



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

**CERTIFICATION TEST REPORT**

**FOR**

**WIRELESS HEADSET**

**MODEL NUMBER: BA2**

**FCC ID: A94BA2B  
IC: 3232A-BA2**

**REPORT NUMBER: 15M20579-E1V3**

**ISSUE DATE: March 2, 2016**

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**NVLAP LAB CODE 200065-0**

Revision History

| <u>Rev.</u> | <u>Issue Date</u> | <u>Revisions</u>                        | <u>Revised By</u> |
|-------------|-------------------|---|-------------------|
| --          | 5/18/15           | Initial Issue                           | F. de Anda        |
| A           | 6/15/15           | Update – RSS 247 standard references    | F. de Anda        |
| B           | 6/19/15           | Update – Tested date                    | F. de Anda        |
| V2          | 3/1/16            | Update FCC ID due to new classification | F. de Anda        |
| V3          | 3/2/16            | Added below 30Mhz data                  | F. de Anda        |

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** BOSE CORPORATION  
THE MOUNTAIN  
FRAMINGHAM, MA 01701 U.S.A

**EUT DESCRIPTION:** WIRELESS HEADSET

**MODEL:** BA2

**SERIAL NUMBER:** DP2.5-B024 (RADIATED) & DP2-NCF-B020 (CONDUCTED)

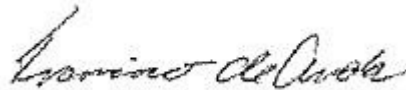
**DATE TESTED:** APRIL 30, 2015 – January 14, 2015

| 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:



FRANCISCO DE ANDA  
EMC SUPERVISOR  
UL Verification Services Inc.

Tested By:



JOSEPH GOMEZ  
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, RSS-GEN Issue 4, and RSS-247 Issue 1, and ANSI C63.10-2009 for FCC test and ANSI C63.10-2013 with deviation of measurement height of 0.8m rather than 1.5m for IC test.

## 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, 0.15 to 30 MHz | $\pm 3.52$ dB |
| Radiated Disturbance, 30 to 1000 MHz  | $\pm 4.94$ dB |
| Radiated Disturbance, 1 to 6 GHz      | $\pm 3.86$ dB |
| Radiated Disturbance, 6 to 18 GHz     | $\pm 4.23$ dB |
| Radiated Disturbance, 18 to 26 GHz    | $\pm 5.30$ dB |
| Radiated Disturbance, 26 to 40 GHz    | $\pm 5.23$ dB |

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

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is a wireless headset. Supporting GFSK mode Only.

### 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           | Basic GFSK | 9.066              | 8.06              |

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

| Frequency Range (MHz) | Mode        | Output Power (dBm) | Output Power (mW) |
|-----------------------|-------------|--------------------|-------------------|
| 2402 - 2480           | Basic- GFSK | 7.470              | 5.58              |

Note: average figures are used for RF exposure exemption calculations.

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an IFA antenna, with a maximum gain of 2.3 dBi.

### 5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was DP2

The EUT driver software installed in the support equipment during testing was 0.4.5.348

The test utility software used during testing was BlueTest3.



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

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Power line conducted emissions were performed with the EUT charging from a AC/DC adapter and from a laptop. it was determined that worst case emissions were with EUT connected to laptop.

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

Worst-case data rates were:  
GFSK mode: DH5

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

| Support Equipment List |              |             |               |        |
|------------------------|--------------|-------------|---------------|--------|
| Description            | Manufacturer | Model       | Serial Number | FCC ID |
| Laptop                 | Lenovo       | T440        | PC-00TFVU     | N/A    |
| AC Adapter             | Lenovo       | ADLX65NDC2A | 36200282      | N/A    |

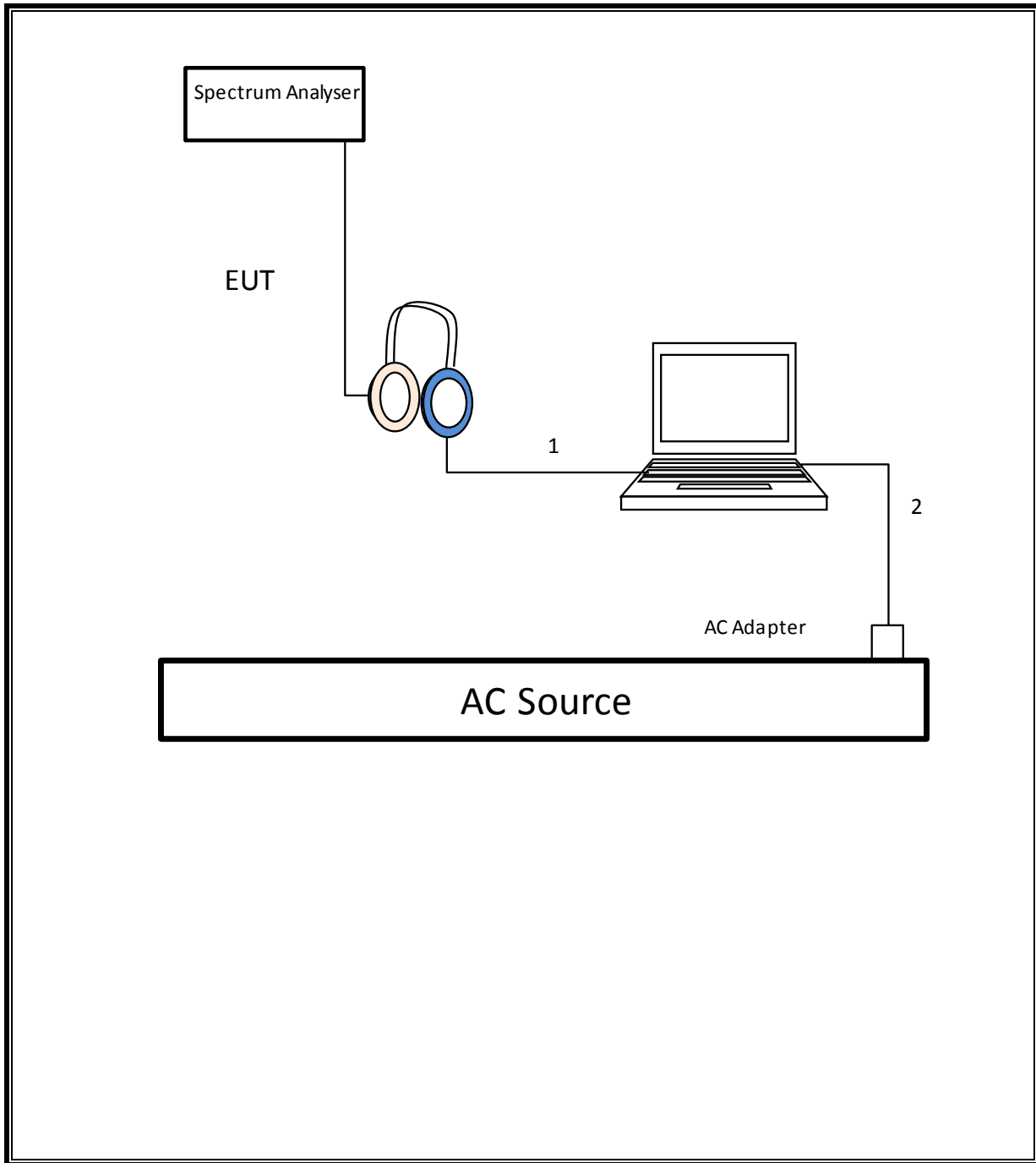
### I/O CABLES

| I/O Cable List |      |                      |                |            |                  |         |
|----------------|------|----------------------|----------------|------------|------------------|---------|
| Cable No       | Port | # of identical ports | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1              | USB  | 1                    | Micro USB      | Unshielded | 0.25             |         |
| 2              | DC   | 1                    | Barrel         | Unshielded | 2                |         |

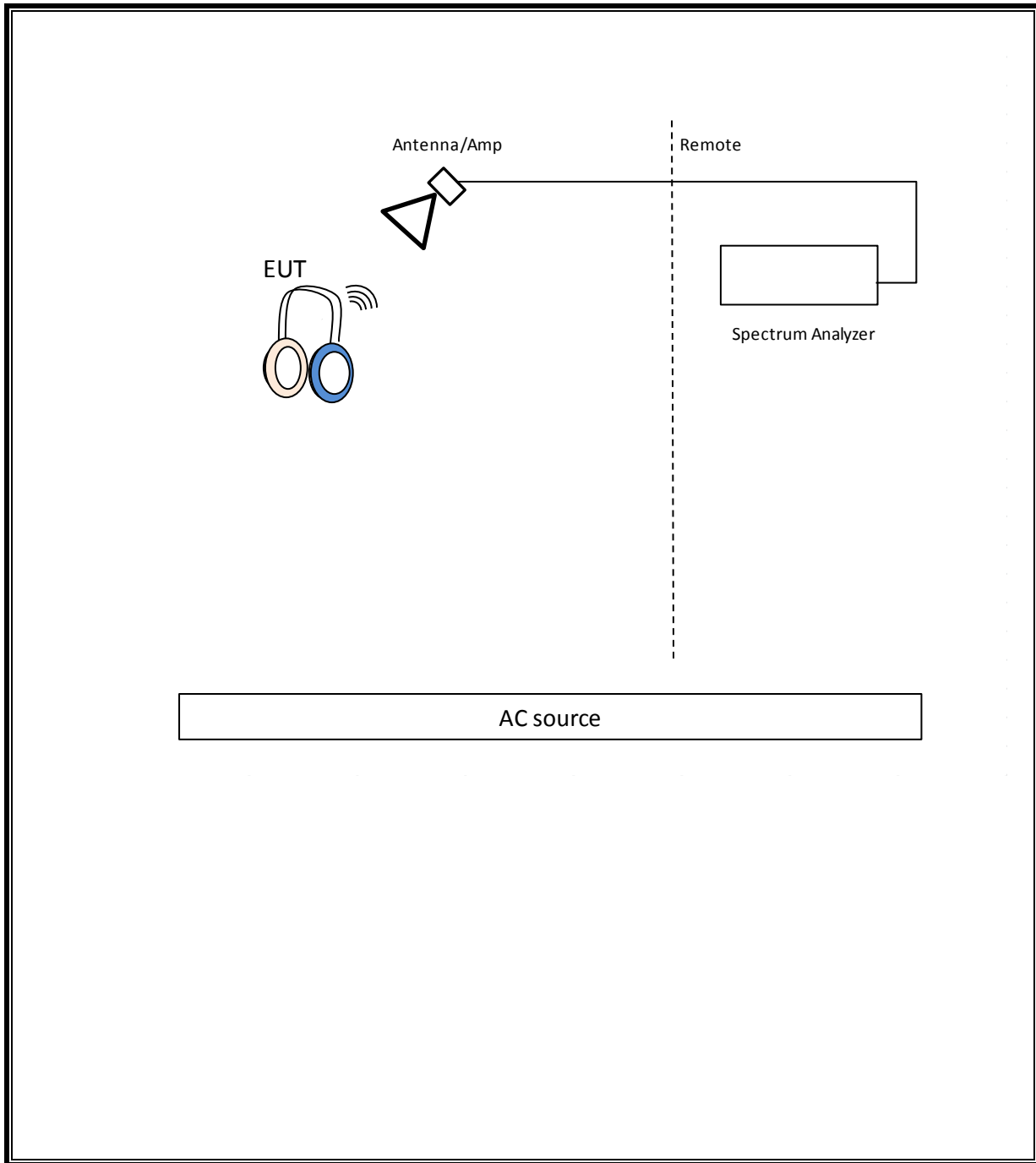
### TEST SETUP

The EUT connects to a support laptop via USB cable, test software exercises the radio.

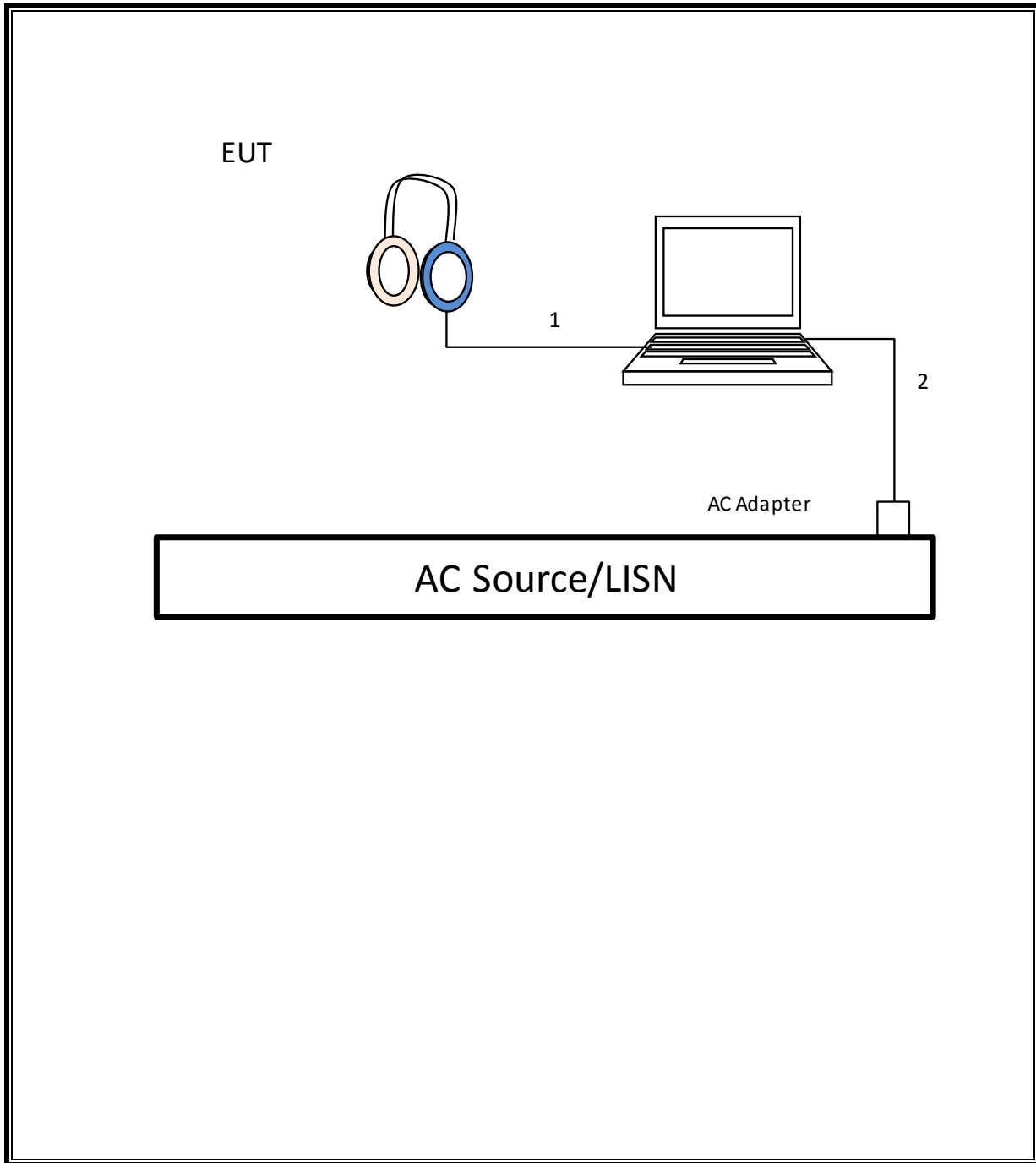
**SETUP DIAGRAM FOR CONDUCTED TESTS**



**SETUP DIAGRAM FOR RADIATED TESTS**



**SETUP DIAGRAM FOR AC POWER LINE TESTS**



## 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 No.                   | Cal Date | Cal Due  |
| Radiated Software                            | UL             | UL EMC      | Ver 9.5, July 22, 2014  |          |          |
| Conducted Software                           | UL             | UL EMC      | Ver 2.2, March 31, 2015 |          |          |
| Spectrum Analyzer, PXA, 3Hz to 44GHz         | Agilent        | N9030A      | 341                     | 02/20/15 | 02/20/16 |
| Antenna, Horn 1-18GHz                        | ETS Lindgren   | 3117        | 120                     | 03/26/15 | 03/26/16 |
| Antenna, Broadband Hybrid, 30MHz to 2000MHz  | Sunol Sciences | JB1         | 122                     | 02/13/15 | 02/13/16 |
| Amplifier, 10KHz to 1GHz,                    | Sonoma         | 310N        | 173                     | 06/07/14 | 06/07/15 |
| Amplifier, 1 - 18GHz                         | Miteq          | AFS42-      | 742                     | 01/31/15 | 01/31/16 |
| Filter, HPF 3.0GHz                           | Micro-Tronics  | HPM17543    | 427                     | 01/31/15 | 01/31/16 |
| Antenna, Horn 18 to 26.5GHz                  | ARA            | MWH-1826    | 89                      | 12/17/14 | 12/17/15 |
| Amplifier, 1 to 26.5GHz, 23.5dB Gain minimum | Agilent        | 8449B       | 404                     | 04/13/15 | 04/13/16 |
| Spectrum Analyzer, 40 GHz                    | Agilent        | 8564E       | 106                     | 08/06/14 | 08/06/15 |
| LISN, 30MHz                                  | FCC            | 50/250-25-2 | 24                      | 01/16/15 | 01/16/16 |
| Analyzer, PXA, 3Hz to 44GHz                  | Agilent        | N9030A      | 917                     | 05/08/14 | 05/08/15 |

## 7. ANTENNA PORT TEST RESULTS

### 7.1. ON TIME AND DUTY CYCLE

#### LIMITS

None; for reporting purposes only.

#### PROCEDURE

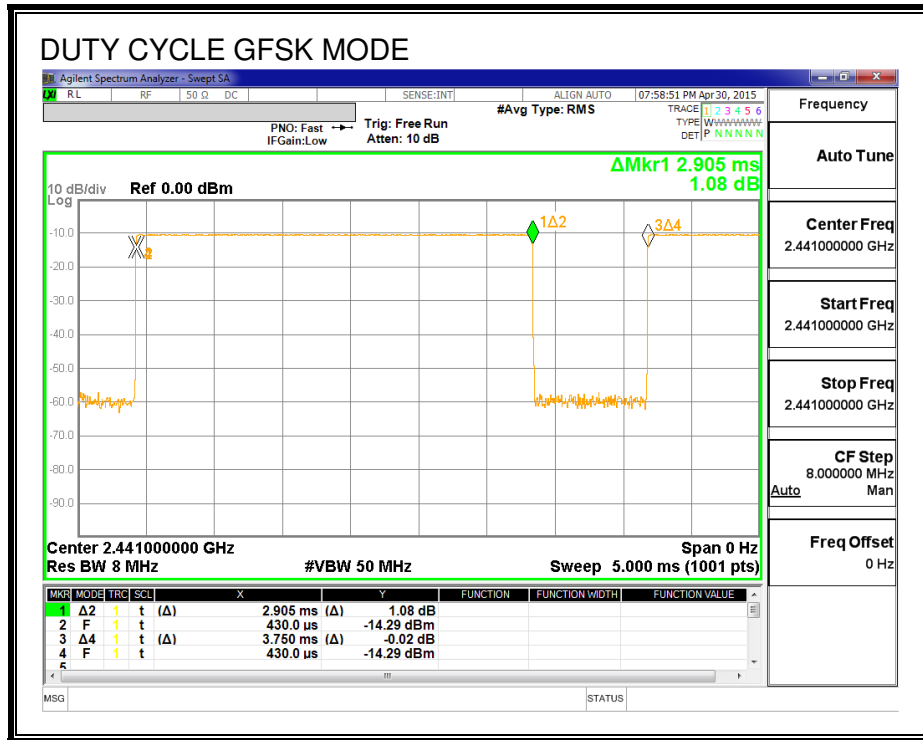
KDB 558074 Zero-Span Spectrum Analyzer Method.

#### 7.1.1. 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>2.4 GHz band (Hopping OFF)</b> |                        |                  |                             |                      |   |                             |
| GFSK                              | 2.905                  | 3.750            | 0.775                       | 77.47%               | 1.11                                    | 0.344                       |

### 7.1.2. DUTY CYCLE PLOTS

#### HOPPING OFF





## 7.2. BASIC DATA RATE GFSK MODULATION

### 7.2.1. 20 dB AND 99% BANDWIDTH

#### LIMIT

None; for reporting purposes only.

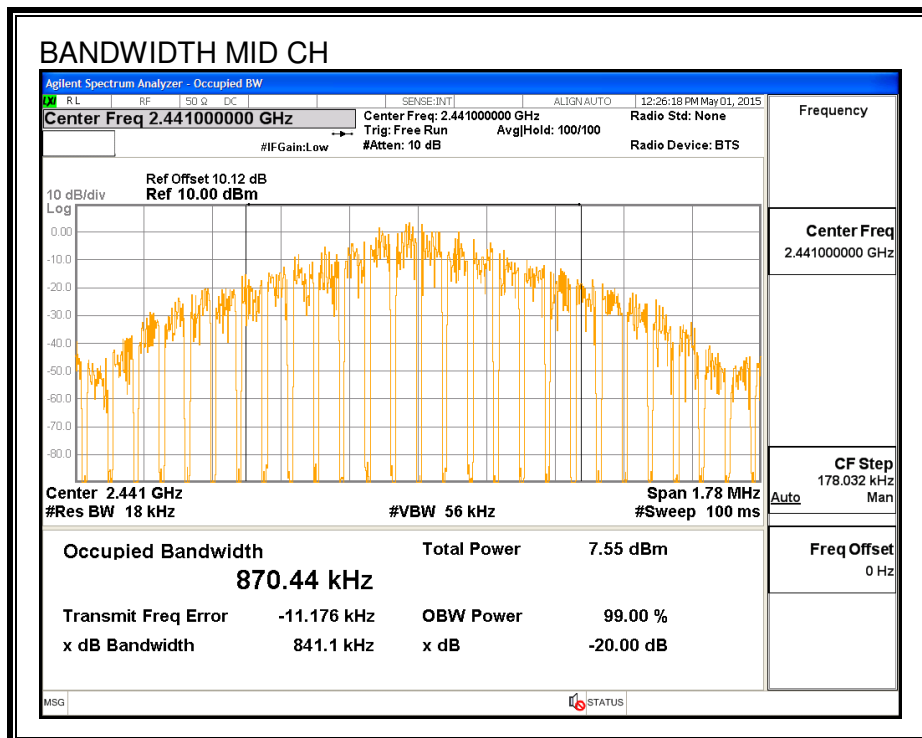
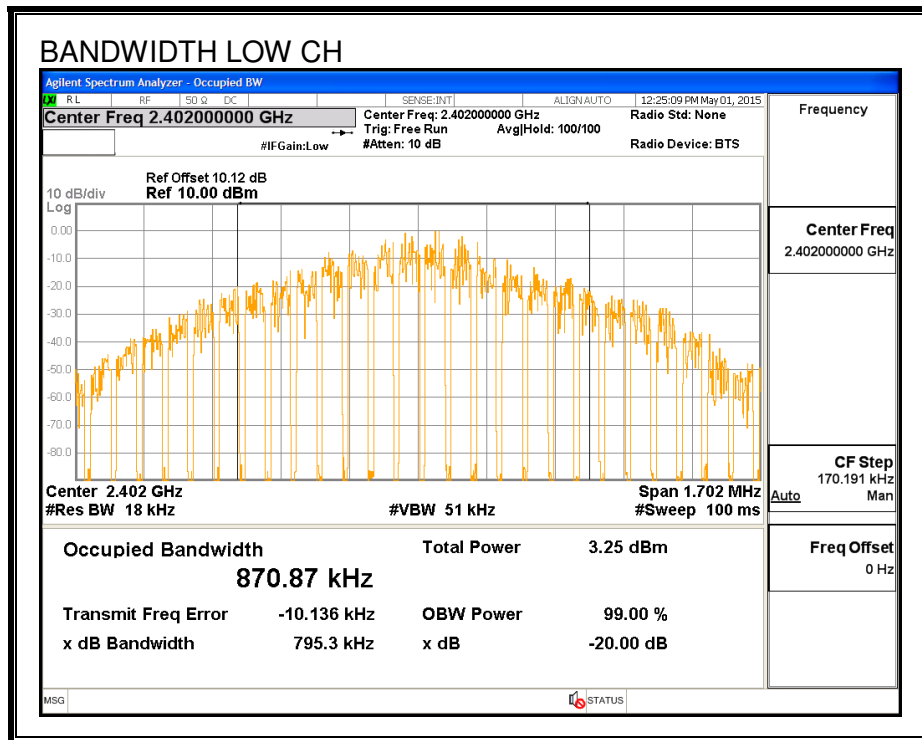
#### TEST PROCEDURE

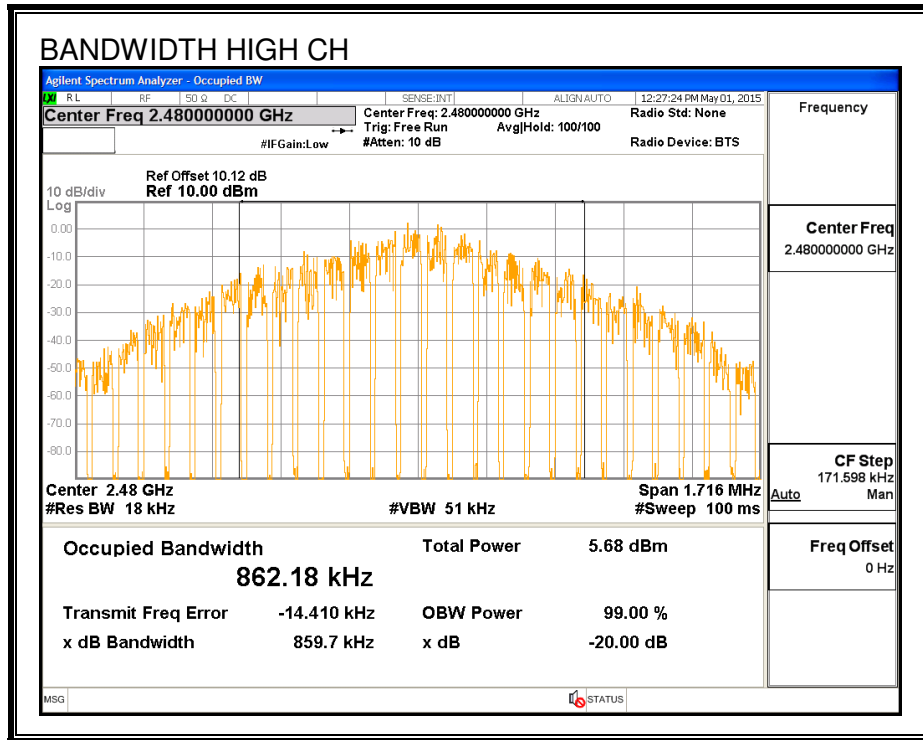
The transmitter output is connected to a spectrum analyzer. The RBW is set to  $\geq 1\%$  of the 20 dB bandwidth. The VBW is set to  $\geq$  RBW. The sweep time is coupled.

#### RESULTS

| Channel | Frequency<br>(MHz) | 20 dB Bandwidth<br>(kHz) | 99% Bandwidth<br>(kHz) |
|---------|--------------------|--------------------------|------------------------|
| Low     | 2402               | 795.3                    | 870.87                 |
| Middle  | 2441               | 841.1                    | 870.44                 |
| High    | 2480               | 859.7                    | 862.18                 |

**20 dB AND 99% BANDWIDTH**





## 7.2.2. HOPPING FREQUENCY SEPARATION

### LIMIT

FCC §15.247 (a) (1)

IC RSS-247 5.1 (2)

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

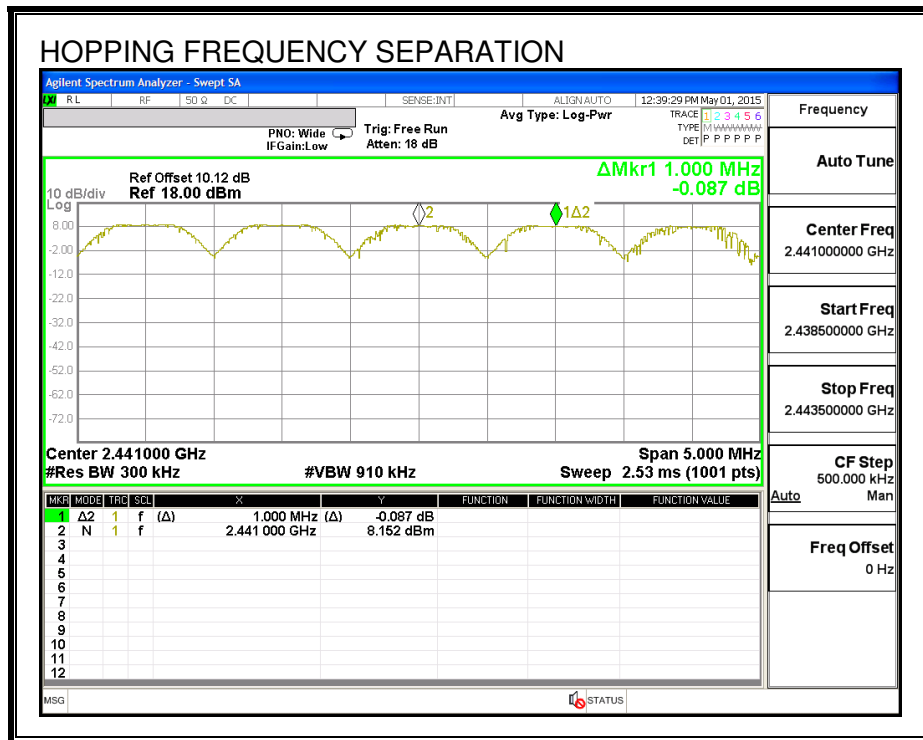
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

### TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The RBW is set to 300 kHz and the VBW is set to 900 kHz. The sweep time is coupled.

### RESULTS

**HOPPING FREQUENCY SEPARATION**



### **7.2.3. NUMBER OF HOPPING CHANNELS**

#### **LIMIT**

FCC §15.247 (a) (1) (iii)

IC RSS-247 5.1 (4)

Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

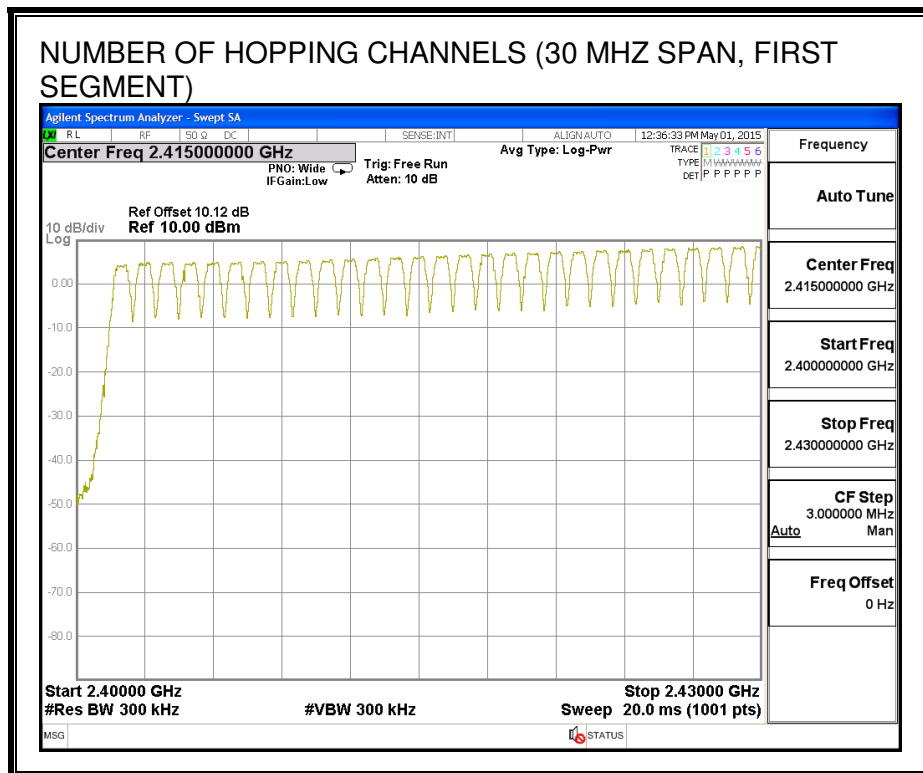
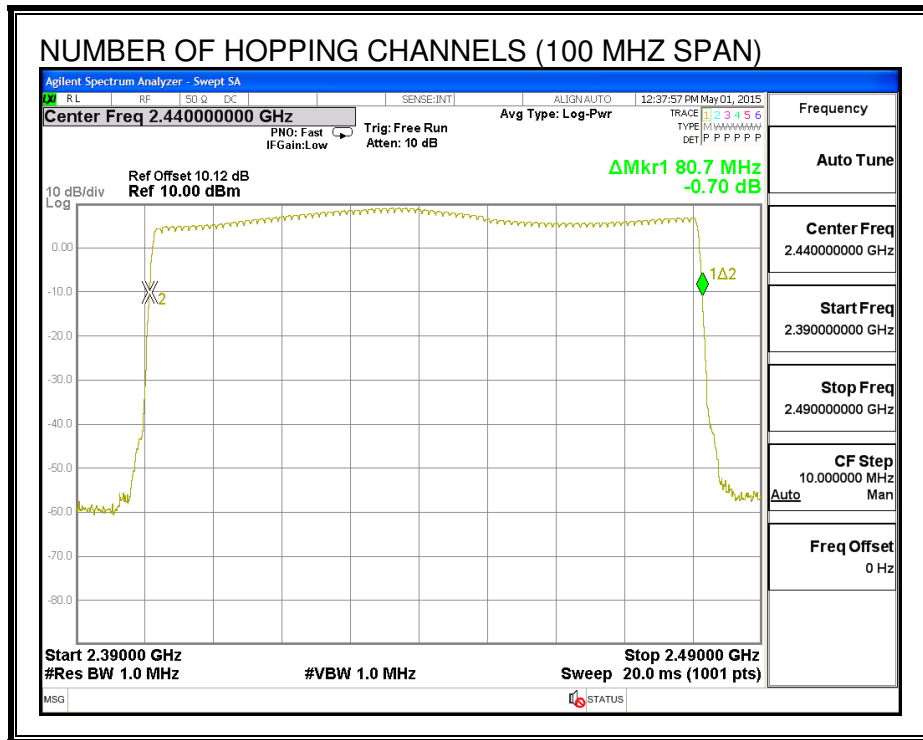
#### **TEST PROCEDURE**

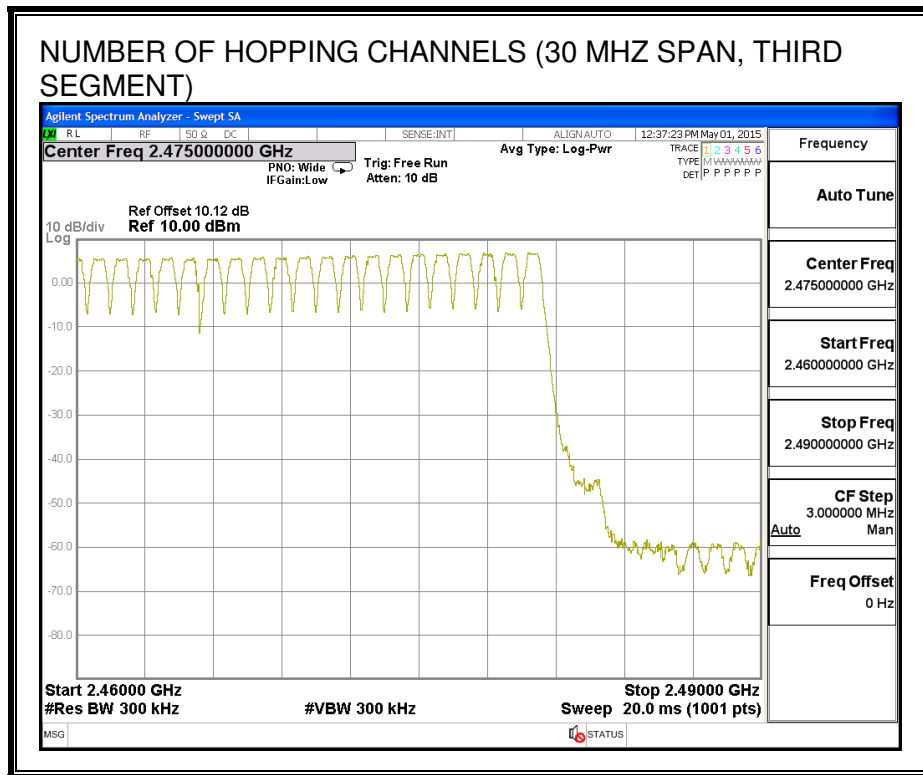
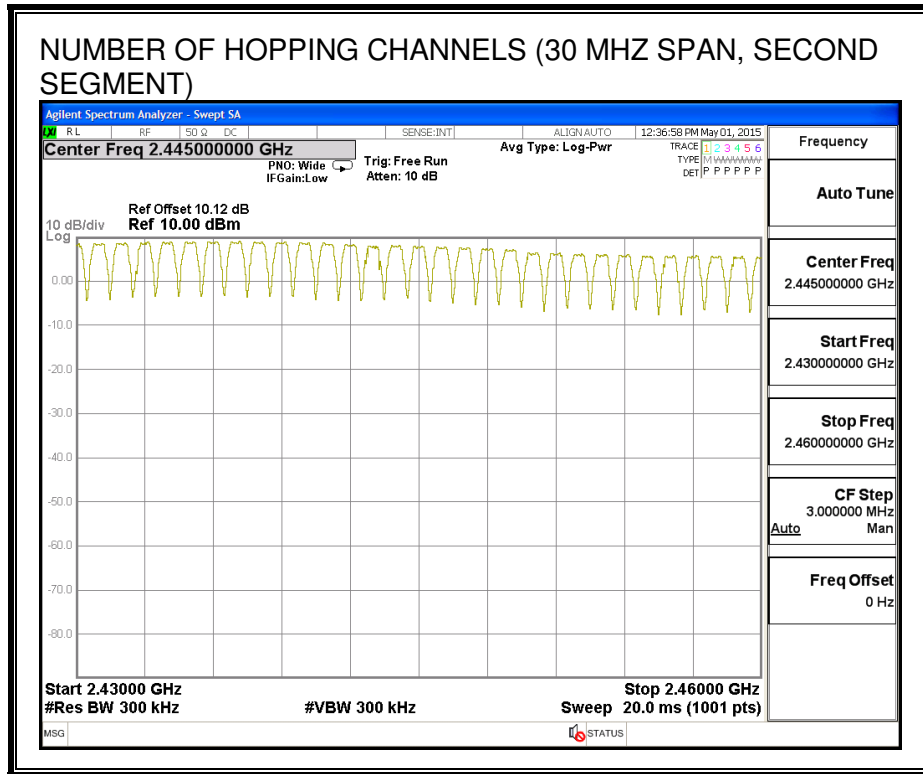
The transmitter output is connected to a spectrum analyzer. The span is set to cover the entire authorized band, in either a single sweep or in multiple contiguous sweeps. The RBW is set to a maximum of 1 % of the span. The analyzer is set to Max Hold.

#### **RESULTS**

Normal Mode: 79 Channels observed.

**NUMBER OF HOPPING CHANNELS**







## 7.2.4. AVERAGE TIME OF OCCUPANCY

### LIMIT

FCC §15.247 (a) (1) (iii)

IC RSS-247 5.1 (4)

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

### TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer. The span is set to 0 Hz, centered on a single, selected hopping channel. The width of a single pulse is measured in a fast scan. The number of pulses is measured in a 3.16 second scan, to enable resolution of each occurrence.

The average time of occupancy in the specified 31.6 second period (79 channels \* 0.4 s) is equal to  $10 * (\# \text{ of pulses in } 3.16 \text{ s}) * \text{ pulse width}$ .

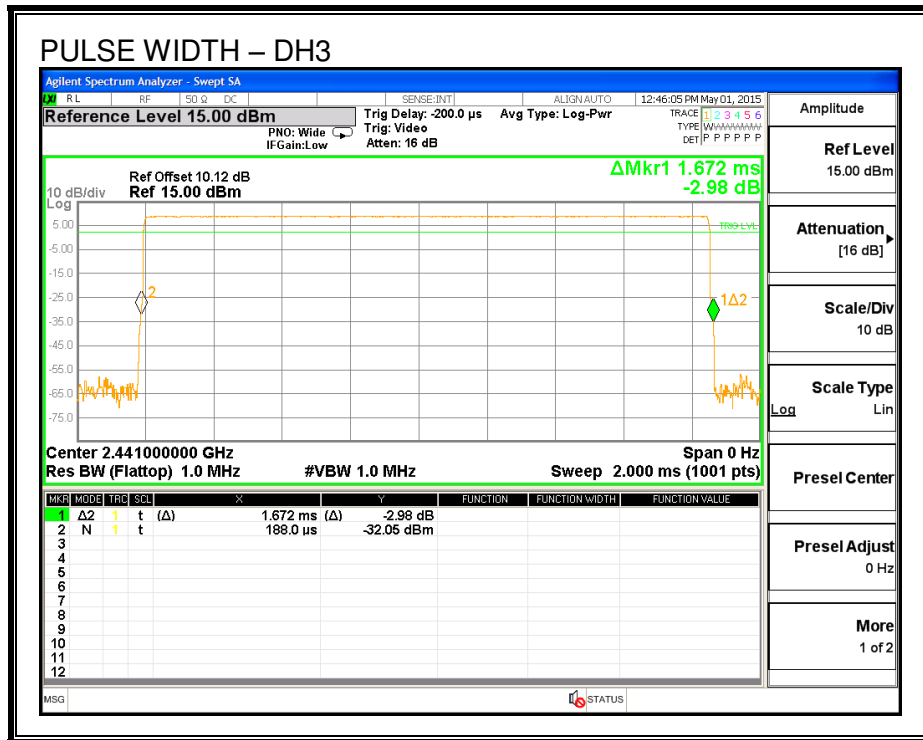
For AFH mode, the average time of occupancy in the specified 8 second period (20 channels \* 0.4 seconds) is equal to  $10 * (\# \text{ of pulses in } 0.8 \text{ s}) * \text{ pulse width}$ .

### RESULTS

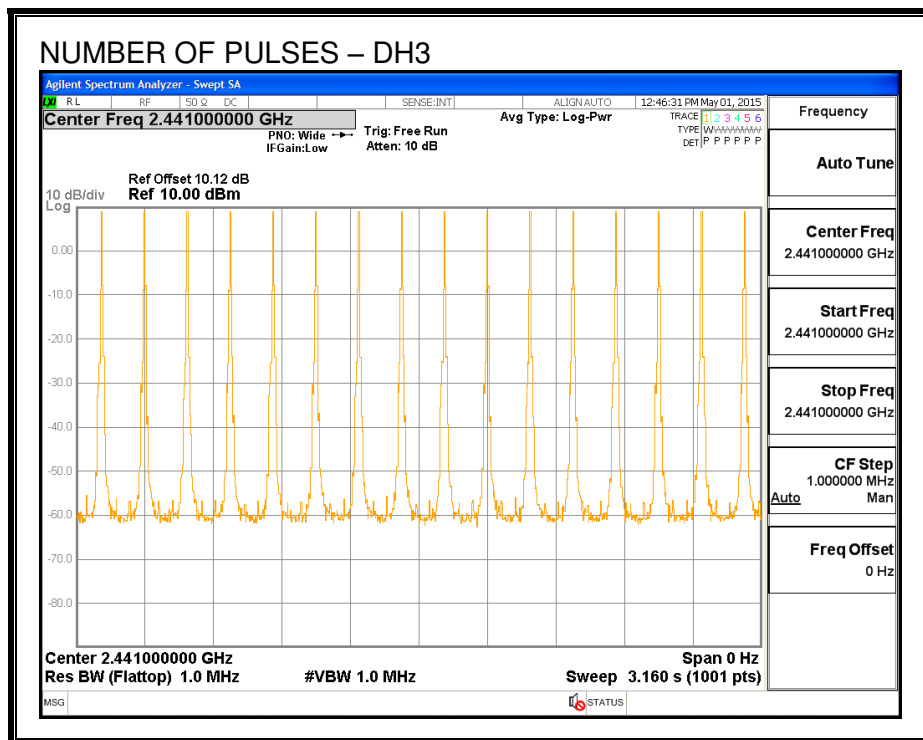
| DH Packet               | Pulse Width (msec) | Number of Pulses in 3.16 seconds | Average Time of Occupancy (sec) | Limit (sec) | Margin (sec) |
|-------------------------|--------------------|----------------------------------|---------------------------------|-------------|--------------|
| <b>GFSK Normal Mode</b> |                    |                                  |                                 |             |              |
| DH1                     | 0.411              | 32                               | 0.132                           | 0.4         | -0.268       |
| DH3                     | 1.672              | 16                               | 0.268                           | 0.4         | -0.132       |
| DH5                     | 2.92               | 10                               | 0.292                           | 0.4         | -0.108       |
| <b>GFSK AFH Mode</b>    |                    |                                  |                                 |             |              |
| DH Packet               | Pulse Width (msec) | Number of Pulses in 0.8 seconds  | Average Time of Occupancy (sec) | Limit (sec) | Margin (sec) |
| <b>GFSK AFH Mode</b>    |                    |                                  |                                 |             |              |
| DH1                     | 0.411              | 8                                | 0.033                           | 0.4         | -0.367       |
| DH3                     | 1.672              | 4                                | 0.067                           | 0.4         | -0.333       |
| DH5                     | 2.92               | 2.5                              | 0.073                           | 0.4         | -0.327       |



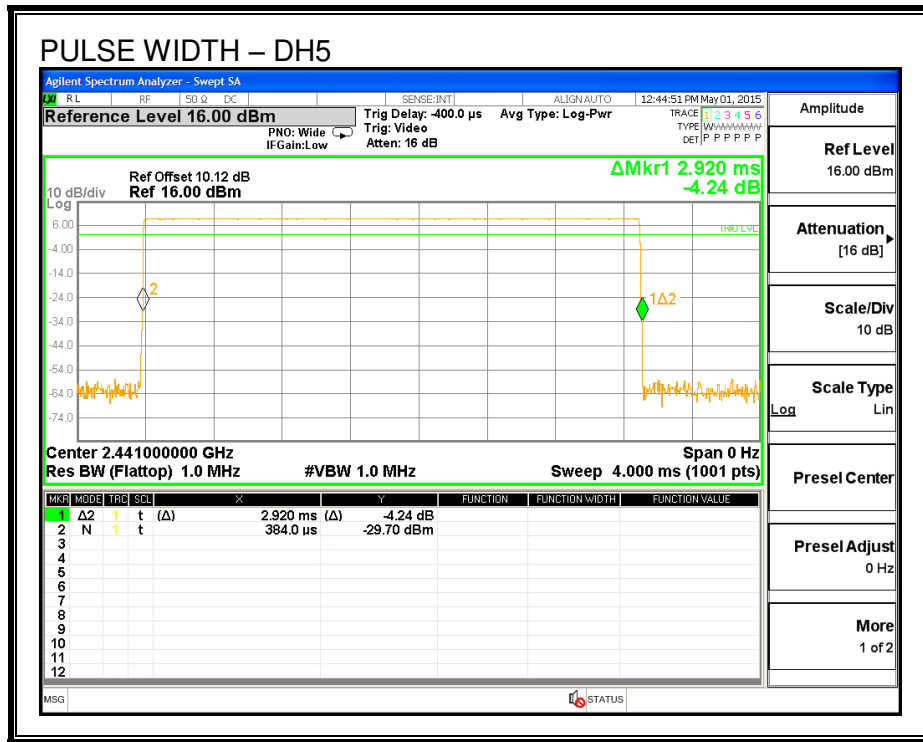
**PULSE WIDTH – DH3**



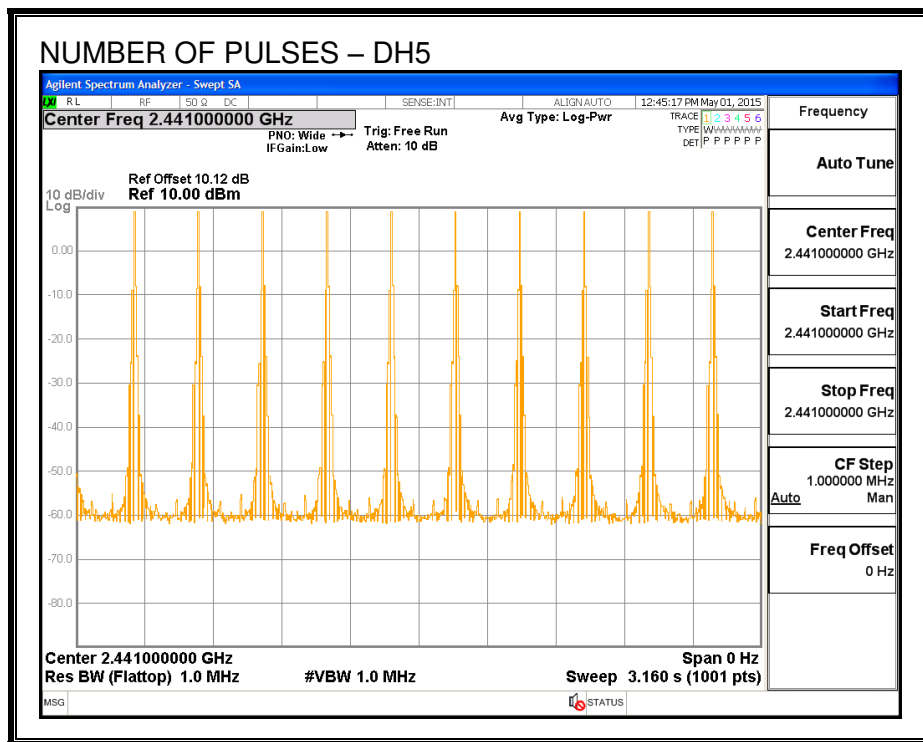
**NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH3**



**PULSE WIDTH – DH5**



**NUMBER OF PULSES IN 3.16 SECOND OBSERVATION PERIOD – DH5**



## 7.2.5. OUTPUT POWER

### LIMIT

§15.247 (b) (1)

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

RSS-247 Clause 5.4 (2)

For frequency hopping systems operating in the band 2400-2483.5 MHz and employing at least 75 hopping channels, the maximum peak conducted output power shall not exceed 1 W; for all other frequency hopping systems in the band, the maximum peak conducted output power shall not exceed 0.125 W.

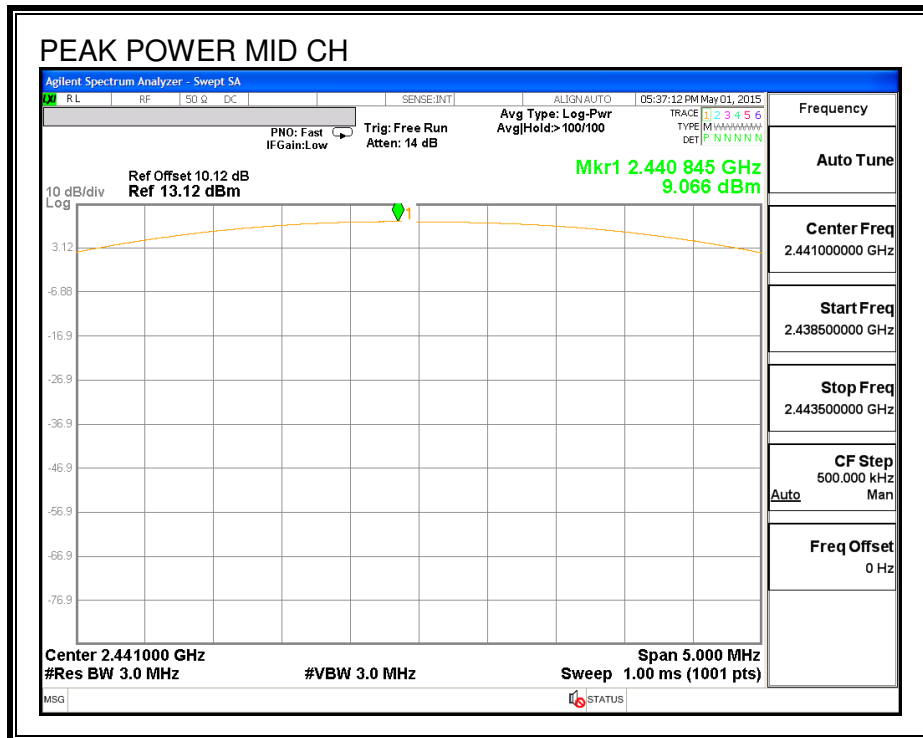
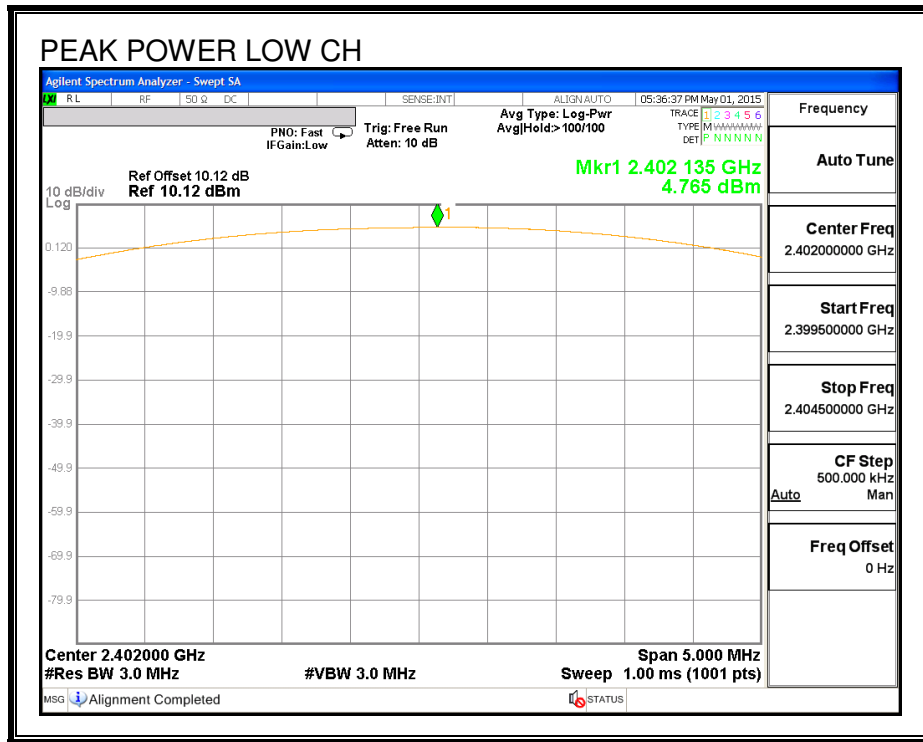
### TEST PROCEDURE

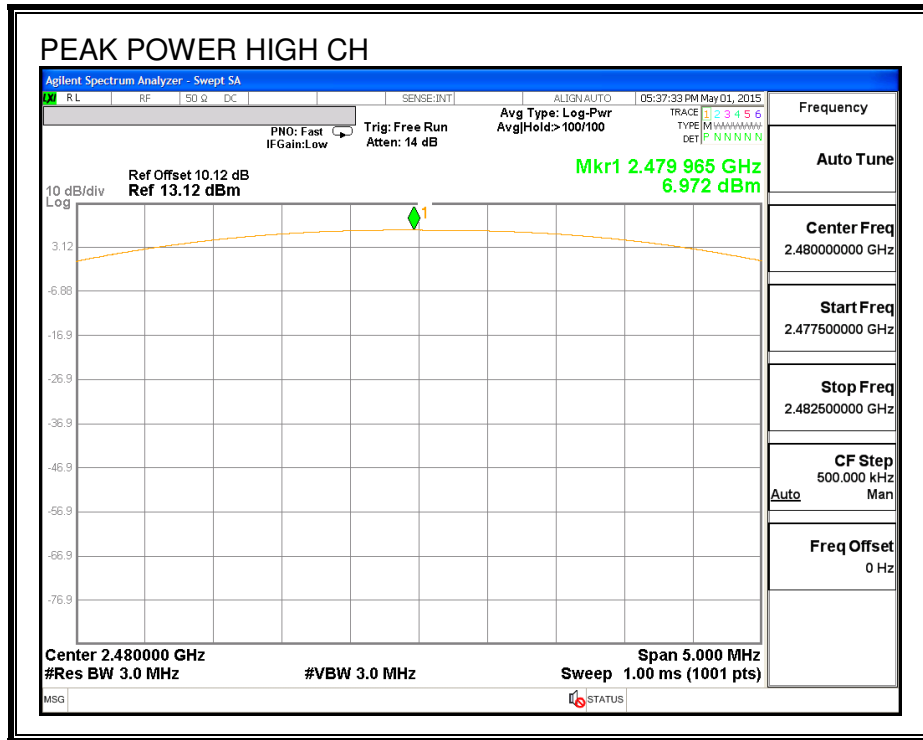
The transmitter output is connected to a spectrum analyzer the analyzer bandwidth is set to a value greater than the 20 dB bandwidth of the EUT.

### RESULTS

| Channel | Frequency (MHz) | Output Power (dBm) | Directional Gain (dBi) | Limit (dBm) | Margin (dB) |
|---------|-----------------|--------------------|------------------------|-------------|-------------|
| Low     | 2402            | 4.765              | 2.30                   | 21          | -16.24      |
| Middle  | 2441            | 9.066              | 2.30                   | 21          | -11.93      |
| High    | 2480            | 6.972              | 2.30                   | 21          | -14.03      |

**OUTPUT POWER**





## 7.2.6. AVERAGE POWER

### LIMIT

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

The cable assembly insertion loss of 10.12 dB (including 10 dB pad and 0.12 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

| Channel | Frequency (MHz) | Average Power (dBm) |
|---------|-----------------|---------------------|
| Low     | 2402            | 3.20                |
| Middle  | 2441            | 7.47                |
| High    | 2480            | 5.63                |



## 7.2.7. CONDUCTED SPURIOUS EMISSIONS

### LIMITS

#### FCC §15.247 (d)

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. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

#### IC RSS-247 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section A8.4 (4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

### TEST PROCEDURE

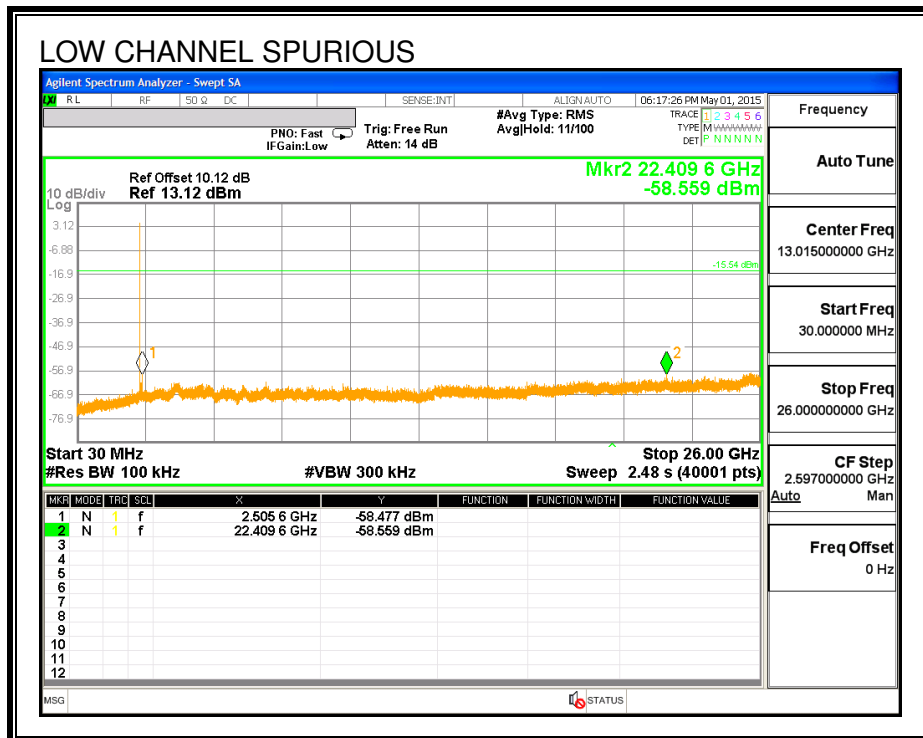
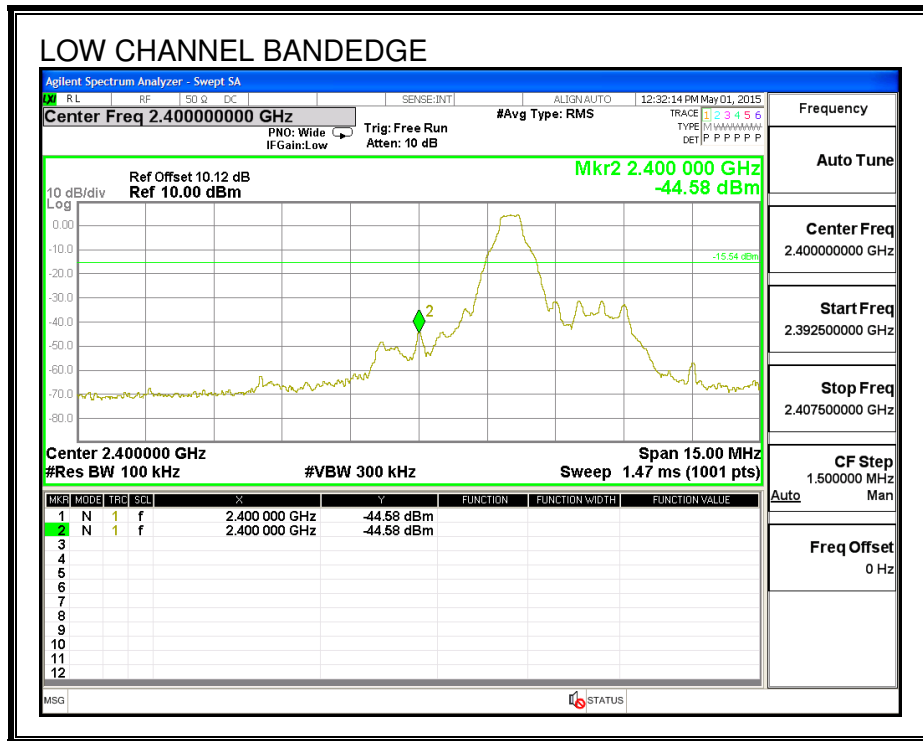
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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

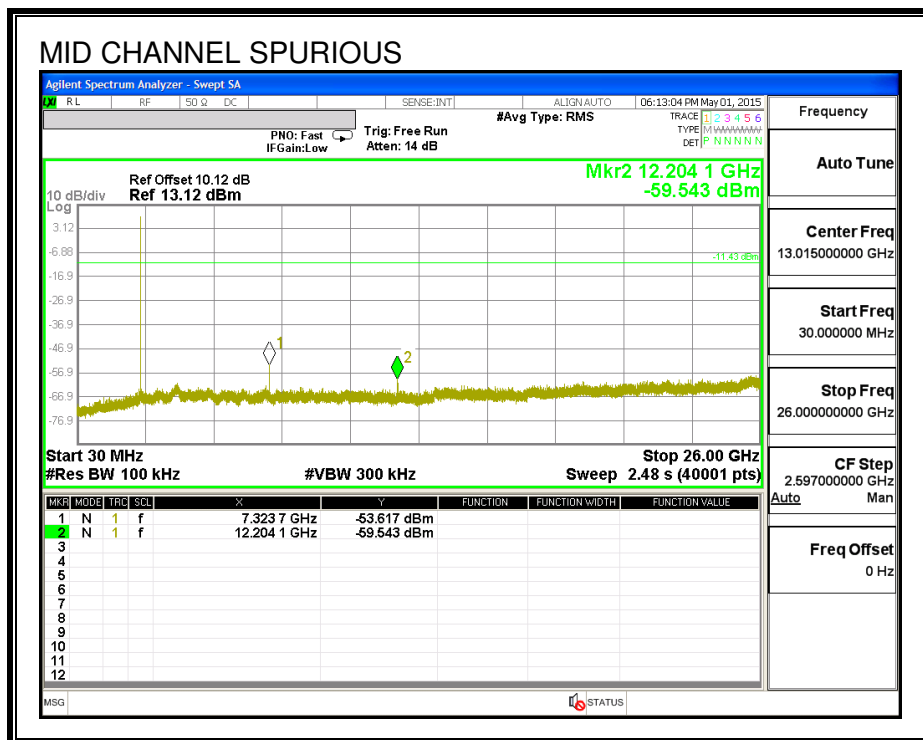
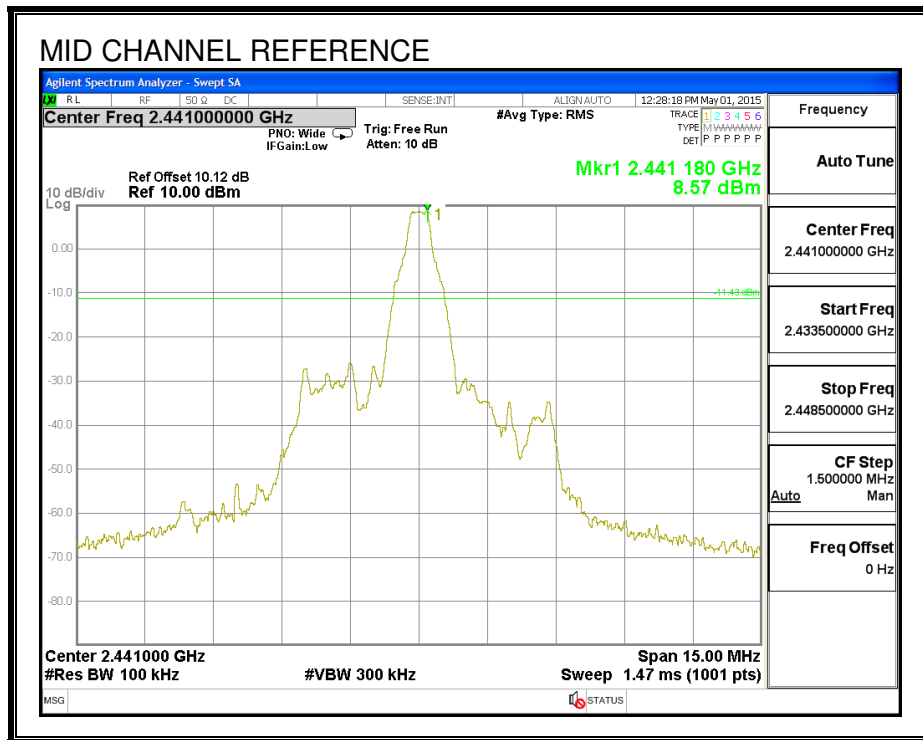
The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

**RESULTS**

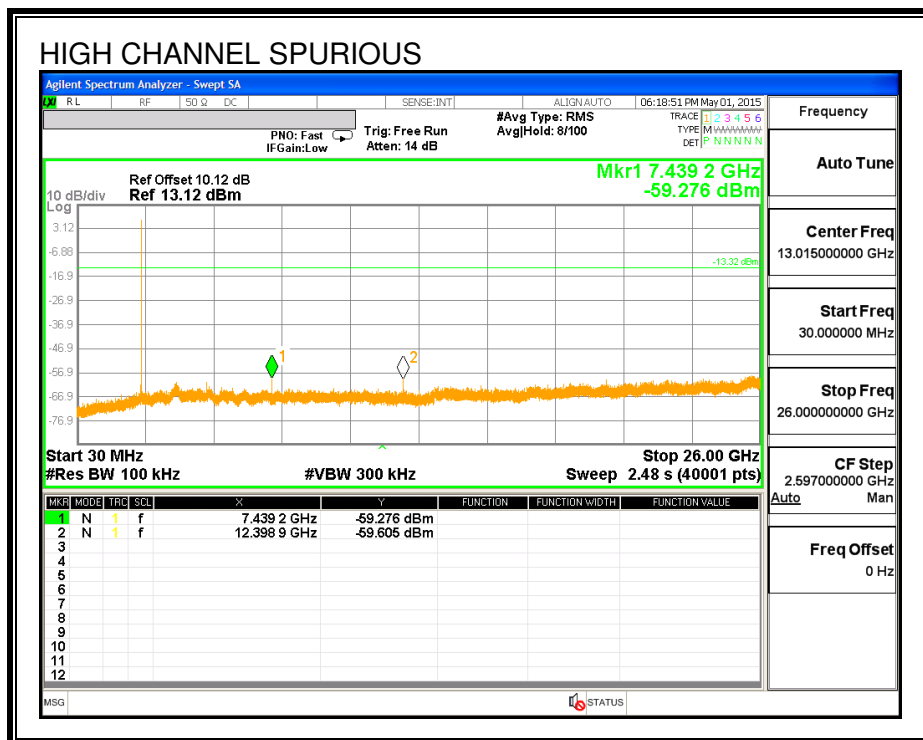
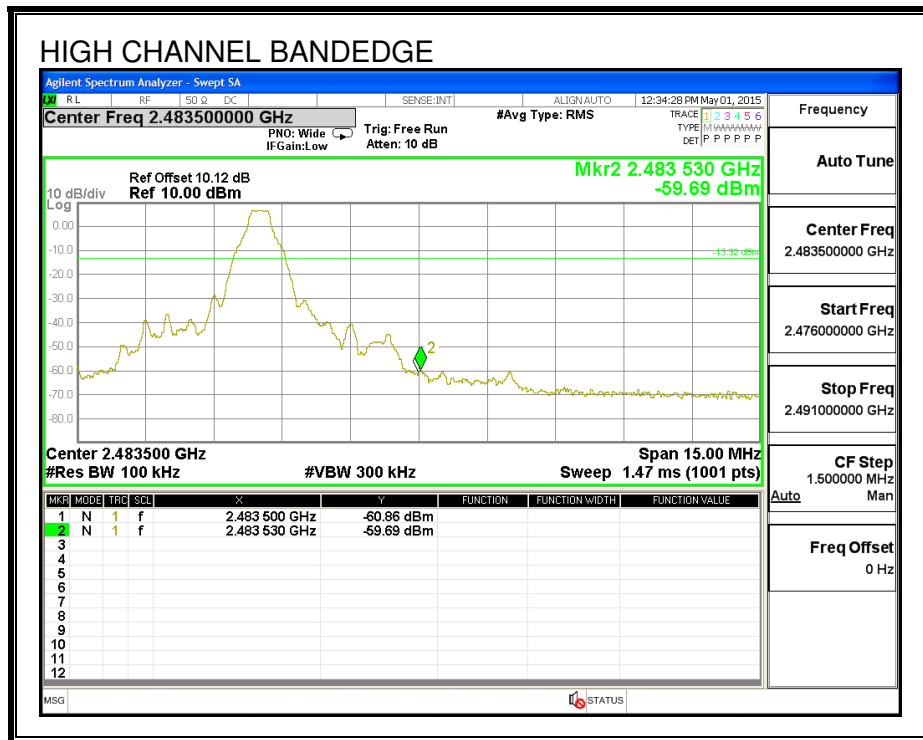
**SPURIOUS EMISSIONS, LOW CHANNEL**



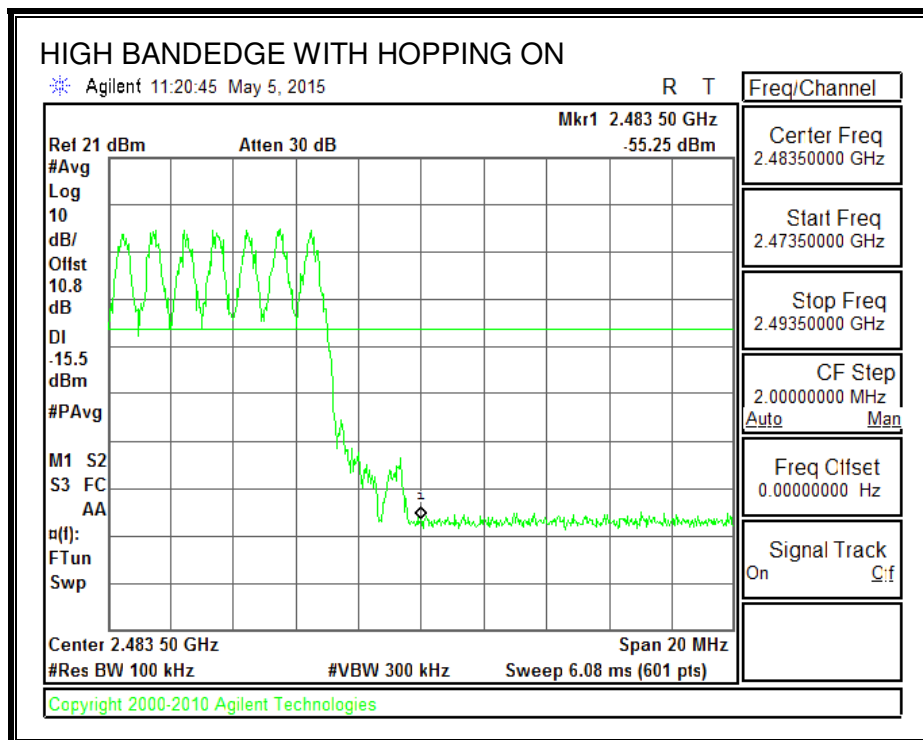
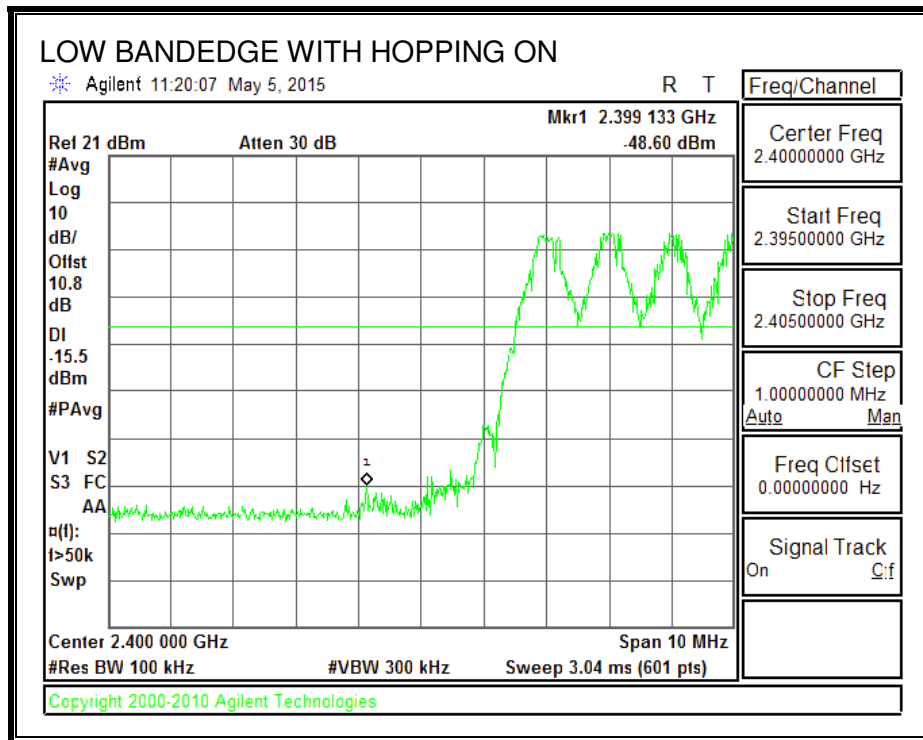
**SPURIOUS EMISSIONS, MID CHANNEL**



**SPURIOUS EMISSIONS, HIGH CHANNEL**



**SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON**



## 8. RADIATED TEST RESULTS

### 8.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.205 and §15.209

IC RSS-GEN Clause 8.9 (Transmitter)

| 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. The antenna to EUT distance is 3 meters.

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 measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements.

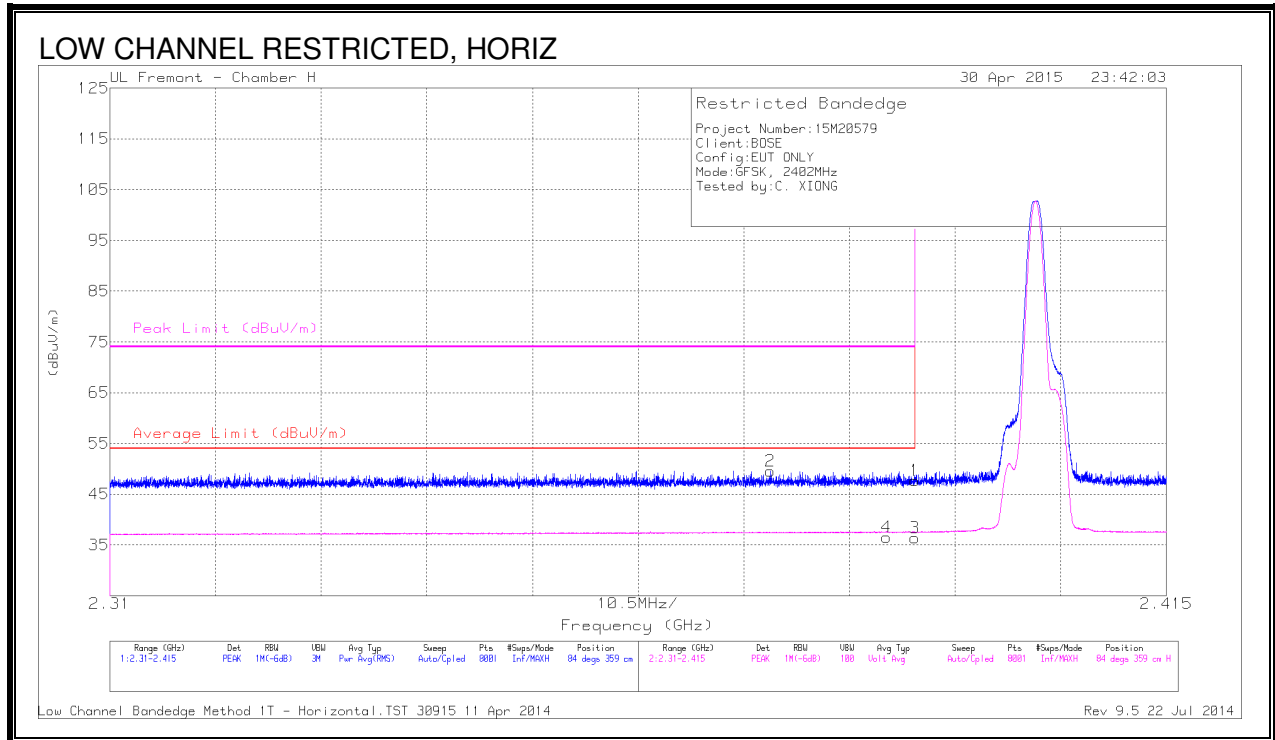
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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.

## 8.2. TRANSMITTER ABOVE 1 GHz

### 8.2.1. BASIC DATA RATE GFSK MODULATION

#### RESTRICTED BANDEDGE (LOW CHANNEL)



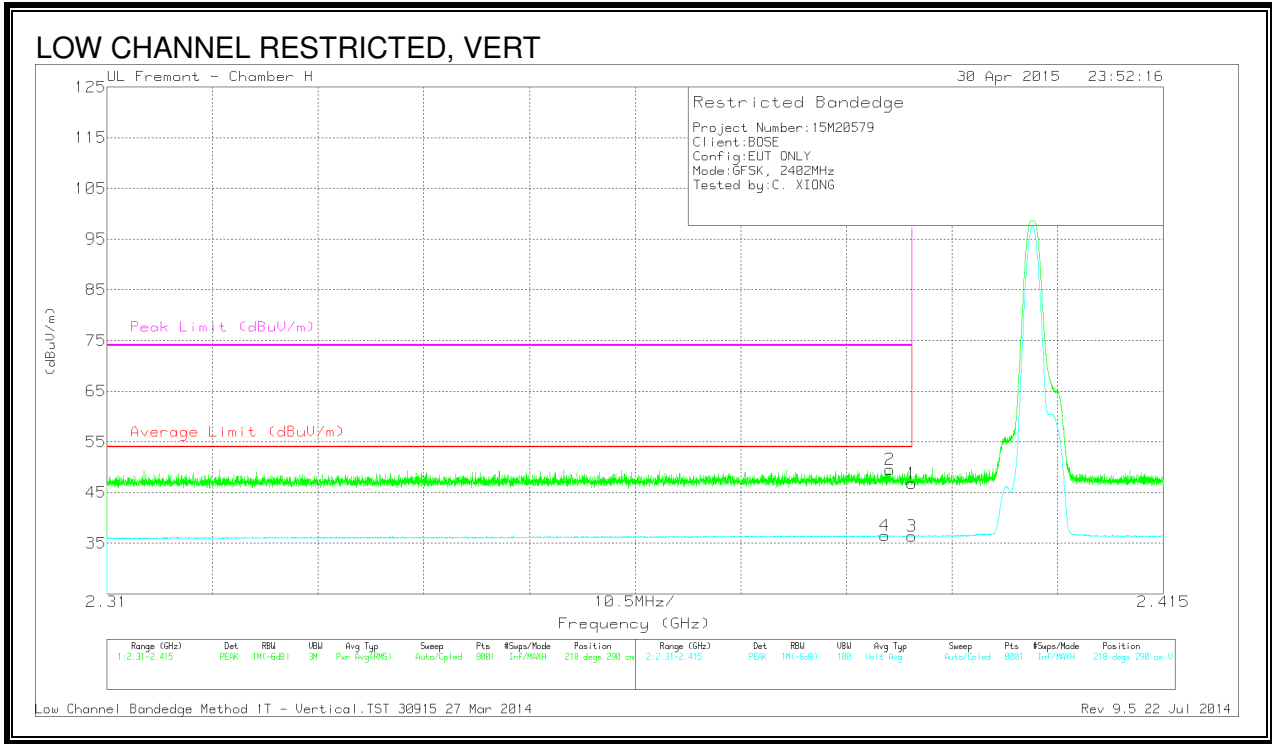
#### Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T712 (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 |
|--------|-----------------|----------------------|------|----------------|------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 2      | * 2.376         | 42.1                 | PK   | 32.1           | -24.6                  | 49.6                       | -                      | -           | 74                  | -24.4          | 84             | 359         | H        |
| 4      | * 2.387         | 28.91                | VB1T | 32.1           | -24.5                  | 36.51                      | 54                     | -17.49      | -                   | -              | 84             | 359         | H        |
| 1      | * 2.39          | 40.13                | PK   | 32.1           | -24.6                  | 47.63                      | -                      | -           | 74                  | -26.37         | 84             | 359         | H        |
| 3      | * 2.39          | 28.86                | VB1T | 32.1           | -24.6                  | 36.36                      | 54                     | -17.64      | -                   | -              | 84             | 359         | H        |

\* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T712 (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 |
|--------|-----------------|----------------------|------|----------------|------------------------|----------------------------|------------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| 4      | * 2.387         | 28.91                | VB1T | 32.1           | -24.5                  | 36.51                      | 54                     | -17.49      | -                   | -              | 218            | 290         | V        |
| 2      | * 2.388         | 42.05                | PK   | 32.1           | -24.6                  | 49.55                      | -                      | -           | 74                  | -24.45         | 218            | 290         | V        |
| 1      | * 2.39          | 39.37                | PK   | 32.1           | -24.6                  | 46.87                      | -                      | -           | 74                  | -27.13         | 218            | 290         | V        |
| 3      | * 2.39          | 28.88                | VB1T | 32.1           | -24.6                  | 36.38                      | 54                     | -17.62      | -                   | -              | 218            | 290         | V        |

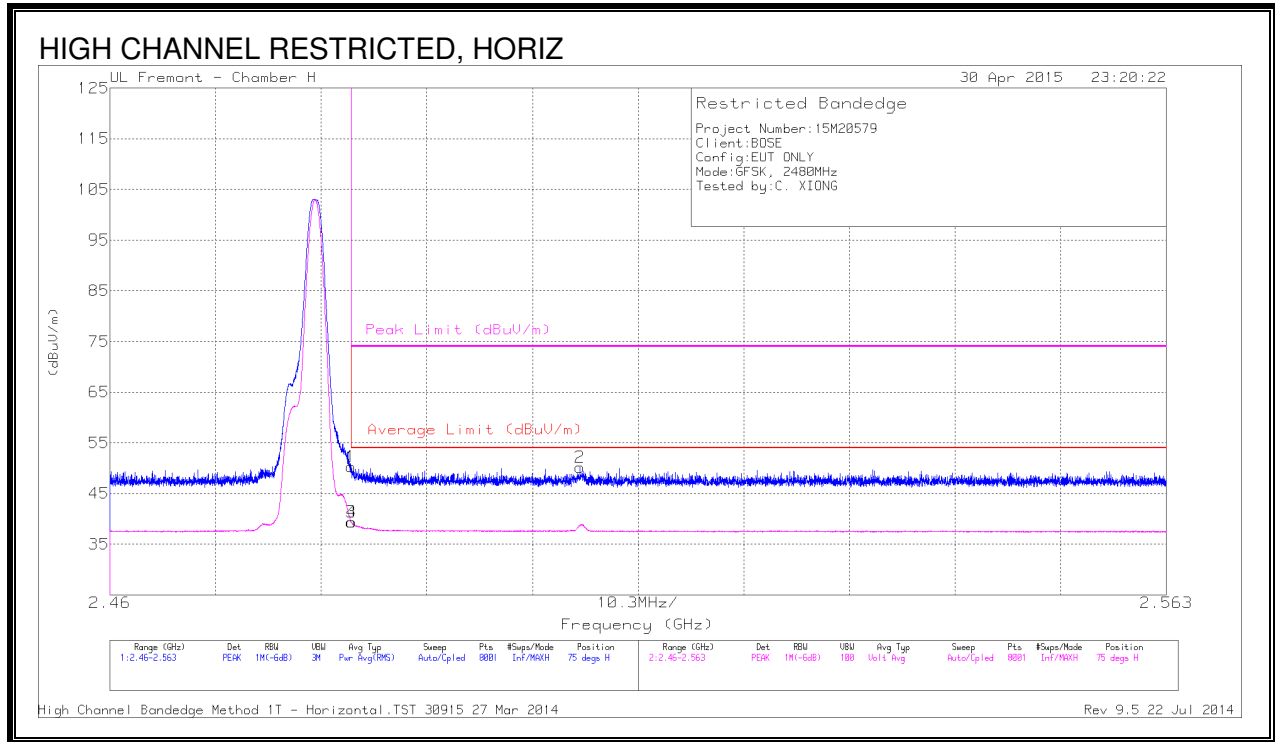
\* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet



**AUTHORIZED BANDEDGE (HIGH CHANNEL)**



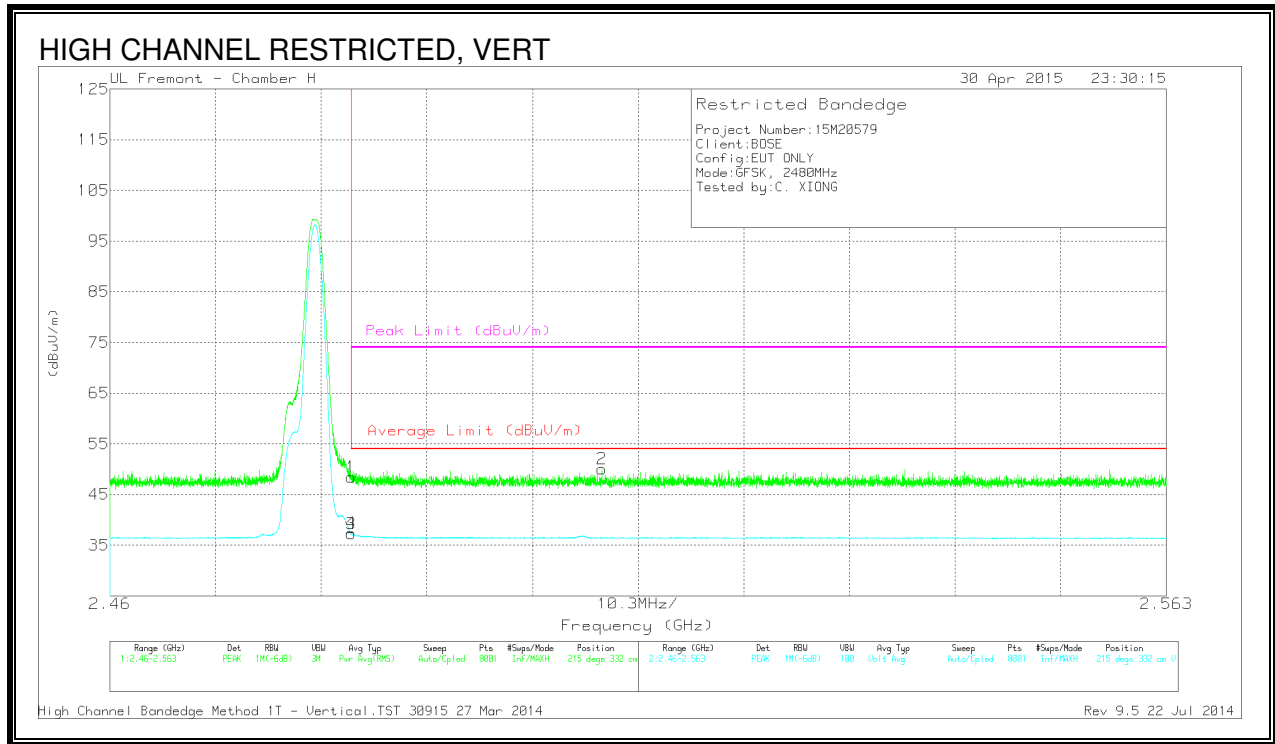
**Trace Markers**

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T712 (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         | 42.66                | PK   | 32.1           | -24.5                  | 50.26                      | -                      | -           | 74                  | -23.74         | 75             | 332         | H        |
| 3      | * 2.484         | 31.82                | VB1T | 32.1           | -24.5                  | 39.42                      | 54                     | -14.58      | -                   | -              | 75             | 332         | H        |
| 4      | * 2.484         | 31.8                 | VB1T | 32.1           | -24.5                  | 39.4                       | 54                     | -14.6       | -                   | -              | 75             | 332         | H        |
| 2      | 2.506           | 42.49                | PK   | 32.1           | -24.4                  | 50.19                      | -                      | -           | 74                  | -23.81         | 75             | 332         | H        |

\* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet



Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T712 (dB/m) | Amp/Cb/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         | 40.86                | PK   | 32.1           | -24.5                 | 48.46                      | -                      | -           | 74                  | -25.54         | 215            | 332         | V        |
| 3      | * 2.484         | 29.61                | VB1T | 32.1           | -24.5                 | 37.21                      | 54                     | -16.79      | -                   | -              | 215            | 332         | V        |
| 4      | * 2.484         | 29.72                | VB1T | 32.1           | -24.5                 | 37.32                      | 54                     | -16.68      | -                   | -              | 215            | 332         | V        |
| 2      | 2.508           | 42.36                | PK   | 32.1           | -24.4                 | 50.06                      | -                      | -           | 74                  | -23.94         | 215            | 332         | V        |

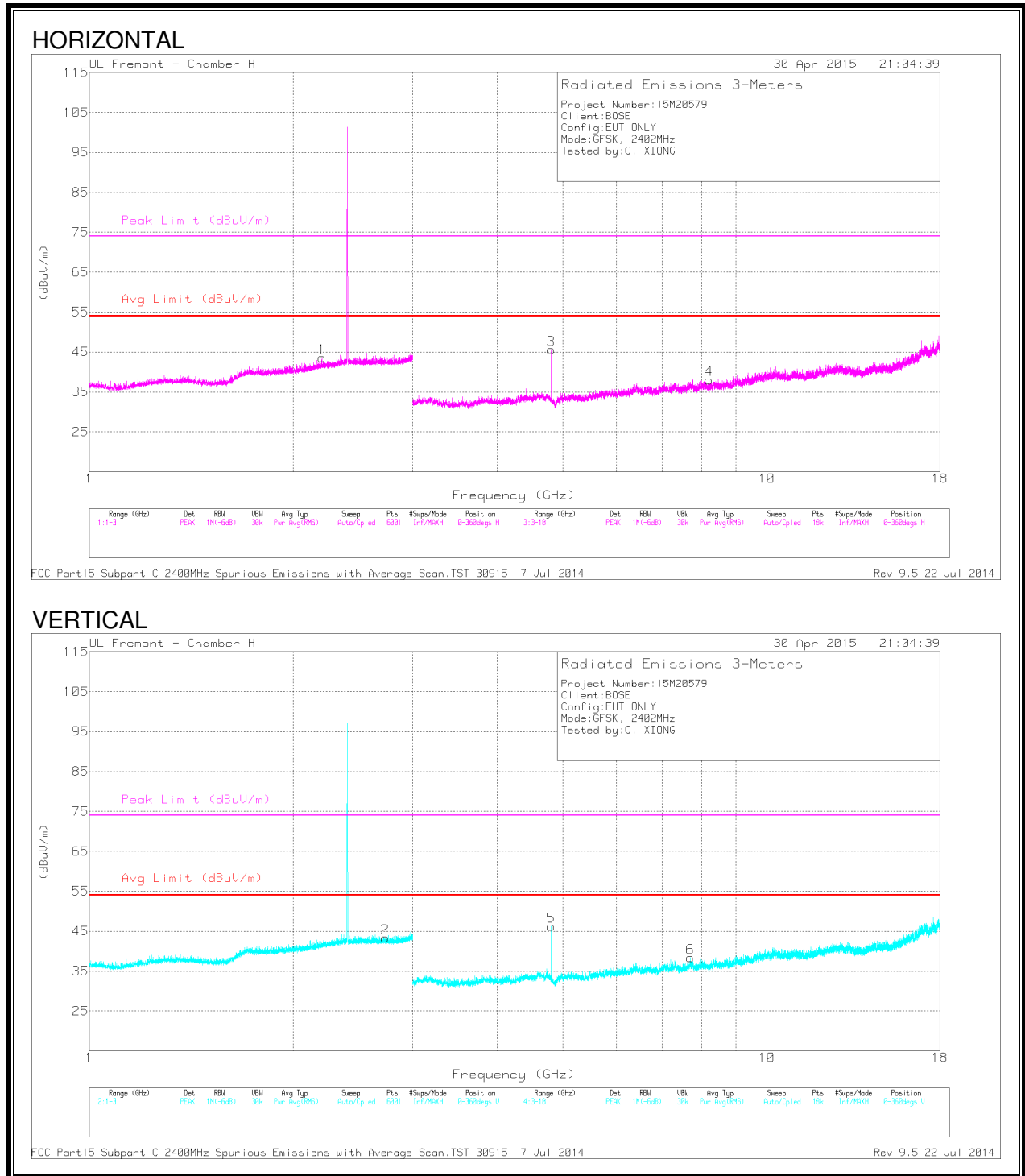
\* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

**HARMONICS AND SPURIOUS EMISSIONS**

**LOW CHANNEL**



Trace Markers

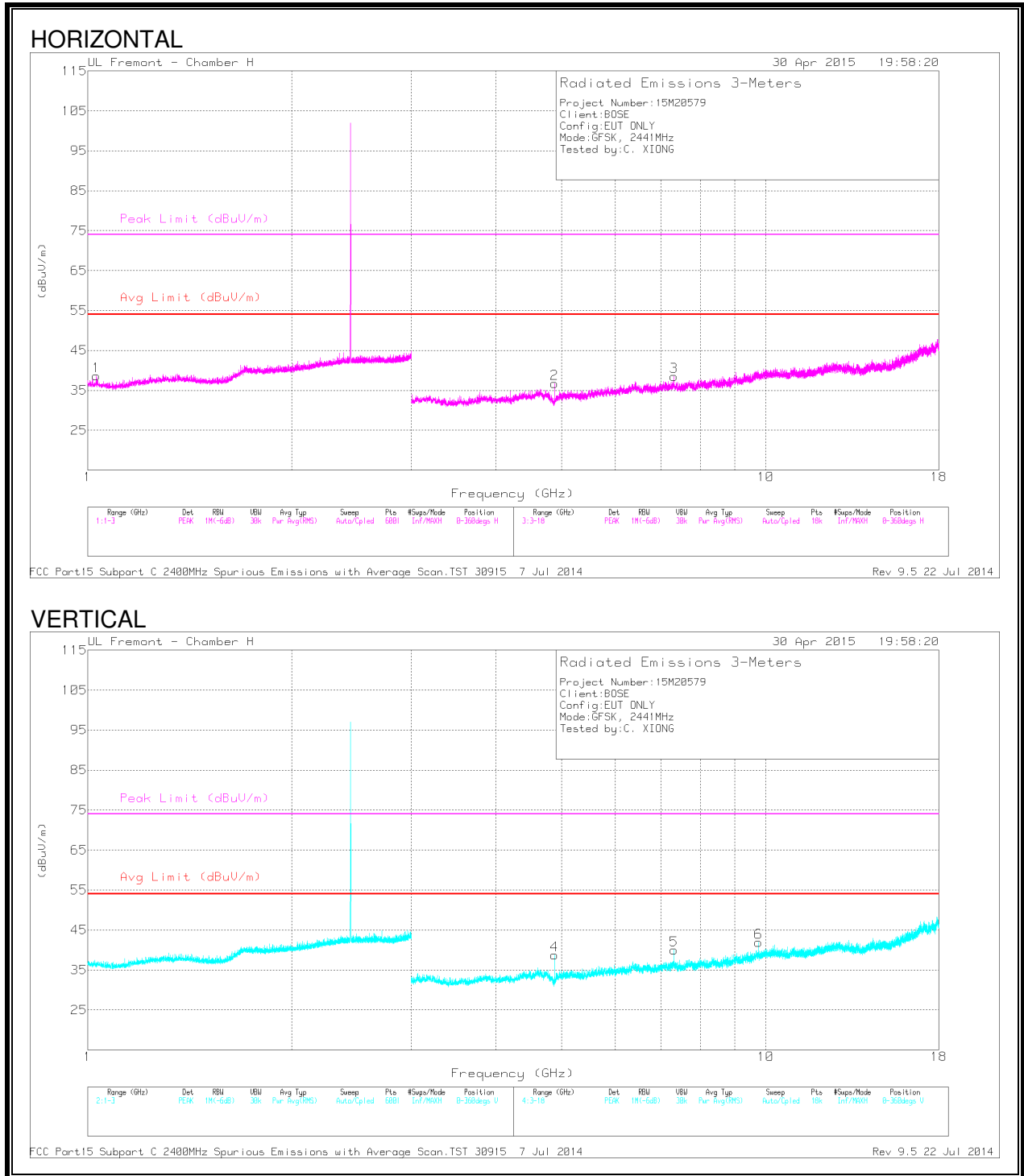
| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T712 (dB/m) | Amp/Cbl/Filtr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|------------------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 2.204         | 43.49                | PK3  | 31.4           | -24.7                  | 50.19                      | -                  | -           | 74                  | -23.81         | 23             | 128         | H        |
| * 2.205         | 30.35                | VB1T | 31.4           | -24.7                  | 37.05                      | 54                 | -16.95      | -                   | -              | 23             | 128         | H        |
| * 2.732         | 43.59                | PK3  | 32             | -24.3                  | 51.29                      | -                  | -           | 74                  | -22.71         | 9              | 155         | V        |
| * 2.732         | 30.24                | VB1T | 32             | -24.3                  | 37.94                      | 54                 | -16.06      | -                   | -              | 9              | 155         | V        |
| * 4.804         | 49.85                | PK3  | 33.9           | -32.5                  | 51.25                      | -                  | -           | 74                  | -22.75         | 103            | 132         | H        |
| * 4.804         | 45.74                | VB1T | 33.9           | -32.5                  | 47.14                      | 54                 | -6.86       | -                   | -              | 103            | 132         | H        |
| * 8.219         | 38.17                | PK3  | 35.8           | -29.1                  | 44.87                      | -                  | -           | 74                  | -29.13         | 84             | 172         | H        |
| * 8.218         | 25.69                | VB1T | 35.8           | -29.1                  | 32.39                      | 54                 | -21.61      | -                   | -              | 84             | 172         | H        |
| * 4.804         | 49.35                | PK3  | 33.9           | -32.5                  | 50.75                      | -                  | -           | 74                  | -23.25         | 334            | 124         | V        |
| * 4.804         | 44.55                | VB1T | 33.9           | -32.5                  | 45.95                      | 54                 | -8.05       | -                   | -              | 334            | 124         | V        |
| * 7.706         | 38.53                | PK3  | 35.7           | -28.5                  | 45.73                      | -                  | -           | 74                  | -28.27         | 278            | 117         | V        |
| * 7.707         | 25.66                | VB1T | 35.7           | -28.5                  | 32.86                      | 54                 | -21.14      | -                   | -              | 278            | 117         | V        |

\* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

**MID CHANNEL**



Trace Markers

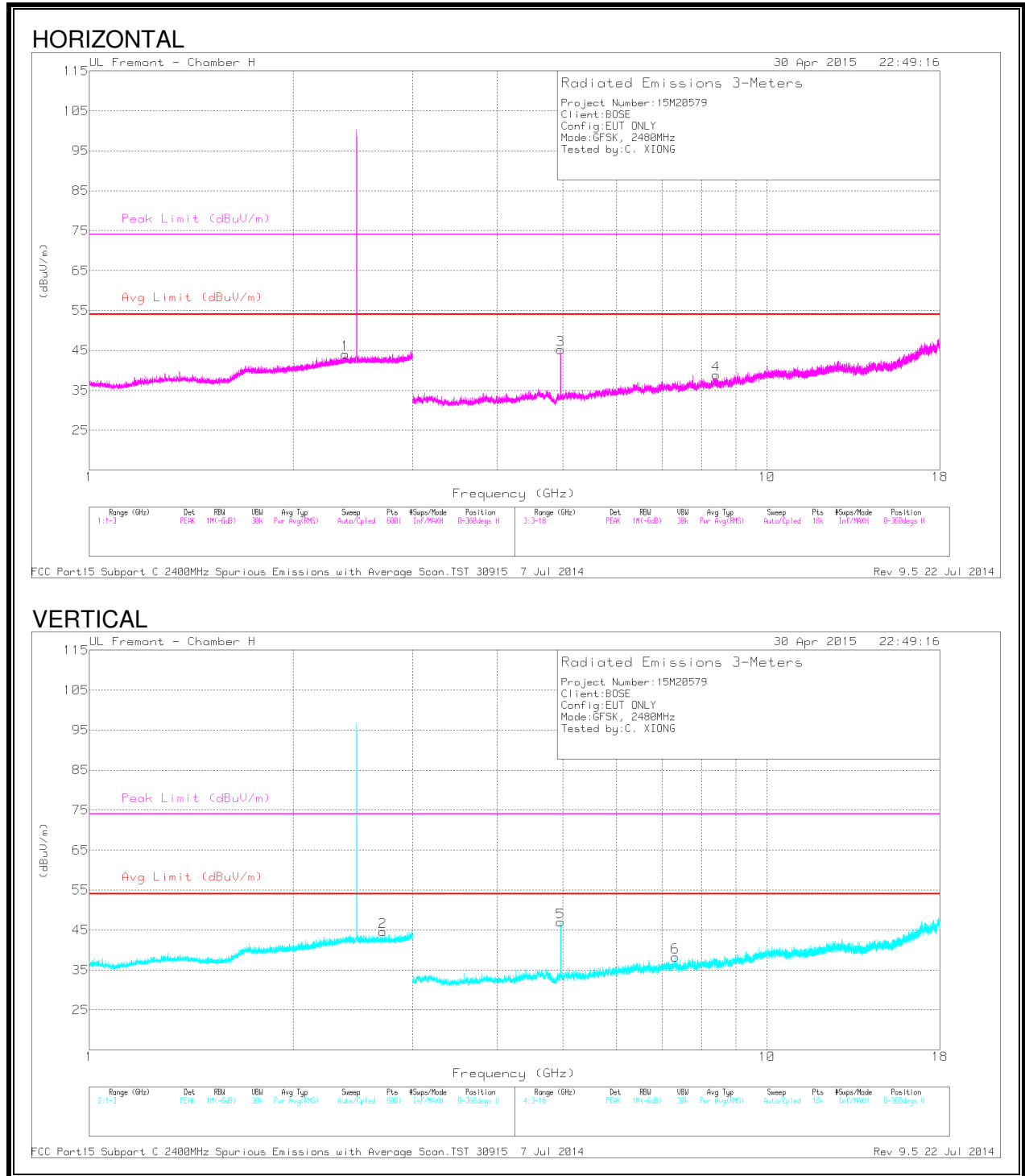
| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T712 (dB/m) | Amp/Cbl/Filtr/Pad (dB) | Corrected Reading (dBuV/m) | Avg Limit (dBuV/m) | Margin (dB) | Peak Limit (dBuV/m) | PK Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|-----------------|----------------------|------|----------------|------------------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 1.029         | 44.05                | PK3  | 27.2           | -25.8                  | 45.45                      | -                  | -           | 74                  | -28.55         | 212            | 273         | H        |
| * 1.03          | 30.94                | VB1T | 27.2           | -25.8                  | 32.34                      | 54                 | -21.66      | -                   | -              | 212            | 273         | H        |
| * 4.882         | 42.76                | PK3  | 33.9           | -32.1                  | 44.56                      | -                  | -           | 74                  | -29.44         | 112            | 110         | H        |
| * 4.882         | 34.68                | VB1T | 33.8           | -32.1                  | 36.38                      | 54                 | -17.62      | -                   | -              | 112            | 110         | H        |
| * 7.323         | 40.69                | PK3  | 35.4           | -28.9                  | 47.19                      | -                  | -           | 74                  | -26.81         | 123            | 376         | H        |
| * 7.323         | 29.68                | VB1T | 35.4           | -28.9                  | 36.18                      | 54                 | -17.82      | -                   | -              | 123            | 376         | H        |
| * 4.881         | 43.77                | PK3  | 33.9           | -32.1                  | 45.57                      | -                  | -           | 74                  | -28.43         | 151            | 361         | V        |
| * 4.882         | 36.21                | VB1T | 33.8           | -32.1                  | 37.91                      | 54                 | -16.09      | -                   | -              | 151            | 361         | V        |
| * 7.323         | 41.59                | PK3  | 35.4           | -28.9                  | 48.09                      | -                  | -           | 74                  | -25.91         | 4              | 193         | V        |
| * 7.323         | 31.62                | VB1T | 35.4           | -28.9                  | 38.12                      | 54                 | -15.88      | -                   | -              | 4              | 193         | V        |
| 9.764           | 40.23                | PK3  | 36.9           | -26.5                  | 50.63                      | -                  | -           | -                   | -              | 32             | 209         | V        |
| 9.764           | 28.45                | VB1T | 36.9           | -26.5                  | 38.85                      | -                  | -           | -                   | -              | 32             | 209         | V        |

\* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

**HIGH CHANNEL**



Trace Markers

| Frequency (GHz) | Meter Reading (dBuV) | Det  | AF T712 (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 |
|-----------------|----------------------|------|----------------|------------------------|--------------|----------------------------|--------------------|-------------|---------------------|----------------|----------------|-------------|----------|
| * 2.385         | 43.2                 | PK3  | 32.1           | -24.6                  | 0            | 50.7                       | -                  | -           | 74                  | -23.3          | 352            | 135         | H        |
| * 2.386         | 30.36                | VB1T | 32.1           | -24.5                  | 0            | 37.96                      | 54                 | -16.04      | -                   | -              | 352            | 135         | H        |
| * 2.709         | 43.37                | PK3  | 32             | -24.3                  | 0            | 51.07                      | -                  | -           | 74                  | -22.93         | 153            | 123         | V        |
| * 2.709         | 30.24                | VB1T | 32             | -24.3                  | 0            | 37.94                      | 54                 | -16.06      | -                   | -              | 153            | 123         | V        |
| * 4.96          | 48.43                | PK3  | 33.9           | -31.8                  | 0            | 50.53                      | -                  | -           | 74                  | -23.47         | 273            | 352         | H        |
| * 4.96          | 43.54                | VB1T | 33.9           | -31.8                  | 0            | 45.64                      | 54                 | -8.36       | -                   | -              | 273            | 352         | H        |
| * 8.415         | 37.5                 | PK3  | 35.8           | -27.6                  | 0            | 45.7                       | -                  | -           | 74                  | -28.3          | 254            | 314         | H        |
| * 8.417         | 24.97                | VB1T | 35.8           | -27.6                  | 0            | 33.17                      | 54                 | -20.83      | -                   | -              | 254            | 314         | H        |
| * 4.96          | 49.91                | PK3  | 33.9           | -31.8                  | 0            | 52.01                      | -                  | -           | 74                  | -21.99         | 204            | 320         | V        |
| * 4.96          | 45.6                 | VB1T | 33.9           | -31.8                  | 0            | 47.7                       | 54                 | -6.3        | -                   | -              | 204            | 320         | V        |
| * 7.322         | 39.28                | PK3  | 35.4           | -28.9                  | 0            | 45.78                      | -                  | -           | 74                  | -28.22         | 110            | 278         | V        |
| * 7.321         | 26.09                | VB1T | 35.4           | -28.9                  | 0            | 32.59                      | 54                 | -21.41      | -                   | -              | 110            | 278         | V        |

\* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

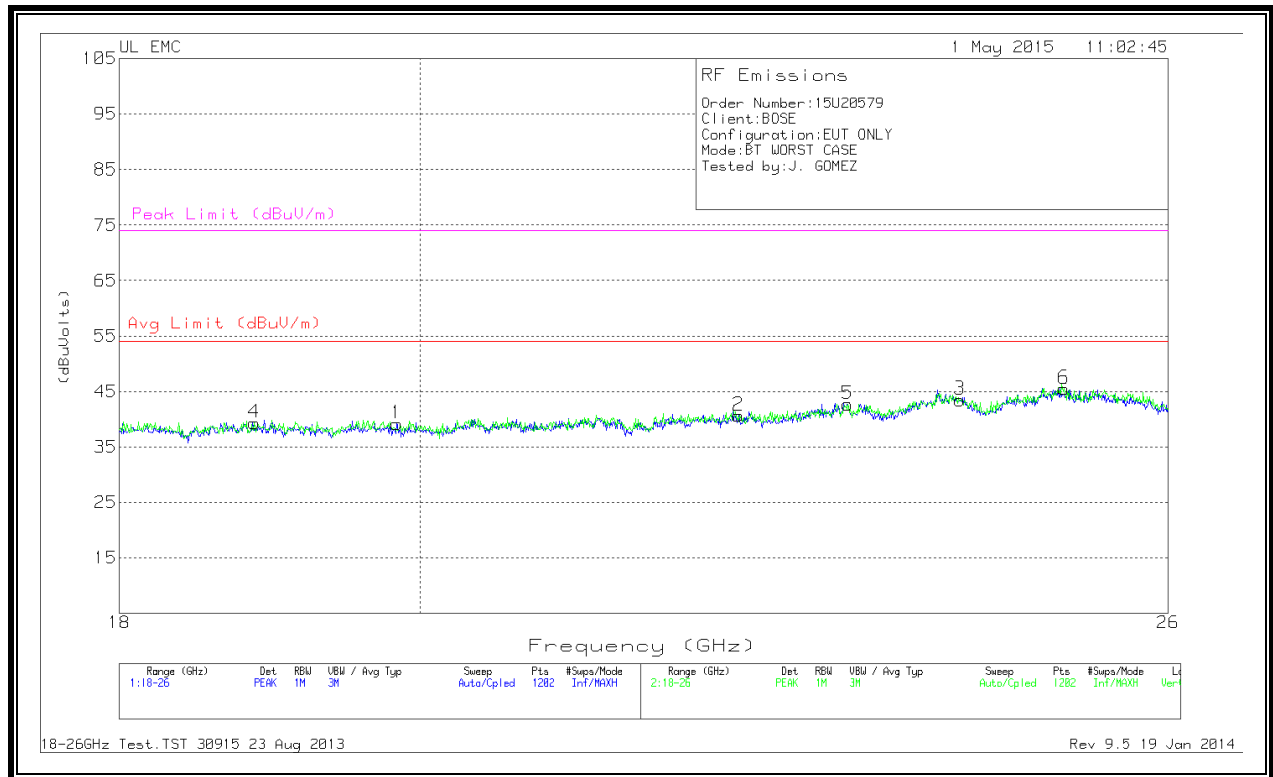
PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet



### 8.3. WORST-CASE ABOVE 18GHz

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



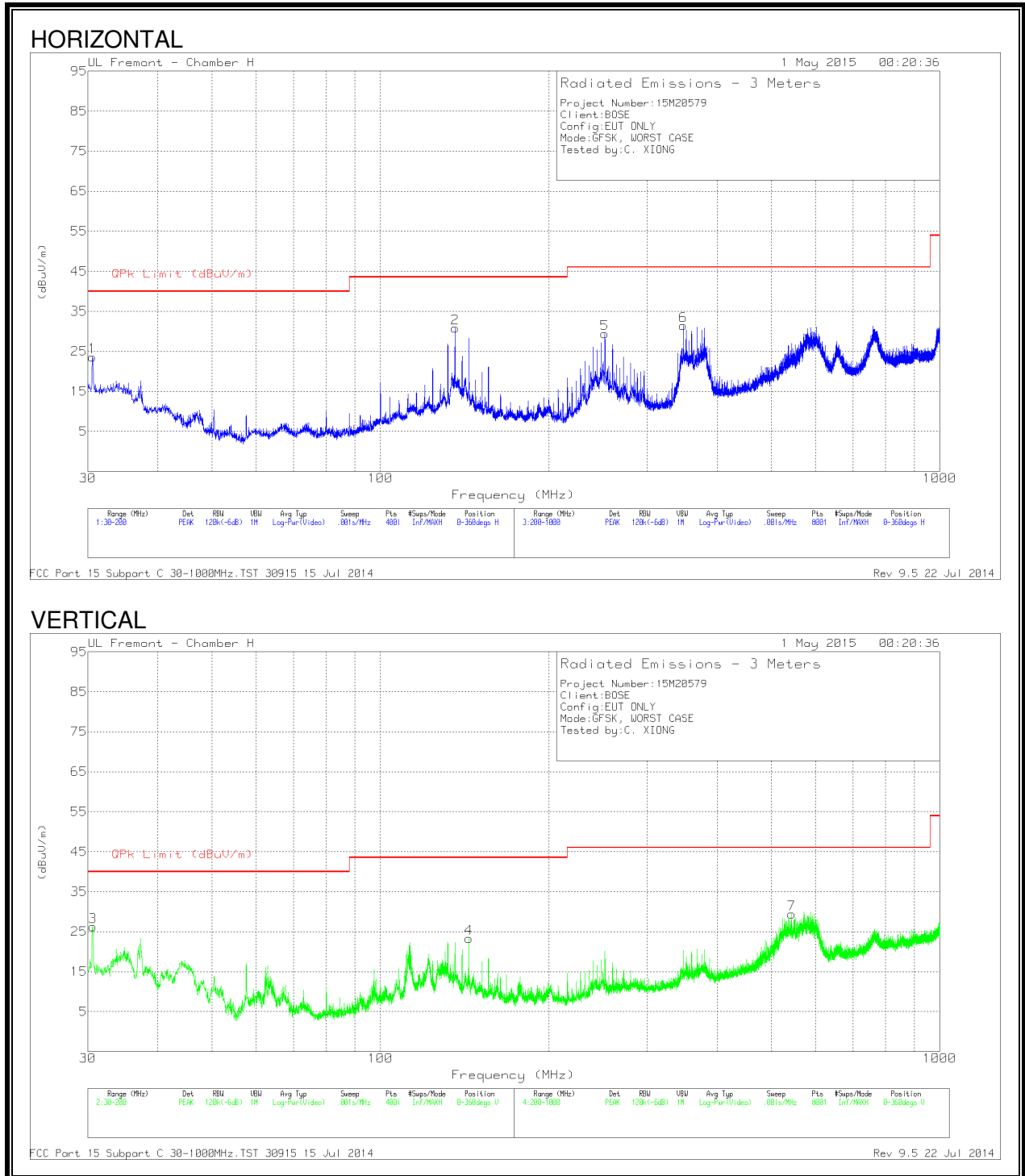
#### Trace Markers

| Marker | Frequency (GHz) | Meter Reading (dBuV) | Det | T89 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      | 19.838          | 40.27                | PK  | 33            | -24.6        | -9.5           | 39.17                        | 54                 | -14.83      | 74                  | -34.83         |
| 2      | 22.363          | 40.67                | PK  | 33.7          | -24.2        | -9.5           | 40.67                        | 54                 | -13.33      | 74                  | -33.33         |
| 3      | 24.168          | 42.5                 | PK  | 34.2          | -23.7        | -9.5           | 43.5                         | 54                 | -10.5       | 74                  | -30.5          |
| 4      | 18.873          | 41.33                | PK  | 32.8          | -25.3        | -9.5           | 39.33                        | 54                 | -14.67      | 74                  | -34.67         |
| 5      | 23.236          | 41.97                | PK  | 33.8          | -23.6        | -9.5           | 42.67                        | 54                 | -11.33      | 74                  | -31.33         |
| 6      | 25.067          | 44.3                 | PK  | 34.5          | -23.8        | -9.5           | 45.5                         | 54                 | -8.5        | 74                  | -28.5          |

PK - Peak detector

### 8.4. WORST-CASE BELOW 1 GHz

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



Trace Markers

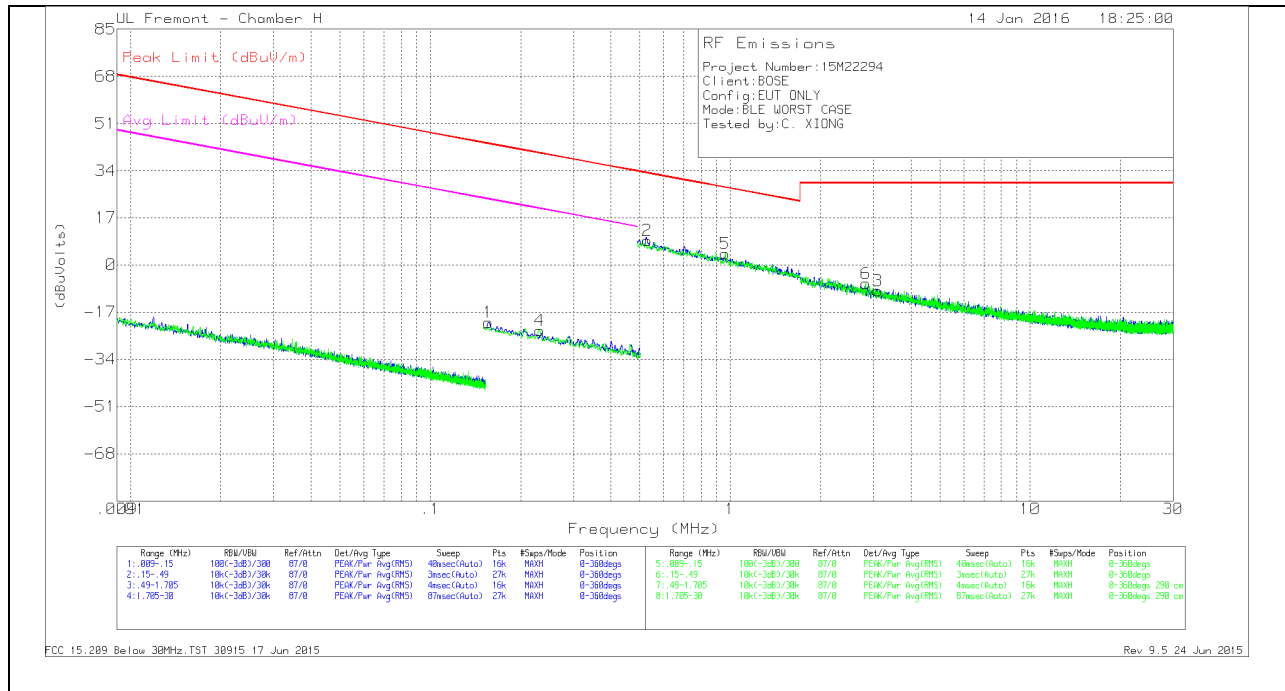
| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | AF T900 (dB/m) | Amp/Cbl (dB) | Corrected Reading (dBuV/m) | QPk Limit (dBuV/m) | Margin (dB) | Azimuth (Degs) | Height (cm) | Polarity |
|--------|-----------------|----------------------|-----|----------------|--------------|----------------------------|--------------------|-------------|----------------|-------------|----------|
| 2      | * 135.995       | 47.55                | PK  | 13.5           | -30.2        | 30.85                      | 43.52              | -12.67      | 0-360          | 201         | H        |
| 5      | * 252           | 47.38                | PK  | 11.4           | -29.4        | 29.38                      | 46.02              | -16.64      | 0-360          | 99          | H        |
| 1      | 30.5525         | 33.63                | PK  | 21.3           | -31.3        | 23.63                      | 40                 | -16.37      | 0-360          | 400         | H        |
| 3      | 30.595          | 36.28                | PK  | 21.3           | -31.3        | 26.28                      | 40                 | -13.72      | 0-360          | 100         | V        |
| 4      | 143.985         | 40.57                | PK  | 12.9           | -30.2        | 23.27                      | 43.52              | -20.25      | 0-360          | 100         | V        |
| 6      | 348             | 46.09                | PK  | 14.3           | -28.9        | 31.49                      | 46.02              | -14.53      | 0-360          | 99          | H        |
| 7      | 544             | 39.43                | PK  | 18.2           | -28.2        | 29.43                      | 46.02              | -16.59      | 0-360          | 100         | V        |

\* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

### 8.5. WORST-CASE BELOW 30MHz

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



#### Data

| 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      | .15608          | 48.37                | Pk  | 10.8                | .1       | -80            | -20.73                       | 43.74               | -64.47      | 23.74              | -44.47      | 0-360          |
| 4      | .23165          | 45.59                | Pk  | 10.8                | .1       | -80            | -23.51                       | 40.31               | -63.82      | 20.31              | -43.82      | 0-360          |
| 2      | .5283           | 38.1                 | Pk  | 10.6                | .1       | -40            | 8.8                          | 33.15               | -24.35      | -                  | -           | 0-360          |
| 5      | .96196          | 33.33                | Pk  | 10.7                | .1       | -40            | 4.13                         | 27.94               | -23.81      | -                  | -           | 0-360          |
| 6      | 2.82846         | 22.19                | Pk  | 10.8                | .3       | -40            | -6.71                        | 29.54               | -36.25      | -                  | -           | 0-360          |
| 3      | 3.10198         | 19.61                | Pk  | 10.8                | .3       | -40            | -9.29                        | 29.54               | -38.83      | -                  | -           | 0-360          |

Pk - Peak detector

## 9. 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*              | 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.

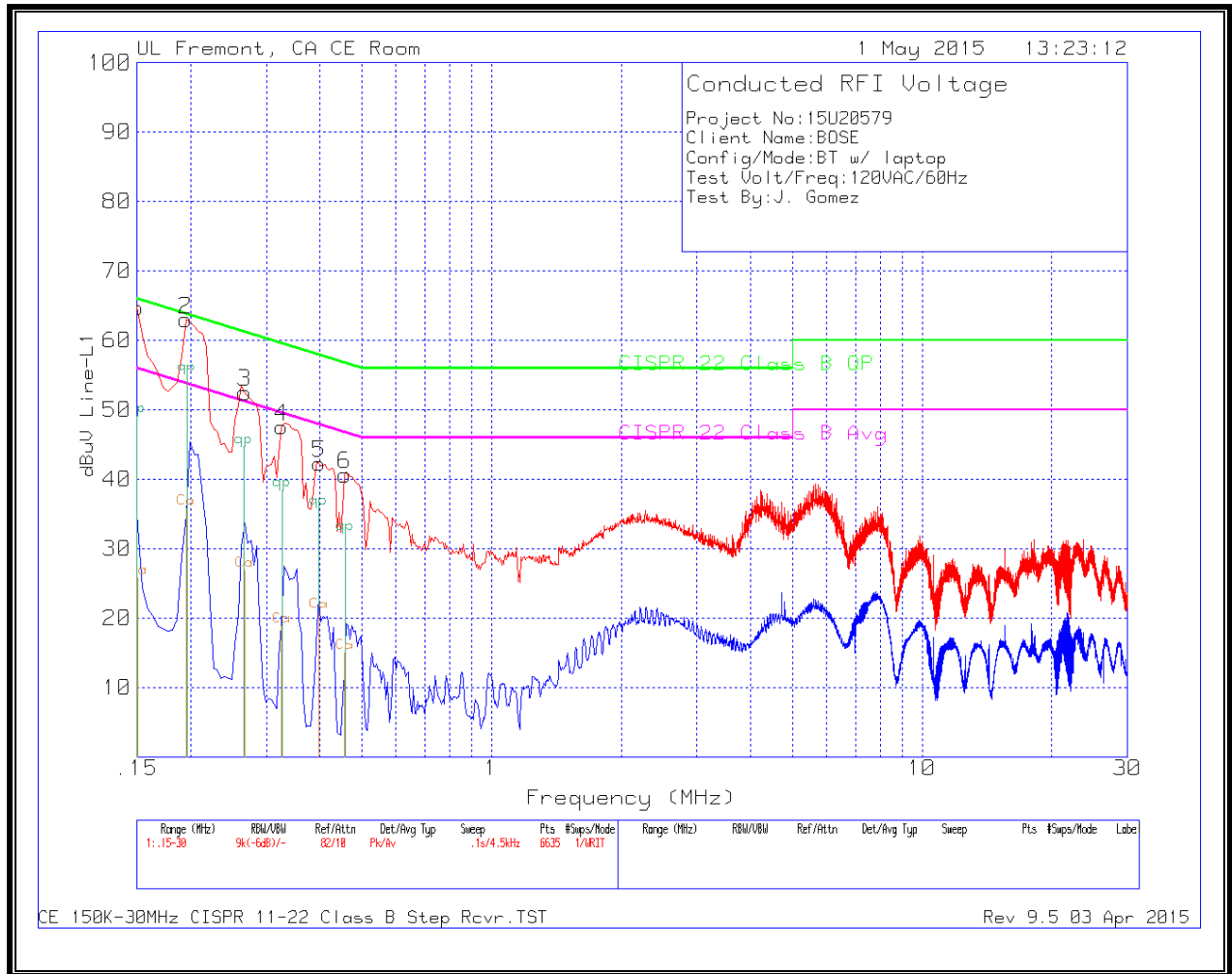
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

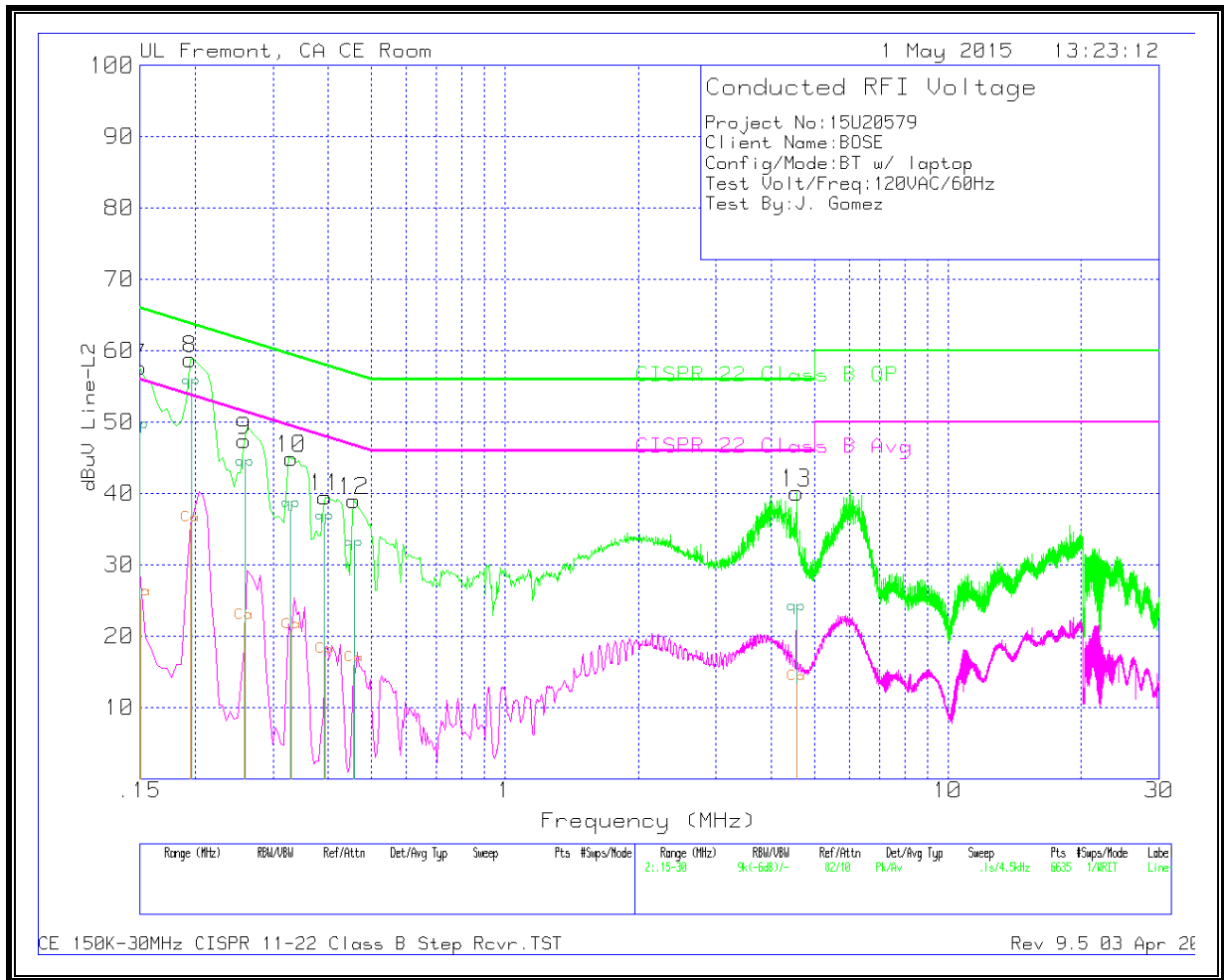
### RESULTS

**WITH LAPTOP**

**LINE 1 RESULTS**



**LINE 2 RESULTS**



**WORST EMISSIONS**

Range 1: Line-L1 .15 - 30MHz

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | T24 IL L1 | LC Cables 1&3 | Corrected Reading dBuV | CISPR 22 Class B QP | Margin (dB) | CISPR 22 Class B Avg | Margin (dB) |
|--------|-----------------|----------------------|-----|-----------|---------------|------------------------|---------------------|-------------|----------------------|-------------|
| 1      | .15             | 47.74                | Qp  | 1.4       | 0             | 49.14                  | 66                  | -16.86      | -                    | -           |
|        | .15             | 24.46                | Ca  | 1.4       | 0             | 25.86                  | -                   | -           | 56                   | -30.14      |
| 2      | .19613          | 54.15                | Qp  | 1         | 0             | 55.15                  | 63.77               | -8.62       | -                    | -           |
|        | .19613          | 34.8                 | Ca  | 1         | 0             | 35.8                   | -                   | -           | 53.77                | -17.97      |
| 3      | .26588          | 44.1                 | Qp  | .6        | 0             | 44.7                   | 61.25               | -16.55      | -                    | -           |
|        | .26588          | 26.28                | Ca  | .6        | 0             | 26.88                  | -                   | -           | 51.25                | -24.37      |
| 4      | .32663          | 38                   | Qp  | .5        | 0             | 38.5                   | 59.54               | -21.04      | -                    | -           |
|        | .32663          | 18.38                | Ca  | .5        | 0             | 18.88                  | -                   | -           | 49.54                | -30.66      |
| 5      | .39638          | 35.49                | Qp  | .4        | 0             | 35.89                  | 57.93               | -22.04      | -                    | -           |
|        | .39638          | 20.54                | Ca  | .4        | 0             | 20.94                  | -                   | -           | 47.93                | -26.99      |
| 6      | .45713          | 31.83                | Qp  | .4        | 0             | 32.23                  | 56.74               | -24.51      | -                    | -           |
|        | .45713          | 14.6                 | Ca  | .4        | 0             | 15                     | -                   | -           | 46.74                | -31.74      |

Range 2: Line-L2 .15 - 30MHz

| Marker | Frequency (MHz) | Meter Reading (dBuV) | Det | T24 IL L2 | LC Cables 2&3 | Corrected Reading dBuV | CISPR 22 Class B QP | Margin (dB) | CISPR 22 Class B Avg | Margin (dB) |
|--------|-----------------|----------------------|-----|-----------|---------------|------------------------|---------------------|-------------|----------------------|-------------|
| 1      | .15             | 47.1                 | Qp  | 1.5       | 0             | 48.6                   | 66                  | -17.4       | -                    | -           |
|        | .15             | 23.7                 | Ca  | 1.5       | 0             | 25.2                   | -                   | -           | 56                   | -30.8       |
| 2      | .19613          | 53.76                | Qp  | 1         | 0             | 54.76                  | 63.77               | -9.01       | -                    | -           |
|        | .19613          | 34.54                | Ca  | 1         | 0             | 35.54                  | -                   | -           | 53.77                | -18.23      |
| 3      | .25913          | 42.69                | Qp  | .7        | 0             | 43.39                  | 61.46               | -18.07      | -                    | -           |
|        | .25913          | 21.19                | Ca  | .7        | 0             | 21.89                  | -                   | -           | 51.46                | -29.57      |
| 4      | .32888          | 37.12                | Qp  | .5        | 0             | 37.62                  | 59.48               | -21.86      | -                    | -           |
|        | .32888          | 20.09                | Ca  | .5        | 0             | 20.59                  | -                   | -           | 49.48                | -28.89      |
| 5      | .39188          | 35.42                | Qp  | .4        | 0             | 35.82                  | 58.02               | -22.2       | -                    | -           |
|        | .39188          | 16.73                | Ca  | .4        | 0             | 17.13                  | -                   | -           | 48.02                | -30.89      |
| 6      | .45668          | 31.72                | Qp  | .4        | 0             | 32.12                  | 56.75               | -24.63      | -                    | -           |
|        | .45668          | 15.55                | Ca  | .4        | 0             | 15.95                  | -                   | -           | 46.75                | -30.8       |
| 7      | 4.55438         | 22.8                 | Qp  | .2        | .1            | 23.1                   | 56                  | -32.9       | -                    | -           |
|        | 4.55438         | 13.01                | Ca  | .2        | .1            | 13.31                  | -                   | -           | 46                   | -32.69      |

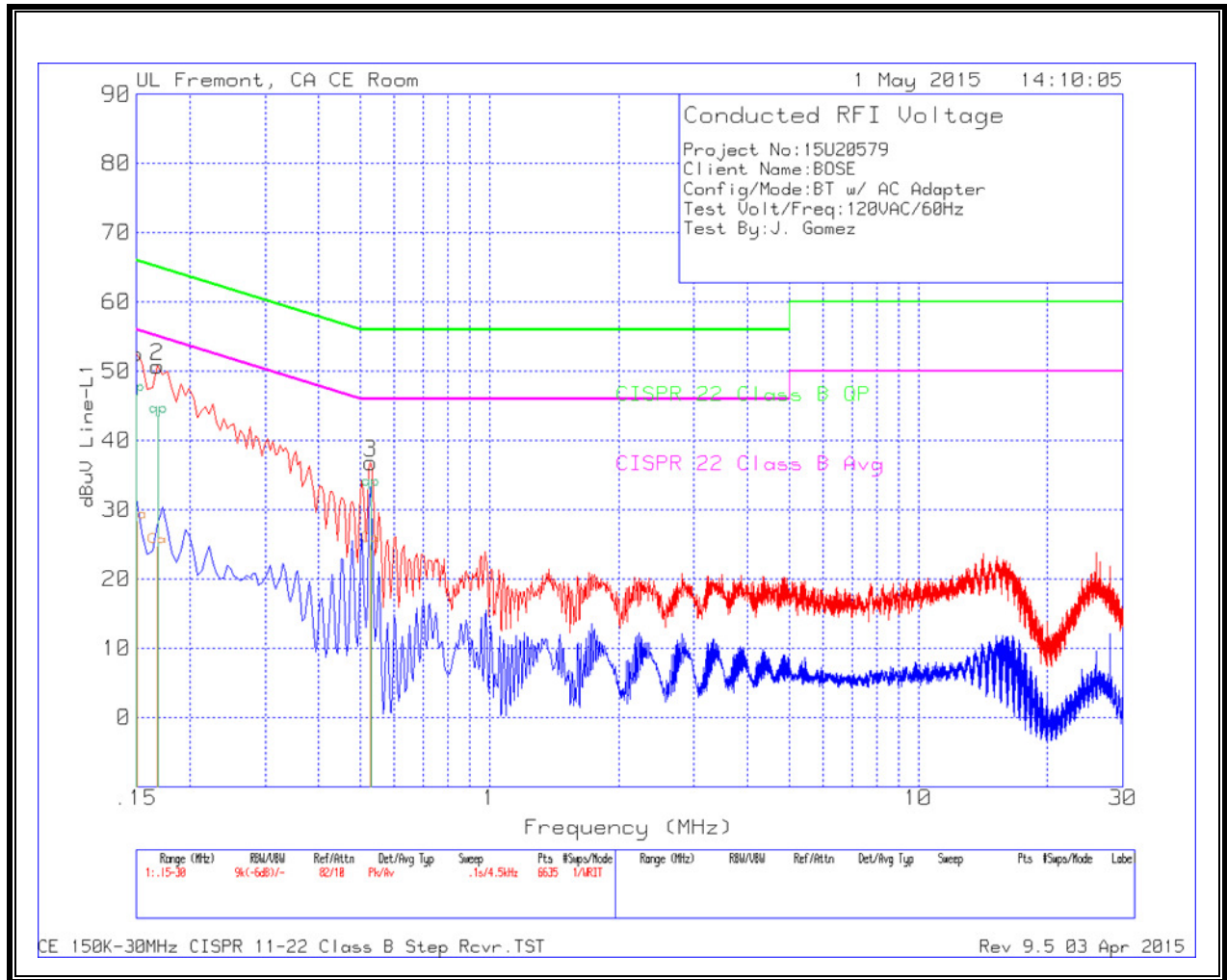
Qp - Quasi-Peak detector

Ca - CISPR average detection

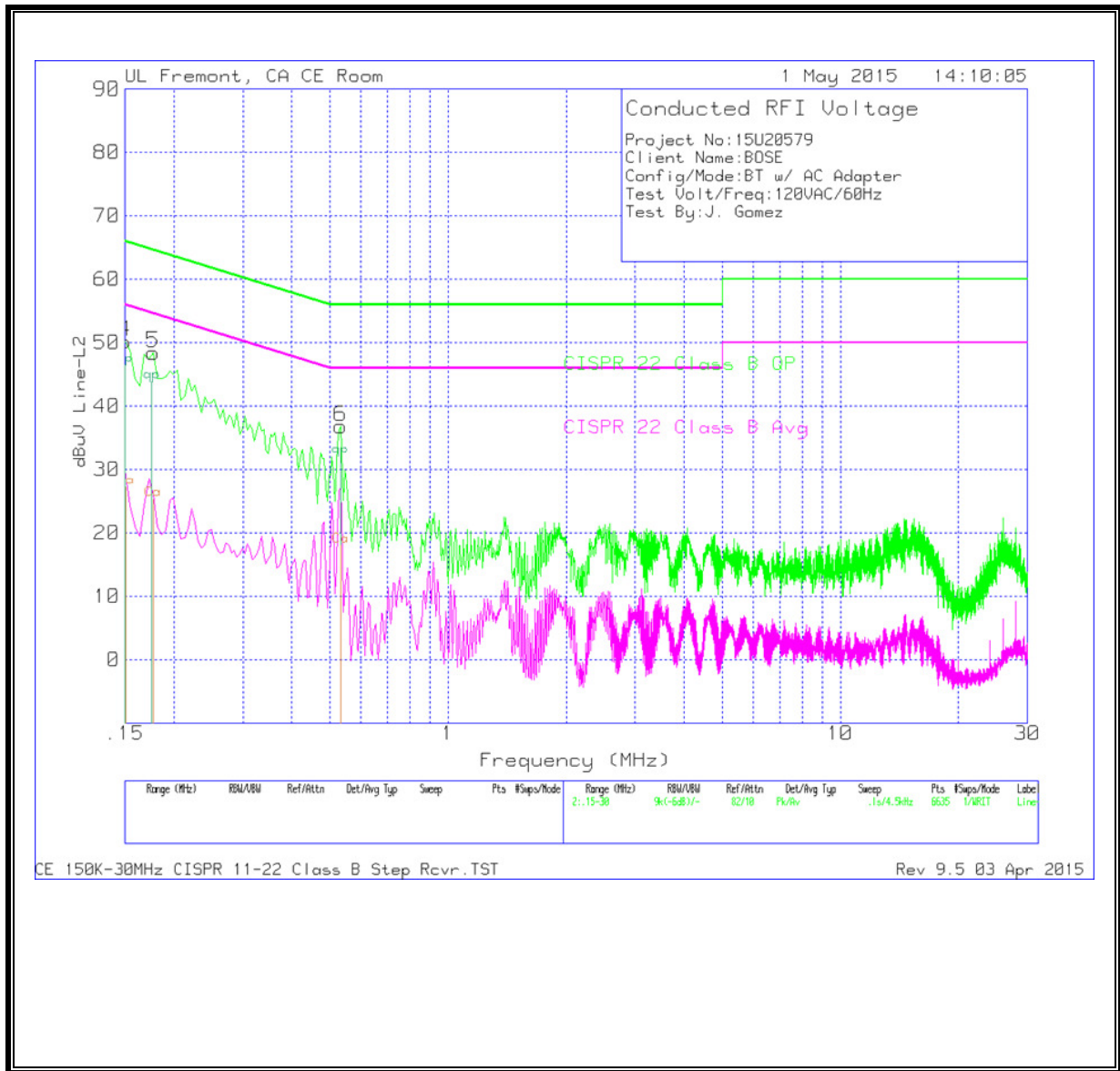


**WITH AC ADAPTER**

**LINE 1 RESULTS**



**LINE 2 RESULTS**



**WORST EMISSIONS**

| Range 1: Line-L1 .15 - 30MHz |                 |                      |     |           |               |                        |                     |             |                      |             |
|------------------------------|-----------------|----------------------|-----|-----------|---------------|------------------------|---------------------|-------------|----------------------|-------------|
| Marker                       | Frequency (MHz) | Meter Reading (dBuV) | Det | T24 IL L1 | LC Cables 1&3 | Corrected Reading dBuV | CISPR 22 Class B QP | Margin (dB) | CISPR 22 Class B Avg | Margin (dB) |
| 1                            | .15             | 45.25                | Qp  | 1.4       | 0             | 46.65                  | 66                  | -19.35      | -                    | -           |
|                              | .15             | 26.84                | Ca  | 1.4       | 0             | 28.24                  | -                   | -           | 56                   | -27.76      |
| 2                            | .16913          | 42.33                | Qp  | 1.2       | 0             | 43.53                  | 65                  | -21.47      | -                    | -           |
|                              | .16913          | 23.43                | Ca  | 1.2       | 0             | 24.63                  | -                   | -           | 55                   | -30.37      |
| 3                            | .52913          | 32.73                | Qp  | .3        | 0             | 33.03                  | 56                  | -22.97      | -                    | -           |
|                              | .52913          | 24.54                | Ca  | .3        | 0             | 24.84                  | -                   | -           | 46                   | -21.16      |

| Range 2: Line-L2 .15 - 30MHz |                 |                      |     |           |               |                        |                     |             |                      |             |
|------------------------------|-----------------|----------------------|-----|-----------|---------------|------------------------|---------------------|-------------|----------------------|-------------|
| Marker                       | Frequency (MHz) | Meter Reading (dBuV) | Det | T24 IL L2 | LC Cables 2&3 | Corrected Reading dBuV | CISPR 22 Class B QP | Margin (dB) | CISPR 22 Class B Avg | Margin (dB) |
| 1                            | .15             | 44.96                | Qp  | 1.5       | 0             | 46.46                  | 66                  | -19.54      | -                    | -           |
|                              | .15             | 25.76                | Ca  | 1.5       | 0             | 27.26                  | -                   | -           | 56                   | -28.74      |
| 2                            | .17588          | 42.68                | Qp  | 1.2       | 0             | 43.88                  | 64.68               | -20.8       | -                    | -           |
|                              | .17588          | 24.13                | Ca  | 1.2       | 0             | 25.33                  | -                   | -           | 54.68                | -29.35      |
| 3                            | .53228          | 31.84                | Qp  | .3        | 0             | 32.14                  | 56                  | -23.86      | -                    | -           |
|                              | .53228          | 17.69                | Ca  | .3        | 0             | 17.99                  | -                   | -           | 46                   | -28.01      |

Qp - Quasi-Peak detector

Ca - CISPR average detection