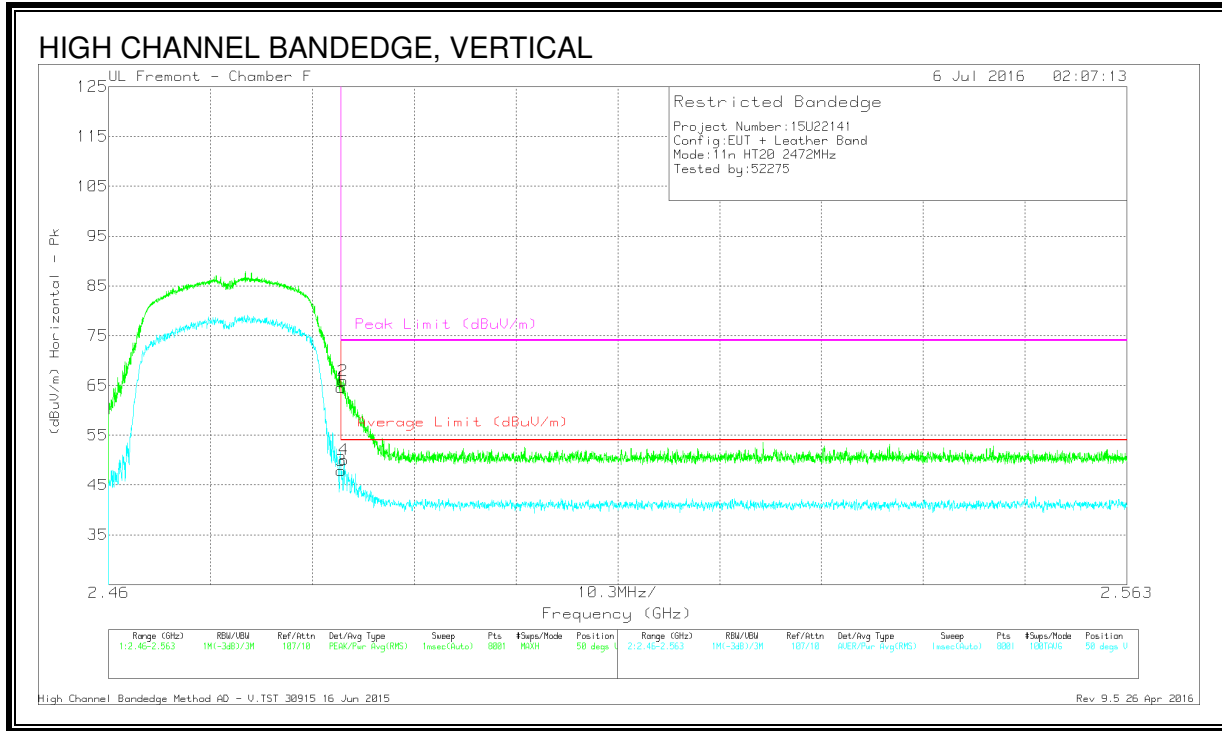
**DATA**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl/Ftr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|----------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 55.19                | Pk  | 32.3           | -21                  | 66.49                      | -                      | -           | 74                  | -7.51          | 39             | 117         | H        |
| 2      | * 2.484         | 56.87                | Pk  | 32.3           | -21                  | 68.17                      | -                      | -           | 74                  | -5.83          | 39             | 117         | H        |
| 3      | * 2.484         | 39.45                | RMS | 32.3           | -21                  | 50.75                      | 54                     | -3.25       | -                   | -              | 39             | 117         | H        |
| 4      | * 2.484         | 39.63                | RMS | 32.3           | -21                  | 50.93                      | 54                     | -3.07       | -                   | -              | 39             | 117         | H        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



## DATA

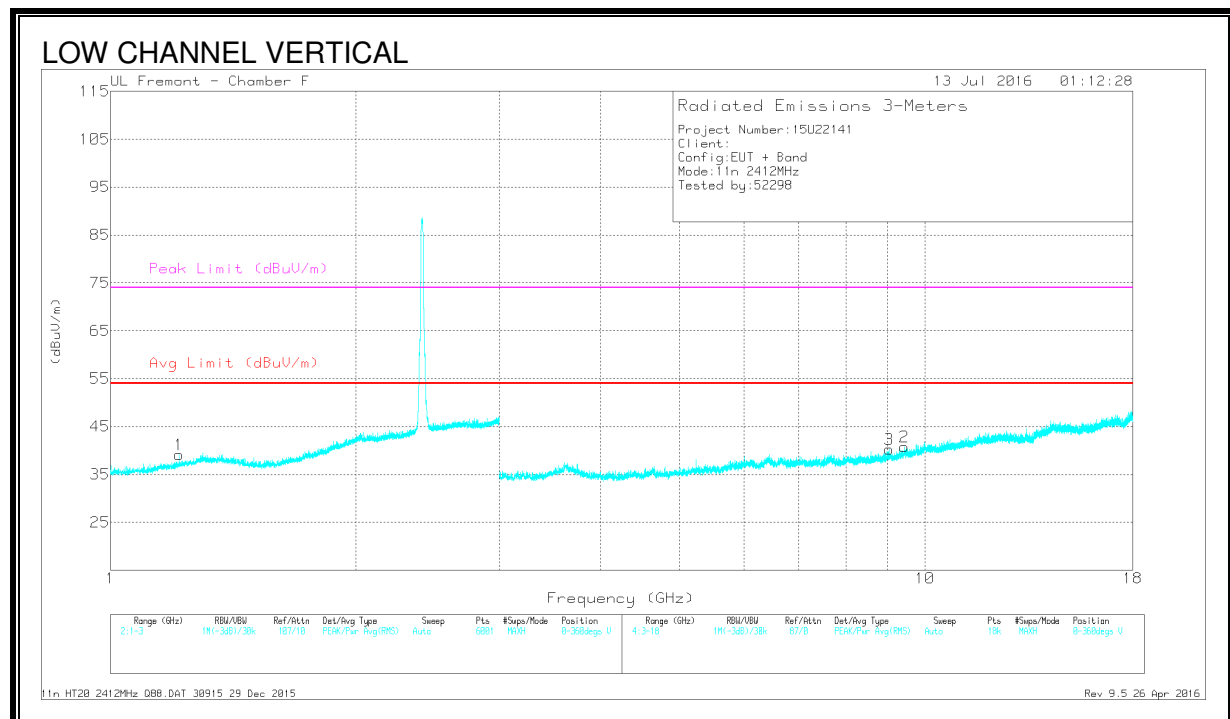
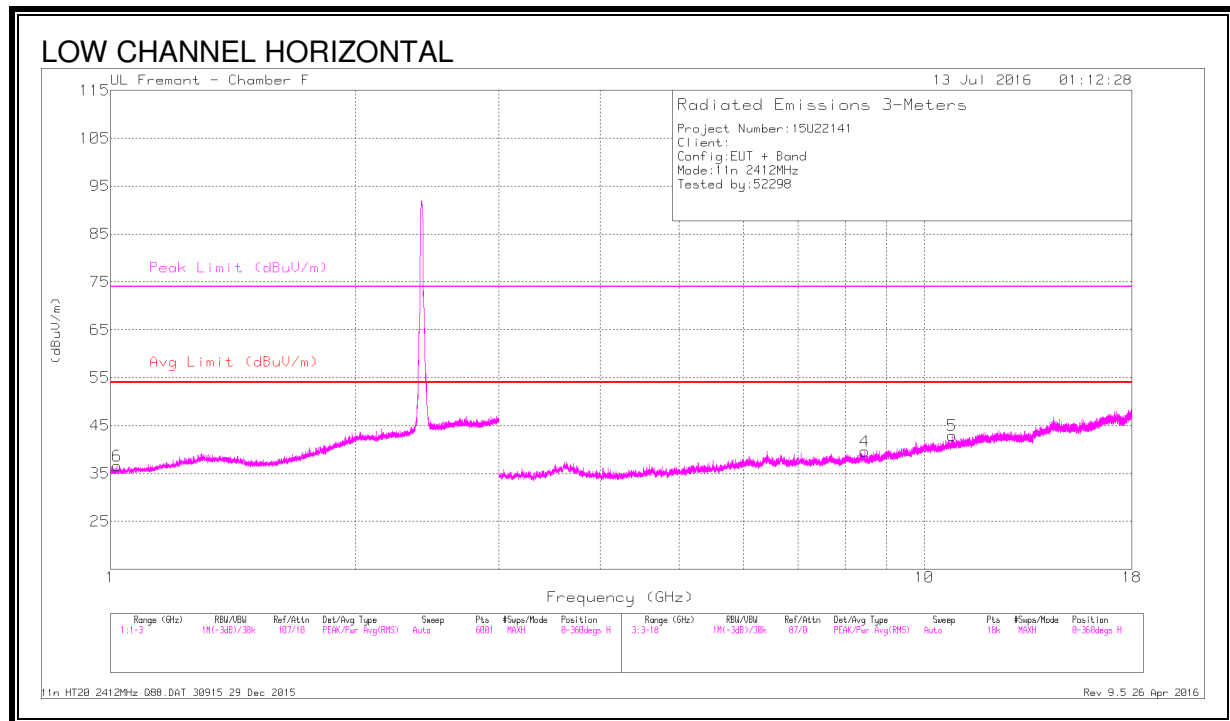
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T344 (dB/m) | Amp/Cbl/Filtr/Pad (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 53.25                | Pk  | 32.3           | -21                    | 64.55                      | -                      | -           | 74                  | -9.45          | 50             | 256         | V        |
| 2      | * 2.484         | 54.67                | Pk  | 32.3           | -21                    | 65.97                      | -                      | -           | 74                  | -8.03          | 50             | 256         | V        |
| 3      | * 2.484         | 36.6                 | RMS | 32.3           | -21                    | 47.9                       | 54                     | -6.1        | -                   | -              | 50             | 256         | V        |
| 4      | * 2.484         | 38.79                | RMS | 32.3           | -21                    | 50.09                      | 54                     | -3.91       | -                   | -              | 50             | 256         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, CH 1)**



# DATA

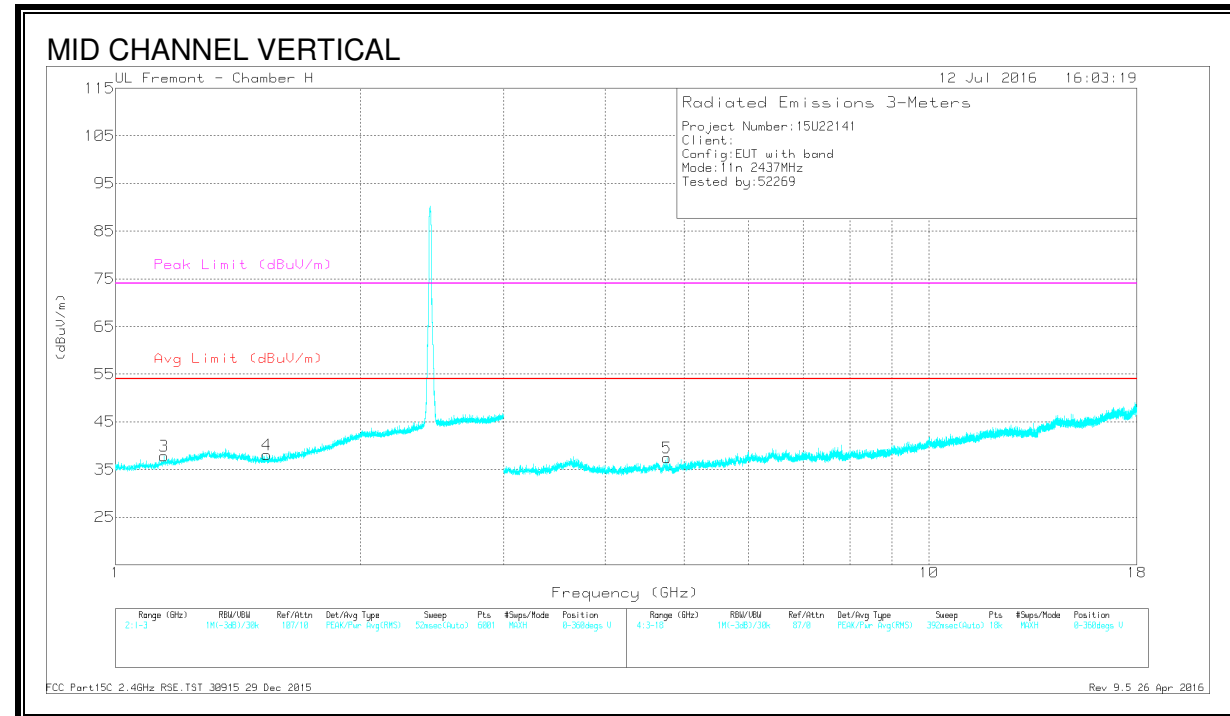
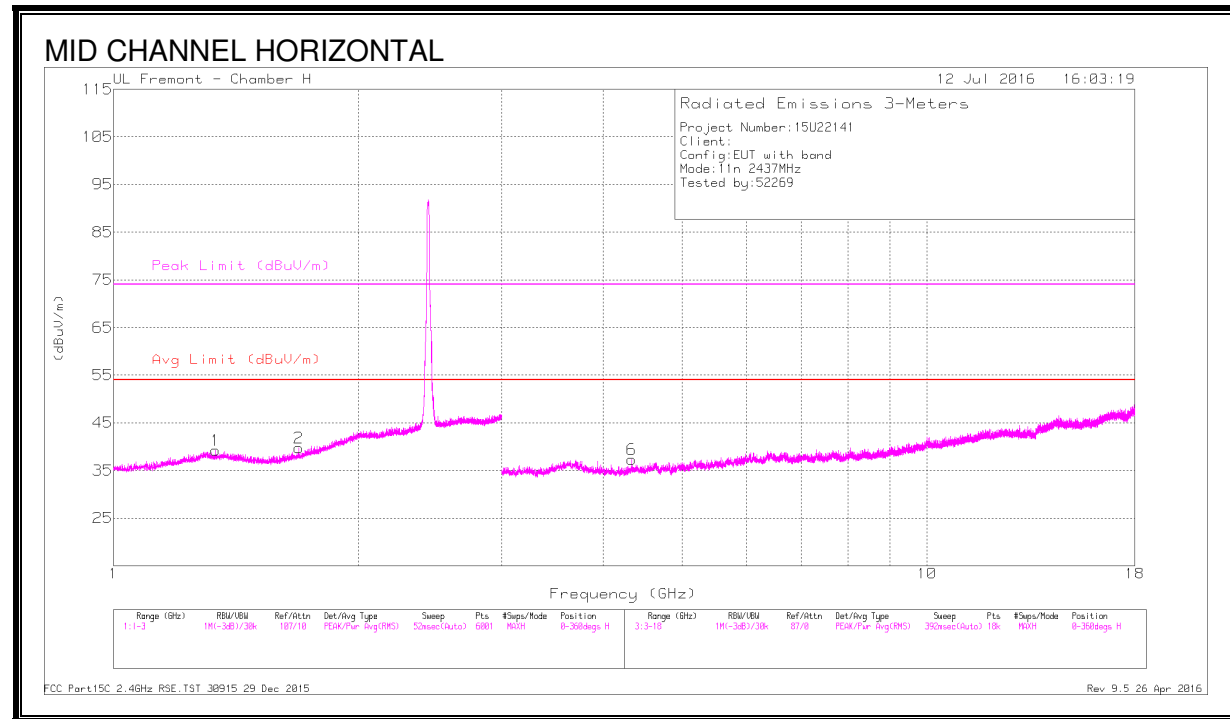
| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T120 (dB/m) | Amp/Cbl/Fitr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|-----------------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 1.02          | 38.08                | PK2  | 27.7           | -22.3                 | 43.48                      | -                  | -           | 74                  | -30.52         | 274            | 326         | H        |
| * 1.02          | 27.28                | MAv1 | 27.7           | -22.3                 | 32.68                      | 54                 | -21.32      | -                   | -              | 274            | 326         | H        |
| * 1.215         | 38.27                | PK2  | 28.8           | -22.1                 | 44.97                      | -                  | -           | 74                  | -29.03         | 294            | 328         | V        |
| * 1.214         | 27.36                | MAv1 | 28.8           | -22.2                 | 33.96                      | 54                 | -20.04      | -                   | -              | 294            | 328         | V        |
| * 10.83         | 38.07                | PK2  | 38.2           | -28                   | 48.27                      | -                  | -           | 74                  | -25.73         | 260            | 100         | H        |
| * 10.829        | 27.89                | MAv1 | 38.2           | -28                   | 38.09                      | 54                 | -15.91      | -                   | -              | 260            | 100         | H        |
| * 9.432         | 38.47                | PK2  | 36.8           | -28.8                 | 46.47                      | -                  | -           | 74                  | -27.53         | 221            | 156         | V        |
| * 9.43          | 28.51                | MAv1 | 36.8           | -28.8                 | 36.51                      | 54                 | -17.49      | -                   | -              | 221            | 156         | V        |
| * 9.048         | 38.88                | PK2  | 36.3           | -28.9                 | 46.28                      | -                  | -           | 74                  | -27.72         | 281            | 212         | V        |
| * 9.046         | 28.5                 | MAv1 | 36.3           | -28.9                 | 35.9                       | 54                 | -18.1       | -                   | -              | 281            | 212         | V        |
| * 11.52         | 34.78                | PK2  | 38.8           | -27.1                 | 46.48                      | -                  | -           | 74                  | -27.52         | 94             | 244         | V        |
| * 11.52         | 22.72                | MAv1 | 38.8           | -27.1                 | 34.42                      | 54                 | -19.58      | -                   | -              | 94             | 244         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

**HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, CH 6)**



# DATA

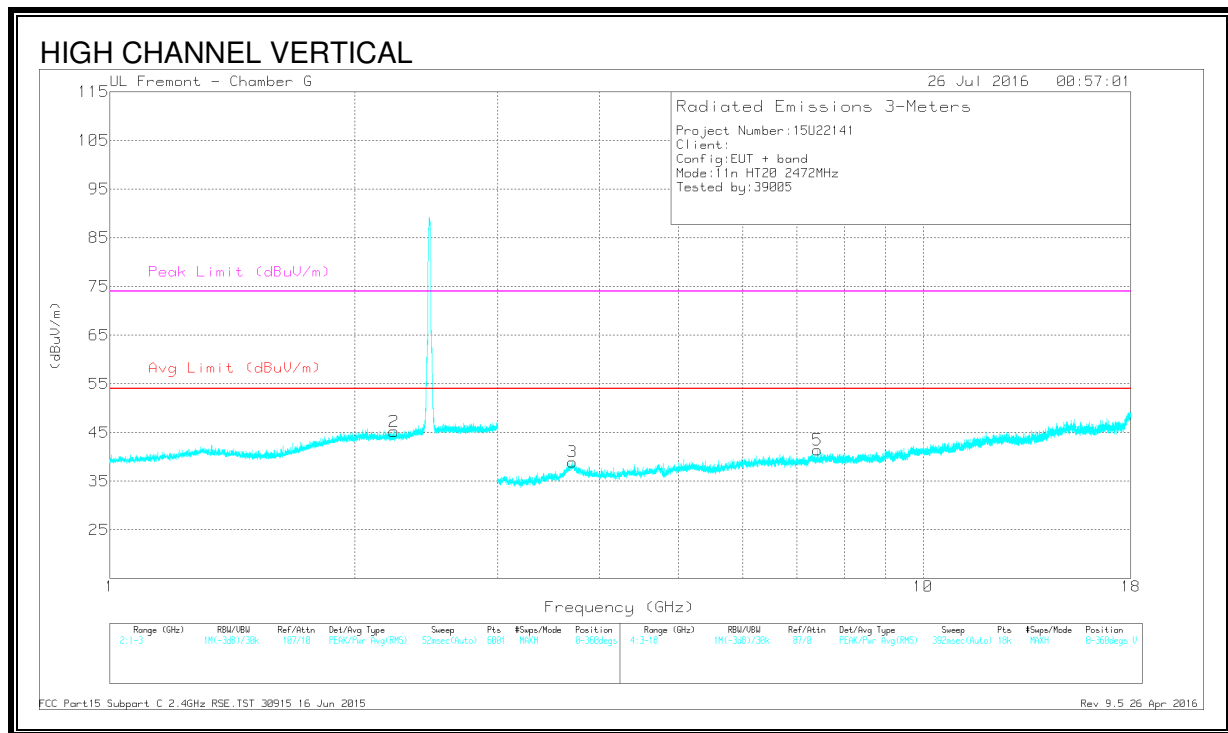
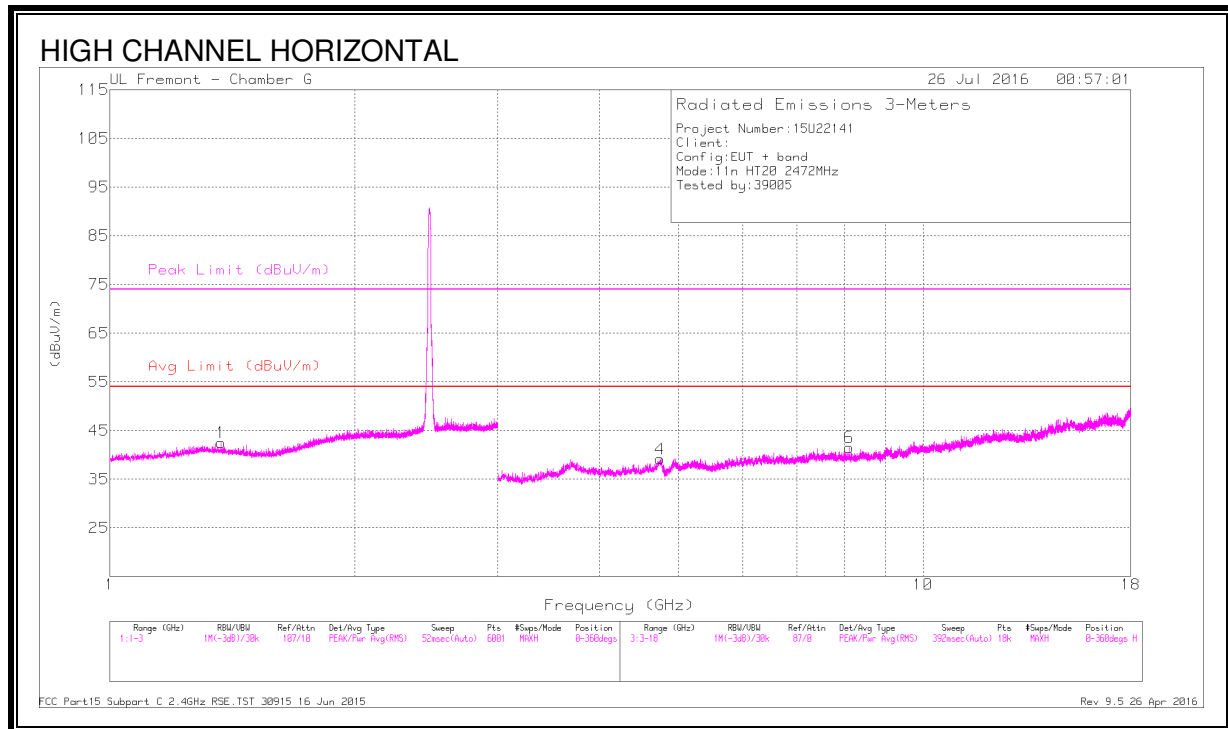
|   | Frequenc<br>y<br>(GHz) | Meter<br>Reading<br>(dBuV) | Det  | AF T120<br>(dB/m) | Amp/Cbl/Fitr/<br>Pad (dB) | Correcte<br>d<br>Reading<br>(dBuV/m) | Avg Limit<br>(dBuV/m) | Margin<br>(dB) | Peak Limit<br>(dBuV/m) | PK<br>Margin<br>(dB) | Azimuth<br>(Degs) | Height<br>(cm) | Polarity |
|---|------------------------|----------------------------|------|-------------------|---------------------------|--------------------------------------|-----------------------|----------------|------------------------|----------------------|-------------------|----------------|----------|
| 1 | * 1.337                | 38.49                      | PK2  | 29.6              | -22                       | 46.09                                | -                     | -              | 74                     | -27.91               | 360               | 100            | H        |
|   | * 1.335                | 27.09                      | MAv1 | 29.6              | -22                       | 34.69                                | 54                    | -19.31         | -                      | -                    | 360               | 100            | H        |
| 2 | * 1.691                | 38.73                      | PK2  | 28.7              | -21                       | 46.43                                | -                     | -              | 74                     | -27.57               | 360               | 100            | H        |
|   | * 1.689                | 27.14                      | MAv1 | 28.6              | -21                       | 34.74                                | 54                    | -19.26         | -                      | -                    | 360               | 100            | H        |
| 3 | * 1.15                 | 37.63                      | PK2  | 28.3              | -22.1                     | 43.83                                | -                     | -              | 74                     | -30.17               | 360               | 100            | V        |
|   | * 1.149                | 27.07                      | MAv1 | 28.3              | -22.1                     | 33.27                                | 54                    | -20.73         | -                      | -                    | 360               | 100            | V        |
| 4 | * 1.149                | 38.14                      | PK2  | 28.3              | -22.1                     | 44.34                                | -                     | -              | 74                     | -29.66               | 360               | 100            | V        |
|   | * 1.149                | 27.11                      | MAv1 | 28.3              | -22.1                     | 33.31                                | 54                    | -20.69         | -                      | -                    | 360               | 100            | V        |
| 6 | * 4.338                | 43.84                      | PK2  | 33.5              | -35                       | 42.34                                | -                     | -              | 74                     | -31.66               | 220               | 338            | H        |
|   | * 4.341                | 33.43                      | MAv1 | 33.6              | -35                       | 32.03                                | 54                    | -21.97         | -                      | -                    | 220               | 338            | H        |
| 5 | * 4.341                | 43.83                      | PK2  | 33.6              | -35                       | 42.43                                | -                     | -              | 74                     | -31.57               | 220               | 338            | H        |
|   | * 4.339                | 33.52                      | MAv1 | 33.5              | -35                       | 32.02                                | 54                    | -21.98         | -                      | -                    | 220               | 338            | H        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

**HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, CH 13)**



## DATA

| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T136 (dB/m) | Amp/Cbl/Fitr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|-----------------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 1.371         | 44.44                | PK2  | 28.9           | -24.9                 | 48.44                      | -                  | -           | 74                  | -25.56         | 85             | 197         | H        |
| * 1.372         | 33.64                | MAv1 | 28.9           | -24.9                 | 37.64                      | 54                 | -16.36      | -                   | -              | 85             | 197         | H        |
| * 2.237         | 44.8                 | PK2  | 31.5           | -24                   | 52.3                       | -                  | -           | 74                  | -21.7          | 130            | 207         | V        |
| * 2.236         | 33.51                | MAv1 | 31.5           | -24                   | 41.01                      | 54                 | -12.99      | -                   | -              | 130            | 207         | V        |
| * 4.747         | 43.16                | PK2  | 34.4           | -31.8                 | 45.76                      | -                  | -           | 74                  | -28.24         | 125            | 187         | H        |
| * 4.749         | 32.81                | MAv1 | 34.4           | -31.8                 | 35.41                      | 54                 | -18.59      | -                   | -              | 125            | 187         | H        |
| * 8.117         | 40.36                | PK2  | 35.8           | -28.9                 | 47.26                      | -                  | -           | 74                  | -26.74         | 166            | 181         | H        |
| * 8.116         | 29.89                | MAv1 | 35.8           | -29                   | 36.69                      | 54                 | -17.31      | -                   | -              | 166            | 181         | H        |
| * 3.709         | 42.71                | PK2  | 34.3           | -30.7                 | 46.31                      | -                  | -           | 74                  | -27.69         | 203            | 211         | V        |
| * 3.708         | 31.77                | MAv1 | 34.3           | -30.7                 | 35.37                      | 54                 | -18.63      | -                   | -              | 203            | 211         | V        |
| * 7.422         | 43.94                | PK2  | 35.8           | -30.3                 | 49.44                      | -                  | -           | 74                  | -24.56         | 194            | 107         | V        |
| * 7.422         | 32.02                | MAv1 | 35.8           | -30.3                 | 37.52                      | 54                 | -16.48      | -                   | -              | 194            | 107         | V        |

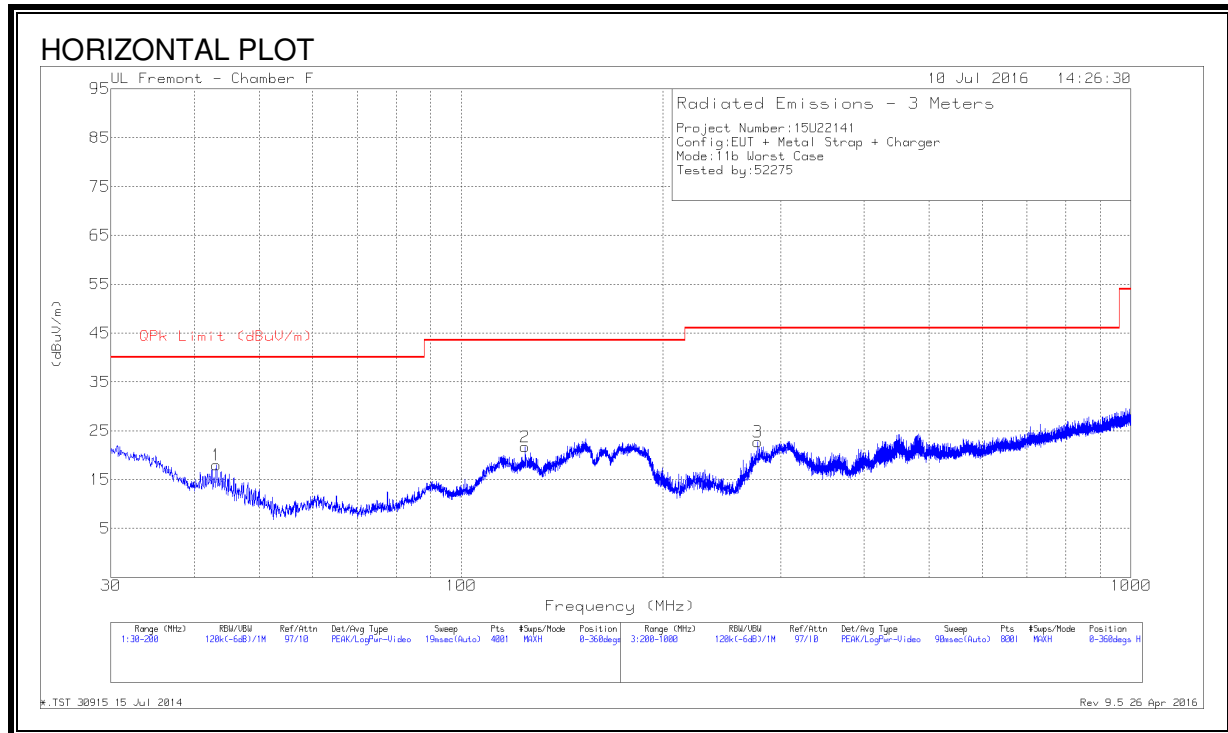
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

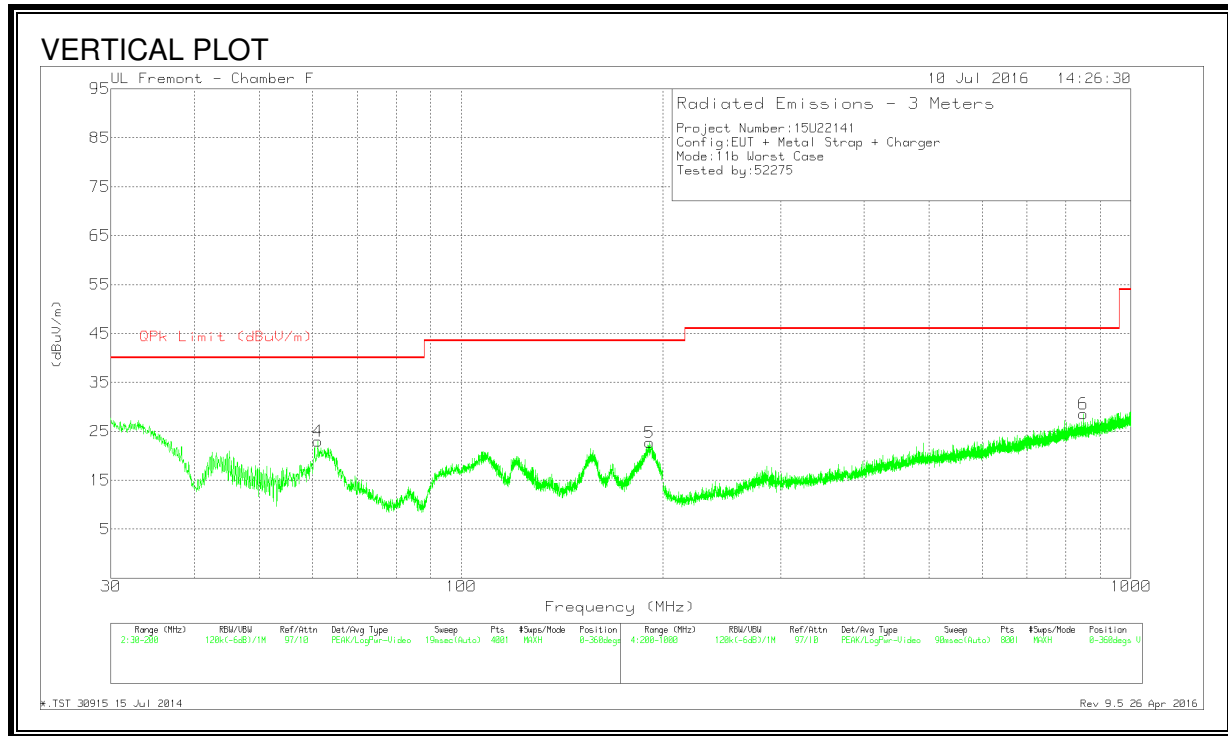
MAv1 - KDB558074 Option 1 Maximum RMS Average

### 9.3. WORST-CASE BELOW 1 GHz

#### SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



**SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)**



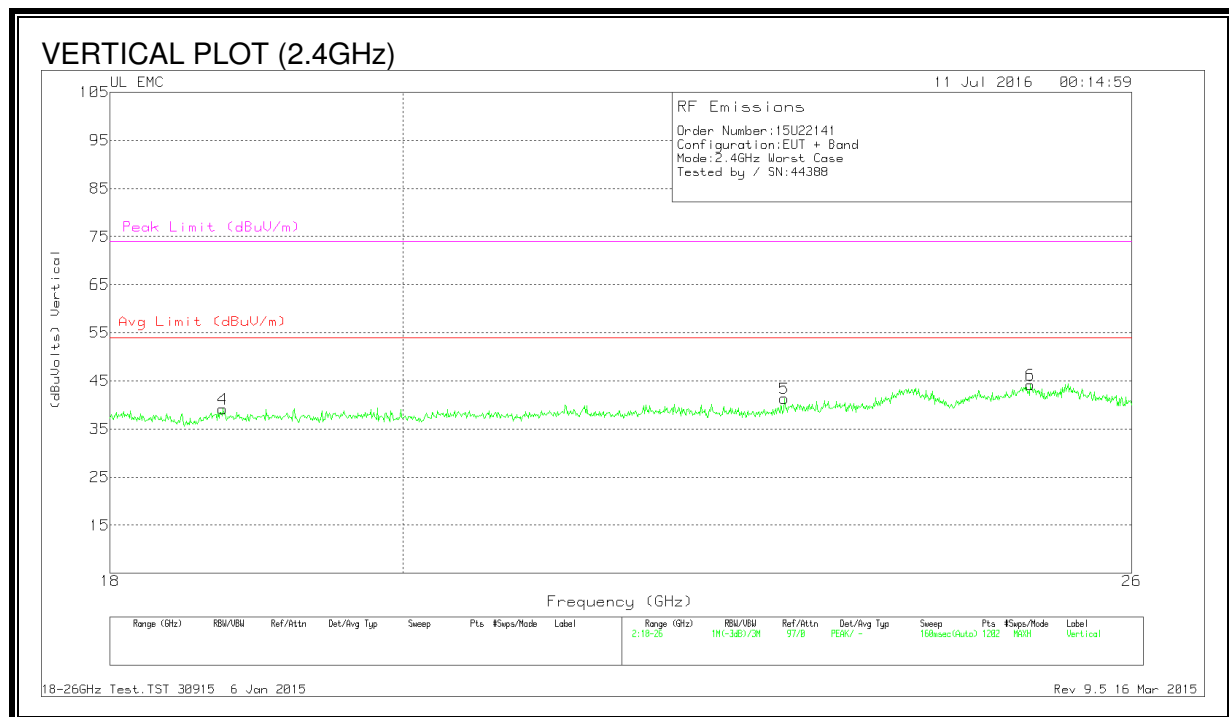
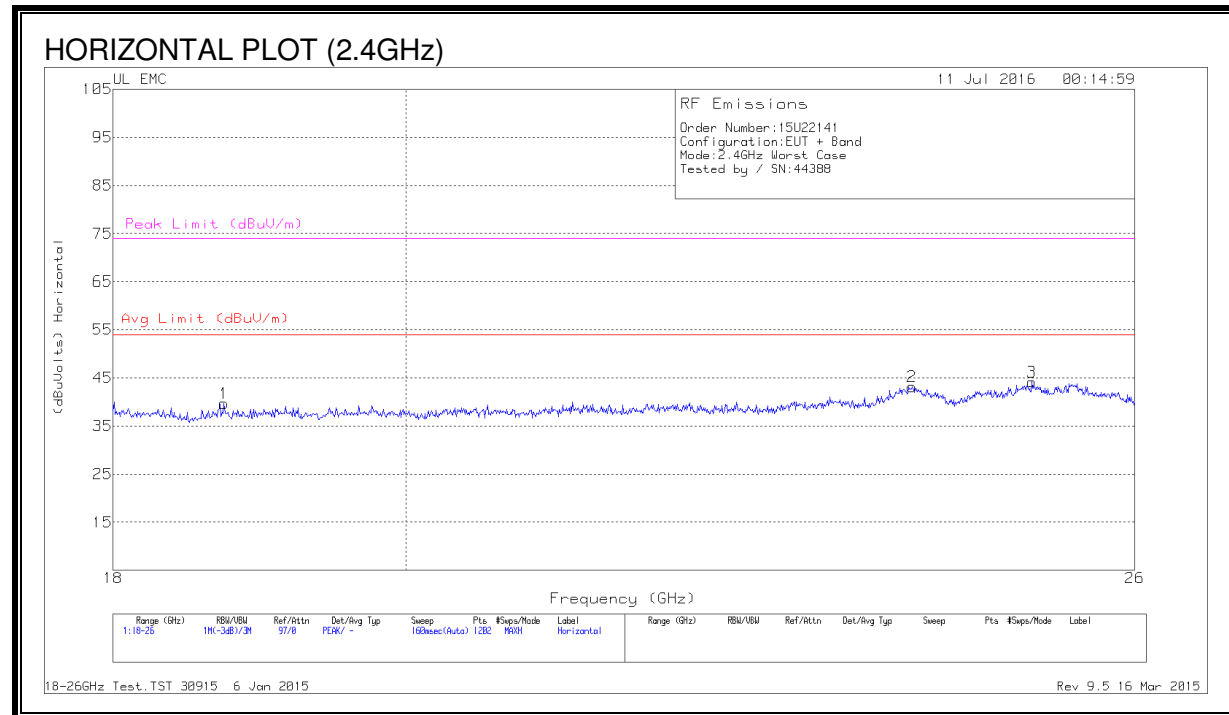
# **DATA**

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AF T185 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|--------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 1      | 43.1325         | 34.19                | Pk  | 15.5           | -31.7        | 17.99                      | 40                 | -22.01      | 0-360          | 399         | H        |
| 2      | * 124.5625      | 34.6                 | Pk  | 18.1           | -31          | 21.7                       | 43.52              | -21.82      | 0-360          | 301         | H        |
| 4      | 61.11           | 43.18                | Pk  | 11.3           | -31.5        | 22.98                      | 40                 | -17.02      | 0-360          | 100         | V        |
| 5      | 191.245         | 38                   | Pk  | 15.2           | -30.5        | 22.7                       | 43.52              | -20.82      | 0-360          | 100         | V        |
| 3      | * 277.3         | 35.44                | Pk  | 17.3           | -30          | 22.74                      | 46.02              | -23.28      | 0-360          | 99          | H        |
| 6      | 849.1           | 30.2                 | Pk  | 25.8           | -27.4        | 28.6                       | 46.02              | -17.42      | 0-360          | 299         | V        |

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
Pk - Peak detector

## 9.4. WORST-CASE 18 to 26 GHz

### SPURIOUS EMISSIONS 18 TO 26 GHz (WORST-CASE CONFIGURATION, HORIZONTAL & VERTICAL)



# **HORIZONTAL & VERTICAL DATA**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T449 (dB/m) | Amp/Cbl (dB) | Dist Corr (dB) | Corrected Reading (dBuVolts) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) |
|--------|-----------------|----------------------|-----|----------------|--------------|----------------|------------------------------|--------------------|-------------|---------------------|----------------|
| 1      | 18.733          | 41.47                | Pk  | 32.4           | -24.7        | -9.5           | 39.67                        | 54                 | -14.33      | 74                  | -34.33         |
| 2      | 23.995          | 43.07                | Pk  | 34             | -24.4        | -9.5           | 43.17                        | 54                 | -10.83      | 74                  | -30.83         |
| 3      | 25.054          | 44.37                | Pk  | 34.3           | -25          | -9.5           | 44.17                        | 54                 | -9.83       | 74                  | -29.83         |
| 4      | 18.746          | 40.87                | Pk  | 32.4           | -24.6        | -9.5           | 39.17                        | 54                 | -14.83      | 74                  | -34.83         |
| 5      | 22.943          | 42.43                | Pk  | 33.4           | -25          | -9.5           | 41.33                        | 54                 | -12.67      | 74                  | -32.67         |
| 6      | 25.067          | 44.17                | Pk  | 34.3           | -24.8        | -9.5           | 44.17                        | 54                 | -9.83       | 74                  | -29.83         |

Pk - Peak detector

## 10. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

| Frequency of Emission (MHz) | Conducted Limit (dBμV) |            |
|-----------------------------|------------------------|------------|
|                             | Quasi-peak             | Average    |
| 0.15-0.5                    | 66 to 56 *             | 56 to 46 * |
| 0.5-5                       | 56                     | 46         |
| 5-30                        | 60                     | 50         |

\*Decreases with the logarithm of the frequency.

### TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

### RESULTS

EUT is powered by battery. AC line conducted emission is not applicable.