



# **CERTIFICATION TEST REPORT**

**Report Number. :** 12132671-E3V2

**Applicant :** SONY MOBILE COMMUNICATIONS, INC.  
4-12-3 HIGASHI-SHINAGAWA,  
SHINAGAWA -KU, TOKYO, 140-0002, JAPAN

**FCC ID :** PY7-11821Y

**EUT Description :** GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac &  
NFC

**Test Standard(s) :** FCC 47 CFR PART 15 SUBPART C

**Date Of Issue:**  
March 08, 2018

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## REPORT REVISION HISTORY

| Rev. | Issue Date | Revisions                             | Revised By  |
|------|------------|---------------------------------------|-------------|
| V1   | 03/06/18   | Initial Issue                         |             |
| V2   | 03/08/18   | Updated Section 5.5, 5.6, 8.7 and 9.1 | Kiya Kedida |

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SONY MOBILE COMMUNICATIONS, INC.  
4-12-3 HIGASHI-SHINAGAWA,  
SHINAGAWA -KU, TOKYO, 140-0002, JAPAN

**EUT DESCRIPTION:** GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac &  
NFC

**SERIAL NUMBER:** BH90005YBB (RADIATED)  
BH90009EBB (CONDUCTED)

**DATE TESTED:** FEBRUARY 12-17, 2018

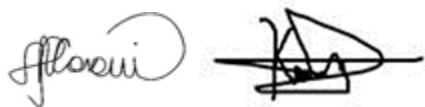
| APPLICABLE STANDARDS     |              |
|--------------------------|--------------|
| STANDARD                 | TEST RESULTS |
| CFR 47 Part 15 Subpart C | Complies     |

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 the U.S. government.

Approved & Released For  
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Prepared By:



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## 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 v04, ANSI C63.10-2013

## 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 checked="" type="checkbox"/> Chamber A (ISED:2324B-1) | <input type="checkbox"/> Chamber D (ISED:22541-1) |
| <input checked="" type="checkbox"/> Chamber B (ISED:2324B-2) | <input type="checkbox"/> Chamber E (ISED:22541-2) |
| <input type="checkbox"/> Chamber C (ISED:2324B-3)            | <input type="checkbox"/> Chamber F (ISED:22541-3) |
|                                                              | <input type="checkbox"/> Chamber G (ISED:22541-4) |
|                                                              | <input type="checkbox"/> Chamber H (ISED:22541-5) |

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through C are covered under ISED company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under ISED Canada company address code 22541 with site numbers 22541 -1 through 22541-5, 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 |
|-----------------------------------------------------|-------------|
| Worst Case Conducted Disturbance, 9KHz to 0.15 MHz  | 3.84 dB     |
| Worst Case Conducted Disturbance, 0.15 to 30 MHz    | 3.65 dB     |
| Worst Case Radiated Disturbance, 9KHz to 30 MHz     | 3.15 dB     |
| Worst Case Radiated Disturbance, 30 to 1000 MHz     | 5.36 dB     |
| Worst Case Radiated Disturbance, 1000 to 18000 MHz  | 4.32 dB     |
| Worst Case Radiated Disturbance, 18000 to 26000 MHz | 4.45 dB     |
| Worst Case 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. EUT DESCRIPTION

The EUT is a GSM/WCDMA/LTE Phone with BT, DTS/UNII a/b/g/n/ac & NFC.

### 5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

| Frequency Range (MHz) | Mode         | Output Power (dBm) | Output Power (mW) |
|-----------------------|--------------|--------------------|-------------------|
| 2402 - 2480           | BLE (1 Mbps) | 5.57               | 3.61              |
| 2402 - 2480           | BLE (2 Mbps) | 5.61               | 3.64              |

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes Loop Type antenna, with the following maximum gain:

| Frequency Band (GHz) | Antenna Gain (dBi) |
|----------------------|--------------------|
| 2402-2480            | -0.60              |

### 5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was s\_atp\_XXX\_0\_00333\_A\_11.  
The test utility software used during testing was Tera Term Ver 4.79.

### 5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 30MHz, below 1GHz and above 18GHz, and AC power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, & Z, and it was determined that X-Axis with AC/DC Adapter was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X-Axis with AC/DC Adapter orientation.

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

| Support Equipment List |              |            |               |        |
|------------------------|--------------|------------|---------------|--------|
| Description            | Manufacturer | Model      | Serial Number | FCC ID |
| Laptop                 | Lenovo       | 20B7S0A200 | PC015REW      | NA     |
| AC Adapter             | SONY         | UCH12      | 4016W40310044 | NA     |
| DC Power Supply        | Ametek       | XT 15-4    | T463          | N/A    |

### I/O CABLES (CONDUCTED TEST)

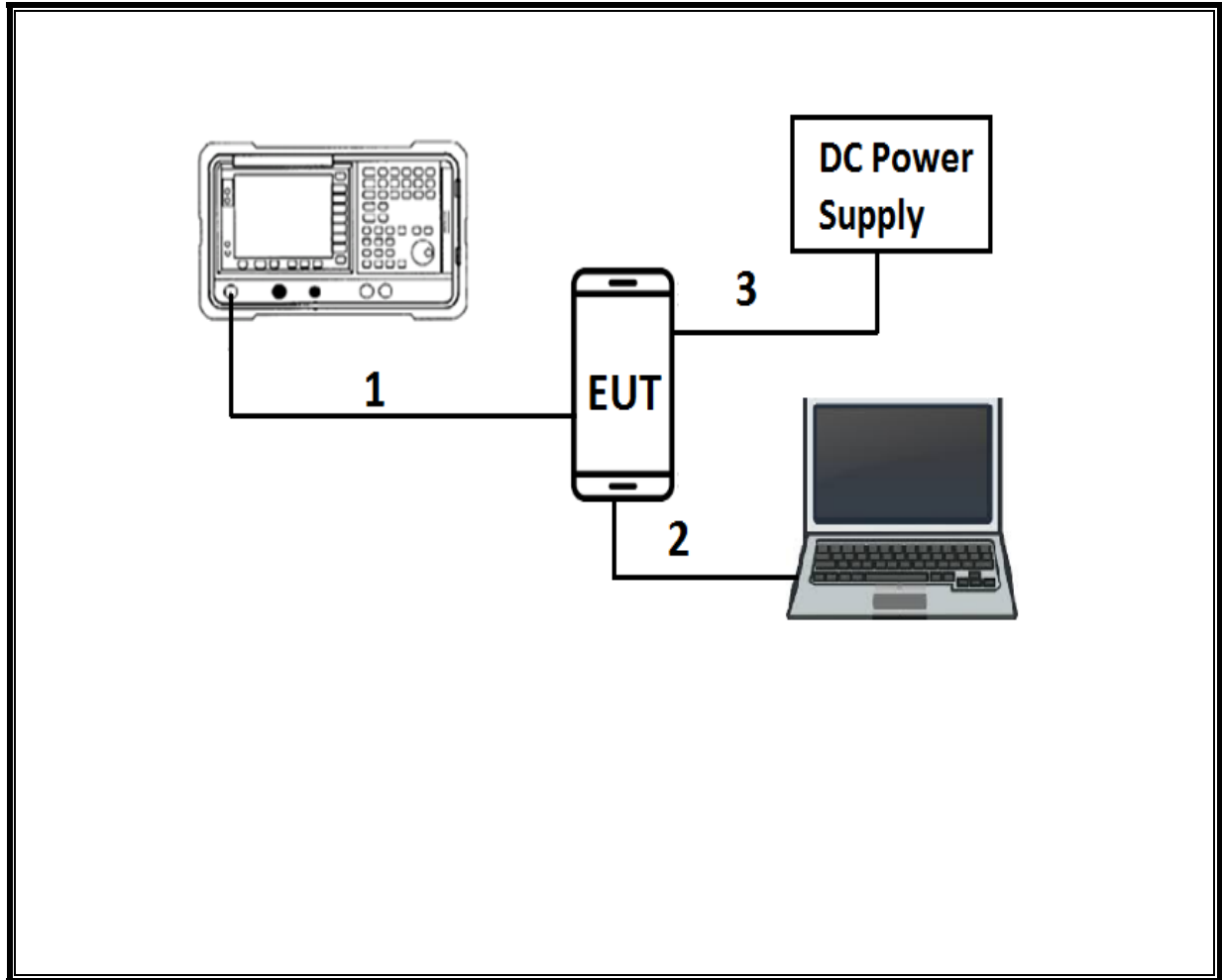
| I/O Cable List |         |                      |                |            |                  |                      |
|----------------|---------|----------------------|----------------|------------|------------------|----------------------|
| Cable No       | Port    | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks              |
| 1              | Antenna | 1                    | RF             | Shielded   | 0.2              | To spectrum Analyzer |
| 2              | USB     | 1                    | USB            | Shielded   | 1                | N/A                  |
| 3              | DC      | 1                    | DC             | Shielded   | 0.3              | N/A                  |

### I/O CABLES (RADIATED AND CONDUCTED EMISSIONS)

| I/O Cable List |      |                      |                |            |                  |         |
|----------------|------|----------------------|----------------|------------|------------------|---------|
| Cable No       | Port | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1              | USB  | 1                    | USB            | Shielded   | 3                | N/A     |

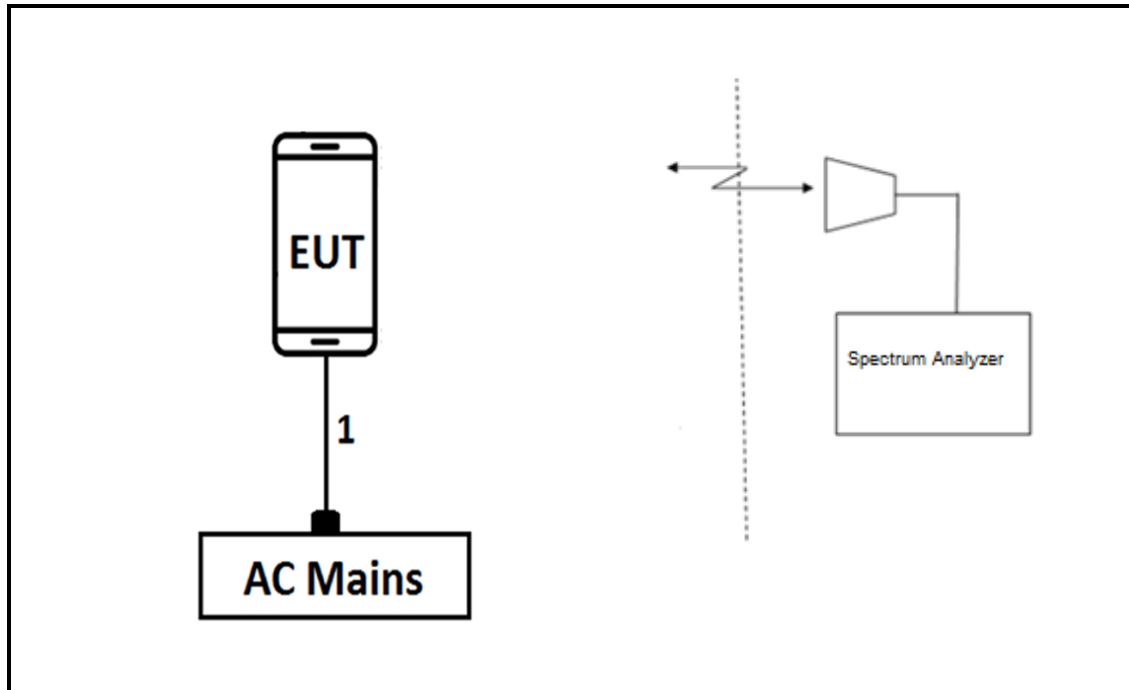
## TEST SETUP

### CONDCUTED TEST SETUP DIAGRAM



**TEST SETUP**

**RADIATED AND AC LINE CONDUCTED EMISSIONS SETUP DIAGRAM**



## 6. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 558074 D01 v04, Section 6.

6 dB BW: KDB 558074 D01 v04, Section 8.1.

Output Power: KDB 558074 D01 v04, Section 9.1.3.

Power Spectral Density: KDB 558074 D01 v04, Section 10.2.

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v04, Section 11.0.

Out-of-band emissions in restricted bands: KDB 558074 D01 v04, Section 12.1.

Band-edge: KDB 558074 D01 v04, Section 12.1.

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

## 7. 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                   | ID Num | Cal Due    | Last Cal   |
| Amplifier, 10KHz to 1GHz, 32dB                     | Agilent (Keysight) Technologies       | 8447D                   | T10    | 02/14/2019 | 02/14/2018 |
| RF Preamplifier, 1 - 26GHz                         | Agilent                               | 8449B                   | T404   | 07/23/2018 | 07/23/2017 |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz        | Sunol Sciences Corp.                  | JB1                     | T130   | 10/16/2018 | 10/16/2017 |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz        | Sunol Sciences Corp.                  | JB3                     | T899   | 06/15/2018 | 06/15/2017 |
| Antenna, Horn 1-18GHz                              | ETS-Lindgren                          | 3117                    | T346   | 03/28/2018 | 03/28/2017 |
| Antenna, Horn 1-18GHz                              | ETS-Lindgren                          | 3117                    | T862   | 06/09/2018 | 06/09/2017 |
| Antenna, Horn 18-26.5GHz                           | ARA                                   | MWH-1826                | T449   | 01/04/2019 | 01/04/2018 |
| Bluetooth Tester                                   | Rohde & Schwarz (Koeln) GmbH & Co. KG | CBT                     | T258   | 07/25/2018 | 07/25/2017 |
| Power Meter, P-series single channel               | Agilent (Keysight) Technologies       | N1911A                  | T1269  | 03/29/2018 | 03/29/2017 |
| Power Sensor, P - series, 50MHz to 18GHz, Wideband | All                                   | N1921A                  | T1224  | 03/29/2018 | 03/29/2017 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz               | Agilent (Keysight) Technologies       | N9030A                  | T1113  | 12/21/2018 | 12/21/2017 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz               | Agilent (Keysight) Technologies       | N9030A                  | T1466  | 04/11/2018 | 04/11/2017 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz               | Agilent (Keysight) Technologies       | N9030A                  | T1454  | 01/08/2019 | 01/08/2018 |
| Spectrum Analyzer, PXA, 3Hz to 44GHz               | Agilent (Keysight) Technologies       | N9030A                  | T1450  | 02/05/2019 | 02/05/2018 |
| Power Meter                                        | Keysight                              | N1911A                  | T1271  | 07/17/2018 | 07/17/2017 |
| Power Sensor                                       | Keysight                              | N1921A                  | T413   | 06/22/2018 | 06/22/2017 |
| Test Receiver, EMI, 10Hz-7GHz                      | Rohde & Schwarz                       | ESR                     | T1436  | 01/06/2018 | 01/06/2017 |
| LISN                                               | Fischer Custom Communications         | FCC-LISN-50/250-25-2-01 | T1310  | 06/15/2018 | 06/15/2017 |

| Test Software List    |              |        |                         |
|-----------------------|--------------|--------|-------------------------|
| Description           | Manufacturer | Model  | Version                 |
| Radiated Software     | UL           | UL EMC | Ver 9.5, June 24, 2015  |
| Conducted Software    | UL           | UL EMC | Ver 9.5, May 26, 2015   |
| Antenna Port Software | UL           | UL RF  | Ver 3.9.1, Dec 28, 2015 |

## 8. ANTENNA PORT TEST RESULTS

### 8.1. ON TIME AND DUTY CYCLE

#### LIMITS

None; for reporting purposes only.

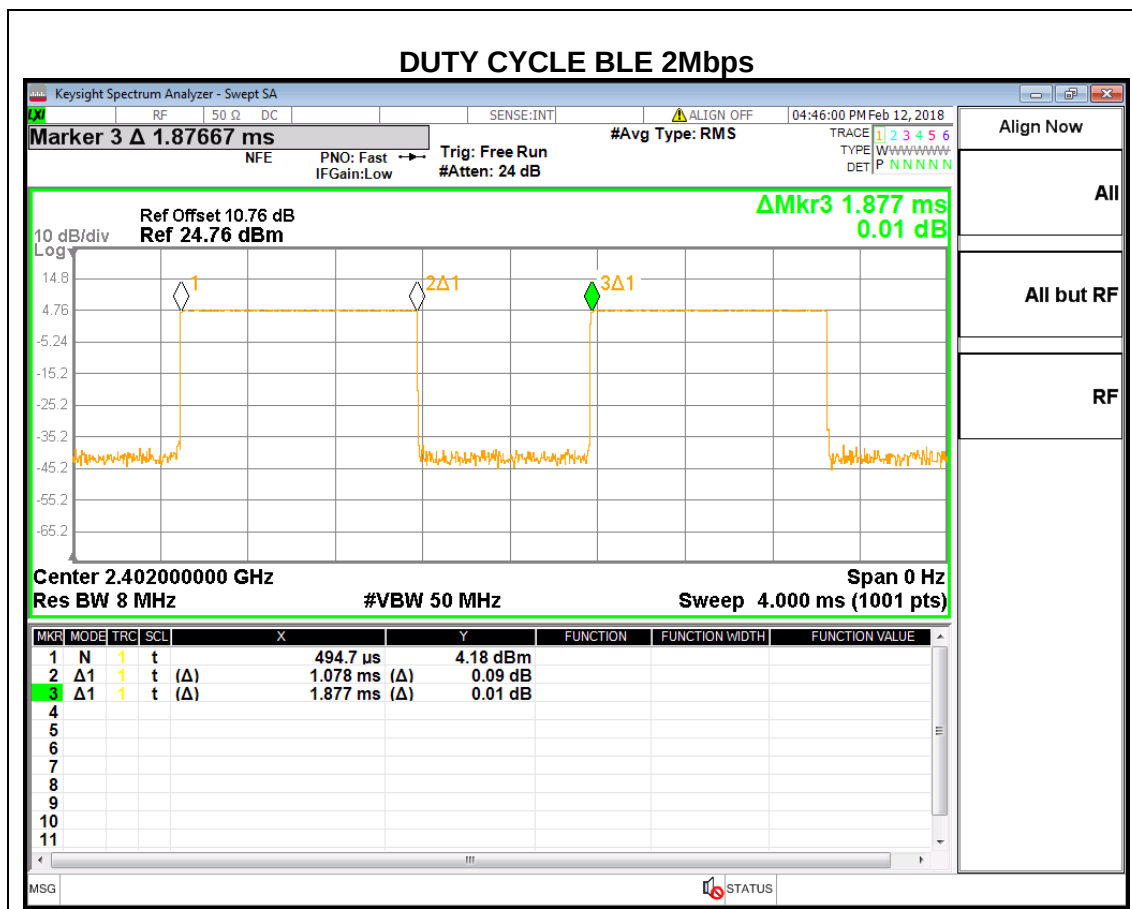
#### PROCEDURE

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) |
|-----------|------------------------|------------------|-----------------------------|----------------------|-----------------------------------------|-----------------------------|
| BLE 1Mbps | 2.131                  | 2.501            | 0.852                       | 85.21%               | 0.70                                    | 0.469                       |
| BLE 2Mbps | 1.078                  | 1.877            | 0.574                       | 57.43%               | 2.41                                    | 0.928                       |





## **8.2. 99% BANDWIDTH**

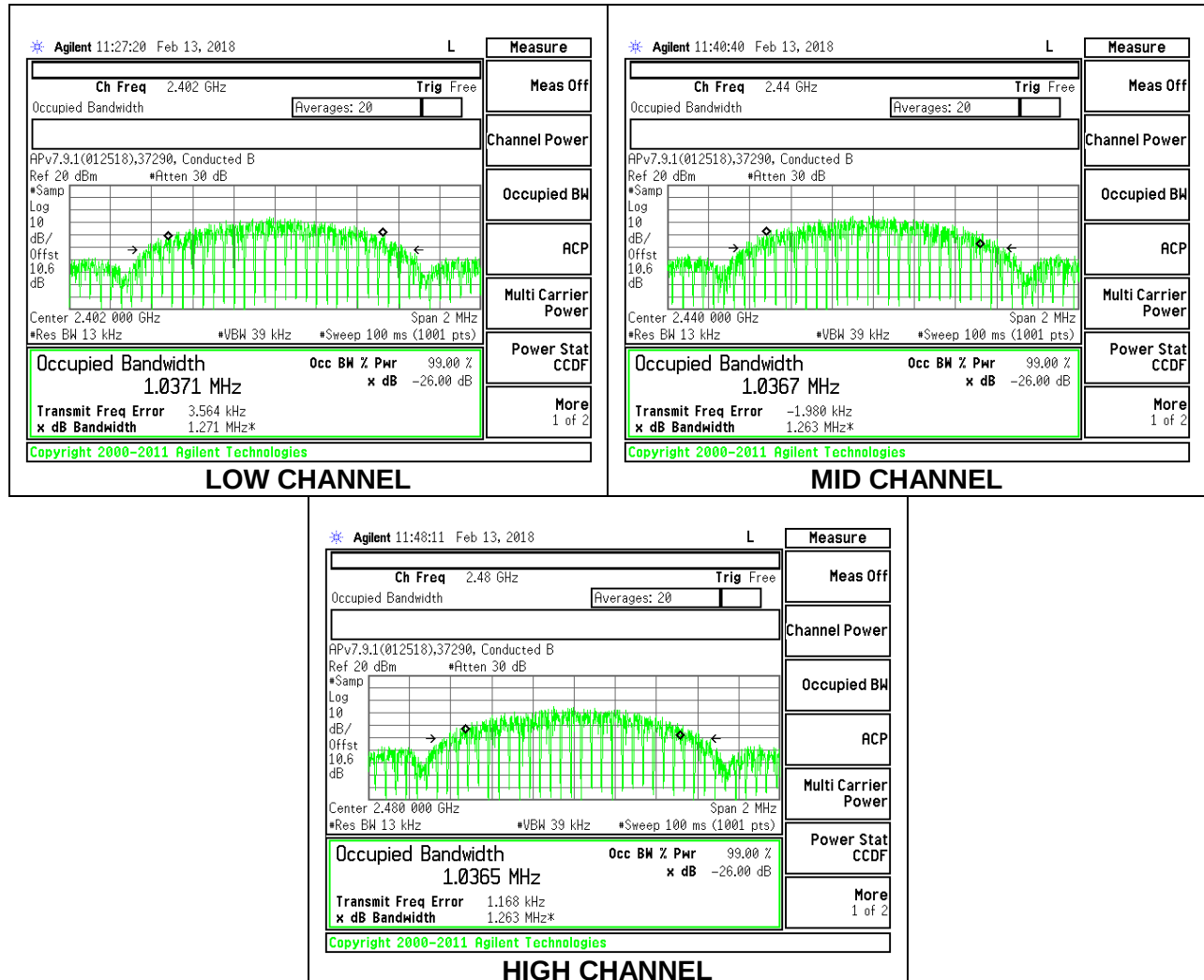
### **LIMITS**

None; for reporting purposes only.

### **RESULTS**

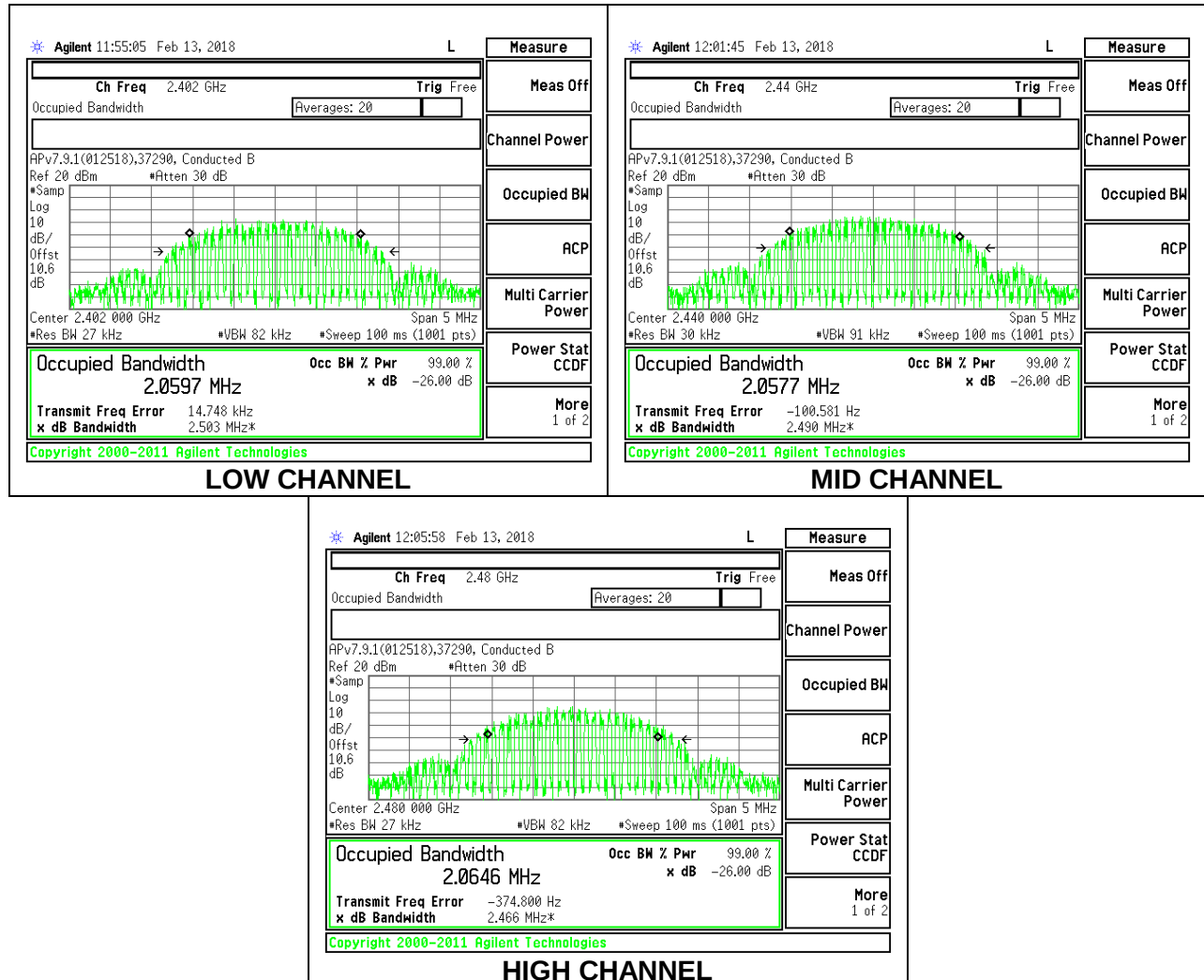
### 8.2.1. BLE (1Mbps)

| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|-----------------|---------------------|
| Low     | 2402            | 1.0371              |
| Middle  | 2440            | 1.0367              |
| High    | 2480            | 1.0365              |



## 8.2.2. BLE (2Mbps)

| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|-----------------|---------------------|
| Low     | 2402            | 2.0597              |
| Middle  | 2440            | 2.0577              |
| High    | 2480            | 2.0646              |



### **8.3. 6 dB BANDWIDTH**

#### **LIMITS**

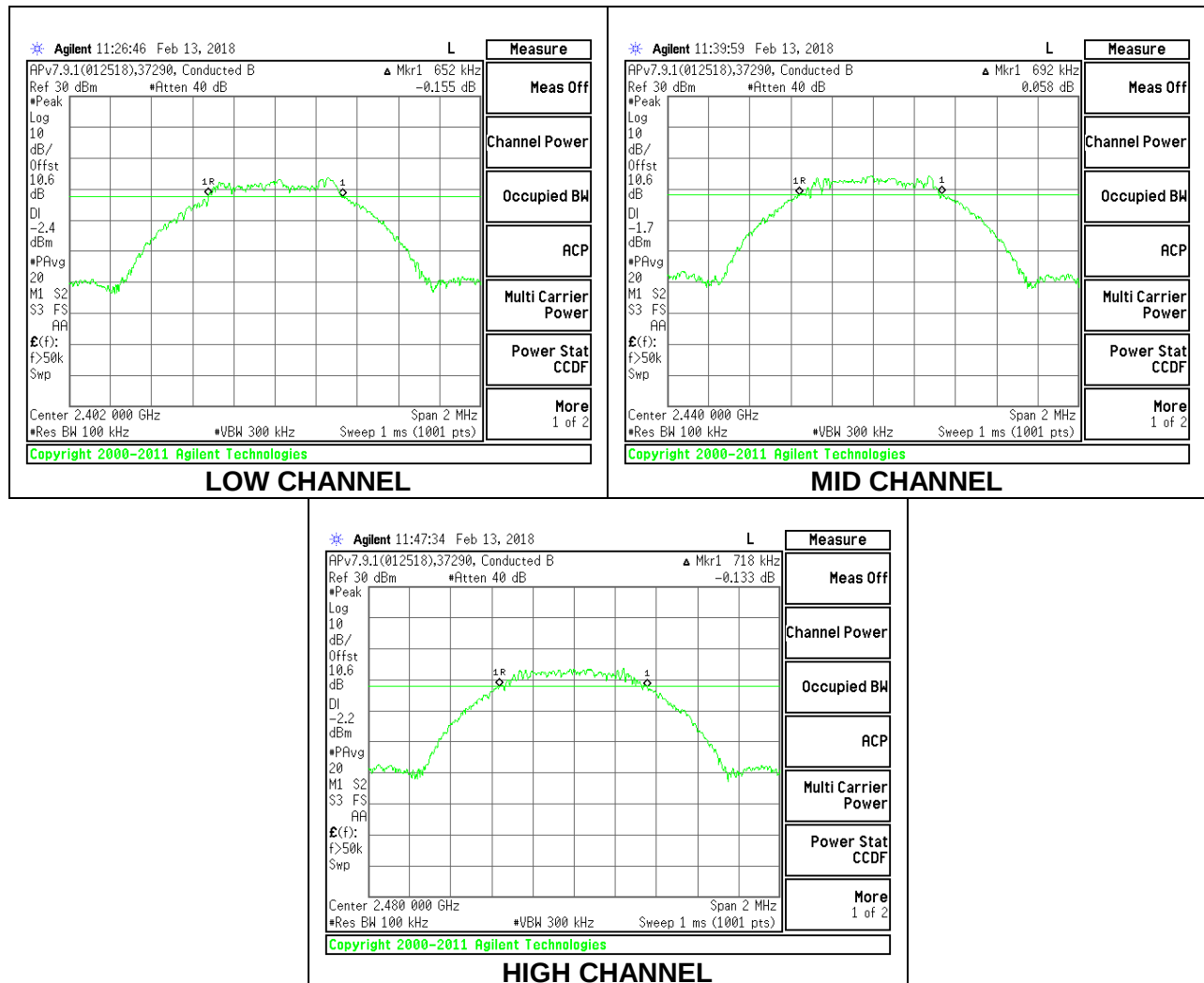
FCC §15.407 (e)

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

#### **RESULTS**

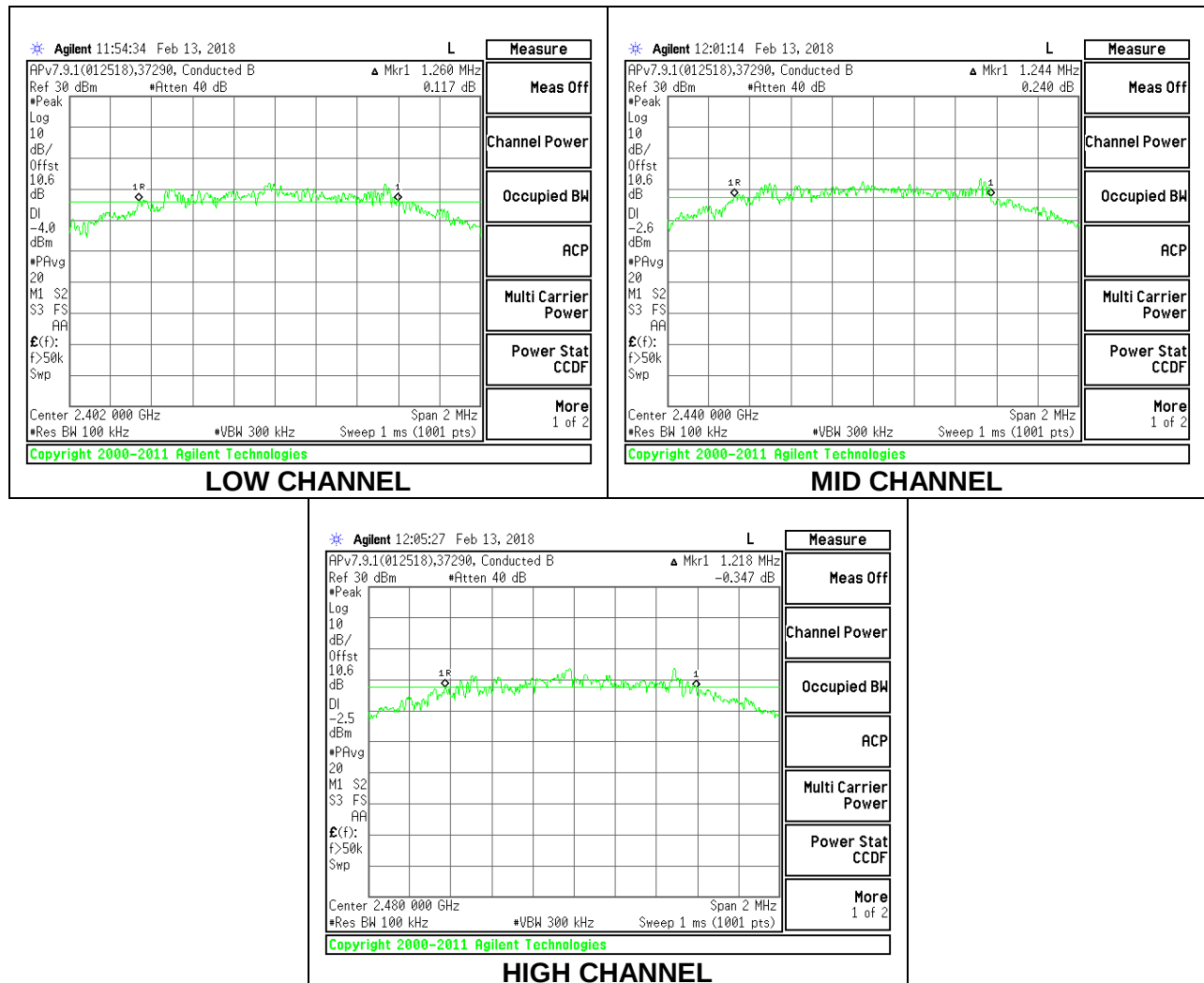
### 8.3.1. BLE (1Mbps)

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) |
|---------|-----------------|----------------------|---------------------|
| Low     | 2402            | 0.6520               | 0.5                 |
| Middle  | 2440            | 0.6920               | 0.5                 |
| High    | 2480            | <b>0.7180</b>        | 0.5                 |



### 8.3.2. BLE (2Mbps)

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) |
|---------|-----------------|----------------------|---------------------|
| Low     | 2402            | 1.2600               | 0.5                 |
| Middle  | 2440            | 1.2440               | 0.5                 |
| High    | 2480            | 1.2180               | 0.5                 |



## **8.4. OUTPUT POWER**

### **LIMITS**

FCC §15.247 (b) (3)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

### **TEST PROCEDURE**

The transmitter output is connected to a power meter. The cable assembly insertion loss was entered as an offset in the power meter to allow for a gated peak reading of power.

### **RESULTS**

#### 8.4.1. BLE (1Mbps)

|                   |           |
|-------------------|-----------|
| <b>Tested By:</b> | 43578 GE  |
| <b>Date:</b>      | 2/12/2018 |

| <b>Channel</b> | <b>Frequency<br/>(MHz)</b> | <b>Peak Power<br/>Reading<br/>(dBm)</b> | <b>Limit<br/>(dBm)</b> | <b>Margin<br/>(dB)</b> |
|----------------|----------------------------|-----------------------------------------|------------------------|------------------------|
| Low            | 2402                       | 3.980                                   | 30                     | -26.020                |
| Middle         | 2440                       | <b>5.570</b>                            | 30                     | -24.430                |
| High           | 2480                       | 4.980                                   | 30                     | -25.020                |

#### 8.4.2. BLE (2Mbps)

|                   |           |
|-------------------|-----------|
| <b>Tested By:</b> | 43578 GE  |
| <b>Date:</b>      | 2/12/2018 |

| <b>Channel</b> | <b>Frequency<br/>(MHz)</b> | <b>Peak Power<br/>Reading<br/>(dBm)</b> | <b>Limit<br/>(dBm)</b> | <b>Margin<br/>(dB)</b> |
|----------------|----------------------------|-----------------------------------------|------------------------|------------------------|
| Low            | 2402                       | 4.160                                   | 30                     | -25.840                |
| Middle         | 2440                       | <b>5.610</b>                            | 30                     | -24.390                |
| High           | 2480                       | 5.120                                   | 30                     | -24.880                |

## **8.5. AVERAGE POWER**

### **LIMITS**

None; for reporting purposes only.

### **TEST PROCEDURE**

The transmitter output is connected to a power meter. The cable assembly insertion loss was entered as an offset in the power meter to allow for a gated peak reading of power.

### **RESULTS**

### 8.5.1. BLE (1Mbps)

|                   |           |
|-------------------|-----------|
| <b>Tested By:</b> | 43578 GE  |
| <b>Date:</b>      | 2/12/2018 |

| <b>Channel</b> | <b>Frequency<br/>(MHz)</b> | <b>AV power<br/>(dBm)</b> |
|----------------|----------------------------|---------------------------|
| Low            | 2402                       | 3.65                      |
| Middle         | 2440                       | <b>5.14</b>               |
| High           | 2480                       | 4.70                      |

### 8.5.2. BLE (2Mbps)

|                   |           |
|-------------------|-----------|
| <b>Tested By:</b> | 43578 GE  |
| <b>Date:</b>      | 2/12/2018 |

| <b>Channel</b> | <b>Frequency<br/>(MHz)</b> | <b>AV power<br/>(dBm)</b> |
|----------------|----------------------------|---------------------------|
| Low            | 2402                       | 3.63                      |
| Middle         | 2440                       | <b>5.12</b>               |
| High           | 2480                       | 4.67                      |

## **8.6. POWER SPECTRAL DENSITY**

### **LIMITS**

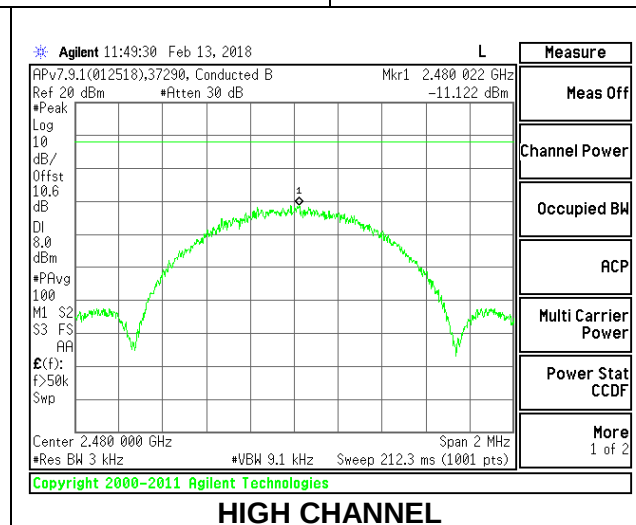
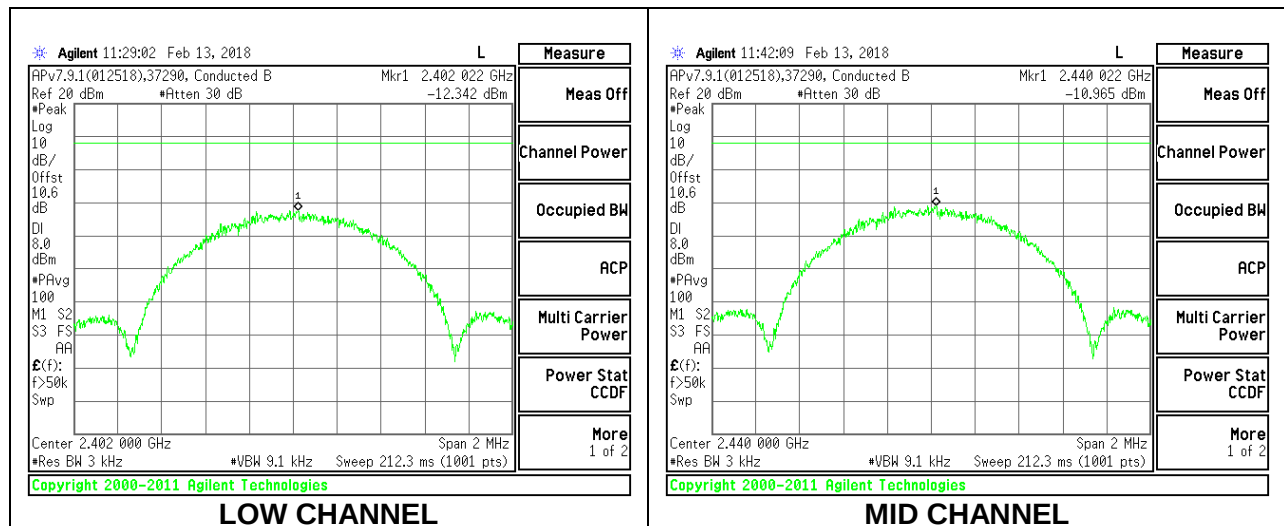
FCC §15.247 (e)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### **RESULTS**

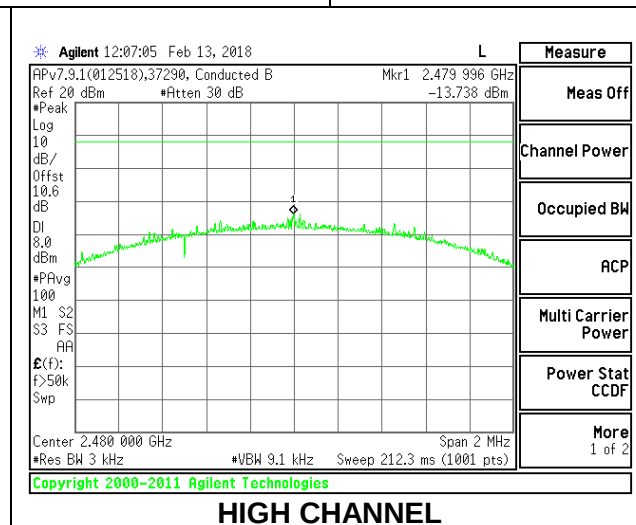
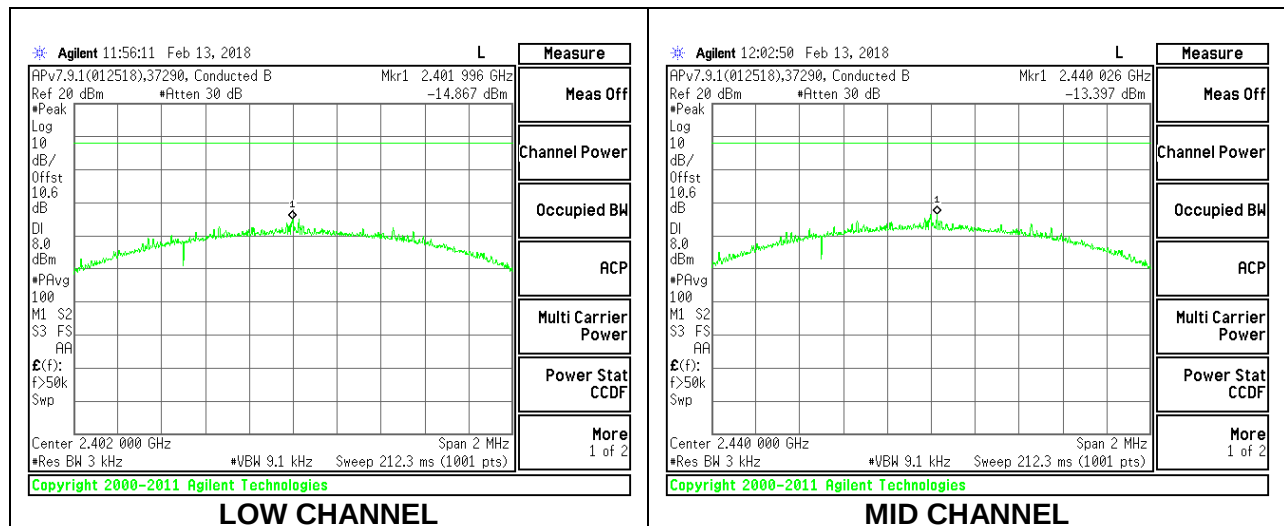
### 8.6.1. BLE (1Mbps)

| Channel | Frequency (MHz) | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Margin (dB) |
|---------|-----------------|----------------|------------------|-------------|
| Low     | 2402            | -12.34         | 8                | -20.34      |
| Middle  | 2440            | <b>-10.97</b>  | 8                | -18.97      |
| High    | 2480            | -11.12         | 8                | -19.12      |



## 8.6.2. BLE (2Mbps)

| Channel | Frequency (MHz) | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Margin (dB) |
|---------|-----------------|----------------|------------------|-------------|
| Low     | 2402            | -14.87         | 8                | -22.87      |
| Middle  | 2440            | <b>-13.40</b>  | 8                | -21.40      |
| High    | 2480            | -13.74         | 8                | -21.74      |



## **8.7. CONDUCTED SPURIOUS EMISSIONS**

### **LIMITS**

FCC §15.247 (d)

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

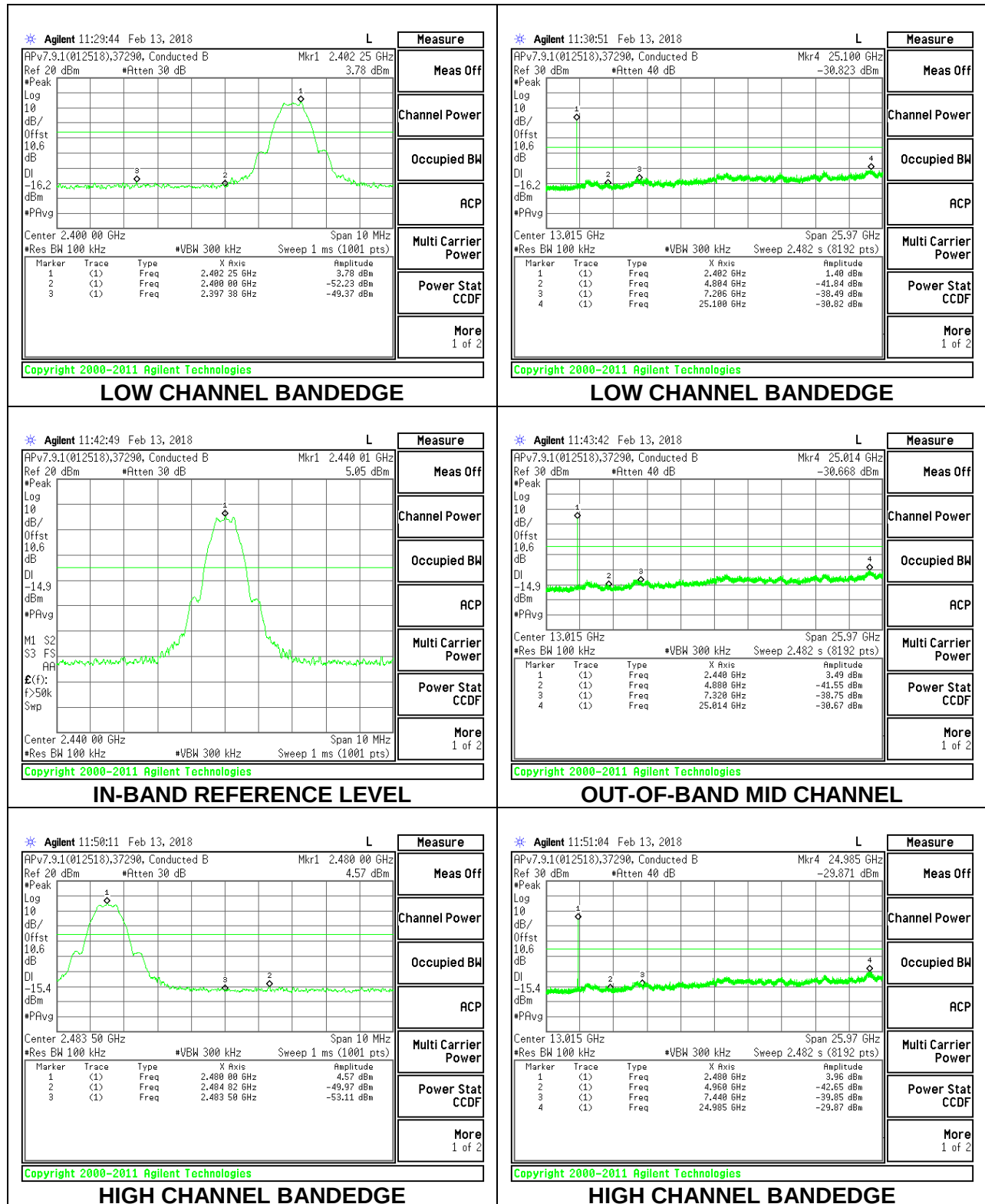
### **TEST PROCEDURE**

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

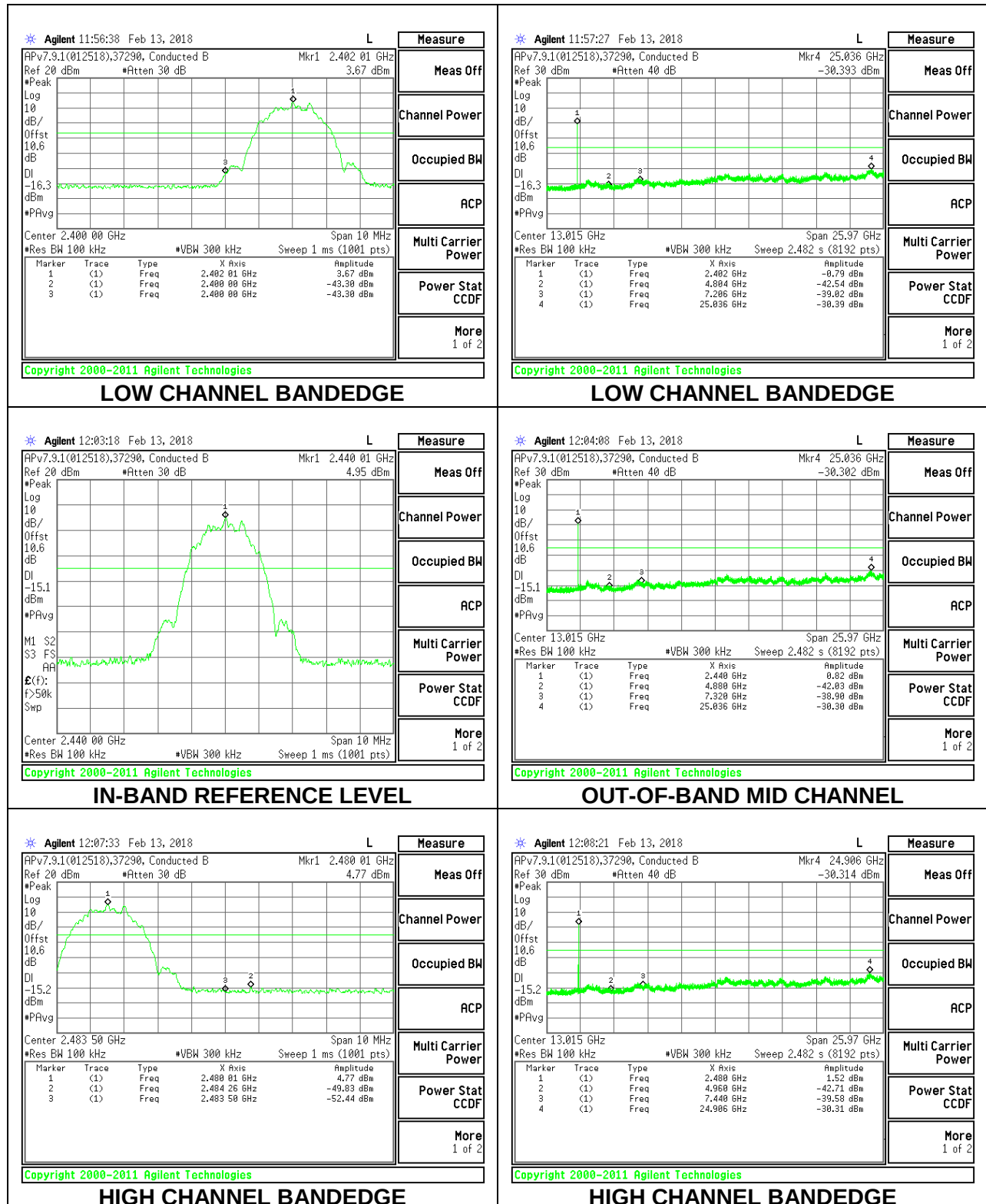
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

### **RESULTS**

## 8.7.1. BLE (1Mbps)



## 8.7.2. BLE (2Mbps)



## 9. RADIATED TEST RESULTS

### 9.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.205 and §15.209

| Frequency Range (MHz) | Field Strength Limit (uV/m) at 3 m | Field Strength Limit (dBuV/m) at 3 m |
|-----------------------|------------------------------------|--------------------------------------|
| 0.009-0.490           | 2400/F(kHz) @ 300 m                | -                                    |
| 0.490-1.705           | 24000/F(kHz) @ 30 m                | -                                    |
| 1.705 - 30            | 30 @ 30m                           | -                                    |
| 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.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 30MHz, below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

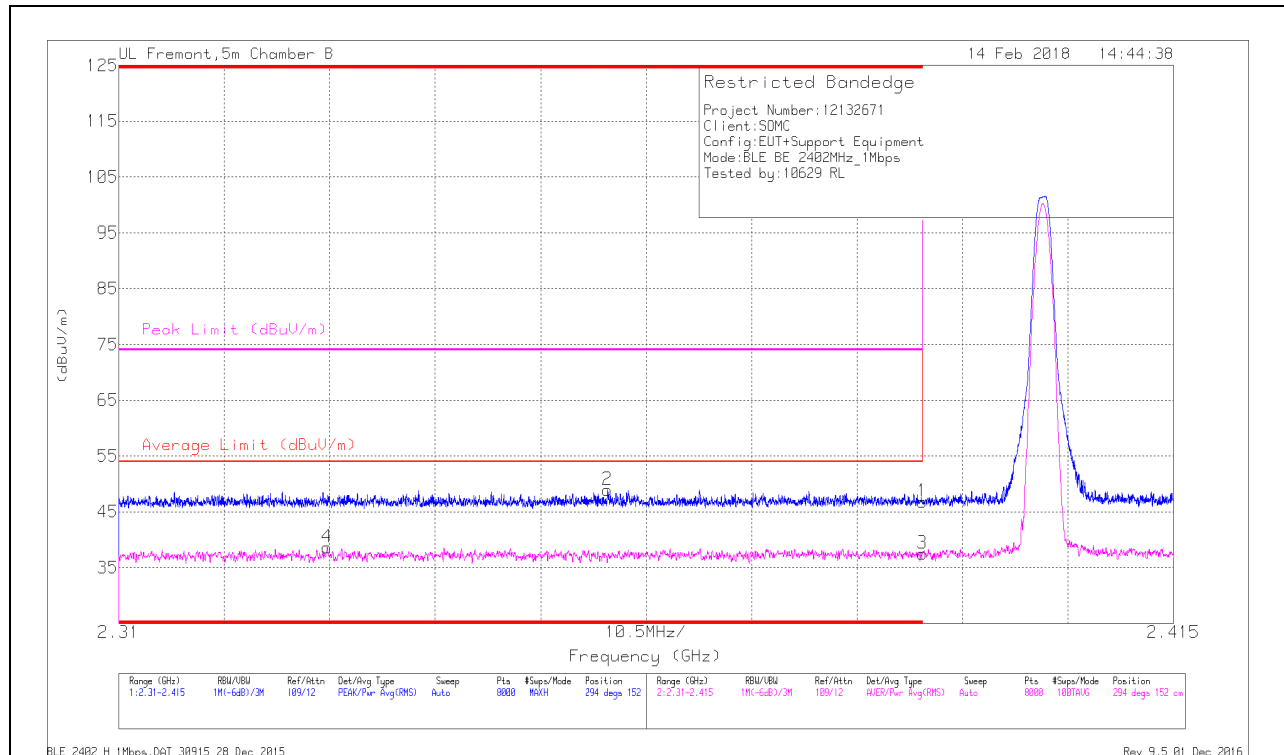
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

## 9.2. TRANSMITTER ABOVE 1 GHz

### 9.2.1. BLE (1Mbps)

#### BANDEDGE (LOW CHANNEL)

#### HORIZONTAL RESULT



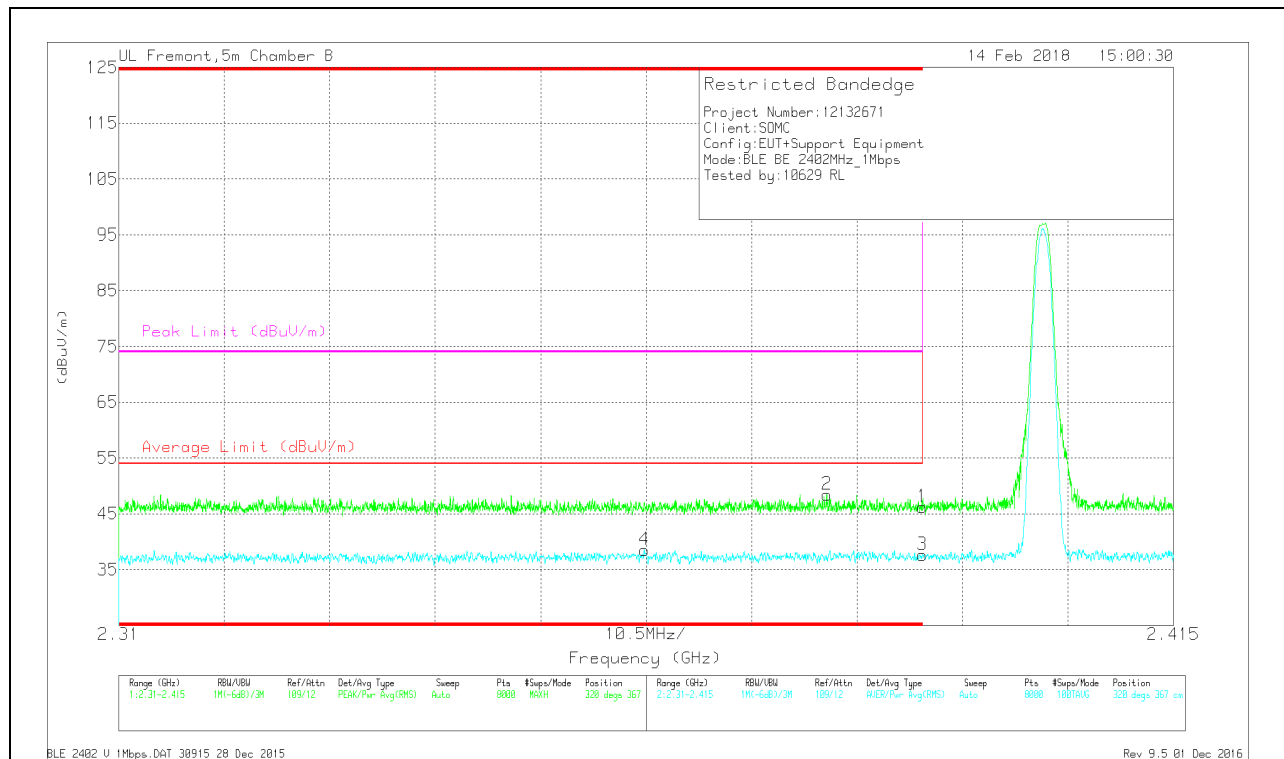
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dBm) | Amp/CbI/Filt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-----------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.39          | 36.12                | Pk  | 32            | -21.3                 | 0            | 46.82                      | -                      | -           | 74                  | -27.18         | 294            | 152         | H        |
| 2      | * 2.359         | 38.33                | Pk  | 31.9          | -21.3                 | 0            | 48.93                      | -                      | -           | 74                  | -25.07         | 294            | 152         | H        |
| 3      | * 2.39          | 26.06                | RMS | 32            | -21.3                 | .7           | 37.46                      | 54                     | -16.54      | -                   | -              | 294            | 152         | H        |
| 4      | * 2.331         | 27.31                | RMS | 31.9          | -21.3                 | .7           | 38.61                      | 54                     | -15.39      | -                   | -              | 294            | 152         | H        |

\* - indicates frequency in CFR47 Pt 15 - Restricted Band

Pk - Peak detector

RMS - RMS detection

## VERTICAL RESULT



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T365 (dBm) | Ampl/CbW/Filt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|------------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 4      | * 2.362         | 27.27                | RMS | 31.9          | -21.4                  | .7           | 38.47                      | 54                     | -15.53      | -                   | -              | 320            | 367         | V        |
| 2      | * 2.38          | 37.76                | Pk  | 32            | -21.3                  | 0            | 48.46                      | -                      | -           | 74                  | -25.54         | 320            | 367         | V        |
| 1      | * 2.39          | 35.52                | Pk  | 32            | -21.3                  | 0            | 46.22                      | -                      | -           | 74                  | -27.78         | 320            | 367         | V        |
| 3      | * 2.39          | 26.25                | RMS | 32            | -21.3                  | .7           | 37.65                      | 54                     | -16.35      | -                   | -              | 320            | 367         | V        |

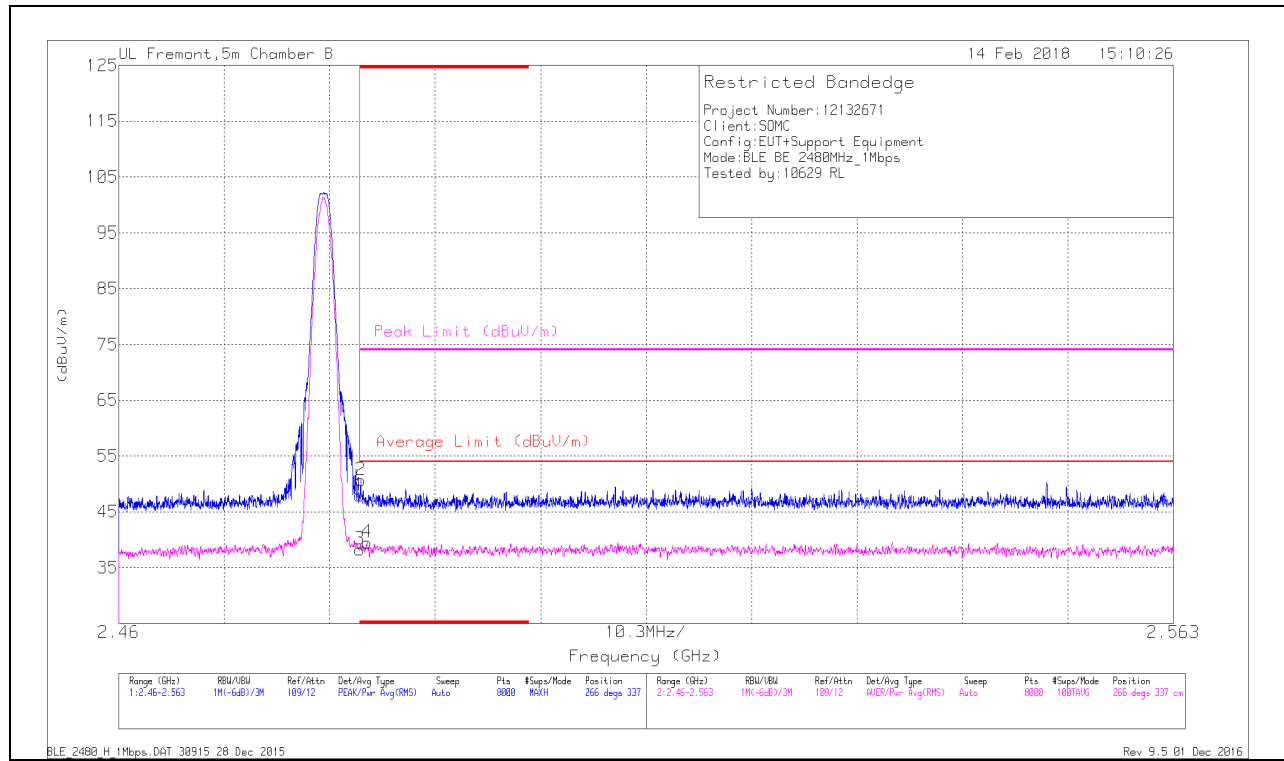
\* - indicates frequency in CFR47 Pt 15 - Restricted Band

Pk - Peak detector

RMS - RMS detection

## BANDEDGE (HIGH CHANNEL)

### HORIZONTAL RESULT



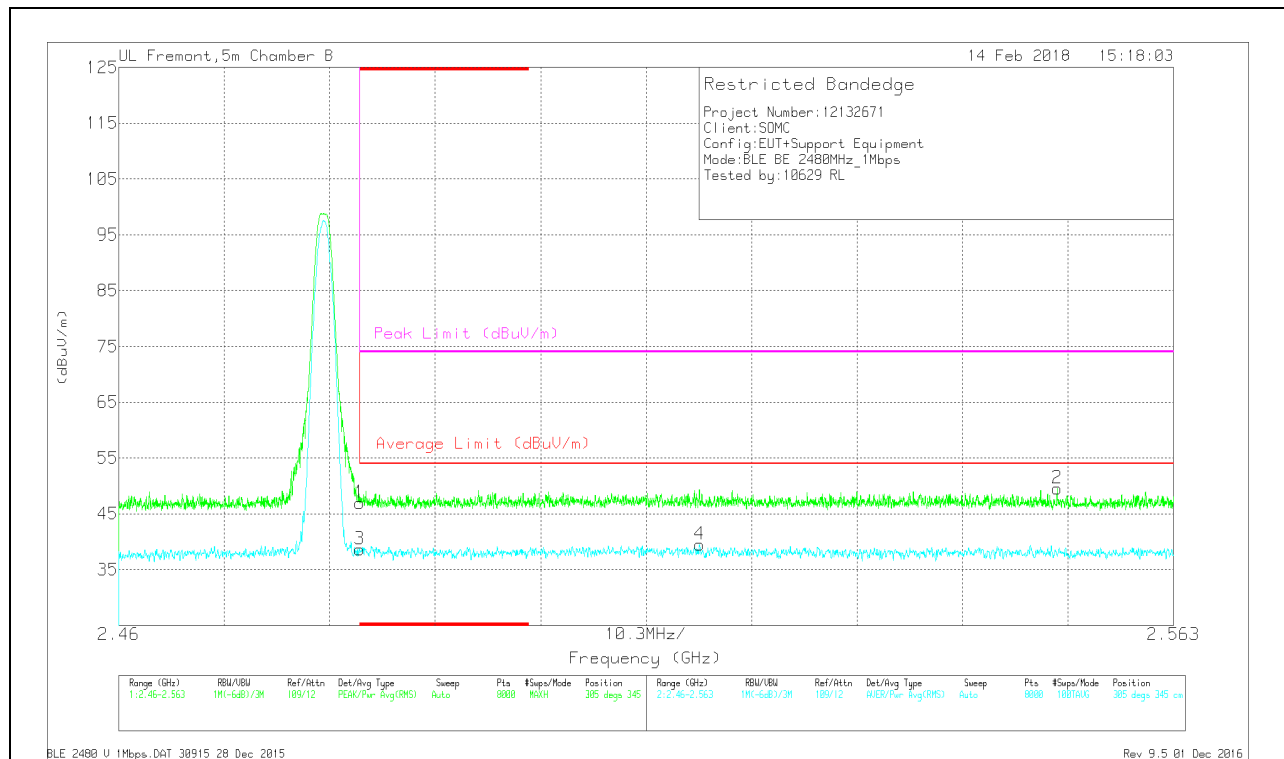
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dBm) | Amp/Cbl/Filt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|-----------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 36.69                | Pk  | 32.5          | -21.3                 | 0            | 47.89                      | -                      | -           | 74                  | -26.11         | 266            | 337         | H        |
| 2      | * 2.484         | 39.41                | Pk  | 32.5          | -21.3                 | 0            | 50.61                      | -                      | -           | 74                  | -23.39         | 266            | 337         | H        |
| 3      | * 2.484         | 26.38                | RMS | 32.5          | -21.3                 | .7           | 38.28                      | 54                     | -15.72      | -                   | -              | 266            | 337         | H        |
| 4      | * 2.484         | 27.64                | RMS | 32.5          | -21.3                 | .7           | 39.54                      | 54                     | -14.46      | -                   | -              | 266            | 337         | H        |

\* - indicates frequency in CFR47 Pt 15 - Restricted Band

Pk - Peak detector

RMS - RMS detection

## VERTICAL RESULT



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dBm) | Amp/Chl/Filt/Pad (dB) | DC Corr (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         | 35.7                 | Pk  | 32.5          | -21.3                 | 0            | 46.9                       | -                      | -           | 74                  | -27.1          | 305            | 345         | V        |
| 3      | * 2.484         | 26.72                | RMS | 32.5          | -21.3                 | .7           | 38.62                      | 54                     | -15.38      | -                   | -              | 305            | 345         | V        |
| 4      | 2.517           | 27.29                | RMS | 32.6          | -21.1                 | .7           | 39.49                      | 54                     | -14.51      | -                   | -              | 305            | 345         | V        |
| 2      | 2.552           | 38.23                | Pk  | 32.5          | -21.2                 | 0            | 49.53                      | -                      | -           | 74                  | -24.47         | 305            | 345         | V        |

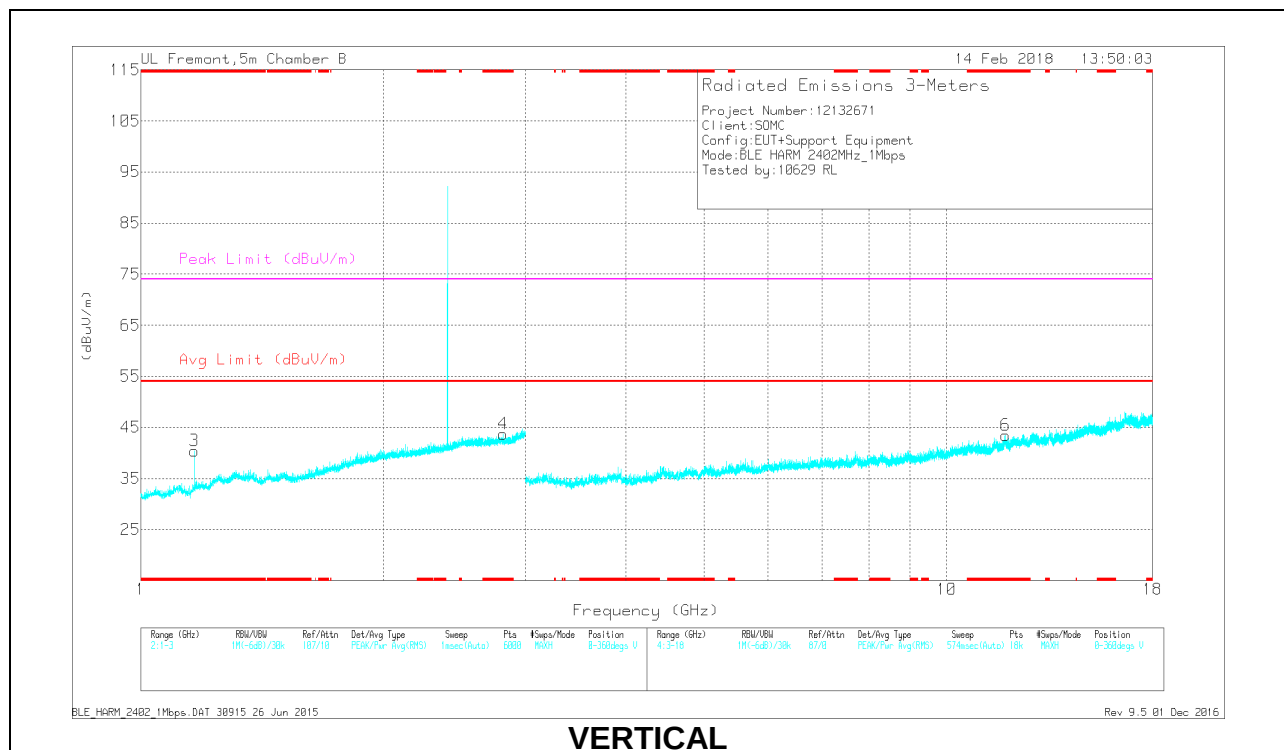
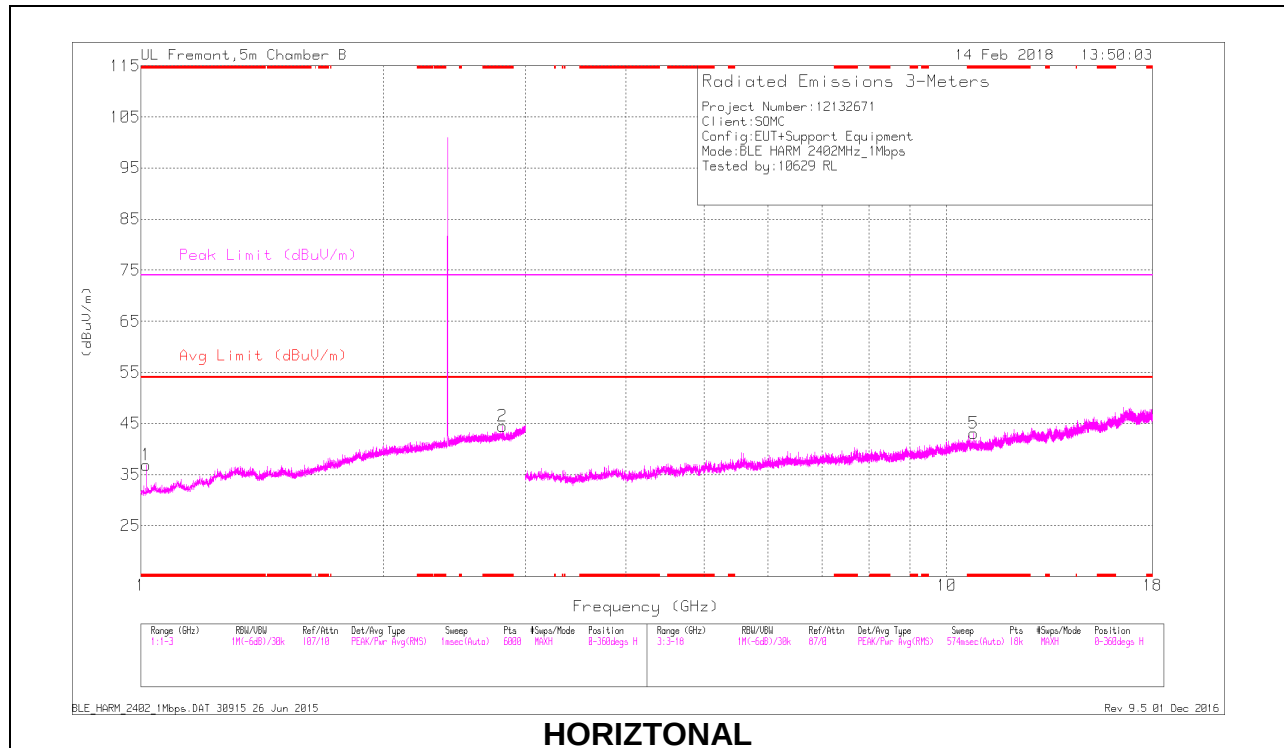
\* - indicates frequency in CFR47 Pt 15 - Restricted Band

Pk - Peak detector

RMS - RMS detection

## HARMONICS AND SPURIOUS EMISSIONS

### LOW CHANNEL RESULTS



## RADIATED EMISSIONS

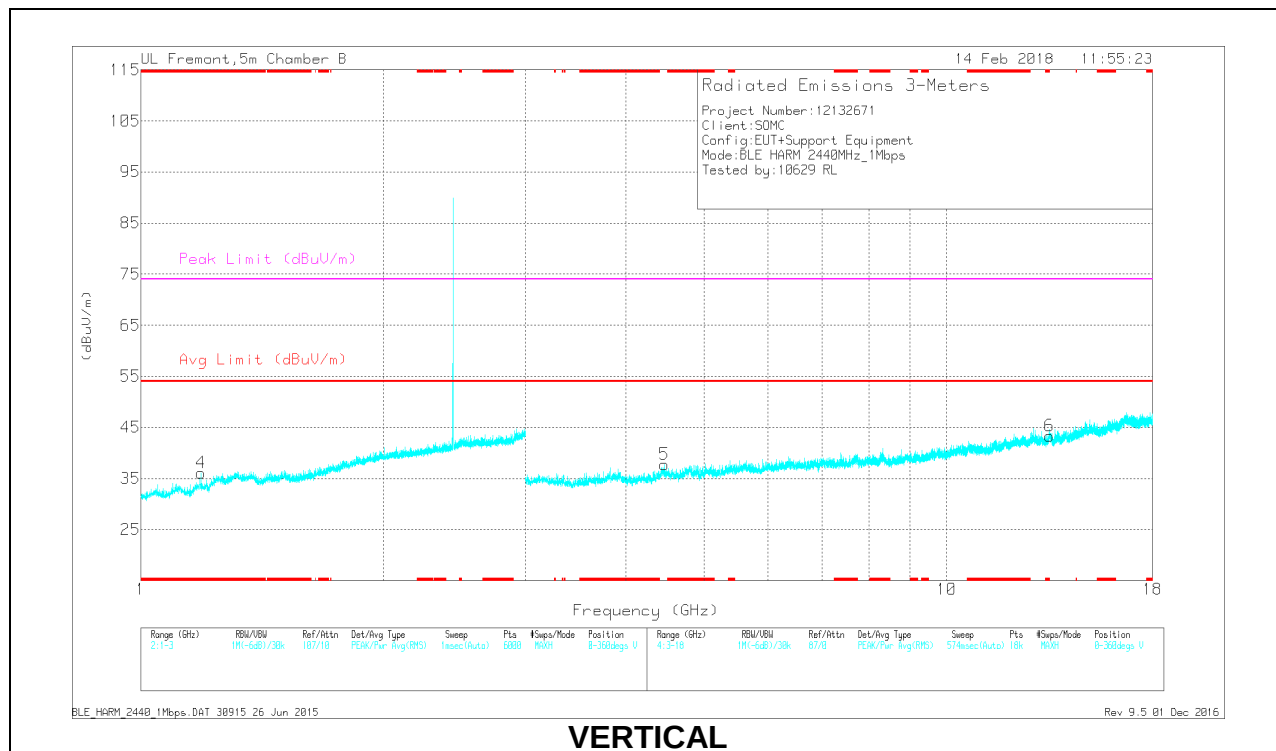
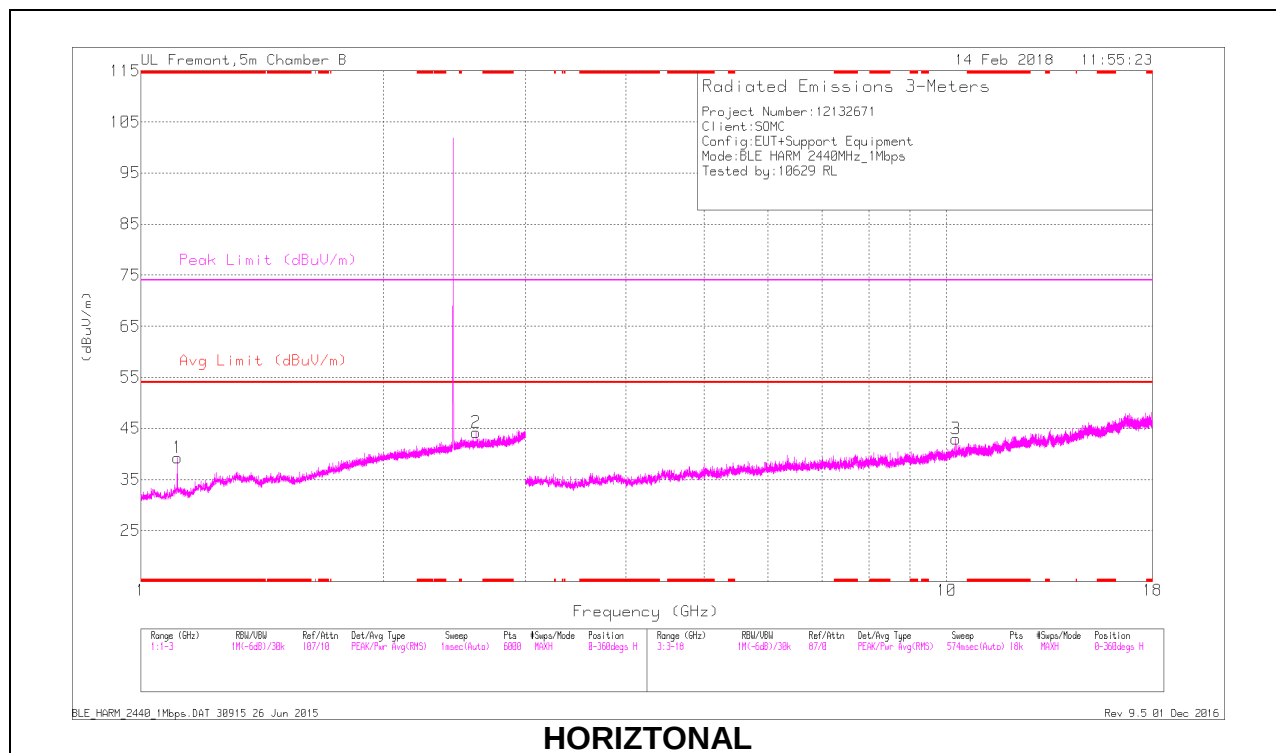
| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T346 (dB/m) | Amp/Cbl/Fitr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|-----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 1.012         | 34.21                | PK2  | 27.4           | -23.6                 | 0            | 38.01                      | -                  | -           | 74                  | -35.99         | 115            | 341         | H        |
| * 1.02          | 22.96                | MAV1 | 27.3           | -23.6                 | .7           | 27.36                      | 54                 | -26.64      | -                   | -              | 115            | 341         | H        |
| * 2.814         | 36.7                 | PK2  | 32.4           | -20.6                 | 0            | 48.5                       | -                  | -           | 74                  | -25.5          | 240            | 110         | H        |
| * 2.807         | 24.62                | MAV1 | 32.4           | -20.6                 | .7           | 37.12                      | 54                 | -16.88      | -                   | -              | 240            | 110         | H        |
| * 1.164         | 35.01                | PK2  | 27.6           | -22.7                 | 0            | 39.91                      | -                  | -           | 74                  | -34.09         | 214            | 180         | V        |
| * 1.167         | 23.22                | MAV1 | 27.6           | -22.6                 | .7           | 28.92                      | 54                 | -25.08      | -                   | -              | 214            | 180         | V        |
| * 2.815         | 36.15                | PK2  | 32.4           | -20.6                 | 0            | 47.95                      | -                  | -           | 74                  | -26.05         | 254            | 374         | V        |
| * 2.815         | 24.61                | MAV1 | 32.4           | -20.6                 | .7           | 37.11                      | 54                 | -16.89      | -                   | -              | 254            | 374         | V        |
| * 10.803        | 34.23                | PK2  | 37.7           | -24                   | 0            | 47.93                      | -                  | -           | 74                  | -26.07         | 326            | 340         | H        |
| * 10.803        | 22.83                | MAV1 | 37.7           | -24                   | .7           | 37.23                      | 54                 | -16.77      | -                   | -              | 326            | 340         | H        |
| * 11.825        | 34.29                | PK2  | 38.6           | -23.2                 | 0            | 49.69                      | -                  | -           | 74                  | -24.31         | 244            | 233         | V        |
| * 11.826        | 22.16                | MAV1 | 38.6           | -23.2                 | .7           | 38.26                      | 54                 | -15.74      | -                   | -              | 244            | 233         | V        |

\* - indicates frequency in CFR47 Pt 15 - Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

## MID CHANNEL RESULTS



## RADIATED EMISSIONS

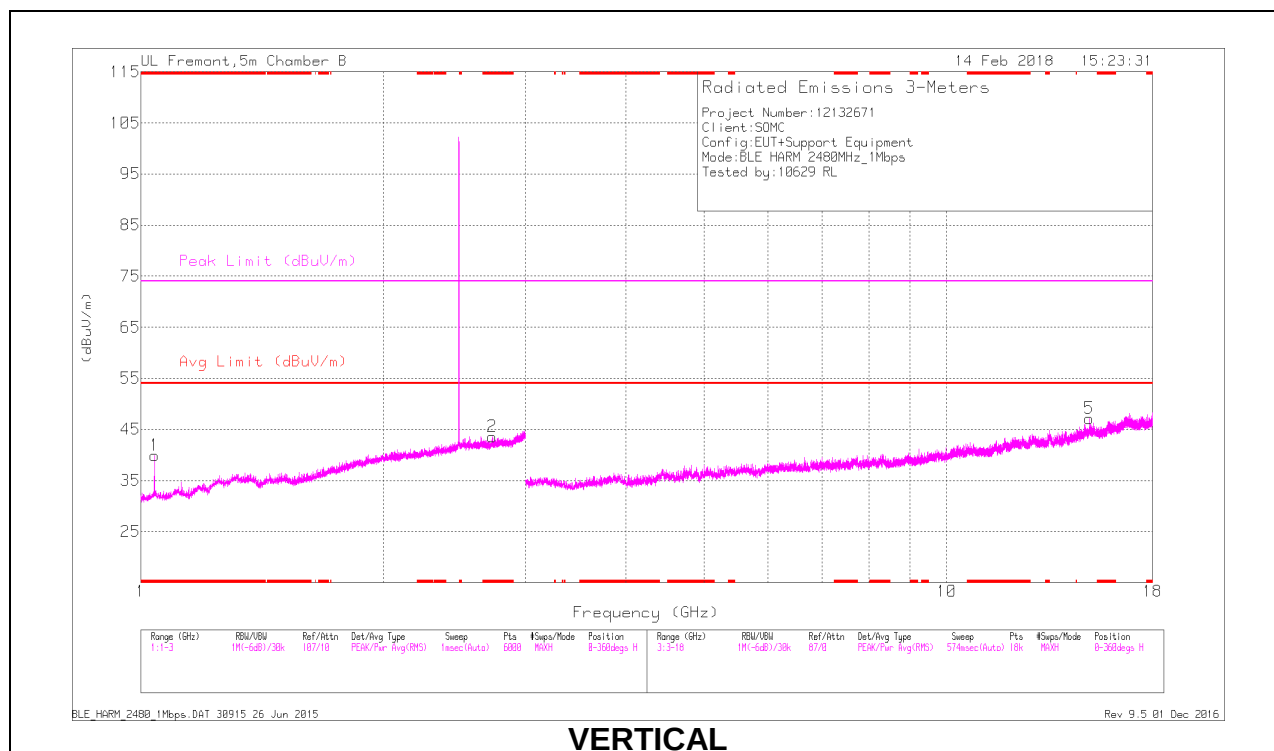
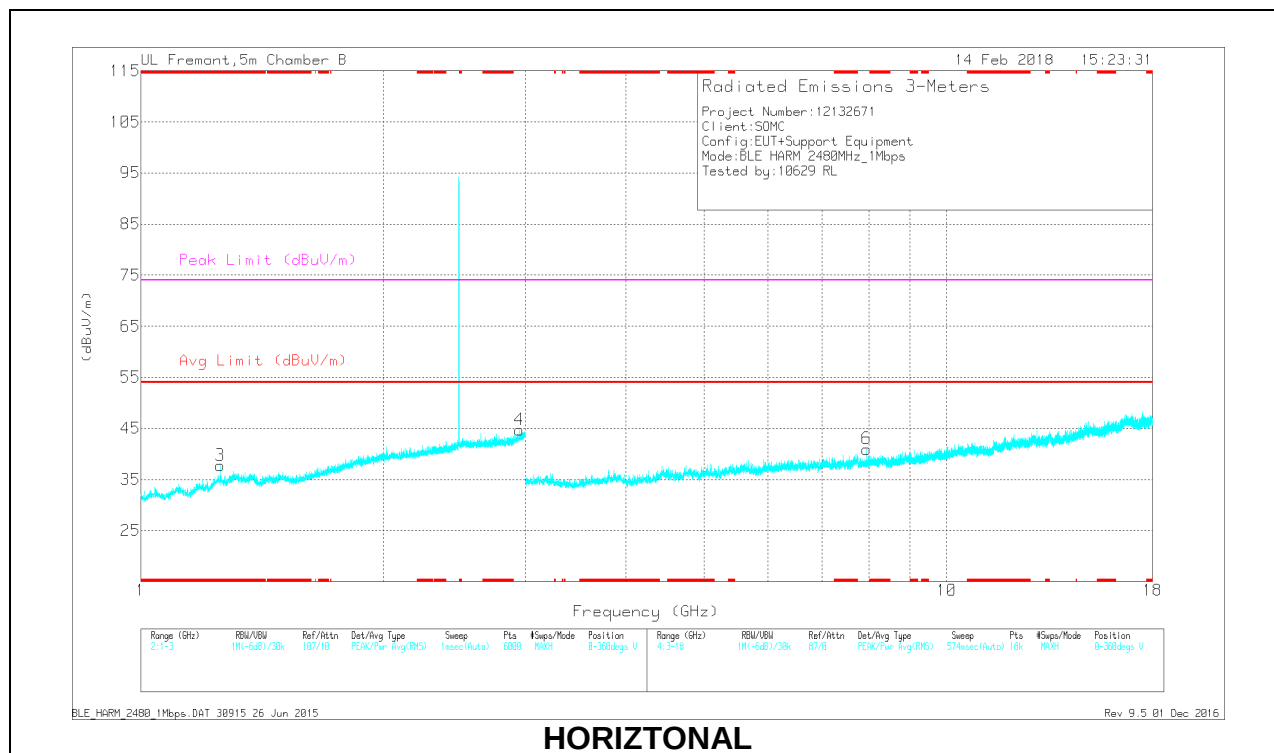
| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T346 (dB/m) | Amp/Cbl/Filtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 1.109         | 35.44                | PK2  | 27.6           | -22.9                  | 0            | 40.14                      | -                  | -           | 74                  | -33.86         | 168            | 281         | H        |
| * 1.11          | 23.34                | MAV1 | 27.6           | -22.9                  | .7           | 28.74                      | 54                 | -25.26      | -                   | -              | 168            | 281         | H        |
| * 1.186         | 36.12                | PK2  | 27.8           | -22.7                  | 0            | 41.22                      | -                  | -           | 74                  | -32.78         | 156            | 348         | V        |
| * 1.186         | 23.51                | MAV1 | 27.8           | -22.7                  | .7           | 29.31                      | 54                 | -24.69      | -                   | -              | 156            | 348         | V        |
| 2.6             | 36.56                | PK2  | 32.6           | -21.1                  | 0            | 48.06                      | -                  | -           | -                   | -              | 35             | 358         | H        |
| 2.6             | 24.64                | MAV1 | 32.6           | -21.1                  | .7           | 36.84                      | -                  | -           | -                   | -              | 35             | 358         | H        |
| 4.459           | 27.17                | MAV1 | 33.8           | -29.4                  | .7           | 32.27                      | -                  | -           | -                   | -              | 333            | 255         | V        |
| 4.461           | 39.29                | PK2  | 33.8           | -29.4                  | 0            | 43.69                      | -                  | -           | -                   | -              | 333            | 255         | V        |
| 10.263          | 23.23                | MAV1 | 37.4           | -25.3                  | .7           | 36.03                      | -                  | -           | -                   | -              | 251            | 273         | H        |
| 10.266          | 35.24                | PK2  | 37.4           | -25.3                  | 0            | 47.34                      | -                  | -           | -                   | -              | 251            | 273         | H        |
| 13.404          | 22.55                | MAV1 | 39.3           | -22.8                  | .7           | 39.75                      | -                  | -           | -                   | -              | 60             | 172         | V        |
| 13.406          | 34.94                | PK2  | 39.3           | -22.8                  | 0            | 51.44                      | -                  | -           | -                   | -              | 60             | 172         | V        |

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

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

## HIGH CHANNEL RESULTS



## RADIATED EMISSIONS

| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T346 (dB/m) | Amp/Cbl/Filtr/ Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|-------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 1.038         | 36.23                | PK2  | 27.1           | -23.3                   | 0            | 40.03                      | -                  | -           | 74                  | -33.97         | 0              | 387         | H        |
| * 1.038         | 23.57                | MAv1 | 27.1           | -23.3                   | .7           | 28.07                      | 54                 | -25.93      | -                   | -              | 0              | 387         | H        |
| * 2.729         | 36.8                 | PK2  | 32.4           | -20.8                   | 0            | 48.4                       | -                  | -           | 74                  | -25.6          | 121            | 239         | H        |
| * 2.728         | 24.73                | MAv1 | 32.4           | -20.8                   | .7           | 37.03                      | 54                 | -16.97      | -                   | -              | 121            | 239         | H        |
| * 1.254         | 35.48                | PK2  | 28.8           | -22.2                   | 0            | 42.08                      | -                  | -           | 74                  | -31.92         | 157            | 190         | V        |
| * 1.252         | 23.09                | MAv1 | 28.8           | -22.1                   | .7           | 30.49                      | 54                 | -23.51      | -                   | -              | 157            | 190         | V        |
| 2.949           | 24.55                | MAv1 | 32.6           | -20                     | .7           | 37.85                      | -                  | -           | -                   | -              | 0              | 310         | V        |
| 2.952           | 36.41                | PK2  | 32.6           | -20                     | 0            | 49.01                      | -                  | -           | -                   | -              | 0              | 310         | V        |
| 7.946           | 25.54                | MAv1 | 36             | -27.9                   | .7           | 34.34                      | -                  | -           | -                   | -              | 334            | 139         | V        |
| 7.948           | 36.72                | PK2  | 36             | -27.9                   | 0            | 44.82                      | -                  | -           | -                   | -              | 334            | 139         | V        |
| 15.024          | 21.92                | MAv1 | 40.6           | -22.4                   | .7           | 40.82                      | -                  | -           | -                   | -              | 235            | 371         | H        |
| 15.025          | 33.93                | PK2  | 40.6           | -22.3                   | 0            | 52.23                      | -                  | -           | -                   | -              | 235            | 371         | H        |

\* - indicates frequency in CFR47 Pt 15 - Restricted Band

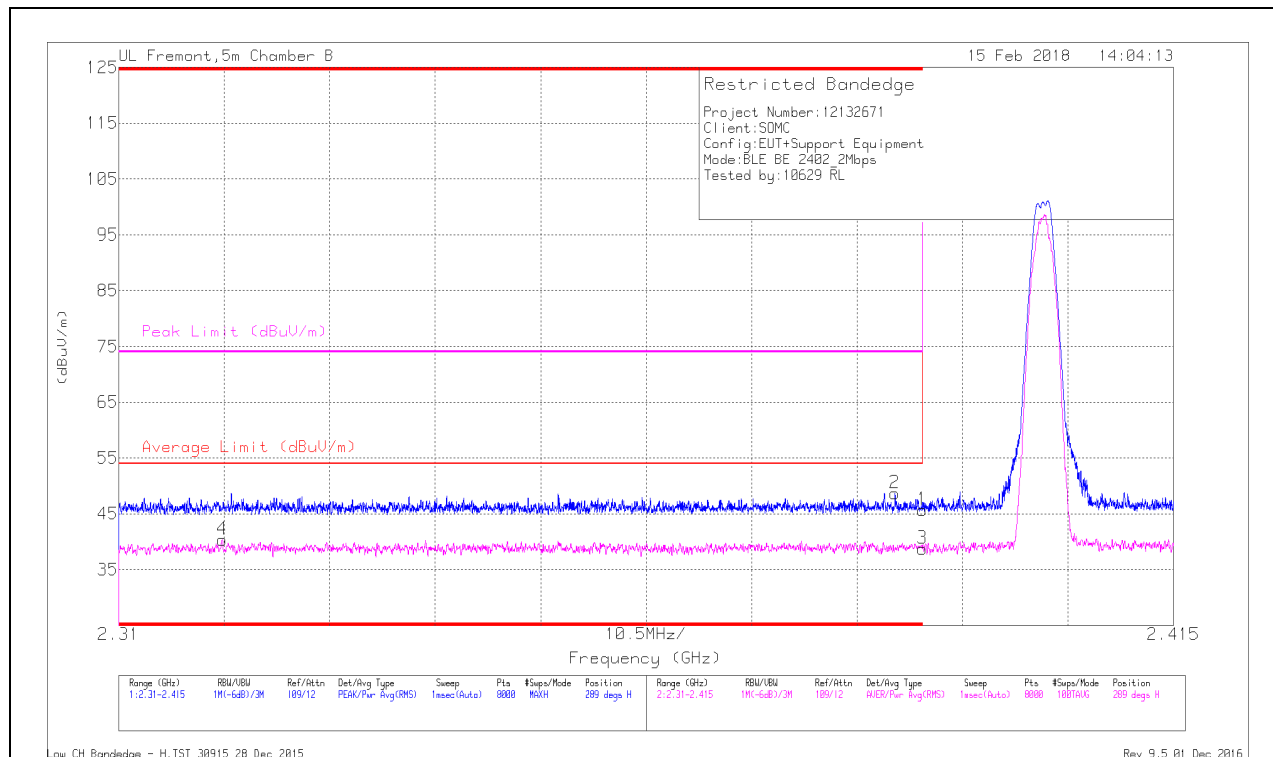
PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

## 9.2.2. BLE (2Mbps)

### BANDEDGE (LOW CHANNEL)

#### HORIZONTAL RESULT



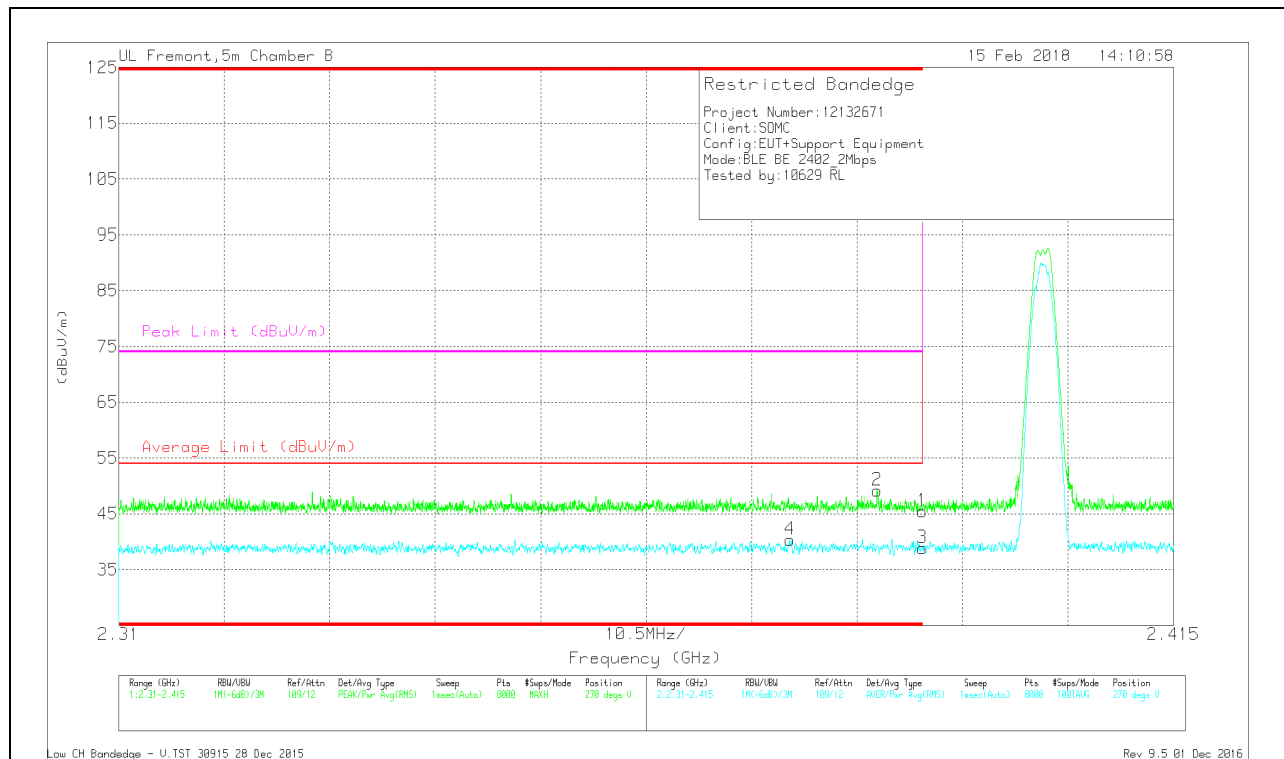
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T345 (dBm) | Amp/CBIFtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|---------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.39          | 35.05                | Pk  | 32            | -21.3               | 0            | 45.75                      | -                      | -           | 74                  | -28.25         | 289            | 142         | H        |
| 2      | * 2.387         | 38.03                | Pk  | 32            | -21.3               | 0            | 48.73                      | -                      | -           | 74                  | -25.27         | 289            | 142         | H        |
| 3      | * 2.39          | 25.66                | RMS | 32            | -21.3               | 2.41         | 38.77                      | 54                     | -15.23      | -                   | -              | 289            | 142         | H        |
| 4      | * 2.32          | 27.27                | RMS | 31.9          | -21.2               | 2.41         | 40.38                      | 54                     | -13.62      | -                   | -              | 289            | 142         | H        |

\* - indicates frequency in CFR47 Pt 15 - Restricted Band

Pk - Peak detector

RMS - RMS detection

## VERTICAL RESULT



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dBm) | Amp/CbIFtr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Altitude (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|---------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|-----------------|-------------|----------|
| 4      | * 2.377         | 27.35                | RMS | 31.9          | -21.3               | 2.41         | 40.36                      | 54                     | -13.64      | -                   | -              | 270             | 282         | V        |
| 2      | * 2.385         | 38.48                | Pk  | 32            | -21.3               | 0            | 49.18                      | -                      | -           | 74                  | -24.82         | 270             | 282         | V        |
| 1      | * 2.39          | 34.78                | Pk  | 32            | -21.3               | 0            | 45.48                      | -                      | -           | 74                  | -28.52         | 270             | 282         | V        |
| 3      | * 2.39          | 25.72                | RMS | 32            | -21.3               | 2.41         | 38.83                      | 54                     | -15.17      | -                   | -              | 270             | 282         | V        |

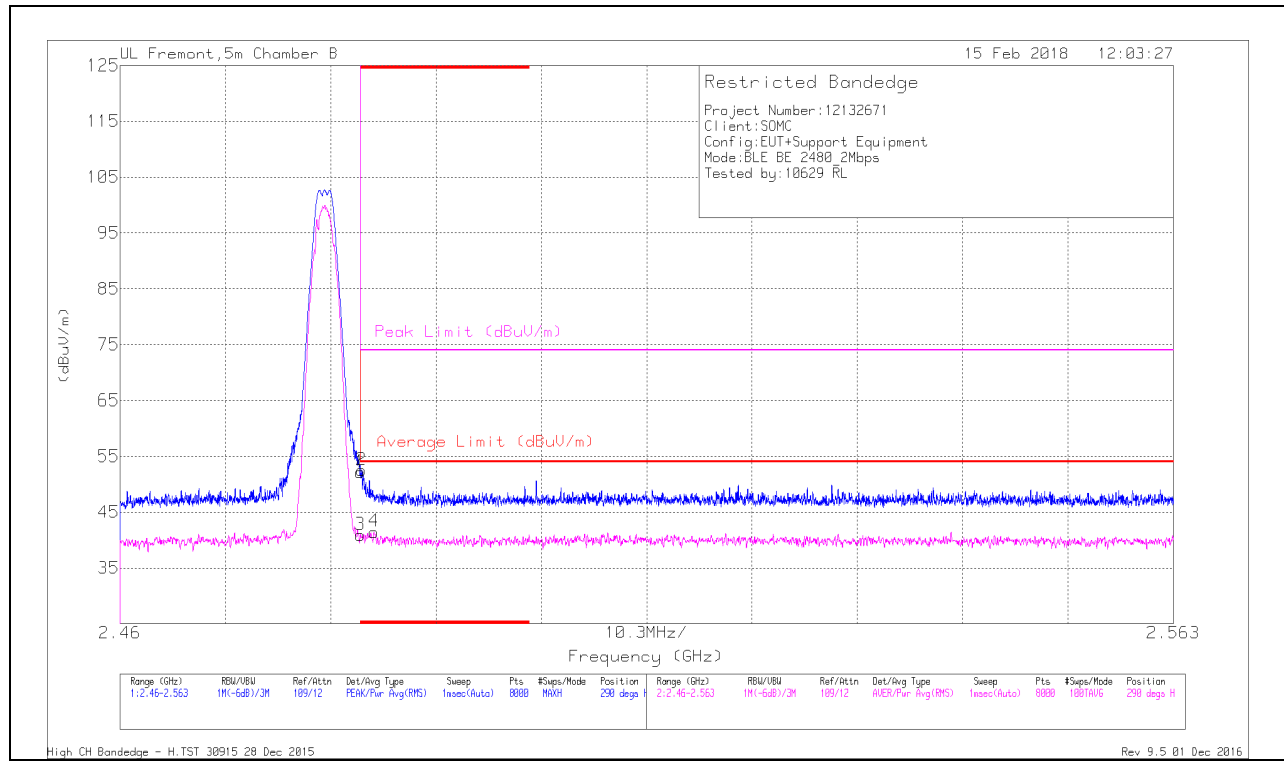
\* - indicates frequency in CFR47 Pt 15 - Restricted Band

Pk - Peak detector

RMS - RMS detection

## BANDEDGE (HIGH CHANNEL)

### HORIZONTAL RESULT



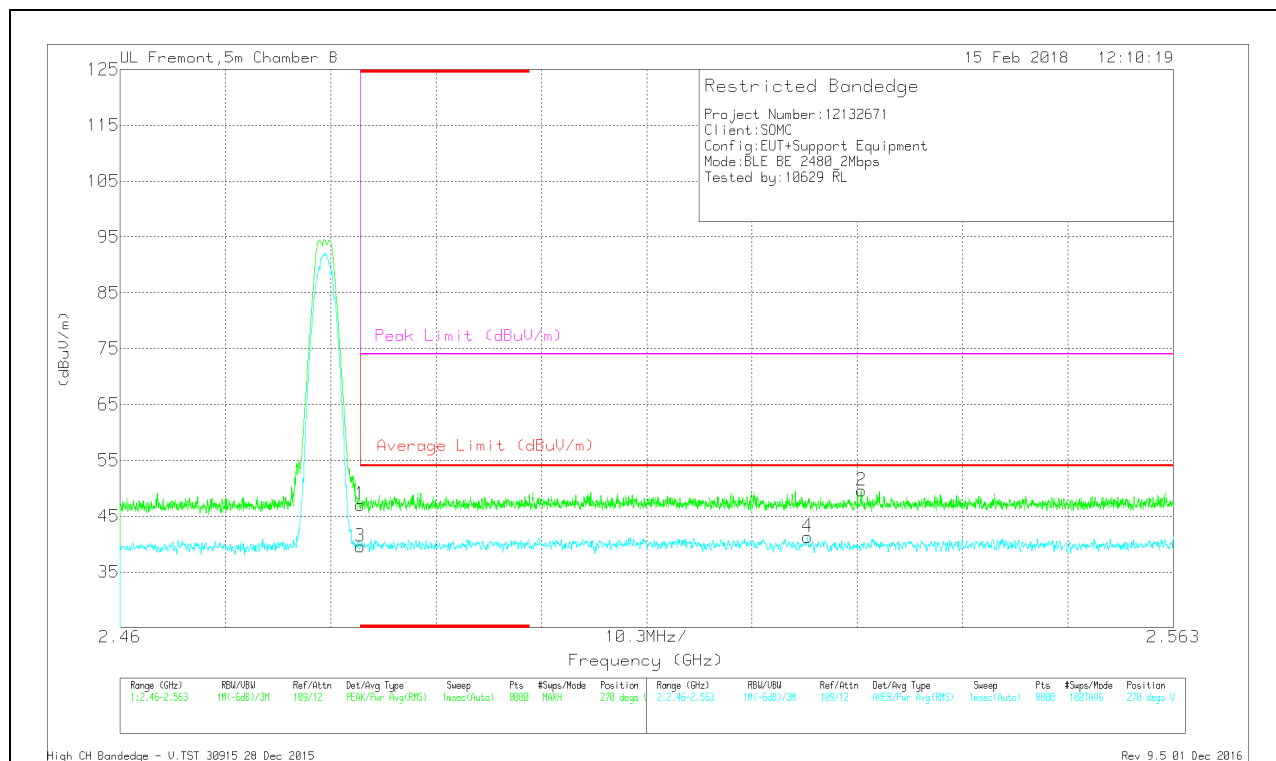
| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dBm) | Amp/Cbl/Ftr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|----------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 40.95                | Pk  | 32.5          | -21.3                | 0            | 52.15                      | -                      | -           | 74                  | -21.85         | 290            | 136         | H        |
| 2      | * 2.484         | 41.33                | Pk  | 32.5          | -21.3                | 0            | 52.53                      | -                      | -           | 74                  | -21.47         | 290            | 136         | H        |
| 3      | * 2.484         | 27.31                | RMS | 32.5          | -21.3                | 2.41         | 40.92                      | 54                     | -13.08      | -                   | -              | 290            | 136         | H        |
| 4      | * 2.485         | 27.86                | RMS | 32.5          | -21.3                | 2.41         | 41.47                      | 54                     | -12.53      | -                   | -              | 290            | 136         | H        |

\* - indicates frequency in CFR47 Pt 15 - Restricted Band

Pk - Peak detector

RMS - RMS detection

## VERTICAL RESULT



| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | AF T346 (dBm) | Amp/CbLFltr/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Average Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Acimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|---------------|----------------------|--------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 1      | * 2.484         | 35.88                | Pk  | 32.5          | -21.3                | 0            | 47.08                      | -                      | -           | 74                  | -26.92         | 270            | 236         | V        |
| 3      | * 2.484         | 25.96                | RMS | 32.5          | -21.3                | 2.41         | 39.57                      | 54                     | -14.43      | -                   | -              | 270            | 236         | V        |
| 4      | 2.527           | 27.6                 | RMS | 32.5          | -21.2                | 2.41         | 41.31                      | 54                     | -12.69      | -                   | -              | 270            | 236         | V        |
| 2      | 2.532           | 38.39                | Pk  | 32.5          | -21.3                | 0            | 49.59                      | -                      | -           | 74                  | -24.41         | 270            | 236         | V        |

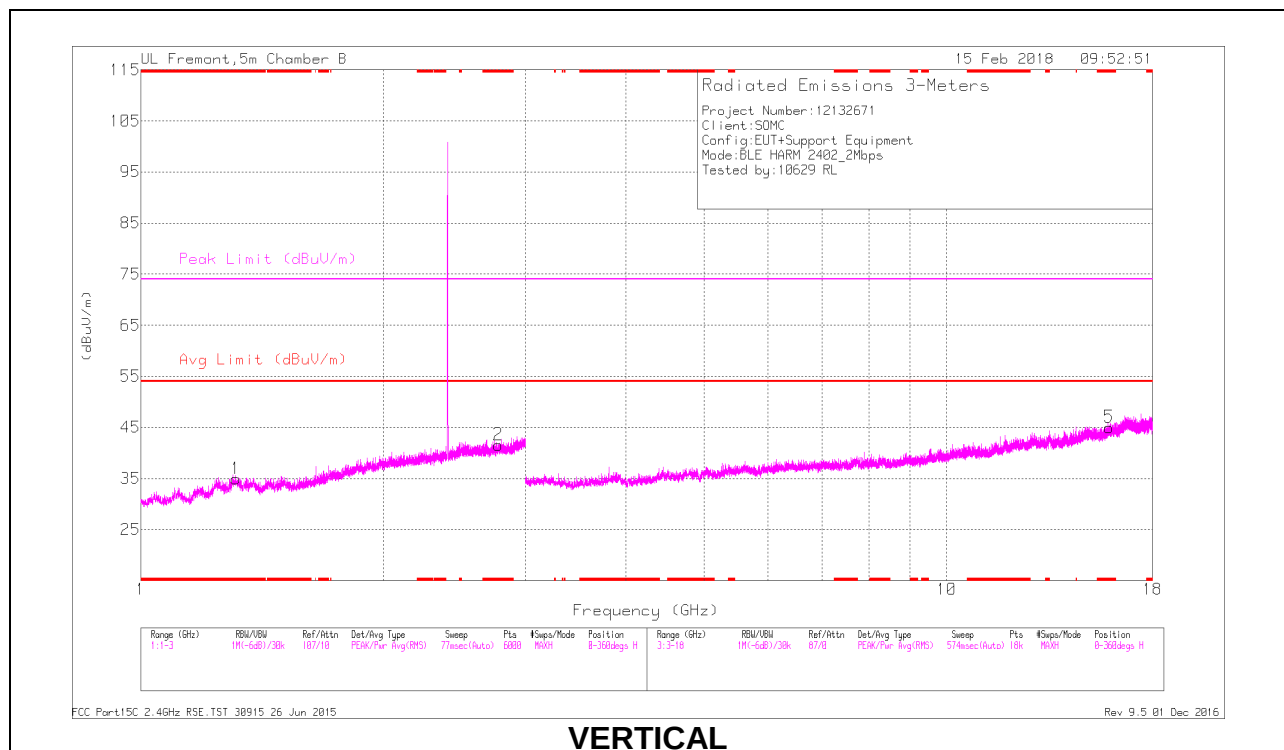
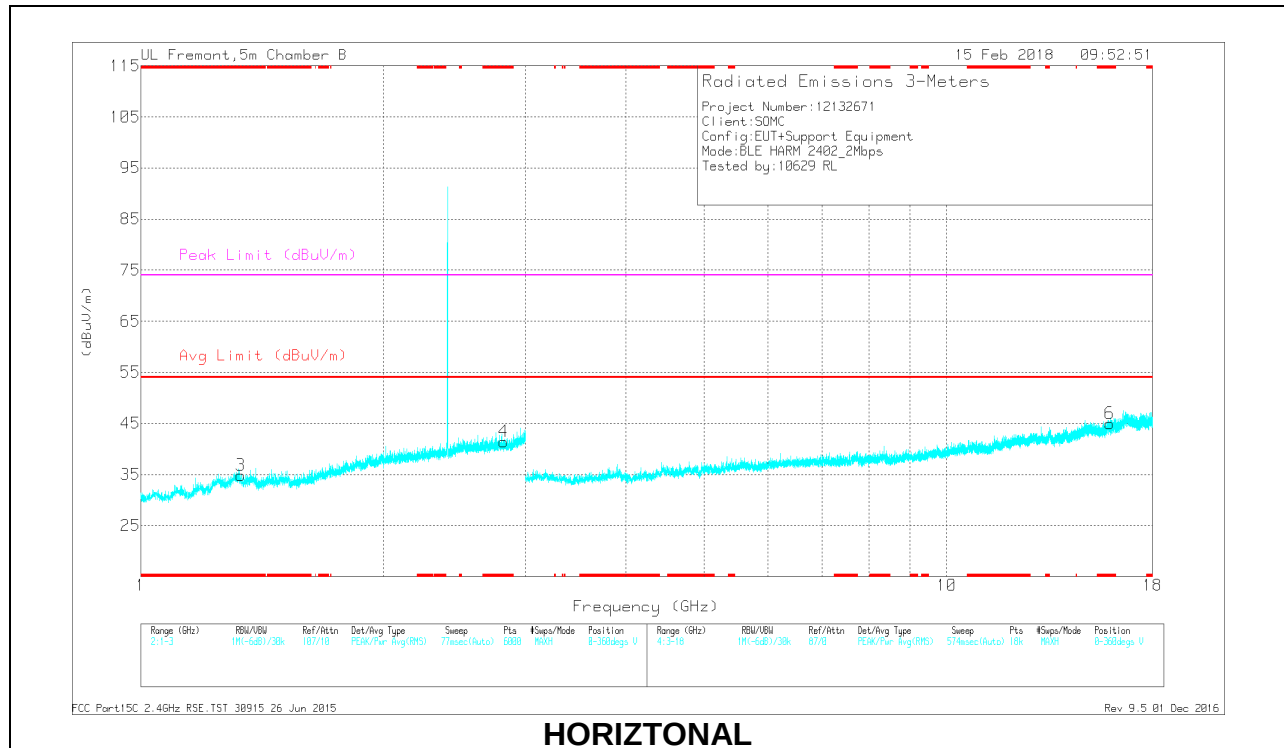
\* - indicates frequency in CFR47 Pt 15 - Restricted Band

Pk - Peak detector

RMS - RMS detection

## HARMONICS AND SPURIOUS EMISSIONS

### LOW CHANNEL RESULTS



## RADIATED EMISSIONS

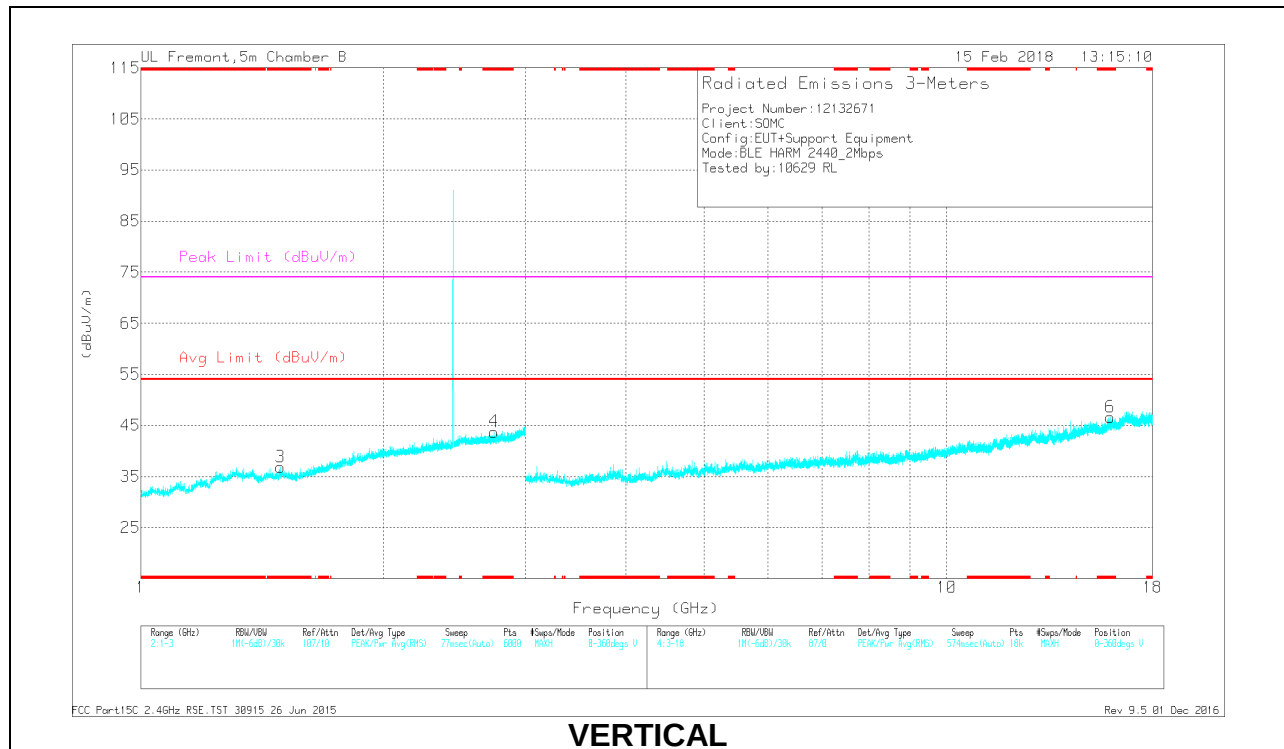
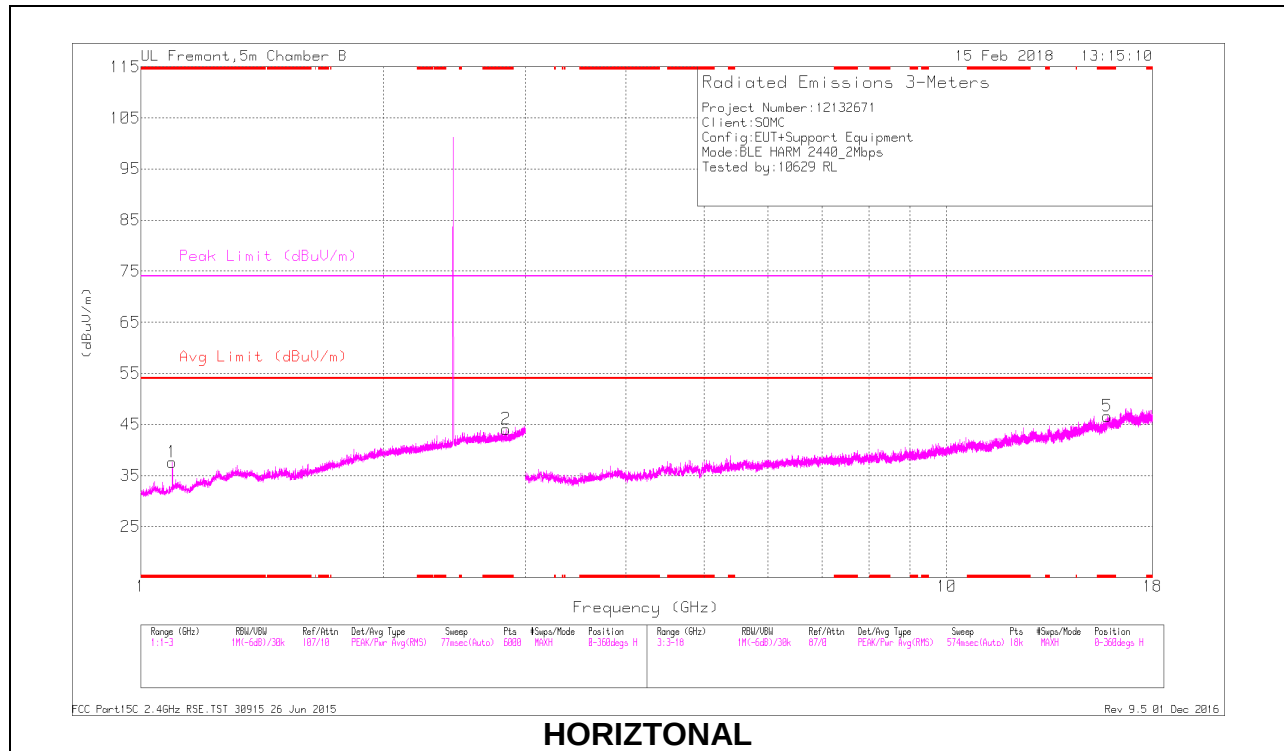
| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T346 (dB/m) | Amp/Cbl/Filtr/ Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|-------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 1.316         | 34.76                | PK2  | 28.9           | -21.8                   | 0            | 41.86                      | -                  | -           | 74                  | -32.14         | 121            | 320         | H        |
| * 1.313         | 20.2                 | MAv1 | 28.9           | -21.9                   | 2.41         | 29.61                      | 54                 | -24.39      | -                   | -              | 121            | 320         | H        |
| * 2.779         | 35.39                | PK2  | 32.3           | -20.7                   | 0            | 46.99                      | -                  | -           | 74                  | -27.01         | 197            | 191         | H        |
| * 2.776         | 17.54                | MAv1 | 32.3           | -20.7                   | 2.41         | 31.55                      | 54                 | -22.45      | -                   | -              | 197            | 191         | H        |
| * 1.33          | 34.16                | PK2  | 28.9           | -21.9                   | 0            | 41.16                      | -                  | -           | 74                  | -32.84         | 239            | 351         | V        |
| * 1.329         | 17.22                | MAv1 | 28.9           | -21.8                   | 2.41         | 26.73                      | 54                 | -27.27      | -                   | -              | 239            | 351         | V        |
| * 2.82          | 34.91                | PK2  | 32.4           | -20.6                   | 0            | 46.71                      | -                  | -           | 74                  | -27.29         | 179            | 318         | V        |
| * 2.819         | 17.45                | MAv1 | 32.4           | -20.6                   | 2.41         | 31.66                      | 54                 | -22.34      | -                   | -              | 179            | 318         | V        |
| * 15.897        | 31.79                | PK2  | 41             | -21.3                   | 0            | 51.49                      | -                  | -           | 74                  | -22.51         | 14             | 104         | H        |
| * 15.898        | 18.67                | MAv1 | 41             | -21.4                   | 2.41         | 40.68                      | 54                 | -13.32      | -                   | -              | 14             | 104         | H        |
| * 15.928        | 31.74                | PK2  | 41.1           | -21.6                   | 0            | 51.24                      | -                  | -           | 74                  | -22.76         | 16             | 320         | V        |
| * 15.927        | 19.08                | MAv1 | 41.1           | -21.6                   | 2.41         | 40.99                      | 54                 | -13.01      | -                   | -              | 16             | 320         | V        |

\* - indicates frequency in CFR47 Pt 15 - Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

## MID CHANNEL RESULTS



## RADIATED EMISSIONS

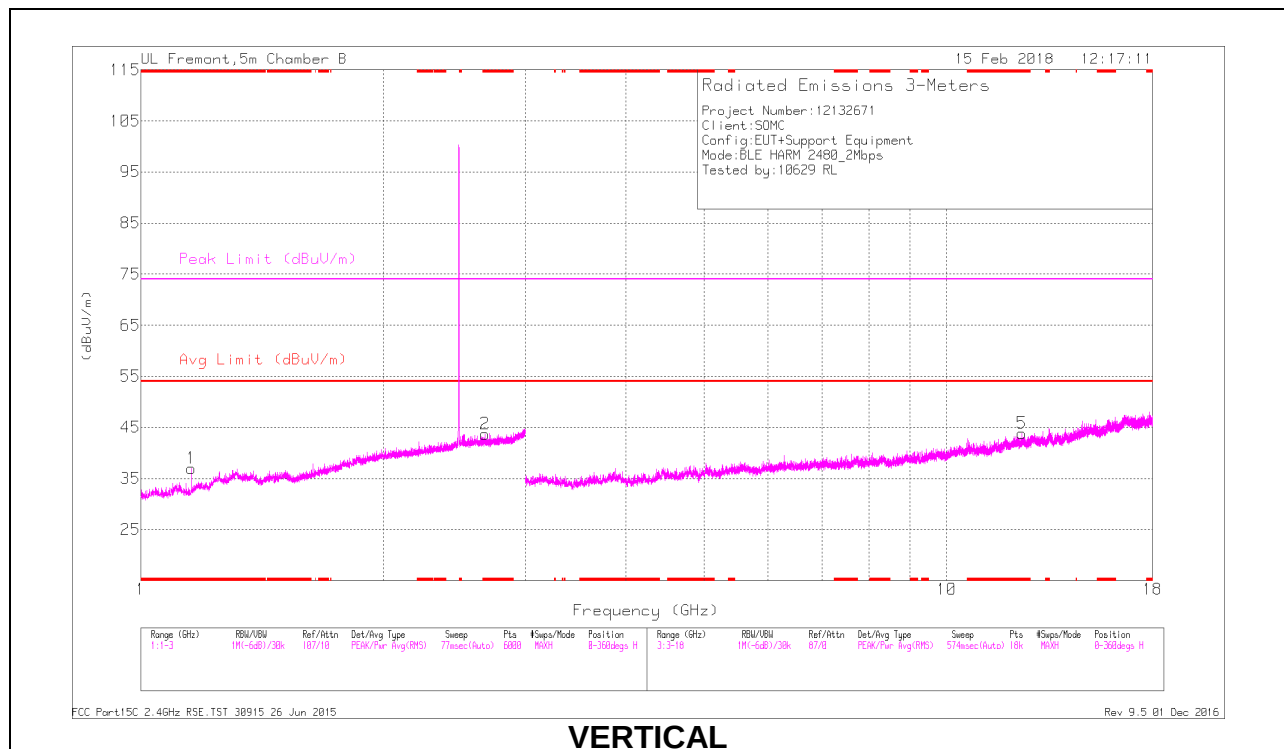
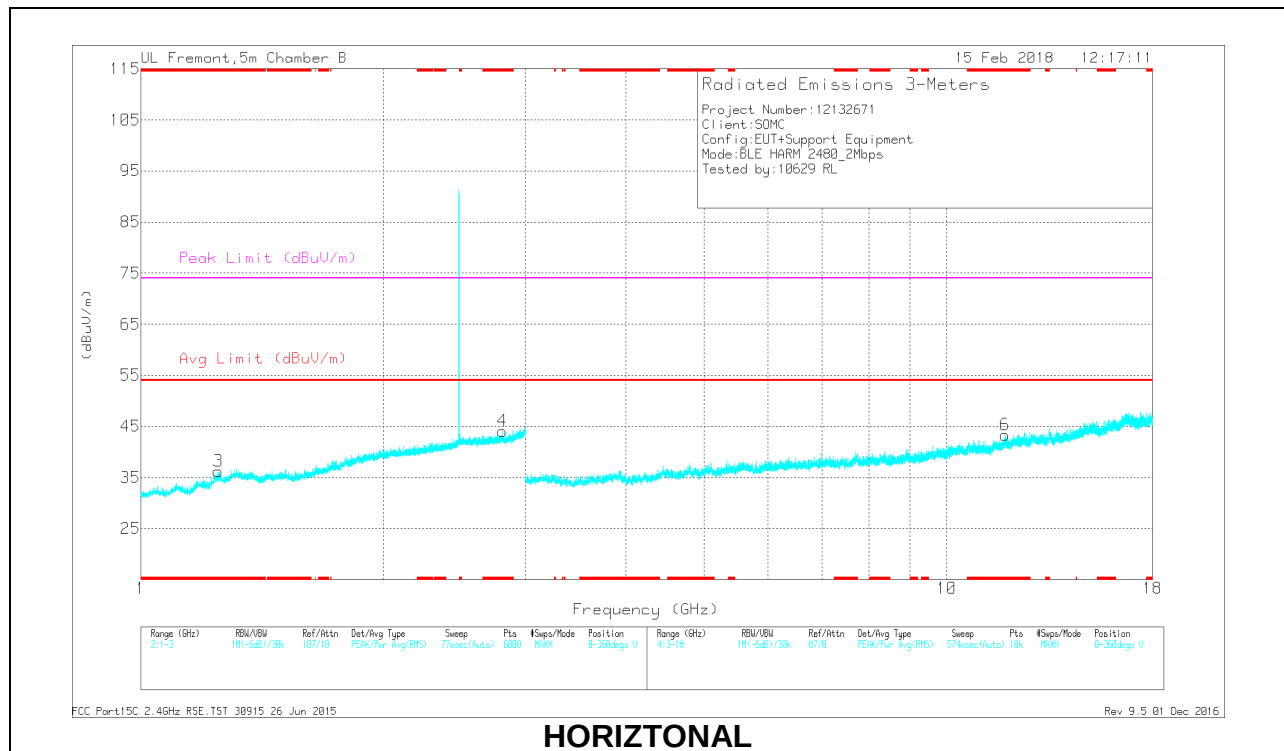
| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T346 (dB/m) | Amp/Cbl/Filt/Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|-----------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 1.092         | 35.28                | PK2  | 27.6           | -23                   | 0            | 39.88                      | -                  | -           | 74                  | -34.12         | 85             | 257         | H        |
| * 1.096         | 23.07                | MAV1 | 27.6           | -23                   | 2.41         | 30.08                      | 54                 | -23.92      | -                   | -              | 85             | 257         | H        |
| * 2.841         | 36.43                | PK2  | 32.4           | -20.5                 | 0            | 48.33                      | -                  | -           | 74                  | -25.67         | 315            | 373         | H        |
| * 2.84          | 24.41                | MAV1 | 32.4           | -20.5                 | 2.41         | 38.72                      | 54                 | -15.28      | -                   | -              | 315            | 373         | H        |
| * 1.489         | 35.86                | PK2  | 28.2           | -21.3                 | 0            | 42.76                      | -                  | -           | 74                  | -31.24         | 30             | 175         | V        |
| * 1.491         | 23.18                | MAV1 | 28.2           | -21.3                 | 2.41         | 32.49                      | 54                 | -21.51      | -                   | -              | 30             | 175         | V        |
| * 2.744         | 36.4                 | PK2  | 32.3           | -20.8                 | 0            | 47.9                       | -                  | -           | 74                  | -26.1          | 10             | 216         | V        |
| * 2.745         | 24.64                | MAV1 | 32.3           | -20.7                 | 2.41         | 38.65                      | 54                 | -15.35      | -                   | -              | 10             | 216         | V        |
| * 15.812        | 32.34                | PK2  | 40.9           | -21.9                 | 0            | 51.34                      | -                  | -           | 74                  | -22.66         | 123            | 377         | H        |
| * 15.811        | 21.75                | MAV1 | 40.9           | -21.9                 | 2.41         | 43.16                      | 54                 | -10.84      | -                   | -              | 123            | 377         | H        |
| * 15.964        | 32.83                | PK2  | 41.1           | -21.9                 | 0            | 52.03                      | -                  | -           | 74                  | -21.97         | 88             | 161         | V        |
| * 15.962        | 22.3                 | MAV1 | 41.1           | -21.9                 | 2.41         | 43.91                      | 54                 | -10.09      | -                   | -              | 88             | 161         | V        |

\* - indicates frequency in CFR47 Pt 15 - Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

## HIGH CHANNEL RESULTS



## RADIATED EMISSIONS

| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T346 (dB/m) | Amp/Cbl/Filtr/ Pad (dB) | DC Corr (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|-------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 1.155         | 34.59                | PK2  | 27.5           | -22.8                   | 0            | 39.29                      | -                  | -           | 74                  | -34.71         | 256            | 286         | H        |
| * 1.159         | 22.84                | MAV1 | 27.6           | -22.7                   | 2.41         | 30.15                      | 54                 | -23.85      | -                   | -              | 256            | 286         | H        |
| * 2.674         | 36.85                | PK2  | 32.4           | -21.2                   | 0            | 48.05                      | -                  | -           | 74                  | -25.95         | 51             | 334         | H        |
| * 2.676         | 24.71                | MAV1 | 32.4           | -21.1                   | 2.41         | 38.42                      | 54                 | -15.58      | -                   | -              | 51             | 334         | H        |
| * 1.248         | 34.89                | PK2  | 28.8           | -22.2                   | 0            | 41.49                      | -                  | -           | 74                  | -32.51         | 79             | 192         | V        |
| * 1.246         | 23.39                | MAV1 | 28.7           | -22.2                   | 2.41         | 32.3                       | 54                 | -21.7       | -                   | -              | 79             | 192         | V        |
| * 2.811         | 37                   | PK2  | 32.4           | -20.6                   | 0            | 48.8                       | -                  | -           | 74                  | -25.2          | 238            | 182         | V        |
| * 2.809         | 24.63                | MAV1 | 32.4           | -20.6                   | 2.41         | 38.84                      | 54                 | -15.16      | -                   | -              | 238            | 182         | V        |
| * 12.395        | 34.33                | PK2  | 39             | -23.9                   | 0            | 49.43                      | -                  | -           | 74                  | -24.57         | 0              | 178         | H        |
| * 12.393        | 22.64                | MAV1 | 39             | -23.9                   | 2.41         | 40.15                      | 54                 | -13.85      | -                   | -              | 0              | 178         | H        |
| * 11.816        | 33.94                | PK2  | 38.6           | -23.2                   | 0            | 49.34                      | -                  | -           | 74                  | -24.66         | 17             | 118         | V        |
| * 11.814        | 22.12                | MAV1 | 38.6           | -23.2                   | 2.41         | 39.93                      | 54                 | -14.07      | -                   | -              | 17             | 118         | V        |

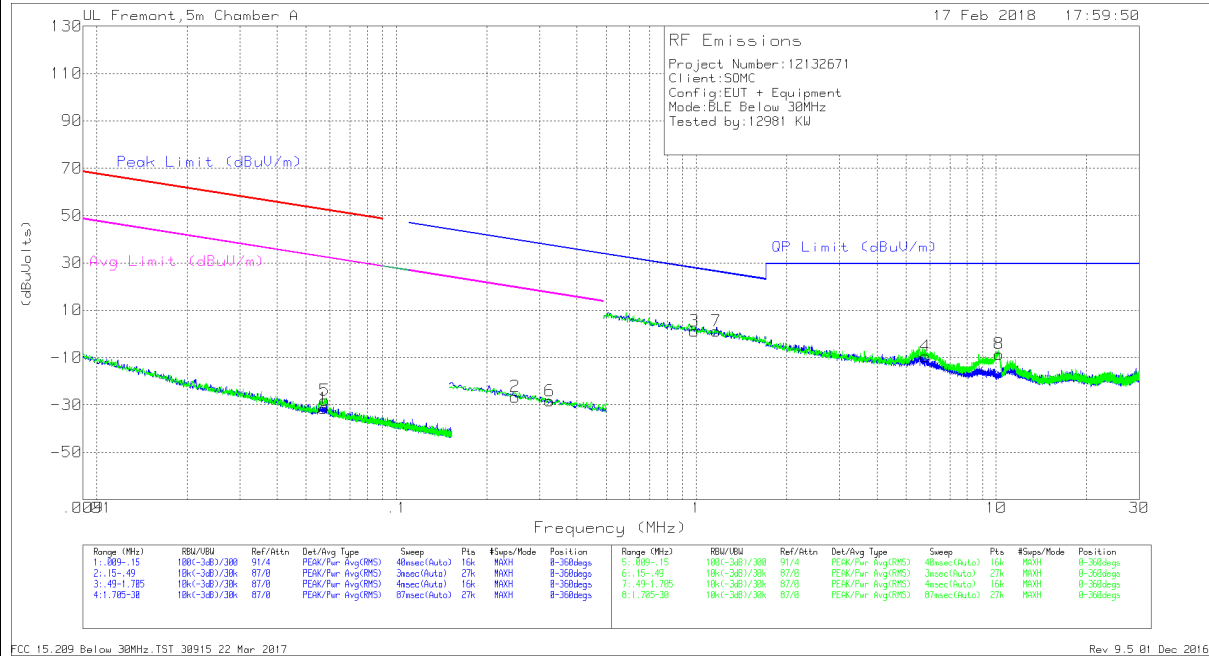
\* - indicates frequency in CFR47 Pt 15 - Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

### 9.3. SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)

#### HORIZONTAL AND VERTICAL PLOTS



NOTE: KDB 414788 OATS and Chamber Correlation Justification

- Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.
- OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

#### Trace Markers

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna (dB/m) | Cbl (dB) | Dist Corr 300m | Corrected Reading (dBuVolts) | Peak Limit (dBuV/m) | Margin (dB) | Avg Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) |
|--------|-----------------|----------------------|-----|---------------------|----------|----------------|------------------------------|---------------------|-------------|--------------------|-------------|----------------|
| 1      | .05706          | 36.48                | Pk  | 11.8                | .1       | -80            | -31.62                       | 52.46               | -84.08      | 32.46              | -64.08      | 0-360          |
| 5      | .05771          | 40.1                 | Pk  | 11.8                | .1       | -80            | -28                          | 52.36               | -80.36      | 32.36              | -60.36      | 0-360          |
| 2      | .24874          | 42.31                | Pk  | 11                  | .1       | -80            | -26.59                       | 39.7                | -66.29      | 19.7               | -46.29      | 0-360          |
| 6      | .32449          | 40.58                | Pk  | 10.9                | .1       | -80            | -28.42                       | 37.39               | -65.81      | 17.39              | -45.81      | 0-360          |

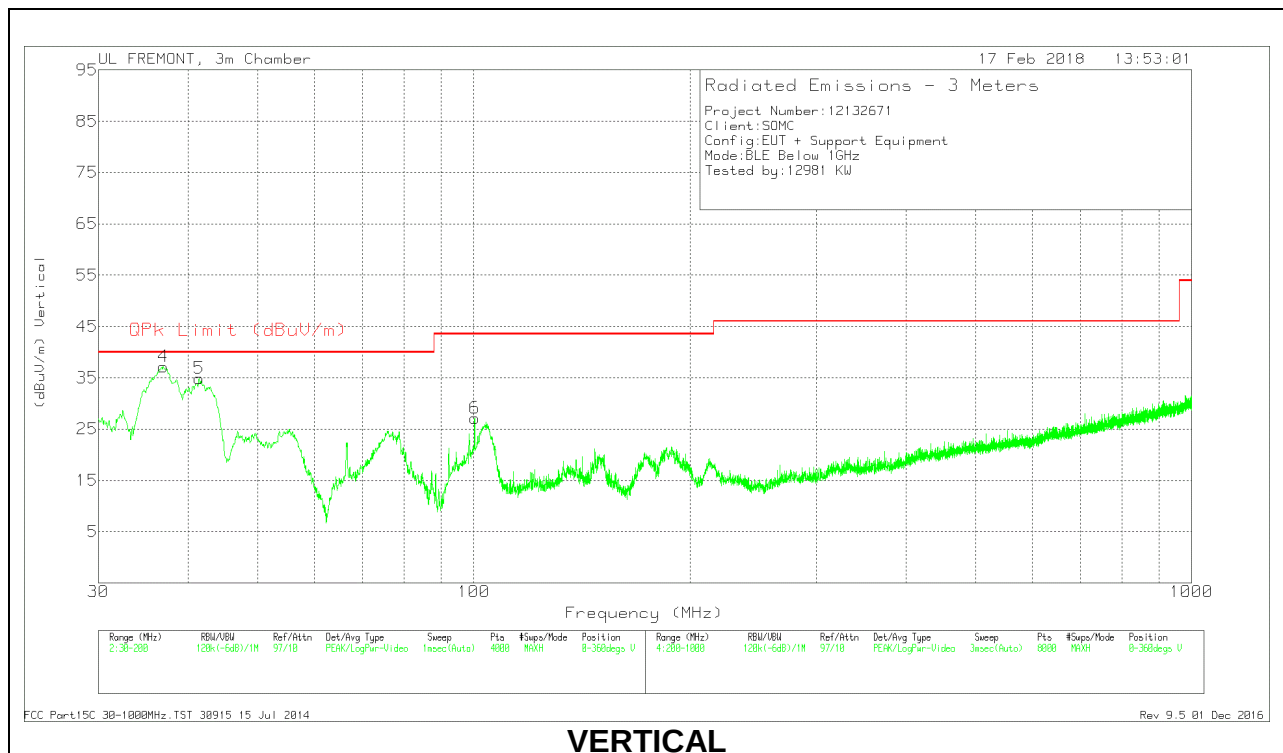
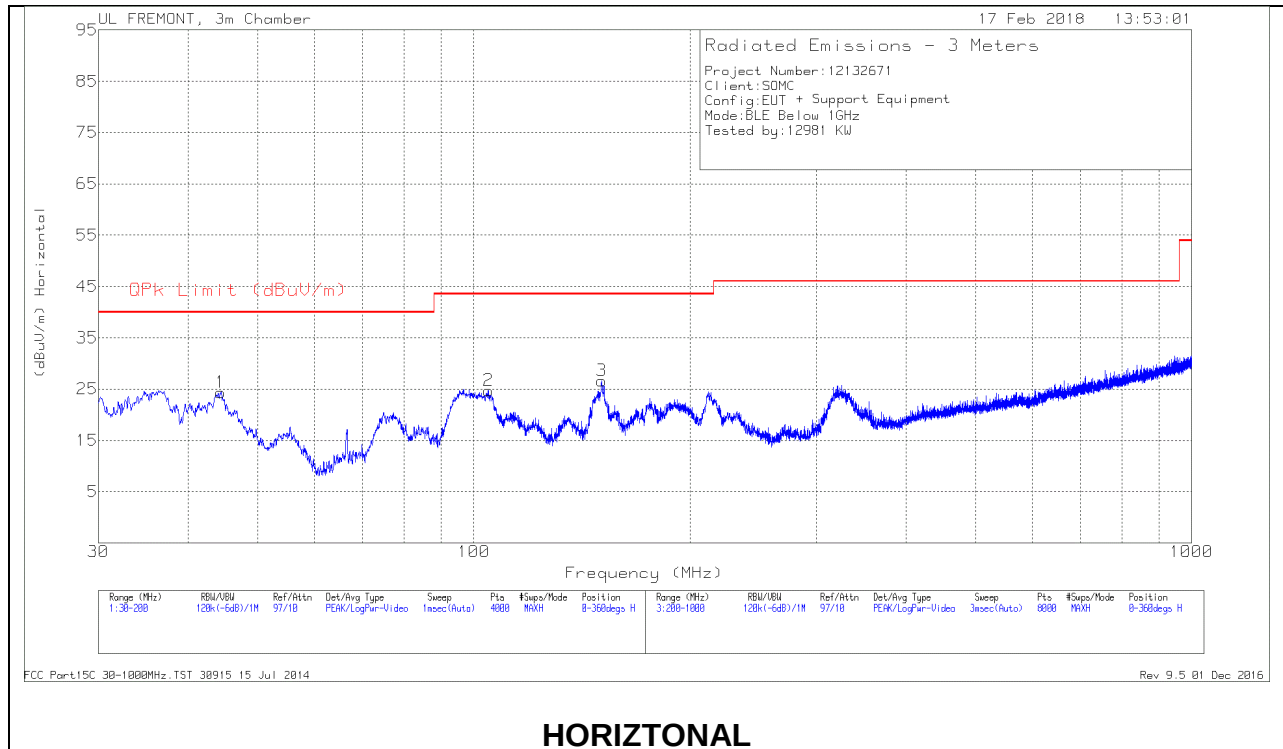
#### Pk - Peak detector

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | Loop Antenna (dB/m) | Cbl (dB) | Dist Corr 30m | Corrected Reading (dBuVolts) | QP Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) |
|--------|-----------------|----------------------|-----|---------------------|----------|---------------|------------------------------|-------------------|-------------|----------------|
| 3      | .98389          | 29.58                | Pk  | 11.3                | .2       | -40           | 1.08                         | 27.76             | -26.68      | 0-360          |
| 7      | 1.16496         | 29.63                | Pk  | 11.3                | .2       | -40           | 1.13                         | 26.3              | -25.17      | 0-360          |
| 4      | 5.80582         | 19.07                | Pk  | 11.1                | .4       | -40           | -9.43                        | 29.5              | -38.93      | 0-360          |
| 8      | 10.22419        | 19.88                | Pk  | 11.1                | .5       | -40           | -8.52                        | 29.5              | -38.02      | 0-360          |

#### Pk - Peak detector

## 9.4. Worst Case Below 1 GHz

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

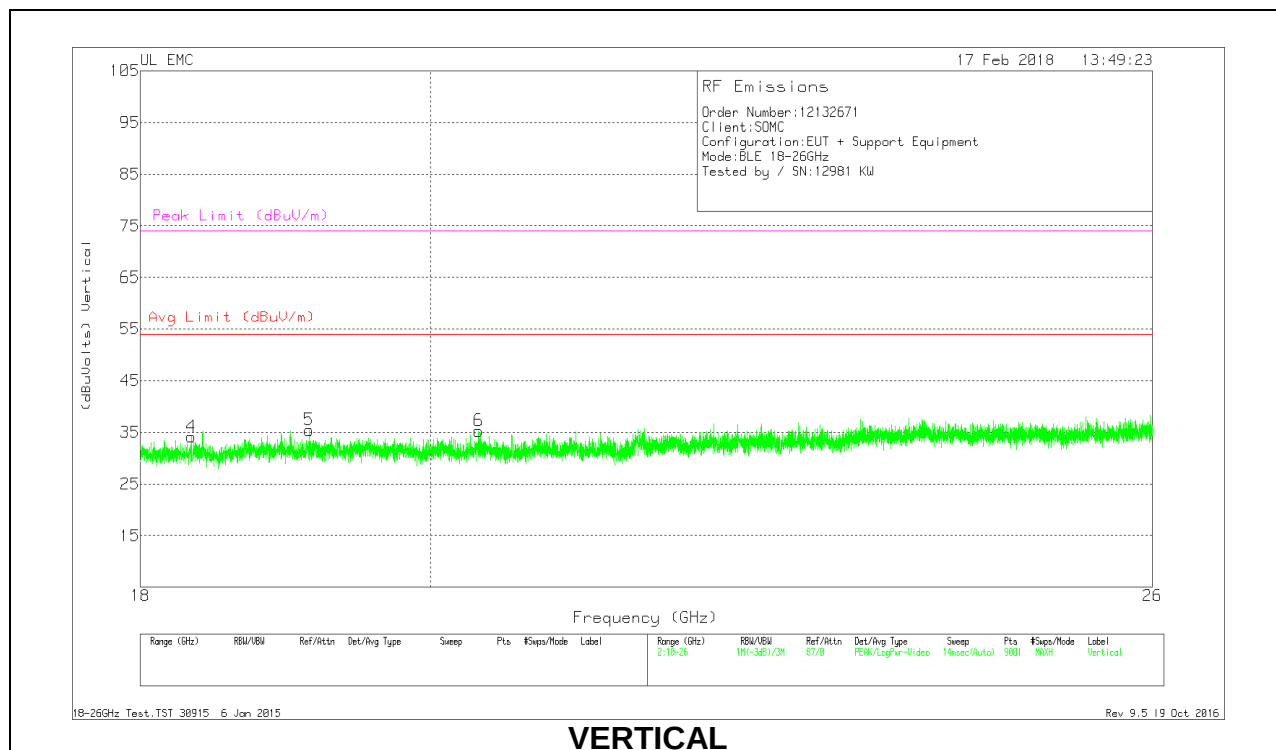
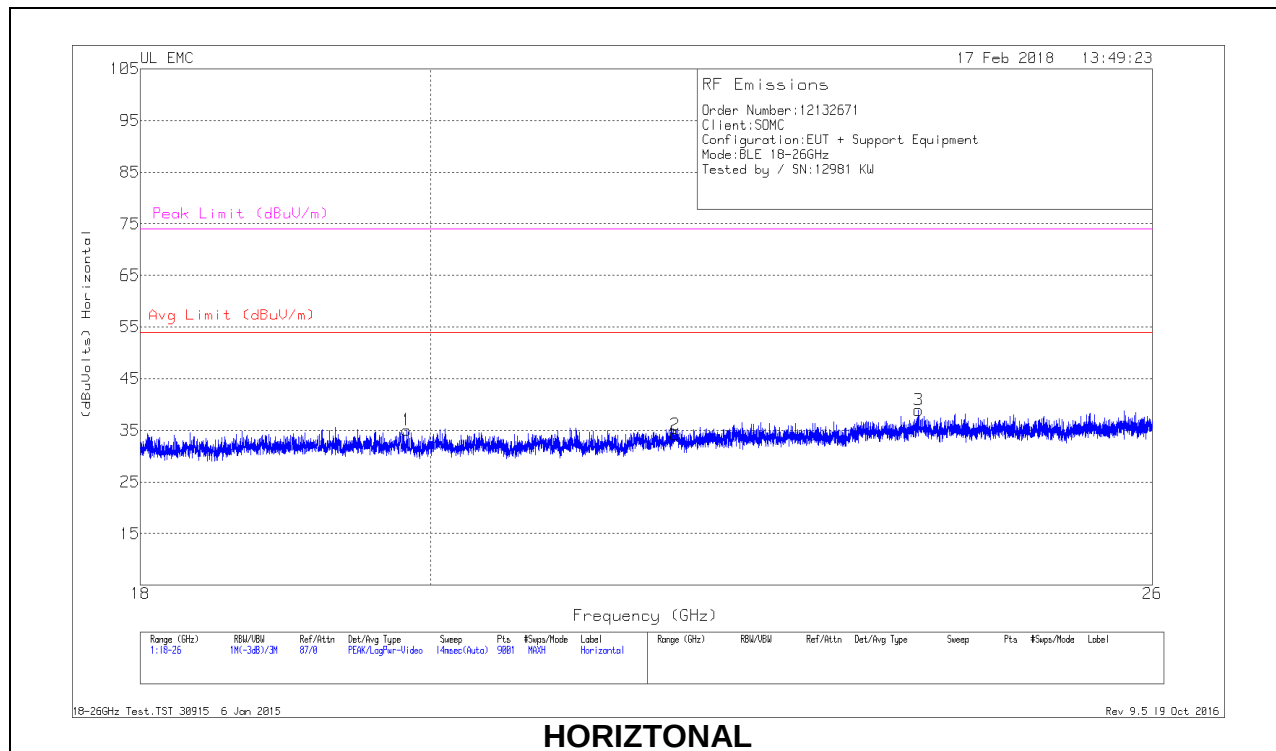


## Below 1GHz Data

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AF T243 (dB/m) | Amp/Cbl (dB/m) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|----------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 4      | 36.9293         | 48.08                | Pk  | 20.1           | -31            | 37.18                      | 40                 | -2.82       | 0-360          | 100         | V        |
| 5      | 41.4355         | 48.86                | Pk  | 16.9           | -30.9          | 34.86                      | 40                 | -5.14       | 0-360          | 100         | V        |
| 1      | 44.4112         | 40.47                | Pk  | 14.8           | -30.9          | 24.37                      | 40                 | -15.63      | 0-360          | 400         | H        |
| 6      | 100.2707        | 43.02                | Pk  | 14.4           | -30.3          | 27.12                      | 43.52              | -16.4       | 0-360          | 100         | V        |
| 2      | 104.8194        | 39.22                | Pk  | 15.7           | -30.2          | 24.72                      | 43.52              | -18.8       | 0-360          | 200         | H        |
| 3      | 150.7312        | 39.86                | Pk  | 16.5           | -29.8          | 26.56                      | 43.52              | -16.96      | 0-360          | 200         | H        |

## 9.5. Worst Case 18-26 GHz

### SPURIOUS EMISSIONS 18-26 GHz (WORST-CASE CONFIGURATION)



## 18 – 26GHz DATA

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | T449 AF (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      | 19.828          | 36.78                | Pk  | 32.7           | -25          | -9.5           | 34.98                        | 54                 | -19.02      | 74                  | -39.02         |
| 2      | 21.859          | 34.89                | Pk  | 33.3           | -24.6        | -9.5           | 34.09                        | 54                 | -19.91      | 74                  | -39.91         |
| 3      | 23.88           | 38.6                 | Pk  | 33.9           | -24.1        | -9.5           | 38.9                         | 54                 | -15.1       | 74                  | -35.1          |
| 4      | 18.337          | 36.63                | Pk  | 32.2           | -25.2        | -9.5           | 34.13                        | 54                 | -19.87      | 74                  | -39.87         |
| 5      | 19.139          | 37.02                | Pk  | 32.6           | -24.7        | -9.5           | 35.42                        | 54                 | -18.58      | 74                  | -38.58         |
| 6      | 20.353          | 37.26                | Pk  | 32.9           | -25.4        | -9.5           | 35.26                        | 54                 | -18.74      | 74                  | -38.74         |

## 10. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

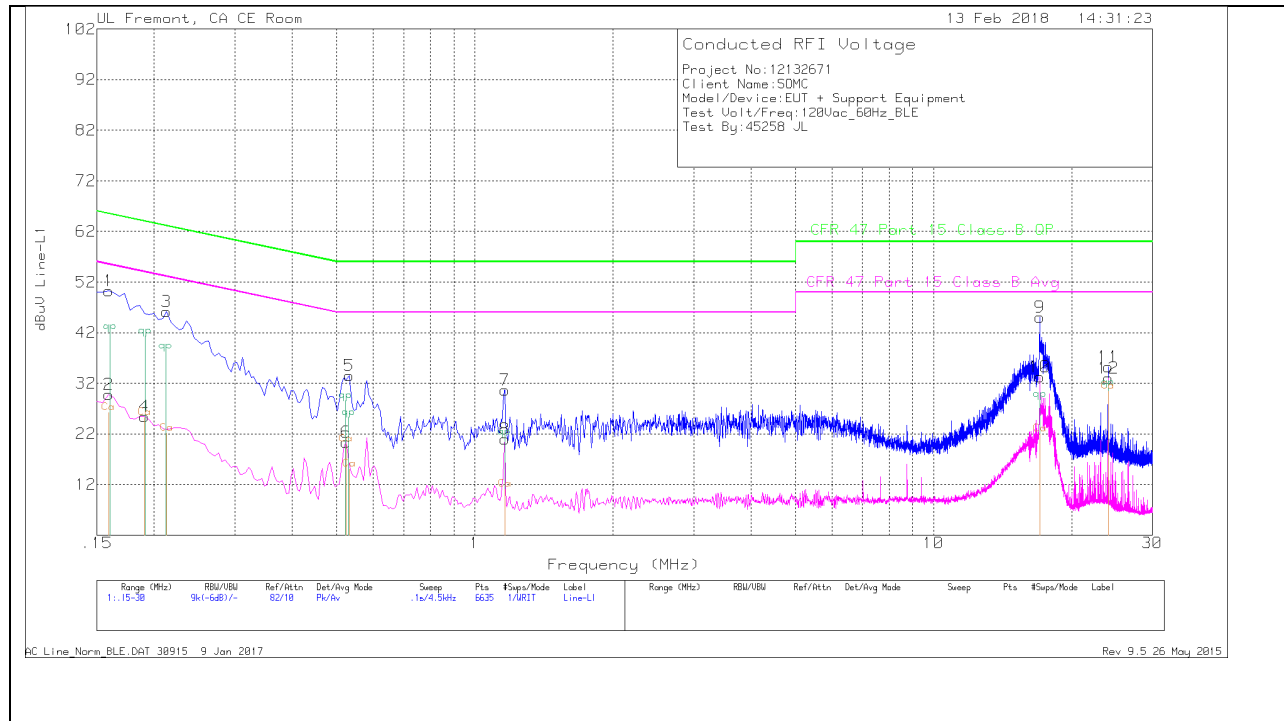
| Frequency of Emission (MHz) | Conducted Limit (dBuV) |                       |
|-----------------------------|------------------------|-----------------------|
|                             | Quasi-peak             | Average               |
| 0.15-0.5                    | 66 to 56 <sup>*</sup>  | 56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

<sup>\*</sup> Decreases with the logarithm of the frequency.

### RESULTS

## 10.1.1. AC Power Line Norm

### LINE 1 RESULTS



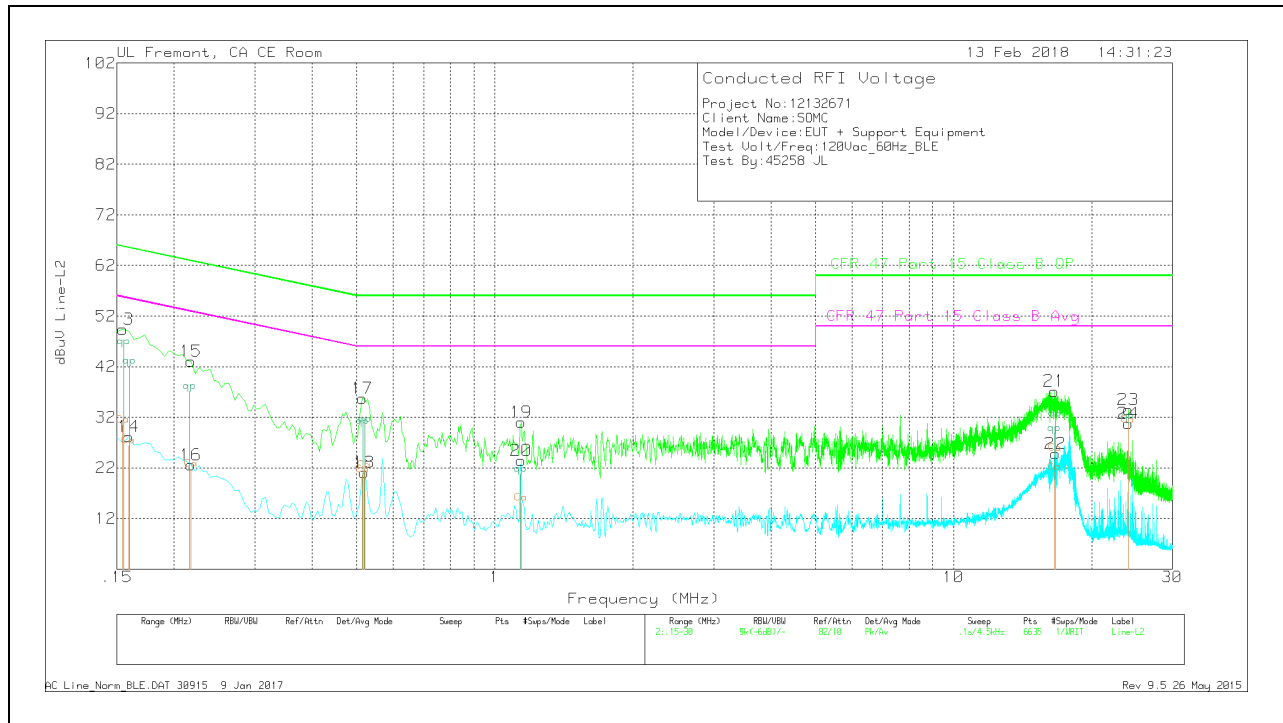
Range 1: Line-L1 .15 - 30MHz

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN L1 | LC Cables C1&C3 | Limiter (dB) | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | Margin (dB) | CFR 47 Part 15 Class B Avg | Margin (dB) |
|--------|-----------------|----------------------|-----|---------|-----------------|--------------|------------------------|---------------------------|-------------|----------------------------|-------------|
| 1      | .159            | 40.11                | Pk  | .1      | 0               | 10.1         | 50.31                  | 65.52                     | -15.21      | -                          | -           |
| 2      | .159            | 19.52                | Av  | .1      | 0               | 10.1         | 29.72                  | -                         | -           | 55.52                      | -25.8       |
| 3      | .213            | 36.08                | Pk  | 0       | 0               | 10.1         | 46.18                  | 63.09                     | -16.91      | -                          | -           |
| 4      | .1905           | 15.29                | Av  | 0       | 0               | 10.1         | 25.39                  | -                         | -           | 54.01                      | -28.62      |
| 5      | .5325           | 23.39                | Pk  | 0       | 0               | 10.1         | 33.49                  | 56                        | -22.51      | -                          | -           |
| 6      | .5235           | 10.19                | Av  | 0       | 0               | 10.1         | 20.29                  | -                         | -           | 46                         | -25.71      |
| 7      | 1.1625          | 20.43                | Pk  | 0       | .1              | 10.1         | 30.63                  | 56                        | -25.37      | -                          | -           |
| 8      | 1.1625          | 10.73                | Av  | 0       | .1              | 10.1         | 20.93                  | -                         | -           | 46                         | -25.07      |
| 9      | 17.061          | 34.45                | Pk  | 0       | .3              | 10.3         | 45.05                  | 60                        | -14.95      | -                          | -           |
| 10     | 17.061          | 22.66                | Av  | 0       | .3              | 10.3         | 33.26                  | -                         | -           | 50                         | -16.74      |
| 11     | 24.018          | 24.29                | Pk  | .1      | .3              | 10.5         | 35.19                  | 60                        | -24.81      | -                          | -           |
| 12     | 24.018          | 22.07                | Av  | .1      | .3              | 10.5         | 32.97                  | -                         | -           | 50                         | -17.03      |

Pk - Peak detector

Av - Average detection

## LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | LISN L2 | LC Cables C2&C3 | Limiter (dB) | Corrected Reading dBuV | CFR 47 Part 15 Class B QP | Margin (dB) | CFR 47 Part 15 Class B Avg | Margin (dB) |
|--------|-----------------|----------------------|-----|---------|-----------------|--------------|------------------------|---------------------------|-------------|----------------------------|-------------|
| 13     | .1545           | 39.34                | Pk  | 0       | 0               | 10.1         | 49.44                  | 65.75                     | -16.31      | -                          | -           |
| 14     | .159            | 18.02                | Av  | 0       | 0               | 10.1         | 28.12                  | -                         | -           | 55.52                      | -27.4       |
| 15     | .2175           | 32.99                | Pk  | 0       | 0               | 10.1         | 43.09                  | 62.91                     | -19.82      | -                          | -           |
| 16     | .2175           | 12.5                 | Av  | 0       | 0               | 10.1         | 22.6                   | -                         | -           | 52.91                      | -30.31      |
| 17     | .5145           | 25.68                | Pk  | 0       | 0               | 10.1         | 35.78                  | 56                        | -20.22      | -                          | -           |
| 18     | .519            | 11.02                | Av  | 0       | 0               | 10.1         | 21.12                  | -                         | -           | 46                         | -24.88      |
| 19     | 1.14            | 20.79                | Pk  | 0       | .1              | 10.1         | 30.99                  | 56                        | -25.01      | -                          | -           |
| 20     | 1.14            | 13.27                | Av  | 0       | .1              | 10.1         | 23.47                  | -                         | -           | 46                         | -22.53      |
| 21     | 16.602          | 26.56                | Pk  | 0       | .3              | 10.3         | 37.16                  | 60                        | -22.84      | -                          | -           |
| 22     | 16.6605         | 14.19                | Av  | 0       | .3              | 10.3         | 24.79                  | -                         | -           | 50                         | -25.21      |
| 23     | 24.018          | 22.59                | Pk  | .1      | .3              | 10.5         | 33.49                  | 60                        | -26.51      | -                          | -           |
| 24     | 24.018          | 19.84                | Av  | .1      | .3              | 10.5         | 30.74                  | -                         | -           | 50                         | -19.26      |

Pk - Peak detector

Av - Average detection