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Report Template Version: V05
Report Template Revision Date: 2021-11-03

# Test Report

| | |
|---|---|
| **Report No.:** | CQASZ20231202187E-01 |
| **Applicant:** | Shenzhen DO Intelligent Technology Co., Ltd |
| **Address of Applicant:** | 11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China |
| **Equipment Under Test (EUT):** | |
| **Product:** | Smart Watch |
| **Model No.:** | GTX03 |
| **Test Model No.:** | GTX03 |
| **Brand Name:** | IDO |
| **FCC ID:** | 2AHFT537 |
| **Standards:** | 47 CFR Part 15, Subpart C |
| **Date of Receipt:** | 2023-12-04 |
| **Date of Test:** | 2023-12-04 to 2023-12-13 |
| **Date of Issue:** | **2023-12-26** |
| **Test Result:** | **PASS*** |

***In the configuration tested, the EUT complied with the standards specified above.**

***Tested By:*** lewis zhou
***( Lewis Zhou )***

***Reviewed By:*** Timo Lei
***( Timo Lei )***

***Approved By:***
***( Jack Ai )***

# 1 Version

**Revision History Of Report**

| Report No. | Version | Description | Issue Date |
|---|---|---|---|
| CQASZ20231202187E-01 | Rev.01 | Initial report | 2023-12-26 |

# 2 Test Summary

| Test Item | Test Requirement | Test method | Result |
|---|---|---|---|
| Antenna Requirement | 47 CFR Part 15, Subpart C Section 15.203/15.247 (c) | ANSI C63.10 2013 | PASS |
| AC Power Line Conducted Emission | 47 CFR Part 15, Subpart C Section 15.207 | ANSI C63.10 2013 | PASS |
| Conducted Peak Output Power | 47 CFR Part 15, Subpart C Section 15.247 (b)(1) | ANSI C63.10 2013 | PASS |
| 6dB Occupied Bandwidth | 47 CFR Part 15, Subpart C Section 15.247 (a)(2) | ANSI C63.10 2013 | PASS |
| Power Spectral Density | 47 CFR Part 15, Subpart C Section 15.247 (e) | ANSI C63.10 2013 | PASS |
| Band-edge for RF Conducted Emissions | 47 CFR Part 15, Subpart C Section 15.247(d) | ANSI C63.10 2013 | PASS |
| RF Conducted Spurious Emissions | 47 CFR Part 15, Subpart C Section 15.247(d) | ANSI C63.10 2013 | PASS |
| Radiated Spurious Emissions | 47 CFR Part 15, Subpart C Section 15.205/15.209 | ANSI C63.10 2013 | PASS |
| Restricted bands around fundamental frequency (Radiated Emission) | 47 CFR Part 15, Subpart C Section 15.205/15.209 | ANSI C63.10 2013 | PASS |

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# 4 General Information

## 4.1 Client Information

| | |
|---|---|
| Applicant: | Shenzhen DO Intelligent Technology Co., Ltd |
| Address of Applicant: | 11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China |
| Manufacturer: | Shenzhen DO Intelligent Technology Co., Ltd |
| Address of Manufacturer: | 11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China |
| Factory: | Shenzhen DO Intelligent Technology Co., Ltd |
| Address of Factory: | 11th Floor, 3# Building, Guole Tech Park, Lirong Road, Dalang, Longhua District, Shenzhen, China |

## 4.2 General Description of EUT

| | |
|---|---|
| Product Name: | Smart Watch |
| Model No.: | GTX03 |
| Test Model No.: | GTX03 |
| Trade Mark: | IDO |
| Software Version: | V1.00.00 |
| Hardware Version: | V1.0 |
| Operation Frequency: | 2402MHz~2480MHz |
| Bluetooth Version: | V5.3 |
| Modulation Type: | GFSK |
| Transfer Rate: | 1Mbps, 2Mbps |
| Number of Channel: | 40 |
| Product Type: | ☐ Mobile ☒ Portable |
| Test Software of EUT: | FCC_V2.24 |
| Antenna Type: | Metal frame antenna |
| Antenna Gain: | -2.74dBi |
| EUT Power Supply: | Li-ion battery: DC 3.8V 300mAh, Charge by DC 5V for adapter |
| Simultaneous Transmission | ☐ Simultaneous TX is supported and evaluated in this report.<br>☒ Simultaneous TX is not supported. |

| Operation Frequency each of channel | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 0 | 2402MHz | 10 | 2422MHz | 20 | 2442MHz | 30 | 2462MHz |
| 1 | 2404MHz | 11 | 2424MHz | 21 | 2444MHz | 31 | 2464MHz |
| 2 | 2406MHz | 12 | 2426MHz | 22 | 2446MHz | 32 | 2466MHz |
| 3 | 2408MHz | 13 | 2428MHz | 23 | 2448MHz | 33 | 2468MHz |
| 4 | 2410MHz | 14 | 2430MHz | 24 | 2450MHz | 34 | 2470MHz |
| 5 | 2412MHz | 15 | 2432MHz | 25 | 2452MHz | 35 | 2472MHz |
| 6 | 2414MHz | 16 | 2434MHz | 26 | 2454MHz | 36 | 2474MHz |
| 7 | 2416MHz | 17 | 2436MHz | 27 | 2456MHz | 37 | 2476MHz |
| 8 | 2418MHz | 18 | 2438MHz | 28 | 2458MHz | 38 | 2478MHz |
| 9 | 2420MHz | 19 | 2440MHz | 29 | 2460MHz | 39 | 2480MHz |

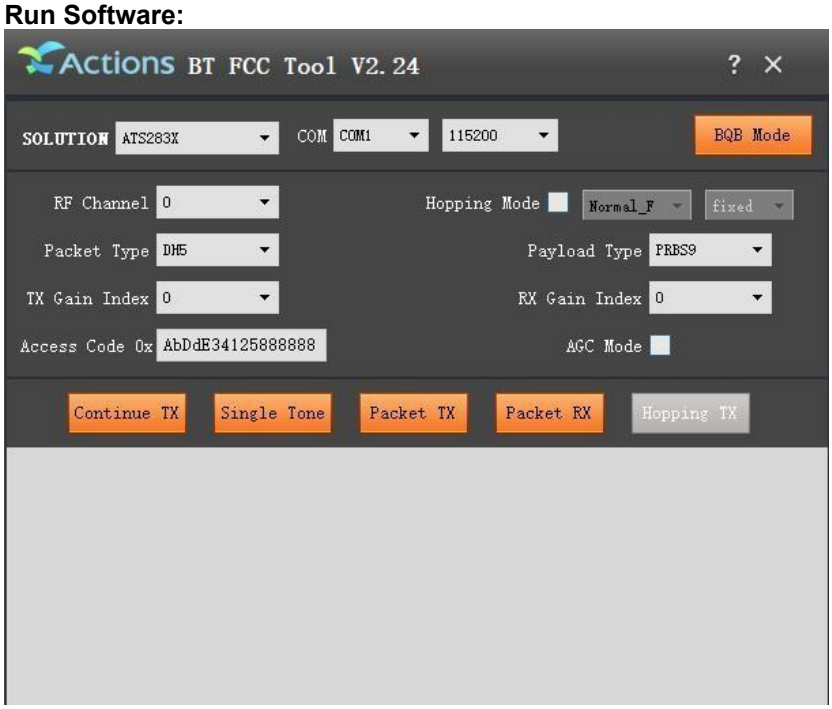
Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Channel | Frequency |
|---|---|
| The lowest channel (CH0) | 2402MHz |
| The middle channel (CH19) | 2440MHz |
| The highest channel (CH39) | 2480MHz |

## 4.3 Additional Instructions

| EUT Test Software Settings: | | |
|---|---|---|
| Mode: | ☒ Special software is used.<br>☐ Through engineering command into the engineering mode.<br>engineering command: *#*#3646633#*#* | |
| EUT Power level: | Class2 (Power level is built-in set parameters and cannot be changed and selected) | |
| Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT. | | |
| Mode | Channel | Frequency(MHz) |
| GFSK | CH0 | 2402 |
| | CH19 | 2440 |
| | CH39 | 2480 |

**Run Software:**



## 4.4 Test Environment

| Operating Environment: | |
|---|---|
| Temperature: | 24.5°C |
| Humidity: | 59% RH |
| Atmospheric Pressure: | 1009mbar |
| Test Mode: | Use test software to set the lowest frequency, the middle frequency and the highest frequency keep transmitting of the EUT. |

## 4.5 Description of Support Units

The EUT has been tested with associated equipment below.

1） Support equipment

| Description | Manufacturer | Model No. | Certification | Supplied by |
|---|---|---|---|---|
| Adapter | / | / | / | CQA |

2) Cable

| Cable No. | Description | Manufacturer | Cable Type/Length | Supplied by |
|---|---|---|---|---|
| / | / | / | / | / |

## 4.6 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate.

The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities.

The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the **Shenzhen Huaxia Testing Technology Co., Ltd.** quality system acc. to DIN EN ISO/IEC 17025.

Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CQA laboratory is reported:

| No. | Item | Uncertainty |
|---|---|---|
| 1 | Radiated Emission (Below 1GHz) | 5.12dB |
| 2 | Radiated Emission (Above 1GHz) | 4.60dB |
| 3 | Conducted Disturbance (0.15~30MHz) | 3.34dB |
| 4 | Radio Frequency | $3\times10^{-8}$ |
| 5 | Duty cycle | 0.6 % |
| 6 | Occupied Bandwidth | 1.1% |
| 7 | RF conducted power | 0.86dB |
| 8 | RF power density | 0.74 |
| 9 | Conducted Spurious emissions | 0.86dB |
| 10 | Temperature test | 0.8℃ |
| 11 | Humidity test | 2.0% |
| 12 | Supply voltages | 0.5 % |
| 13 | Frequency Error | 5.5 Hz |

## 4.7 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua District, Shenzhen, China

## 4.8 Test Facility

**• A2LA (Certificate No. 4742.01)**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

**• FCC Registration No.: 522263**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.:522263

## 4.9 Deviation from Standards

None.

## 4.10 Other Information Requested by the Customer

None.

## 4.11 Equipment List

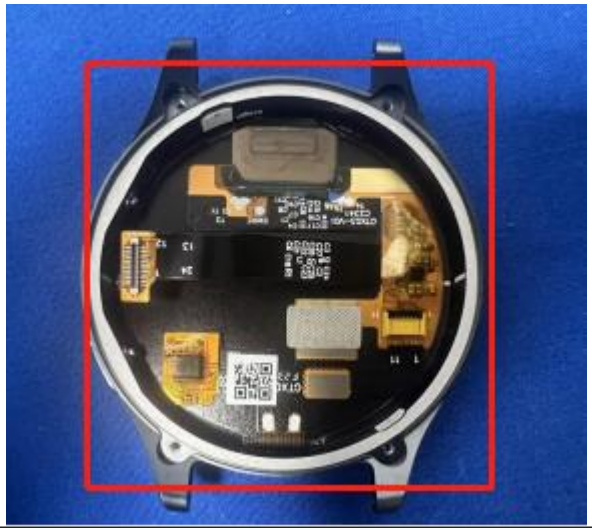
| Test Equipment | Manufacturer | Model No. | Instrument No. | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| EMI Test Receiver | R&S | ESR7 | CQA-005 | 2023/09/08 | 2024/09/07 |
| Spectrum analyzer | R&S | FSU26 | CQA-038 | 2023/09/08 | 2024/09/07 |
| Spectrum analyzer | R&S | FSU40 | CQA-075 | 2023/09/08 | 2024/09/07 |
| Preamplifier | MITEQ | AFS4-00010300-18-10P-4 | CQA-035 | 2023/09/08 | 2024/09/07 |
| Preamplifier | MITEQ | AMF-6D-02001800-29-20P | CQA-036 | 2023/09/08 | 2024/09/07 |
| Preamplifier | EMCI | EMC184055SE | CQA-089 | 2023/09/08 | 2024/09/07 |
| Loop antenna | Schwarzbeck | FMZB1516 | CQA-060 | 2021/09/16 | 2024/09/15 |
| Bilog Antenna | R&S | HL562 | CQA-011 | 2021/09/16 | 2024/09/15 |
| Horn Antenna | R&S | HF906 | CQA-012 | 2021/09/16 | 2024/09/15 |
| Horn Antenna | Schwarzbeck | BBHA 9170 | CQA-088 | 2021/09/16 | 2024/09/15 |
| Coaxial Cable (Above 1GHz) | CQA | N/A | C007 | 2023/09/08 | 2024/09/07 |
| Coaxial Cable (Below 1GHz) | CQA | N/A | C013 | 2023/09/08 | 2024/09/07 |
| RF cable(9KHz~40GHz) | CQA | RF-01 | CQA-079 | 2023/09/08 | 2024/09/07 |
| Antenna Connector | CQA | RFC-01 | CQA-080 | 2023/09/08 | 2024/09/07 |
| Power Sensor | KEYSIGHT | U2021XA | CQA-30 | 2023/09/08 | 2024/09/07 |
| N1918A Power Analysis Manager Power Panel | Agilent | N1918A | CQA-074 | 2023/09/08 | 2024/09/07 |
| Power meter | R&S | NRVD | CQA-029 | 2023/09/08 | 2024/09/07 |
| Power divider | MIDWEST | PWD-2533-02-SMA-79 | CQA-067 | 2023/09/08 | 2024/09/07 |
| EMI Test Receiver | R&S | ESR7 | CQA-005 | 2023/09/08 | 2024/09/07 |
| LISN | R&S | ENV216 | CQA-003 | 2023/09/08 | 2024/09/07 |
| Coaxial cable | CQA | N/A | CQA-C009 | 2023/09/08 | 2024/09/07 |
| DC power | KEYSIGHT | E3631A | CQA-028 | 2023/09/08 | 2024/09/07 |

Note:

The temporary antenna connector is soldered on the pcb board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

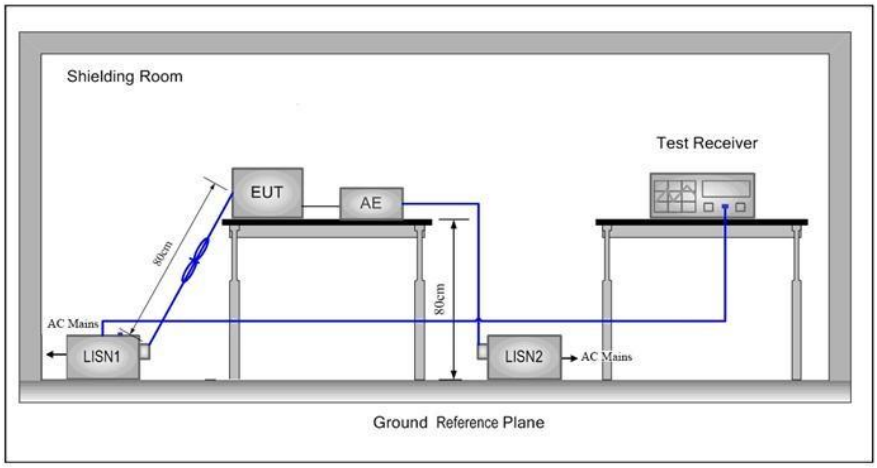
# 5 Test results and Measurement Data

## 5.1 Antenna Requirement

| | |
|---|---|
| **Standard requirement:** | 47 CFR Part 15C Section 15.203 /247(c) |
| 15.203 requirement:<br>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.<br>15.247(b) (4) requirement:<br>The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi. | |
| **EUT Antenna:** |  |
| The antenna is Metal frame antenna antenna.<br>The connection/connection type between the antenna to the EUT's antenna port is: unique coupling<br>This is either permanently attachment or a unique coupling that satisfies the requirement. | |

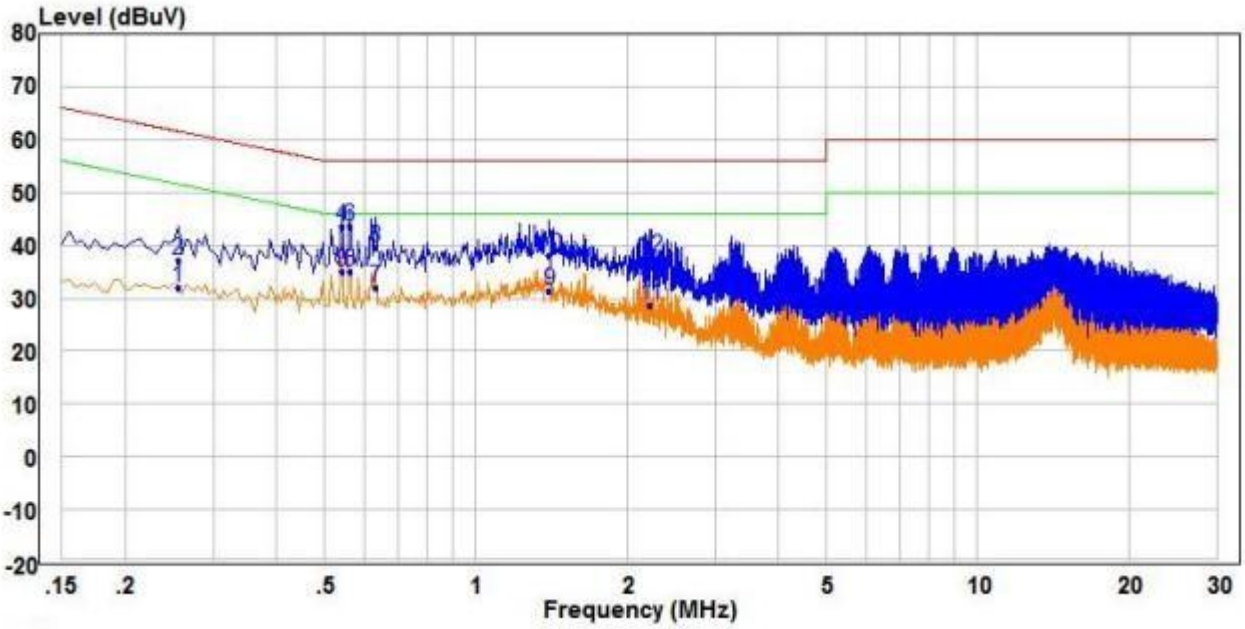
## 5.2 Conducted Emissions

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.207 |
| Test Method: | ANSI C63.10: 2013 |
| Test Frequency Range: | 150kHz to 30MHz |
| Limit: | Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average<br>0.15-0.5: 66 to 56* / 56 to 46*<br>0.5-5: 56 / 46<br>5-30: 60 / 50<br>* Decreases with the logarithm of the frequency. |
| Test Procedure: | 1) The mains terminal disturbance voltage test was conducted in a shielded room.<br>2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω 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.<br>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,<br>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.<br>5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. |

| | |
|---|---|
| Test Setup: |  |
| Test Mode: | Charging mode |
| Test Voltage: | AC 120V/60Hz |
| Test Results: | Pass |

**Measurement Data**

Live line:




| | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | | |
| 1 | 0.255 | 21.40 | 10.54 | 31.94 | 51.59 | -19.65 | Average | Line |
| 2 | 0.255 | 26.70 | 10.54 | 37.24 | 61.59 | -24.35 | QP | Line |
| 3 | 0.540 | 24.25 | 10.74 | 34.99 | 46.00 | -11.01 | Average | Line |
| 4 | 0.540 | 32.76 | 10.74 | 43.50 | 56.00 | -12.50 | QP | Line |
| 5 PP | 0.560 | 24.28 | 10.76 | 35.04 | 46.00 | -10.96 | Average | Line |
| 6 QP | 0.560 | 32.82 | 10.76 | 43.58 | 56.00 | -12.42 | QP | Line |
| 7 | 0.630 | 21.01 | 10.83 | 31.84 | 46.00 | -14.16 | Average | Line |
| 8 | 0.630 | 28.85 | 10.83 | 39.68 | 56.00 | -16.32 | QP | Line |
| 9 | 1.400 | 19.60 | 11.64 | 31.24 | 46.00 | -14.76 | Average | Line |
| 10 | 1.400 | 26.38 | 11.64 | 38.02 | 56.00 | -17.98 | QP | Line |
| 11 | 2.225 | 16.30 | 12.42 | 28.72 | 46.00 | -17.28 | Average | Line |
| 12 | 2.225 | 25.31 | 12.42 | 37.73 | 56.00 | -18.27 | QP | Line |

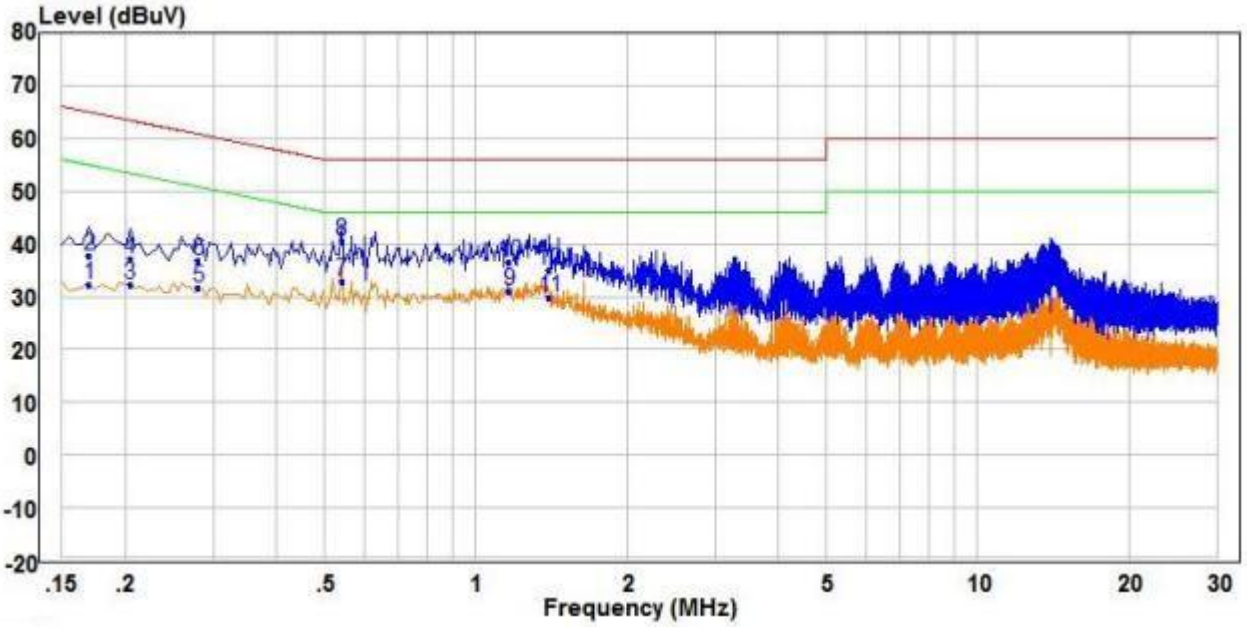
Remark:

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

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral line:

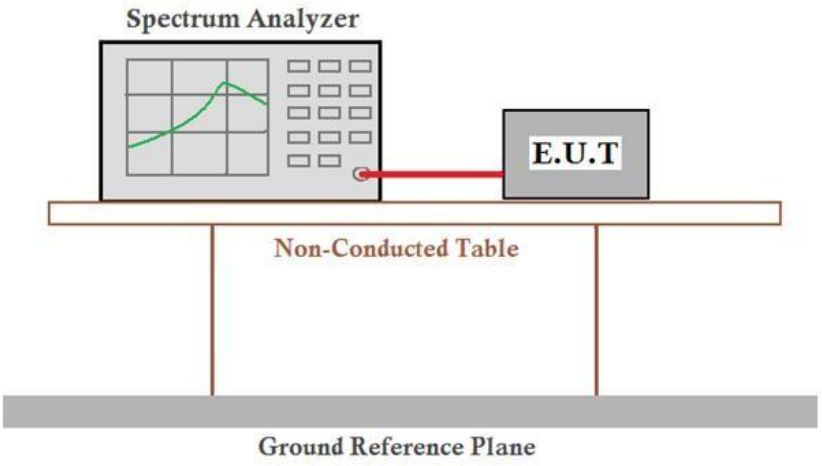



| | | Freq | Read Level | Factor | Level | Limit Line | Over Limit | Remark | Pol/Phase |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | | |
| 1 | | 0.170 | 21.55 | 10.66 | 32.21 | 54.96 | -22.75 | Average | Neutral |
| 2 | | 0.170 | 27.15 | 10.66 | 37.81 | 64.96 | -27.15 | QP | Neutral |
| 3 | | 0.205 | 21.67 | 10.60 | 32.27 | 53.41 | -21.14 | Average | Neutral |
| 4 | | 0.205 | 26.55 | 10.60 | 37.15 | 63.41 | -26.26 | QP | Neutral |
| 5 | | 0.280 | 21.06 | 10.50 | 31.56 | 50.82 | -19.26 | Average | Neutral |
| 6 | | 0.280 | 26.29 | 10.50 | 36.79 | 60.82 | -24.03 | QP | Neutral |
| 7 | PP | 0.540 | 22.11 | 10.74 | 32.85 | 46.00 | -13.15 | Average | Neutral |
| 8 | QP | 0.540 | 29.74 | 10.74 | 40.48 | 56.00 | -15.52 | QP | Neutral |
| 9 | | 1.165 | 20.30 | 10.71 | 31.01 | 46.00 | -14.99 | Average | Neutral |
| 10 | | 1.165 | 25.73 | 10.71 | 36.44 | 56.00 | -19.56 | QP | Neutral |
| 11 | | 1.400 | 19.03 | 10.72 | 29.75 | 46.00 | -16.25 | Average | Neutral |
| 12 | | 1.400 | 24.39 | 10.72 | 35.11 | 56.00 | -20.89 | QP | Neutral |

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

## 5.3 Conducted Peak Output Power

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (b)(1) |
| Test Method: | ANSI C63.10 2013 |
| Test Setup: |  <br>*Remark: Offset=Cable loss+ attenuation factor.* |
| Limit: | 30dBm |
| Test Mode: | Transmitting with GFSK modulation. |
| Test Results: | Pass |

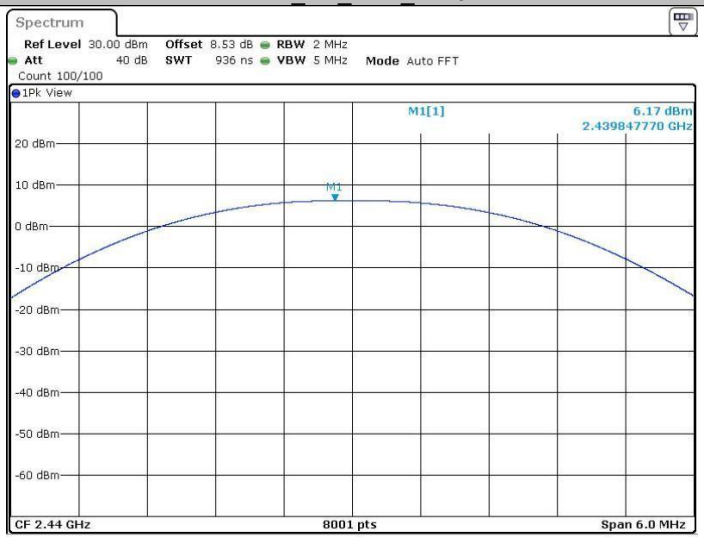
**Measurement Data**

| GFSK mode (1Mbps) | | | |
|---|---|---|---|
| Test channel | Peak Output Power (dBm) | Limit (dBm) | Result |
| Lowest | 5.29 | 30.00 | Pass |
| Middle | 6.17 | 30.00 | Pass |
| Highest | 1.86 | 30.00 | Pass |
| GFSK mode (2Mbps) | | | |
| Test channel | Peak Output Power (dBm) | Limit (dBm) | Result |
| Lowest | 0.89 | 30.00 | Pass |
| Middle | 1.24 | 30.00 | Pass |
| Highest | 1.45 | 30.00 | Pass |

BLE_1M_Ant1_2402

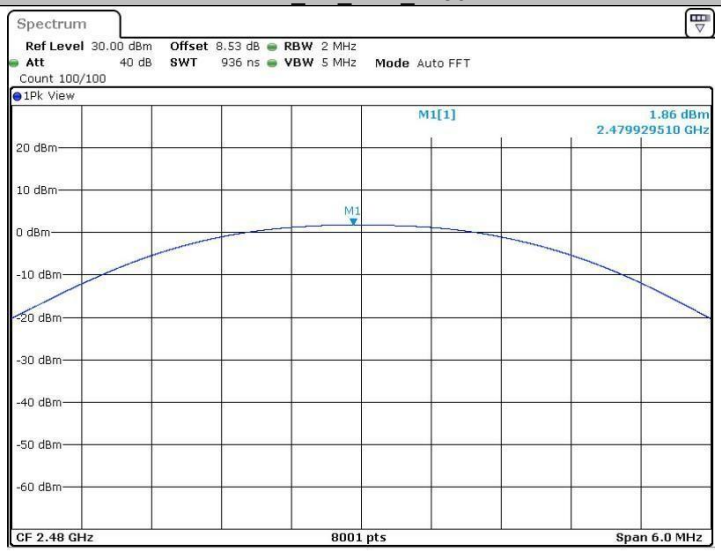

Date: 7.DEC.2023 16:25:15

BLE_1M_Ant1_2440



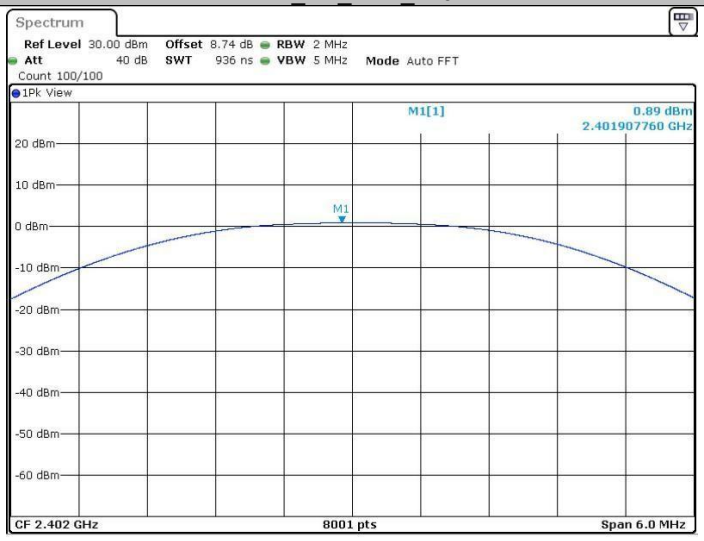

Date: 7.DEC.2023 16:29:05

BLE_1M_Ant1_2480



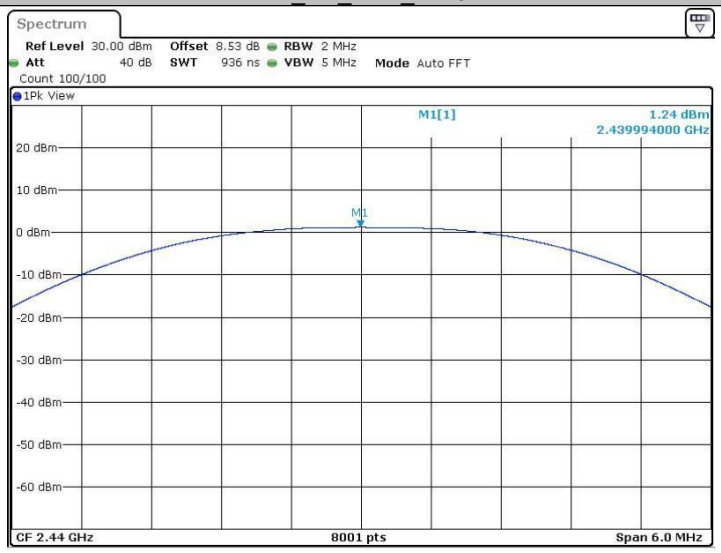

Date: 8.DEC.2023 09:00:53

BLE_2M_Ant1_2402

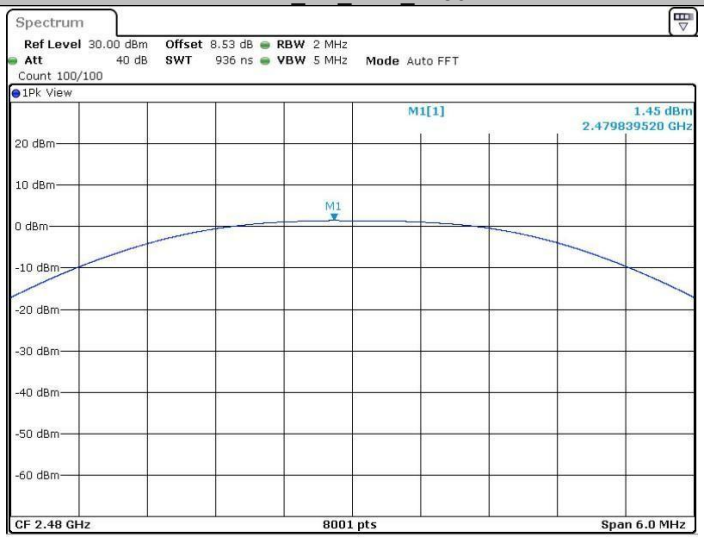



Date: 8.DEC.2023 09:04:28

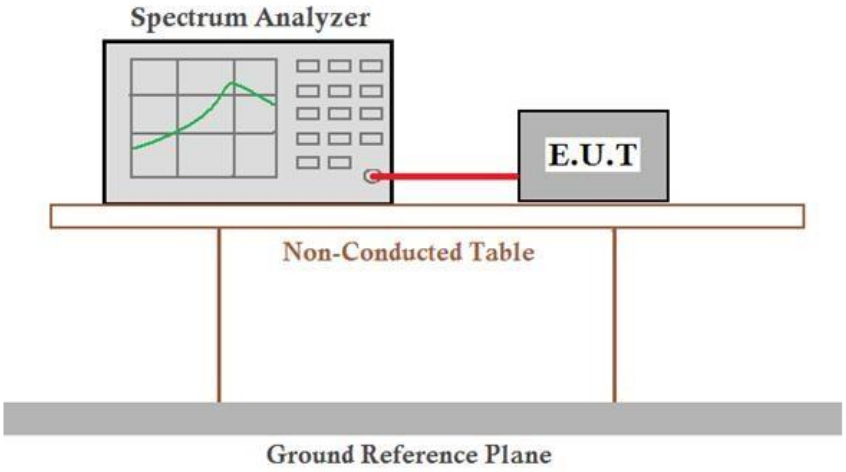
BLE_2M_Ant1_2440




BLE_2M_Ant1_2480



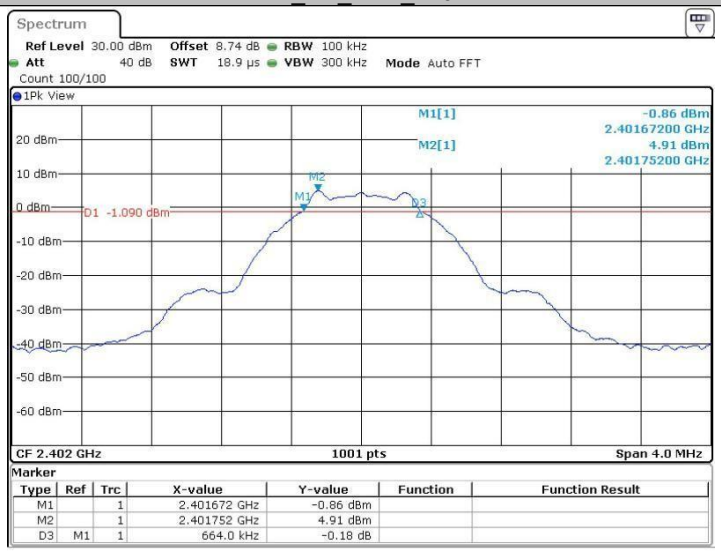
## 5.4 6dB Occupy Bandwidth

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (a)(2) |
| Test Method: | ANSI C63.10 2013 |
| Test Setup: |  *Remark: Offset=Cable loss+ attenuation factor.* |
| Limit: | ≥ 500 kHz |
| Instruments Used: | Refer to section 4.11 for details. |
| Test Results: | Pass |

**Measurement Data**

| GFSK mode (1Mbps) | | | |
|---|---|---|---|
| Test channel | 6dB Occupy Bandwidth (MHz) | Limit (kHz) | Result |
| Lowest | 0.66 | ≥500 | Pass |
| Middle | 0.67 | ≥500 | Pass |
| Highest | 0.66 | ≥500 | Pass |
| GFSK mode (2Mbps) | | | |
| Test channel | 6dB Occupy Bandwidth (MHz) | Limit (kHz) | Result |
| Lowest | 1.14 | ≥500 | Pass |
| Middle | 1.14 | ≥500 | Pass |
| Highest | 1.14 | ≥500 | Pass |

BLE_1M_Ant1_2402

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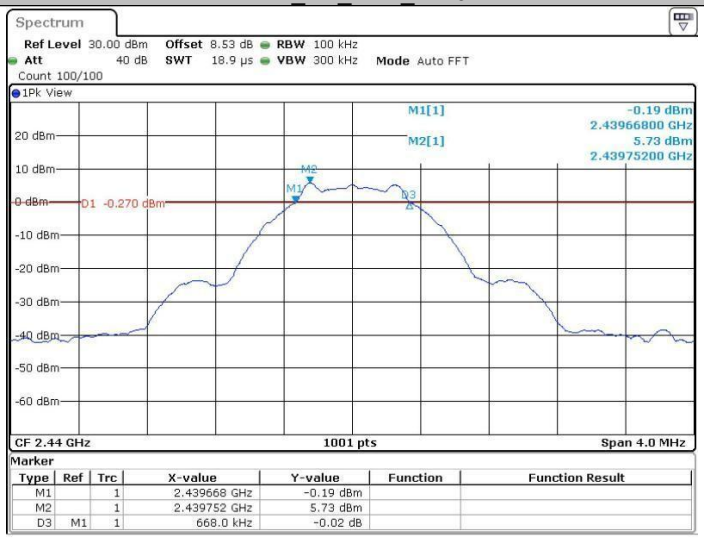
BLE_1M_Ant1_2440

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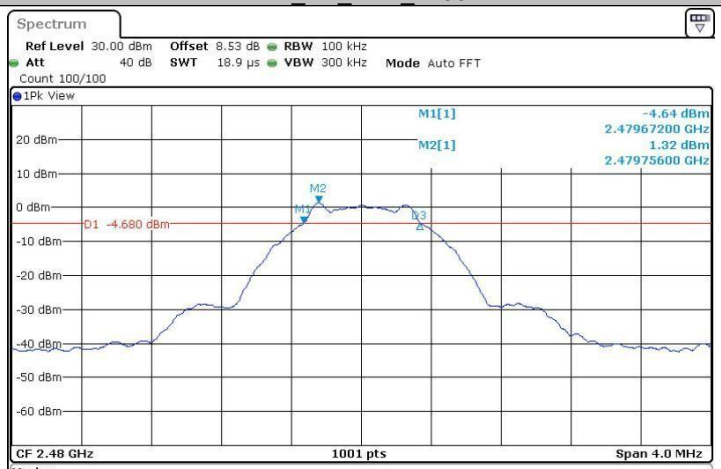
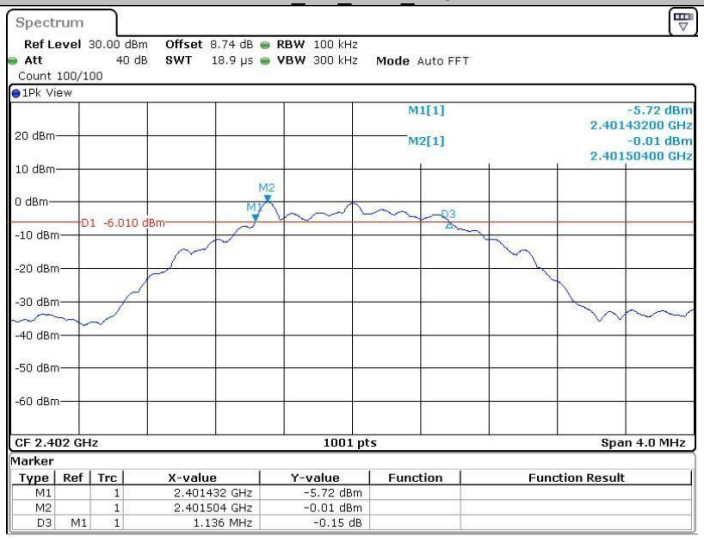
BLE_1M_Ant1_2480



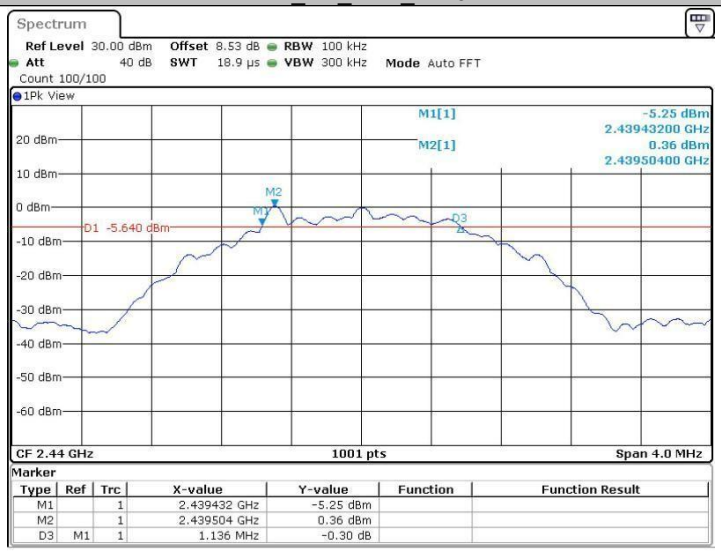

Date: 8.DEC.2023 09:00:39

BLE_2M_Ant1_2402

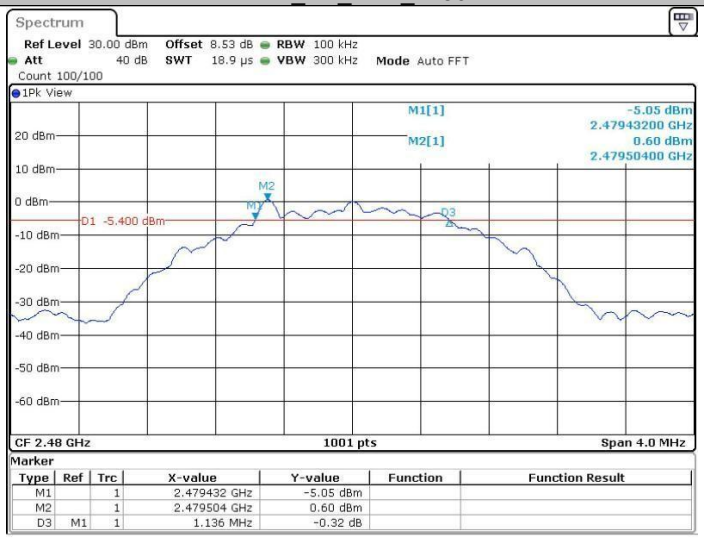



Date: 8.DEC.2023 09:04:14

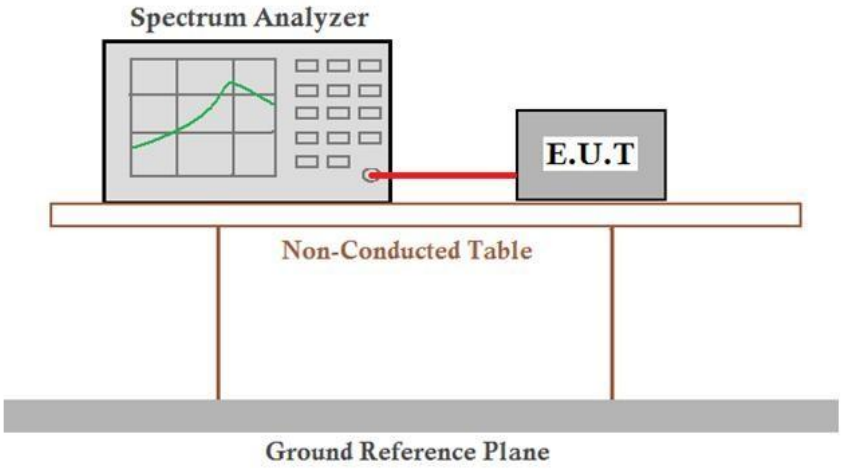
BLE_2M_Ant1_2440




BLE_2M_Ant1_2480



## 5.5 Power Spectral Density

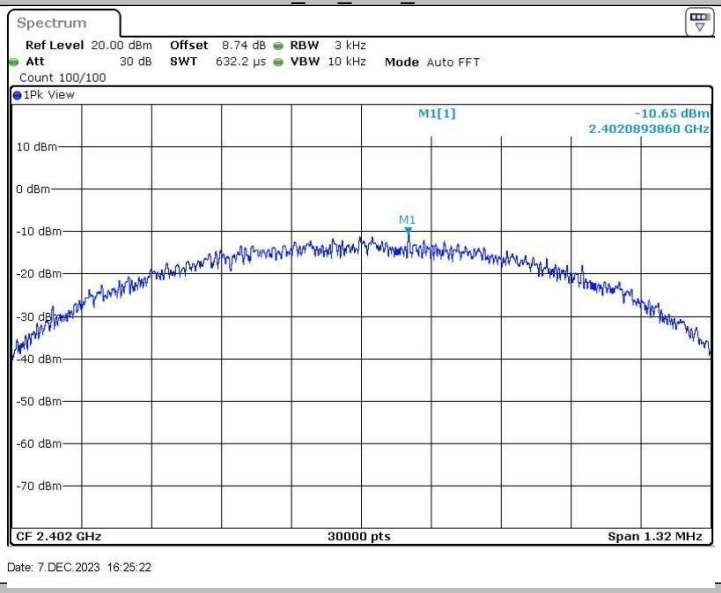
| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (e) |
| Test Method: | ANSI C63.10 2013 |
| Test Setup: |  <br>*Remark: Offset=Cable loss+ attenuation factor.* |
| Limit: | ≤8.00dBm/3kHz |
| Test Mode: | Transmitting with GFSK modulation. |
| Test Results: | Pass |

**Measurement Data**

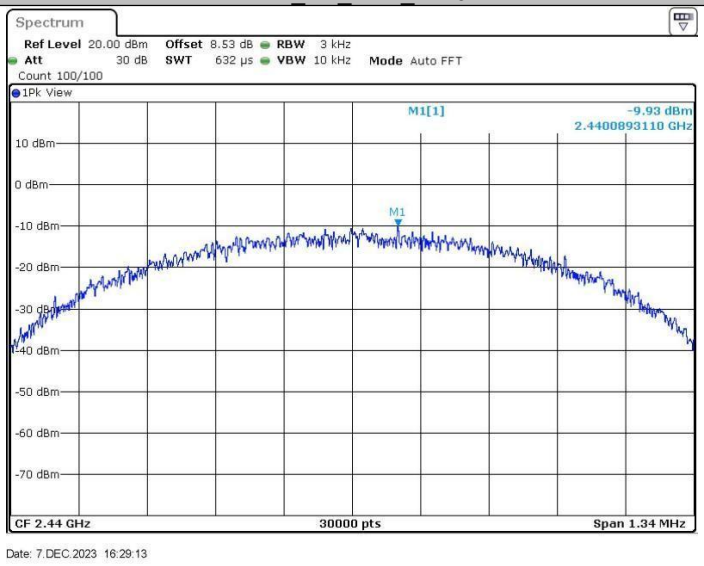
| GFSK mode (1Mbps) | | | |
|---|---|---|---|
| Test channel | Power Spectral Density (dBm/3kHz) | Limit (dBm/3kHz) | Result |
| Lowest | -10.65 | ≤8.00 | Pass |
| Middle | -9.93 | ≤8.00 | Pass |
| Highest | -14.22 | ≤8.00 | Pass |
| GFSK mode (2Mbps) | | | |
| Test channel | Power Spectral Density (dBm/3kHz) | Limit (dBm/3kHz) | Result |
| Lowest | -18.33 | ≤8.00 | Pass |
| Middle | -18.01 | ≤8.00 | Pass |
| Highest | -17.7 | ≤8.00 | Pass |

**Test plot as follows:**

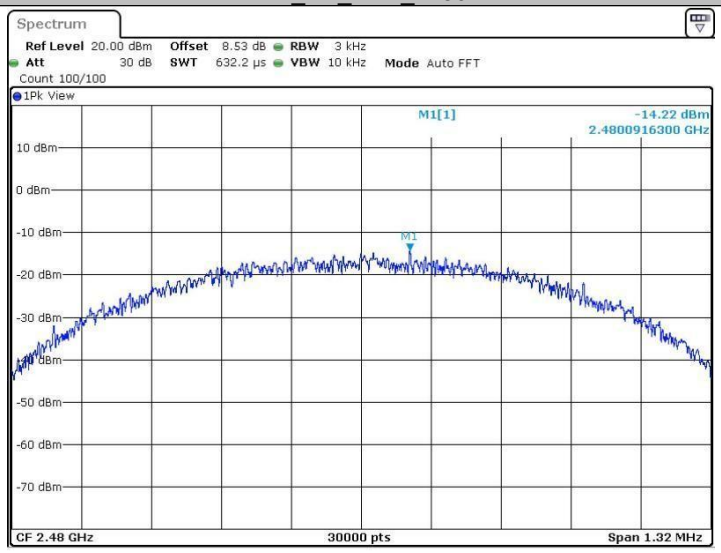
BLE_1M_Ant1_2402



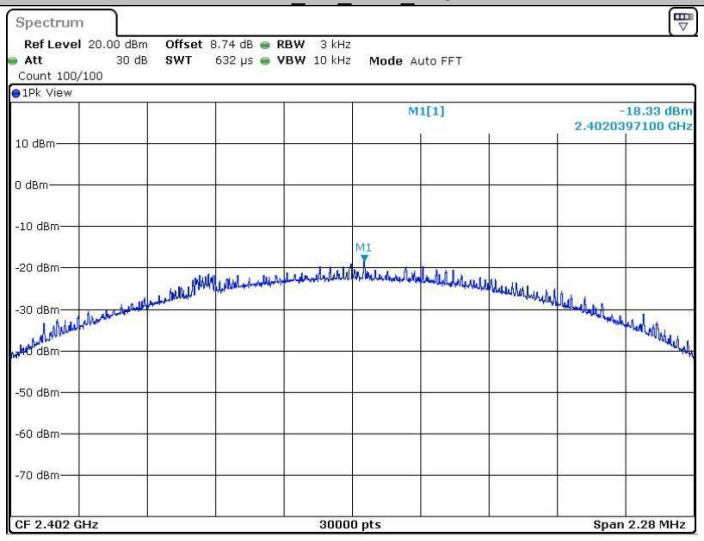

BLE_1M_Ant1_2440



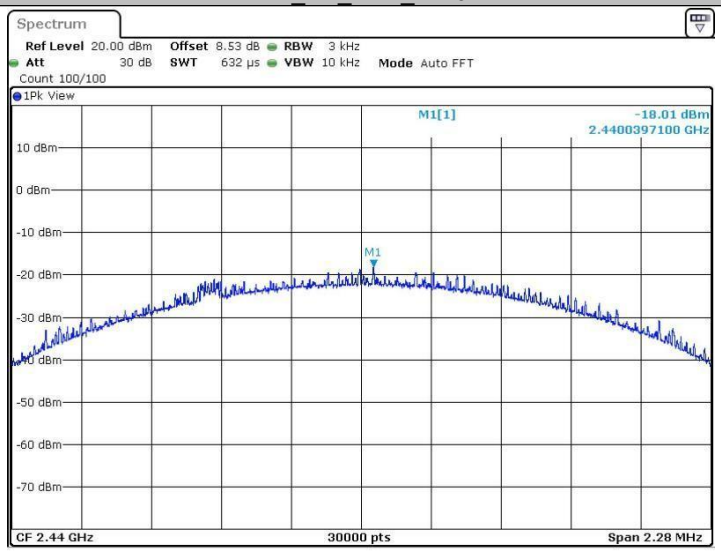
BLE_1M_Ant1_2480



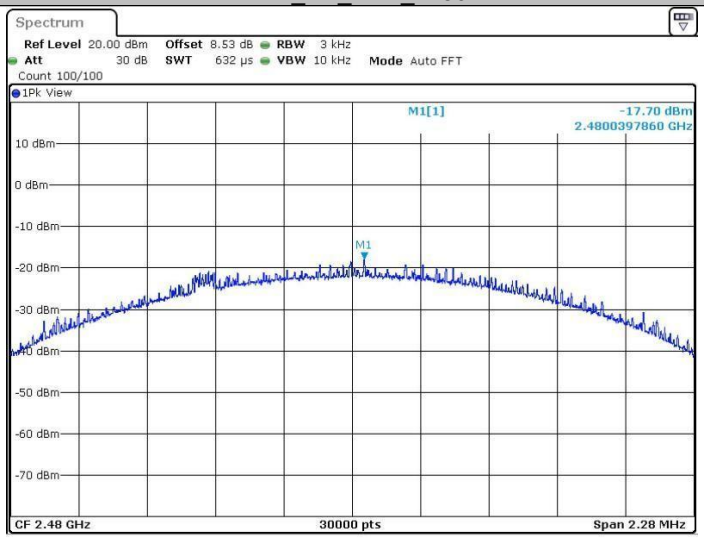

BLE_2M_Ant1_2402



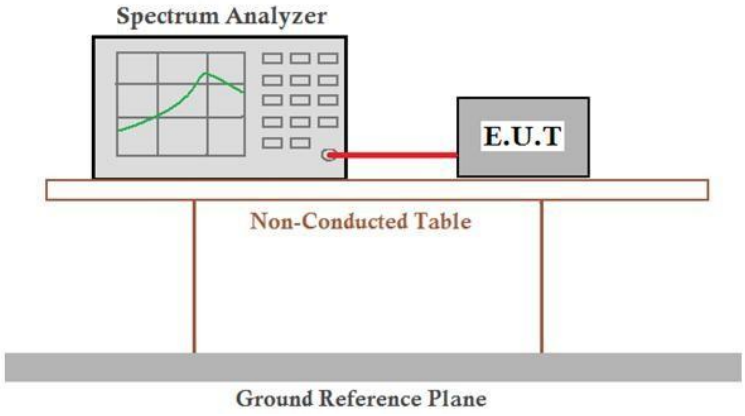
BLE_2M_Ant1_2440




BLE_2M_Ant1_2480



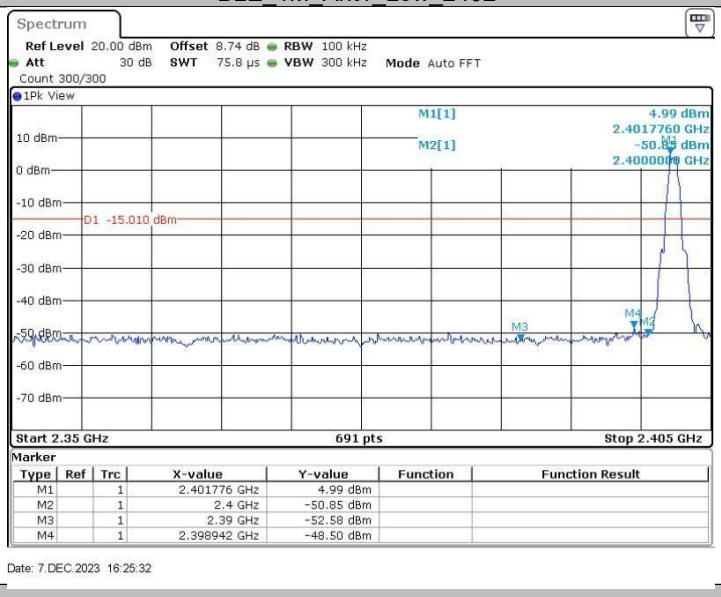
## 5.6 Band-edge for RF Conducted Emissions

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (d) |
| Test Method: | ANSI C63.10 2013 |
| Test Setup: |  <br>*Remark: Offset=Cable loss+ attenuation factor.* |
| Limit: | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. |
| Test Mode: | Transmitting with GFSK modulation. |
| Test Results: | Pass |

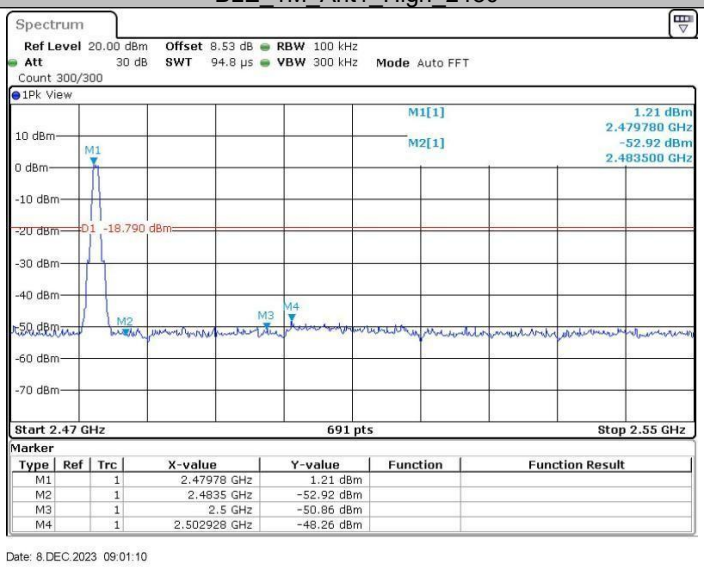
| TestMode | ChName | Freq(MHz) | RefLevel[dBm] | Result[dBm] | Limit[dBm] | Verdict |
|---|---|---|---|---|---|---|
| BLE_1M | Low | 2402 | 4.99 | -48.5 | ≤-15.01 | PASS |
| | High | 2480 | 1.21 | -48.26 | ≤-18.79 | PASS |
| BLE_2M | Low | 2402 | 0.11 | -37.51 | ≤-19.89 | PASS |
| | High | 2480 | 0.61 | -48.69 | ≤-19.39 | PASS |

**Test plot as follows:**

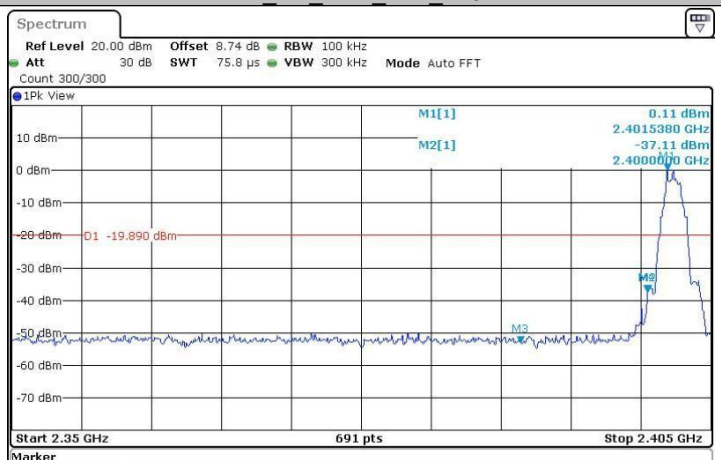
BLE_1M_Ant1_Low_2402




BLE_1M_Ant1_High_2480



BLE_2M_Ant1_Low_2402




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.401538 GHz | 0.11 dBm | | |
| M2 | | 1 | 2.4 GHz | -37.11 dBm | | |
| M3 | | 1 | 2.39 GHz | -53.03 dBm | | |
| M4 | | 1 | 2.3999783 GHz | -37.51 dBm | | |

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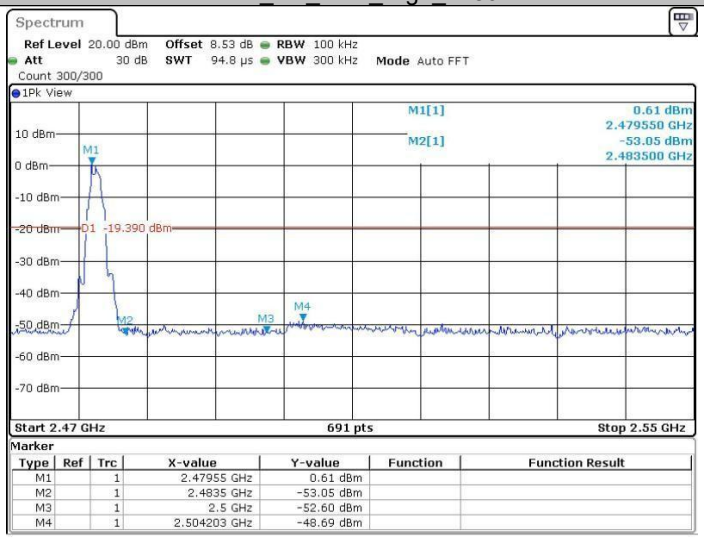
BLE_2M_Ant1_High_2480




Marker

| Type | Ref | Trc | X-value | Y-value | Function | Function Result |
|---|---|---|---|---|---|---|
| M1 | | 1 | 2.47955 GHz | 0.61 dBm | | |
| M2 | | 1 | 2.4835 GHz | -53.05 dBm | | |
| M3 | | 1 | 2.5 GHz | -52.60 dBm | | |
| M4 | | 1 | 2.504203 GHz | -48.69 dBm | | |

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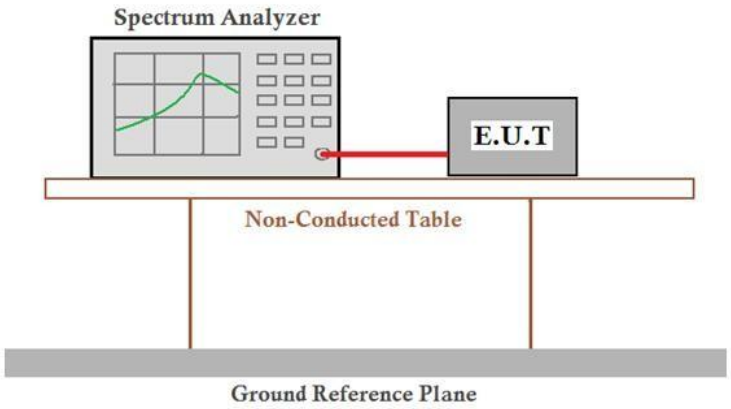
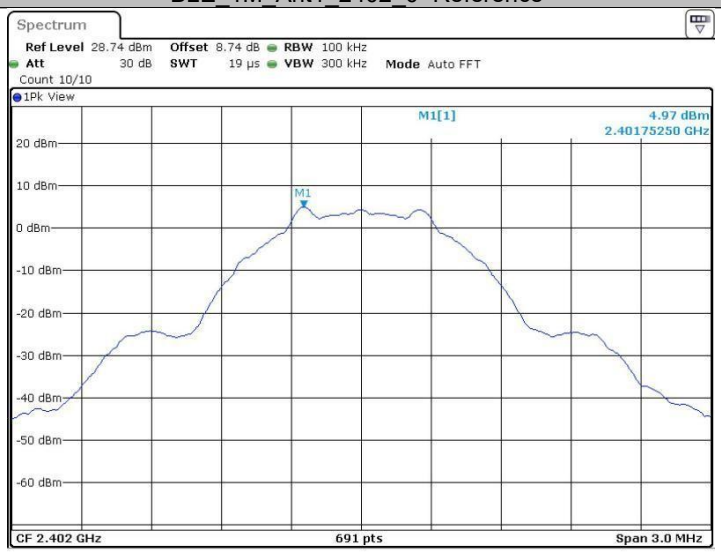
## 5.7 Spurious RF Conducted Emissions

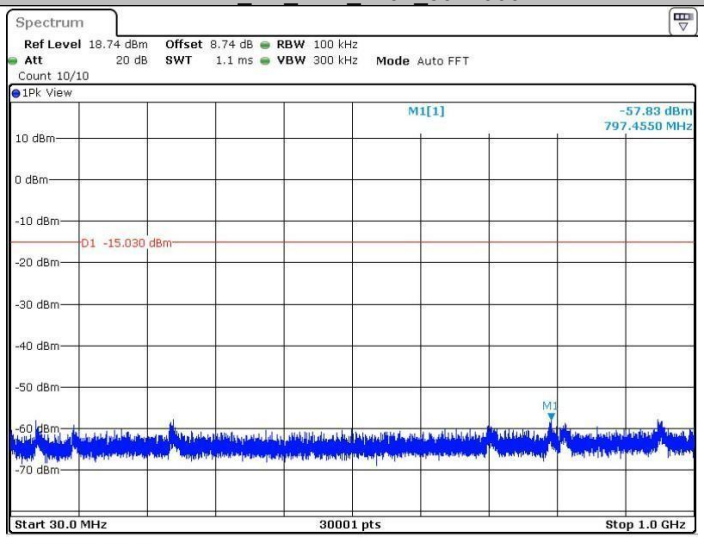
| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.247 (d) |
| Test Method: | ANSI C63.10 2013 |
| Test Setup: |  <br>*Remark: Offset=Cable loss+ attenuation factor.* |
| Limit: | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, 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. |
| Test Mode: | Transmitting with GFSK modulation. |
| Test Results: | Pass |

**Test plot as follows:**

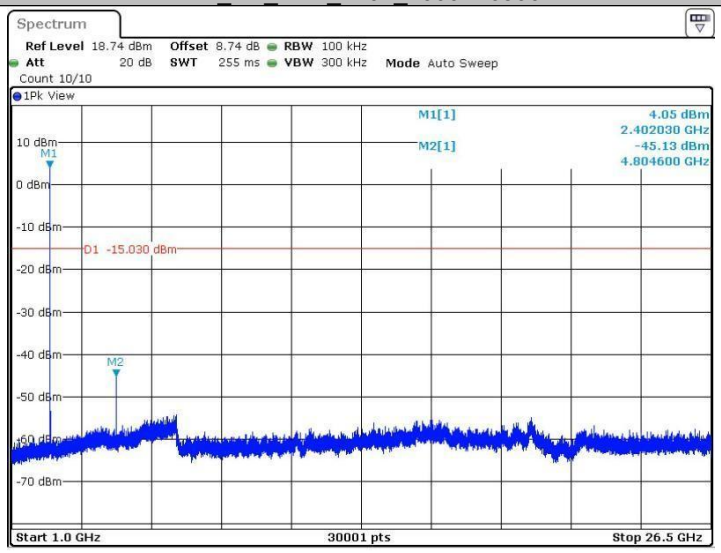
BLE_1M_Ant1_2402_0~Reference



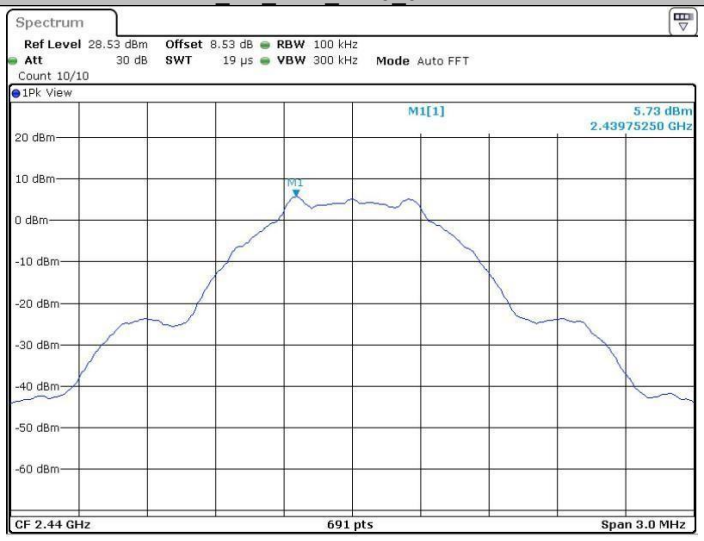

BLE_1M_Ant1_2402_30~1000



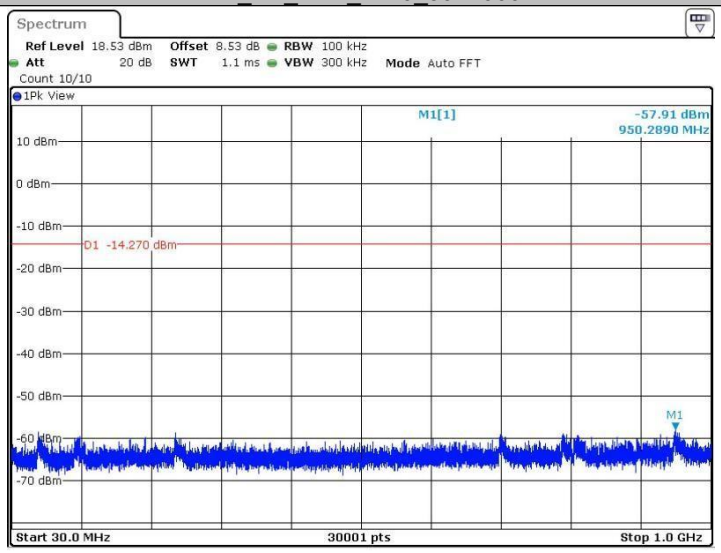
BLE_1M_Ant1_2402_1000~26500




BLE_1M_Ant1_2440_0~Reference



BLE_1M_Ant1_2440_30~1000

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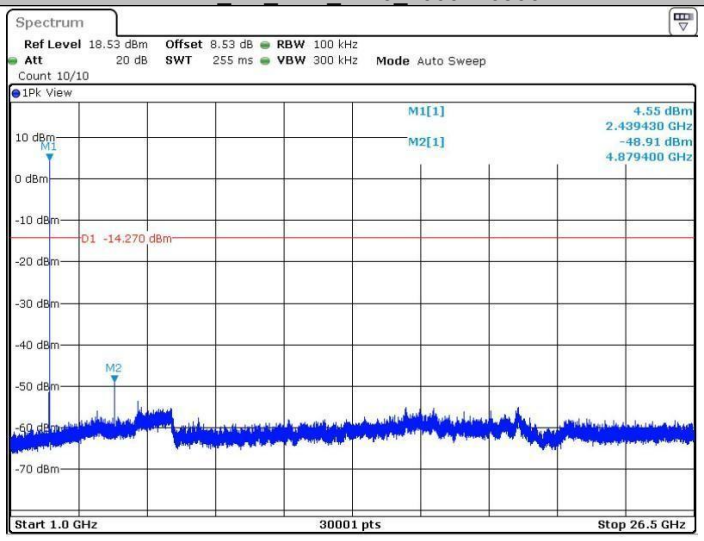
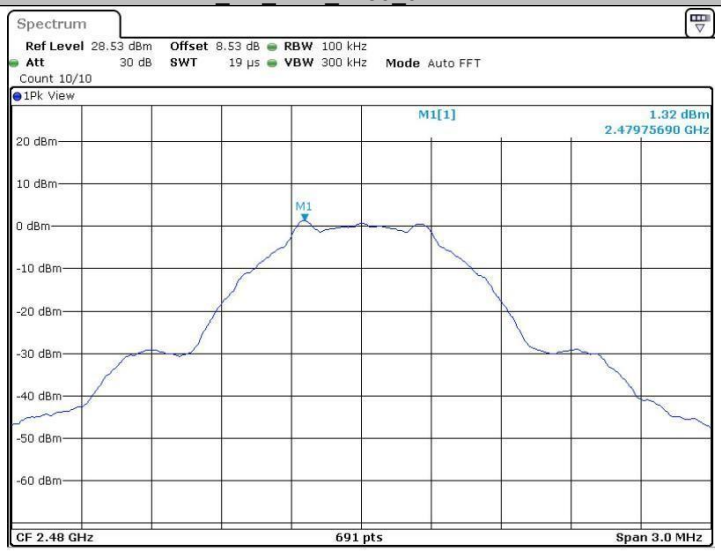
BLE_1M_Ant1_2440_1000~26500

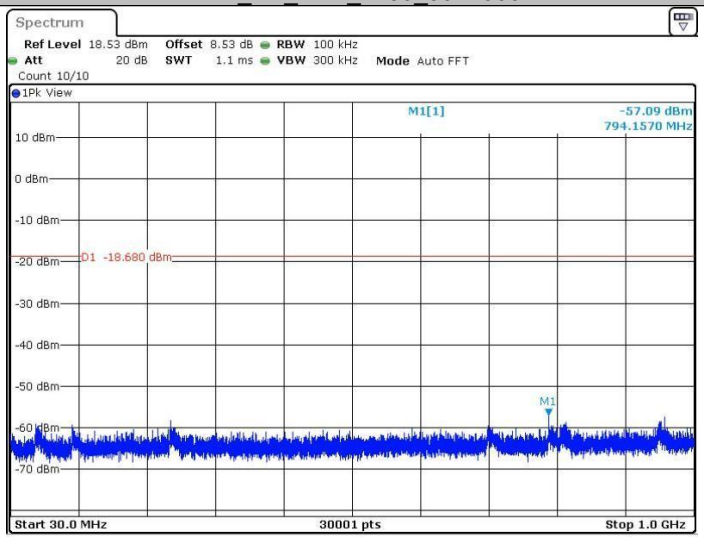



Date: 7.DEC.2023 16:29:50

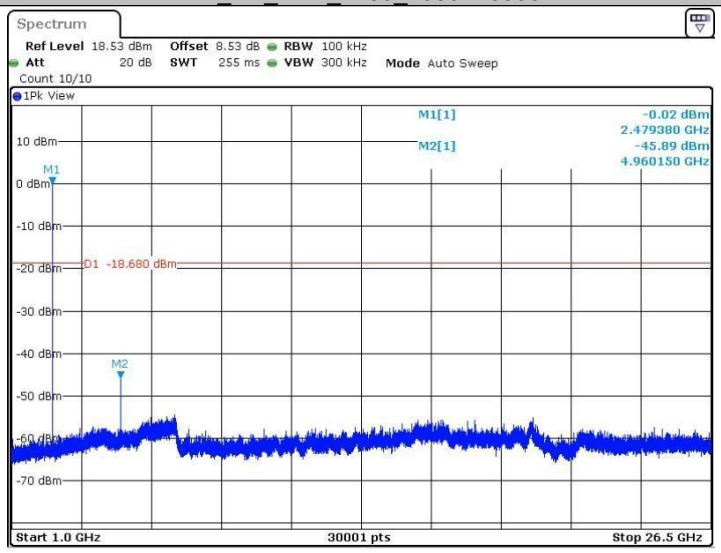
BLE_1M_Ant1_2480_0~Reference




BLE_1M_Ant1_2480_30~1000



BLE_1M_Ant1_2480_1000~26500

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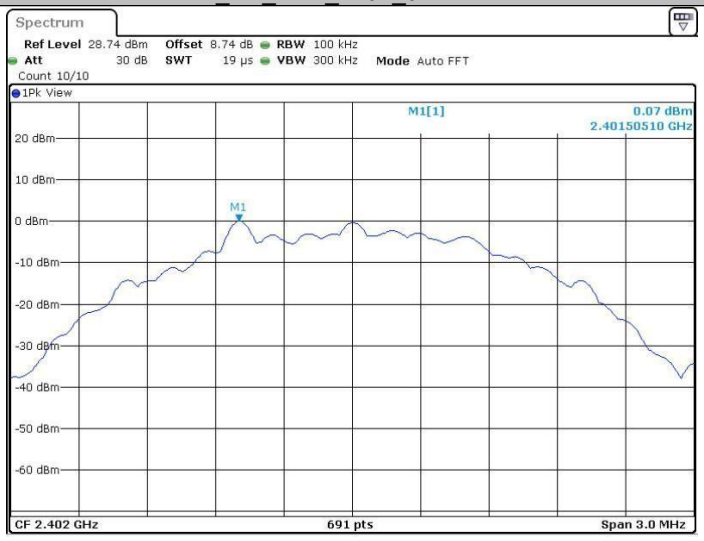
BLE_2M_Ant1_2402_0~Reference

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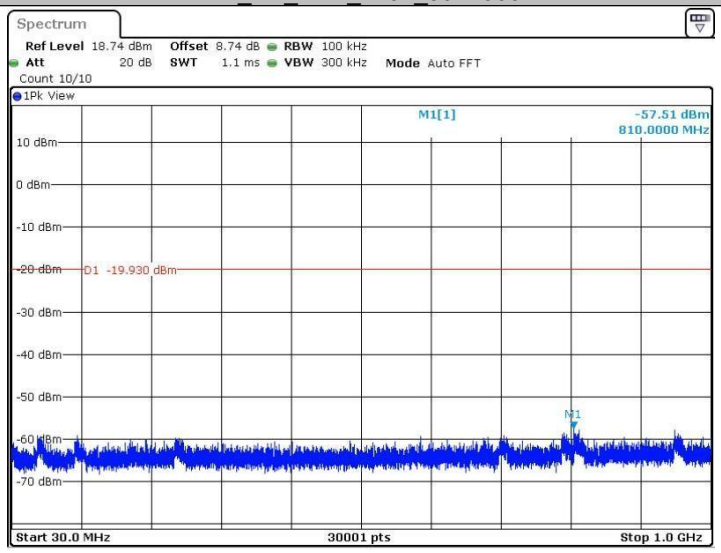
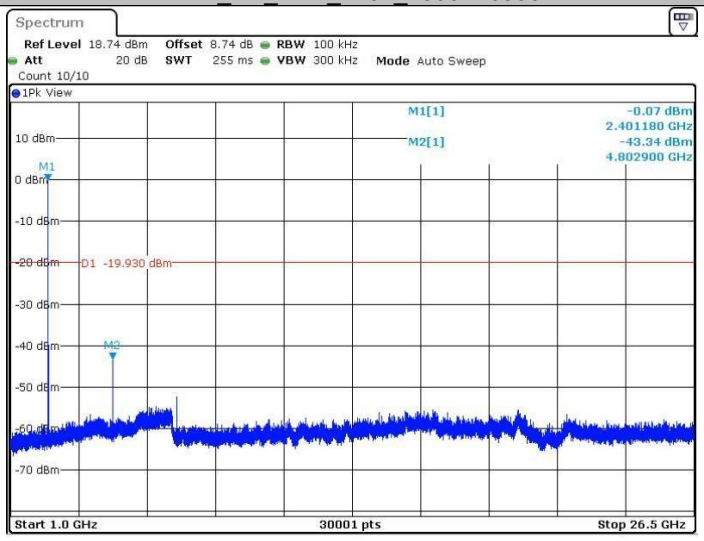
BLE_2M_Ant1_2402_30~1000



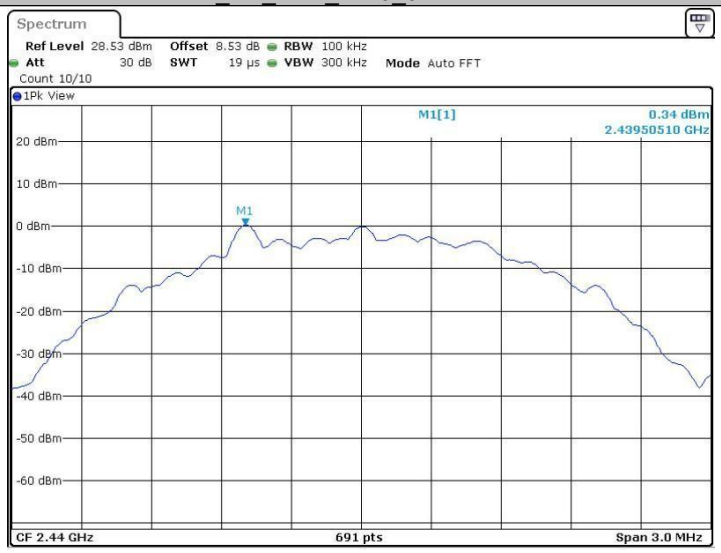

Date: 8.DEC.2023 09:05:57

BLE_2M_Ant1_2402_1000~26500

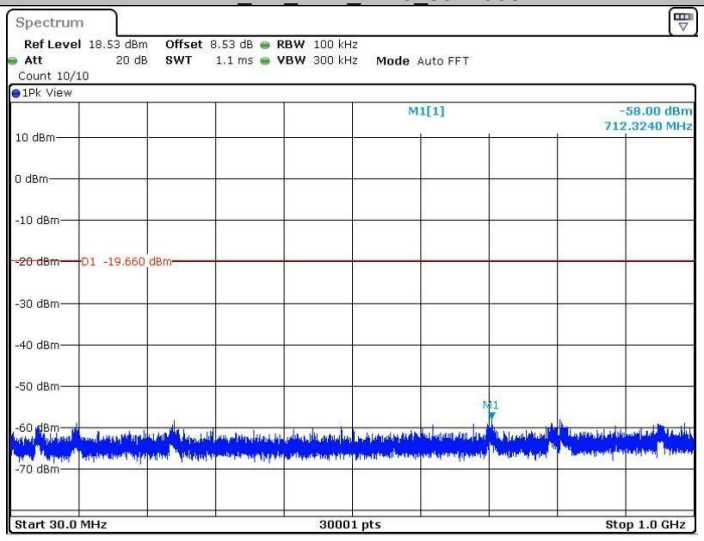



Date: 8.DEC.2023 09:06:19

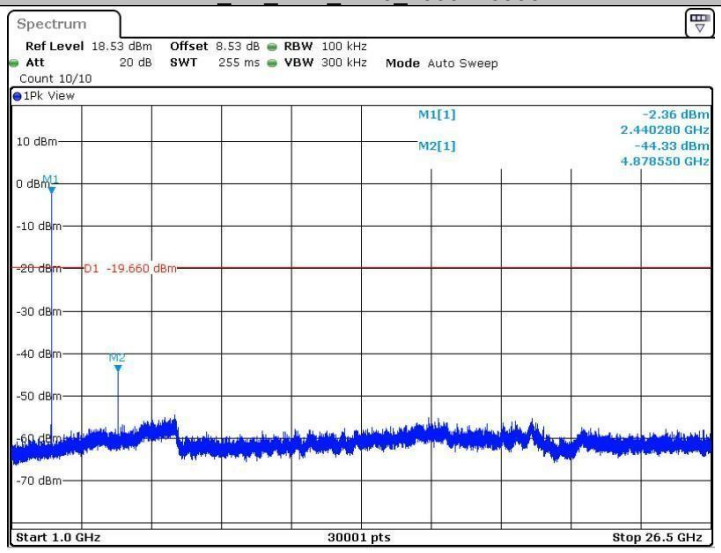
BLE_2M_Ant1_2440_0~Reference




BLE_2M_Ant1_2440_30~1000

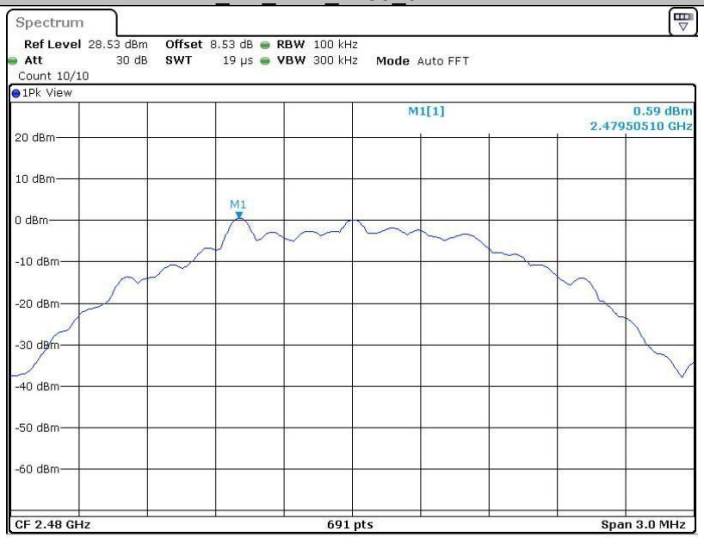


BLE_2M_Ant1_2440_1000~26500




Date: 8.DEC.2023 09:08:38

BLE_2M_Ant1_2480_0~Reference




Date: 8.DEC.2023 09:10:43