# FCC Test Report

Report No.: AGC02728190302FE03

| | | |
|---|---|---|
| **FCC ID** | : | AUSCR3037A |
| **APPLICATION PURPOSE** | : | Original Equipment |
| **PRODUCT DESIGNATION** | : | Multifunctional FM Radio Speaker |
| **BRAND NAME** | : | CROSLEY |
| **MODEL NAME** | : | CR3037A, CS-2026 |
| **CLIENT** | : | Modern Marketing Concepts, Inc. |
| **DATE OF ISSUE** | : | Mar. 26, 2019 |
| **STANDARD(S)** | : | FCC Part 15 Subpart C Section 15.247 |
| **REPORT VERSION** | : | V1.0 |

Attestation of Global Compliance (Shenzhen) Co., Ltd

**CAUTION:**
This report shall not be reproduced except in full without the written permission of the test laboratory and shall not be quoted out of context.

## Report Revise Record

| Report Version | Revise Time | Issued Date | Valid Version | Notes |
|---|---|---|---|---|
| V1.0 | / | Mar. 26, 2019 | Valid | Initial release |

# TABLE OF CONTENTS

## 1. VERIFICATION OF CONFORMITY

| | |
|---|---|
| **Applicant** | Modern Marketing Concepts, Inc. |
| **Address** | 1220 E Oak St , Louisville, Kentucky,United States, 40204 |
| **Manufacturer** | SHENZHEN GXTSONIC TECHNOLOGY CO., LTD |
| **Address** | 1F,Building 3,Tianxin Shuichan Industrial Park,Gushu Village,Xixiang Town,Bao`an District,Shenzhen,CHINA |
| **Factory** | SHENZHEN GXTSONIC TECHNOLOGY CO., LTD |
| **Address** | 1F,Building 3,Tianxin Shuichan Industrial Park,Gushu Village,Xixiang Town,Bao`an District,Shenzhen,CHINA |
| **Product Designation** | Multifunctional FM Radio Speaker |
| **Brand Name** | CROSLEY |
| **Test Model** | CR3037A |
| **Series Model** | CS-2026 |
| **Difference description** | Same PCBA, Different appearance. |
| **Date of test** | Mar. 18, 2019 to Mar. 26, 2019 |
| **Deviation** | None |
| **Condition of Test Sample** | Normal |
| **Report Template** | AGCRT-US-BR/RF (2013-03-01) |

We hereby certify that:
The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.247. The test results of this report relate only to the tested sample identified in this report.

| | | |
|---|---|---|
| Tested By | Donjon Huang(Huang dongyang) | Mar. 26, 2019 |
| Reviewed By | Bart Xie(Xie Xiaobin) | Mar. 26, 2019 |
| Approved By | Forrest Lei(Lei Yonggang) Authorized Officer | Mar. 26, 2019 |

# 2. GENERAL INFORMATION

## 2.1. PRODUCT DESCRIPTION

The EUT is “Multifunctional FM Radio Speaker ” designed as a “Communication Device”. It is designed by way of utilizing the FHSS technology to achieve the system operation.

A major technical description of EUT is described as following

| | |
|---|---|
| **Operation Frequency** | 2.402 GHz to 2.480GHz |
| **RF Output Power** | -8.413dBm(Max) |
| **Bluetooth Version** | V2.1+EDR |
| **Modulation** | ☒ Basic Rate(GFSK)<br>☒ EDR (PI/4-DQPSK) ☒ EDR(8-DPSK)<br>☐ BLE(GFSK) |
| **Number of channels** | 79 for BR/EDR |
| **Hardware Version** | 1.0 |
| **Software Version** | 1.0 |
| **Antenna Designation** | PCB Antenna |
| **Antenna Gain** | 0dBi |
| **Power Supply** | AC 120V/60Hz |
| Note: The EUT doesn't support BLE. | |

## 2.2. TABLE OF CARRIER FREQUENCYS

| Frequency Band | Channel Number | Frequency |
|---|---|---|
| 2402~2480MHz | 00 | 2402MHz |
| | 01 | 2403MHz |
| | : | : |
| | 38 | 2440 MHz |
| | 39 | 2441 MHz |
| | 40 | 2442 MHz |
| | : | : |
| | 77 | 2479 MHz |
| | 78 | 2480 MHz |

### 2.3. RECEIVER INPUT BANDWIDTH

The input bandwidth of the receiver is 1.3MHZ,In every connection one Bluetooth device is the master and the other one is slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master. Additionally the type of connection(e.g. single of multislot packet) is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also the slave of the connection will use these settings.

Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means, a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

### 2.4. EXAMPLE OF A HOPPING SEQUENCY IN DATA MODE

Example of a 79 hopping sequence in data mode:
40,21,44,23,42,53,46,55,48,33,52,35,50,65,54,67
56,37,60,39,58,69,62,71,64,25,68,27,66,57,70,59
72,29,76,31,74,61,78,63,01,41,05,43,03,73,07,75
09,45,13,47,11,77,15,00,64,49,66,53,68,02,70,06
01, 51, 03, 55, 05, 04

### 2.5. EQUALLY AVERAGE USE OF FREQUENCIES AND BEHAVIOUR

The generation of the hopping sequence in connection mode depends essentially on two input values:
1. LAP/UAP of the master of the connection.
2. Internal master clock

The LAP(lower address part) are the 24 LSB's of the 48 BD_ADDRESS. The BD_ADDRESS is an unambiguous number of every Bluetooth unit. The UAP(upper address part) are the 24MSB's of the 48BD_ADDRESS

The internal clock of a Bluetooth unit is derived from a free running clock which is never adjusted and is never turned off. For synchronization with other units only offset are used. It has no relation to the time of the day. Its resolution is at least half the RX/TX slot length of 312.5us.The clock has a cycle of about one day(23h30).In most case it is implemented as 28 bit counter. For the deriving of the hopping sequence the entire. LAP(24 bits),4LSB's(4bits)(Input 1) and the 27MSB's of the clock(Input 2) are used. With this input values different mathematical procedures(permutations, additions, XOR-operations)are performed to generate te Sequence. This will be done at the beginning of every new transmission.

Regarding short transmissions the Bluetooth system has the following behavior:

The first connection between the two devices is established, a hopping sequence was generated. For Transmitting the wanted data the complete hopping sequence was not used. The connection ended.

The second connection will be established. A new hopping sequence is generated. Due to the fact the Bluetooth clock has a different value, because the period between the two transmission is longer(and it Cannot be shorter) than the minimum resolution of the clock(312.5us).The hopping sequence will always Differ from the first one.

### 2.6. TEST METHOD

All measurements contained in this report were conducted with ANSI C63.10-2013.

### 2.7. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

## 3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %

- Uncertainty of Conducted Emission, Uc = ±3.2 dB
- Uncertainty of Radiated Emission below 1GHz, Uc = ±3.9 dB
- Uncertainty of Radiated Emission above 1GHz, Uc = ±4.8 dB

## 4. DESCRIPTION OF TEST MODES

| NO. | TEST MODE DESCRIPTION |
|---|---|
| 1 | Low channel GFSK |
| 2 | Middle channel GFSK |
| 3 | High channel GFSK |
| 4 | Low channel π /4-DQPSK |
| 5 | Middle channel π /4-DQPSK |
| 6 | High channel π /4-DQPSK |
| 7 | Low channel 8DPSK |
| 8 | Middle channel 8DPSK |
| 9 | High channel 8DPSK |
| 10 | BT Link with charging |

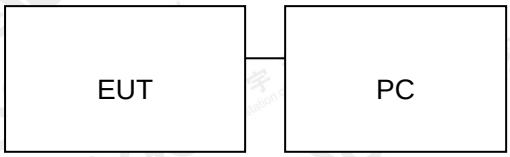
Note: 1. Only the result of the worst case was recorded in the report, if no other cases.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
3. The EUT used fully-charged battery when tested.
4. For Conducted Test method, a temporary antenna connector is provided by the manufacture.

# 5. SYSTEM TEST CONFIGURATION

## 5.1. CONFIGURATION OF EUT SYSTEM

Configure 1: (Normal hopping)


Configure 2: (Control continuous TX)




## 5.2. EQUIPMENT USED IN EUT SYSTEM

| Item | Equipment | Model No. | ID or Specification | Remark |
|---|---|---|---|---|
| 1 | Multifunctional FM Radio Speaker | CR3037A | AUSCR3037A | EUT |
| 2 | Adapter | BSY012U100100U | DC 10V 1A | Accessory |

## 5.3. SUMMARY OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST | RESULT |
|---|---|---|
| §15.247 b(1) | Peak Output Power | Compliant |
| §15.247 a(1) | 20 dB Bandwidth | Compliant |
| §15.247 d | Conducted Spurious Emission | Compliant |
| §15.247 d<br>§15.209 | Radiated Emission | Compliant |
| §15.247 d | Band Edges | Compliant |
| §15.247 a(1)(iii) | Number of hopping frequency | Compliant |
| §15.247 a(1)(iii) | Time of Occupancy | Compliant |
| §15.247 a(1) | Frequency Separation | Compliant |
| §15.207 | Line conduction Emission | Compliant |

## 6. TEST FACILITY

| | |
|---|---|
| **Test Site** | Attestation of Global Compliance (Shenzhen) Co., Ltd |
| **Location** | 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong,China |
| **Designation Number** | CN1259 |
| **FCC Test Firm Registration Number** | 975832 |
| **A2LA Cert. No.** | 5054.02 |
| **Description** | Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by A2LA |

## 7. TEST EQUIPMENT LIST

### TEST EQUIPMENT OF RADIATED EMISSION TEST

| Equipment | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|---|---|---|---|---|---|
| TEST RECEIVER | R&S | ESCI | 10096 | Jun. 12, 2018 | Jun. 11, 2019 |
| EXA Signal Analyzer | Aglient | N9010A | MY53470504 | Dec. 20, 2018 | Dec. 19, 2019 |
| 2.4GHz Fliter | Micro-tronics | 087 | N/A | Jun. 12, 2018 | Jun. 11, 2019 |
| Attenuator | Weinachel Corp | 58-30-33 | N/A | Jun. 12, 2018 | Jun. 11, 2019 |
| Horn antenna | SCHWARZBECK | BBHA 9170 | #768 | Sep. 21, 2017 | Sep. 20, 2020 |
| Active loop antenna (9K-30MHz) | ZHINAN | ZN30900C | 18051 | Jun. 14, 2018 | Jun. 13, 2020 |
| Double-Ridged Waveguide Horn | ETS LINDGREN | 3117 | 00034609 | May. 26, 2018 | May. 25, 2020 |
| Broadband Preamplifier | ETS LINDGREN | 3117PA | 00225134 | Oct. 25, 2018 | Oct. 24, 2019 |
| ANTENNA | SCHWARZBECK | VULB9168 | D69250 | Sep. 28, 2017 | Sep. 27, 2019 |

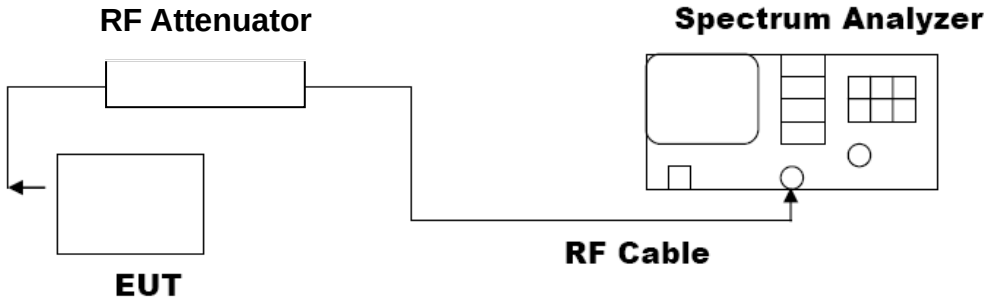
# 8. PEAK OUTPUT POWER

## 8.1. MEASUREMENT PROCEDURE

For peak power test:

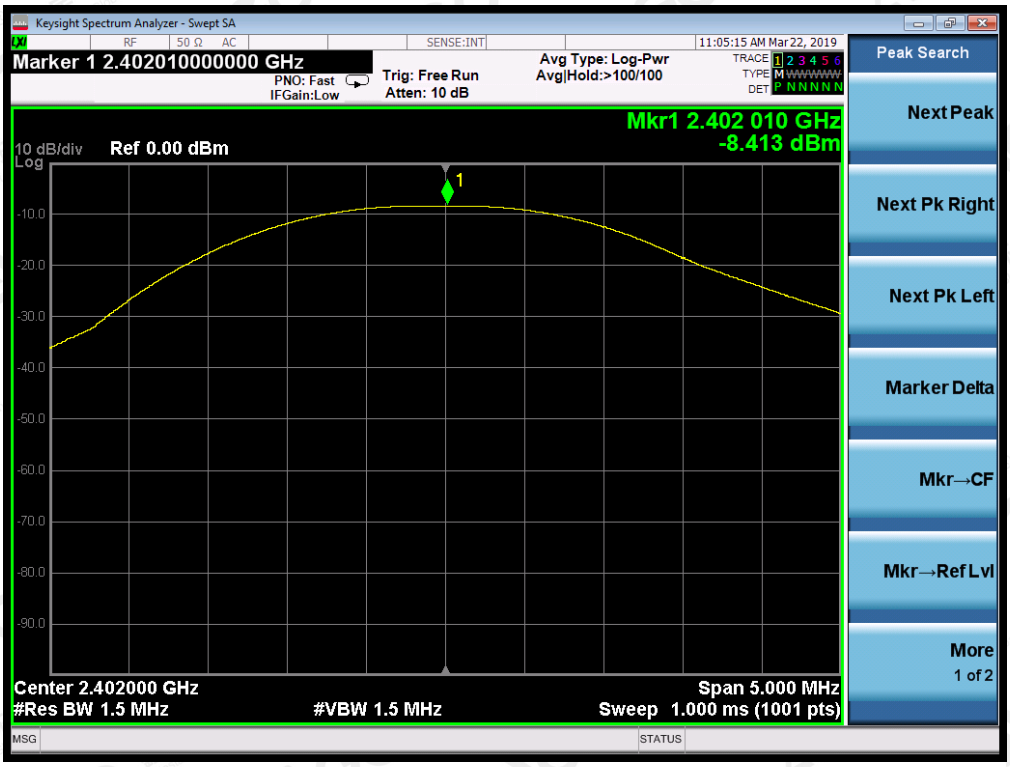
1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, middle and the bottom operation frequency individually.
3. RBW > the 20 dB bandwidth of the emission being measured, VBW ≥ RBW.
4. Record the maximum power from the Spectrum Analyzer.
5. The maximum peak power shall be less 30dBm.

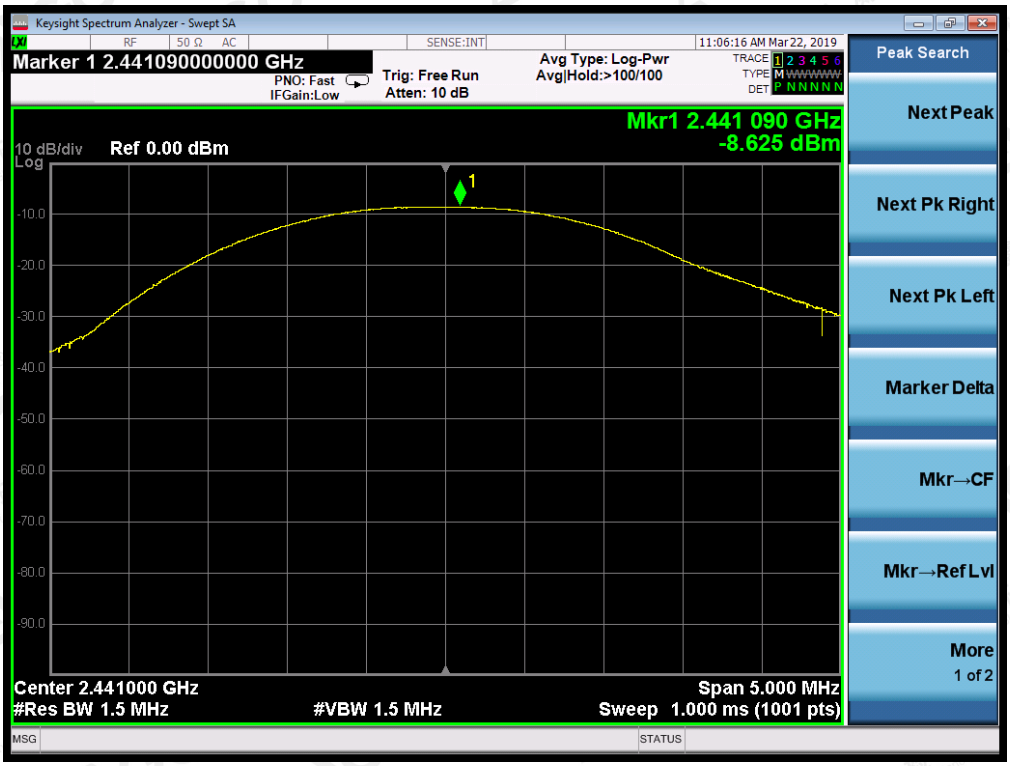
## 8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

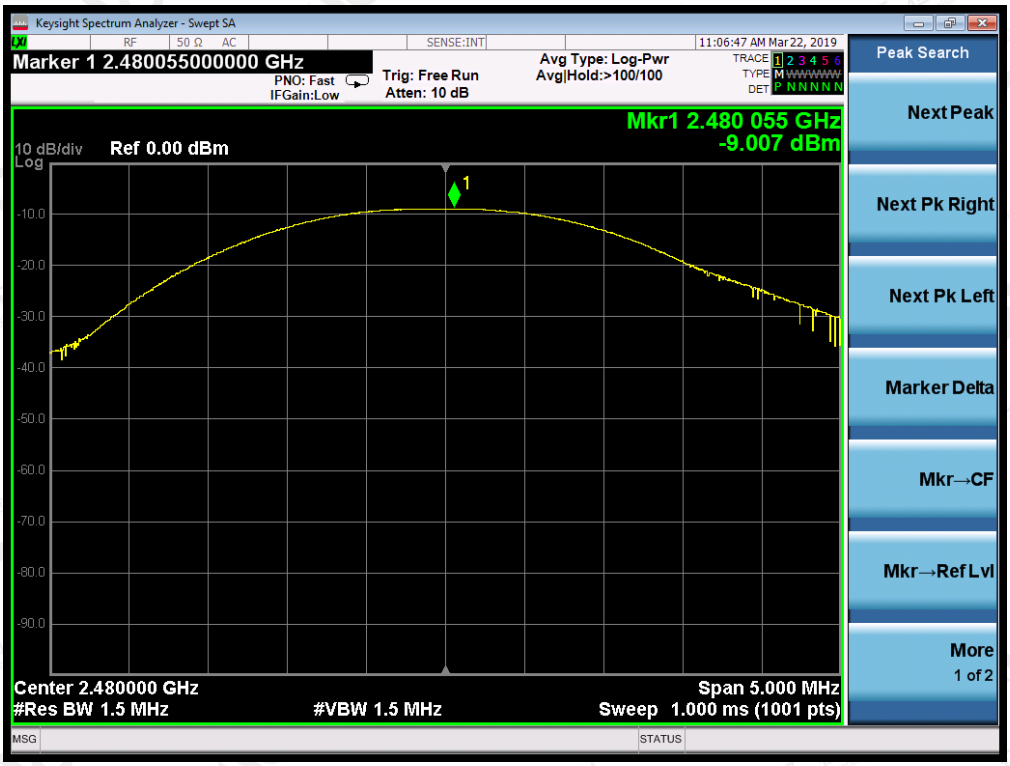


## 8.3. LIMITS AND MEASUREMENT RESULT

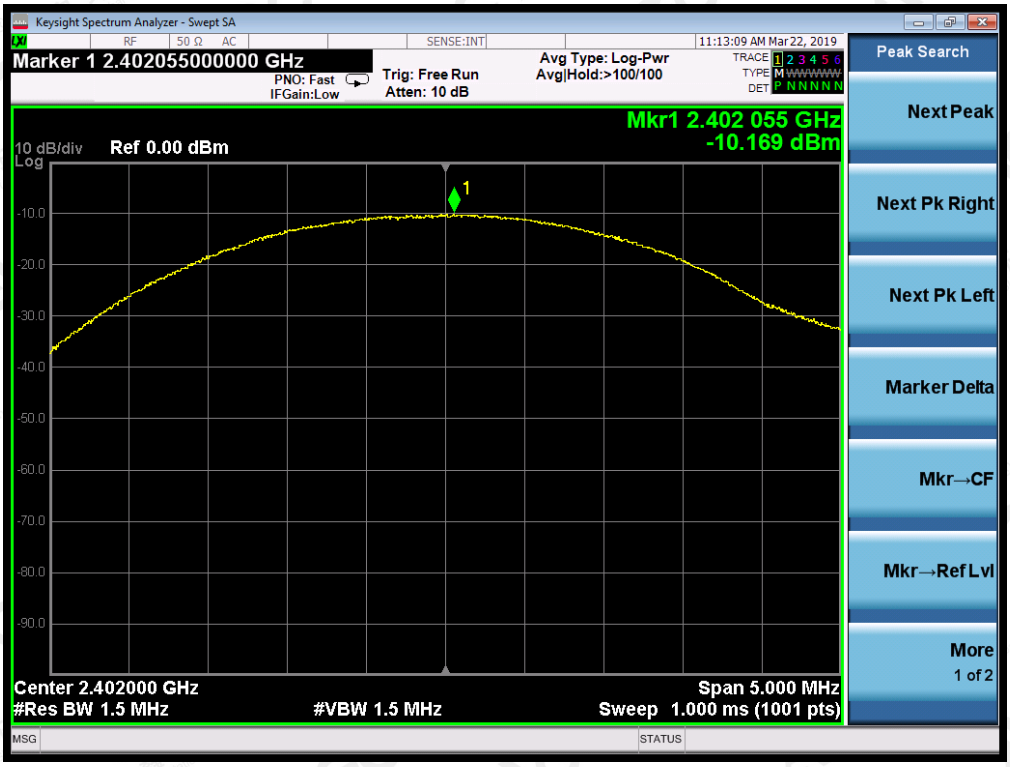
| Mode | Frequency (GHz) | Peak Power (dBm) | Applicable Limits (dBm) | Pass or Fail |
|---|---|---|---|---|
| GFSK | 2.402 | -8.413 | 30 | Pass |
| | 2.441 | -8.625 | 30 | Pass |
| | 2.480 | -9.007 | 30 | Pass |

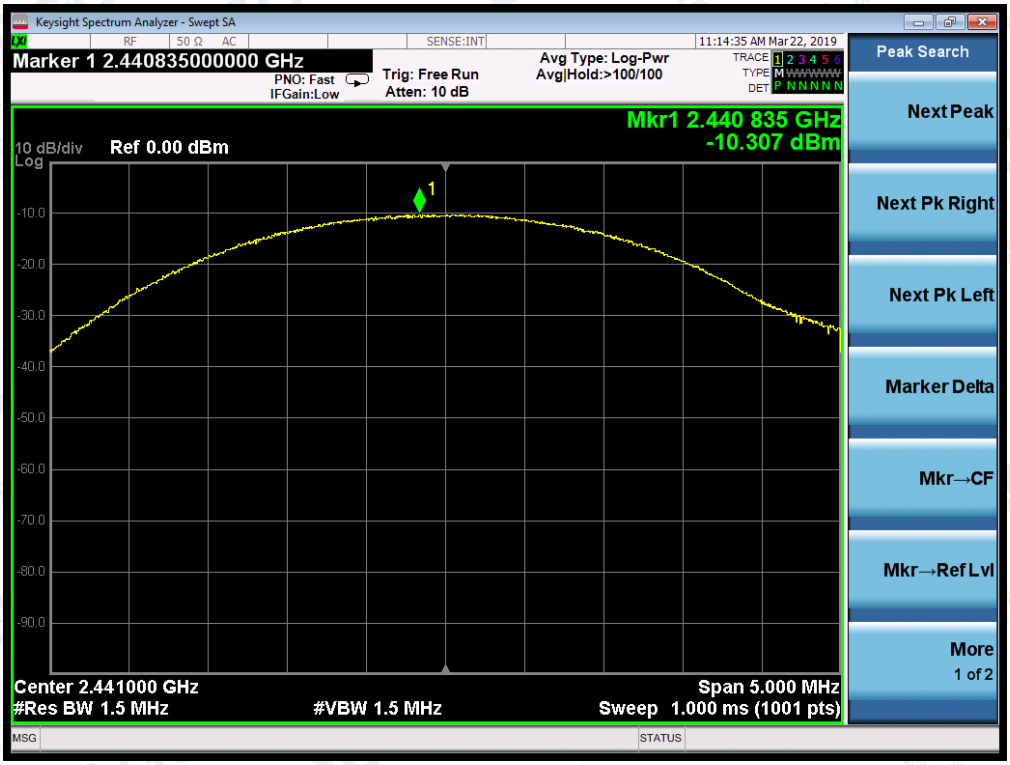




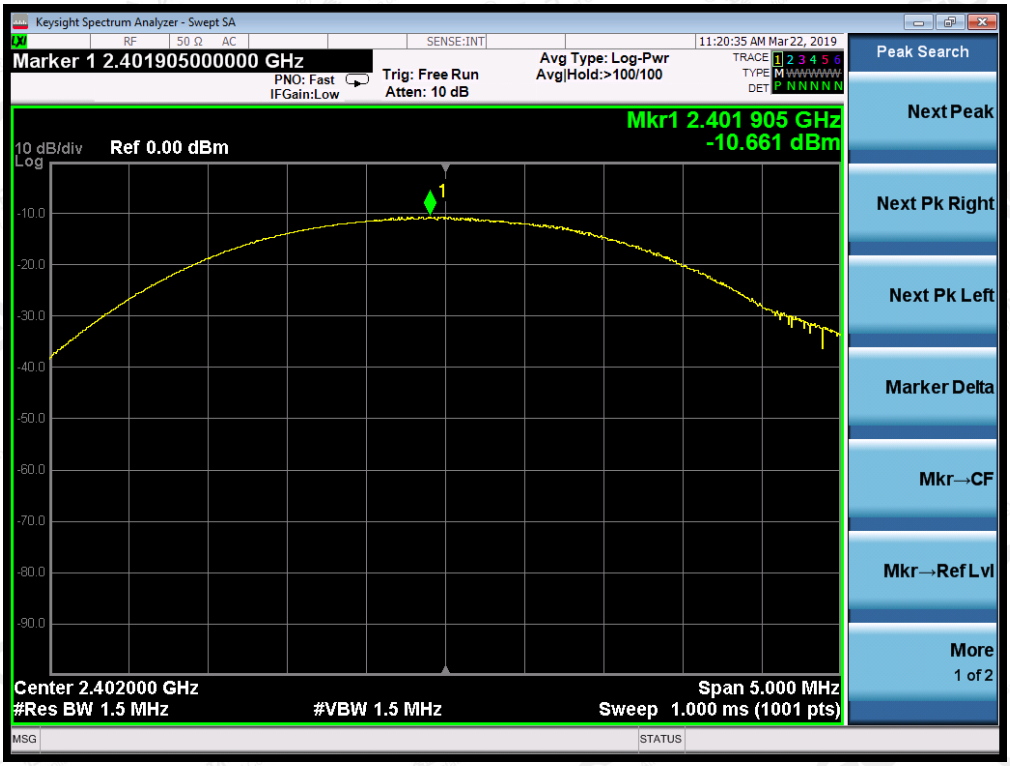



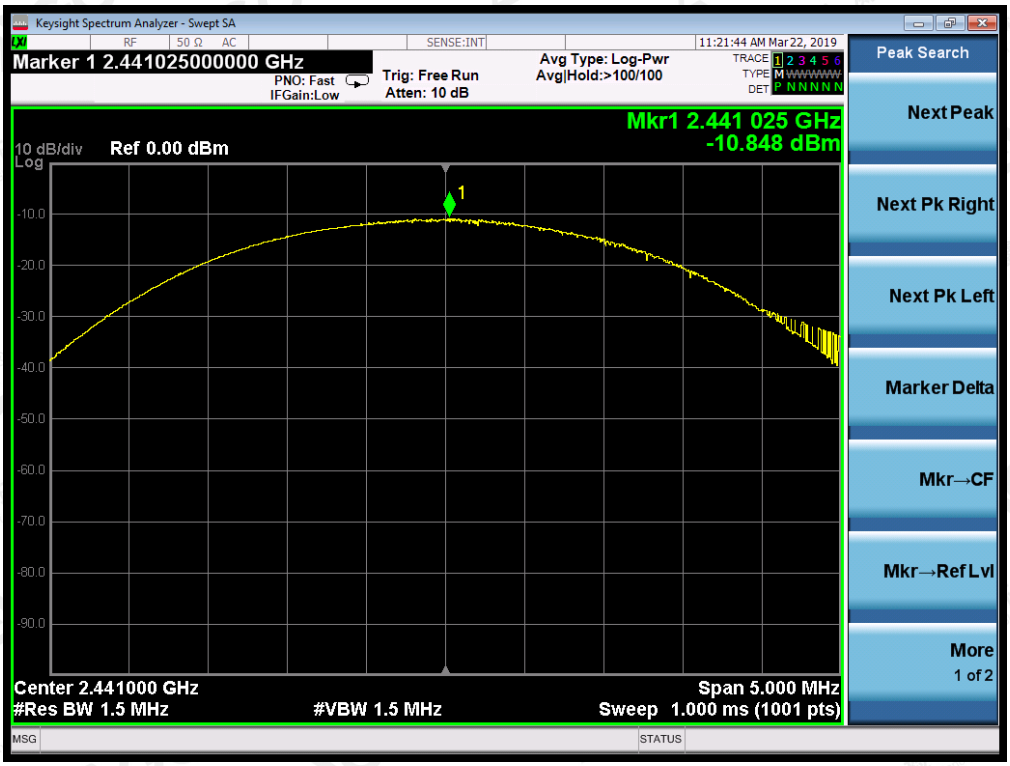
| Mode | Frequency (GHz) | Peak Power (dBm) | Applicable Limits (dBm) | Pass or Fail |
|---|---|---|---|---|
| π /4-DQPSK | 2.402 | -10.169 | 30 | Pass |
| | 2.441 | -10.307 | 30 | Pass |
| | 2.480 | -11.545 | 30 | Pass |

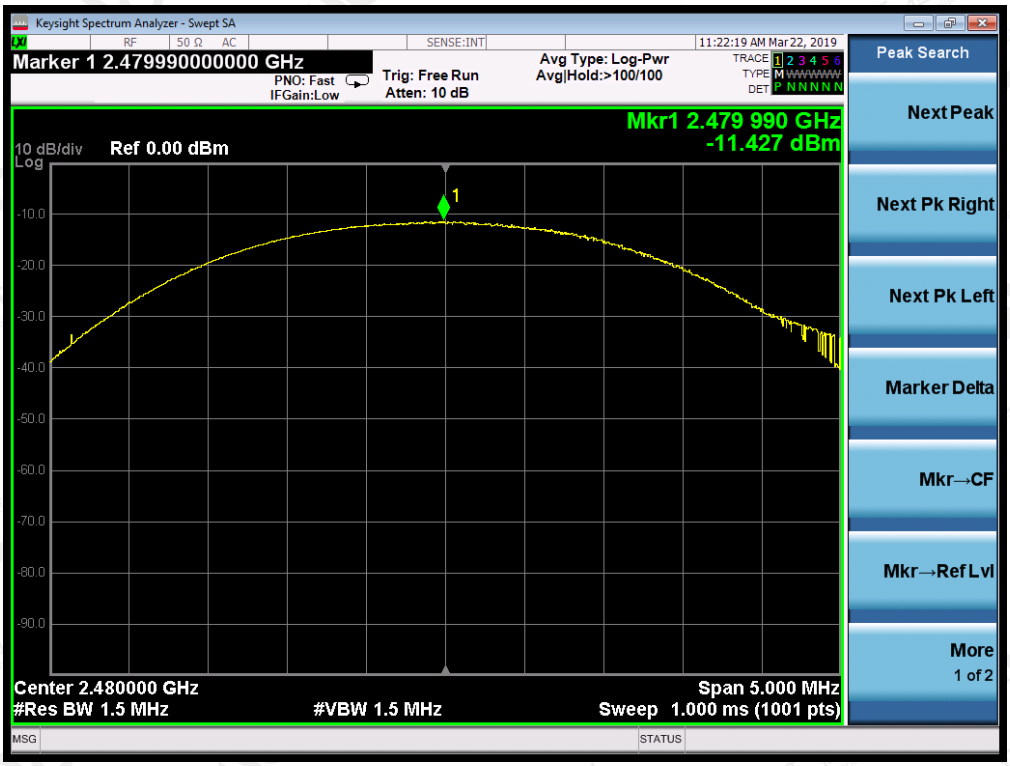





| Mode | Frequency (GHz) | Peak Power (dBm) | Applicable Limits (dBm) | Pass or Fail |
|---|---|---|---|---|
| 8DQPSK | 2.402 | -10.661 | 30 | Pass |
| | 2.441 | -10.848 | 30 | Pass |
| | 2.480 | -11.427 | 30 | Pass |





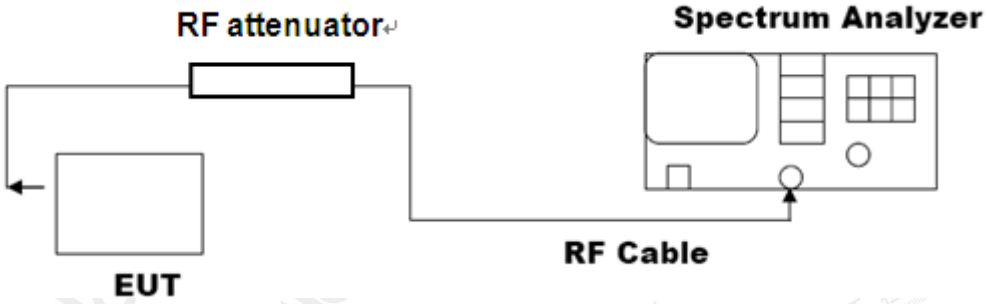



# 9. BANDWIDTH

## 9.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hoping channel RBW ≥ 1% of the 20 dB bandwidth, VBW ≥ 3RBW; Sweep = auto; Detector function = peak
4. Set SPA Trace 1 Max hold, then View.

## 9.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

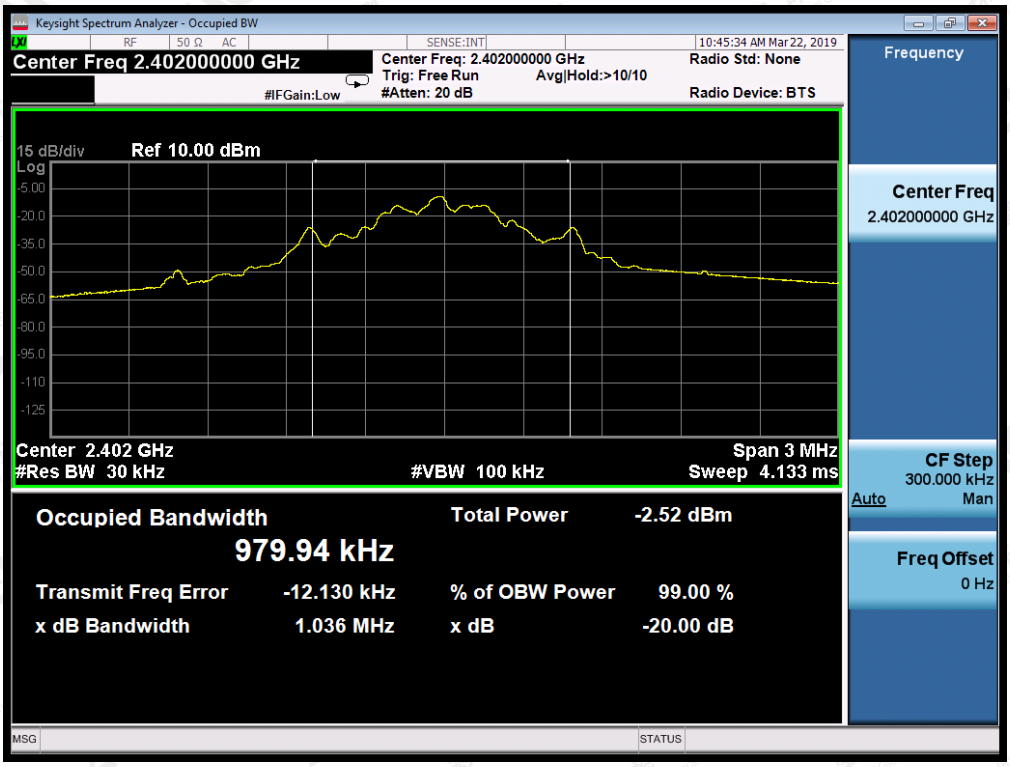



**Note:** The EUT has been used temporary antenna connector for testing.

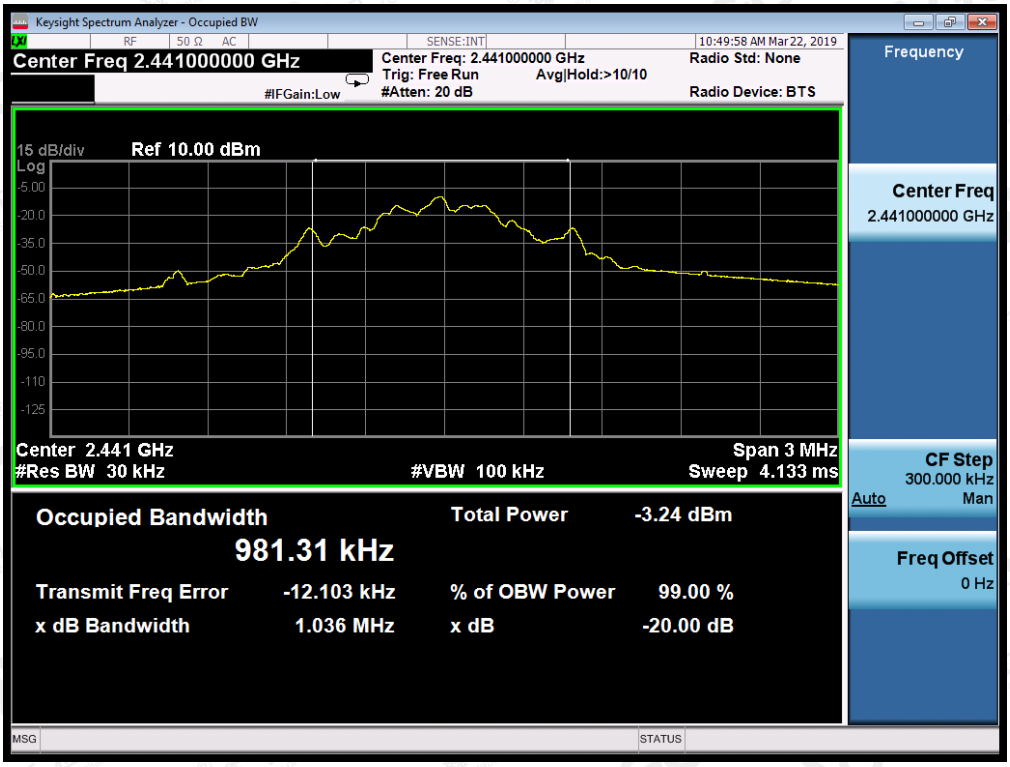
## 9.3. LIMITS AND MEASUREMENT RESULTS

| BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT | | | | |
|---|---|---|---|---|
| Applicable Limits | Measurement Result | | | |
| | Test Data (MHz) | | | Result |
| | | 99%OBW (MHz) | -20dB BW(MHz) | |
| N/A | Low Channel | 0.980 | 1.036 | PASS |
| | Middle Channel | 0.981 | 1.036 | PASS |
| | High Channel | 0.983 | 1.036 | PASS |

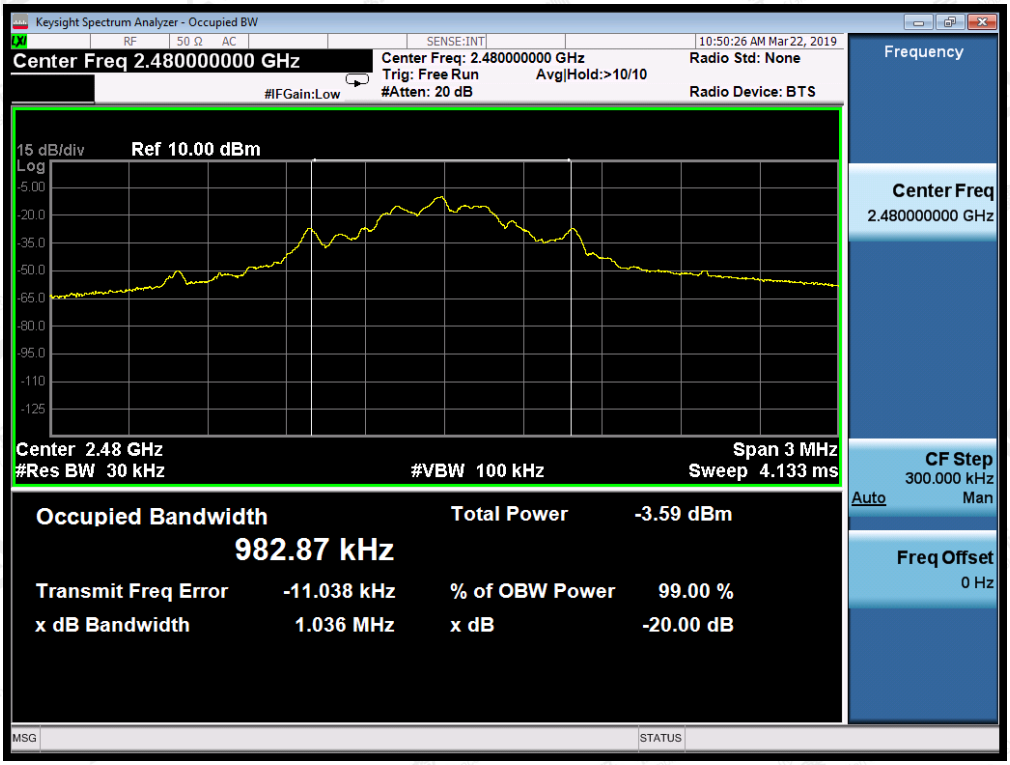
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL




TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

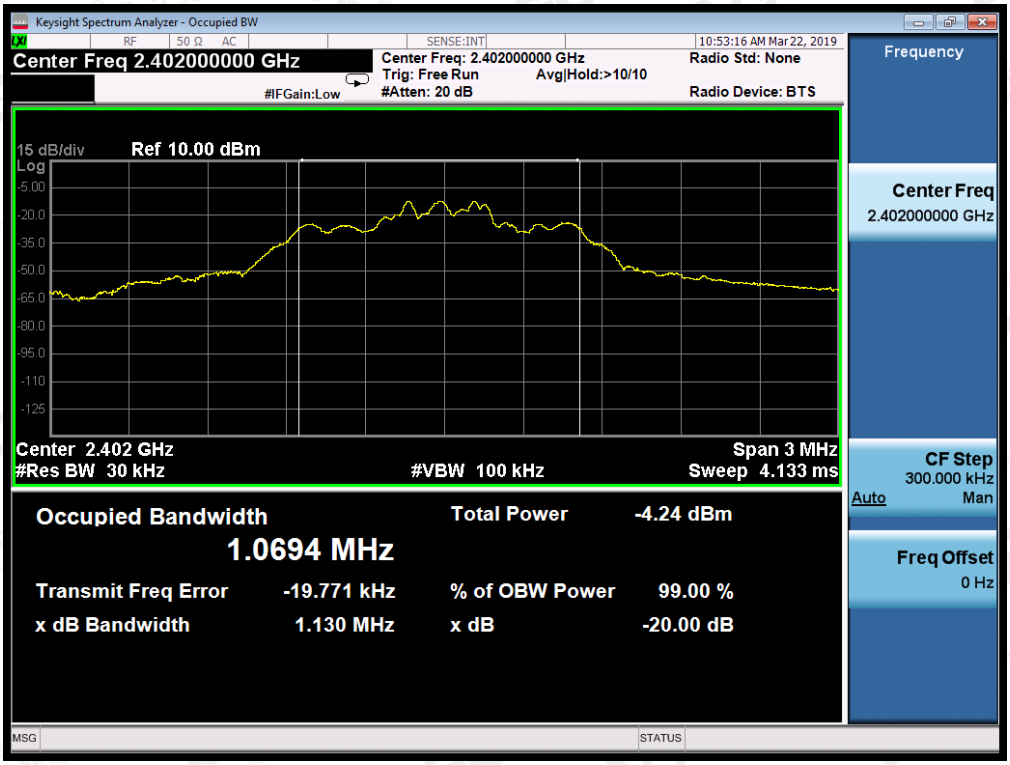


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

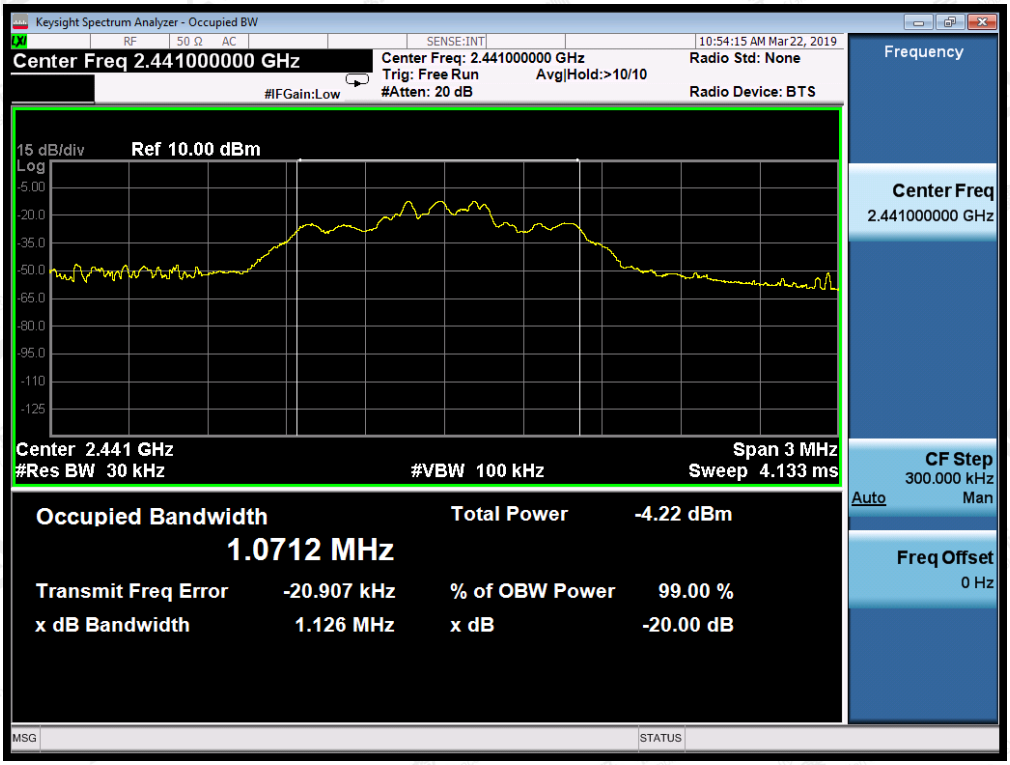


| BLUETOOTH 2MBPS LIMITS AND MEASUREMENT RESULT | | | | |
|---|---|---|---|---|
| Applicable Limits | Measurement Result | | | |
| | Test Data (MHz) | | | Result |
| | | 99%OBW (MHz) | -20dB BW(MHz) | |
| N/A | Low Channel | 1.0694 | 1.130 | PASS |
| | Middle Channel | 1.0712 | 1.126 | PASS |
| | High Channel | 1.0666 | 1.124 | PASS |

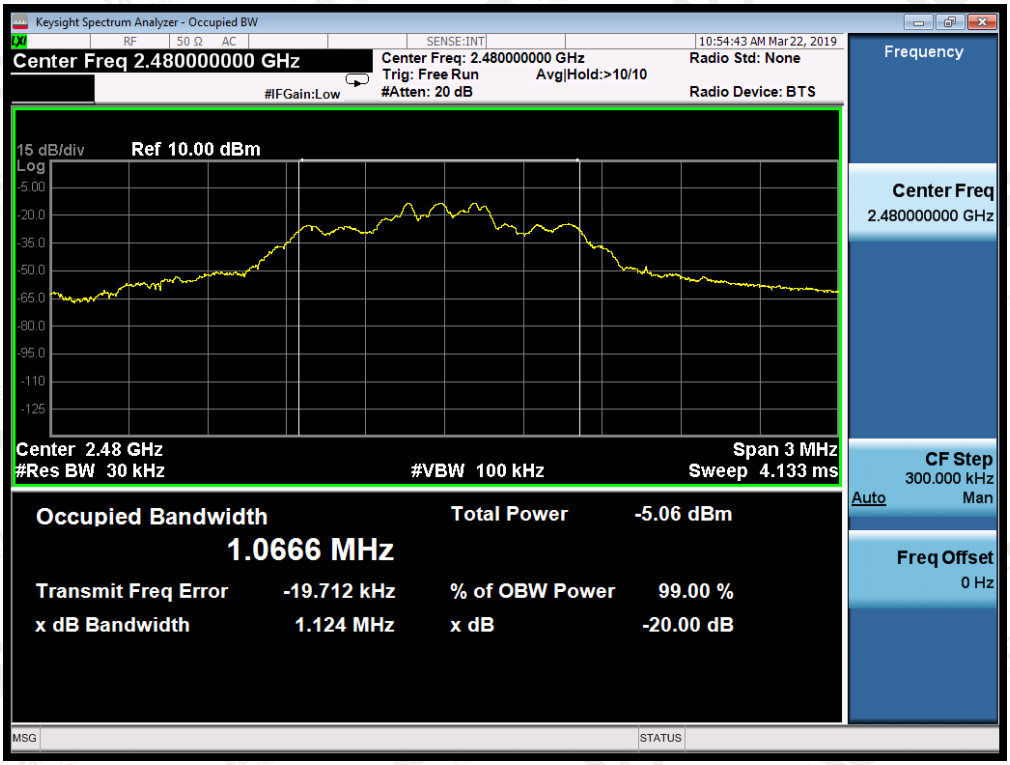
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

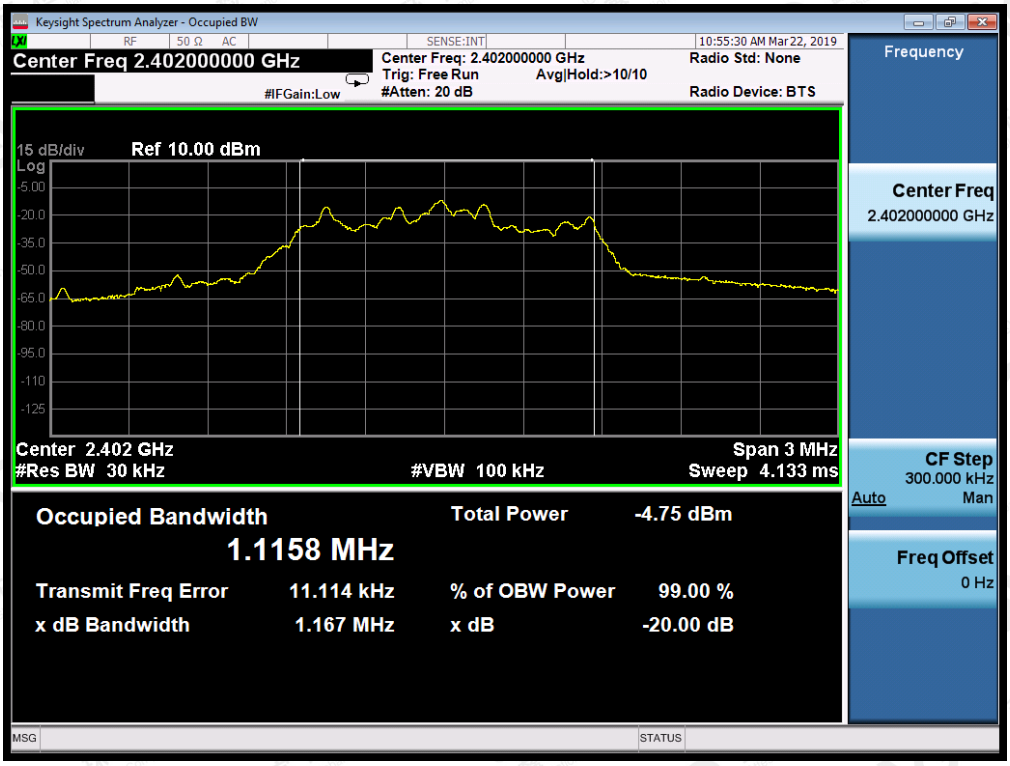



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

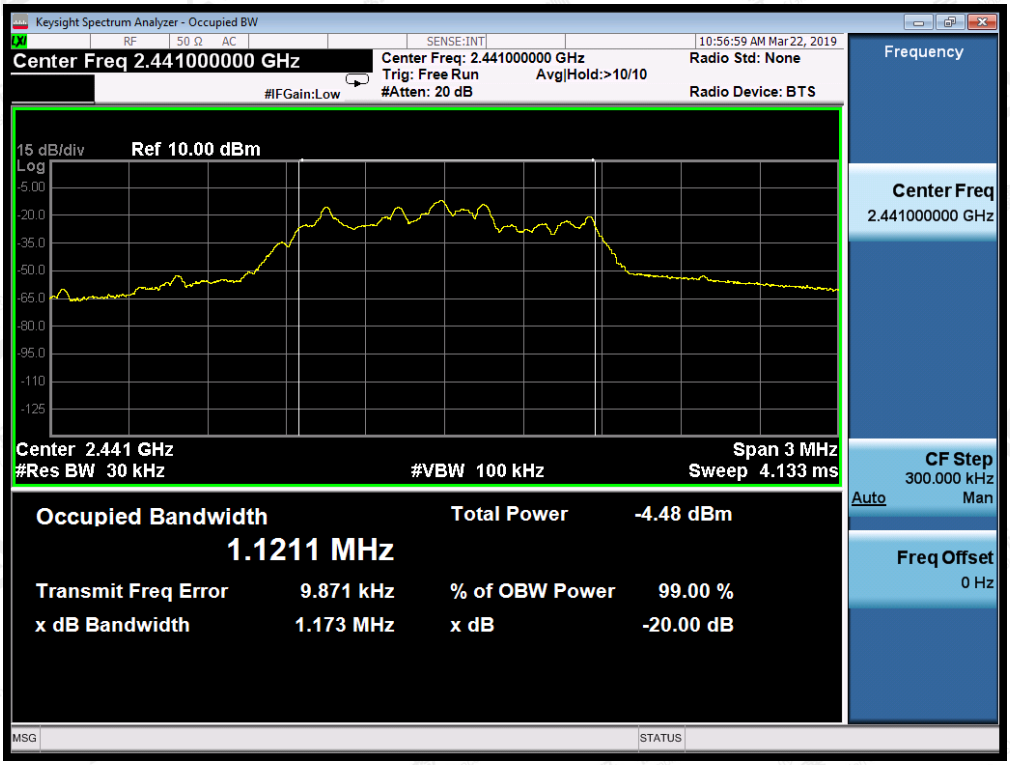


| BLUETOOTH 3MBPS LIMITS AND MEASUREMENT RESULT | | | | |
|---|---|---|---|---|
| Applicable Limits | Measurement Result | | | |
| | Test Data (MHz) | | | Result |
| | | 99%OBW (MHz) | -20dB BW(MHz) | |
| N/A | Low Channel | 1.1158 | 1.167 | PASS |
| | Middle Channel | 1.1211 | 1.173 | PASS |
| | High Channel | 1.1164 | 1.172 | PASS |

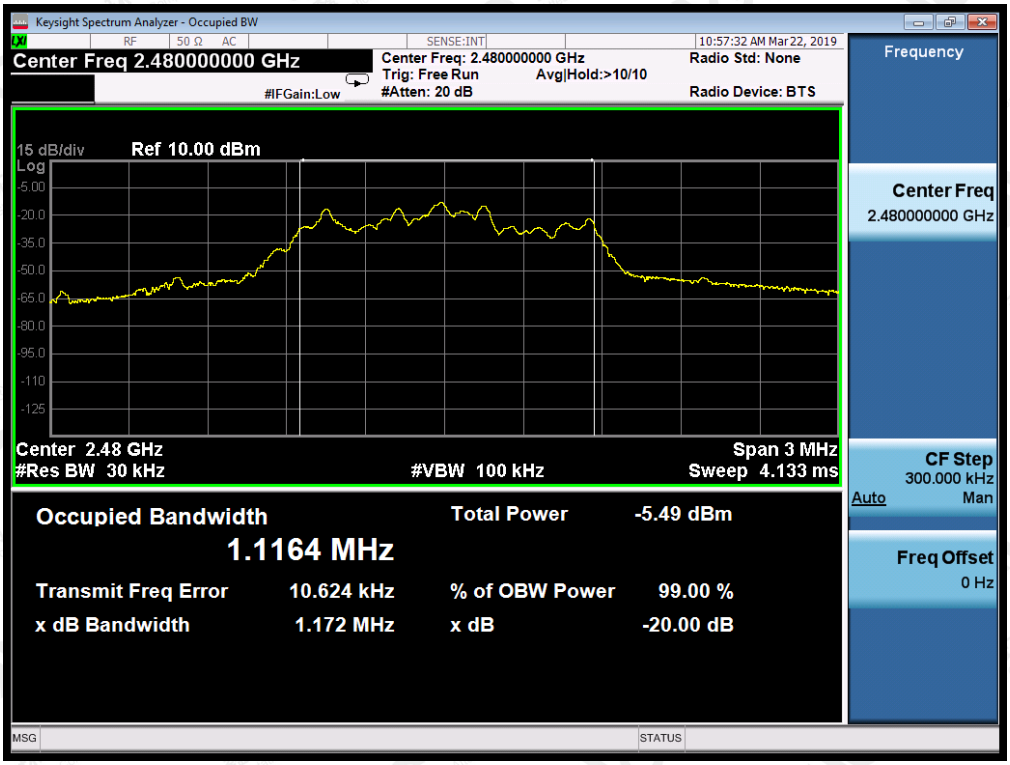
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL




TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

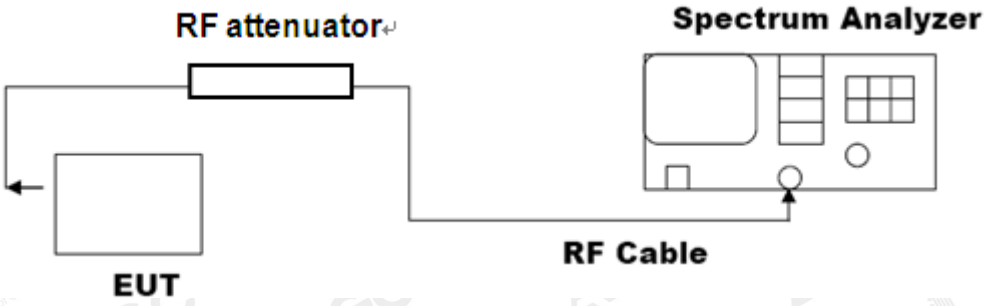


# 10. CONDUCTED SPURIOUS EMISSION

## 10.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the Middle and the bottom operation frequency individually.
3. Set the Span = wide enough to capture the peak level of the in-band emission and all spurious emissions from the lowest frequency generated in the EUT up through the 10th harmonic.
   RBW = 100 kHz; VBW = 300kHz; Sweep = auto; Detector function = peak.
4. Set SPA Trace 1 Max hold, then View.

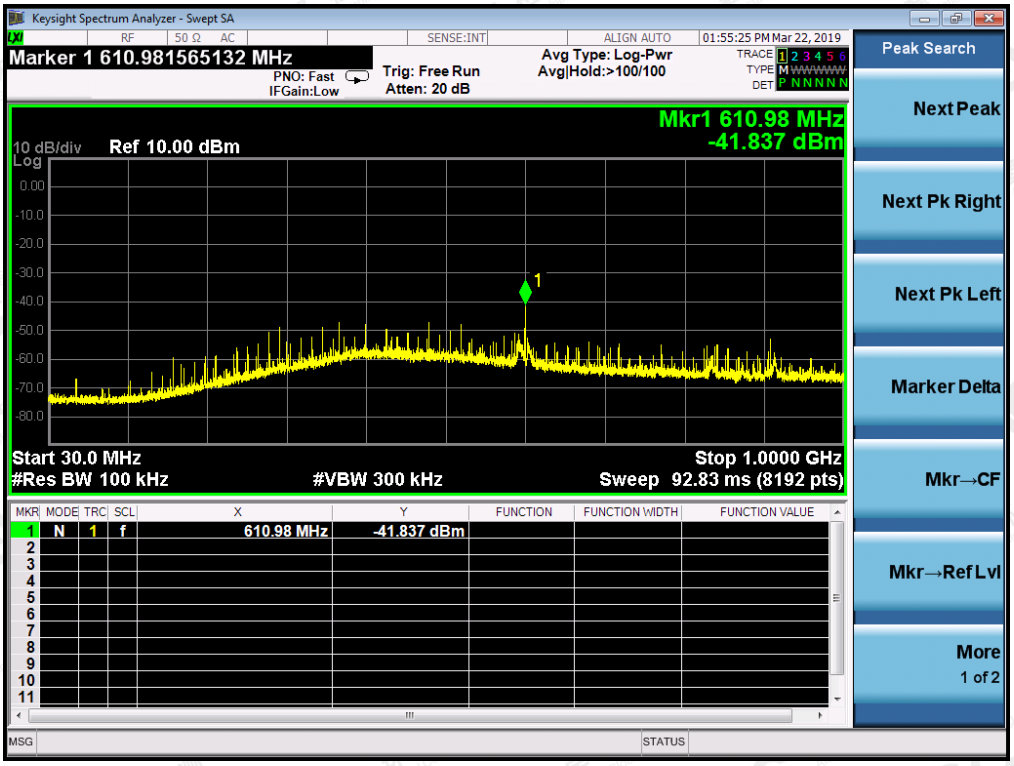
## 10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

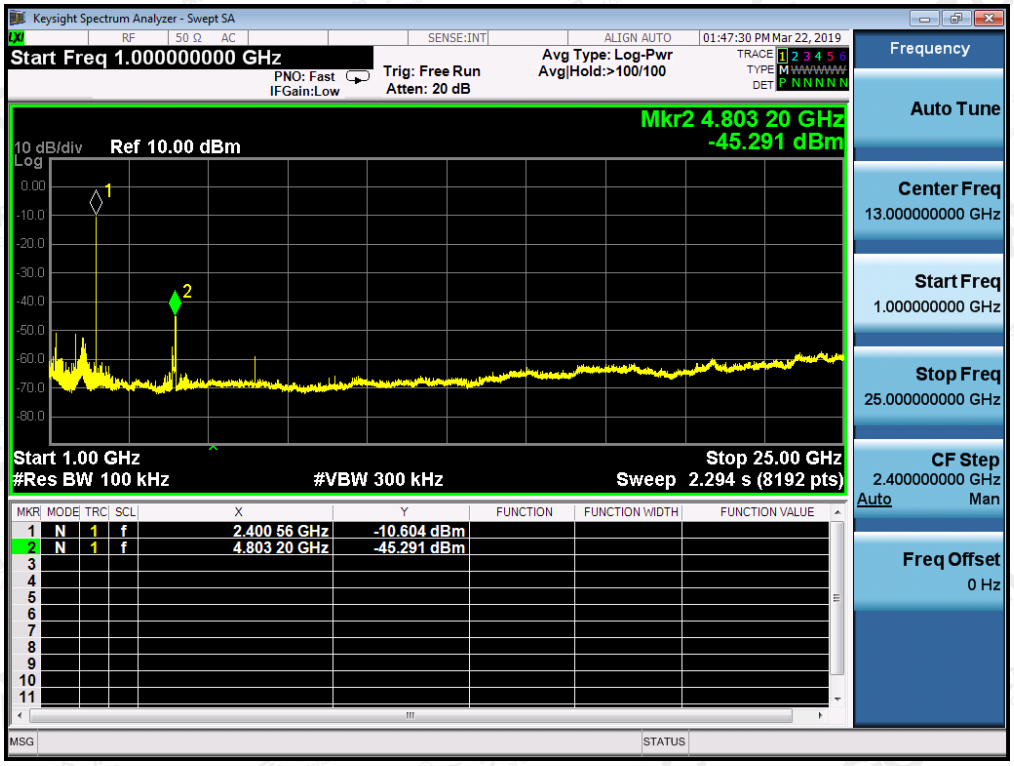



## 10.3. LIMITS AND MEASUREMENT RESULT

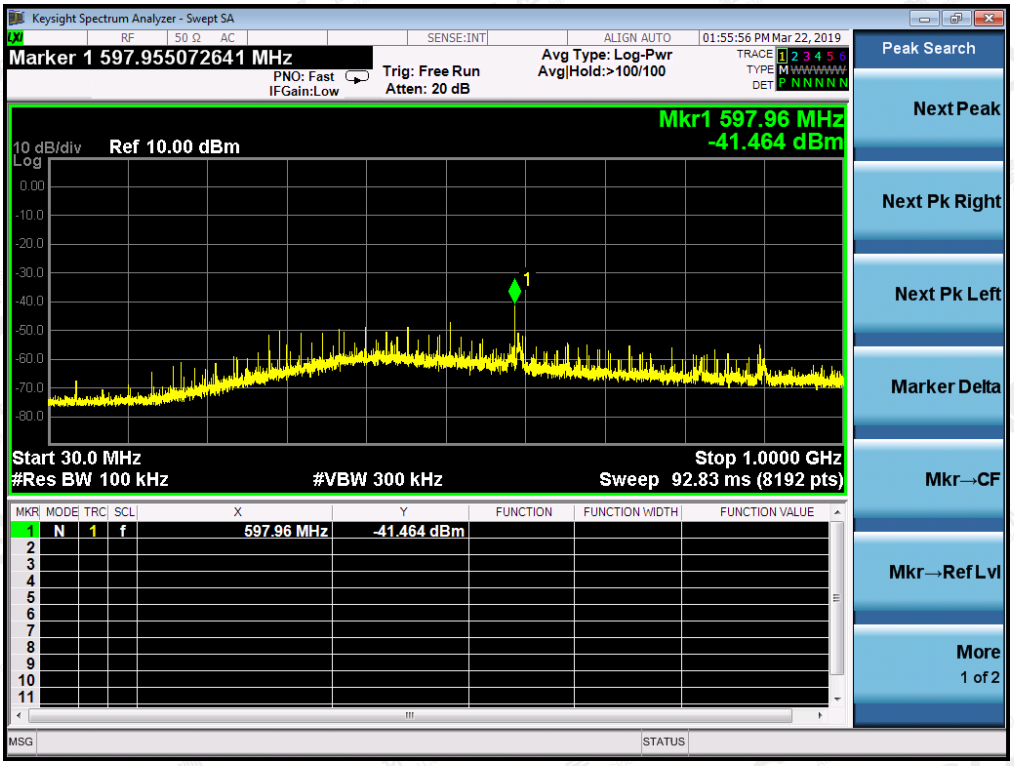
| LIMITS AND MEASUREMENT RESULT | | |
|---|---|---|
| **Applicable Limits** | **Measurement Result** | |
| | **Test Data** | **Result** |
| In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.<br>In addition, radiation 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)) | At least -20dBc than the limit Specified on the BOTTOM Channel | PASS |
| | At least -20dBc than the limit Specified on the TOP Channel | PASS |

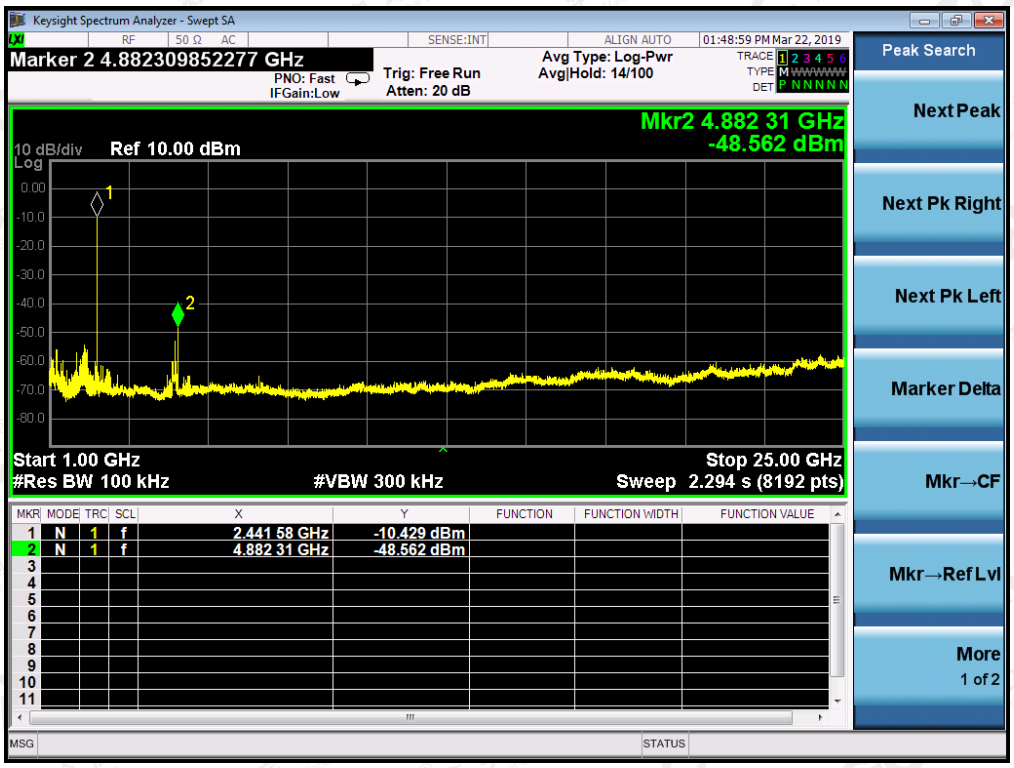
TEST PLOT OF OUT OF BAND EMISSIONS WITH THE WORST CASE OF π /4-DQPSK MODULATION IN LOW CHANNEL



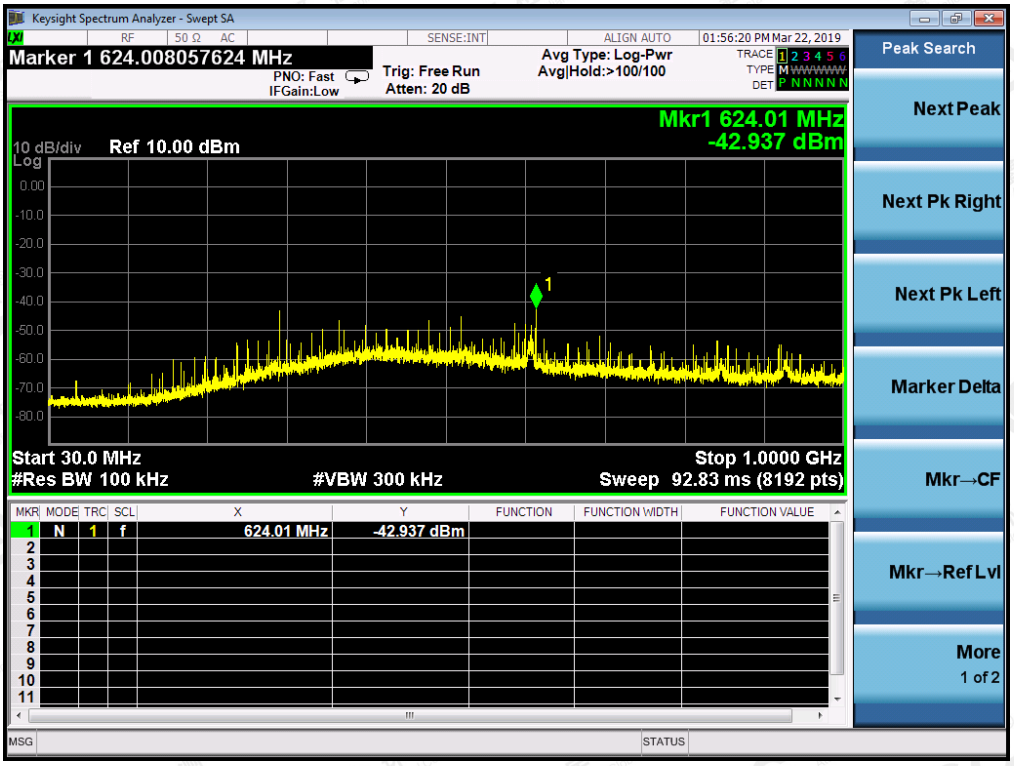



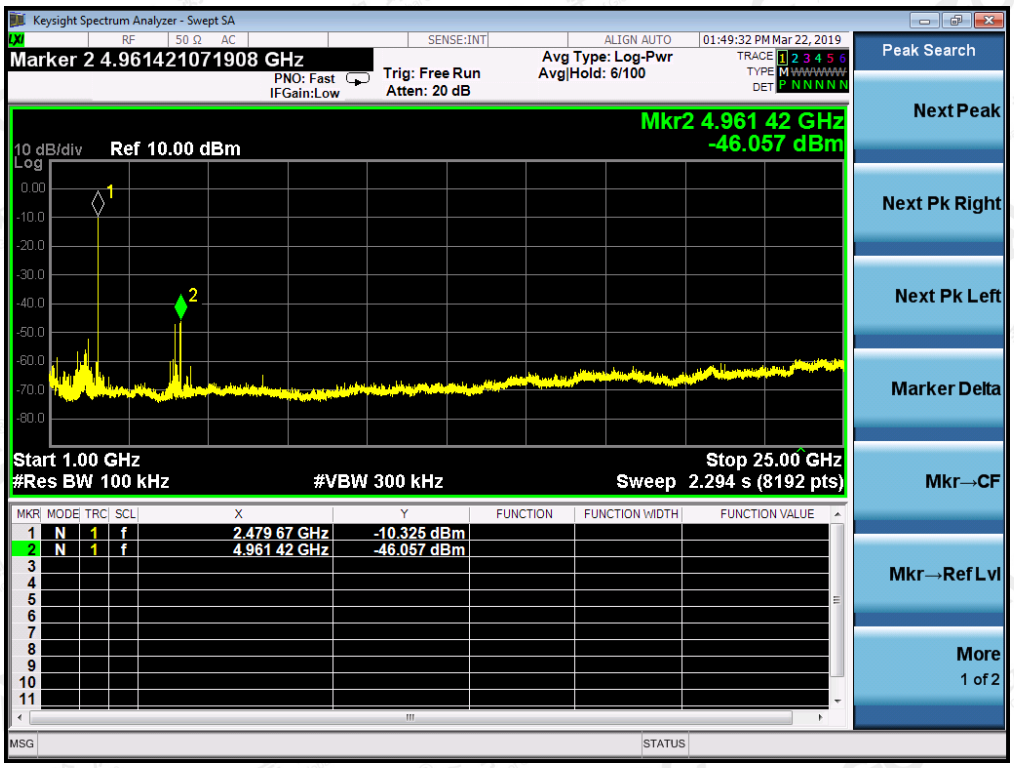
TEST PLOT OF OUT OF BAND EMISSIONS
OF π /4-DQPSK MODULATION IN MIDDLE CHANNEL



TEST PLOT OF OUT OF BAND EMISSIONS
OF π /4-DQPSK MODULATION IN HIGH CHANNEL



# 11. RADIATED EMISSION

## 11.1. TEST LIMIT

| Frequency (MHz) | Distance Meters | Field Strengths Limit | |
|---|---|---|---|
| | | μV/m | dB(μV)/m |
| 0.009 ~ 0.490 | 300 | 2400/F(kHz) | --- |
| 0.490 ~ 1.705 | 30 | 24000/F(kHz) | --- |
| 1.705 ~ 30 | 30 | 30 | --- |
| 30 ~ 88 | 3 | 100 | 40.0 |
| 88 ~ 216 | 3 | 150 | 43.5 |
| 216 ~ 960 | 3 | 200 | 46.0 |
| 960 ~ 1000 | 3 | 500 | 54.0 |
| Above 1000 | 3 | Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average) | |

Remark: (1) Emission level dBμV = 20 log Emission level μV/m.

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

## 11.2. MEASUREMENT PROCEDURE

1. The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Below 1GHz)
2. The measuring distance of 3m shall used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Above 1GHz)
3. The height of the test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization Of the antenna are set to make the measurement.
4. The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
5. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform(Below 1GHz)
6. All readings are Peak mode value unless otherwise stated AVG in column of Note. If the Peak mode measured value compliance with the Peak limits and lower than AVG Limits, the EUT shall be deemed to meet Peak&AVG limits and then only Peak mode was measured, but AVG mode didn't perform.(Above 1GHz)

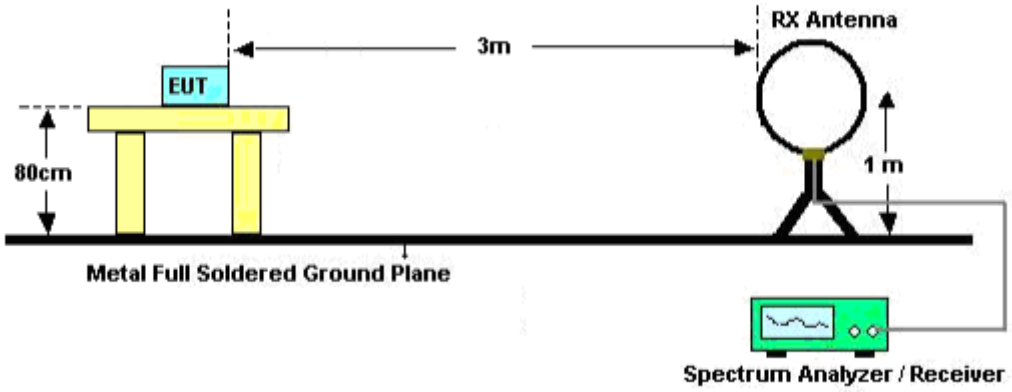
The following table is the setting of spectrum analyzer and receiver.

| Spectrum Parameter | Setting |
|---|---|
| Start ~Stop Frequency | 9KHz~150KHz/RB 200Hz for QP |
| Start ~Stop Frequency | 150KHz~30MHz/RB 9KHz for QP |
| Start ~Stop Frequency | 30MHz~1000MHz/RB 120KHz for QP |
| Start ~Stop Frequency | 1GHz~26.5GHz<br>RBW 1MHz/ VBW 3MHz for Peak,<br>RBW 1MHz/ VBW 10Hz for Average |

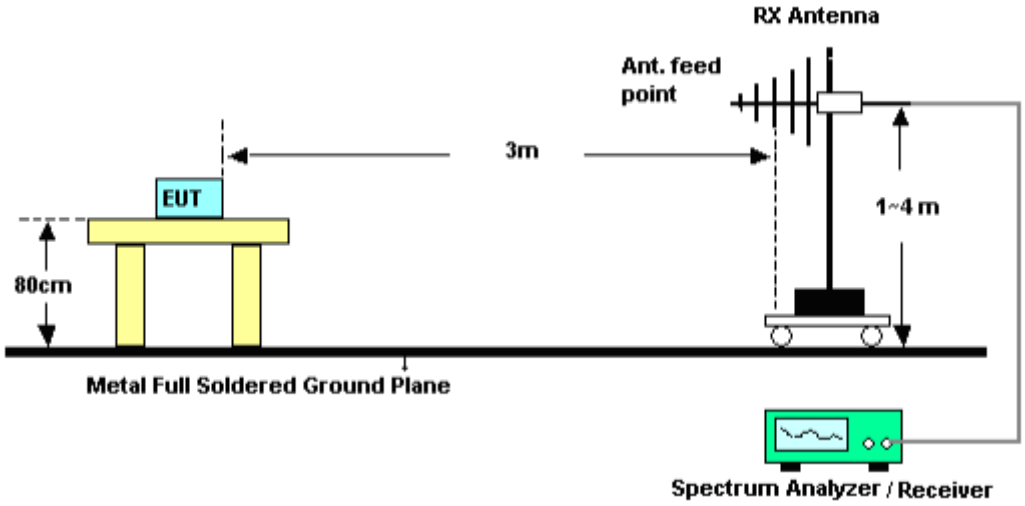
| Receiver Parameter | Setting |
|---|---|
| Start ~Stop Frequency | 9KHz~150KHz/RB 200Hz for QP |
| Start ~Stop Frequency | 150KHz~30MHz/RB 9KHz for QP |
| Start ~Stop Frequency | 30MHz~1000MHz/RB 120KHz for QP |

## 11.3. TEST SETUP

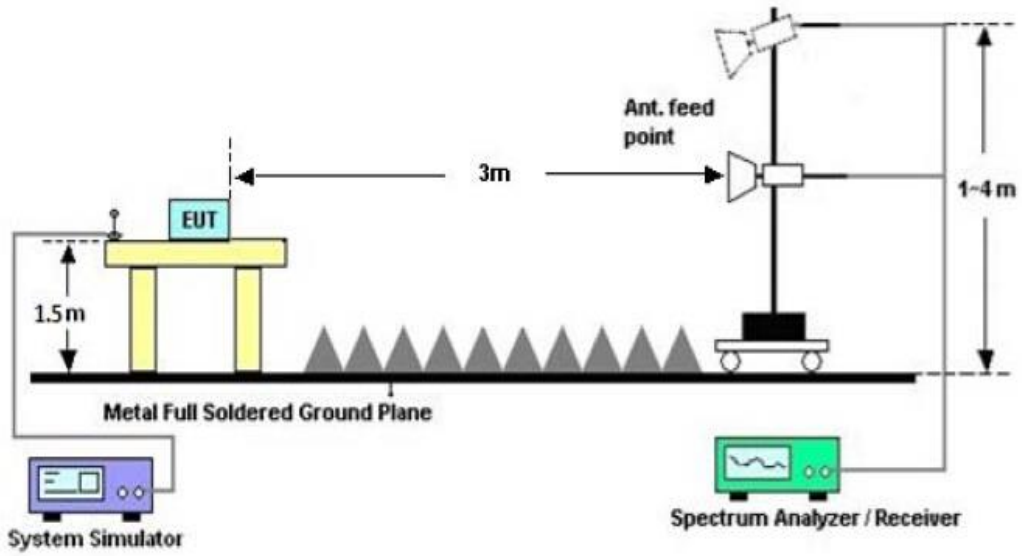
RADIATED EMISSION TEST SETUP BELOW 30MHz




RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



## 11.4. TEST RESULT

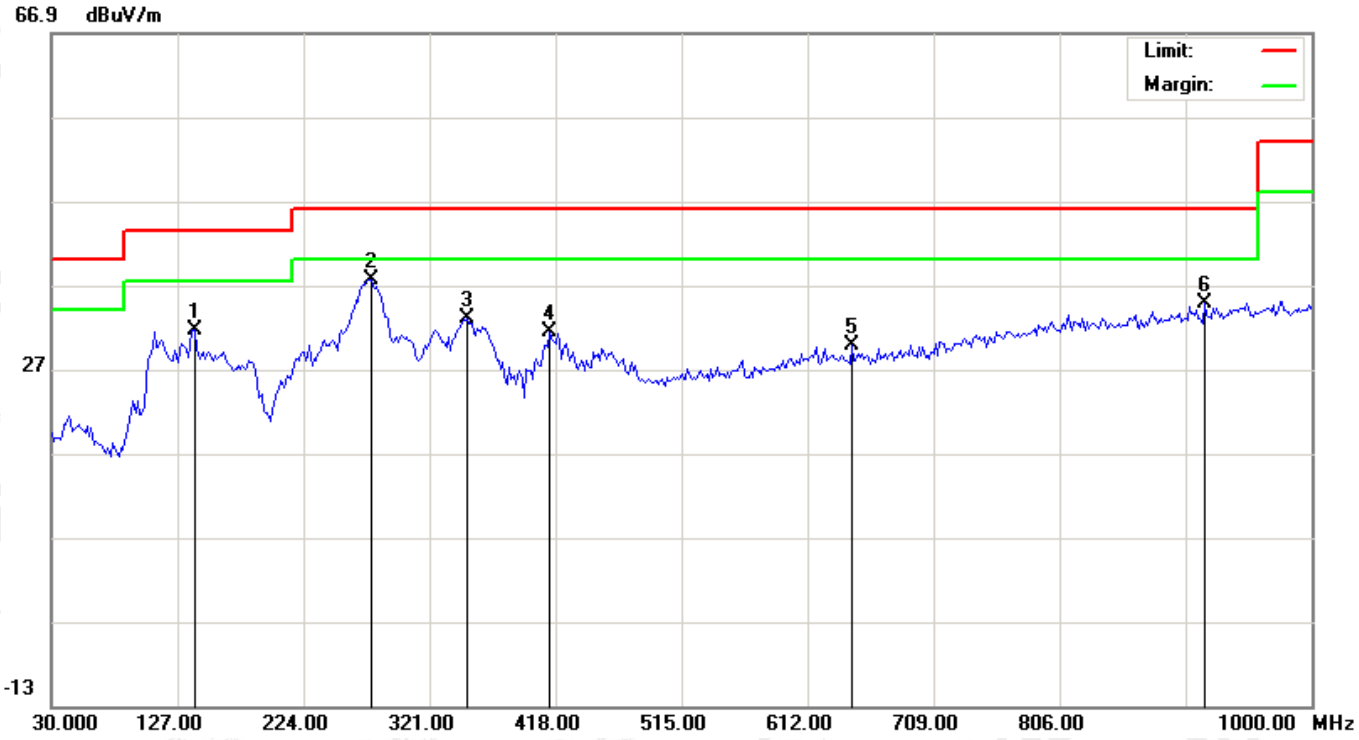
(Worst Modulation: π /4-DQPSK)

**RADIATED EMISSION BR/EDR OW 30MHz**

No emission found between lowest internal used/generated frequencies to 30MHz.

**RADIATED EMISSION BR/EDR OW 1GHz**

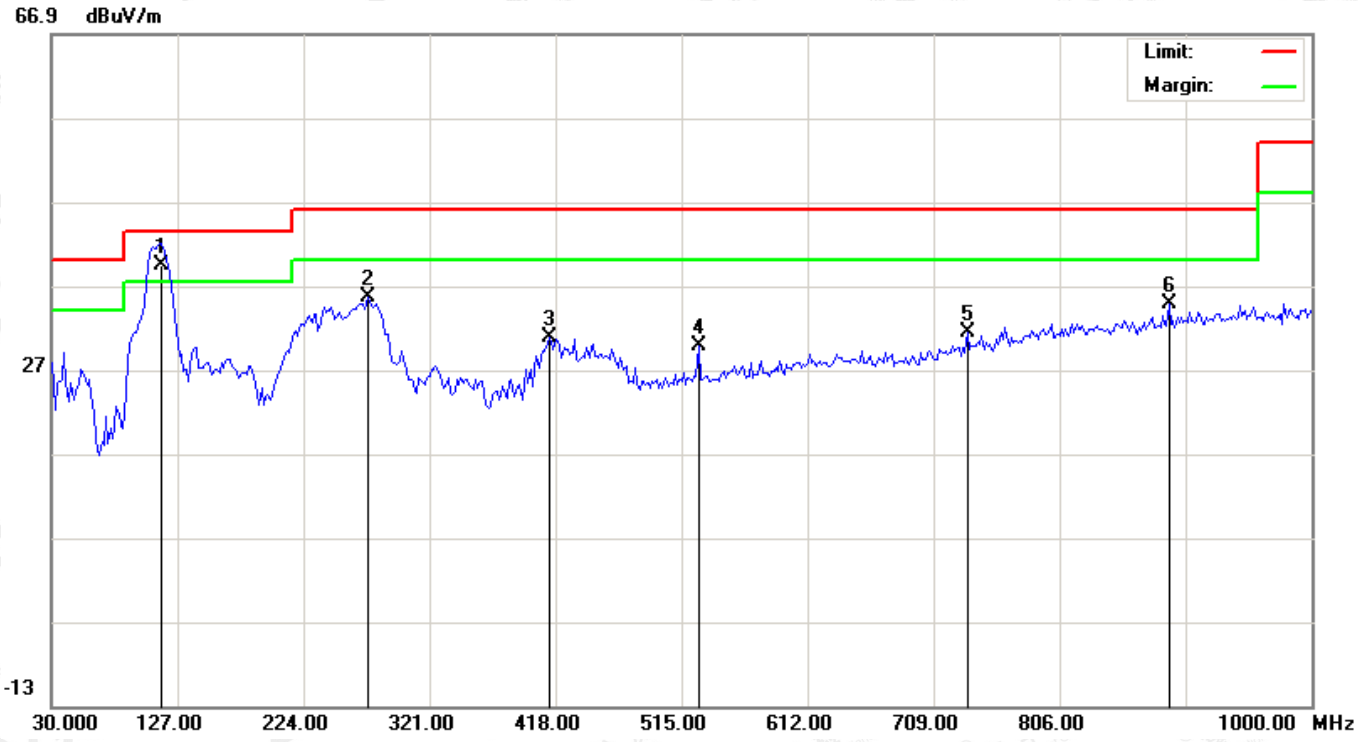
RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL-HORIZONTAL




| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | - | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | | 139.9333 | 12.35 | 19.23 | 31.58 | 43.50 | -11.92 | peak | | | |
| 2 | * | 275.7333 | 18.05 | 19.59 | 37.64 | 46.00 | -8.36 | peak | | | |
| 3 | | 350.1000 | 11.85 | 21.23 | 33.08 | 46.00 | -12.92 | peak | | | |
| 4 | | 413.1500 | 8.20 | 23.24 | 31.44 | 46.00 | -14.56 | peak | | | |
| 5 | | 645.9500 | 2.21 | 27.50 | 29.71 | 46.00 | -16.29 | peak | | | |
| 6 | | 917.5500 | 2.99 | 31.85 | 34.84 | 46.00 | -11.16 | peak | | | |

**RESULT: PASS**

RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL -VERTICAL




| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | - | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | * | 114.0667 | 22.10 | 17.39 | 39.49 | 43.50 | -4.01 | QP | | | |
| 2 | | 274.1167 | 16.10 | 19.46 | 35.56 | 46.00 | -10.44 | peak | | | |
| 3 | | 413.1500 | 7.50 | 23.24 | 30.74 | 46.00 | -15.26 | peak | | | |
| 4 | | 527.9333 | 4.18 | 25.54 | 29.72 | 46.00 | -16.28 | peak | | | |
| 5 | | 734.8667 | 2.44 | 28.94 | 31.38 | 46.00 | -14.62 | peak | | | |
| 6 | | 890.0667 | 3.15 | 31.57 | 34.72 | 46.00 | -11.28 | peak | | | |

**RESULT: PASS**

**Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The “Factor” value can be calculated automatically by software of measurement system.

3. All modes were tested, and only the data of worst case mode 4 was recorded in this report.

## RADIATED EMISSION ABOVE 1GHZ FOR BR/EDR

| | | | |
|---|---|---|---|
| EUT： | Multifunctional FM Radio Speaker | Model Name. ： | CR3037A |
| Temperature： | 20 ℃ | Relative Humidtity： | 48% |
| Pressure： | 1010 hPa | Test Voltage ： | AC 120V/60 Hz |
| Test Mode ： | Mode 4 | Polarization : | Horizontal |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Value Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4804.026 | 54.34 | 7.12 | 61.46 | 74 | -12.54 | peak |
| 4804.026 | 34.82 | 7.12 | 41.94 | 54 | -12.06 | AVG |
| 7206.039 | 40.07 | 9.84 | 49.91 | 74 | -24.09 | peak |
| 7206.039 | 30.12 | 9.84 | 39.96 | 54 | -14.04 | AVG |
| Remark: | | | | | | |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. | | | | | | |

| | | | |
|---|---|---|---|
| EUT： | Multifunctional FM Radio Speaker | Model Name. ： | CR3037A |
| Temperature： | 20 ℃ | Relative Humidtity： | 48% |
| Pressure： | 1010 hPa | Test Voltage ： | AC 120V/60 Hz |
| Test Mode ： | Mode 4 | Polarization : | Vertical |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Value Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4804.026 | 53.63 | 7.12 | 60.75 | 74 | -13.25 | peak |
| 4804.026 | 34.26 | 7.12 | 41.38 | 54 | -12.62 | AVG |
| 7206.039 | 39.03 | 9.84 | 48.87 | 74 | -25.13 | peak |
| 7206.039 | 29.89 | 9.84 | 39.73 | 54 | -14.27 | AVG |
| Remark: | | | | | | |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. | | | | | | |

| | | | |
|---|---|---|---|
| EUT： | Multifunctional FM Radio Speaker | Model Name. ： | CR3037A |
| Temperature： | 20 ℃ | Relative Humidtity： | 48% |
| Pressure： | 1010 hPa | Test Voltage ： | AC 120V/60 Hz |
| Test Mode ： | Mode 5 | Polarization : | Horizontal |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Value Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4882.032 | 55.17 | 7.12 | 62.29 | 74 | -11.71 | peak |
| 4882.032 | 35.39 | 7.12 | 42.51 | 54 | -11.49 | AVG |
| 7323.048 | 41.2 | 9.84 | 51.04 | 74 | -22.96 | peak |
| 7323.048 | 30.76 | 9.84 | 40.60 | 54 | -13.40 | AVG |
| Remark: | | | | | | |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. | | | | | | |

| | | | |
|---|---|---|---|
| EUT： | Multifunctional FM Radio Speaker | Model Name. ： | CR3037A |
| Temperature： | 20 ℃ | Relative Humidtity： | 48% |
| Pressure： | 1010 hPa | Test Voltage ： | AC 120V/60 Hz |
| Test Mode ： | Mode 5 | Polarization : | Vertical |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Value Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4882.032 | 54.99 | 7.12 | 62.11 | 74 | -11.89 | peak |
| 4882.032 | 34.55 | 7.12 | 41.67 | 54 | -12.33 | AVG |
| 7323.048 | 39.95 | 9.84 | 49.79 | 74 | -24.21 | peak |
| 7323.048 | 29.88 | 9.84 | 39.72 | 54 | -14.28 | AVG |
| Remark: | | | | | | |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. | | | | | | |

| EUT： | Multifunctional FM Radio Speaker | Model Name. ： | CR3037A |
|---|---|---|---|
| Temperature： | 20 ℃ | Relative Humidtity： | 48% |
| Pressure： | 1010 hPa | Test Voltage ： | AC 120V/60 Hz |
| Test Mode ： | Mode 6 | Polarization : | Horizontal |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Value Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4960.042 | 54.73 | 7.12 | 61.85 | 74 | -12.15 | peak |
| 4960.042 | 34.82 | 7.12 | 41.94 | 54 | -12.06 | AVG |
| 7440.063 | 40.32 | 9.84 | 50.16 | 74 | -23.84 | peak |
| 7440.063 | 30.86 | 9.84 | 40.70 | 54 | -13.3 | AVG |
| Remark: | | | | | | |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. | | | | | | |

| EUT： | Multifunctional FM Radio Speaker | Model Name. ： | CR3037A |
|---|---|---|---|
| Temperature： | 20 ℃ | Relative Humidtity： | 48% |
| Pressure： | 1010 hPa | Test Voltage ： | AC 120V/60 Hz |
| Test Mode ： | Mode 6 | Polarization : | Vertical |

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Value Type |
|---|---|---|---|---|---|---|
| (MHz) | (dBμV) | (dB) | (dBμV/m) | (dBμV/m) | (dB) | |
| 4960.042 | 52.74 | 7.12 | 59.86 | 74 | -14.14 | peak |
| 4960.042 | 33.56 | 7.12 | 40.68 | 54 | -13.32 | AVG |
| 7440.063 | 39.68 | 9.84 | 49.52 | 74 | -24.48 | peak |
| 7440.063 | 30.18 | 9.84 | 40.02 | 54 | -13.98 | AVG |
| Remark: | | | | | | |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. | | | | | | |

**Note:** Other emissions from 8G to 25 GHz are considered as ambient noise. No recording in the test report.
Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.
The “Factor” value can be calculated automatically by software of measurement system.
The π /4-DQPSK modulation was the worst case and only the data of worst recorded in this report.