



# TEST REPORT




**Report No. :** HST201610-6025-FCC

**Product description:** Multimedia speaker

**Model/Type :** QS-102032, QS-T41043, QS-T21215, MW-S283BT, QS-2108, SP-50BT, SP-65BT

**Applicant's name:** Guangzhou wonderful sound Co., LTD



|  |   |            |
|--|---|------------|
| <p align="center"><b>TEST REPORT</b></p> <p align="center"><b>FCC Part 15.247: 2015</b></p> <p align="center"><b>FCC ID: 2AI29-QS-102032</b></p>   |   |            |
| <b>Report Reference No. ....:</b> HST201610-6025-FCC   |   |            |
| Tested by (+ signature) .....:   |  | Lemon Fu   |
| Review by (+ signature) .....:   |  | Sandy Yu   |
| Approved by (+ signature).....:  |  | Robin Peng |
| Date of Sample Receive .....: Sep. 27, 2016  |   |            |
| Date of Test.....: Sep. 27, 2016 to Oct. 17, 2016  |   |            |
| Date of issue .....: Oct. 18, 2016   |   |            |
| Total number of pages .....: 113 Pages   |   |            |
| <b>Testing Laboratory.....:</b> Guangdong Environment Radiation Monitoring Center<br>(Accredited by CNAS, Accredited Number: L5539)<br>FCC- Registration No: 667318 Renewal on Sep. 12, 2012 |   |            |
| Address .....: No. 860, South Guangzhou Avenue, Guangzhou, 510300 China  |   |            |
| <b>Applicant's name .....</b> : Guangzhou wonderful sound Co., LTD   |   |            |
| Address .....: Room 101,NO.128,Lane One,Jixing village,Huadong Town,Huadu District,Guangzhou   |   |            |
| <b>Manufacturer's name .....</b> : Guangzhou wonderful sound Co., LTD  |   |            |
| Address .....: Room 101,NO.128,Lane One,Jixing village,Huadong Town,Huadu District,Guangzhou   |   |            |
| <b>Test specification.....:</b> Entrusted testing  |   |            |
| Standard.....: FCC Part 15.247: 2015   |   |            |
| Non-standard test method.....: N/A   |   |            |
| <b>Test item description.....:</b> Multimedia speaker  |   |            |
| Trade Mark.....: N/A   |   |            |
| Model/Type reference .....: QS-102032  |   |            |
| Ratings .....: 120Vac or 240Vac, 4Ohm, 60W   |   |            |

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## 1 TEST SUMMARY

| Test Item                   | Standard Section    | Test method       | Result |
|-----------------------------|---------------------|-------------------|--------|
| Conducted Emission          | 15.207              | ANSI C63.10: 2013 | PASS   |
| Hopping Channel Separation  | 15.247(a)(1)        | ANSI C63.10: 2013 | PASS   |
| Output Power                | 15.247(a)(1)&(b)(1) | ANSI C63.10: 2013 | PASS   |
| Radiated Spurious Emission  | 15.247(c)           | ANSI C63.10: 2013 | PASS   |
| Conducted Spurious          | 15.247(d)           | ANSI C63.10: 2013 | PASS   |
| Band Edge                   |                     |                   | PASS   |
| Number of Hopping Frequency | 15.247(a)(iii)      | ANSI C63.10: 2013 | PASS   |
| Dwell Time                  | 15.247(a)(iii)      | ANSI C63.10: 2013 | PASS   |
| Bandwidth                   | 15.247(a)(1)        | ANSI C63.10: 2013 | PASS   |
| Band Edge Emission          | 15.247(d) & 15.205  | ANSI C63.10: 2013 | PASS   |
| Antenna Requirement         | 15.247(c) & 15.203  | ANSI C63.10: 2013 | PASS   |

### Remark:

N/A: not applicable. Refer to the relative section for the details.

EUT: In this whole report EUT means Equipment Under Test.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radio Frequency.

ANSI C63.10: the detail version is ANSI C63.10:2013 in the whole report.

DA 00-705: "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems"

Model No.: QS-102032, QS-T41043, QS-T21215, MW-S283BT, QS-2108, SP-50BT, SP-65BT

According to the confirmation from the applicant, all models are totally the same in and electrical and mechanical construction, except model No., appearance.

Therefore only one model QS-102032 was tested in this report.

## 2 GENERAL INFORMATION

### 2.1 Client Information

Applicant: Guangzhou wonderful sound Co., LTD  
 Address of Applicant: Room 101,NO.128,Lane One,Jixing village,Huadong Town,Huadu District,Guangzhou

### 2.2 General Description of E.U.T.

Name: Multimedia speaker  
 Model No.: QS-102032, QS-T41043, QS-T21215, MW-S283BT, QS-2108, SP-50BT, SP-65BT  
 Trade Mark: /  
 Operating Frequency: 2402 MHz to 2480 MHz  
 Channels: 79 channels with 1MHz step  
 Type of Modulation: GFSK(1Mbps),  $\pi/4$ -DQPSK(2Mbps), 8-DPSK(3Mbps)  
 Antenna Type: Integral Antenna

Antenna gain: 1dBi.  
 Function: Speaker with BT/ EVD & screen/ MP3/ FM function to receive audio signal.

### 2.3 Details of E.U.T.

EUT Power Supply: 120Vac or 240Vac, 4Ohm  
 Rated power: 60W  
 Power cord/ signal cord: N/A  
 Test mode: The program used to control the EUT for staying in continuous transmitting mode is programmed.  
 Channel lowest (2402MHz), middle (2441MHz) and highest (2480MHz) are chosen for full testing.  
 Normal mode: the Bluetooth has been tested on the Modulation of GFSK;  
 EDR mode: the Bluetooth has been tested on the Modulation of  $(\pi/4)$ DQPSK and 8DPSK, compliance test and record the worst case on 8DPSK.

| Pretest Mode | Description | Data Rate/Modulation   |
|--------------|-------------|------------------------|
| Mode 1       | TX CH00     | 1Mbps/GFSK             |
| Mode 2       | TX CH39     | 1Mbps/GFSK             |
| Mode 3       | TX CH78     | 1Mbps/GFSK             |
| Mode 4       | TX CH00     | 2 Mbps/ $\pi/4$ -DQPSK |
| Mode 5       | TX CH39     | 2 Mbps/ $\pi/4$ -DQPSK |
| Mode 6       | TX CH78     | 2 Mbps/ $\pi/4$ -DQPSK |
| Mode 7       | TX CH00     | 3 Mbps/8-DPSK          |
| Mode 8       | TX CH39     | 3 Mbps/8-DPSK          |

|         |                              |               |
|---------|------------------------------|---------------|
| Mode 9  | TX CH78                      | 3 Mbps/8-DPSK |
| Mode 10 | For AC Conducted<br>Emission | Keeping BT TX |

## 2.4 Description of Support Units

The EUT has been tested as an independent unit for fixed frequency by testing lab.

## 2.5 Test Location

Guangdong Environment Radiation Monitoring Center

Address: No. 860, South Guangzhou Avenue, Guangzhou, 510300 China

Accredited by CNAS, Accredited Number: L5539

FCC- Registration No: 667318 Renewal on Sep. 12, 2012

## 2.6 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

## 2.7 Abnormalities from Standard Conditions

None.

## 2.8 Other Information Requested by the Customer

None.

## 2.9 Measurement Uncertainty

| Parameter                                  | Uncertainty |
|--|-------------|
| Conducted Emission (9KHz-150KHz)           | ±2.88dB     |
| Conducted Emission (150KHz-30MHz)          | ±2.67dB     |
| RF power,conducted                         | ±0.70dB     |
| Spurious emissions,conducted               | ±1.19dB     |
| All emissions,radiated (<30M) (9KHz-30MHz) | ±2.45dB     |
| All emissions,radiated(<1G) 30MHz-200MHz   | ±2.83dB     |
| All emissions,radiated(<1G) 200MHz-1000MHz | ±2.94dB     |
| All emissions,radiated(>1G)                | ±3.03dB     |
| Temperature                                | ±0.5°C      |
| Humidity                                   | ±2%         |

### 3 TEST RESULTS

#### 3.1 E.U.T. test conditions

**Test Voltage:** Input: AC 120V, 60 Hz

**Temperature:** 20.0 -25.0 °C

**Humidity:** 38-50 % RH

**Atmospheric Pressure:** 1000 -1010 mbar

**Test frequencies and frequency range:** According to the 15.31(m) Measurements on intentional radiators or receivers, other than TV broadcast receivers, shall be performed and, if required, reported for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table:

According to the 15.33 (a) For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:



**Number of fundamental frequencies to be tested in EUT transmit band**

| <b>Frequency range in which device operates</b> | <b>Number of frequencies</b> | <b>Location in frequency range of operation</b> |
|---|------------------------------|---|
| 1 MHz or less                                   | 1                            | Middle  |
| 1 MHz to 10 MHz                                 | 2                            | 1 near top and 1 near bottom                    |
| More than 10 MHz                                | 3                            | 1 near top, 1 near middle and 1 near bottom     |

**Frequency range of radiated emission measurements**

| <b>Lowest frequency generated in the device</b> | <b>Upper frequency range of measurement</b>   |
|---|---|
| 9 kHz to below 10 GHz                           | 10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower                             |
| At or above 10 GHz to below 30 GHz              | 5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower                             |
| At or above 30 GHz                              | 5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified |

EUT channels and frequencies list:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|---------|-----------------|
| 0       | 2402            | 11      | 2413            | 22      | 2424            |
| 1       | 2403            | 12      | 2414            | 23      | 2425            |
| 2       | 2404            | 13      | 2415            | 24      | 2426            |
| 3       | 2405            | 14      | 2416            | 25      | 2427            |
| 4       | 2406            | 15      | 2417            | 26      | 2428            |
| 5       | 2407            | 16      | 2418            | 27      | 2429            |
| 6       | 2408            | 17      | 2419            | 28      | 2430            |
| 7       | 2409            | 18      | 2420            | 29      | 2431            |
| 8       | 2410            | 19      | 2421            | 30      | 2432            |
| 9       | 2411            | 20      | 2422            | 31      | 2433            |
| 10      | 2412            | 21      | 2423            | 32      | 2434            |
| 33      | 2435            | 49      | 2451            | 65      | 2467            |
| 34      | 2436            | 50      | 2452            | 66      | 2468            |
| 35      | 2437            | 51      | 2453            | 67      | 2469            |
| 36      | 2438            | 52      | 2454            | 68      | 2470            |
| 37      | 2439            | 53      | 2455            | 69      | 2471            |
| 38      | 2440            | 54      | 2456            | 70      | 2472            |
| 39      | 2441            | 55      | 2457            | 71      | 2473            |
| 40      | 2442            | 56      | 2458            | 72      | 2474            |
| 41      | 2443            | 57      | 2459            | 73      | 2475            |
| 42      | 2444            | 58      | 2460            | 74      | 2476            |
| 43      | 2445            | 59      | 2461            | 75      | 2477            |
| 44      | 2446            | 60      | 2462            | 76      | 2478            |
| 45      | 2447            | 61      | 2463            | 77      | 2479            |
| 46      | 2448            | 62      | 2464            | 78      | 2480            |
| 47      | 2449            | 63      | 2465            |         |                 |
| 48      | 2450            | 64      | 2466            |         |                 |

Test frequencies are the lowest channel: 0 channel(2402 MHz), middle channel: 39 channel(2441 MHz) and highest channel: 78 channel(2480 MHz)

### 3.2 Conducted Emissions at Mains Terminals 150 kHz to 30 MHz

**Test Requirement:** FCC Part 15 C section 15.207  
**Test Method:** ANSI C63.10: Clause 6.2 & DA 00-705  
**Frequency Range:** 150 kHz to 30 MHz  
**Detector:** Peak for pre-scan (9 kHz Resolution Bandwidth)  
**Test Limit**

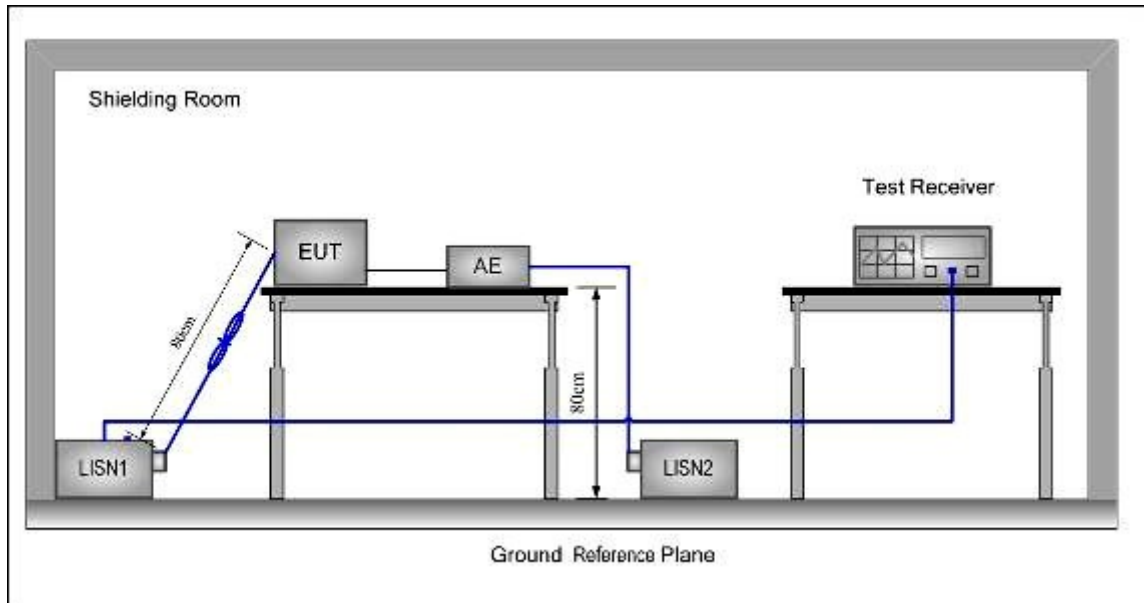
**Limits for conducted disturbance at the mains ports of class B**

| Frequency Range  | Class B Limit dB(μV) |          |
|--|----------------------|----------|
|  | Quasi-peak           | Average  |
| 0.15 to 0.50   | 66 to 56             | 56 to 46 |
| 0.50 to 5  | 56                   | 46       |
| 5 to 30  | 60                   | 50       |
| NOTE 1 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz. |                      |          |

#### EUT Operation:

Test in normal operating mode. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

**Test Configuration:****Test procedure:**

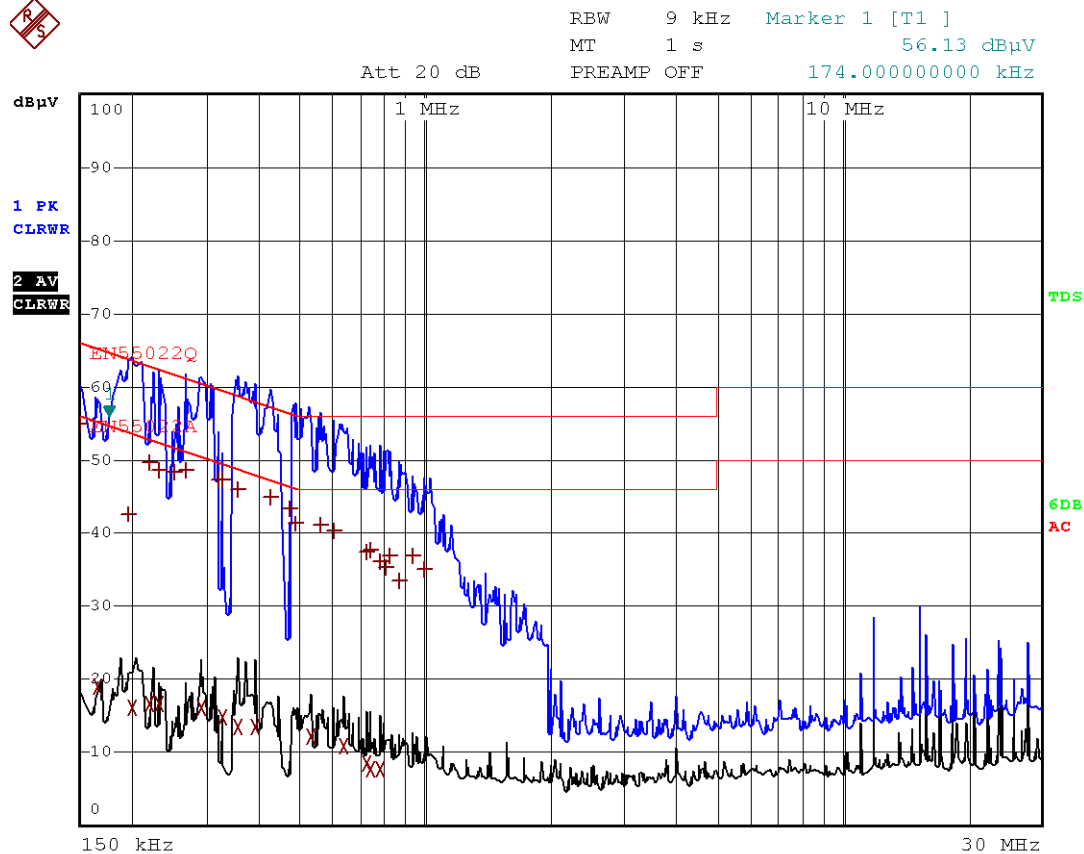
1. The mains terminal disturbance voltage test was conducted in a shielded room.
2. The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a  $50\Omega/50\mu\text{H} + 5\Omega$  linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
3. The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
4. The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0,4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0,8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0,8 m from the LISN 2.

## Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected. For EUT the communicating was worst case mode.

**The following Quasi-Peak and Average measurements were performed on the EUT:**

### Live line



Date: 17.OCT.2016 07:05:00

### Quasi-peak and Average measurement

| Freq. (MHz) | Line | LISN Factor (dB) | Cable Loss (dB) | QP (dBμV) | QP limit (dBμV) | Margin (dB) | AV (dBμV) | AV limit (dBμV) | Margin (dB) |
|-------------|------|------------------|-----------------|-----------|-----------------|-------------|-----------|-----------------|-------------|
| 0.218       | Live | 0.1              | 0.1             | 50.0      | 62.9            | 12.9        | 21.5      | 52.9            | 31.4        |
| 0.312       | Live | 0.1              | 0.1             | 47.2      | 59.9            | 12.7        | 20.1      | 49.9            | 29.8        |
| 0.575       | Live | 0.1              | 0.1             | 42.1      | 56              | 13.9        | 17.6      | 46              | 28.4        |
| 0.936       | Live | 0.1              | 0.1             | 37.3      | 56              | 18.7        | 13.7      | 46              | 32.3        |
| 12.02       | Live | 0.2              | 0.2             | 26.1      | 60              | 33.9        | 17.2      | 50              | 32.8        |
| 16.01       | Live | 0.2              | 0.3             | 27.7      | 60              | 32.3        | 18.6      | 50              | 31.4        |

**Neutral Line:**

Date: 17.OCT.2016 07:03:06

**Quasi-peak and Average measurement**

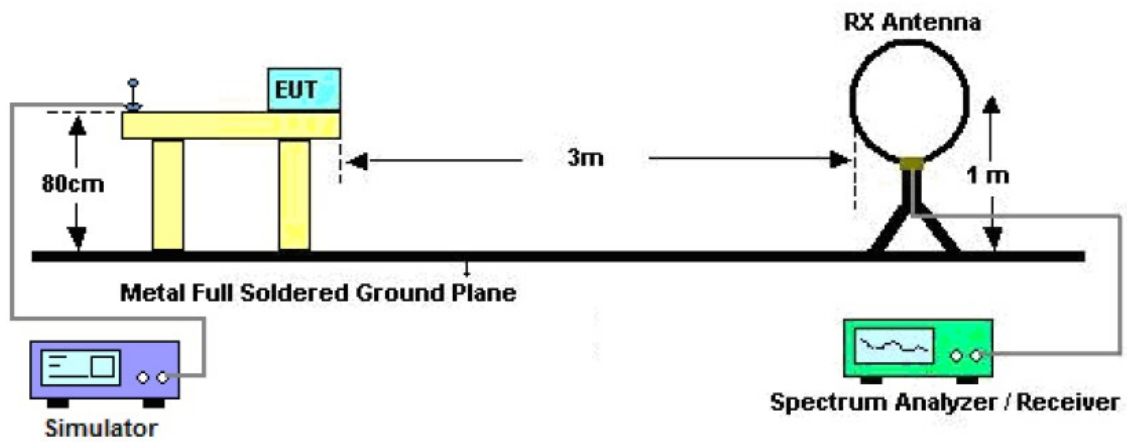
| Freq. (MHz) | Line    | LISN Factor (dB) | Cable Loss (dB) | QP (dBμV) | QP limit (dBμV) | Margin (dB) | AV (dBμV) | AV limit (dBμV) | Margin (dB) |
|-------------|---------|------------------|-----------------|-----------|-----------------|-------------|-----------|-----------------|-------------|
| 0.156       | Neutral | 0.1              | 0.1             | 54.0      | 65.7            | 11.7        | 22.6      | 55.7            | 33.1        |
| 0.272       | Neutral | 0.1              | 0.1             | 51.4      | 61.1            | 9.7         | 24.0      | 51.1            | 27.1        |
| 0.569       | Neutral | 0.1              | 0.1             | 38.3      | 56              | 17.7        | 13.3      | 46              | 32.7        |
| 1.036       | Neutral | 0.1              | 0.1             | 39.6      | 56              | 16.4        | 11.7      | 46              | 34.3        |
| 16.02       | Neutral | 0.2              | 0.2             | 27.4      | 60              | 32.6        | 19.2      | 50              | 30.8        |
| 24.02       | Neutral | 0.2              | 0.3             | 24.1      | 60              | 35.9        | 18.5      | 50              | 31.5        |

### 3.3 Radiated Spurious Emissions

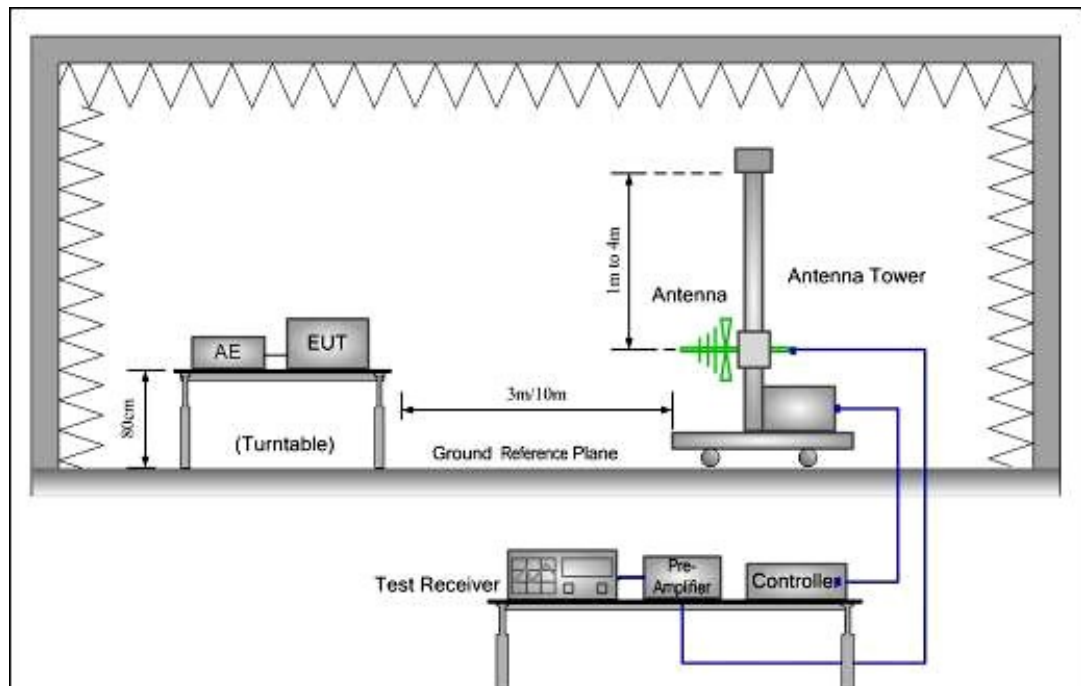
|                          |  |
|--------------------------|--|
| <b>Test Requirement:</b> | FCC Part15 C section 15.247, 15.205<br><br>(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating. The radio frequency power 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, and provided the transmitter demonstrates compliance with the peak conducted power limits. |
| <b>Test Method:</b>      | ANSI C63.10: Clause 6.4, 6.5 and 6.6 & DA 00-705   |
| <b>Test Status:</b>      | Pre-test the EUT in continuous transmitting mode at the lowest (2402 MHz), middle (2441 MHz) and highest (2480 MHz) channel with different data packet. Compliance test in continuous transmitting mode with normal mode (DH5) as the worst case was found.  |
| <b>Detector:</b>         | For PK value:<br>RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz, 9kHz for $<30$ MHz<br>VBW $\geq$ RBW<br><br>Sweep = auto<br>Detector function = peak<br>Trace = max hold<br>For AV value above 1GHz:<br>RBW = 1 MHz for $f \geq 1$ GHz   VBW =10 Hz<br>Sweep = auto<br>Detector function = peak<br>Trace = max hold  |
| 15.209 Limit:            | 40.0 dB $\mu$ V/m between 30MHz & 88MHz<br>43.5 dB $\mu$ V/m between 88MHz & 216MHz<br>46.0 dB $\mu$ V/m between 216MHz & 960MHz<br>54.0 dB $\mu$ V/m above 960MHz   |
| For Band edge:           | Detector: Peak<br>Start/Stop Frequency: Lower Band Edge: 2300 to 2430 MHz<br>Upper Band Edge: 2450 to 2500 MHz<br>RB/ VB (emission in restricted band): 1MHz/ 1MHz,<br>AV= 1MHz/ 10Hz  |

### Test Configuration:

- 1) 9kHz to 30MHz emissions:

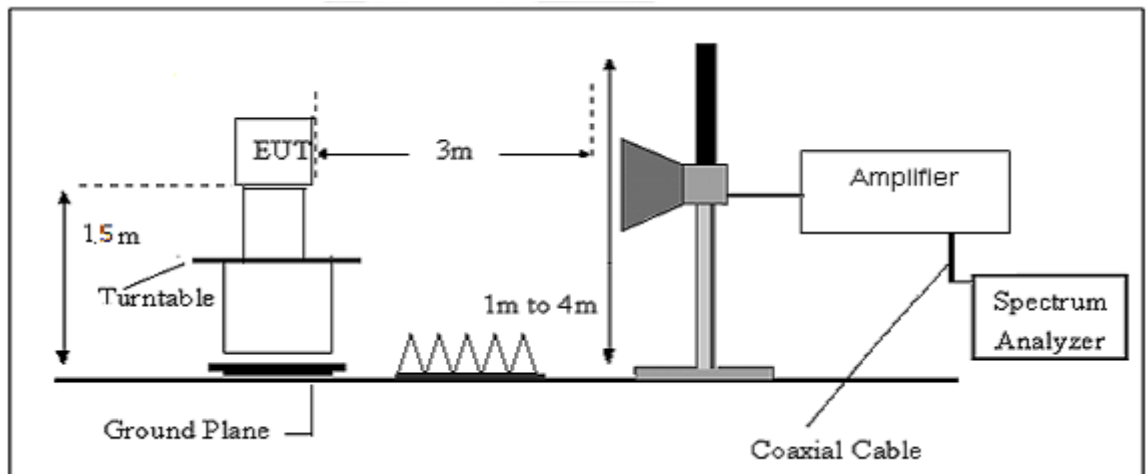


- 2) 30 MHz to 1 GHz emissions:





## 3) 1 GHz to 40 GHz emissions:



**Test Procedure:** The procedure used was ANSI Standard C63.4:2014. The receiver was scanned from 30MHz to 25GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

Now set the VBW to 10 Hz, while maintaining all of the other instrument settings.

This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from

$20\log(\text{dwell time}/100 \text{ ms})$ , in an effort to demonstrate compliance with the 15.209 limit. Submit this data.

## Harmonic and other spurious emissions

### **Test at low Channel in transmitting status**

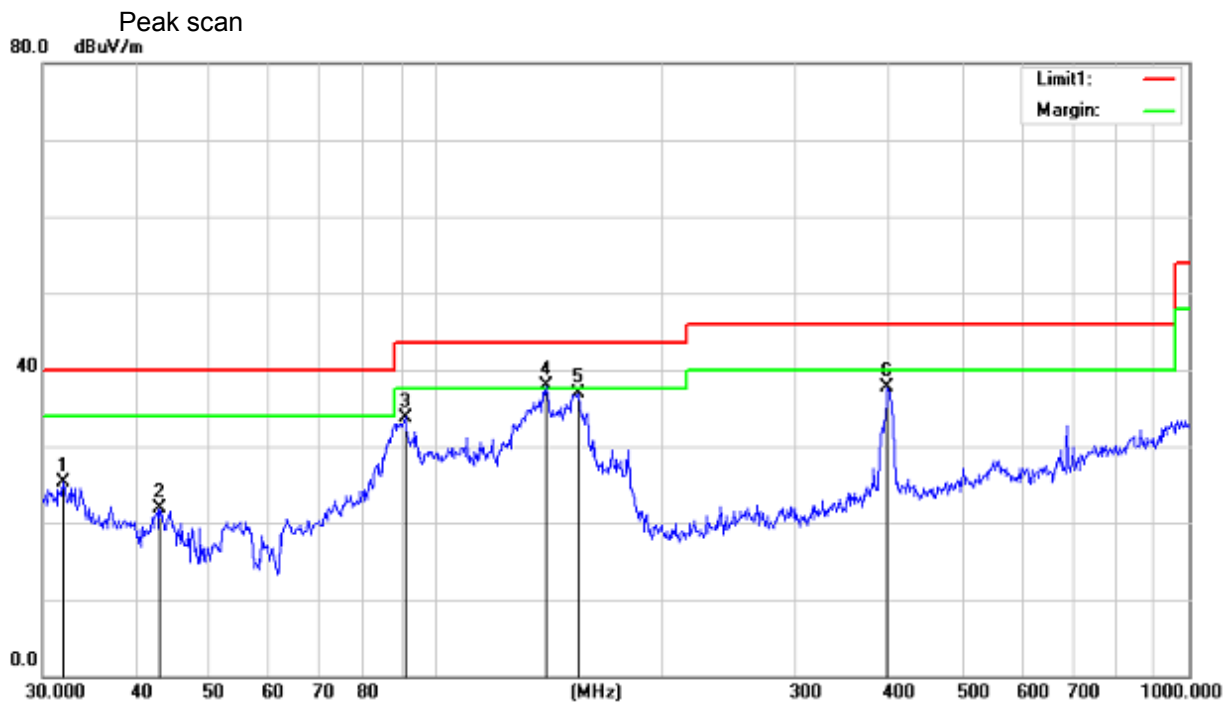
9kHz~30MHz Test result

**The Low frequency, which started from 9kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not report**

## 30 MHz~1 GHz Spurious Emissions .Quasi-Peak Measurement

**Horizontal:**

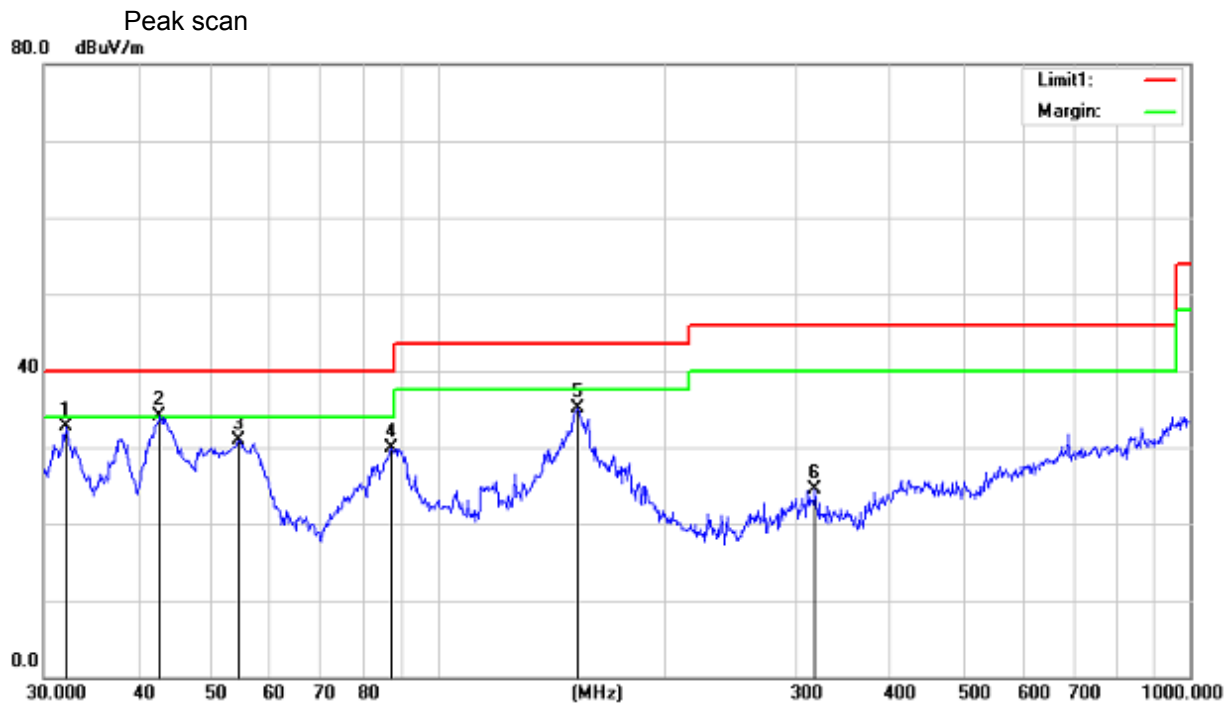
Pre-test in mode 1/2/3/4/5/6/7/8/9, and choose the worst mode 1 as the final measurement.



| Frequency | Reading | Correct     | Result | Limit  | Margin | Remark |
|-----------|---------|-------------|--------|--------|--------|--------|
| MHz       | dBuV    | Factor (dB) | dBuV/m | dBuV/m | dB     |        |
| 31.9      | 7.6     | 17.7        | 25.3   | 40     | -14.7  | QP     |
| 42.9      | 10.0    | 11.9        | 21.9   | 40     | -18.1  | QP     |
| 90.9      | 24.2    | 9.6         | 33.8   | 43.5   | -9.7   | QP     |
| 139.9     | 26.0    | 12.0        | 38.0   | 43.5   | -5.5   | QP     |
| 154.3     | 25.0    | 11.9        | 36.9   | 43.5   | -6.6   | QP     |
| 397.6     | 19.8    | 17.9        | 37.7   | 46     | -8.3   | QP     |

**Vertical:**

Pre-test in mode 1/2/3/4/5/6/7/8/9, and choose the worst mode 1 as the final measurement.



| Frequency<br>MHz | Reading<br>dBuV | Correct<br>Factor (dB) | Result<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | Remark |
|------------------|-----------------|------------------------|------------------|-----------------|--------------|--------|
| 32.1             | 15.1            | 17.6                   | 32.7             | 40              | -7.3         | QP     |
| 42.7             | 22.1            | 11.9                   | 34.0             | 40              | -6.0         | QP     |
| 54.5             | 24.5            | 6.4                    | 30.9             | 40              | -9.1         | QP     |
| 86.8             | 20.8            | 9.1                    | 29.9             | 40              | -10.1        | QP     |
| 154.7            | 23.2            | 11.9                   | 35.1             | 43.5            | -8.4         | QP     |
| 317.7            | 9.3             | 15.3                   | 24.6             | 46              | -21.4        | QP     |

## 1~25 GHz Harmonics &amp; Spurious Emissions. Peak &amp; Average Measurement

| Frequency (MHz)               | Meter Reading (dBuV/m) | Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna polarization |
|-------------------------------|------------------------|-------------|-------------------------|----------------|-------------|----------|----------------------|
| <b>Low Channel: 2402 MHz</b>  |                        |             |                         |                |             |          |                      |
| 4804.2                        | 67.0                   | -3.6        | 63.4                    | 74             | -10.6       | PK       | V (Vertical)         |
| 4804.2                        | 46.1                   | -3.6        | 42.5                    | 54             | -11.5       | AV       | V                    |
| 7206.1                        | 63.0                   | -0.9        | 62.1                    | 74             | -11.9       | PK       | V                    |
| 7206.1                        | 43.1                   | -0.9        | 42.2                    | 54             | -11.8       | AV       | V                    |
| 4804.0                        | 62.8                   | -3.6        | 59.2                    | 74             | -14.8       | PK       | H (Horizontal)       |
| 4804.0                        | 45.0                   | -3.6        | 41.4                    | 54             | -12.6       | AV       | H                    |
| <b>Mid Channel: 2441 MHz</b>  |                        |             |                         |                |             |          |                      |
| 4882.1                        | 65.3                   | -3.7        | 61.6                    | 74.0           | -12.4       | PK       | V                    |
| 4882.1                        | 51.2                   | -3.7        | 47.5                    | 54.0           | -6.5        | AV       | V                    |
| 7323.2                        | 61.1                   | -0.8        | 60.3                    | 74.0           | -13.7       | PK       | V                    |
| 7323.2                        | 45.4                   | -0.8        | 44.6                    | 54.0           | -9.4        | AV       | V                    |
| 4882.2                        | 62.3                   | -3.7        | 58.6                    | 74.0           | -15.4       | PK       | H                    |
| 4882.2                        | 45.3                   | -3.7        | 41.6                    | 54.0           | -12.4       | AV       | H                    |
| <b>High Channel: 2480 MHz</b> |                        |             |                         |                |             |          |                      |
| 4960.3                        | 62.1                   | -3.6        | 58.5                    | 74.0           | -15.5       | PK       | V                    |
| 4960.3                        | 46.4                   | -3.6        | 42.8                    | 54.0           | -11.2       | AV       | V                    |
| 7440.3                        | 62.3                   | -0.8        | 61.5                    | 74.0           | -12.5       | PK       | V                    |
| 7440.3                        | 46.4                   | -0.8        | 45.6                    | 54.0           | -8.4        | AV       | V                    |
| 4960.3                        | 62.9                   | -3.6        | 59.3                    | 74.0           | -14.7       | PK       | H                    |
| 4960.3                        | 47.2                   | -3.6        | 43.6                    | 54.0           | -10.4       | AV       | H                    |

Note:

1) Scan with GFSK,  $\pi/4$ -DQPSK, 8DPSK, the worst case if GFSK Mode.

2) Factor = Antenna Factor + Cable Loss – Pre-amplifier.

In scan frequency range: 30MHz to 1GHz, pre-amplifier factor = 0 dB.

Emission Level = Meter Reading + Factor

Margin = Emission Level - Limit.

Band edge

| Frequency (MHz)                 | Meter Reading (dBuV/m) | Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna polarization |
|---------------------------------|------------------------|-------------|-------------------------|----------------|-------------|----------|----------------------|
| <b>GFSK</b>                     |                        |             |                         |                |             |          |                      |
| 2400.0                          | 69.1                   | -13.0       | 56.1                    | 74.0           | -17.9       | PK       | V                    |
| 2400.0                          | 54.7                   | -13.0       | 41.7                    | 54.0           | -12.3       | AV       | V                    |
| 2400.0                          | 70.1                   | -13.0       | 57.1                    | 74.0           | -16.9       | PK       | H                    |
| 2400.0                          | 53.7                   | -13.0       | 40.7                    | 54.0           | -13.3       | AV       | H                    |
| 2483.5                          | 71.0                   | -12.8       | 58.2                    | 74.0           | -15.8       | PK       | V                    |
| 2483.5                          | 53.7                   | -12.8       | 40.9                    | 54.0           | -13.1       | AV       | V                    |
| 2483.5                          | 72.4                   | -12.8       | 59.6                    | 74.0           | -14.4       | PK       | H                    |
| 2483.5                          | 54.4                   | -12.8       | 41.6                    | 54.0           | -12.4       | AV       | H                    |
| <b><math>\pi/4</math>-DQPSK</b> |                        |             |                         |                |             |          |                      |
| 2400.0                          | 72.1                   | -13.0       | 59.1                    | 74.0           | -14.9       | PK       | V                    |
| 2400.0                          | 54.1                   | -13.0       | 41.1                    | 54.0           | -12.9       | AV       | V                    |
| 2400.0                          | 69.7                   | -13.0       | 56.7                    | 74.0           | -17.3       | PK       | H                    |
| 2400.0                          | 54.5                   | -13.0       | 41.5                    | 54.0           | -12.5       | AV       | H                    |
| 2483.5                          | 71.2                   | -12.8       | 58.4                    | 74.0           | -15.6       | PK       | V                    |
| 2483.5                          | 55.7                   | -12.8       | 42.9                    | 54.0           | -11.1       | AV       | V                    |
| 2483.5                          | 71.1                   | -12.8       | 58.3                    | 74.0           | -15.7       | PK       | H                    |
| 2483.5                          | 53.7                   | -12.8       | 40.9                    | 54.0           | -13.1       | AV       | H                    |
| <b>8DPSK</b>                    |                        |             |                         |                |             |          |                      |
| 2400.0                          | 71.2                   | -13.0       | 58.2                    | 74.0           | -15.8       | PK       | V                    |
| 2400.0                          | 54.1                   | -13.0       | 41.1                    | 54.0           | -12.9       | AV       | V                    |
| 2400.0                          | 71.3                   | -13.0       | 58.3                    | 74.0           | -15.7       | PK       | H                    |
| 2400.0                          | 55.4                   | -13.0       | 42.4                    | 54.0           | -11.6       | AV       | H                    |
| 2483.5                          | 70.7                   | -12.8       | 57.9                    | 74.0           | -16.1       | PK       | V                    |
| 2483.5                          | 55.8                   | -12.8       | 43.0                    | 54.0           | -11.0       | AV       | V                    |
| 2483.5                          | 71.3                   | -12.8       | 58.5                    | 74.0           | -15.5       | PK       | H                    |
| 2483.5                          | 54.1                   | -12.8       | 41.3                    | 54.0           | -12.7       | AV       | H                    |

Low measurement frequencies is range from 2310 to 2400 MHz, high measurement frequencies is range from 2483.5 to 2500 MHz.

Only show the worst point data of the emissions in the frequency 2310-2400 MHz and 2483.5-2500 MHz.

## Hopping (Band edge)

| Frequency (MHz)                 | Meter Reading (dBuV/m) | Factor (dB) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Antenna polarization |
|---------------------------------|------------------------|-------------|-------------------------|----------------|-------------|----------|----------------------|
| <b>GFSK</b>                     |                        |             |                         |                |             |          |                      |
| 2400.0                          | 69.8                   | -13.0       | 56.8                    | 74.0           | -17.2       | PK       | V                    |
| 2400.0                          | 55.4                   | -13.0       | 42.4                    | 54.0           | -11.6       | AV       | V                    |
| 2400.0                          | 68.1                   | -13.0       | 55.1                    | 74.0           | -18.9       | PK       | H                    |
| 2400.0                          | 54.2                   | -13.0       | 41.2                    | 54.0           | -12.8       | AV       | H                    |
| 2483.5                          | 67.4                   | -12.8       | 54.6                    | 74.0           | -19.4       | PK       | V                    |
| 2483.5                          | 55.5                   | -12.8       | 42.7                    | 54.0           | -11.3       | AV       | V                    |
| 2483.5                          | 68.7                   | -12.8       | 55.9                    | 74.0           | -18.1       | PK       | H                    |
| 2483.5                          | 55.4                   | -12.8       | 42.6                    | 54.0           | -11.4       | AV       | H                    |
| <b><math>\pi/4</math>-DQPSK</b> |                        |             |                         |                |             |          |                      |
| 2400.0                          | 69.4                   | -13.0       | 56.4                    | 74.0           | -17.6       | PK       | V                    |
| 2400.0                          | 56.5                   | -13.0       | 43.5                    | 54.0           | -10.5       | AV       | V                    |
| 2400.0                          | 68.7                   | -13.0       | 55.7                    | 74.0           | -18.3       | PK       | H                    |
| 2400.0                          | 54.5                   | -13.0       | 41.5                    | 54.0           | -12.5       | AV       | H                    |
| 2483.5                          | 68.6                   | -12.8       | 55.8                    | 74.0           | -18.2       | PK       | V                    |
| 2483.5                          | 54.8                   | -12.8       | 42.0                    | 54.0           | -12.0       | AV       | V                    |
| 2483.5                          | 69.4                   | -12.8       | 56.6                    | 74.0           | -17.4       | PK       | H                    |
| 2483.5                          | 55.6                   | -12.8       | 42.8                    | 54.0           | -11.2       | AV       | H                    |
| <b>8DPSK</b>                    |                        |             |                         |                |             |          |                      |
| 2400.0                          | 69.5                   | -13.0       | 56.5                    | 74.0           | -17.5       | PK       | V                    |
| 2400.0                          | 55.4                   | -13.0       | 42.4                    | 54.0           | -11.6       | AV       | V                    |
| 2400.0                          | 68.7                   | -13.0       | 55.7                    | 74.0           | -18.3       | PK       | H                    |
| 2400.0                          | 55.6                   | -13.0       | 42.6                    | 54.0           | -11.4       | AV       | H                    |
| 2483.5                          | 69.4                   | -12.8       | 56.6                    | 74.0           | -17.4       | PK       | V                    |
| 2483.5                          | 54.8                   | -12.8       | 42.0                    | 54.0           | -12.0       | AV       | V                    |
| 2483.5                          | 68.6                   | -12.8       | 55.8                    | 74.0           | -18.2       | PK       | H                    |
| 2483.5                          | 55.9                   | -12.8       | 43.1                    | 54.0           | -10.9       | AV       | H                    |

Low measurement frequencies is range from 2310 to 2400 MHz, high measurement frequencies is range from 2483.5 to 2500 MHz.

Only show the worst point data of the emissions in the frequency 2310-2400 MHz and 2483.5-2500 MHz.

### 3.4 Conducted Spurious

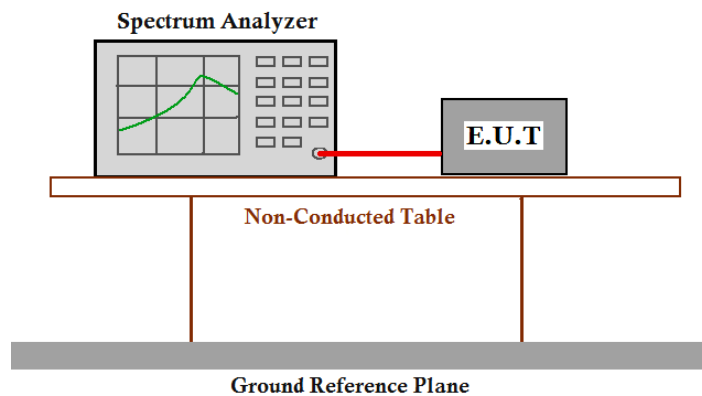
**Test Requirement:** FCC Part15 C section 15.247

(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 radiated measurement. Provided the transmitter demonstrates compliance with the peak conducted power limits.

**Test Method:** ANSI C63.10: Clause 6.7 & DA 00-705

**Test Status:** Pre-test the EUT in continuous transmitting mode at the lowest (2402 MHz), middle (2441 MHz) and highest (2480 MHz) channel with different data packet. Compliance test in continuous transmitting mode with normal mode (DH5) as the worst case was found.

**Test Configuration:**

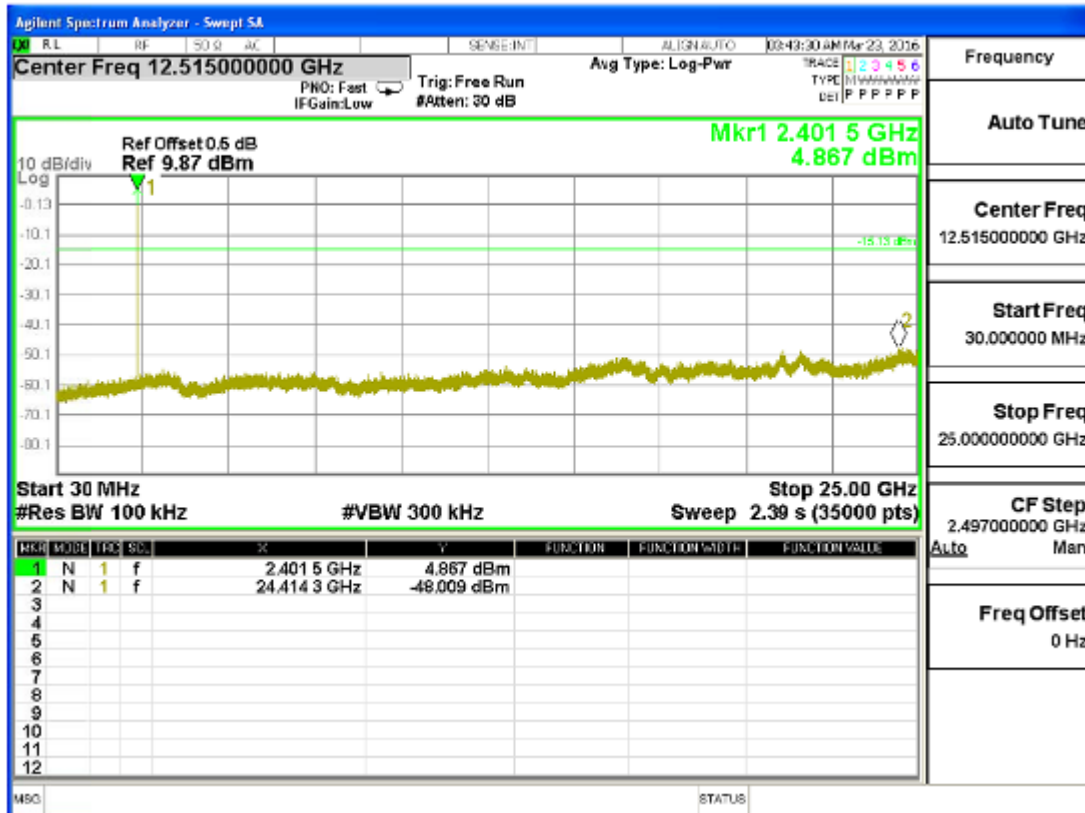


**Test Procedure:**

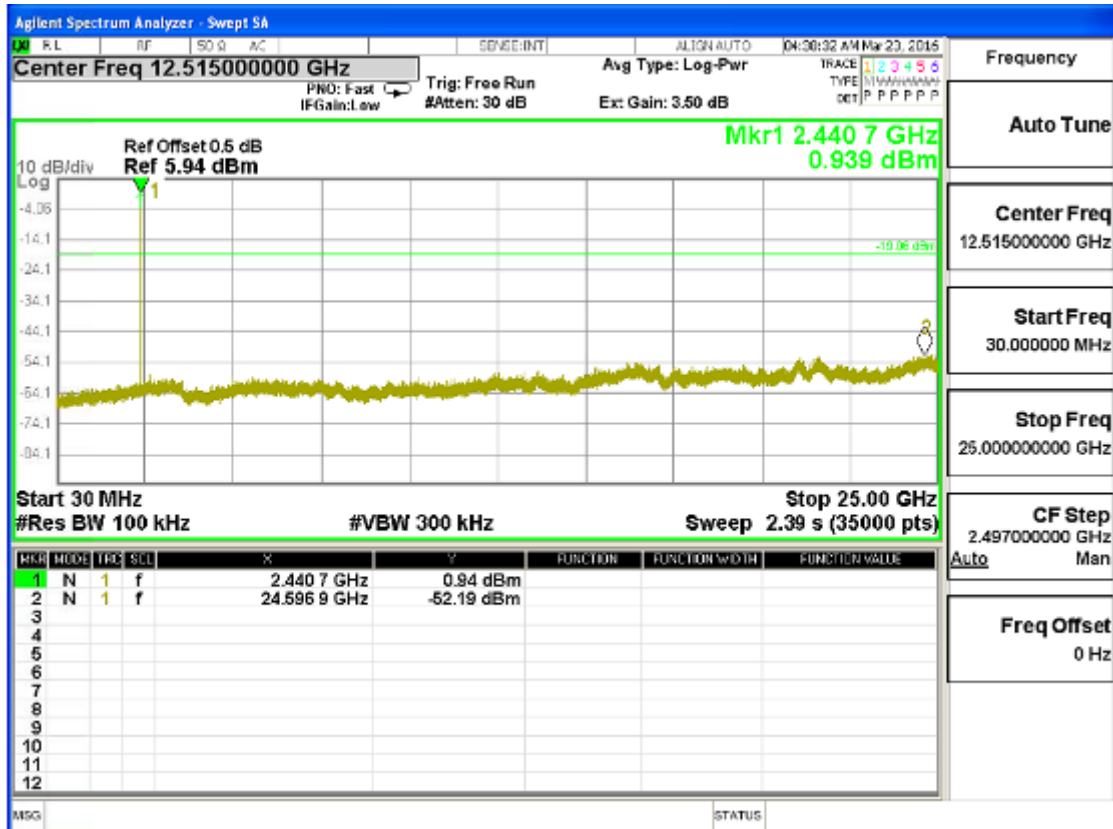
1. Remove the antenna from the EUT and then connect a low attenuation RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100 kHz. VBW  $\geq$  RBW. Sweep = auto; Detector Function = Peak (Max. hold).



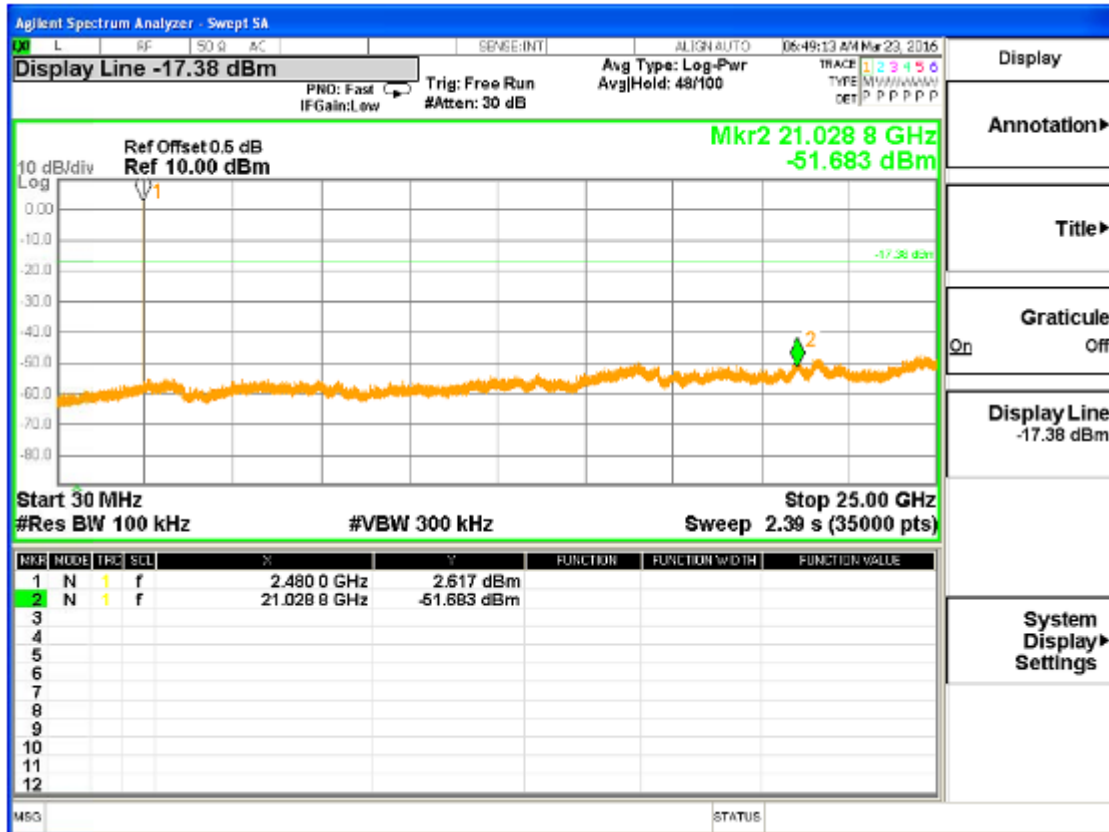
Test result plot as follows: GFSK(1Mbps)-00/39/78 CH  
00 CH:



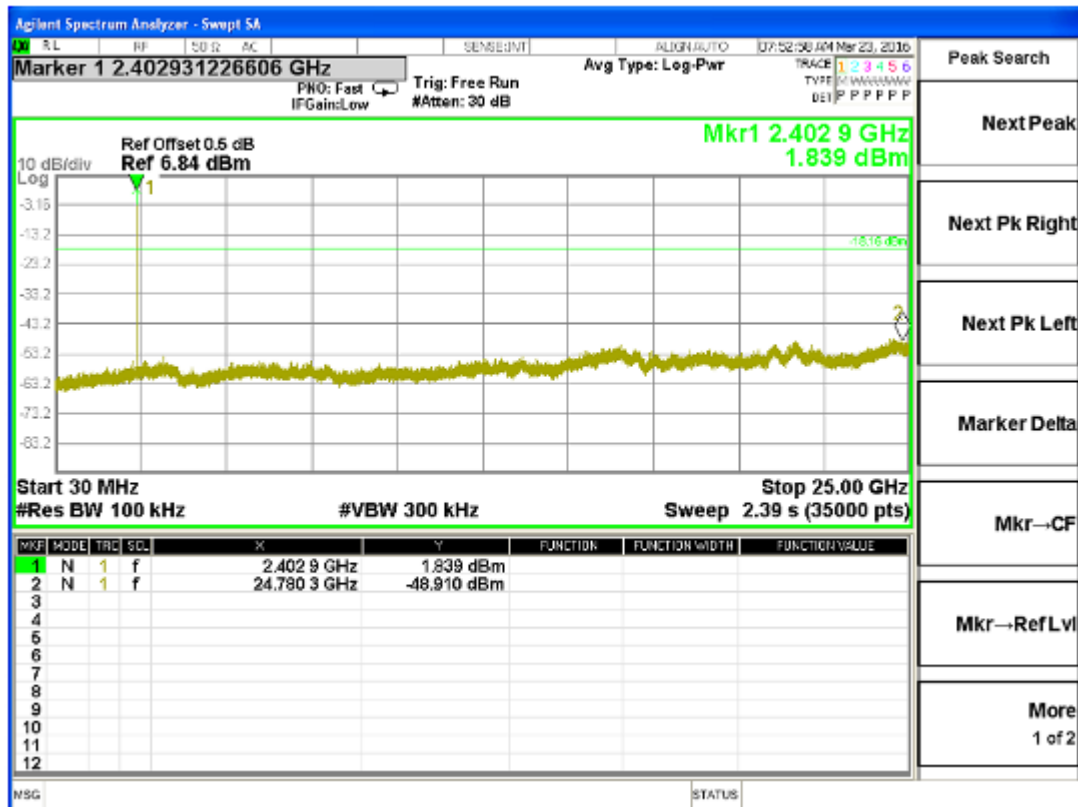
39 CH:



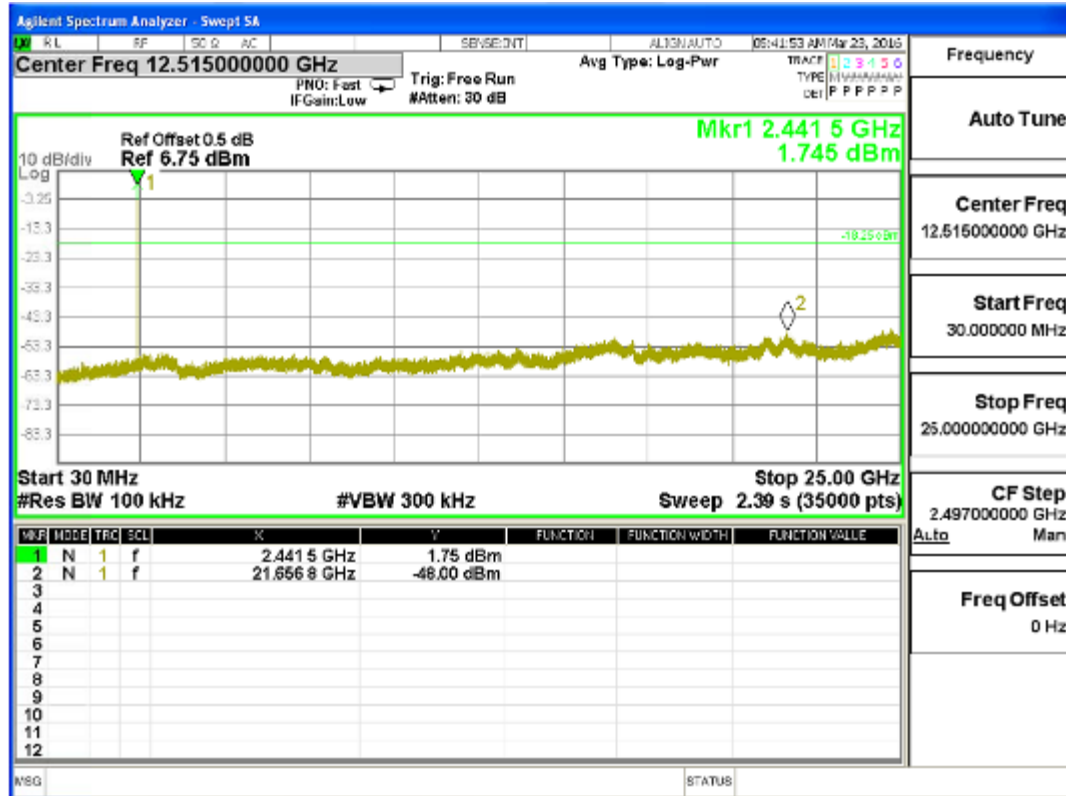
78 CH:



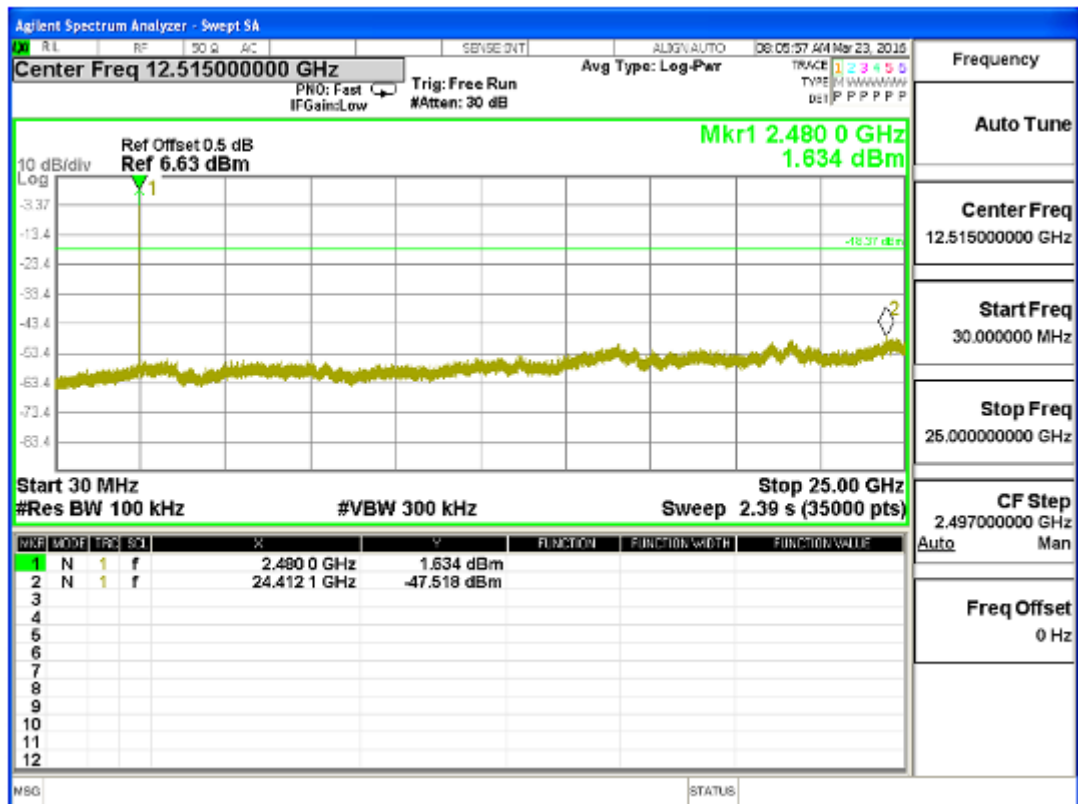
$\pi/4$  - DQPSK(2Mbps)-00/39/78 CH  
00 CH:



## 39 CH:

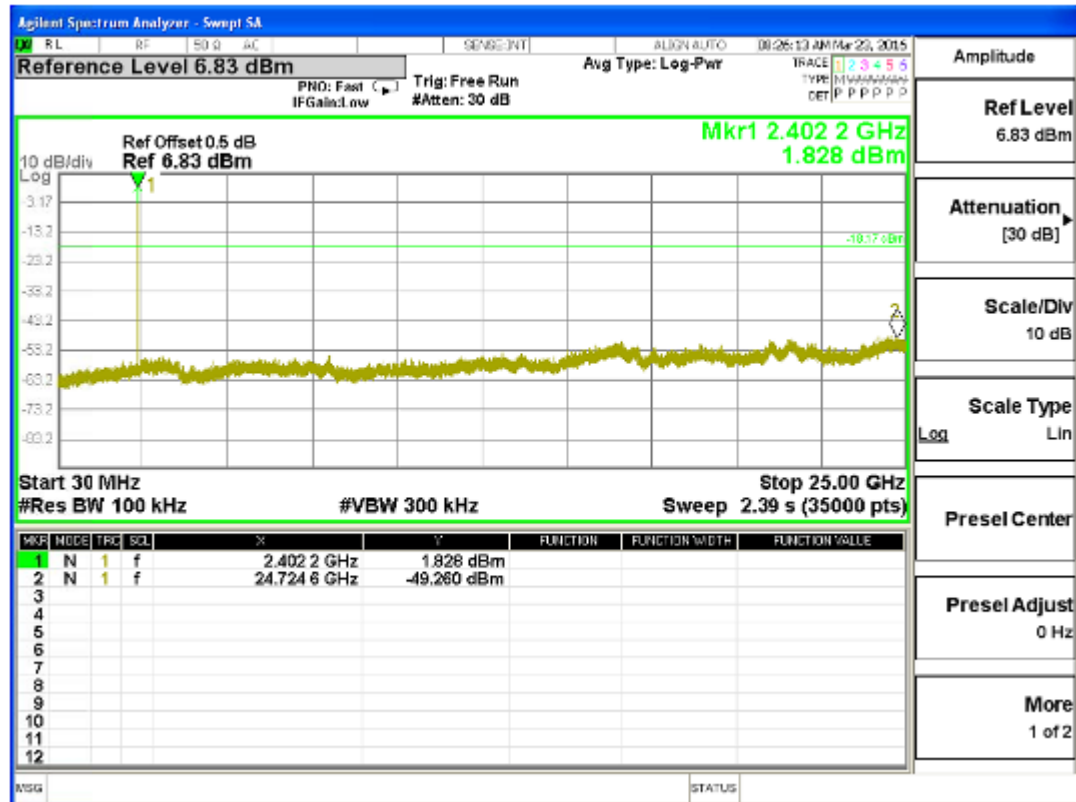


## 78 CH:

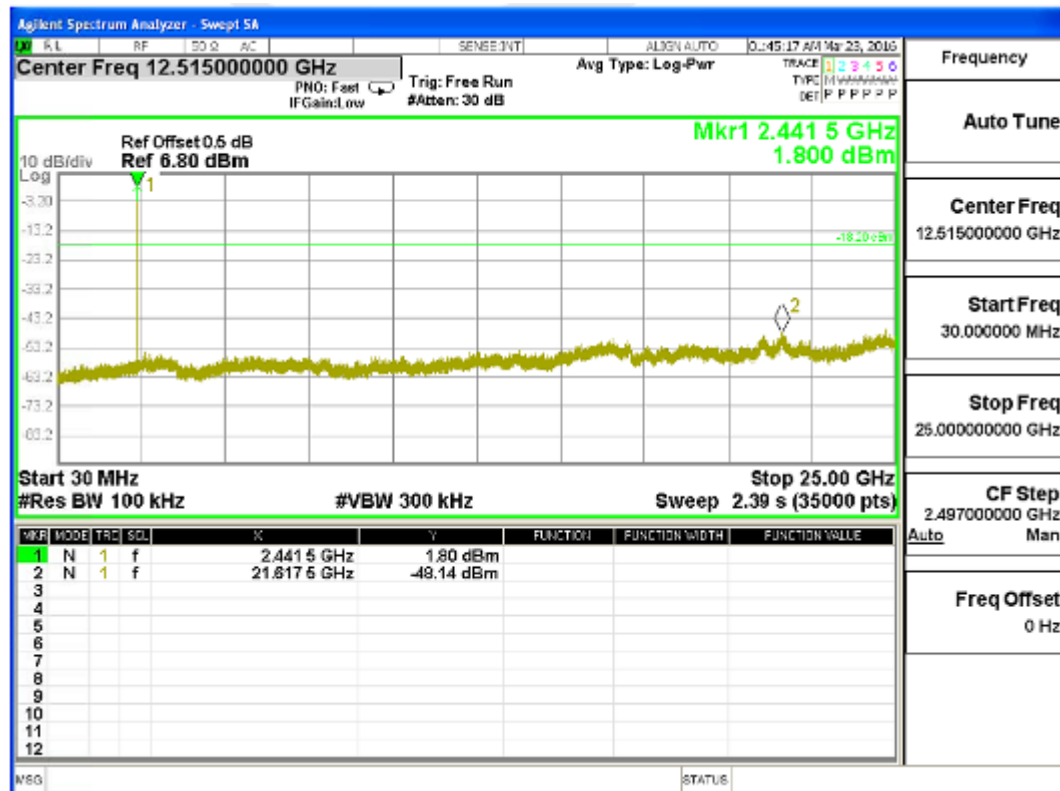


## 8DPSK(3Mbps)-00/39/78 CH

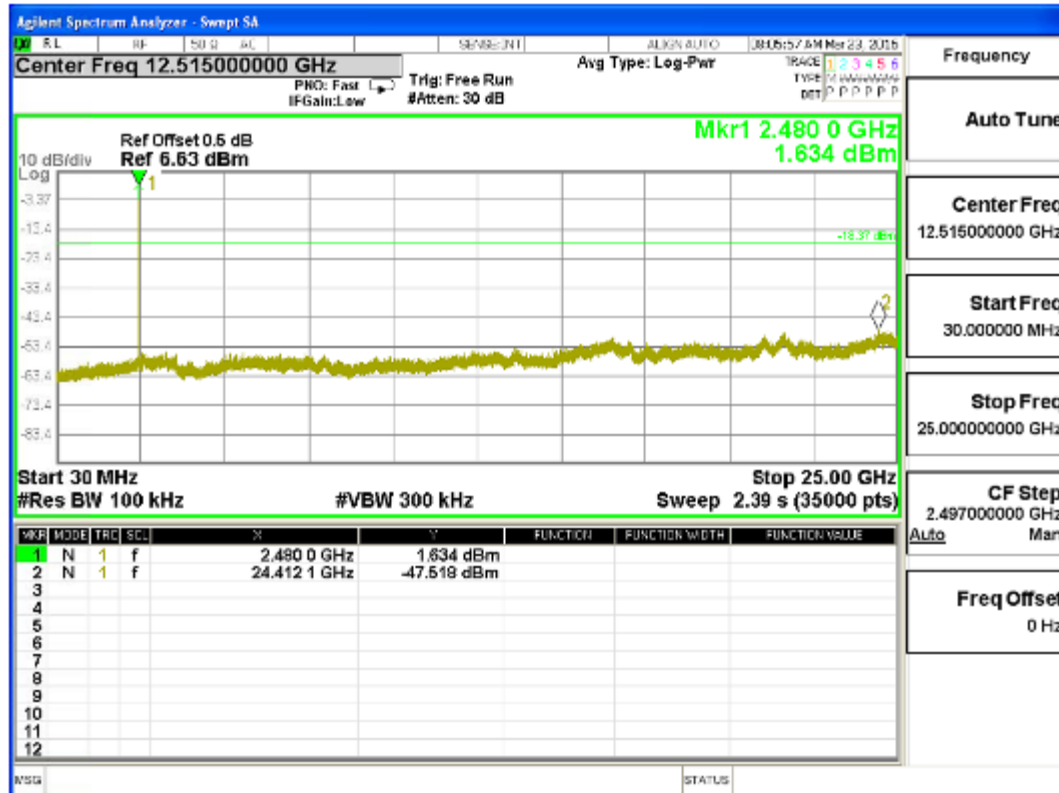
00 CH:



39CH:



78 CH:



### 3.5 Band Edges

**Test Requirement:**

FCC Part15 C section 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

**Frequency Band:**

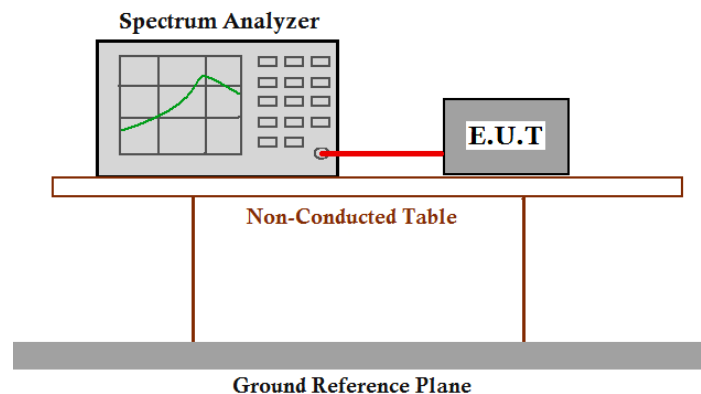
2400 MHz to 2483.5 MHz

**Test Method:**

ANSI C63.10: Clause 6.9 &amp; DA 00-705

**Test Status:**

Pre-test the EUT in continuous transmitting mode at the lowest (2402 MHz), and highest (2480 MHz) channel and hopping mode with different data packet. Compliance test in continuous transmitting mode with normal (DH5) and EDR mode (3DH5) as the worst case was found.

**Test Configuration:**

**Test Procedure:**

Set RBW of spectrum analyzer to 100 kHz and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 kHz bandwidth from band edge.

The band edges was measured and recorded Result:

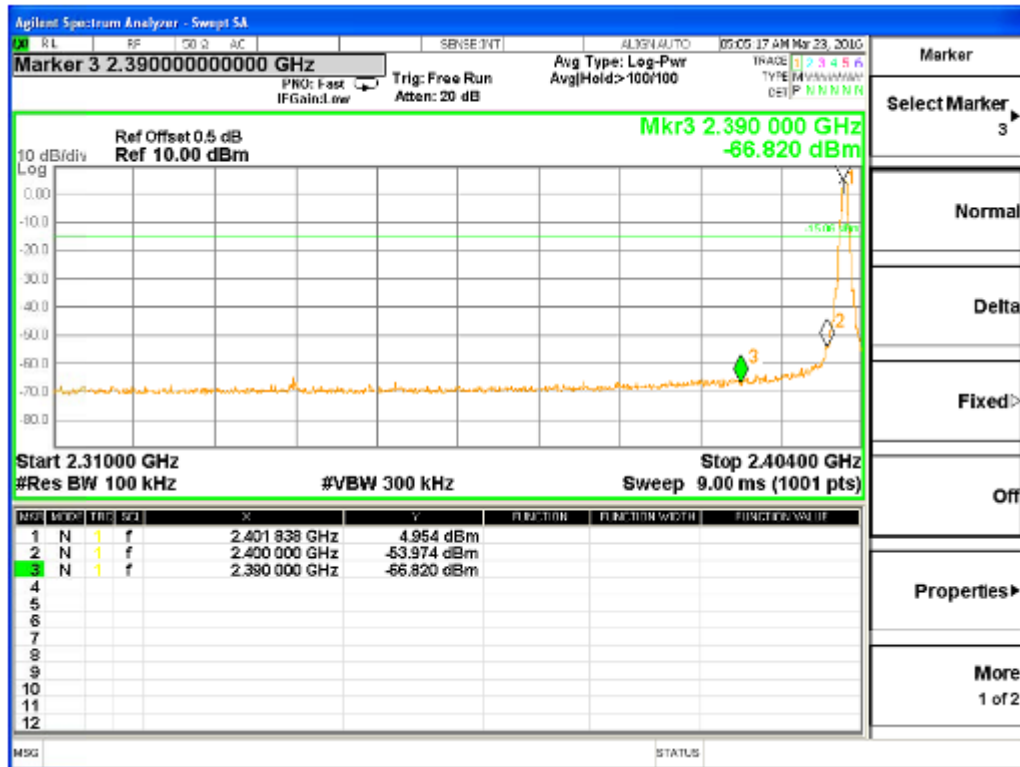
The Lower Edges attenuated more than 20dB.

The Upper Edges attenuated more than 20dB.

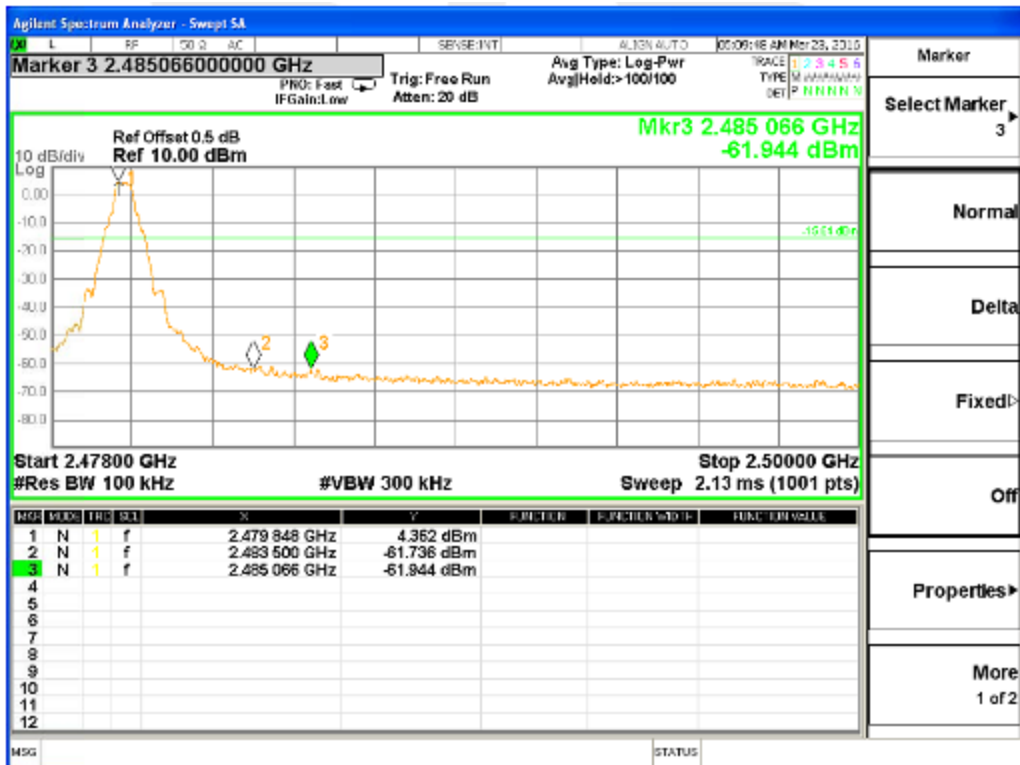
The graph as below. Represents the emissions take for this device. **GFSK(1Mbps)-00/78 CH**

For band edge:

00 CH:



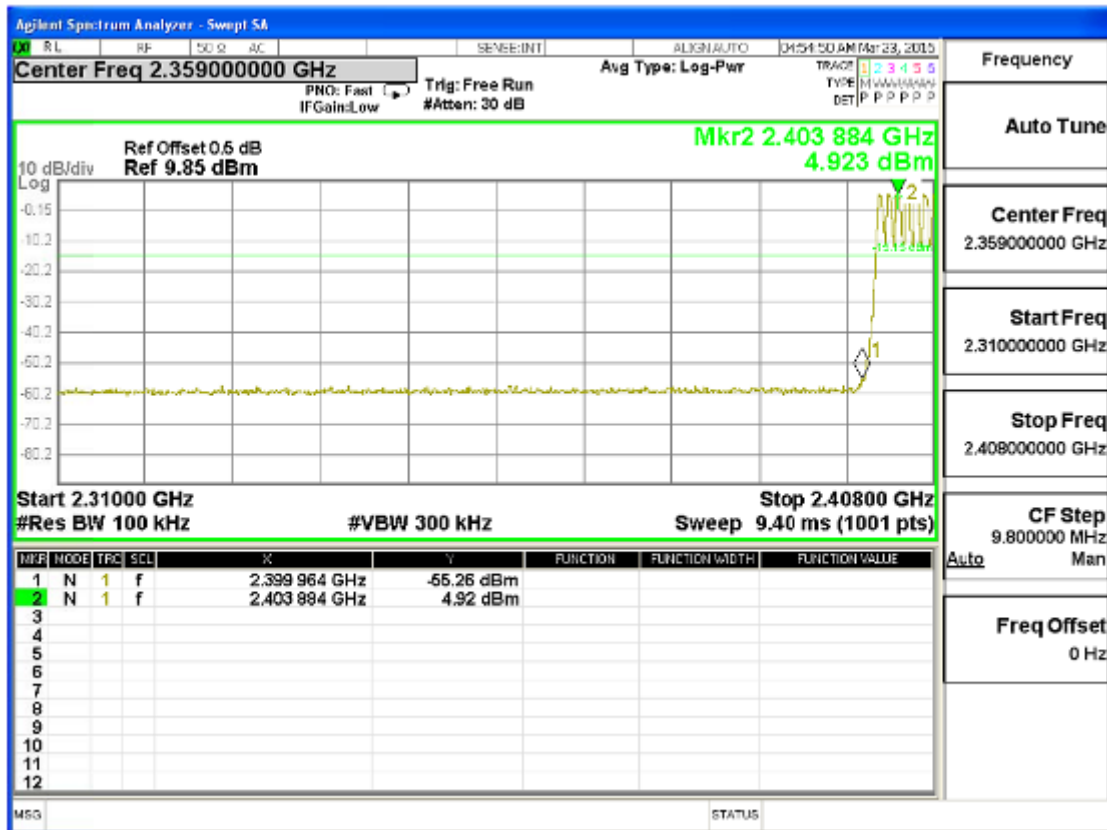
78 CH:



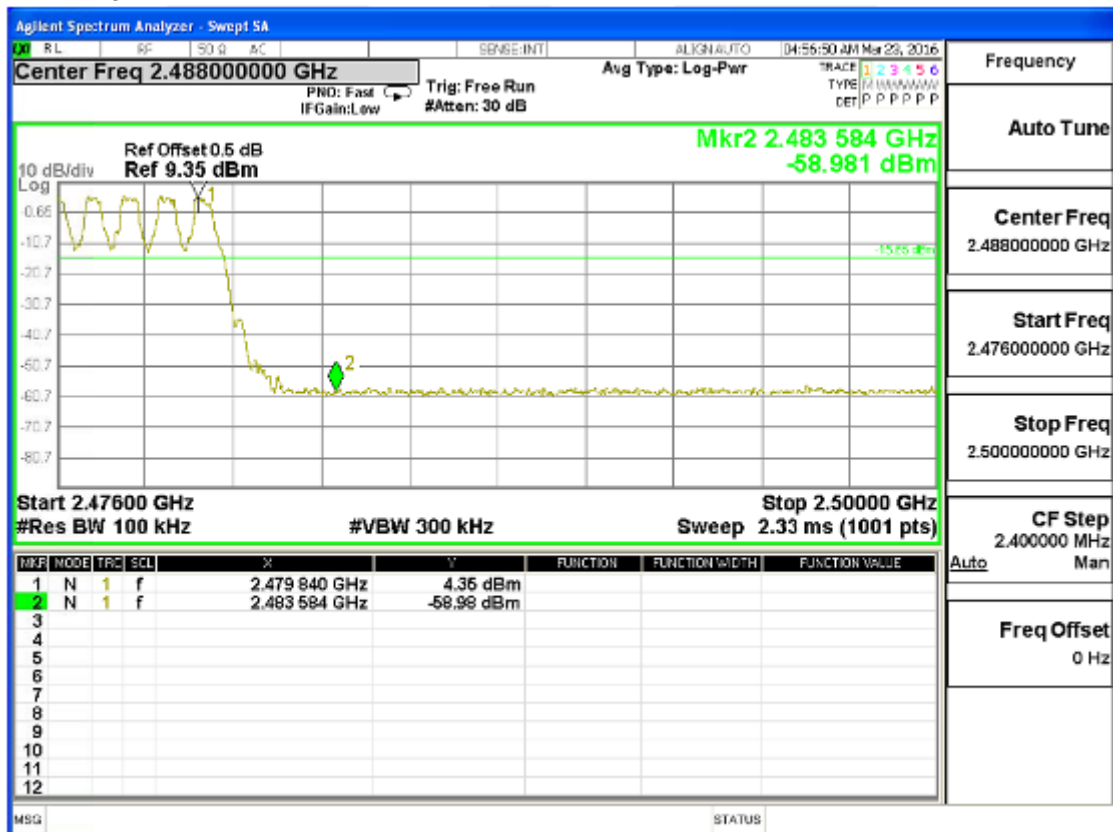


For Hopping band edge:

00 CH:



78 CH

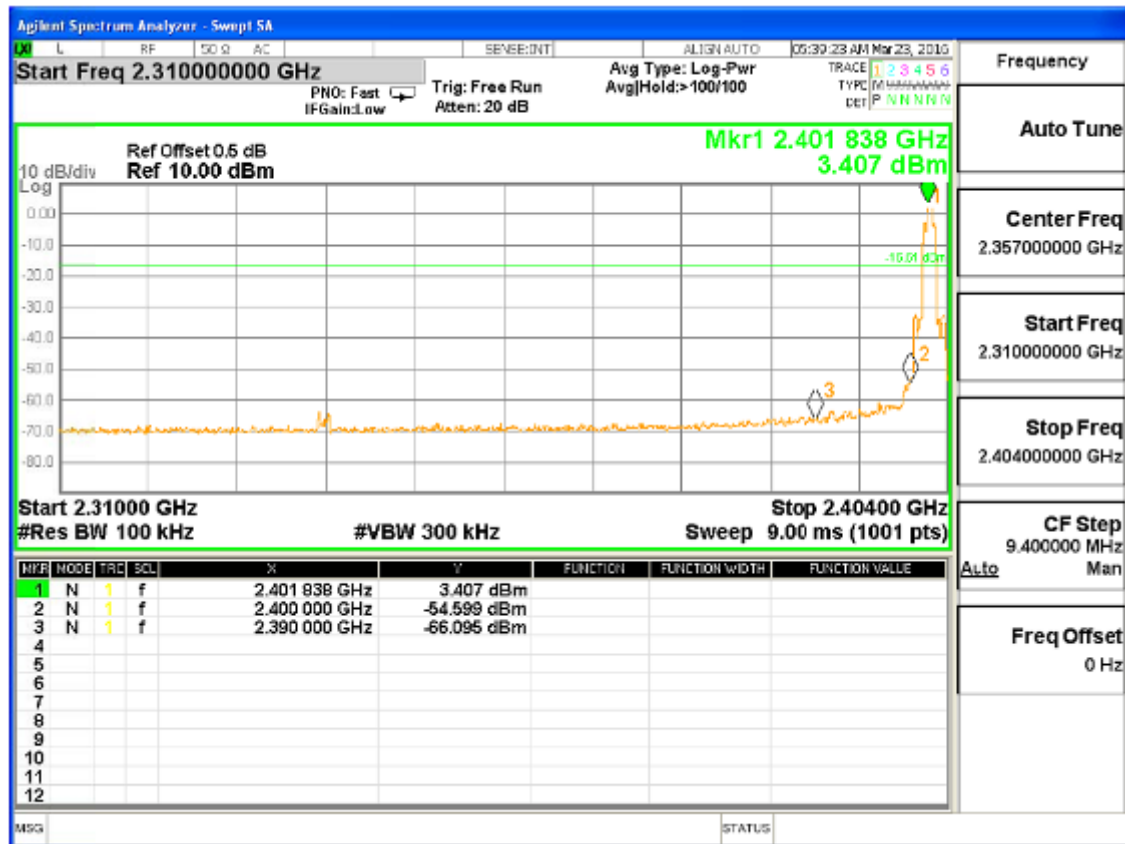




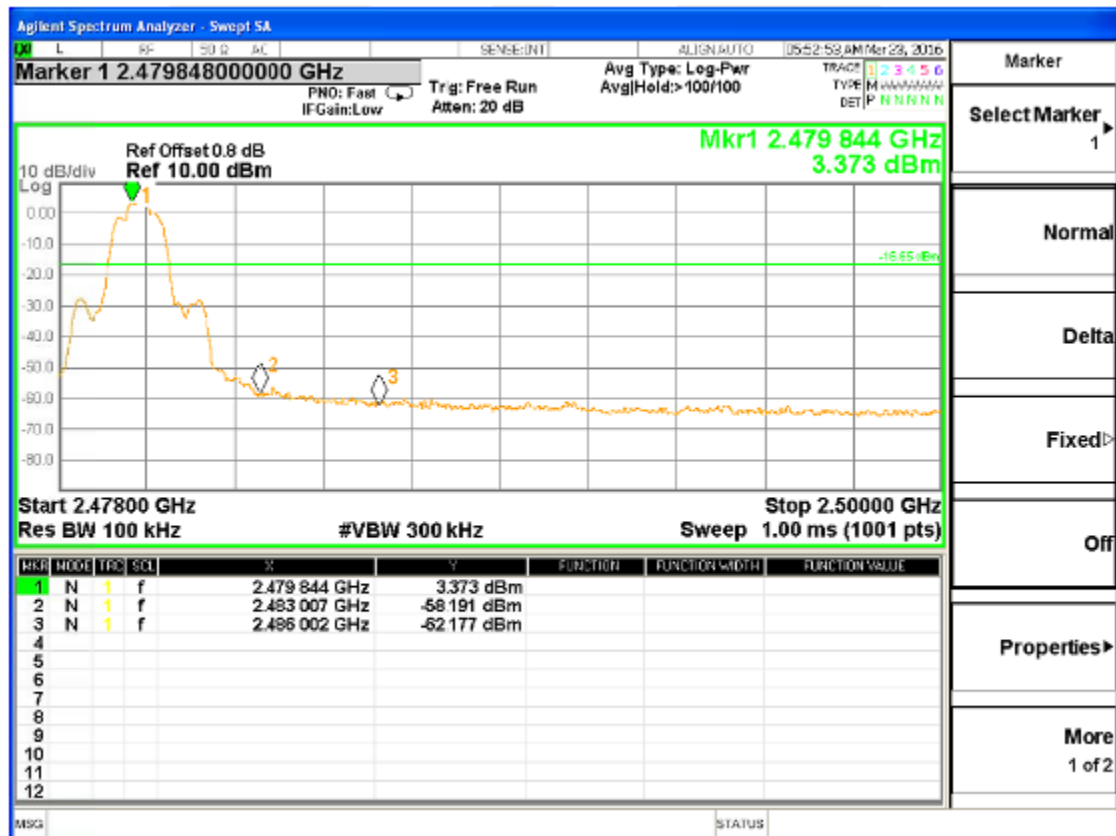
$\pi/4$  - DQPSK(2Mbps)-00/78 CH

For band edge:

00 CH:

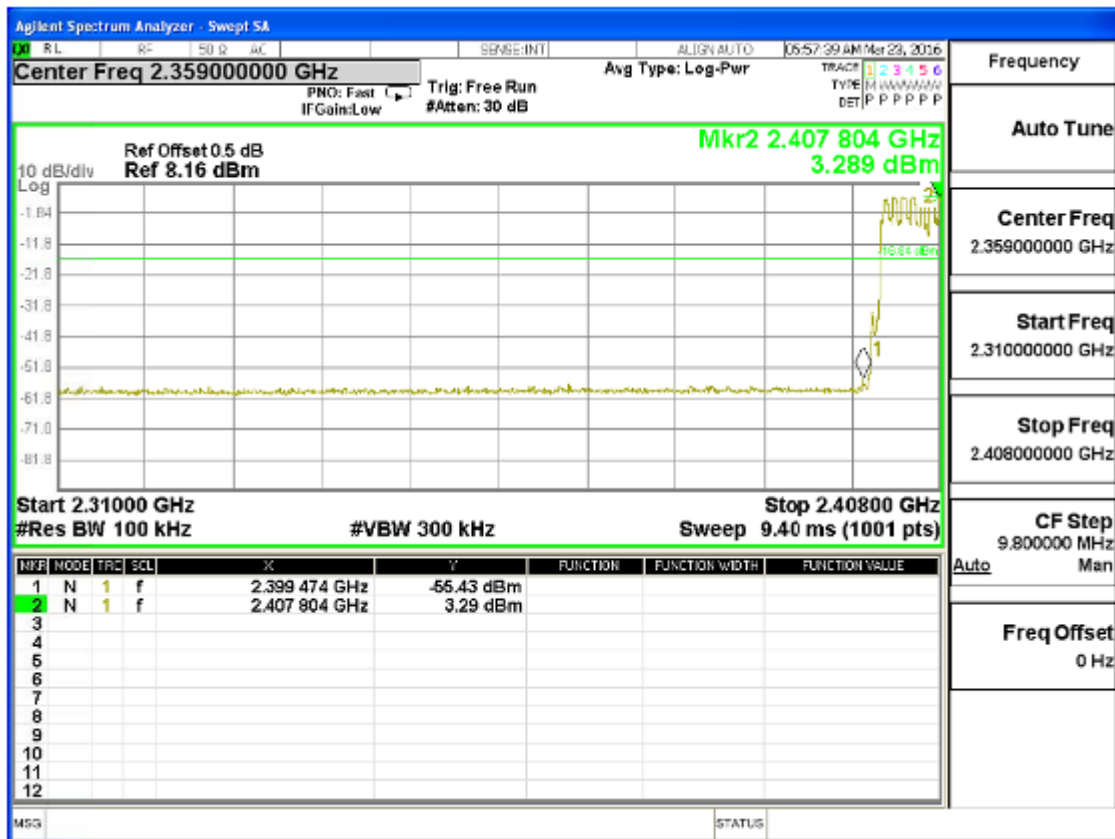


78 CH:

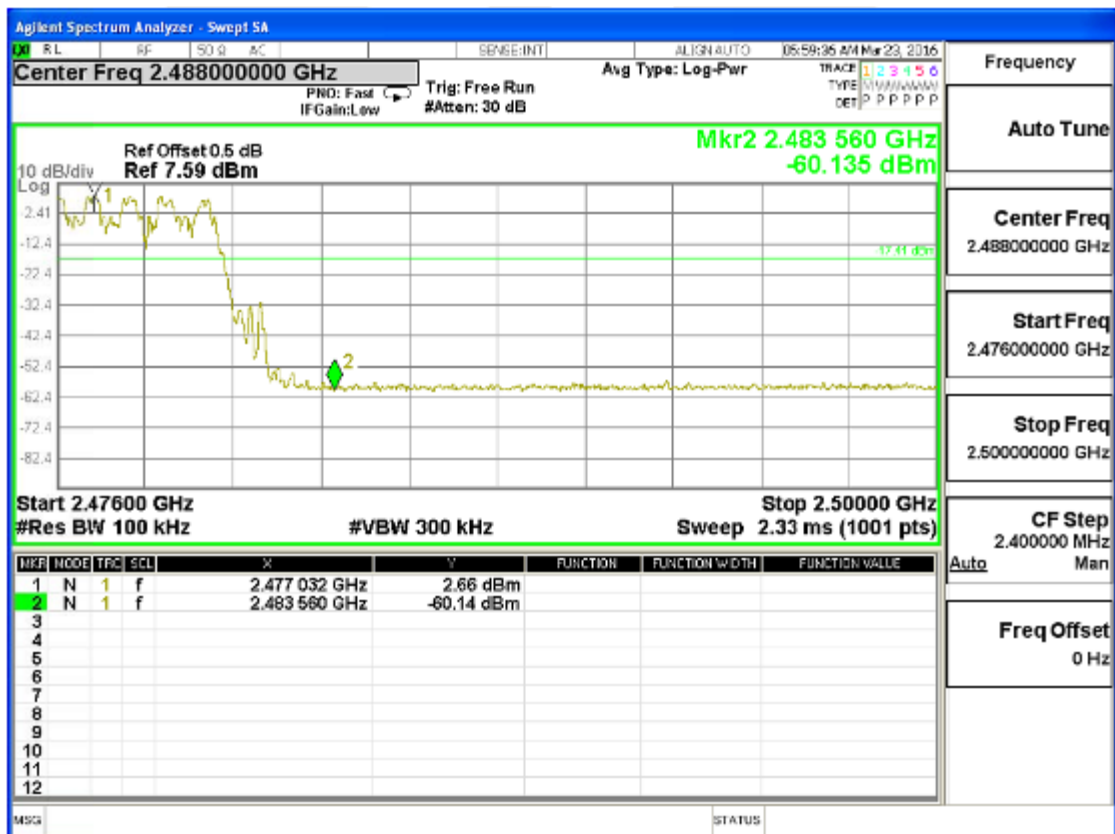


For hopping band edge:

00 CH:



78 CH:

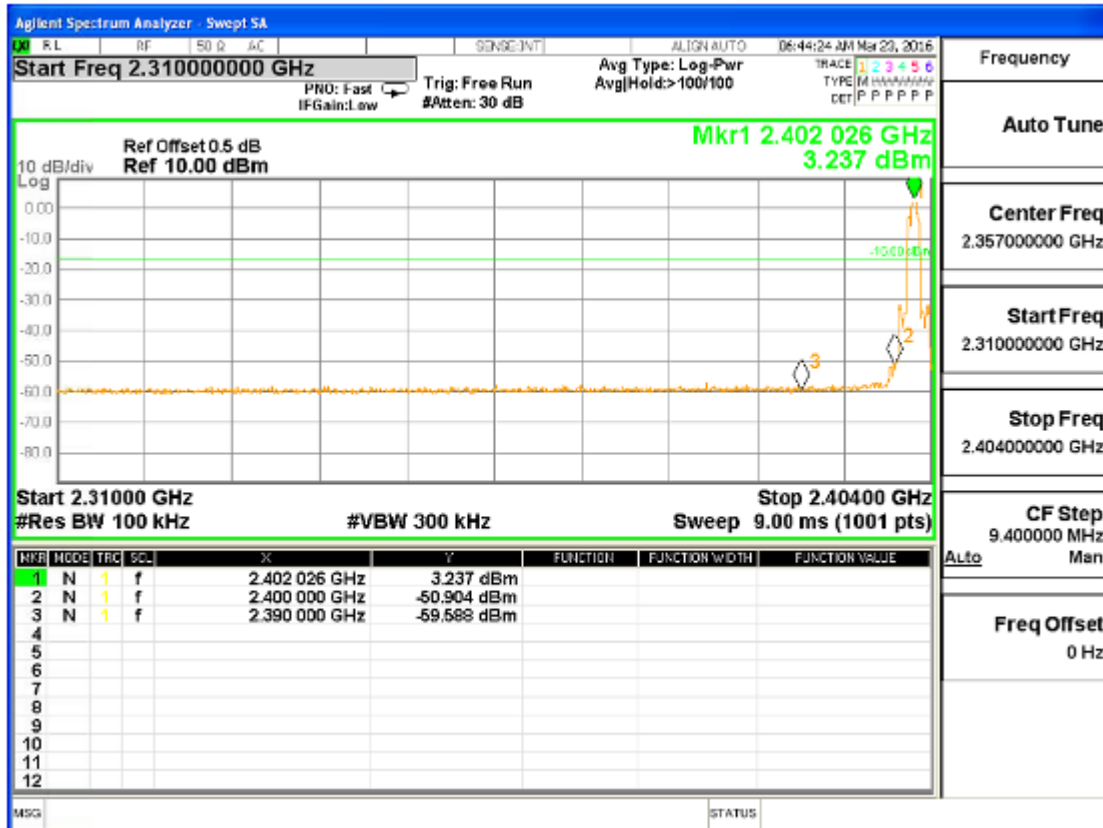


TRF No. /

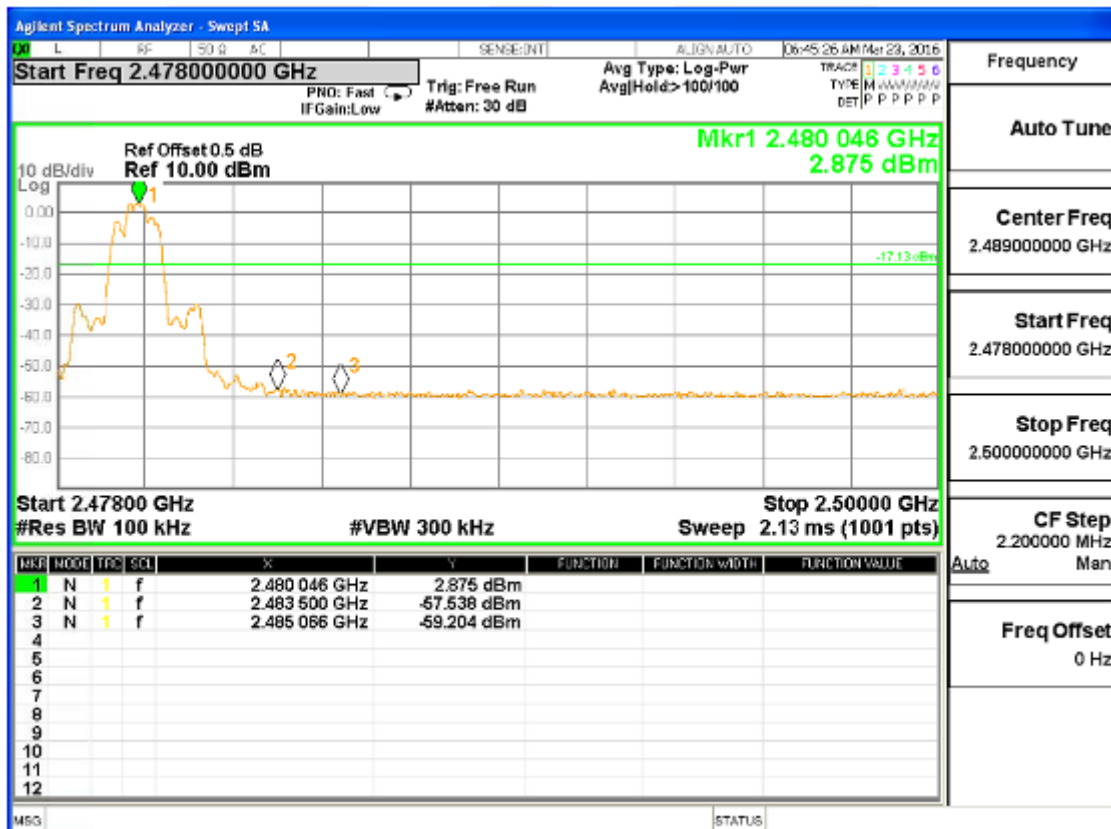
## 8DPSK(3Mbps)-00/78 CH

For band edge:

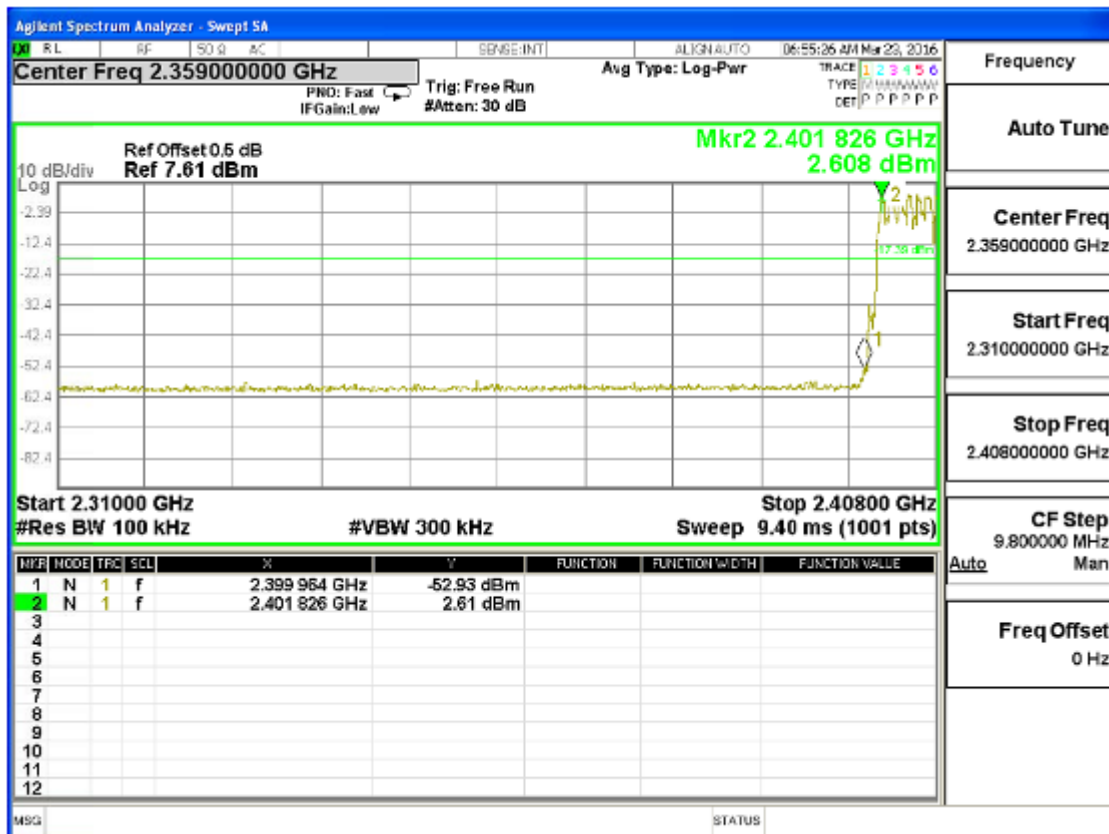
**00 CH:**



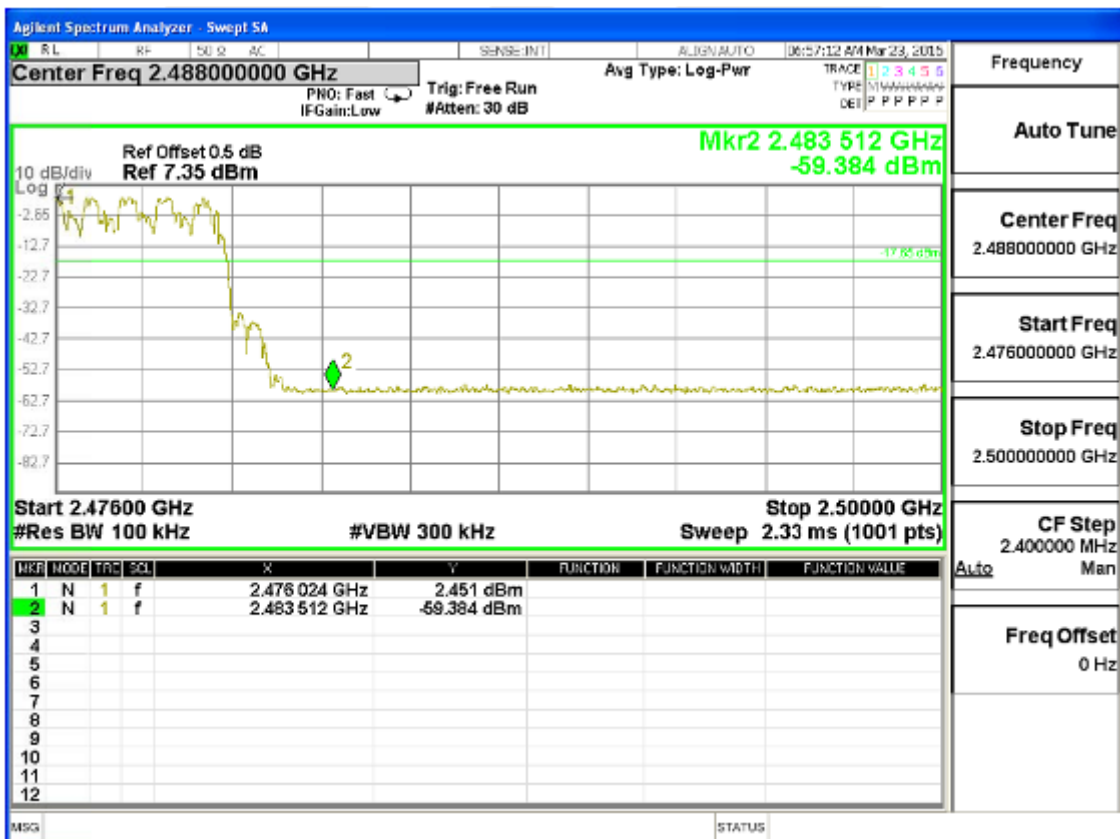
**78 CH:**



For hopping band edge:  
00 CH:



78 CH:



Test result: The unit does meet the FCC requirements.

### 3.6 Hopping Channel Number

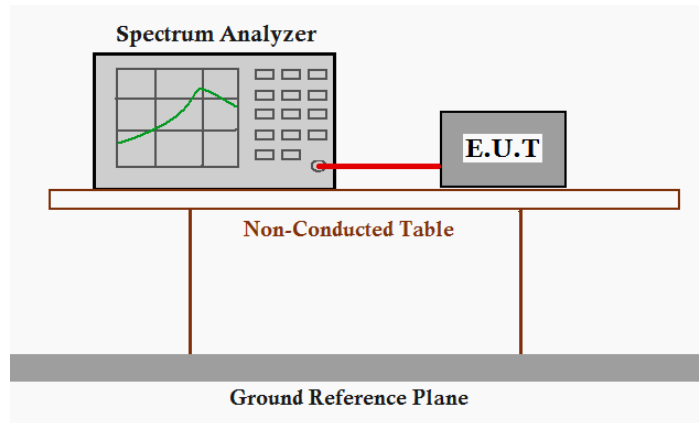
**Test Requirement:** FCC Part15 C section 15.247

(a)(1)(iii) Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

**Test Method:** DA 00-705

**Test Status:** Pre-test the EUT in hopping mode with different data packet. Compliance test in hopping with normal mode (DH5) as the worst case was found.

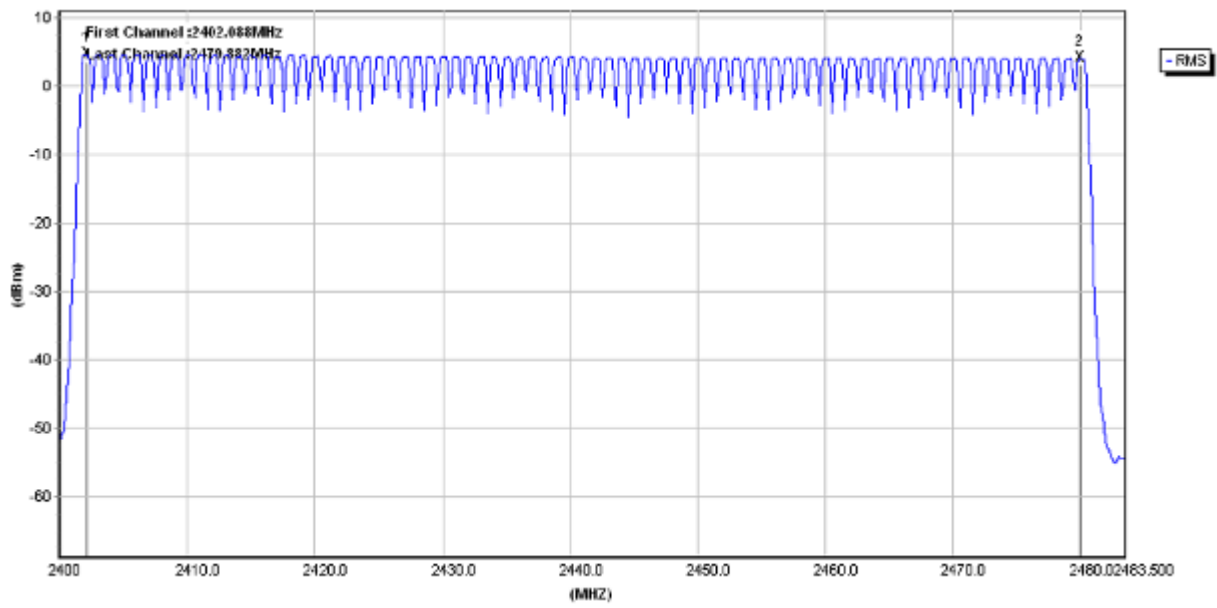
**Test Configuration:**



**Test Procedure:**

1. Remove the antenna from the EUT and then connect a low attenuation RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100 kHz. VBW = 300 kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. It may prove necessary to break the span up to sections. in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section.
4. Set the spectrum analyzer: start frequency = 2400 MHz. stop frequency = 2483.5 MHz. Submit the test result graph.

**Test result:** Total channels are 79 channels.



**Test result:** The unit does meet the FCC requirements.

### 3.7 Dwell Time

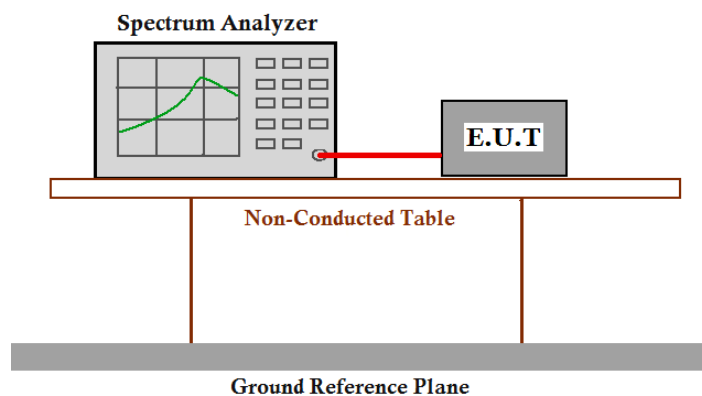
**Test Requirement:** FCC Part 15 C section 15.247

(a)(1)(iii) Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. 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. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

**Test Method:** DA 00-705

- 1) **Test Status:** Pre-test the EUT in continuous transmitting mode at the lowest (00CH: 2402 MHz), middle (39CH: 2441 MHz) and highest (78CH: 2480 MHz) channel with different data packet: GFSK (1Mbps),  $\pi/4$ -DQPSK (2Mbps), 8DPSK (3Mbps). Compliance test in hopping with EDR mode (3DH1, 3DH3 and as the worst case was middle (39CH: 2441 MHz) found.

**Test Configuration:**



**Test Procedure:**

1. Remove the antenna from the EUT and then connect a low attenuation RF cable from the antenna port to the spectrum.
2. Set spectrum analyzer span = 0. centered on a hopping channel;
3. Set RBW = 1 MHz and VBW = 1 MHz. Sweep = as necessary to capture the entire dwell time per hopping channel. Detector Function = Peak. Trace = View;
4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g.. data rate. modulation format. etc.). Repeat this test for each variation.

The limit is specified in one of the subparagraphs of this Section. Submit this plot(s). An oscilloscope may be used instead of a spectrum analyzer.

**Test Result:**

The test period:  $T = 0.4 \text{ Second/Channel} \times 79 \text{ Channel} = 31.6 \text{ s}$

**39 CH: 2.441GHz****1) GFSK (1Mbps) -DH1/DH3/DH5**

DH1 time slot =  $0.37 \text{ (ms)} * (1600/(2*79)) * 31.6 = 118 \text{ ms}$

DH3 time slot =  $1.63 \text{ (ms)} * (1600/(4*79)) * 31.6 = 261 \text{ ms}$

DH5 time slot =  $2.88 \text{ (ms)} * (1600/(6*79)) * 31.6 = 307 \text{ ms}$

**2)  $\pi/4$ -DQPSK (2Mbps) -2DH1/2DH3/2DH5**

2DH1 time slot =  $0.38 \text{ (ms)} * (1600/(2*79)) * 31.6 = 122 \text{ ms}$

2DH3 time slot =  $1.64 \text{ (ms)} * (1600/(4*79)) * 31.6 = 262 \text{ ms}$

2DH5 time slot =  $2.88 \text{ (ms)} * (1600/(6*79)) * 31.6 = 307 \text{ ms}$

**3) 8DPSK (3Mbps) -3DH1/3DH3/3DH5**

3DH1 time slot =  $0.38 \text{ (ms)} * (1600/(2*79)) * 31.6 = 122 \text{ ms}$

3DH3 time slot =  $1.64 \text{ (ms)} * (1600/(4*79)) * 31.6 = 262 \text{ ms}$

3DH5 time slot =  $2.89 \text{ (ms)} * (1600/(6*79)) * 31.6 = 308 \text{ ms}$

**The unit does meet the FCC requirements.**

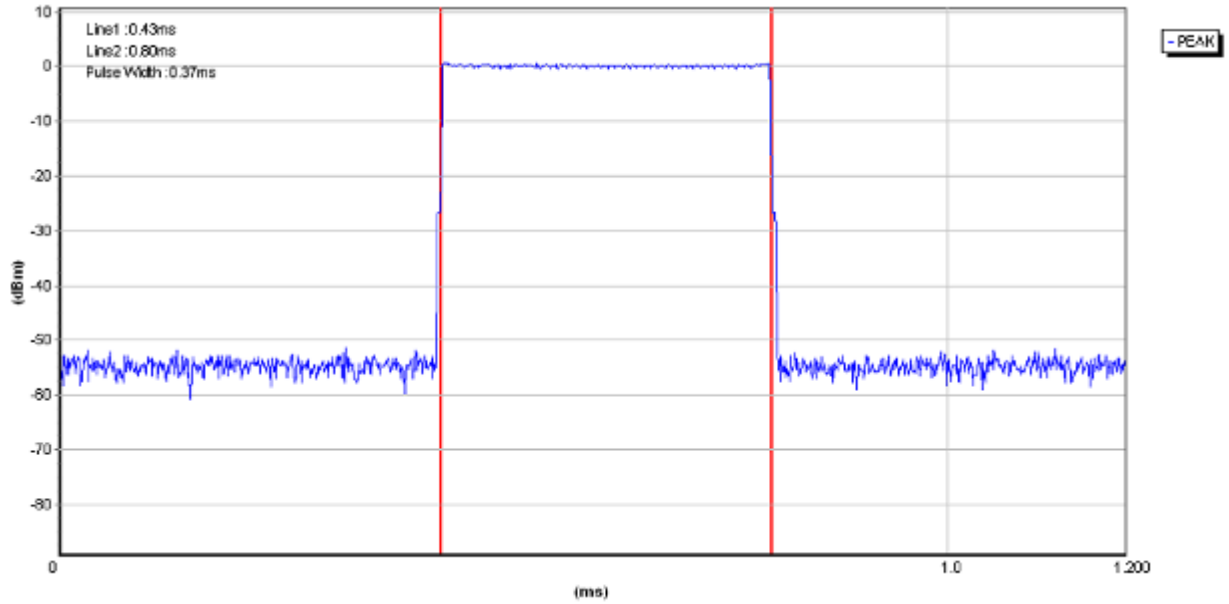


Please refer the graph as below:

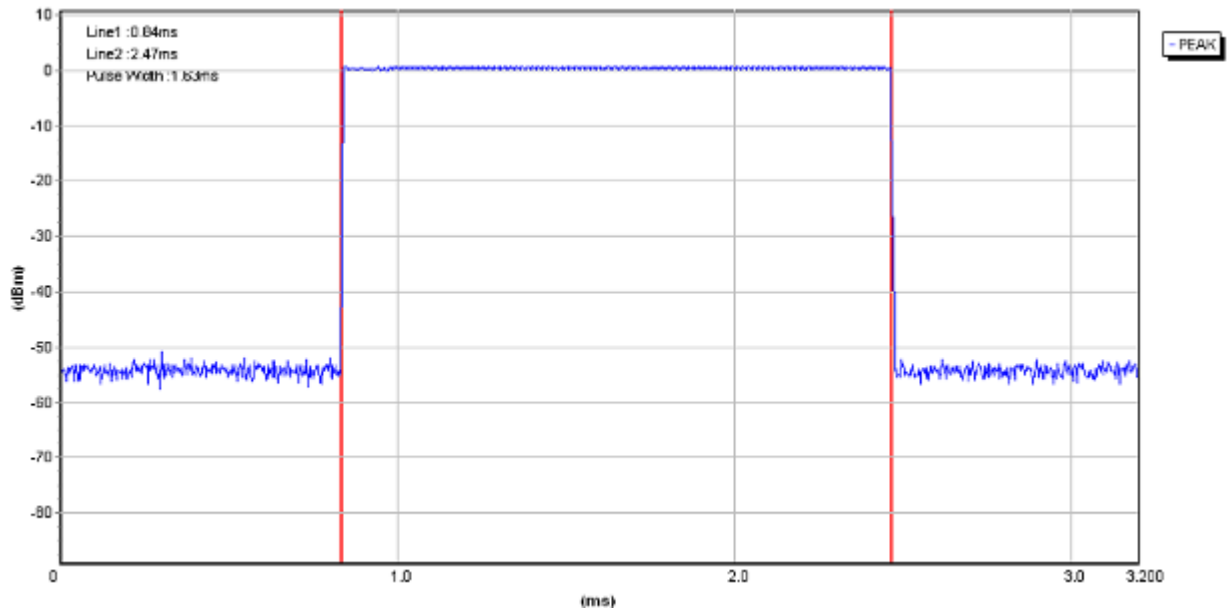
39 CH

1) GFSK (1Mbps) -DH1/DH3/DH5

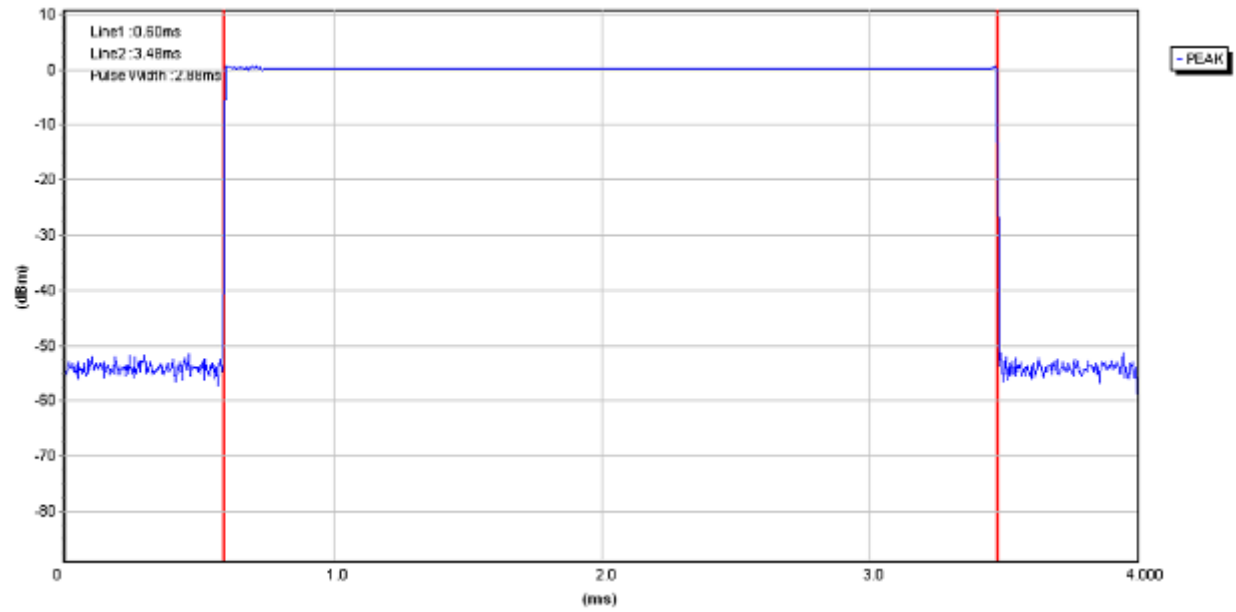
DH1



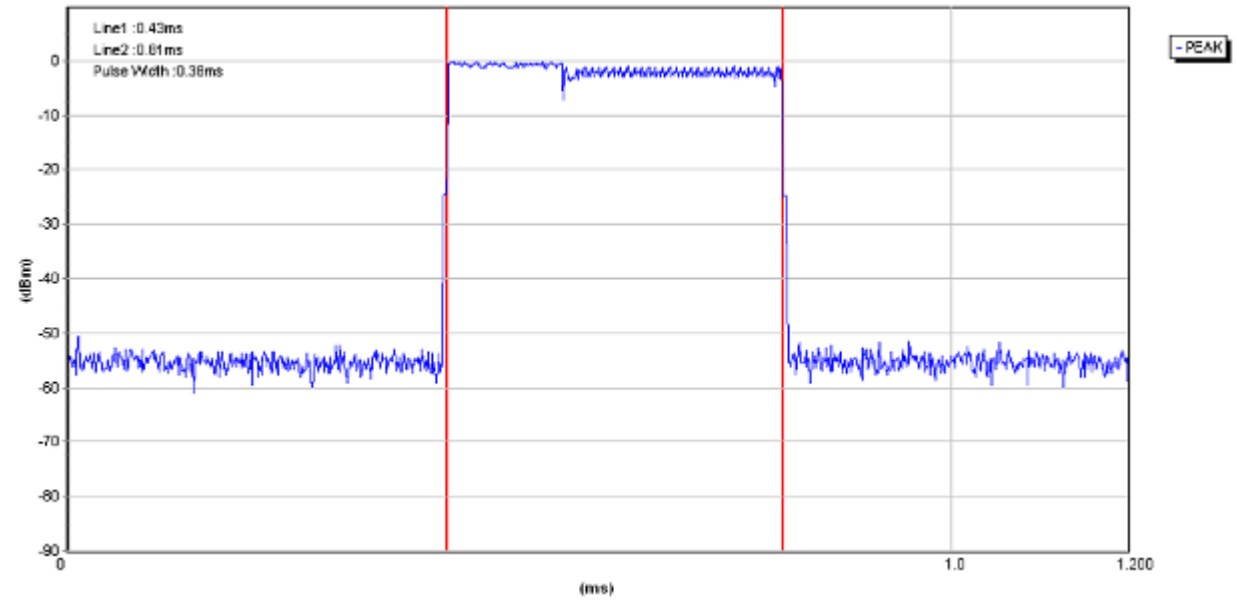
DH3



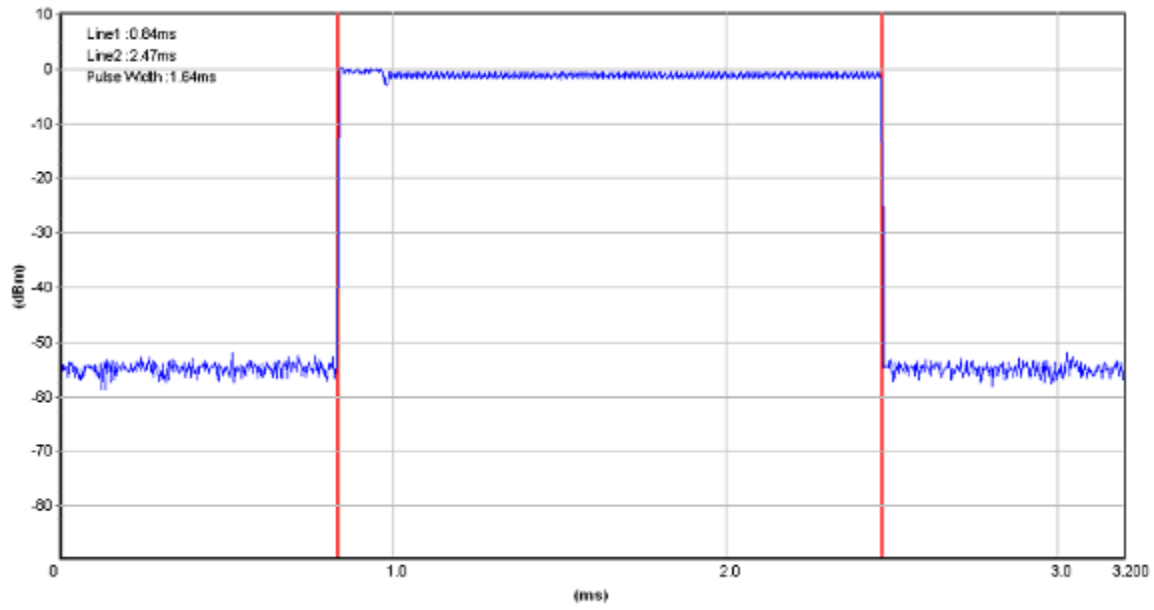
DH5



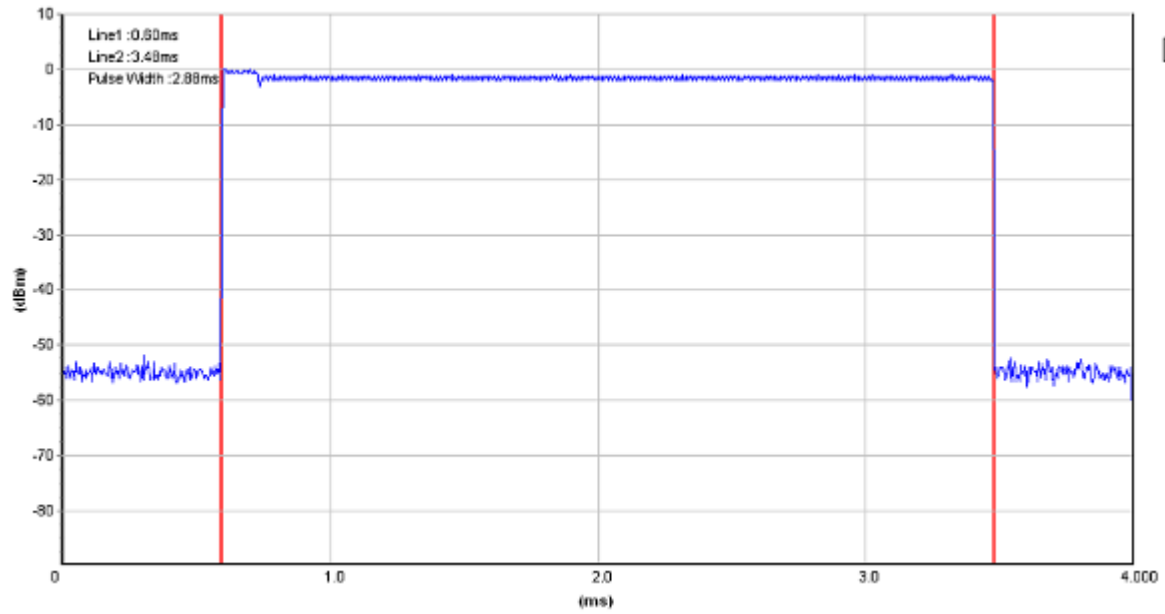
2)  $\pi/4$ -DQPSK (2Mbps) -2DH1/2DH3/2DH5  
2DH1



## 2DH3

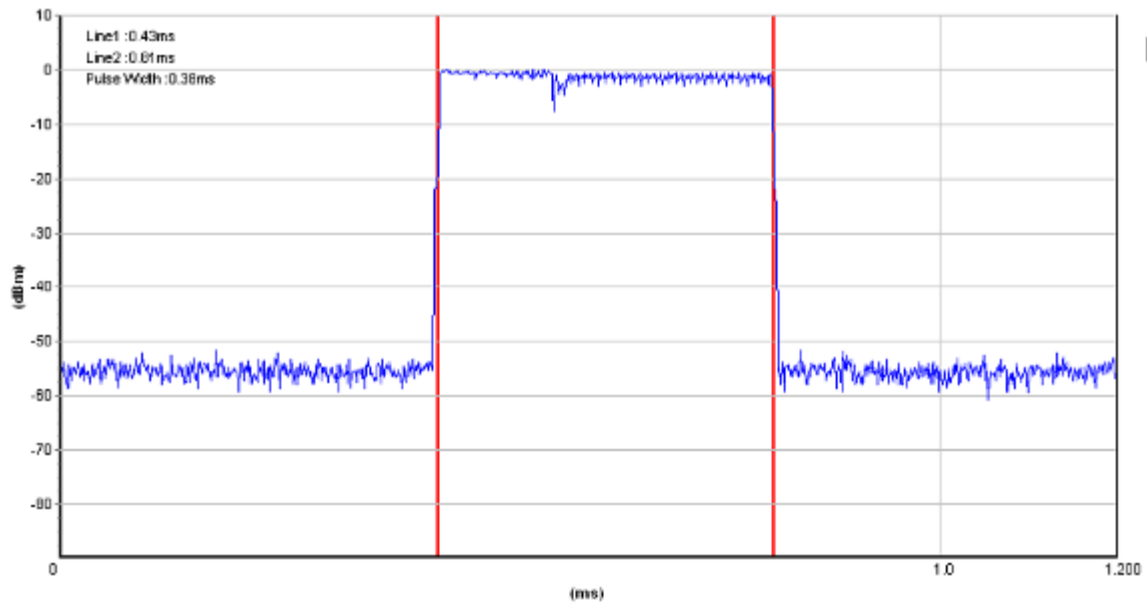


## 2DH5

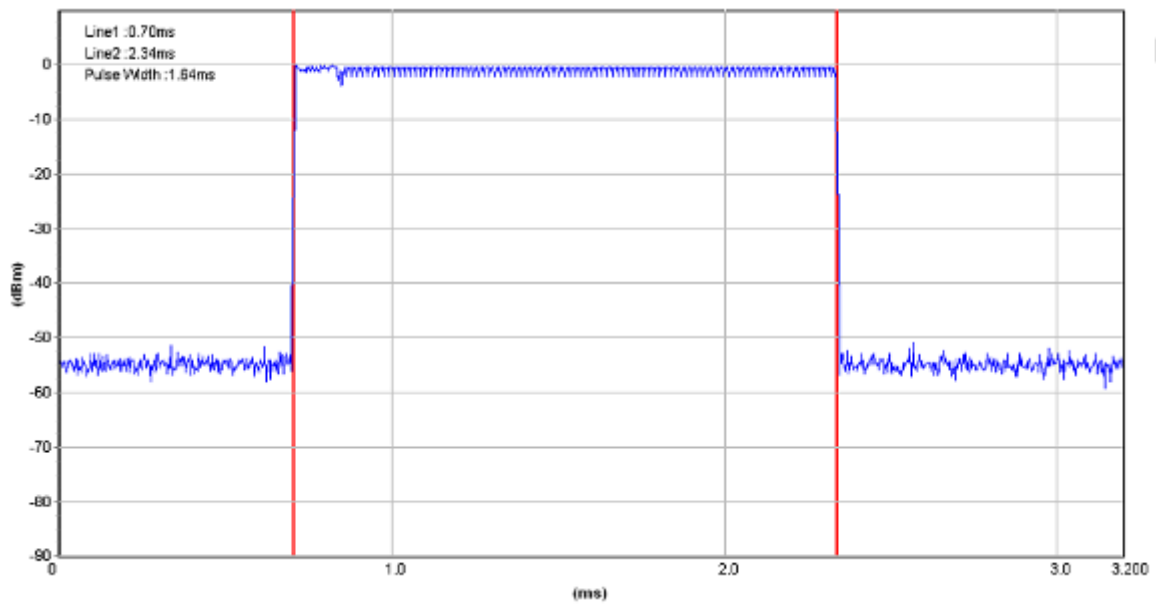


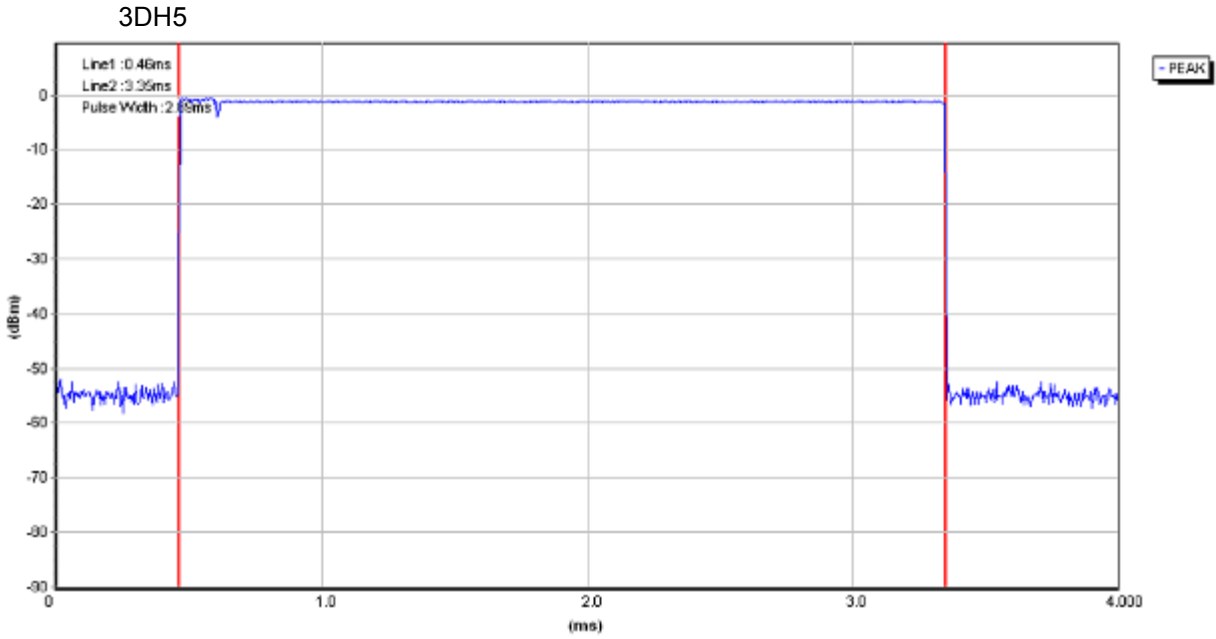
## 3) 8DPSK (3Mbps) -3DH1/3DH3/3DH5

## 3DH1



## 3DH3





### 3.8 Carrier Frequencies Separated

**Test Requirement:** FCC Part 15 C section 15.247

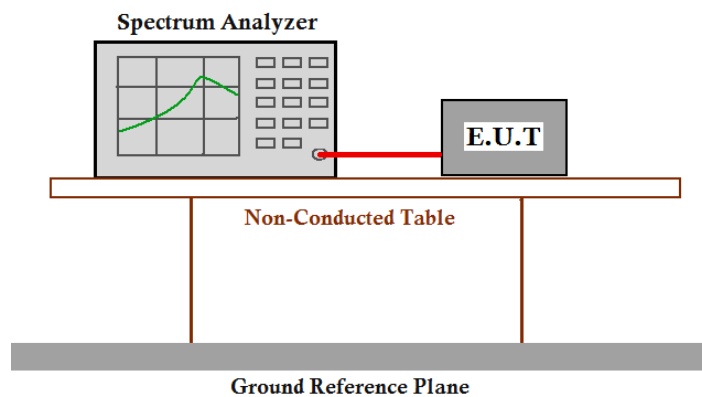
(a),(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

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 Method:** DA 00-705

**Test Status:** Pre-test the EUT in continuous transmitting mode at the lowest (2402 MHz), middle (2441 MHz) and highest (2480 MHz) channel and hopping mode with different data packet. Compliance test in hopping GFSK(1Mbps),  $\pi/4$ -DQPSK(2Mbps), 8-DPSK(3Mbps) modes.

**Test Configuration:**

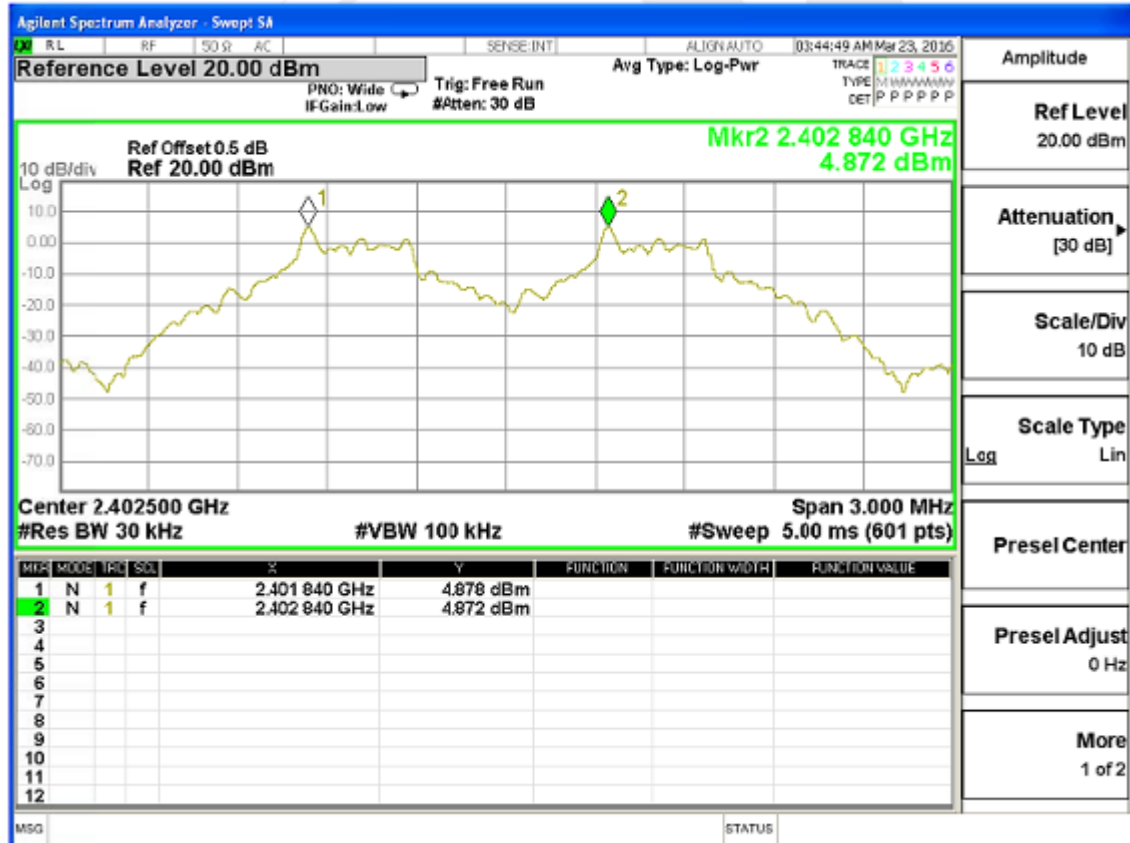


**Test Procedure:**

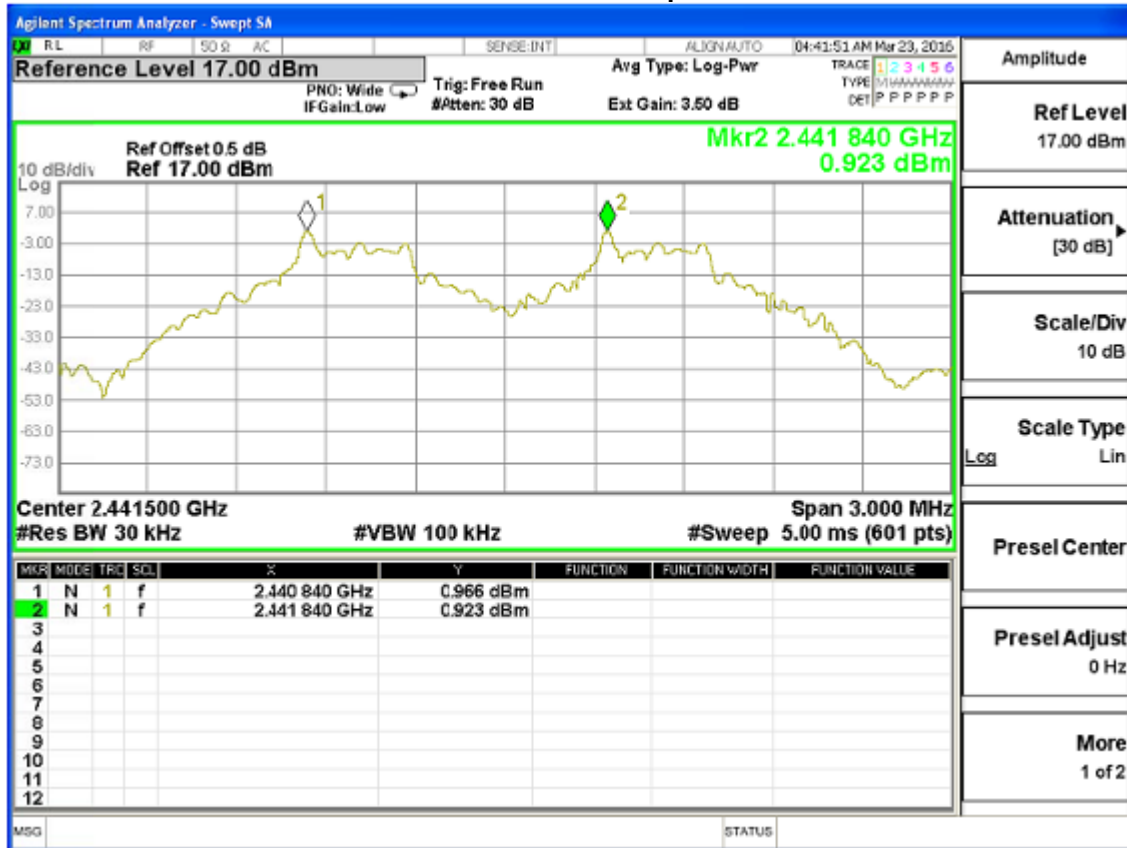
1. Remove the antenna from the EUT and then connect a low attenuation RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW  $\geq$  1% of the span, VBW  $\geq$  RBW, Sweep = auto; Detector  
Function = Peak. Trace = Max, hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section. Submit this plot.

**Test result:****CH00 / CH39 /CH78 (GFSK(1Mbps) Mode)**

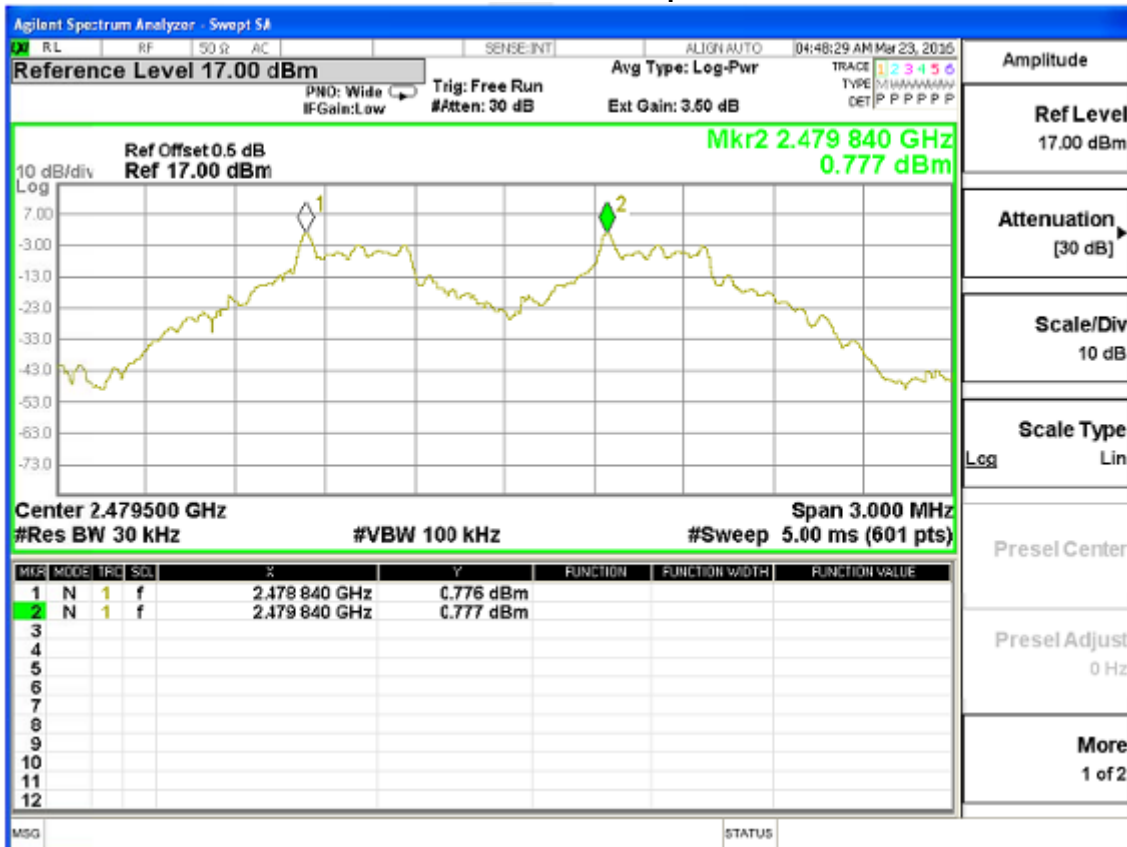
| Frequency (MHz) | Ch. Separation (MHz) | 20 dB BW (MHz) | 2/3 20 dB BW (MHz) |
|-----------------|----------------------|----------------|--------------------|
| 2402            | 1.000                | 0.830          | /                  |
| 2441            | 1.000                | 0.834          | /                  |
| 2480            | 1.000                | 0.836          | /                  |

**Note: Pass, for GFSK: Ch. Separation Limits: >20dB bandwidth.****CH00 -1Mbps**

## CH39 -1Mbps



## CH78 -1Mbps

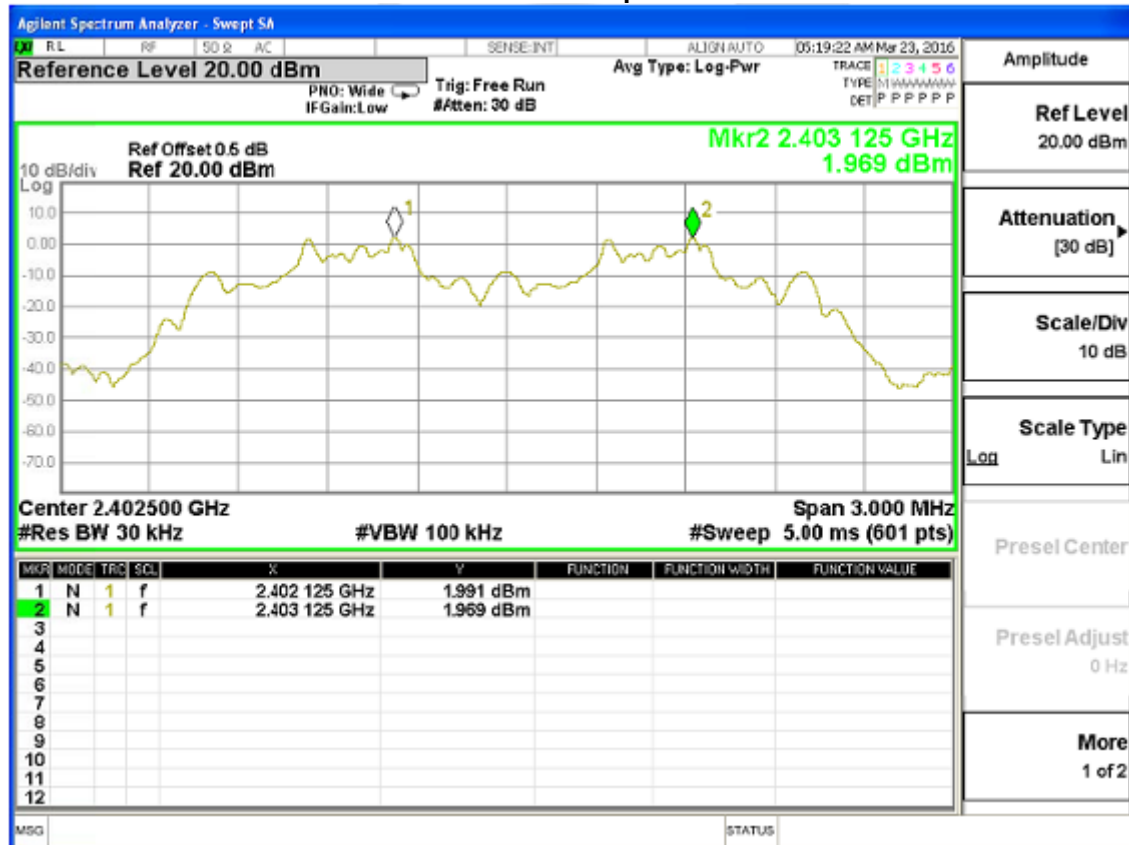




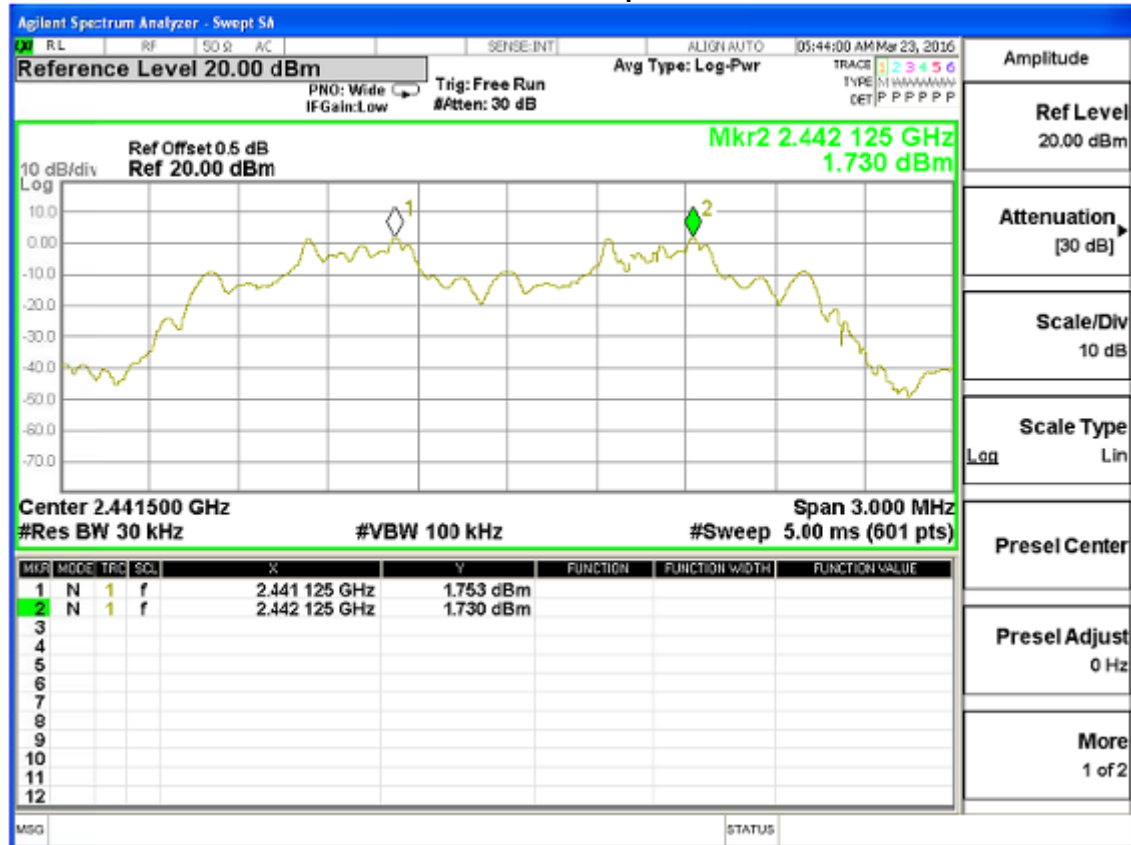
**CH00 / CH39 /CH78 ( $\pi/4$ -DQPSK(2Mbps) Mode)**

| Frequency (MHz) | Ch. Separation (MHz) | 20 dB BW (MHz) | 2/3 20 dB BW (MHz) |
|-----------------|----------------------|----------------|--------------------|
| 2402            | 1.000                | 1.113          | 0.742              |
| 2441            | 1.000                | 1.114          | 0.743              |
| 2480            | 1.000                | 1.113          | 0.742              |

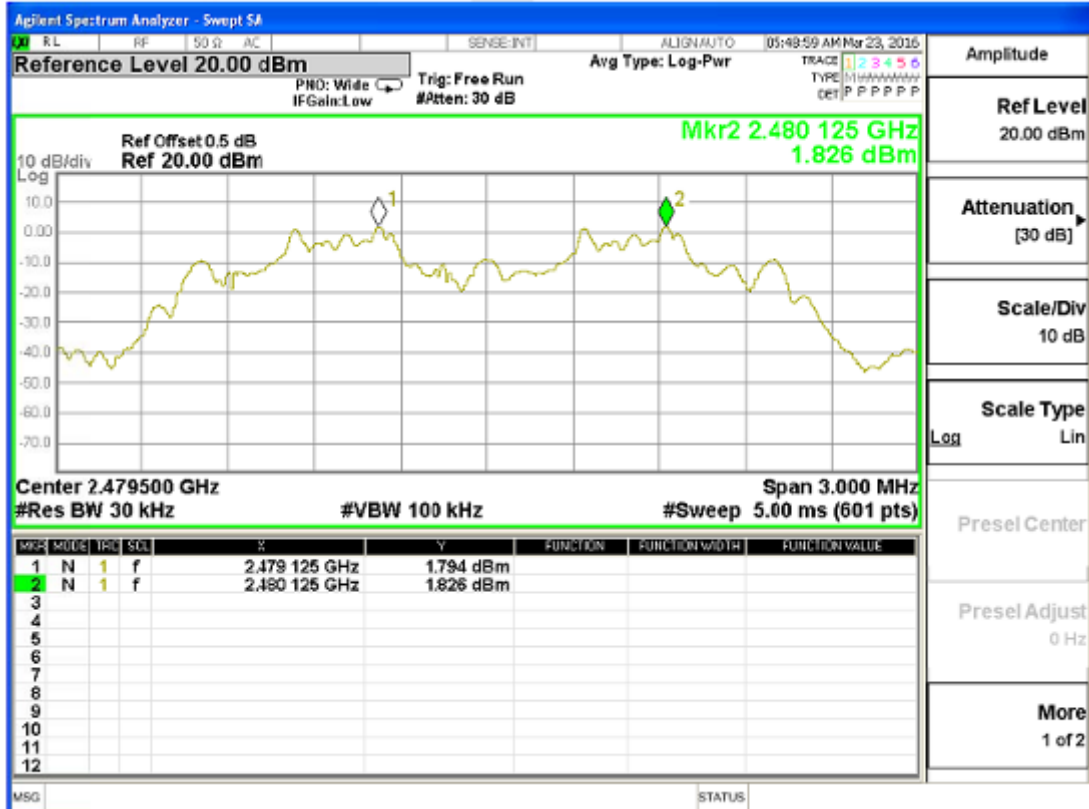
Note: Pass, for  $\pi/4$ -DQPSK: Ch. Separation Limits: > two-thirds 20dB bandwidth.

**CH00 -2Mbps**

## CH39 -2Mbps



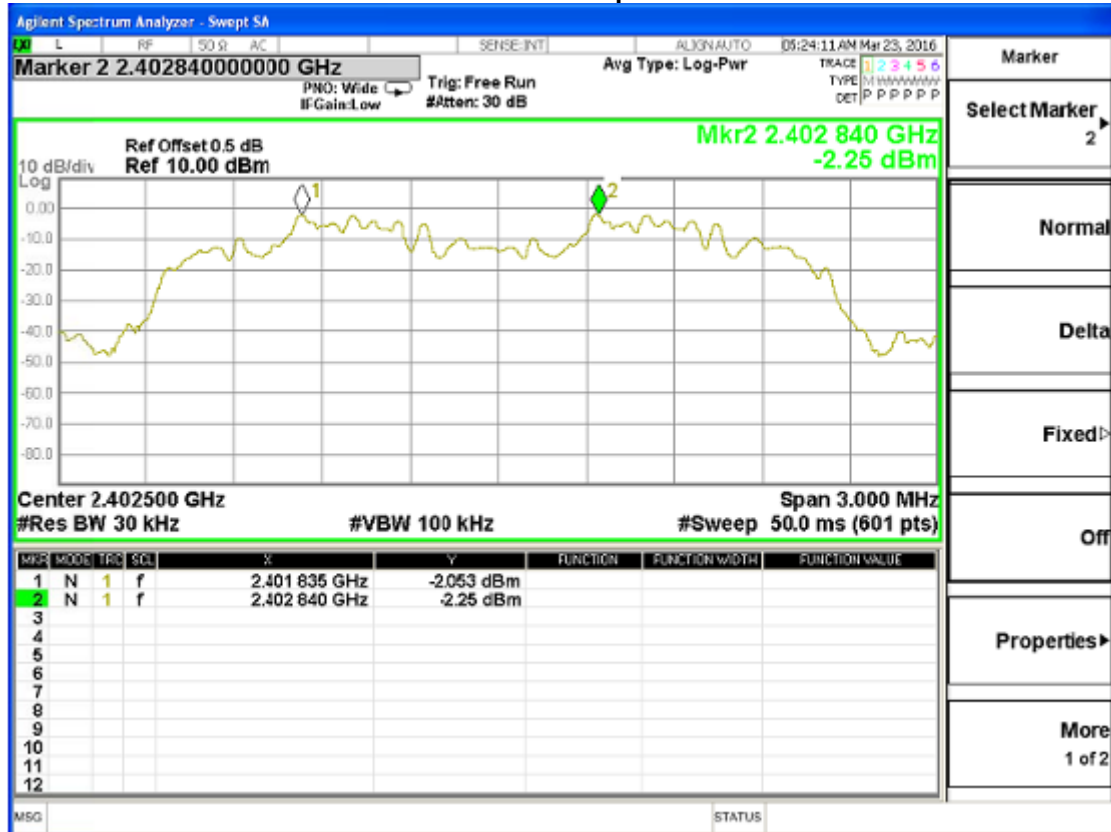
## CH78 -2Mbps



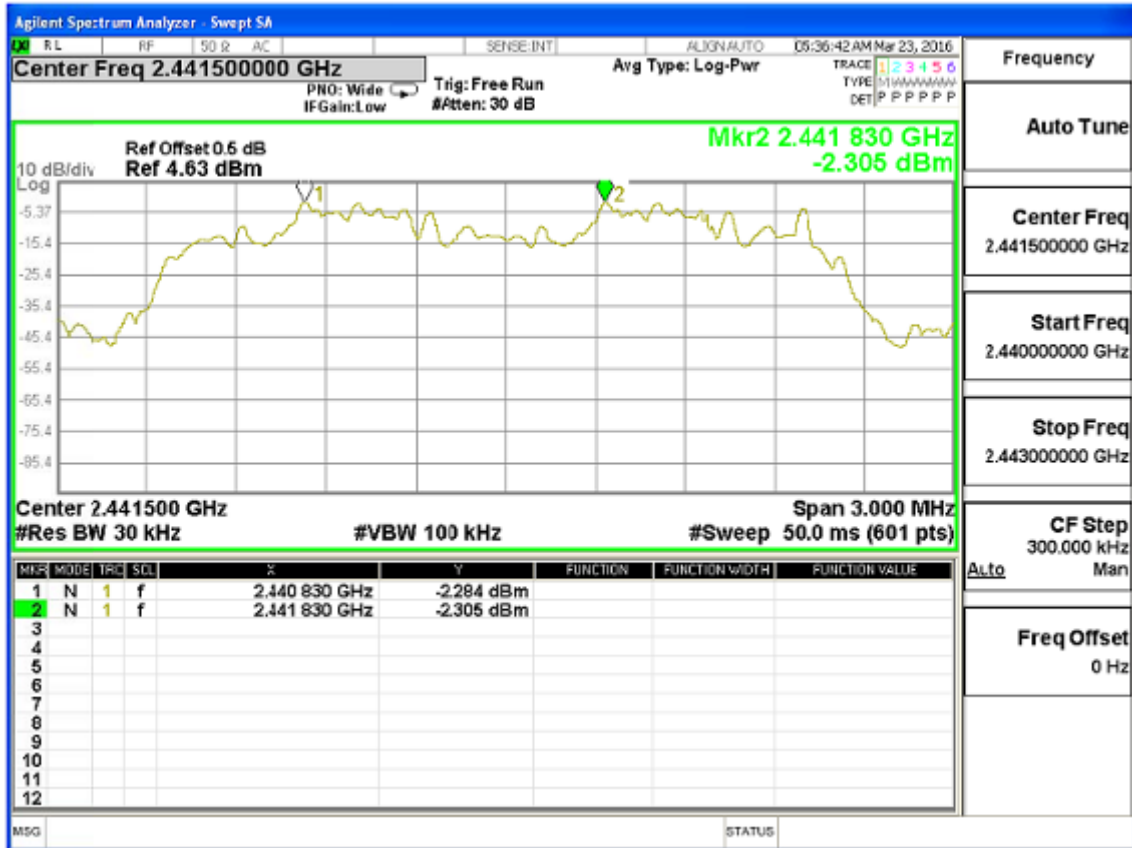
**CH00 / CH39 /CH78 (8-DPSK(3Mbps)Mode)**

| Frequency (MHz) | Ch. Separation (MHz) | 20 dB BW (MHz) | 2/3 20 dB BW (MHz) |
|-----------------|----------------------|----------------|--------------------|
| 2402            | 1.005                | 1.285          | 0.857              |
| 2441            | 1.000                | 1.284          | 0.856              |
| 2480            | 1.000                | 1.288          | 0.859              |

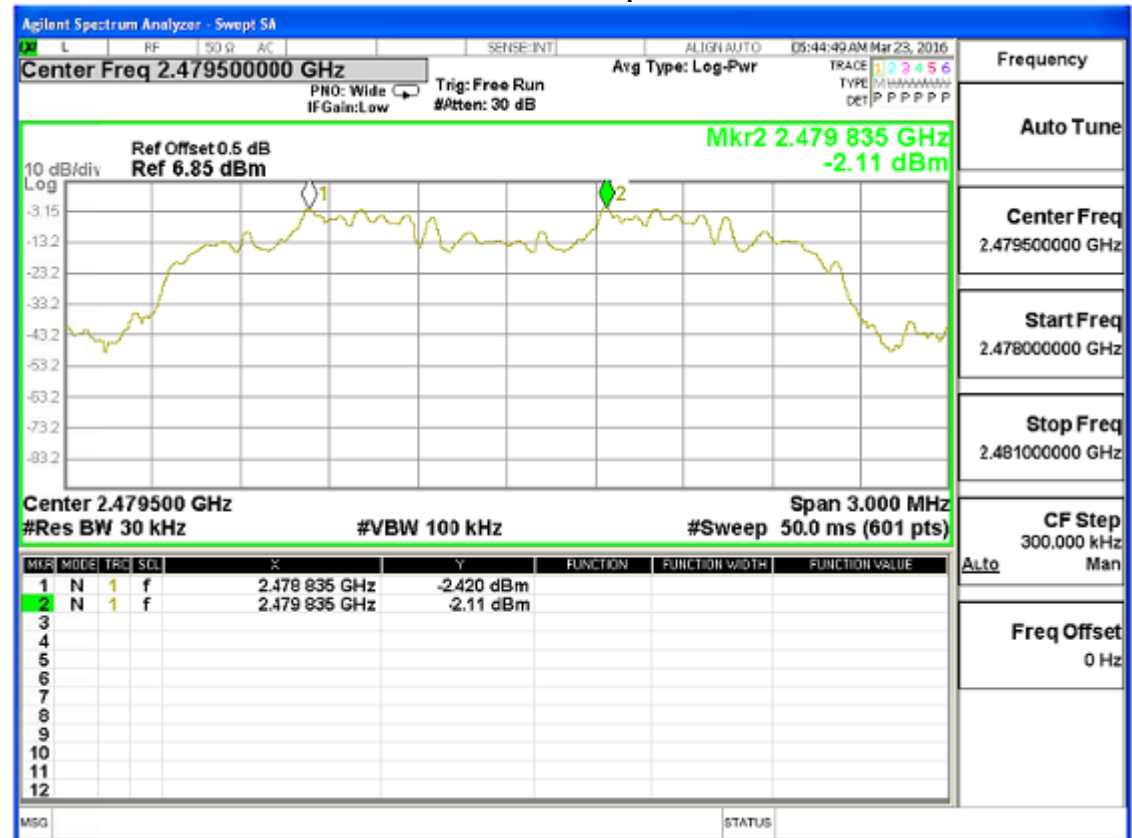
**Note: Pass, for 8-DPSK: Ch. Separation Limits: > two-thirds 20dB bandwidth.**

**CH00 -3Mbps**

## CH39 -3Mbps



## CH78 -3Mbps



### 3.9 Occupied Bandwidth

**Test Requirement:**

FCC Part 15 C section 15.247

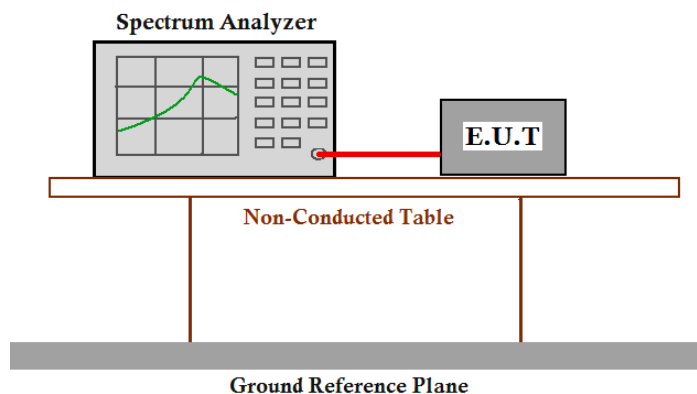
(a)(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies 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 Method:**

ANSI C63.10: Clause 6.9 & DA 00-705

**Test Status:**

Pre-test the EUT in continuous transmitting mode at the lowest (2402 MHz), middle (2441 MHz) and highest (2480 MHz) channel with different data package. Compliance test in hopping GFSK(1Mbps),  $\pi/4$ -DQPSK(2Mbps), 8-DPSK(3Mbps) modes.

**Test Configuration:**

**Test Procedure:**

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: Span = approximately 2 to 3 times the 20dB bandwidth, centring on a hopping channel;
3. Set the spectrum analyzer: RBW  $\geq$  1% of the 20dB bandwidth VBW  $\geq$  RBW. Sweep = auto; Detector Function = Peak. Trace = Max Hold.
4. Mark the peak frequency and -20dB points bandwidth.

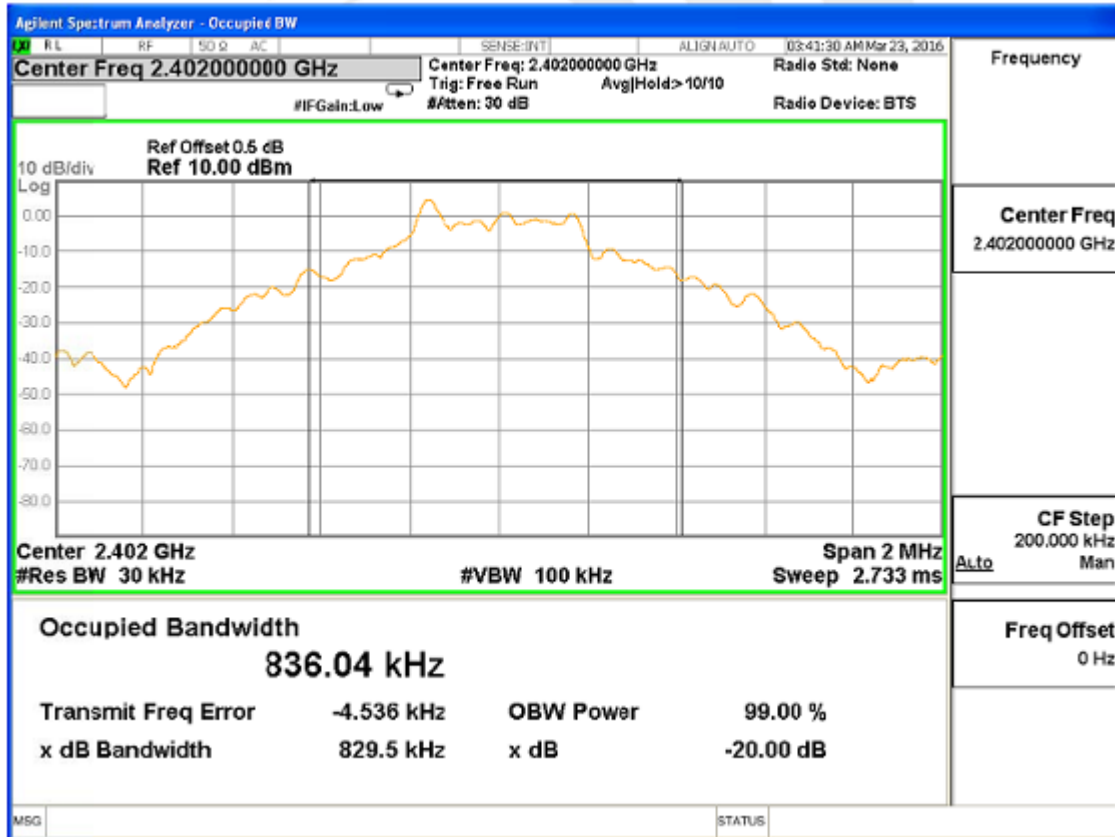
Test result:

Test result:

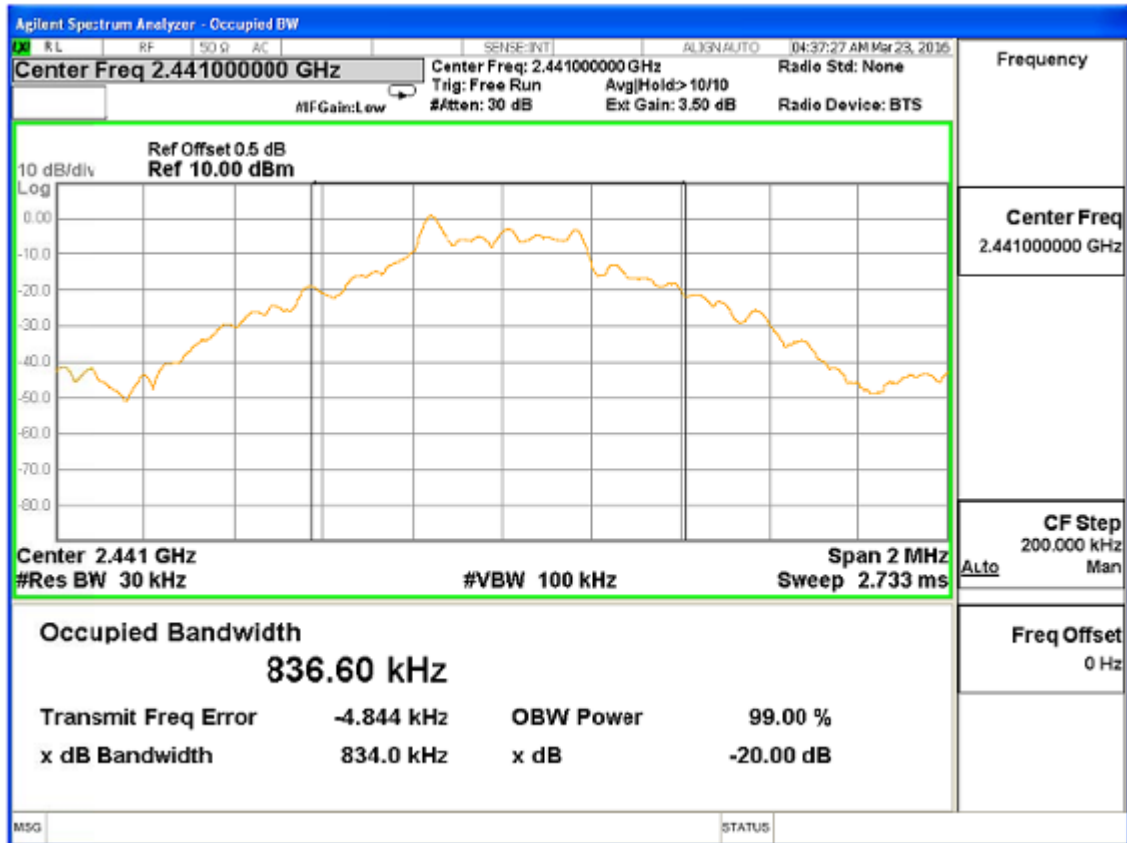
CH00 / CH39 /CH78 (GFSK(1Mbps) Mode)

| Frequency (MHz) | 20 dB BW (MHz) |
|-----------------|----------------|
| 2402            | 0.830          |
| 2441            | 0.834          |
| 2480            | 0.836          |

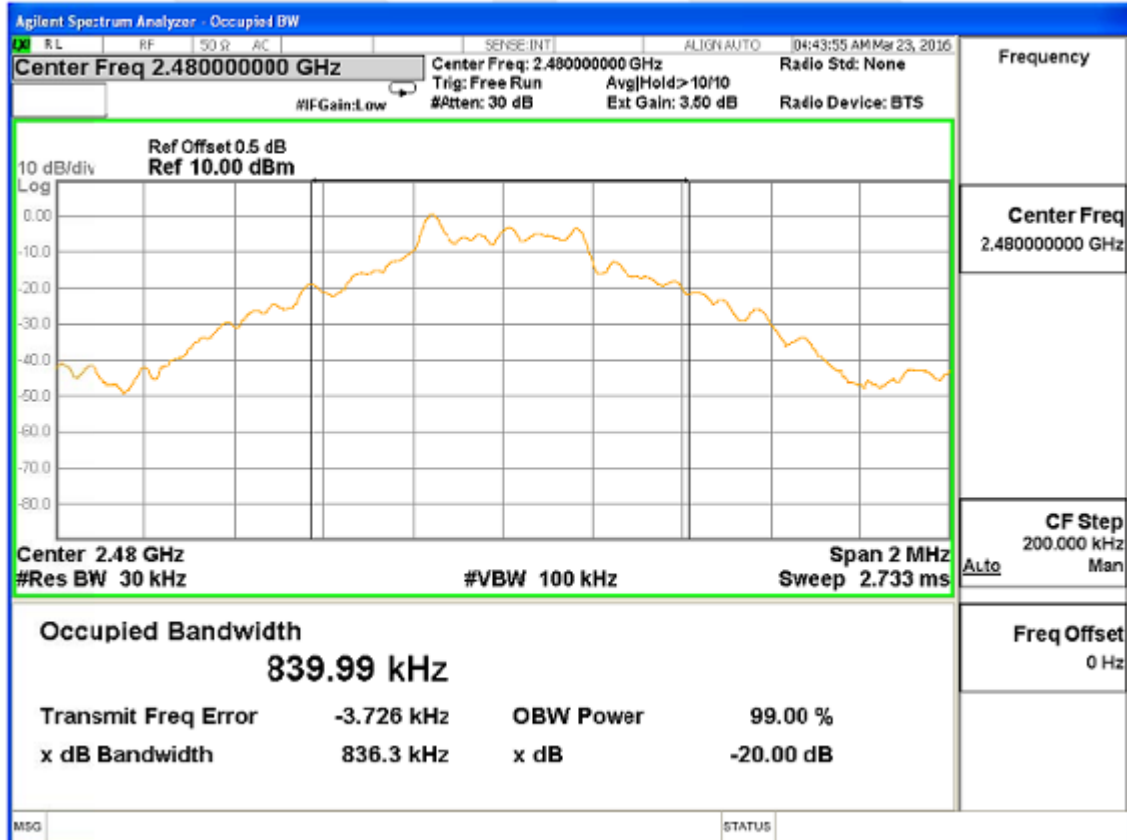
### CH00 -1Mbps



## CH39 -1Mbps

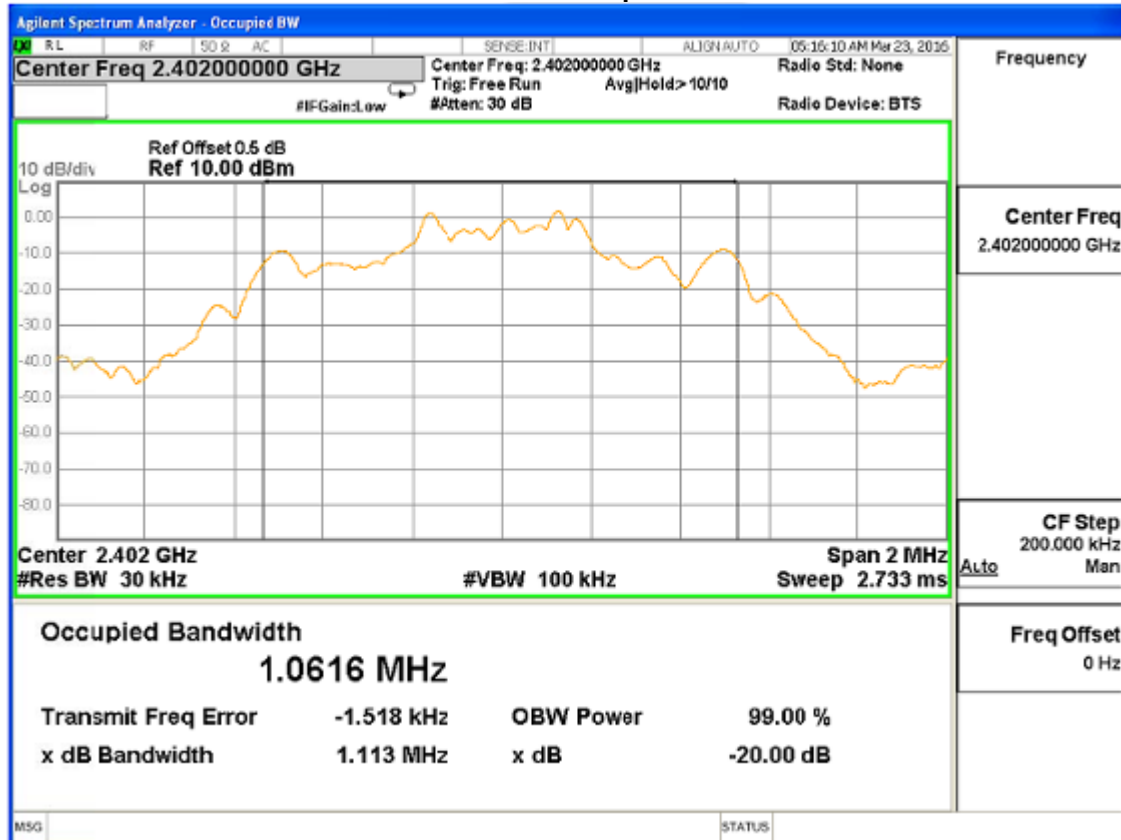


## CH78 -1Mbps



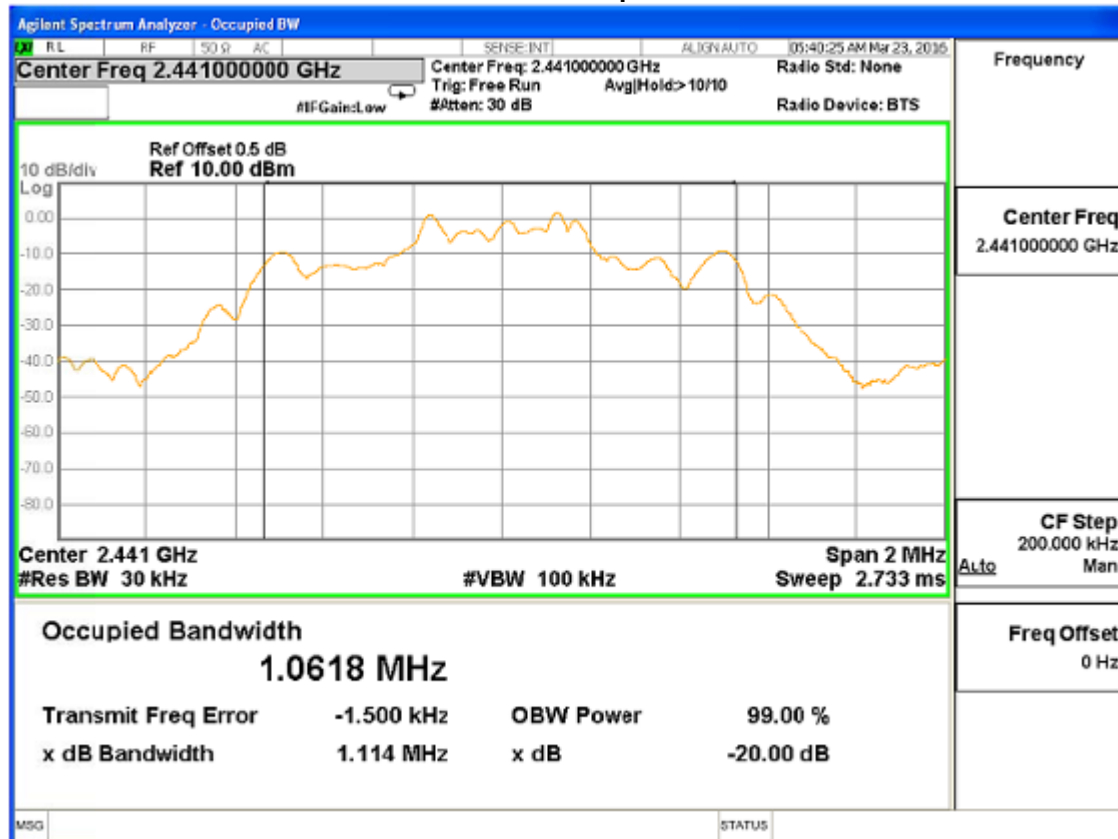
**CH00 / CH39 /CH78 ( $\pi/4$ -DQPSK(2Mbps) Mode)**

| Frequency (MHz) | 20 dB BW (MHz) |
|-----------------|----------------|
| 2402            | 1.113          |
| 2441            | 1.114          |
| 2480            | 1.113          |

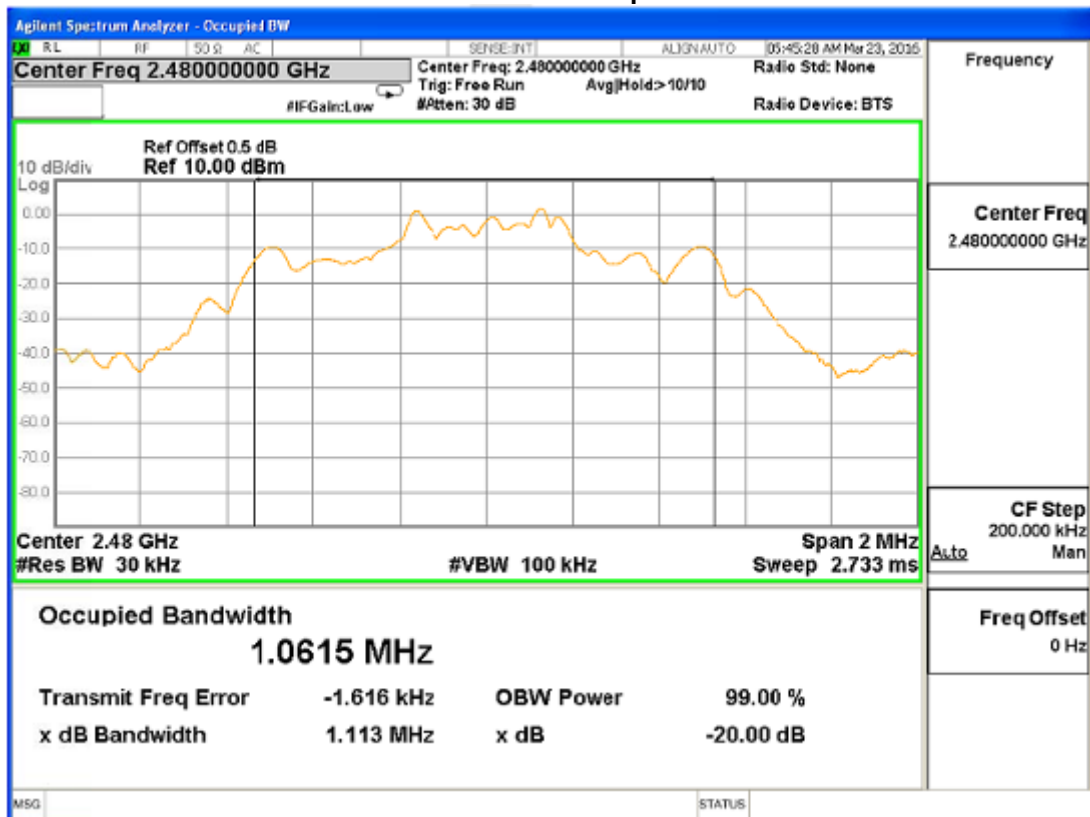
**CH00 -2Mbps**



## CH39 -2Mbps

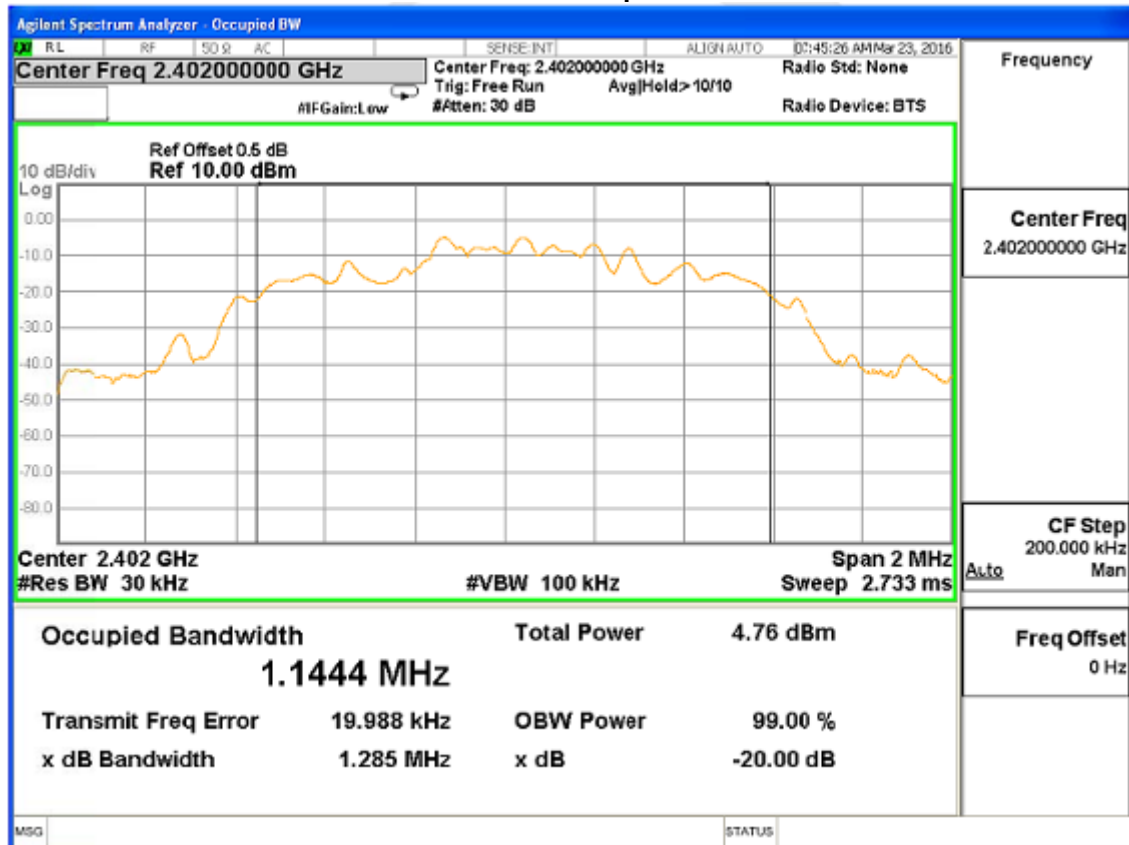


## CH78 -2Mbps

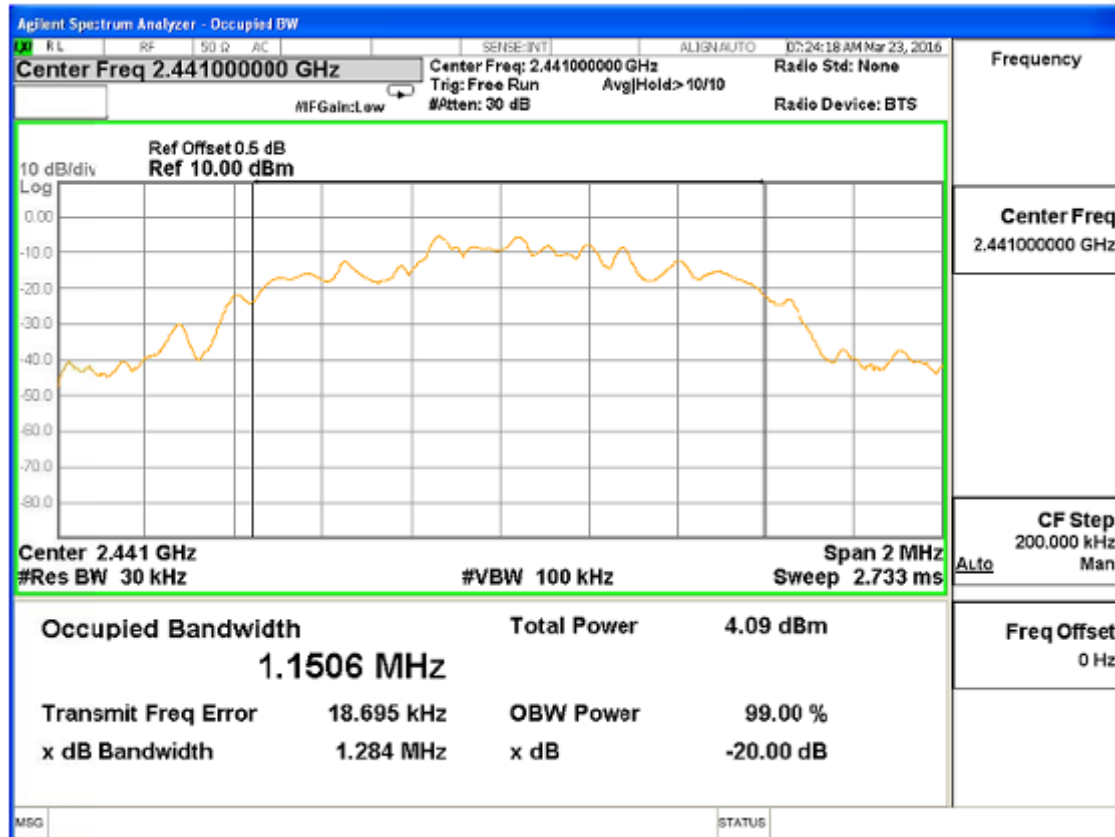


**CH00 / CH39 /CH78 (8-DPSK(3Mbps)Mode)**

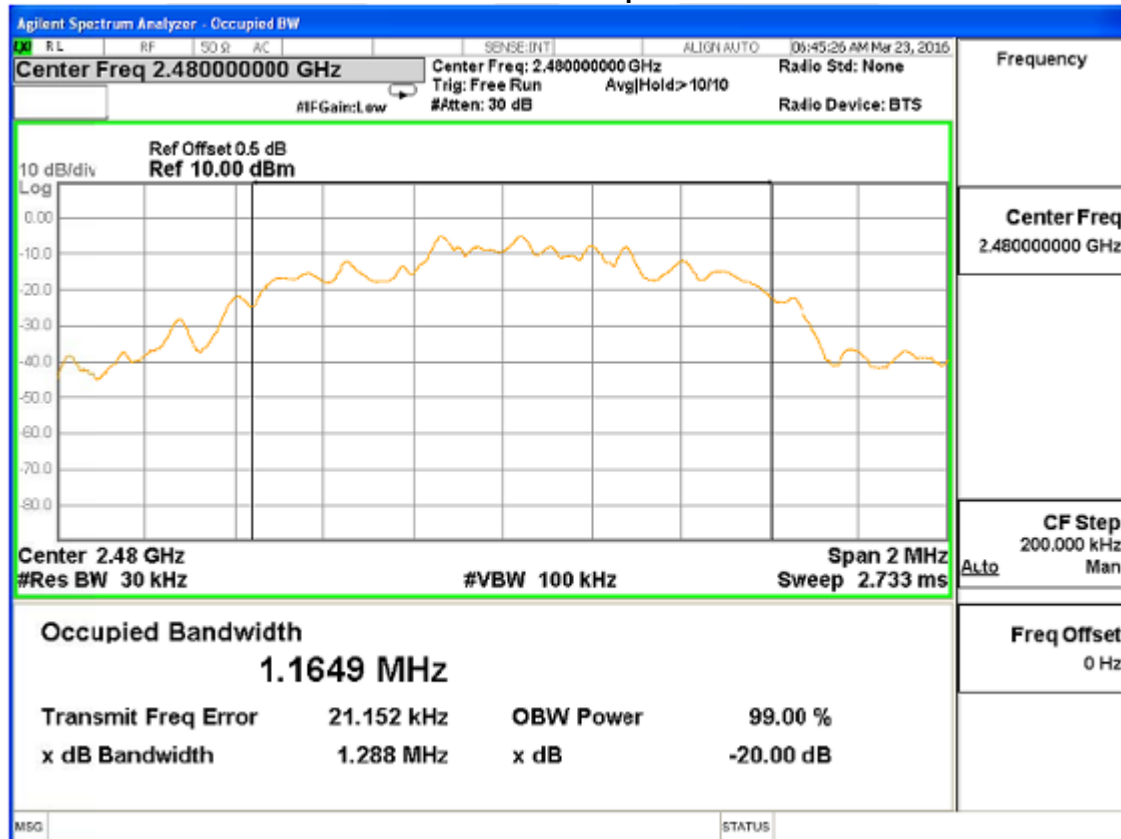
| Frequency (MHz) | 20 dB BW (MHz) |
|-----------------|----------------|
| 2402            | 1.285          |
| 2441            | 1.284          |
| 2480            | 1.288          |

**CH00 -3Mbps**

## CH39 -3Mbps



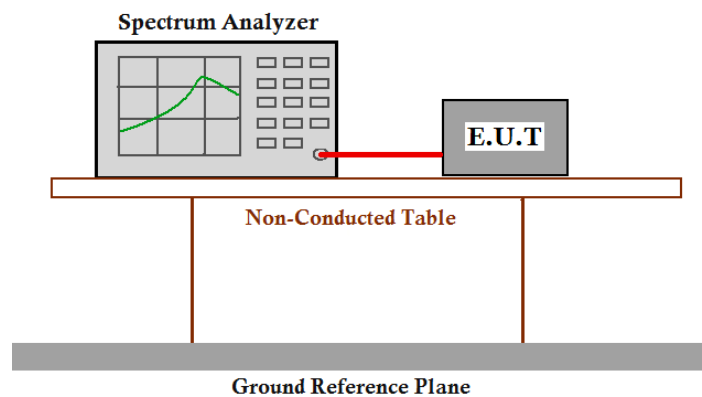
## CH78 -3Mbps



### 3.10 Maximum Peak Output Power

- Test Requirement:** FCC Part 15 C section 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.
- Test Method:** ANSI C63.10: Clause 6.10 & DA 00-705
- Test Limit:**
- Test mode:** Pre-test the EUT in continuous transmitting mode at the lowest (2402 MHz), middle (2441 MHz) and highest (2480 MHz) channel with different data packet. Compliance test in continuous transmitting hopping GFSK(1Mbps),  $\pi/4$ -DQPSK(2Mbps), 8-DPSK(3Mbps) modes.

**Test Configuration:**



**Test Procedure:**

1. Remove the antenna from the EUT and then connect a low attenuation RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 2 MHz. VBW = 2 MHz. Sweep = auto; Detector Function = Peak.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

Note:

Conducted Output Power(dBm)=Reading level(dBm)+Cable loss