



## FCC CERTIFICATION TEST REPORT

|                                |   |                                                                                                                                                                  |
|--------------------------------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant</b>               | : | First Technology Group, LLC                                                                                                                                      |
| <b>Address of Applicant</b>    | : | 401 Hawthorne Ln, Suite 110-185 c/o Tedesco JSN,<br>Charlotte North Carolina, United State                                                                       |
| <b>Manufacturer</b>            | : | Huizhou Foryou General Electronics Co., Ltd.                                                                                                                     |
| <b>Address of Manufacturer</b> | : | No.2 District A, Foryou Industry Park, No. 1 North<br>Shangxia Road, Dongjiang Hi tech Industry Park,<br>516005 Huizhou city, Guangdong Province,<br>China(PROC) |
| <b>Equipment under Test</b>    | : | Multimedia                                                                                                                                                       |
| <b>Model No.</b>               | : | Kansas City 150                                                                                                                                                  |
| <b>FCC ID</b>                  | : | 2BCRZ-KANSAS150                                                                                                                                                  |
| <b>Test Standard(s)</b>        | : | FCC Rules and Regulations Part 15 Subpart C,<br>ANSI C63.10:2013                                                                                                 |
| <b>Report No.</b>              | : | DDT-RE23121811-2E02                                                                                                                                              |
| <b>Issue Date</b>              | : | 2024/01/15                                                                                                                                                       |
| <b>Issue By</b>                | : | Guangdong Dongdian Testing Service Co., Ltd.                                                                                                                     |
| <b>Address of Laboratory</b>   | : | Unit 2, Building 1, No. 17, Zongbu 2nd Road,<br>Songshan Lake Park, Dongguan, Guangdong, China,<br>523808                                                        |

# REPORT

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## Test Report Declare

|                                |   |                                                                                                                                                               |
|--------------------------------|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applicant</b>               | : | First Technology Group, LLC                                                                                                                                   |
| <b>Address of Applicant</b>    | : | 401 Hawthorne Ln, Suite 110-185 c/o Tedesco JSN, Charlotte<br>North Carolina, United State                                                                    |
| <b>Equipment under Test</b>    | : | Multimedia                                                                                                                                                    |
| <b>Model No.</b>               | : | Kansas City 150                                                                                                                                               |
| <b>Manufacturer</b>            | : | Huizhou Foryou General Electronics Co., Ltd.                                                                                                                  |
| <b>Address of Manufacturer</b> | : | No.2 District A, Foryou Industry Park, No. 1 North Shangxia<br>Road, Dongjiang Hi tech Industry Park, 516005 Huizhou city,<br>Guangdong Province, China(PROC) |

**Test Standard Used:**

FCC Rules and Regulations Part 15 Subpart C

**Test Procedure Used:**

ANSI C63.10:2013

**We Declare:**

The equipment described above is tested by Guangdong Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Guangdong Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

**After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above standards.**

|                         |                     |                      |                       |
|-------------------------|---------------------|----------------------|-----------------------|
| <b>Report No.:</b>      | DDT-RE23121811-2E02 |                      |                       |
| <b>Date of Receipt:</b> | 2024/01/03          | <b>Date of Test:</b> | 2024/01/03-2024/01/15 |

**Prepared By:****Approved By:***Bobo Chen***Bobo Chen/Engineer***Damon Hu***Damon Hu/EMC Manager**

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Guangdong Dongdian Testing Service Co., Ltd.

Revision History

| Rev. | Revisions     | Issue Date | Revised By |
|------|---------------|------------|------------|
| ---  | Initial issue | 2024/01/15 |            |
|      |               |            |            |

## 1. Summary of Test Results

| Description of Test Item                                                                                                                                         | Standard                                                             | Result |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|--------|
| 6 dB Bandwidth                                                                                                                                                   | FCC Part 15: 15.247(a)(2)                                            | Pass   |
| Peak Output Power                                                                                                                                                | FCC Part 15: 15.247(b)(3)                                            | Pass   |
| Power Spectral Density                                                                                                                                           | FCC Part 15: 15.247(e)                                               | Pass   |
| Band Edge Compliance<br>(conducted method)                                                                                                                       | FCC Part 15: 15.247(d)                                               | Pass   |
| RF Conducted Spurious Emissions                                                                                                                                  | FCC Part 15: 15.247(d)                                               | Pass   |
| Radiation Emission                                                                                                                                               | FCC Part 15: 15.205<br>FCC Part 15: 15.209<br>FCC Part 15: 15.247(d) | Pass   |
| Emission in Restricted Frequency Bands                                                                                                                           | FCC Part 15: 15.205<br>FCC Part 15: 15.209<br>FCC Part 15: 15.247(d) | Pass   |
| Power Line Conducted Emission                                                                                                                                    | FCC Part 15: 15.207(a)                                               | N/A    |
| Antenna Requirement                                                                                                                                              | FCC Part 15: 15.203                                                  | Pass   |
| Note: N/A is an abbreviation for Not Applicable and means this test item is not applicable for this device according to the technology characteristic of device. |                                                                      |        |

## 2. General Test Information

### 2.1. Description of EUT

|                          |                                                                                                                                                                                                                                                                               |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EUT Name                 | : Multimedia                                                                                                                                                                                                                                                                  |
| Model Number             | : Kansas City 150                                                                                                                                                                                                                                                             |
| EUT Function Description | : Please reference user manual of this device                                                                                                                                                                                                                                 |
| Power Supply             | : DC 12V                                                                                                                                                                                                                                                                      |
| Radio Specification      | : Bluetooth V5.0 (BR/EDR/LE),<br>WLAN(2.4 GHz): IEEE 802.11b/g/n<br>WLAN(5 GHz): IEEE 802.11a/n/ac                                                                                                                                                                            |
| Operation Frequency      | : Bluetooth (BR/EDR/LE): 2402 MHz-2480 MHz<br>IEEE 802.11b/g/n: 2412 MHz to 2462 MHz,<br>IEEE 802.11a/n/ac: 5180 MHz to 5240 MHz, 5260 MHz to 5320 MHz, 5745 MHz to 5825 MHz,                                                                                                 |
| Modulation               | : Bluetooth BR/EDR: GFSK, $\pi/4$ -DQPSK, 8DPSK<br>Bluetooth LE: GFSK<br>IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK)<br>IEEE 802.11g/a: OFDM (64QAM, 16QAM, QPSK, BPSK)<br>IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK)<br>IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) |

Note 1: “☒” means to be chosen or applicable; “☐” means don't to be chosen or not applicable; This note applies to entire report.

Note 2: This report only for Bluetooth LE 1Mbps, 2 Mbps.

Note 3: Antenna information:

|                               |                |
|-------------------------------|----------------|
| Bluetooth Antenna information |                |
| Antenna Type                  | : Whip antenna |
| Antenna Gain(dBi)             | : 0.27         |

Note 4: Bluetooth LE Channel information:

| Bluetooth LE 1Mbps Channel information |                 |         |                 |         |                 |
|----------------------------------------|-----------------|---------|-----------------|---------|-----------------|
| Channel                                | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 0                                      | 2402            | 14      | 2430            | 28      | 2458            |
| 1                                      | 2404            | 15      | 2432            | 29      | 2460            |
| 2                                      | 2406            | 16      | 2434            | 30      | 2462            |
| 3                                      | 2408            | 17      | 2436            | 31      | 2464            |
| 4                                      | 2410            | 18      | 2438            | 32      | 2466            |
| 5                                      | 2412            | 19      | 2440            | 33      | 2468            |
| 6                                      | 2414            | 20      | 2442            | 34      | 2470            |
| 7                                      | 2416            | 21      | 2444            | 35      | 2472            |
| 8                                      | 2418            | 22      | 2446            | 36      | 2474            |
| 9                                      | 2420            | 23      | 2448            | 37      | 2476            |
| 10                                     | 2422            | 24      | 2450            | 38      | 2478            |

| 11                                                                                                                                                                                      | 2424            | 25      | 2452            | 39      | 2480            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|---------|-----------------|---------|-----------------|
| 12                                                                                                                                                                                      | 2426            | 26      | 2454            |         |                 |
| 13                                                                                                                                                                                      | 2428            | 27      | 2456            |         |                 |
| Bluetooth LE 2Mbps Channel information                                                                                                                                                  |                 |         |                 |         |                 |
| Channel                                                                                                                                                                                 | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 0                                                                                                                                                                                       | 2402            | 14      | 2430            | 28      | 2458            |
| 1                                                                                                                                                                                       | 2404            | 15      | 2432            | 29      | 2460            |
| 2                                                                                                                                                                                       | 2406            | 16      | 2434            | 30      | 2462            |
| 3                                                                                                                                                                                       | 2408            | 17      | 2436            | 31      | 2464            |
| 4                                                                                                                                                                                       | 2410            | 18      | 2438            | 32      | 2466            |
| 5                                                                                                                                                                                       | 2412            | 19      | 2440            | 33      | 2468            |
| 6                                                                                                                                                                                       | 2414            | 20      | 2442            | 34      | 2470            |
| 7                                                                                                                                                                                       | 2416            | 21      | 2444            | 35      | 2472            |
| 8                                                                                                                                                                                       | 2418            | 22      | 2446            | 36      | 2474            |
| 9                                                                                                                                                                                       | 2420            | 23      | 2448            | 37      | 2476            |
| 10                                                                                                                                                                                      | 2422            | 24      | 2450            | 38      | 2478            |
| 11                                                                                                                                                                                      | 2424            | 25      | 2452            | 39      | 2480            |
| 12                                                                                                                                                                                      | 2426            | 26      | 2454            |         |                 |
| 13                                                                                                                                                                                      | 2428            | 27      | 2456            |         |                 |
| The channels denoted with the grey background are excluded, because they are primary advertising channel only for the Bluetooth LE 1Mbps according to the Bluetooth Core Specification. |                 |         |                 |         |                 |

Note 5: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

## 2.2. Accessories of EUT

| Description of Accessories | Manufacturer | Model number | Description | Remark |
|----------------------------|--------------|--------------|-------------|--------|
| N/A                        | N/A          | N/A          | N/A         | N/A    |

## 2.3. Assistant equipment used for test

| Assistant equipment | Manufacturer | Model number | EMC Compliance | SN  |
|---------------------|--------------|--------------|----------------|-----|
| N/A                 | N/A          | N/A          | N/A            | N/A |

## 2.4. Block diagram of EUT configuration for test



Control EUT operation in continuous Tx mode by entering DUT mode and selecting the test channel, wireless mode as below table.

The pathloss of external cable: 0.5dB (According to the manufacturer's claims)

| Tested mode, channel, information |                  |         |                 |
|-----------------------------------|------------------|---------|-----------------|
| Mode                              | Setting Tx Power | Channel | Frequency (MHz) |
| GFSK 1M                           | Default          | CH0     | 2402            |
|                                   | Default          | CH19    | 2440            |
|                                   | Default          | CH39    | 2480            |
| GFSK 2M                           | Default          | CH1     | 2404            |
|                                   | Default          | CH19    | 2440            |
|                                   | Default          | CH38    | 2478            |

## 2.5. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

|                    |                   |
|--------------------|-------------------|
| Temperature range: | +15°C to +35 °C   |
| Humidity range:    | 20% to 75%        |
| Pressure range:    | 86 kPa to 106 kPa |

Note: The specific temperature and humidity information of each test item refers to the temperature and humidity record in the corresponding test data.

## 2.6. Deviations of test standard

No deviation.

## 2.7. Test laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: [ddt@dgddt.com](mailto:ddt@dgddt.com).

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20155, G-20118

## 2.8. Measurement uncertainty

| Test Item                                                | Uncertainty                                            |
|----------------------------------------------------------|--------------------------------------------------------|
| Bandwidth                                                | 1.1%                                                   |
| Peak Output Power (Conducted) (Spectrum analyzer)        | 0.86 dB ( $10 \text{ MHz} \leq f < 3.6 \text{ GHz}$ ); |
|                                                          | 1.38 dB ( $3.6 \text{ GHz} \leq f < 8 \text{ GHz}$ )   |
| Peak Output Power (Conducted) (Power Sensor)             | 0.74 dB                                                |
| Power Spectral Density                                   | 0.74 dB ( $10 \text{ MHz} \leq f < 3.6 \text{ GHz}$ ); |
|                                                          | 1.38 dB ( $3.6 \text{ GHz} \leq f < 8 \text{ GHz}$ )   |
| Frequencies Stability                                    | $6.7 \times 10^{-8}$ (Antenna couple method)           |
|                                                          | $5.5 \times 10^{-8}$ (Conducted method)                |
| Conducted spurious emissions                             | 0.86 dB ( $10 \text{ MHz} \leq f < 3.6 \text{ GHz}$ ); |
|                                                          | 1.40 dB ( $3.6 \text{ GHz} \leq f < 8 \text{ GHz}$ )   |
|                                                          | 1.66 dB ( $8 \text{ GHz} \leq f < 26.5 \text{ GHz}$ )  |
| Uncertainty for radio frequency (RBW < 20 kHz)           | $3 \times 10^{-8}$                                     |
| Temperature                                              | 0.4 °C                                                 |
| Humidity                                                 | 2 %                                                    |
| Uncertainty for Radiation Emission test (9 kHz – 30 MHz) | 3.44 dB                                                |
| Uncertainty for Radiation Emission test (30 MHz - 1 GHz) | 4.70 dB (Antenna Polarize: V)                          |
|                                                          | 4.84 dB (Antenna Polarize: H)                          |
| Uncertainty for Radiation Emission test (1 GHz - 40 GHz) | 4.10 dB (1 - 6 GHz)                                    |
|                                                          | 4.40 dB (6 GHz - 18 GHz)                               |
|                                                          | 3.54 dB (18 GHz - 26 GHz)                              |
|                                                          | 4.30 dB (26 GHz - 40 GHz)                              |
| Uncertainty for Power line conduction emission test      | 3.34dB (150KHz-30MHz)                                  |
|                                                          | 3.72dB (9KHz-150KHz)                                   |

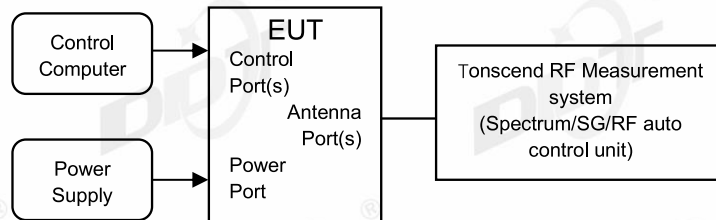
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

### 3. Equipment Used During Conductive Test

| Equipment                                     | Manufacturer | Model No.   | Serial Number | Due Date   |
|-----------------------------------------------|--------------|-------------|---------------|------------|
| ☑RF Connected Test (RF Measurement System 4#) |              |             |               |            |
| Signal &Spectrum Analyzer                     | R&S          | FSV3044     | 101173        | 2024/04/22 |
| Wideband Radio Communication Tester           | R&S          | CMW500      | 168801        | 2024/04/26 |
| MXG Vector Signal Generator                   | Agilent      | N5182A      | MY48180737    | 2024/04/26 |
| PSG Vector Signal Generator                   | Agilent      | E8267D      | US49060192    | 2024/09/05 |
| RF Control Unit                               | Tonsend      | JS0806-2    | 21I8060485    | 2024/04/26 |
| TEMP&HUMI Programmable Chamber                | ZHIXIANG     | ZXGDJS-150L | ZX170110-A    | 2024/05/14 |
| Test Software                                 | Tonscend     | JS1120-3    | Ver.3.2.22    | N/A        |

## 4. 6 dB Bandwidth

### 4.1. Block diagram of test setup



### 4.2. Limits

For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz

### 4.3. Test procedure

- (1) The test according to ANSI C63.10-2013 clause 11.8.
- (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results
- (3) Set the EUT as maximum power setting and enable the EUT transmit continuously
- (4) Use the following spectrum analyzer settings for 6 dB Bandwidth:

|                |                              |
|----------------|------------------------------|
| RBW:           | 100 kHz                      |
| VBW:           | $\geq [3 \times \text{RBW}]$ |
| Detector Mode: | Peak                         |
| Sweep time:    | Auto                         |
| Trace mode     | Max hold                     |
- (5) Allow the trace to stabilize, measure the 6 dB bandwidth of signal, and record the results in the report.

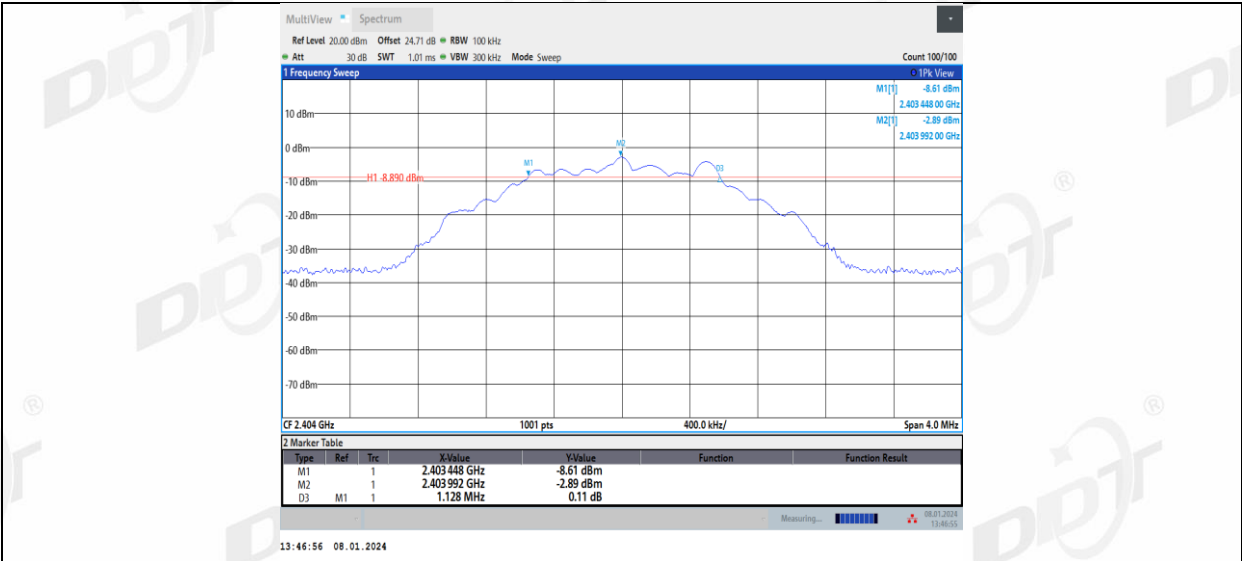
4.4. Test result

|                    |               |            |                          |
|--------------------|---------------|------------|--------------------------|
| Test Engineer:     | Zora Zhang    | Test Site: | RF Measurement System 4# |
| Ambient Condition: | 25.2℃,45.6%RH | Test Date: | 2024.01.08               |
| Test Power Supply: | DC 12V        | EUT:       | Multimedia               |
| Sample Number:     | S23121811-002 | Model No.: | Kansas City 150          |

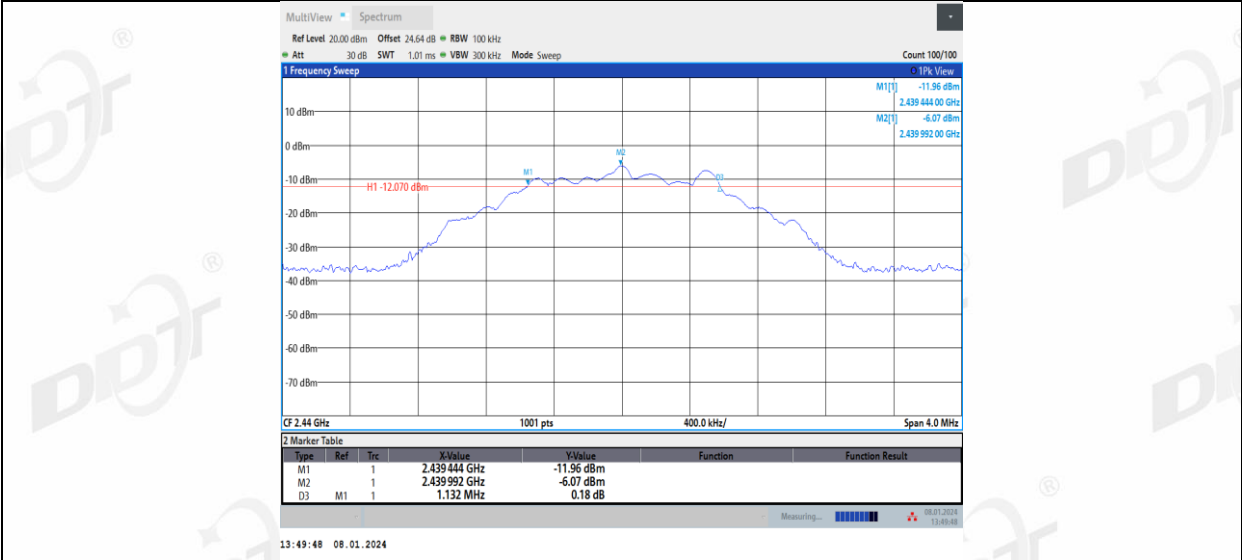
| Test Mode | Antenna | Frequency [MHz] | DTS BW [MHz] | FL[MHz] | FH[MHz] | Limit [MHz] | Verdict |
|-----------|---------|-----------------|--------------|---------|---------|-------------|---------|
| BLE_1M    | Ant1    | 2402            | 0.65         | 2401.67 | 2402.32 | 0.5         | PASS    |
|           |         | 2440            | 0.65         | 2439.67 | 2440.32 | 0.5         | PASS    |
|           |         | 2480            | 0.65         | 2479.67 | 2480.32 | 0.5         | PASS    |
| BLE_2M    | Ant1    | 2404            | 1.13         | 2403.45 | 2404.58 | 0.5         | PASS    |
|           |         | 2440            | 1.13         | 2439.44 | 2440.58 | 0.5         | PASS    |
|           |         | 2478            | 1.13         | 2477.45 | 2478.58 | 0.5         | PASS    |

4.5. Test graphs

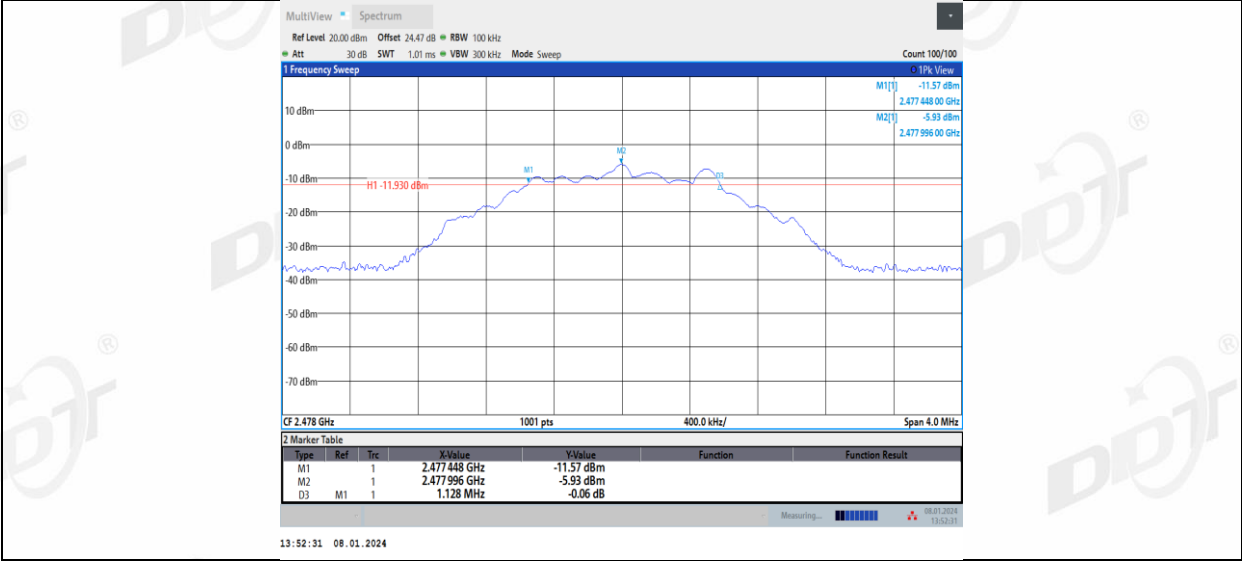




BLE\_2M\_Ant1\_2440

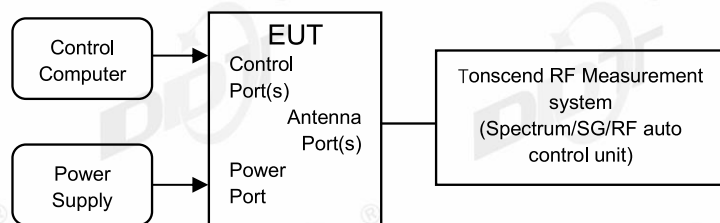


BLE\_2M\_Ant1\_2478



## 5. Maximum Peak Output Power

### 5.1. Block diagram of test setup



### 5.2. Limits

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. If transmitting antennas of directional gain greater than 6dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi, the e.i.r.p shall not exceed 4W.

### 5.3. Test procedure

- (1) The test according to ANSI C63.10-2013 clause 11.9.1.1.
- (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results.
- (3) Set the EUT as maximum power setting and enable the EUT transmit continuously.
- (4) Use the following spectrum analyzer settings for the maximum peak output power measurement:

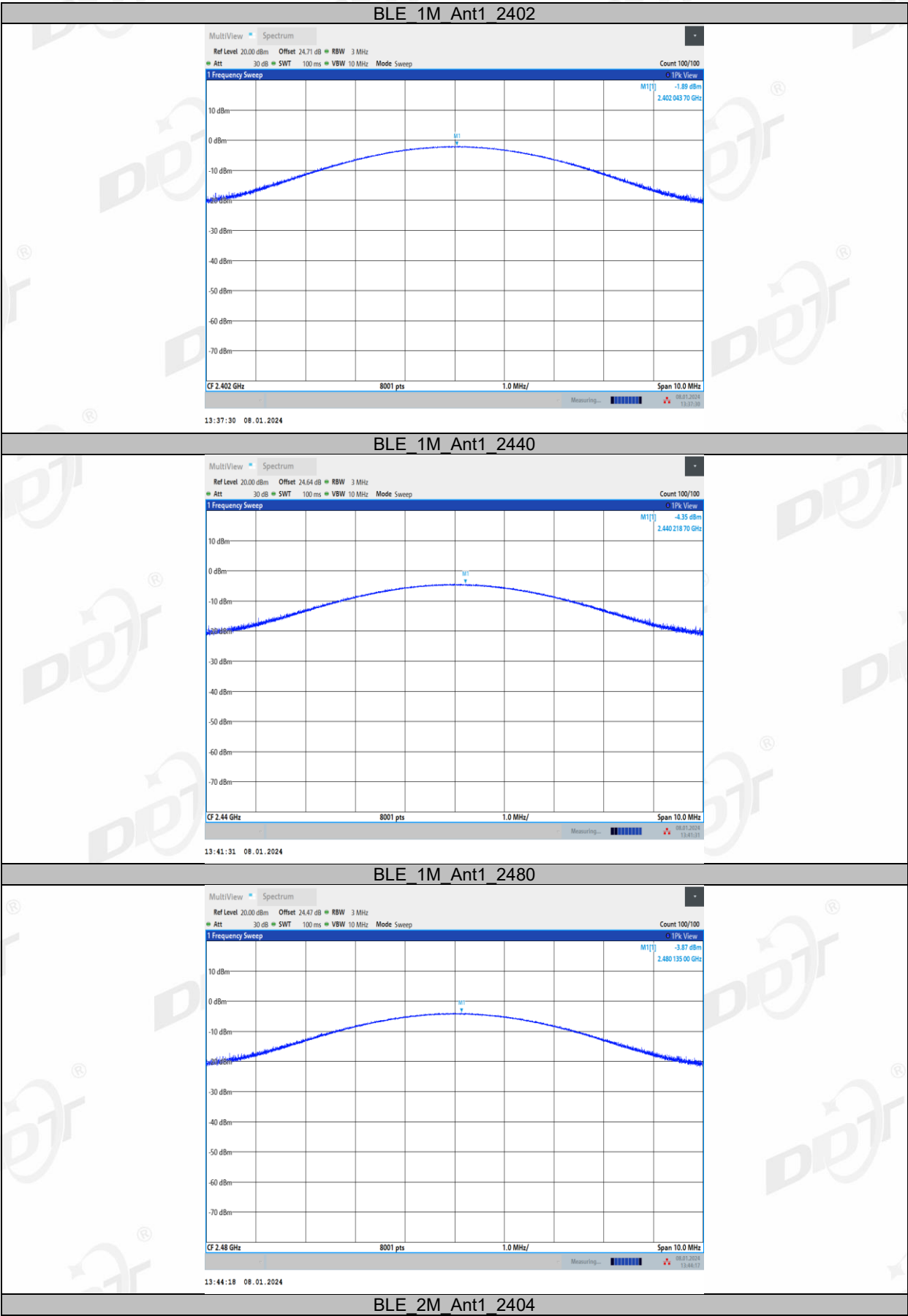
|                |                |
|----------------|----------------|
| RBW:           | ≥DTS bandwidth |
| VBW:           | ≥3 x RBW       |
| Span           | ≥3 x RBW       |
| Detector Mode: | Peak           |
| Sweep time:    | Auto           |
| Trace mode     | Max hold       |
- (5) Allow the trace to stabilize, use peak marker function to determine the peak amplitude level.

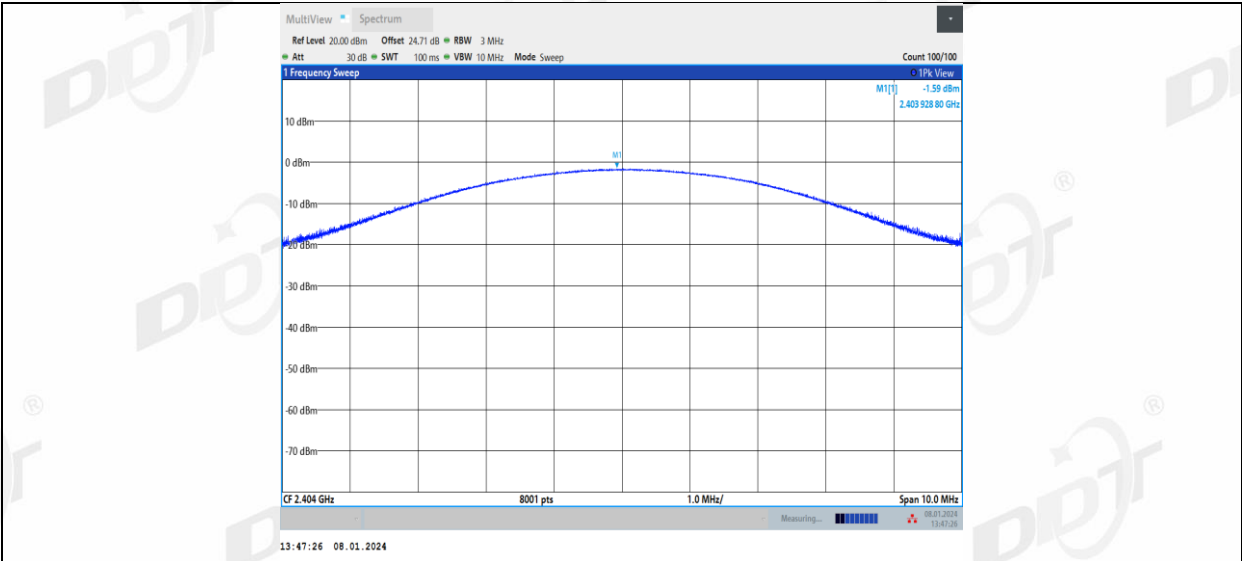
5.4. Test result

|                    |               |            |                          |
|--------------------|---------------|------------|--------------------------|
| Test Engineer:     | Zora Zhang    | Test Site: | RF Measurement System 4# |
| Ambient Condition: | 25.2℃,45.6%RH | Test Date: | 2024.01.08               |
| Test Power Supply: | DC 12V        | EUT:       | Multimedia               |
| Sample Number:     | S23121811-002 | Model No.: | Kansas City 150          |

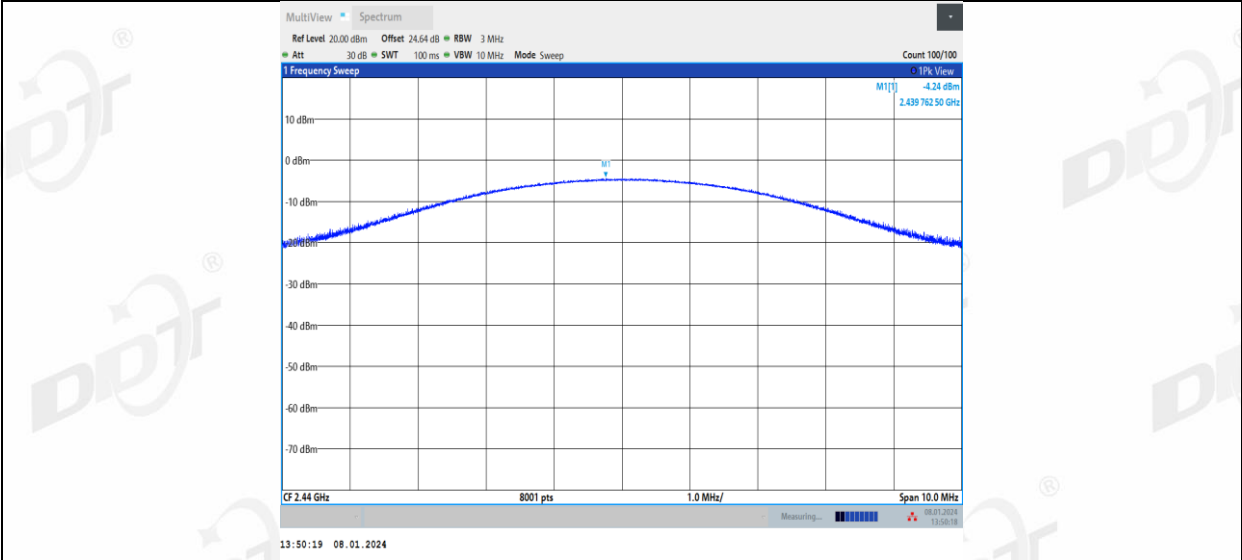
| Test Mode | Antenna | Frequency [MHz] | Conducted Peak Power[dBm] | Conducted Limit[dBm] | EIRP[dBm] | EIRP Limit[dBm] | Verdict |
|-----------|---------|-----------------|---------------------------|----------------------|-----------|-----------------|---------|
| BLE_1M    | Ant1    | 2402            | -1.89                     | ≤30                  | -1.62     | ≤36             | PASS    |
|           |         | 2440            | -4.35                     | ≤30                  | -4.08     | ≤36             | PASS    |
|           |         | 2480            | -3.87                     | ≤30                  | -3.60     | ≤36             | PASS    |
| BLE_2M    | Ant1    | 2404            | -1.59                     | ≤30                  | -1.32     | ≤36             | PASS    |
|           |         | 2440            | -4.24                     | ≤30                  | -3.97     | ≤36             | PASS    |
|           |         | 2478            | -4.15                     | ≤30                  | -3.88     | ≤36             | PASS    |

5.5. Test graphs

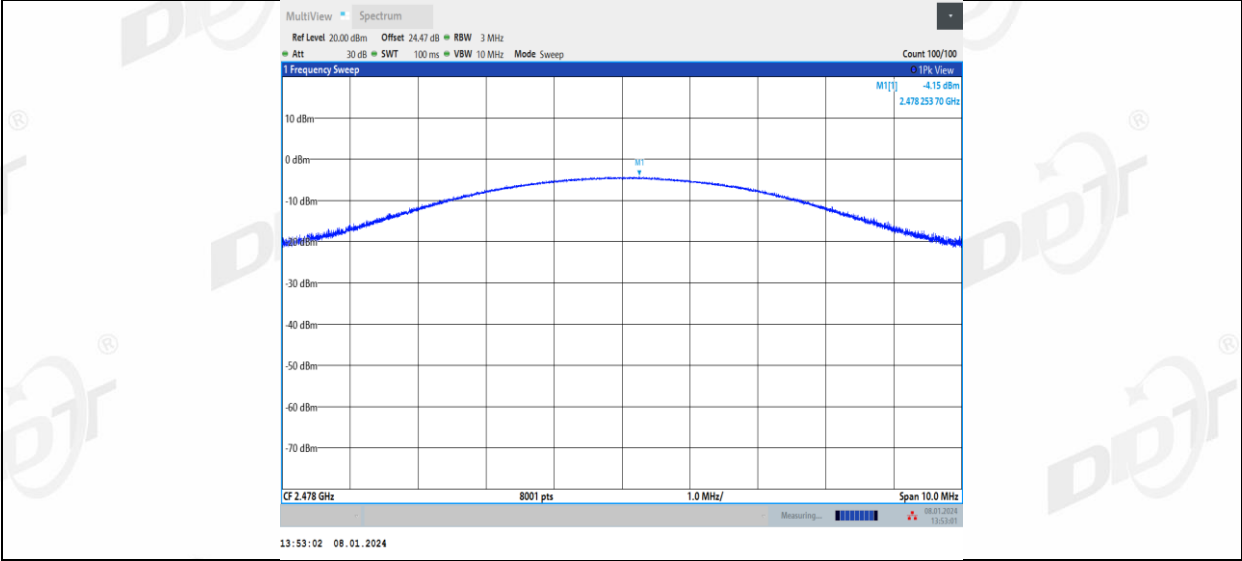




BLE\_2M\_Ant1\_2440

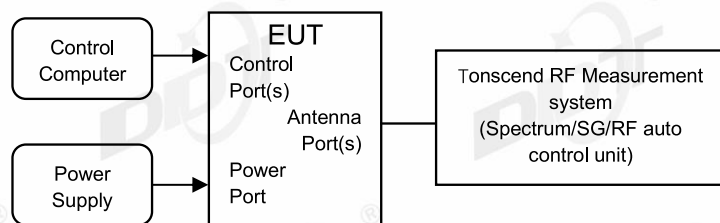


BLE\_2M\_Ant1\_2478



## 6. Power Spectral Density

### 6.1. Block diagram of test setup



### 6.2. Limits

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### 6.3. Test procedure

- (1) The test according to ANSI C63.10-2013 clause 11.10.2.
  - (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results.
  - (3) Set the EUT as maximum power setting and enable the EUT transmit continuously.
  - (4) Use the following spectrum analyzer settings for Power Spectral Density measurement:
 

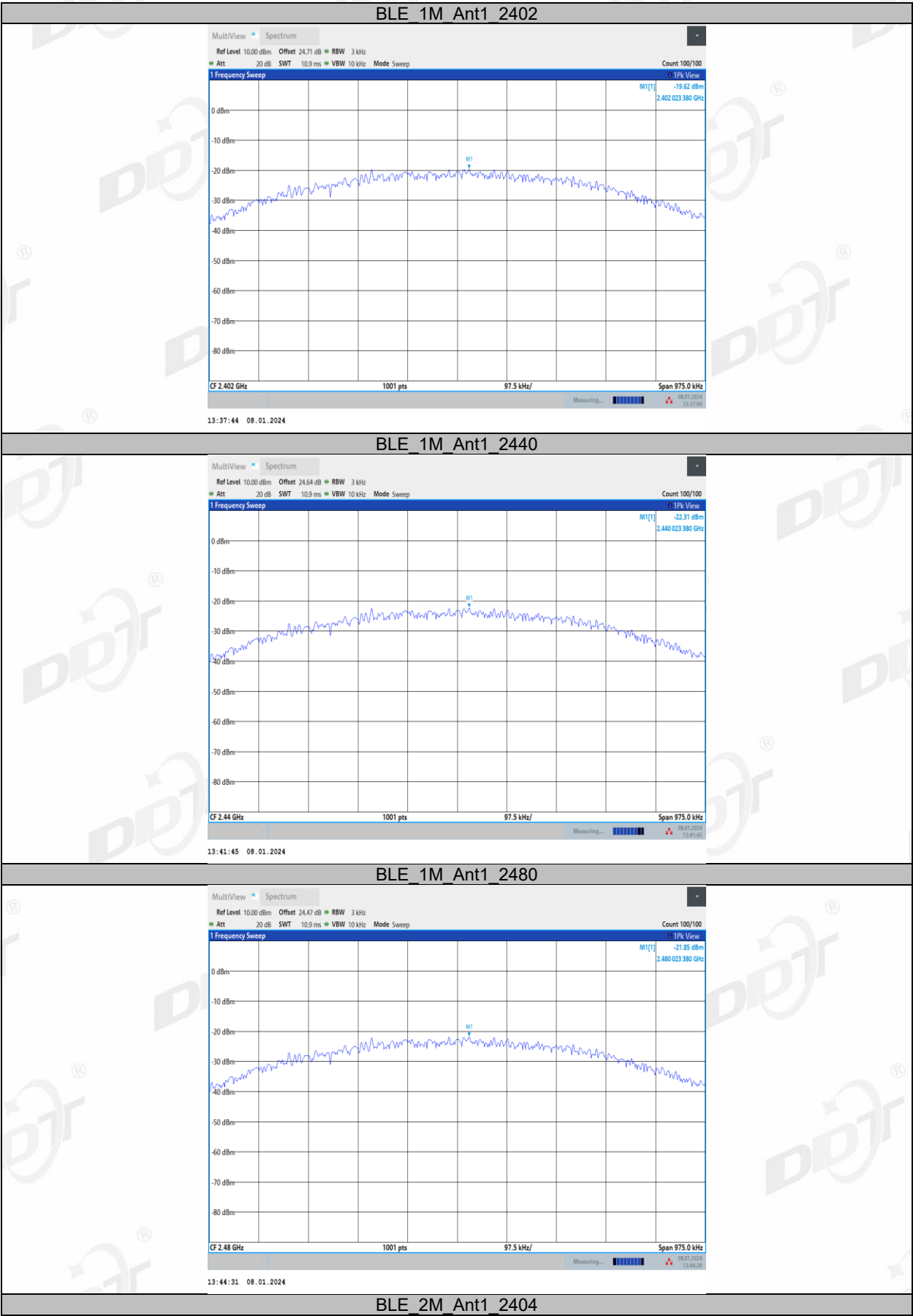
|                  |                                                    |
|------------------|----------------------------------------------------|
| Center frequency | DTS Channel center frequency                       |
| RBW:             | $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$ |
| VBW:             | $\geq 3\text{RBW}$                                 |
| Span             | 1.5 times the DTS bandwidth                        |
| Detector Mode:   | Peak                                               |
| Sweep time:      | Auto                                               |
| Trace mode       | Max hold                                           |
  - (5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

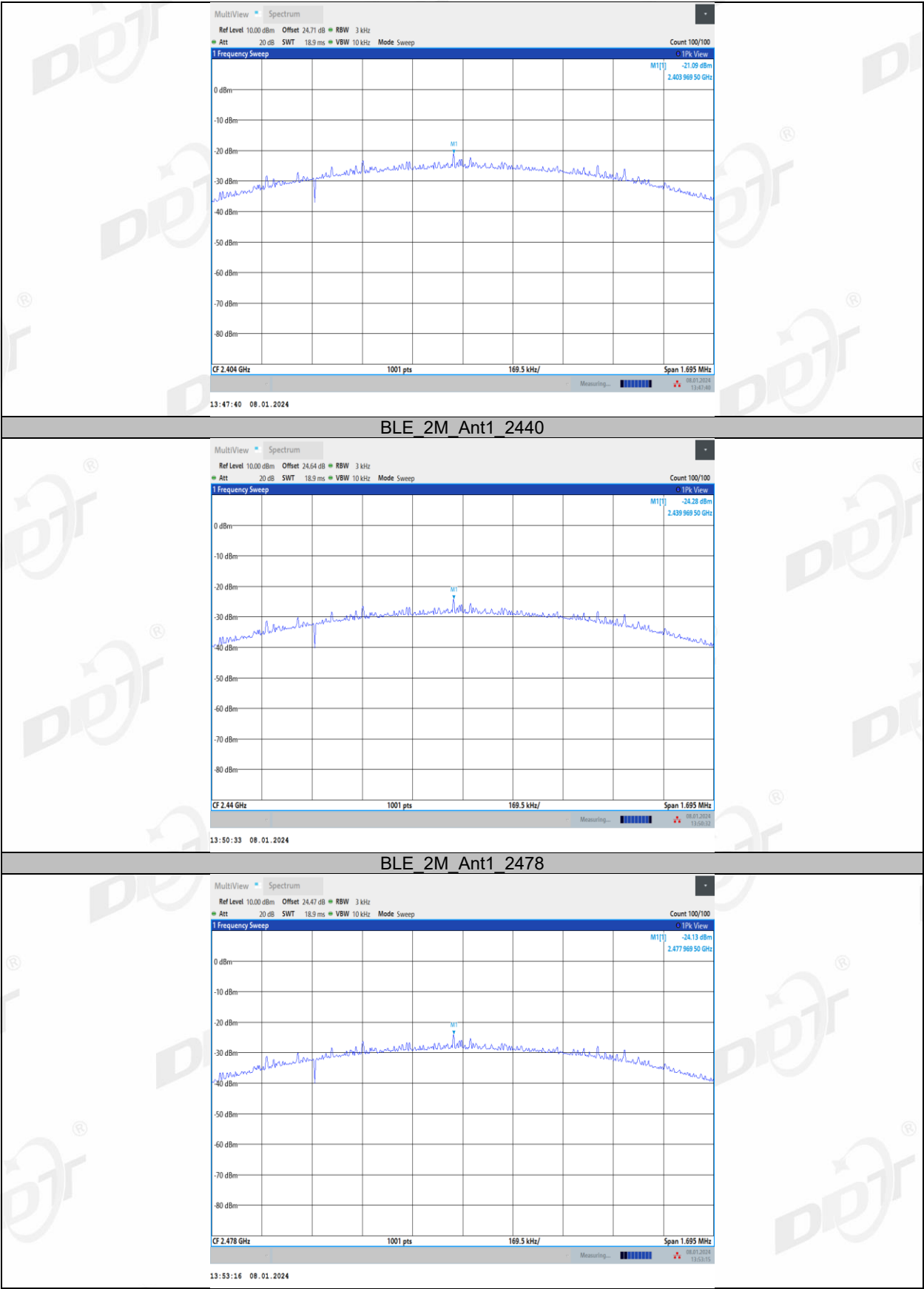
6.4. Test result

|                    |               |            |                          |
|--------------------|---------------|------------|--------------------------|
| Test Engineer:     | Zora Zhang    | Test Site: | RF Measurement System 4# |
| Ambient Condition: | 25.2℃,45.6%RH | Test Date: | 2024.01.08               |
| Test Power Supply: | DC 12V        | EUT:       | Multimedia               |
| Sample Number:     | S23121811-002 | Model No.: | Kansas City 150          |

| Test Mode | Antenna | Frequency [MHz] | Result [dBm/3kHz] | Limit [dBm/3kHz] | Verdict |
|-----------|---------|-----------------|-------------------|------------------|---------|
| BLE_1M    | Ant1    | 2402            | -19.62            | ≤8.00            | PASS    |
|           |         | 2440            | -22.31            | ≤8.00            | PASS    |
|           |         | 2480            | -21.85            | ≤8.00            | PASS    |
| BLE_2M    | Ant1    | 2404            | -21.09            | ≤8.00            | PASS    |
|           |         | 2440            | -24.28            | ≤8.00            | PASS    |
|           |         | 2478            | -24.13            | ≤8.00            | PASS    |

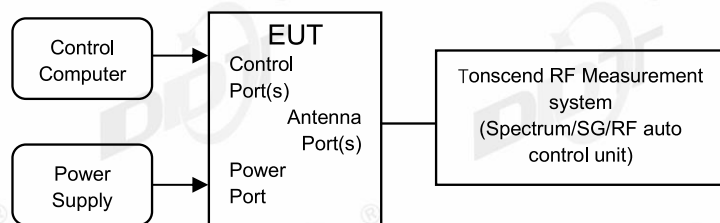
6.5. Test graphs





## 7. Band Edge Compliance (Conducted Method)

### 7.1. Block diagram of test setup



### 7.2. Limits

In any 100 kHz bandwidth outside the frequency bands 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.

### 7.3. Test procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
- (2) Establish a reference level by using the following procedure:

|                |                                          |
|----------------|------------------------------------------|
| RBW:           | 100 kHz                                  |
| VBW:           | 300 kHz                                  |
| Span           | Encompass frequency range to be measured |
| Detector Mode: | Peak                                     |
| Sweep time:    | Auto                                     |
| Trace mode     | Max hold                                 |
- (3) Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.
- (4) Then mark the maximum amplitude of all unwanted emissions outside of the authorized frequency band.

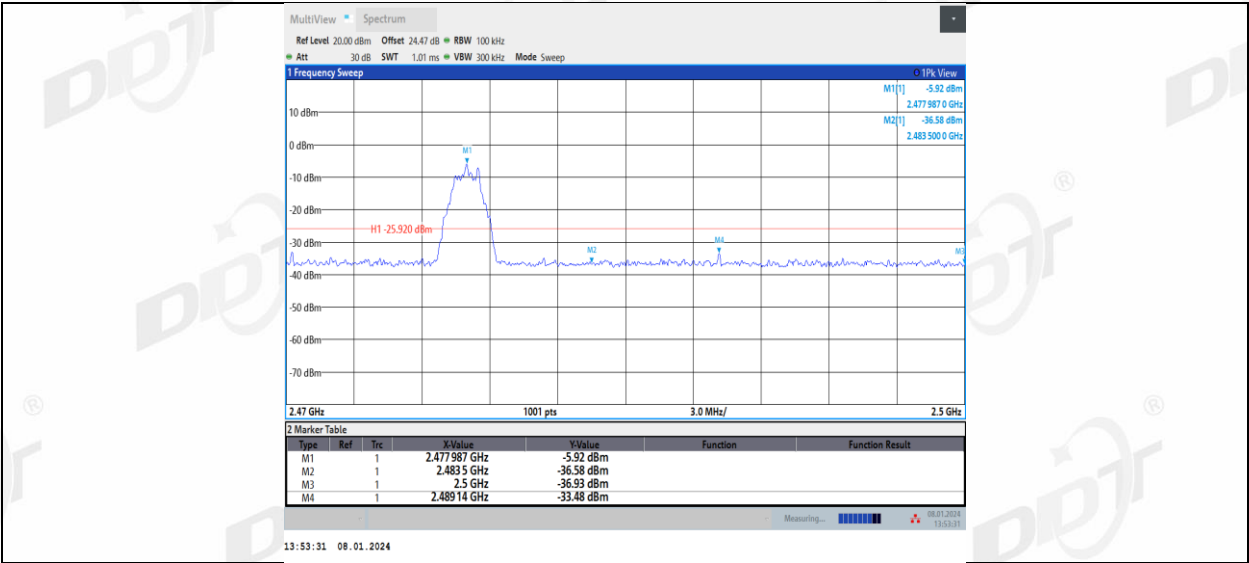
7.4. Test result

|                    |               |            |                          |
|--------------------|---------------|------------|--------------------------|
| Test Engineer:     | Zora Zhang    | Test Site: | RF Measurement System 4# |
| Ambient Condition: | 25.2℃,45.6%RH | Test Date: | 2024.01.08               |
| Test Power Supply: | DC 12V        | EUT:       | Multimedia               |
| Sample Number:     | S23121811-002 | Model No.: | Kansas City 150          |

| EUT Set Mode | CH or Frequency | Measured Range        | Verdict |
|--------------|-----------------|-----------------------|---------|
| GFSK 1M      | 2402            | 2.310 GHz - 2.410 GHz | Pass    |
|              | 2480            | 2.470 GHz - 2.500 GHz | Pass    |
| GFSK 2M      | 2404            | 2.310 GHz - 2.410 GHz | Pass    |
|              | 2478            | 2.470 GHz - 2.500 GHz | Pass    |

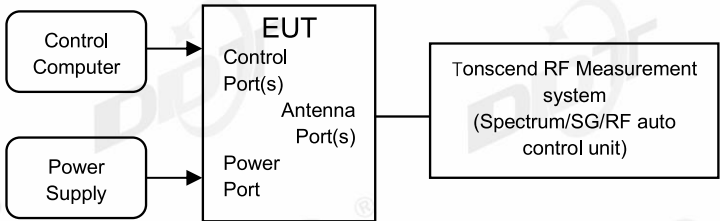
7.5. Test graphs





8. RF Conducted Spurious Emissions

8.1. Block diagram of test setup



8.2. Limits

In any 100 kHz bandwidth outside the frequency bands 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.

8.3. Test procedure

- (1) Connect EUT’s antenna output to spectrum analyzer by RF cable.
- (2) Establish a reference level by using the following procedure:

|                  |                                                               |
|------------------|---------------------------------------------------------------|
| Center frequency | Test frequency                                                |
| RBW:             | 100 kHz                                                       |
| VBW:             | 300 kHz                                                       |
| Span             | Wide enough to capture the peak level of the in-band emission |
| Detector Mode:   | Peak                                                          |
| Sweep time:      | Auto                                                          |
| Trace mode       | Max hold                                                      |
- (3) Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.
- (4) Set the spectrum analyzer as follows:

|                              |                                          |
|------------------------------|------------------------------------------|
| RBW:                         | 100 kHz                                  |
| VBW:                         | 300 kHz                                  |
| Span                         | Encompass frequency range to be measured |
| Number of measurement points | ≥Span/RBW                                |
| Detector Mode:               | Peak                                     |
| Sweep time:                  | Auto                                     |
| Trace mode                   | Max hold                                 |

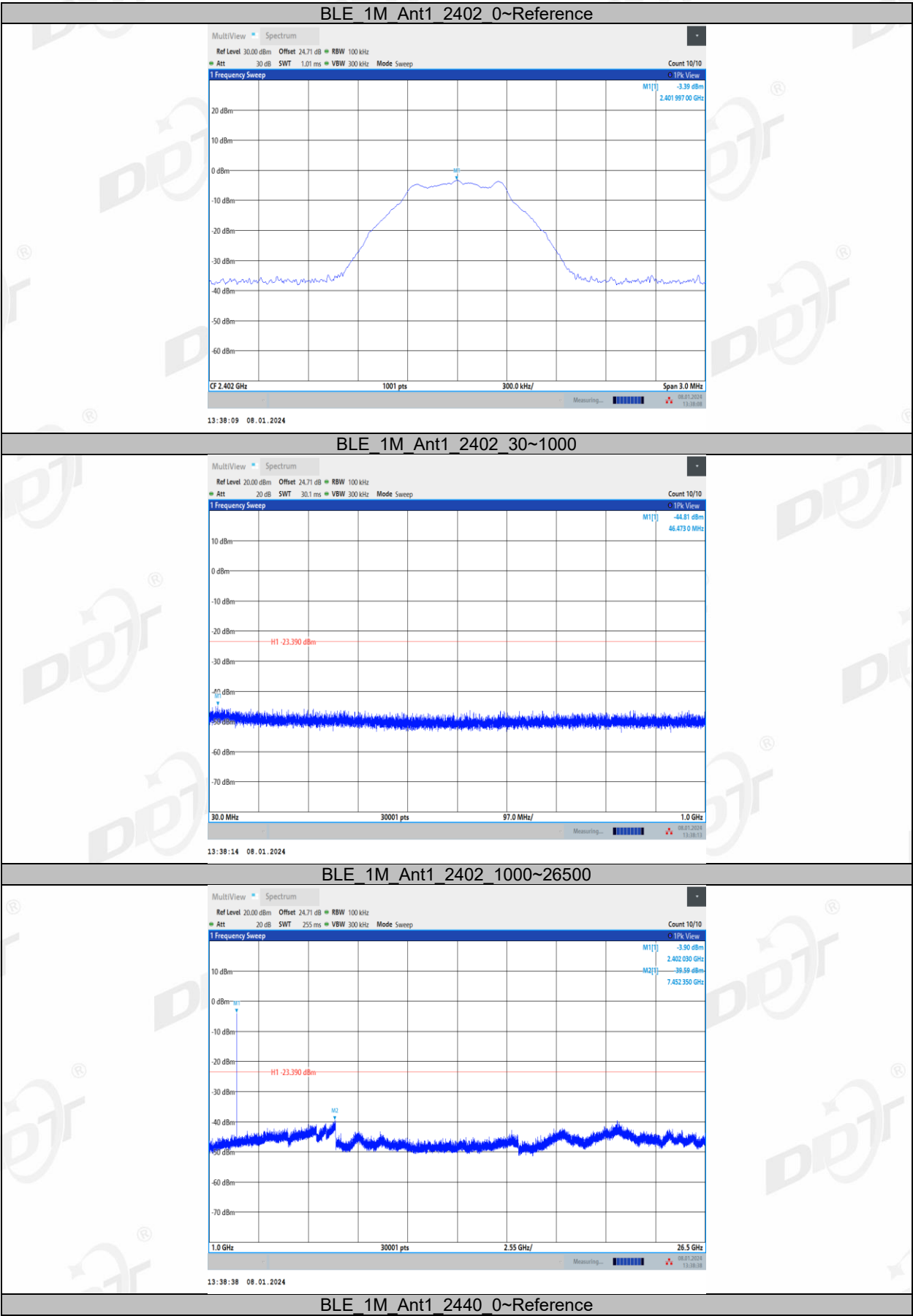
Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

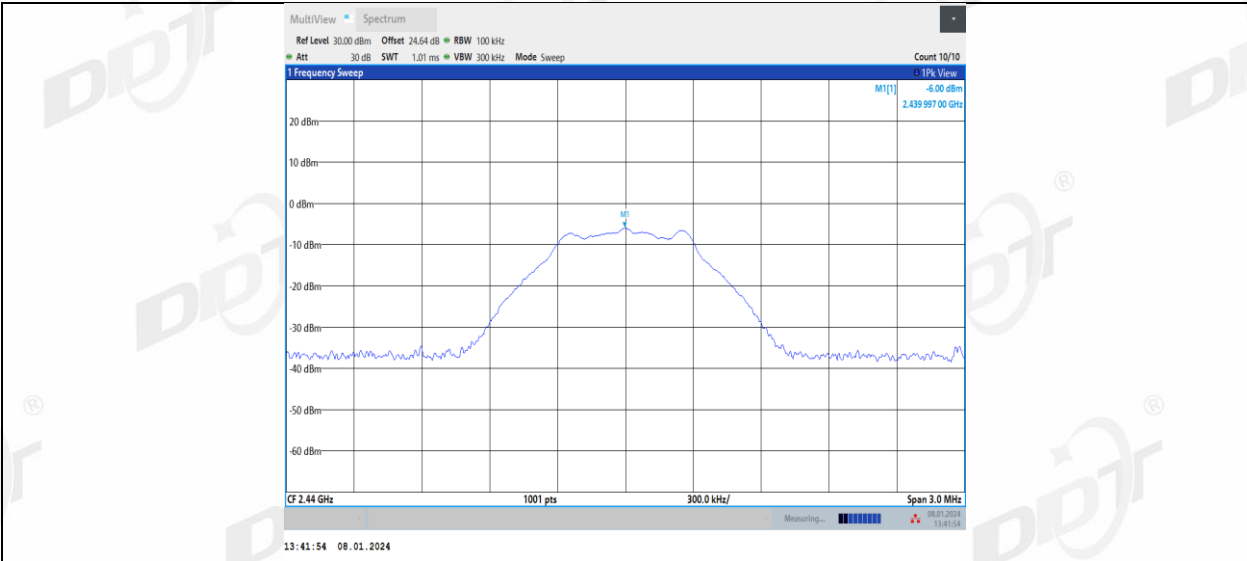
8.4. Test result

|                    |               |            |                          |
|--------------------|---------------|------------|--------------------------|
| Test Engineer:     | Zora Zhang    | Test Site: | RF Measurement System 4# |
| Ambient Condition: | 25.2℃,45.6%RH | Test Date: | 2024.01.08               |
| Test Power Supply: | DC 12V        | EUT:       | Multimedia               |
| Sample Number:     | S23121811-002 | Model No.: | Kansas City 150          |

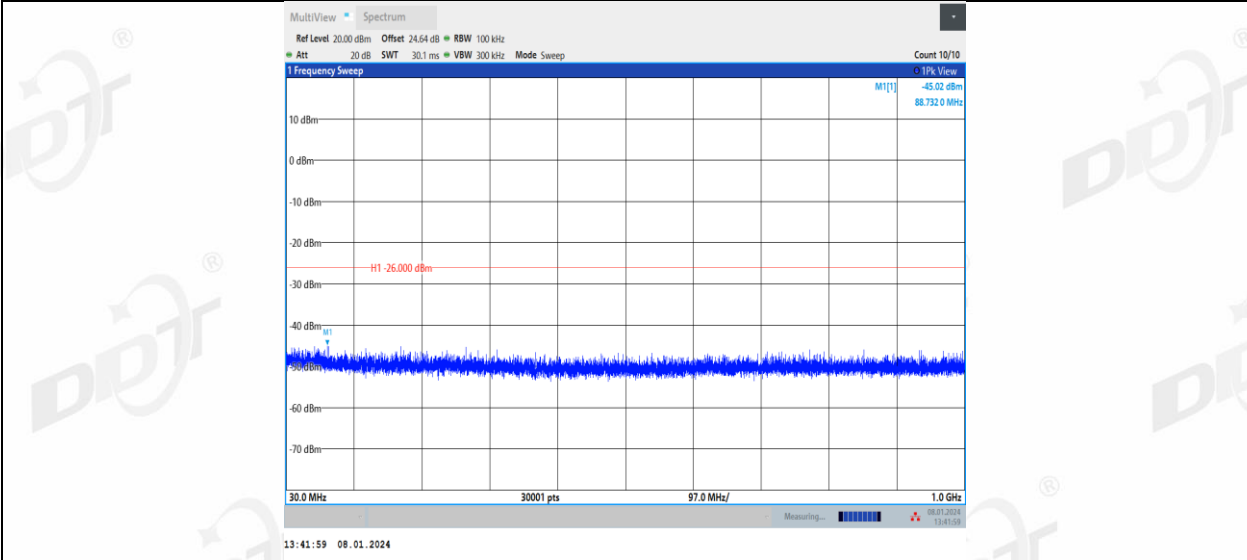
| Mode    | Freq. (MHz) | Verdict |
|---------|-------------|---------|
| GFSK 1M | 2402        | Pass    |
|         | 2440        | Pass    |
|         | 2480        | Pass    |
| GFSK 2M | 2404        | Pass    |
|         | 2440        | Pass    |
|         | 2478        | Pass    |

8.5. Test graphs

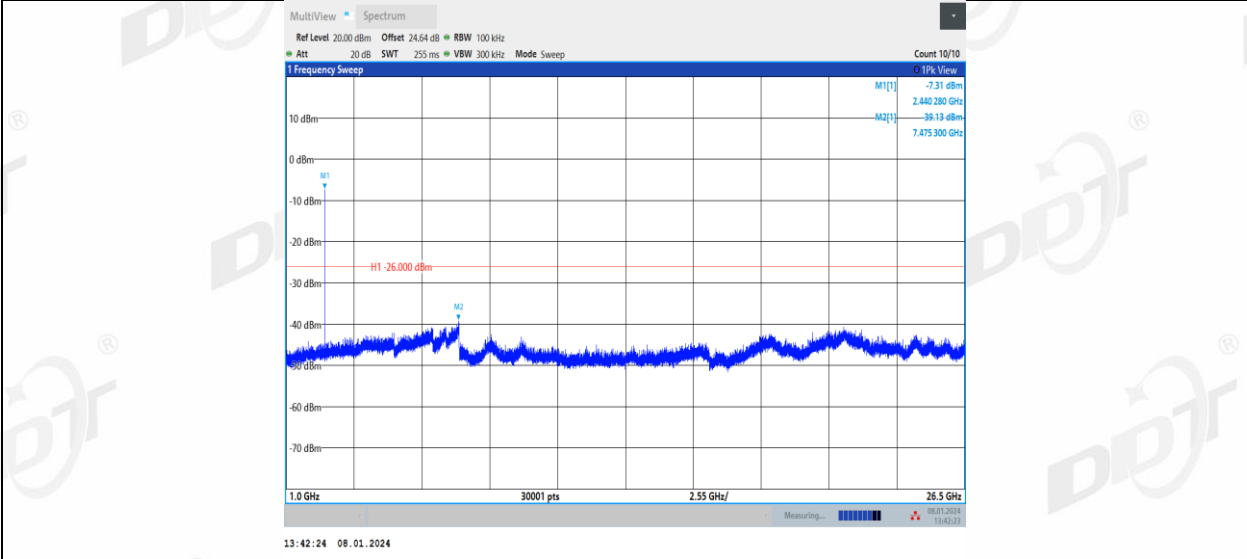




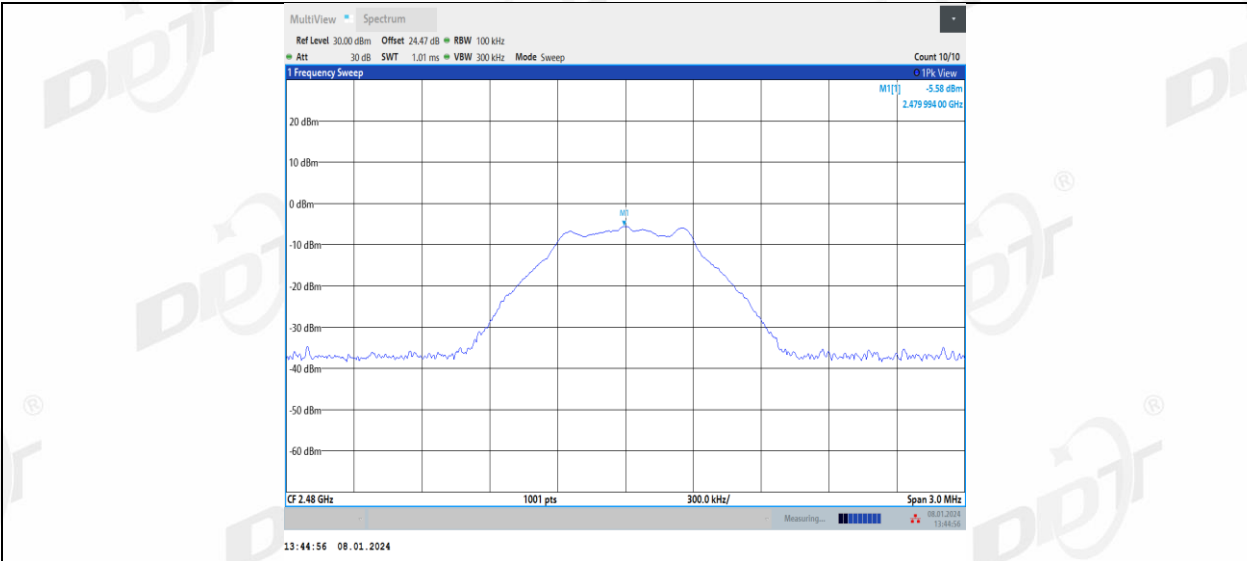
BLE\_1M\_Ant1\_2440\_30~1000



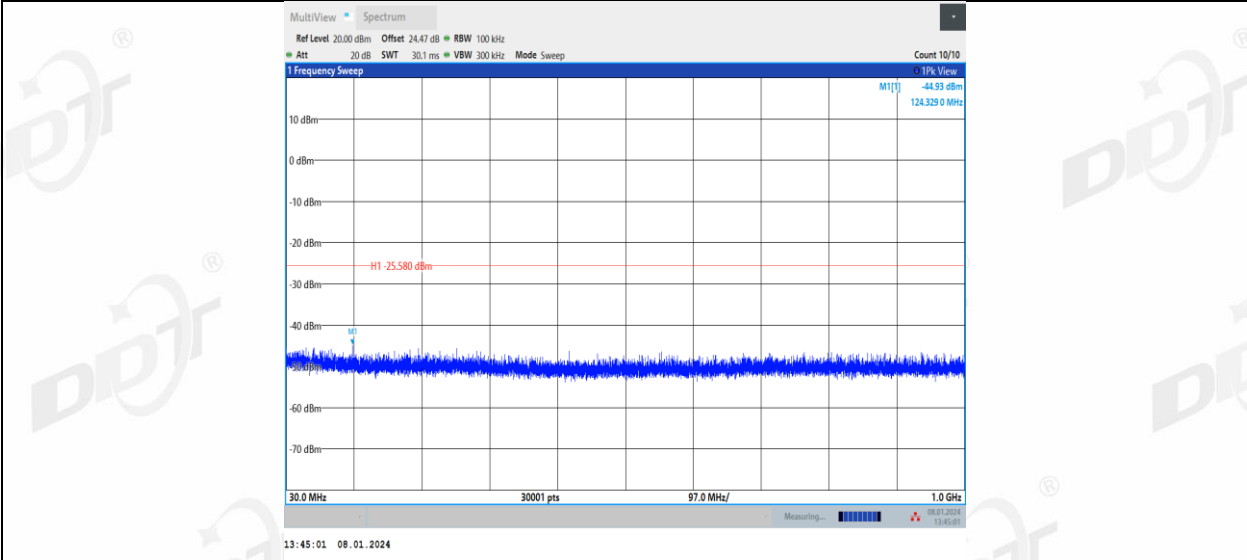
BLE\_1M\_Ant1\_2440\_1000~26500



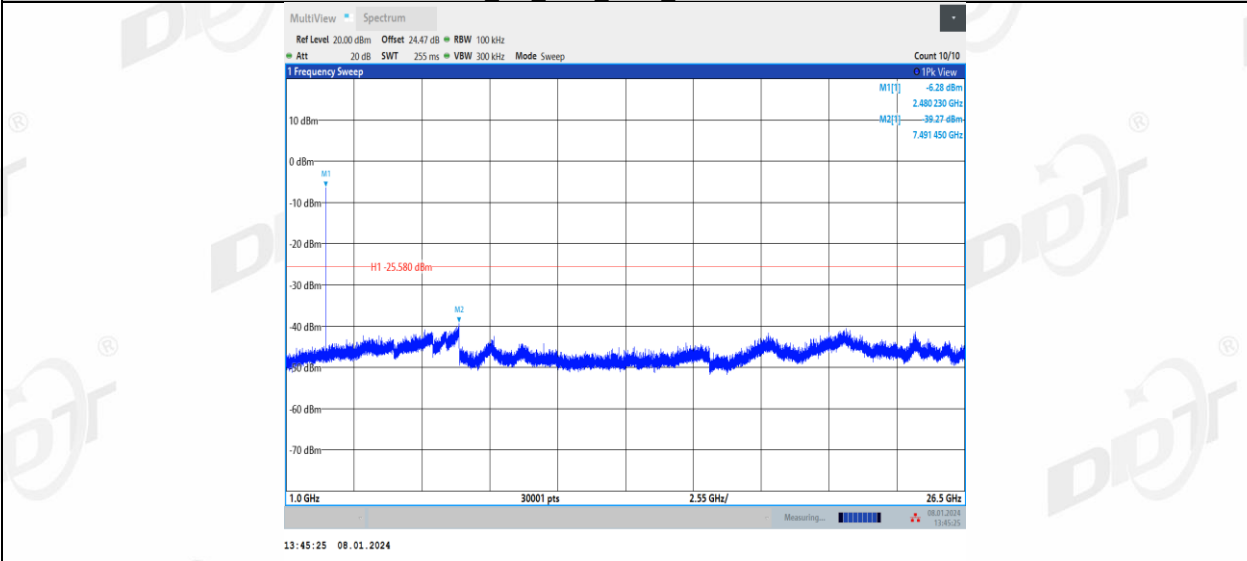
BLE\_1M\_Ant1\_2480\_0~Reference



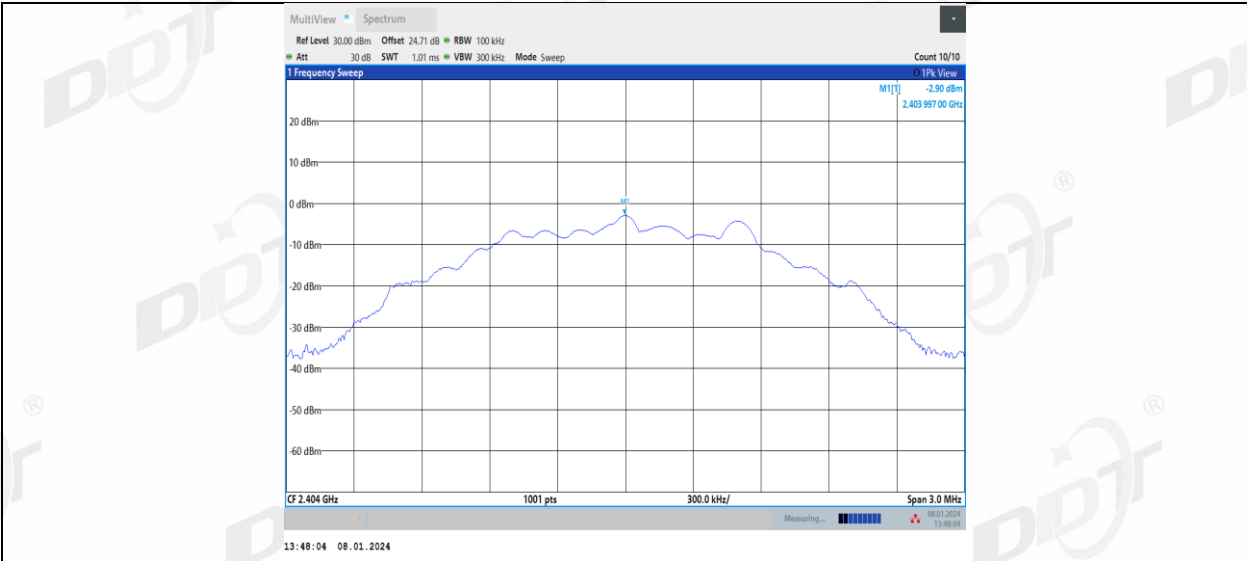
BLE\_1M\_Ant1\_2480\_30~1000



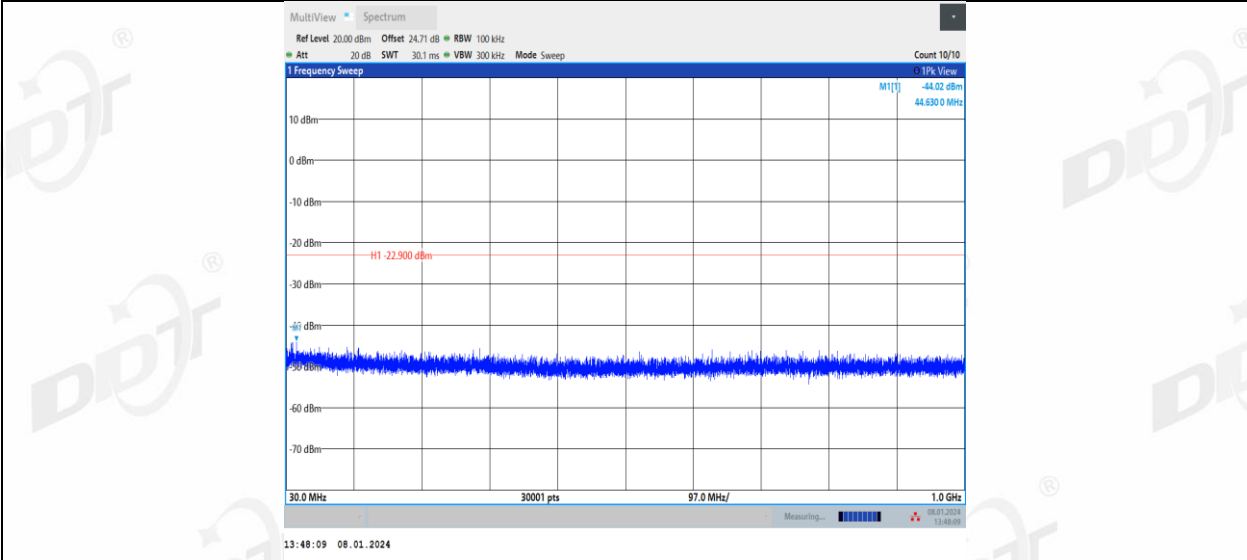
BLE\_1M\_Ant1\_2480\_1000~26500



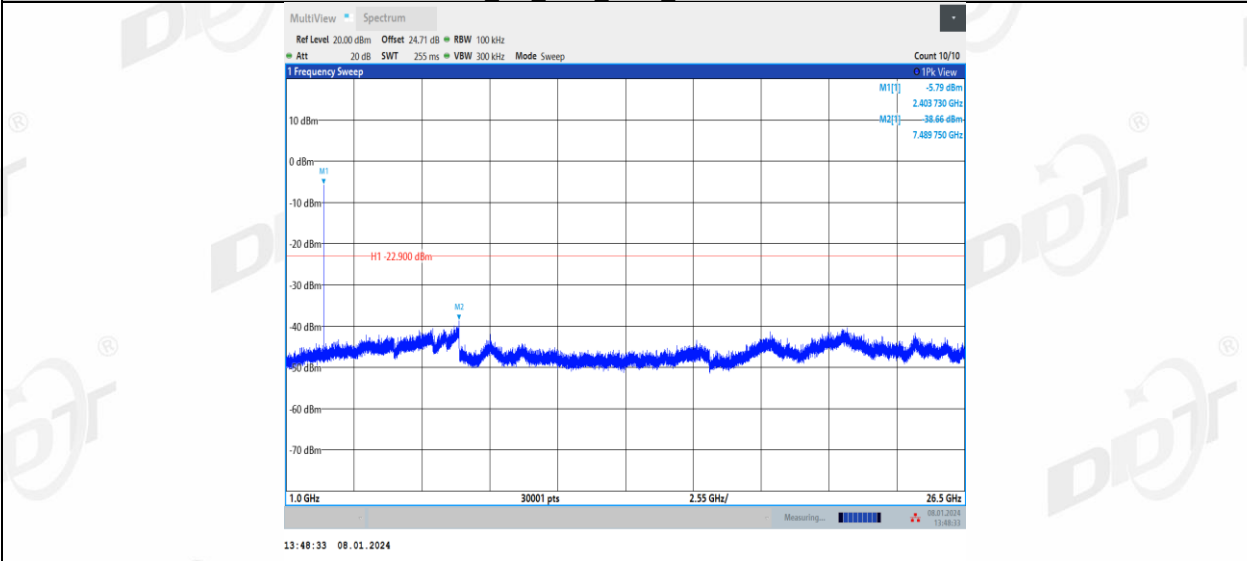
BLE\_2M\_Ant1\_2404\_0~Reference



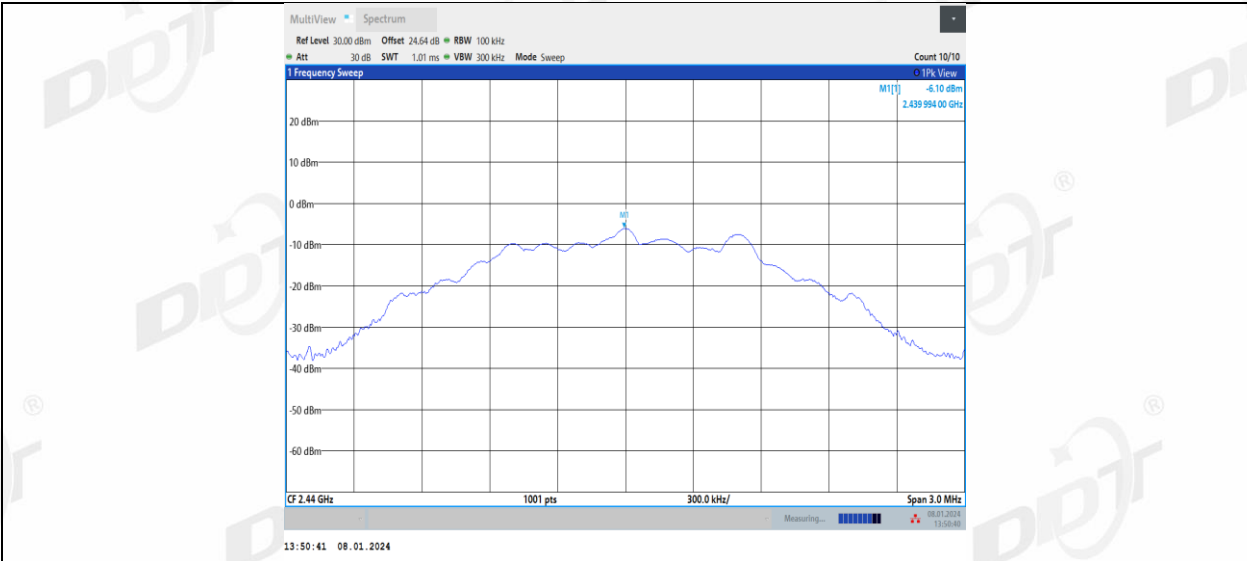
BLE\_2M\_Ant1\_2404\_30~1000



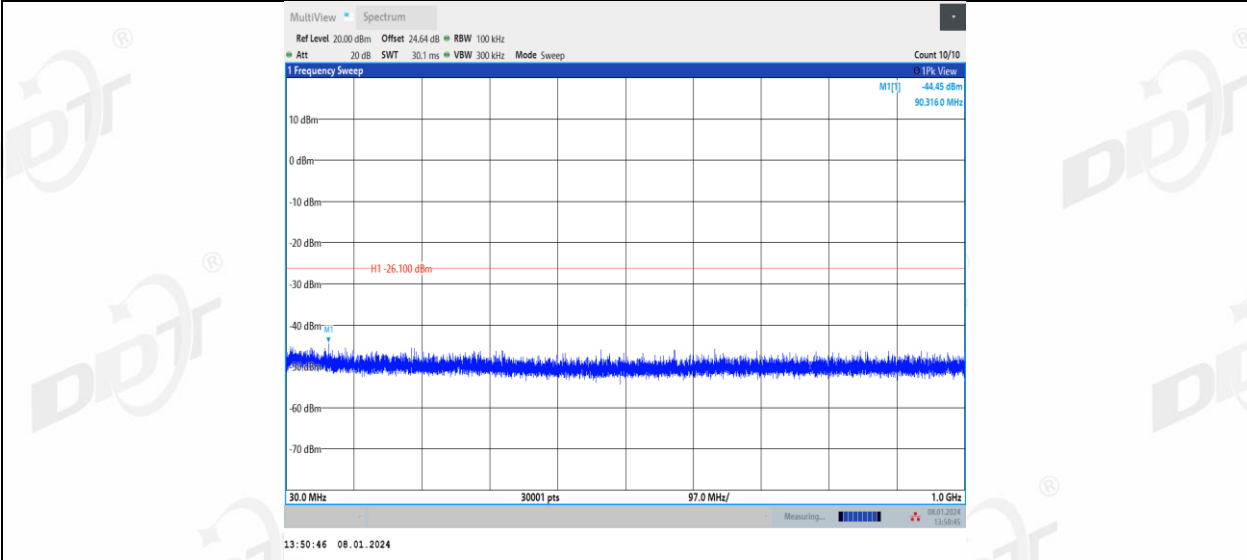
BLE\_2M\_Ant1\_2404\_1000~26500



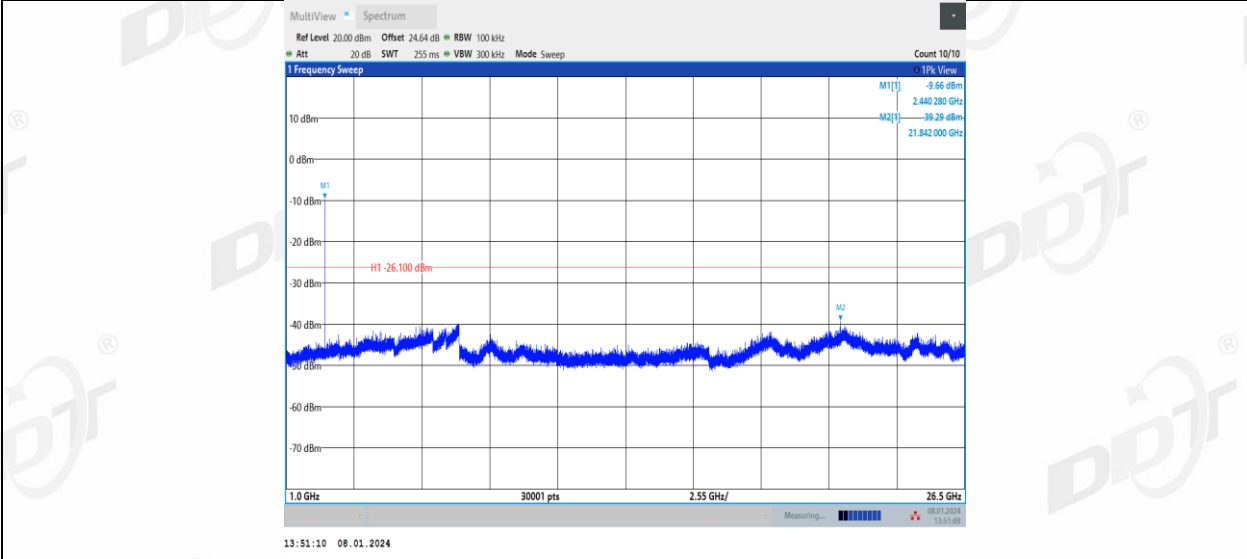
BLE\_2M\_Ant1\_2440\_0~Reference



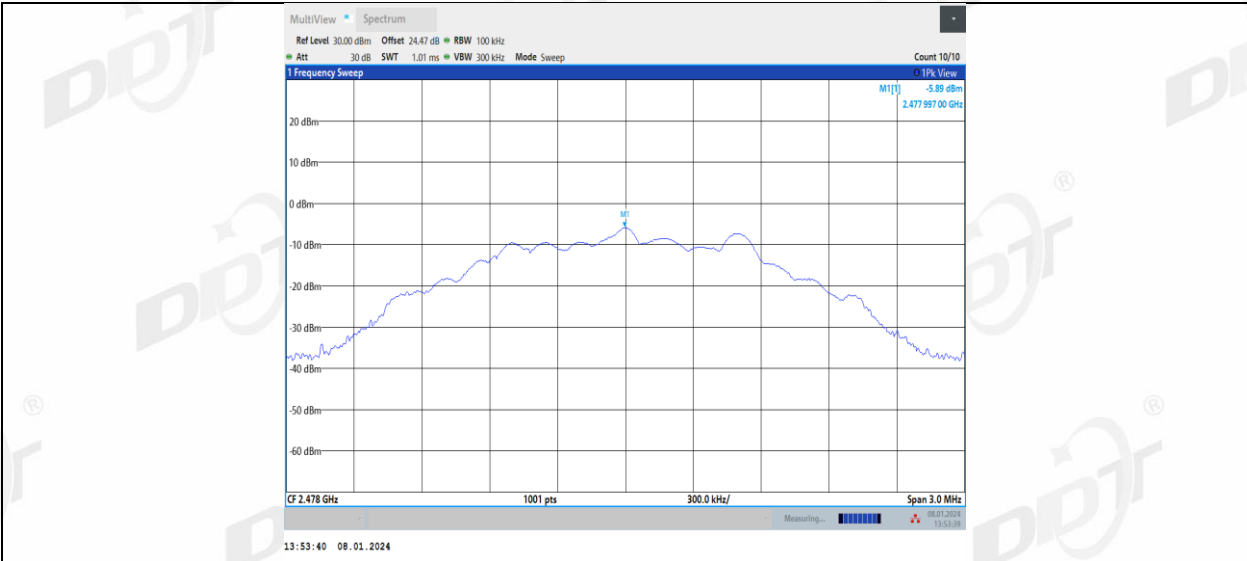
BLE\_2M\_Ant1\_2440\_30~1000



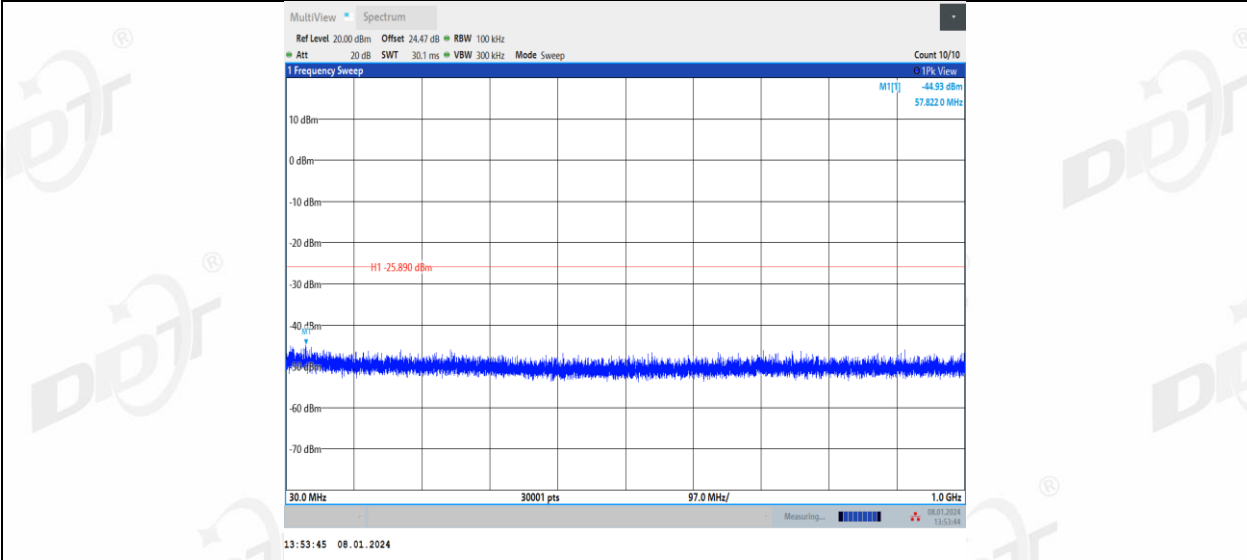
BLE\_2M\_Ant1\_2440\_1000~26500



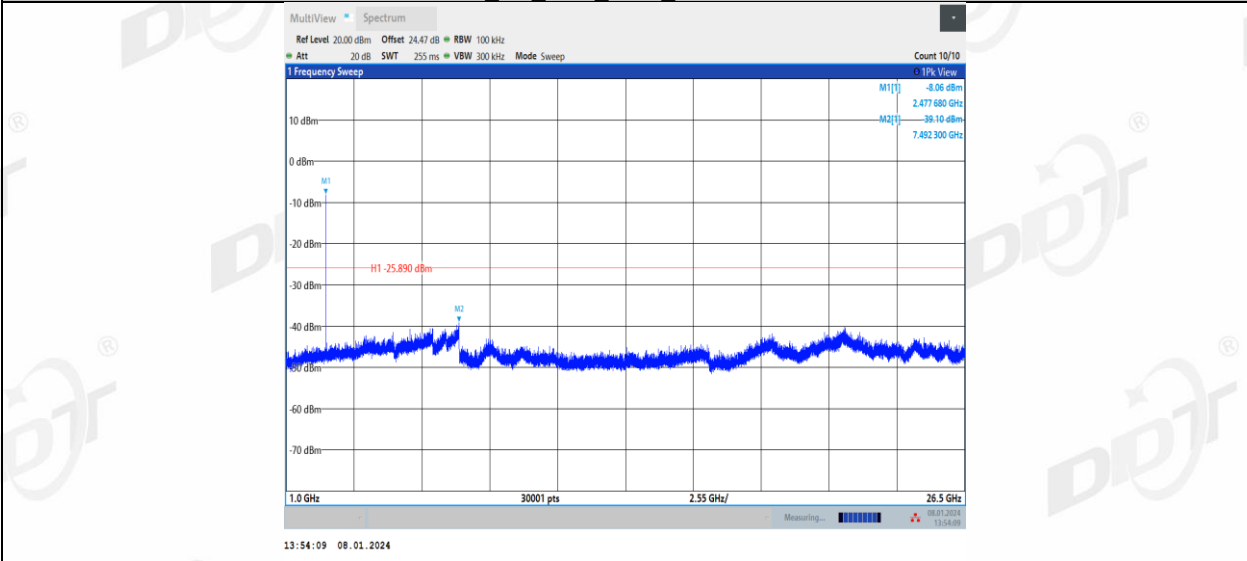
BLE\_2M\_Ant1\_2478\_0~Reference



BLE\_2M\_Ant1\_2478\_30~1000

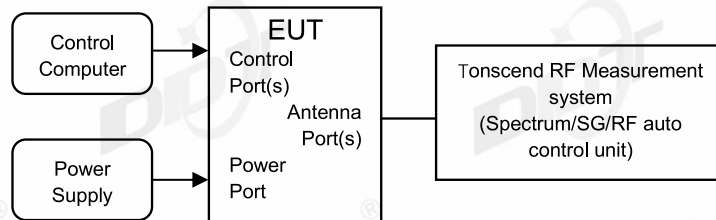


BLE\_2M\_Ant1\_2478\_1000~26500



## 9. Duty Cycle

### 9.1. Block diagram of test setup



### 9.2. Limit

Just for Report.

### 9.3. Test procedure

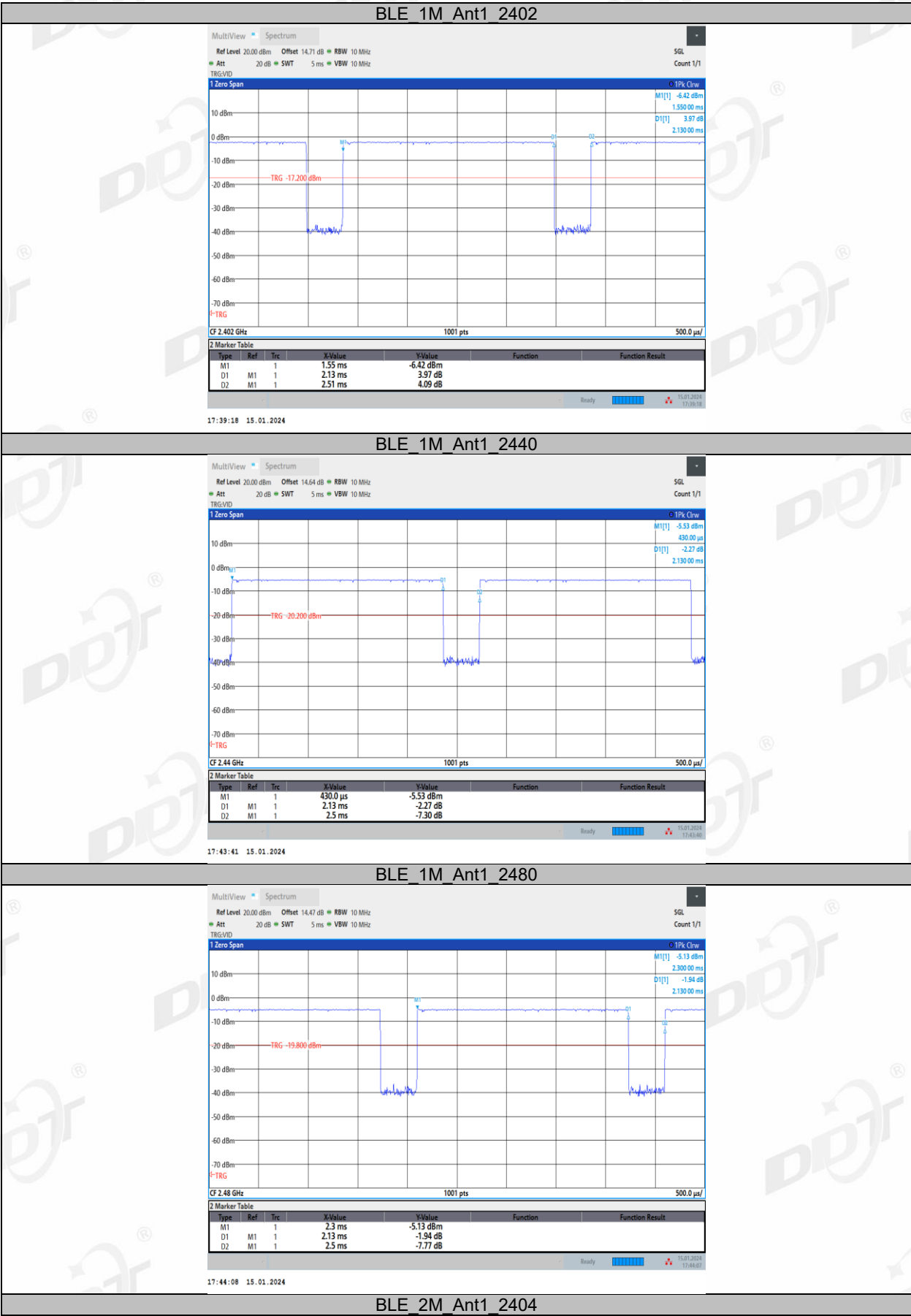
- (1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.  
set the Spectrum Analyzer as below:
  - Centre Frequency: The centre frequency of the middle hopping channel.
  - Resolution BW: 10 MHz.
  - Video BW: 10 MHz.
  - Span: Zero span.
  - Detector: Peak.
  - Trace Mode: Clear Write.
  - Sweep: Video Trigger
- (2) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.
- (3) Calculate dwell time follow below formula:  
Duty cycle= Pulse's on time / Burst cycle

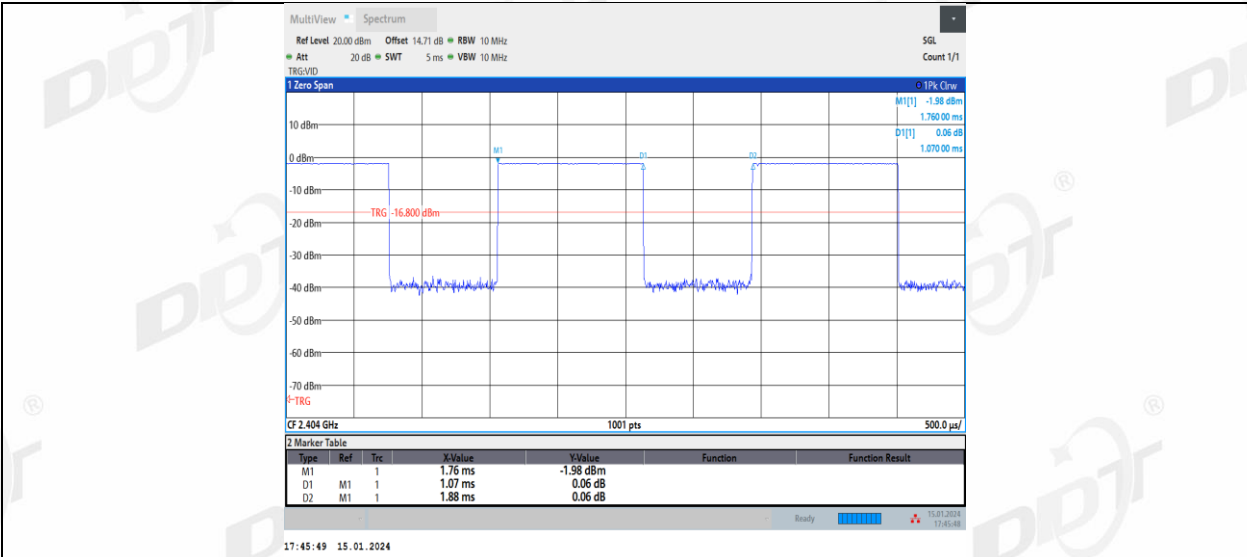
9.4. Test result

|                    |               |            |                          |
|--------------------|---------------|------------|--------------------------|
| Test Engineer:     | Zora Zhang    | Test Site: | RF Measurement System 4# |
| Ambient Condition: | 25.2℃,45.6%RH | Test Date: | 2024.01.15               |
| Test Power Supply: | DC 12V        | EUT:       | Multimedia               |
| Sample Number:     | S23121811-002 | Model No.: | Kansas City 150          |

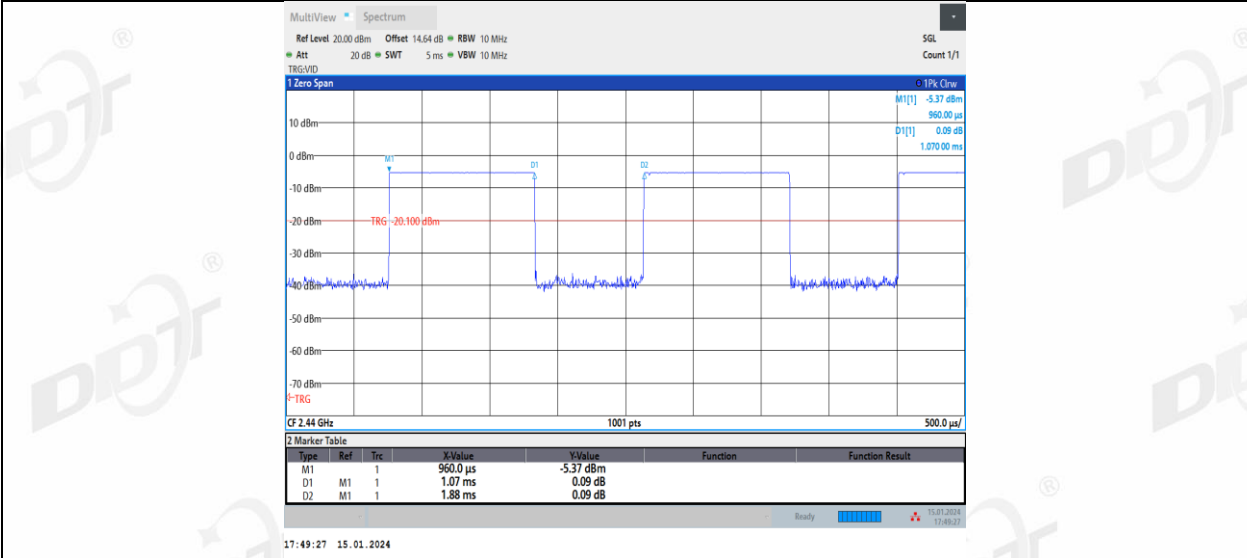
| Test Mode | Antenna | Frequency [MHz] | ON Time [ms] | Period [ms] | Duty Cycle [%] | Duty Cycle Factor[dB] |
|-----------|---------|-----------------|--------------|-------------|----------------|-----------------------|
| BLE_1M    | Ant1    | 2.13            | 2.51         | 84.86       | 0.71           | 0.70                  |
|           |         | 2.13            | 2.50         | 85.20       | 0.70           | 0.70                  |
|           |         | 2.13            | 2.50         | 85.20       | 0.70           | 0.70                  |
| BLE_2M    | Ant1    | 1.07            | 1.88         | 56.91       | 2.45           | 2.45                  |
|           |         | 1.07            | 1.88         | 56.91       | 2.45           | 2.42                  |
|           |         | 1.07            | 1.88         | 56.91       | 2.45           | 0.70                  |

9.5. Test graphs

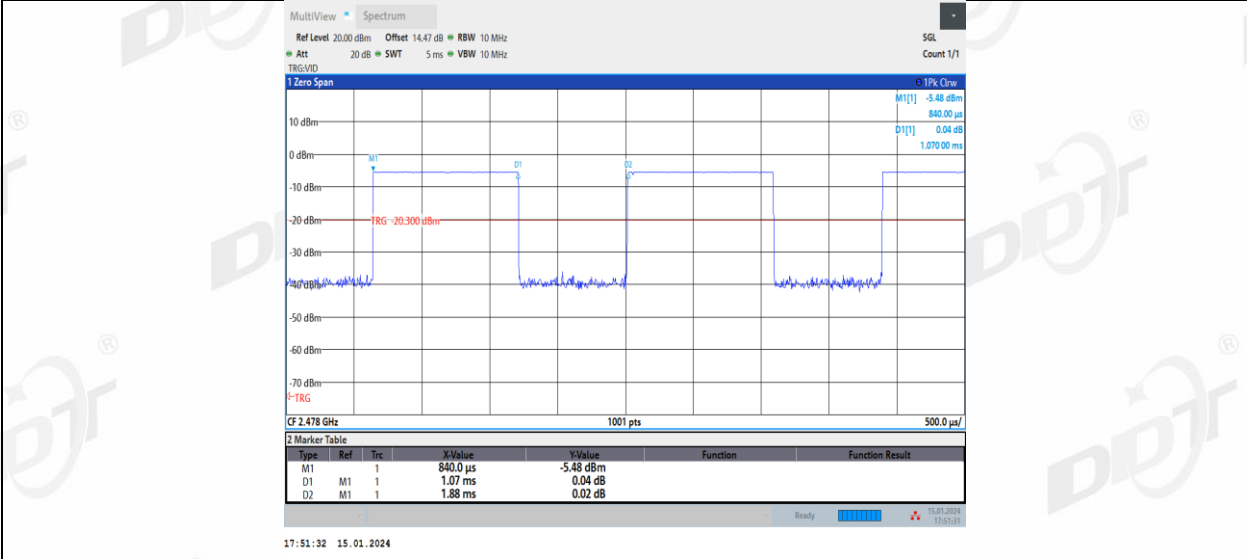




BLE\_2M\_Ant1\_2440



BLE\_2M\_Ant1\_2478



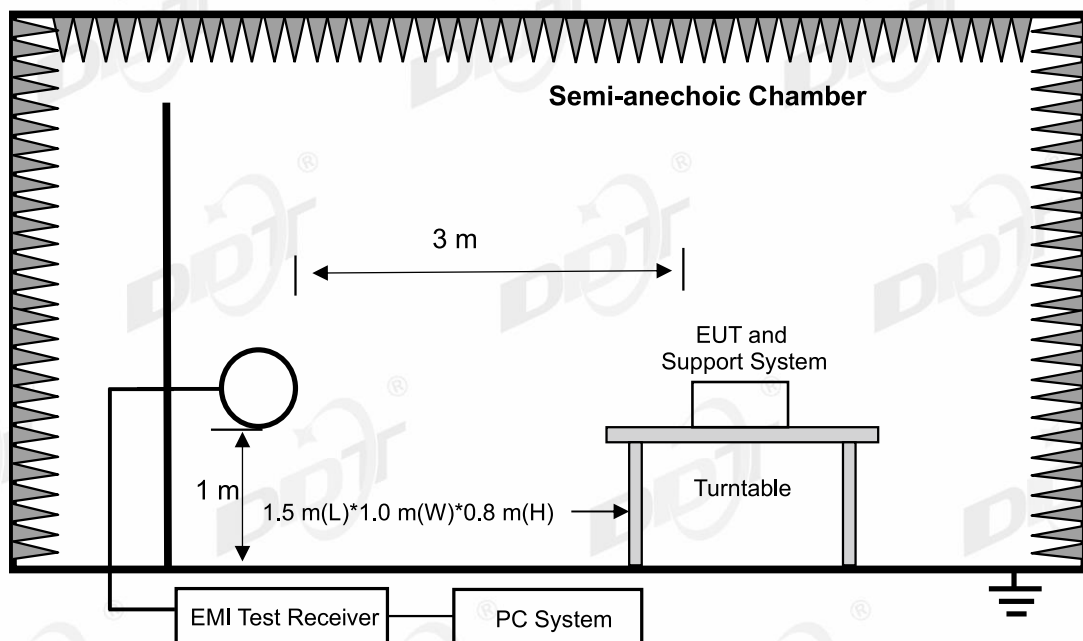
## 10. Radiated Emission

### 10.1. Test equipment

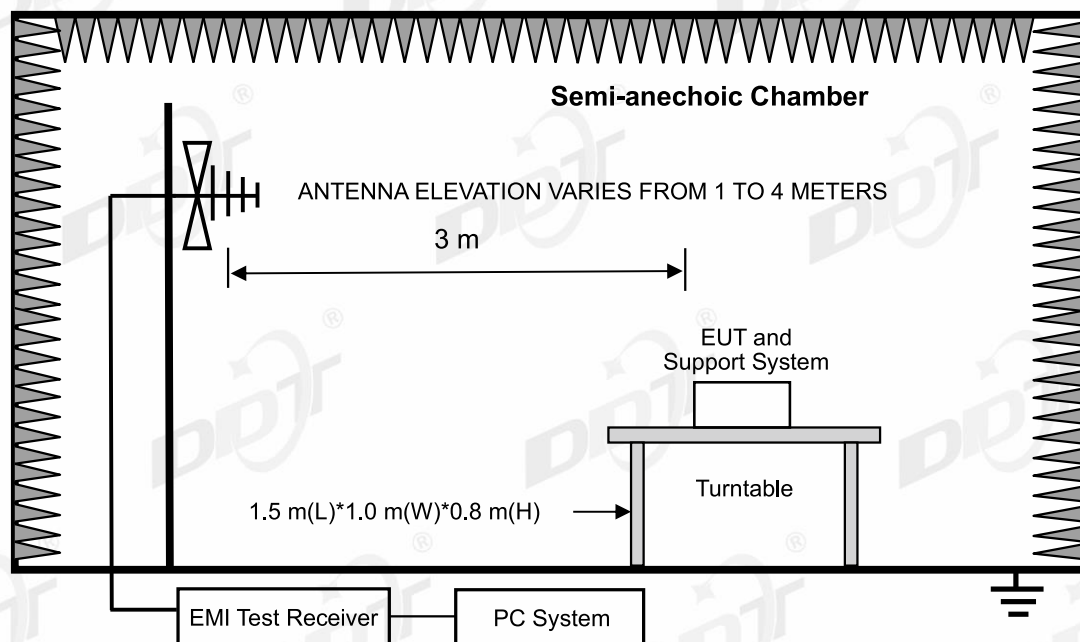
| Equipment                          | Manufacturer | Model No.                                        | Serial Number | Due Date   |
|------------------------------------|--------------|--------------------------------------------------|---------------|------------|
| ☑Radiation 3#Chamber               |              |                                                  |               |            |
| EMI TEST RECEIVER                  | R&S          | ESU26                                            | 100472        | 2024/04/22 |
| PSA Series Spectrum Analyzer       | Agilent      | E4447A                                           | MY50180031    | 2024/04/22 |
| Active Loop Antenna                | Schwarzbeck  | FMZB-1519                                        | 1519-038      | 2024/09/10 |
| Trilog Broadband Antenna           | Schwarzbeck  | VULB 9163                                        | 01429         | 2024/07/11 |
| Double Ridged Horn Antenna         | Schwarzbeck  | BBHA 9120 D                                      | 02468         | 2024/09/17 |
| Broad Band Horn Antenna            | Schwarzbeck  | BBHA 9170                                        | 790           | 2024/04/25 |
| Pre-amplifier                      | COM-POWER    | PAM-118A                                         | 18040084      | 2024/07/14 |
| Pre-amplifier                      | COM-POWER    | PAM-840A                                         | 461369        | 2024/04/26 |
| RE Cable                           | N/A          | W23.02 CP1-X2 + W23.09 AP1-X8+ JCT26S-NJ-NJ-1.5M | 4.5M+8M+1.5M  | 2024/04/20 |
| RF Cable                           | Yuhu         | JCTB810-NJ-NJ-9M+ ZT26S-SMAJ-SMAJ-1M             | 21123964      | 2024/04/22 |
| Band Reject Filter (2400-2500 MHz) | REBES        | BRM50702                                         | G555          | N/A        |
| Test Software                      | Tonscend     | JS32-RE                                          | V 5.0.0.1     | N/A        |

### 10.2. Block diagram of test setup

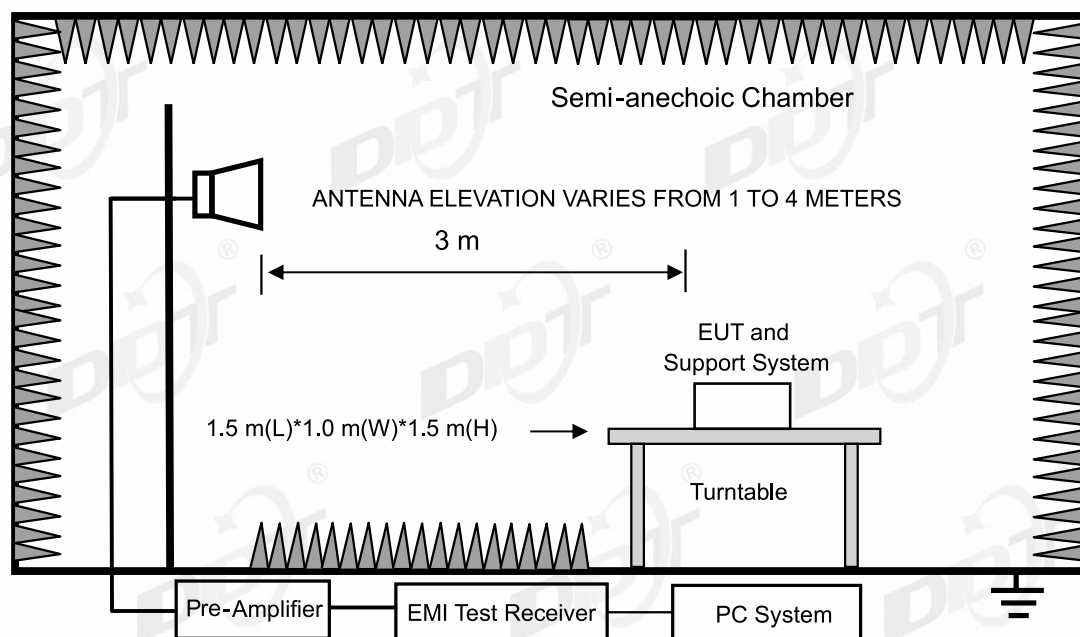
In 3 m Anechoic Chamber, test setup diagram for 9 kHz - 30 MHz:



In 3 m Anechoic Chamber, test setup diagram for 30 MHz - 1 GHz:



In 3 m Anechoic Chamber, test setup diagram for frequency above 1 GHz:



Note: Install an appropriate filter at the input of the measurement system power amplifier. This filter can attenuate the fundamental emission of the EUT and allow an accurate measurement of the associated harmonics and spurious emissions. The filter had been characterized, and the attenuation loss factors had been accounted for in the measurement results.

### 10.3. Limit

#### (1) FCC 15.205 Restricted frequency band

| MHz                      | MHz                 | MHz           | GHz              |
|--------------------------|---------------------|---------------|------------------|
| 0.090-0.110              | 16.42-16.423        | 399.9-410     | 4.5-5.15         |
| <sup>1</sup> 0.495-0.505 | 16.69475-16.69525   | 608-614       | 5.35-5.46        |
| 2.1735-2.1905            | 16.80425-16.80475   | 960-1240      | 7.25-7.75        |
| 4.125-4.128              | 25.5-25.67          | 1300-1427     | 8.025-8.5        |
| 4.1772&4.17775           | 37.5-38.25          | 1435-1626.5   | 9.0-9.2          |
| 4.2072&4.20775           | 73-74.6             | 1645.5-1646.5 | 9.3-9.5          |
| 6.215-6.218              | 74.8-75.2           | 1660-1710     | 10.6-12.7        |
| 6.26775-6.26825          | 108-121.94          | 1718.8-1722.2 | 13.25-13.4       |
| 6.31175-6.31225          | 123-138             | 2200-2300     | 14.47-14.5       |
| 8.291-8.294              | 149.9-150.05        | 2310-2390     | 15.35-16.2       |
| 8.362-8.366              | 156.52475-156.52525 | 2483.5-2500   | 17.7-21.4        |
| 8.37625-8.38675          | 156.7-156.9         | 2690-2900     | 22.01-23.12      |
| 8.41425-8.41475          | 162.0125-167.17     | 3260-3267     | 23.6-24.0        |
| 12.29-12.293             | 167.72-173.2        | 3332-3339     | 31.2-31.8        |
| 12.51975-12.52025        | 240-285             | 3345.8-3358   | 36.43-36.5       |
| 12.57675-12.57725        | 322-335.4           | 3600-4400     | ( <sup>2</sup> ) |
| 13.36-13.41              |                     |               |                  |

<sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup>Above 38.6

#### (2) FCC 15.209 Limit

| FREQUENCY<br>MHz | DISTANCE<br>Meters | FIELD STRENGTHS LIMIT                           |               |
|------------------|--------------------|-------------------------------------------------|---------------|
|                  |                    | μV/m                                            | dB(μV)/m      |
| 0.009 ~ 0.490    | 300                | 2400/F(kHz)                                     | 67.6-20log(F) |
| 0.490 ~ 1.705    | 30                 | 24000/F(kHz)                                    | 87.6-20log(F) |
| 1.705 ~ 30.0     | 30                 | 30                                              | 29.54         |
| 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                  | 74.0 dB(μV)/m (Peak)<br>54.0 dB(μV)/m (Average) |               |

Note:

(1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$\text{Limit}_{3m}(\text{dBuV/m}) = \text{Limit}_{30m}(\text{dBuV/m}) + 40\text{Log}(30\text{m}/3\text{m})$$

(3) Limit for this EUT

The emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, , all the other emissions shall be at least 20 dB below the fundamental emissions or comply with 15.209 limits.

#### 10.4. Test Procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber for below 1 G and 150 cm above the ground plane inside a semi-anechoic chamber for above 1 G.

(2) Test antenna was located 3 m from the EUT on an adjustable mast, and the antenna used as below table.

| Test frequency range | Test antenna used                              | Test antenna distance |
|----------------------|------------------------------------------------|-----------------------|
| 9 kHz - 30 MHz       | Active Loop antenna                            | 3 m                   |
| 30 MHz - 1 GHz       | Trilog Broadband Antenna                       | 3 m                   |
| 1 GHz - 18 GHz       | Double Ridged Horn Antenna<br>(1 GHz - 18 GHz) | 3 m                   |
| 18 GHz - 40 GHz      | Horn Antenna<br>(18 GHz - 40 GHz)              | 1 m                   |

According ANSI C63.10:2013 clause 6.4.6 and 6.5.3, for measurements below 30 MHz, Antenna was located 3 m from EUT, the loop antenna was positioned in three antenna orientations (parallel, perpendicular, and round-parallel), for each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable, and the lowest height of the magnetic antenna shall be 1 m above the ground. For measurement above 30 MHz, the Trilog Broadband Antenna or Horn Antenna was located 3 m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 25 GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1 m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9 kHz to 25 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so below final test was performed with frequency range from 30 MHz to 18 GHz.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(5) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz, for emissions from 9 kHz - 90 kHz, 110 kHz - 490 kHz and above 1 GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW

| Frequency band   | RBW     |
|------------------|---------|
| 9 kHz - 150 kHz  | 200 Hz  |
| 150 kHz - 30 MHz | 9 kHz   |
| 30 MHz - 1 GHz   | 120 kHz |

For emissions above 1 GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; According ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.

## 10.5. Test result

### Pass. (See below detailed test result)

All the emissions except fundamental emission from 9 kHz to 25 GHz were comply with 15.209 limits.

Note1: According exploratory test, the emission levels are 20 dB below the limit detected from 9 kHz to 30 MHz and 18 GHz to 25 GHz, so the final test was performed with frequency range from 30 MHz to 18 GHz and recorded in below.

Note2: 30 MHz ~ 25 GHz: (Scan with GFSK 1M, the worst case is reported)

Note3: For emissions below 1 GHz, according exploratory explorer test, when change Tx mode and channel, have no distinct influence on emissions level, so for emissions below 1 GHz, the final test was only performed with EUT working in GFSK 2M Tx 2480 MHz mode.

Note4: For emissions above 1 GHz. If peak results comply with AV limit, AV Result is deemed to comply with AV limit.

## Radiated Emission Test Result (below 1 GHz)

## TR-4-E-009 Radiated Emission Test Result

Test Date: 2024-01-09

Tested By: Bairong

EUT: Multimedia

Model Number: Kansas City 150

Test Mode: Tx mode

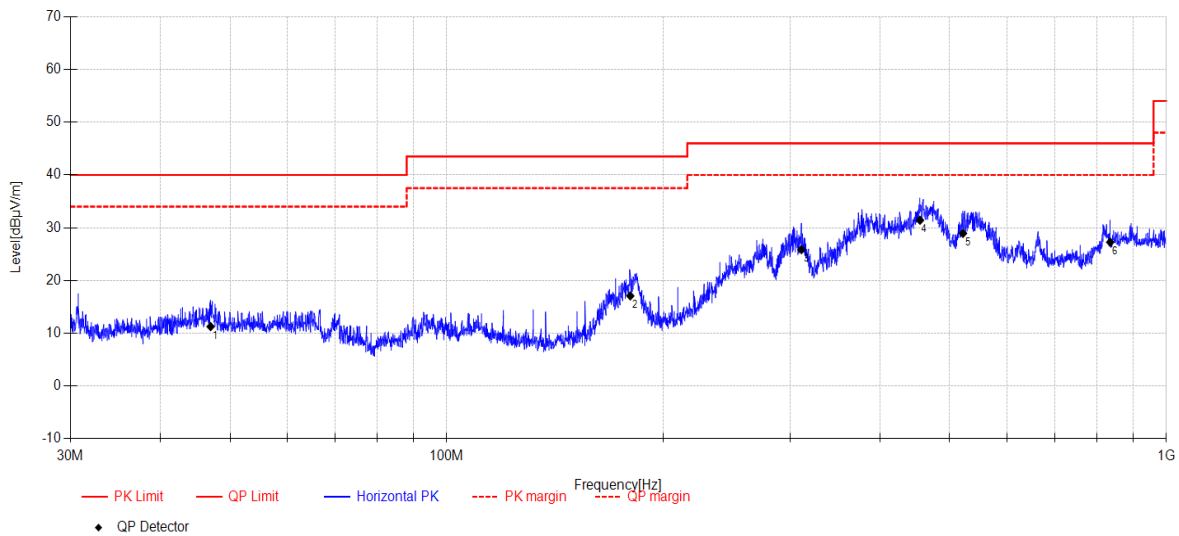
Power Supply: DC 12V

Condition: Temp:23.2°C;Humi:45.4%

Test Site: DDT 3# Chamber

File Path: d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC BELOW 1G\20240109-010113\_H

Memo: Sample Number: S23121811-003

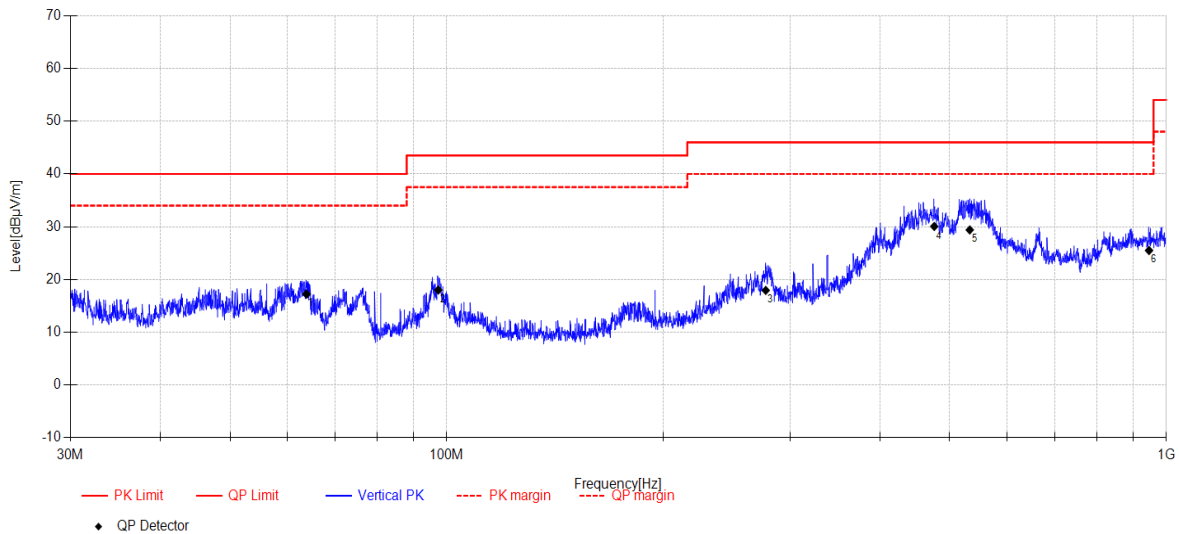


| Data List |             |                  |                     |                 |          |                 |                |             |          |            |
|-----------|-------------|------------------|---------------------|-----------------|----------|-----------------|----------------|-------------|----------|------------|
| NO.       | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable Loss [dB] | AMP [dB] | Result [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
| 1         | 46.99       | 24.33            | 12.99               | 4.69            | -30.75   | 11.26           | 40.00          | 28.74       | QP       | Horizontal |
| 2         | 179.95      | 32.48            | 9.69                | 5.57            | -30.66   | 17.08           | 43.50          | 26.42       | QP       | Horizontal |
| 3         | 311.16      | 36.57            | 13.35               | 6.21            | -30.28   | 25.85           | 46.00          | 20.15       | QP       | Horizontal |
| 4         | 454.70      | 38.59            | 15.99               | 6.83            | -29.99   | 31.42           | 46.00          | 14.58       | QP       | Horizontal |
| 5         | 521.69      | 35.04            | 16.77               | 7.02            | -29.90   | 28.93           | 46.00          | 17.07       | QP       | Horizontal |
| 6         | 835.69      | 28.53            | 20.19               | 8.11            | -29.58   | 27.25           | 46.00          | 18.75       | QP       | Horizontal |

## Note:

1. Result Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-09**Tested By:** Bairong**EUT:** Multimedia**Model Number:** Kansas City 150**Test Mode:** Tx mode**Power Supply:** DC 12V**Condition:** Temp:23.2°C;Humi:45.4%**Test Site:** DDT 3# Chamber**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC BELOW 1G\20240109-010155\_V**Memo:** Sample Number: S23121811-003

| Data List |             |                  |                     |                 |          |                 |                |             |          |          |
|-----------|-------------|------------------|---------------------|-----------------|----------|-----------------|----------------|-------------|----------|----------|
| NO.       | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable Loss [dB] | AMP [dB] | Result [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity |
| 1         | 63.84       | 30.75            | 12.32               | 4.77            | -30.61   | 17.23           | 40.00          | 22.77       | QP       | Vertical |
| 2         | 97.36       | 33.05            | 10.76               | 5.04            | -30.85   | 18.00           | 43.50          | 25.50       | QP       | Vertical |
| 3         | 277.55      | 29.8             | 12.45               | 6.06            | -30.37   | 17.94           | 46.00          | 28.06       | QP       | Vertical |
| 4         | 475.90      | 36.79            | 16.34               | 6.87            | -29.95   | 30.05           | 46.00          | 15.95       | QP       | Vertical |
| 5         | 533.15      | 35.17            | 17.07               | 7.06            | -29.90   | 29.40           | 46.00          | 16.60       | QP       | Vertical |
| 6         | 946.11      | 23.81            | 21.77               | 8.50            | -28.58   | 25.50           | 46.00          | 20.50       | QP       | Vertical |

**Note:**

- Result Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.
- Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

Radiated Emission Test Result (above 1 GHz)

TR-4-E-009 Radiated Emission Test Result

Test Date:

2024-01-04

Tested By:

Bairong

EUT:

Multimedia

Model Number:

Kansas City 150

Test Mode:

BLE 1M 2402MHz TX

Power Supply:

DC 12V

Condition:

Temp:23.2°C;Humi:45.4%

Test Site:

DDT 3# Chamber

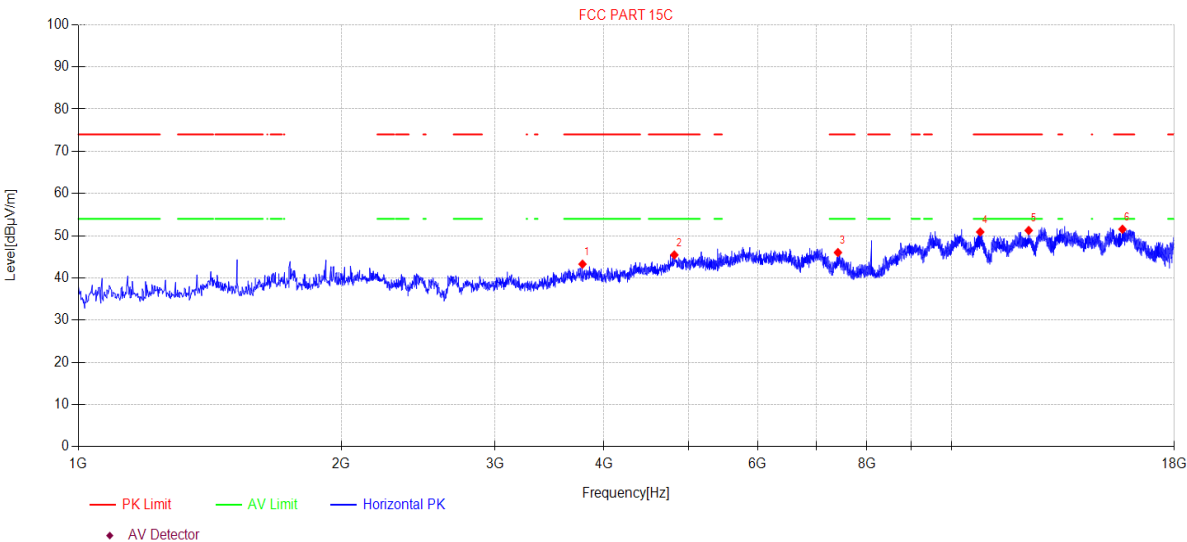
File Path:

d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\19

Memo:

Sample Number: S23121811-003

Test Graph



| Data List |             |                  |                     |                 |          |                |                |             |          |            |
|-----------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|------------|
| N O.      | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
| 1         | 3779.50     | 47.18            | 30.62               | 5.80            | -40.32   | 43.28          | 74.00          | 30.72       | PK       | Horizontal |
| 2         | 4814.80     | 45.22            | 32.88               | 7.50            | -40.15   | 45.45          | 74.00          | 28.55       | PK       | Horizontal |
| 3         | 7412.40     | 43.43            | 36.68               | 7.64            | -41.73   | 46.02          | 74.00          | 27.98       | PK       | Horizontal |
| 4         | 10788.60    | 41.00            | 39.40               | 9.50            | -39.01   | 50.89          | 74.00          | 23.11       | PK       | Horizontal |
| 5         | 12259.10    | 41.07            | 39.30               | 10.54           | -39.66   | 51.25          | 74.00          | 22.75       | PK       | Horizontal |
| 6         | 15698.20    | 37.70            | 38.50               | 14.51           | -39.18   | 51.53          | 74.00          | 22.47       | PK       | Horizontal |

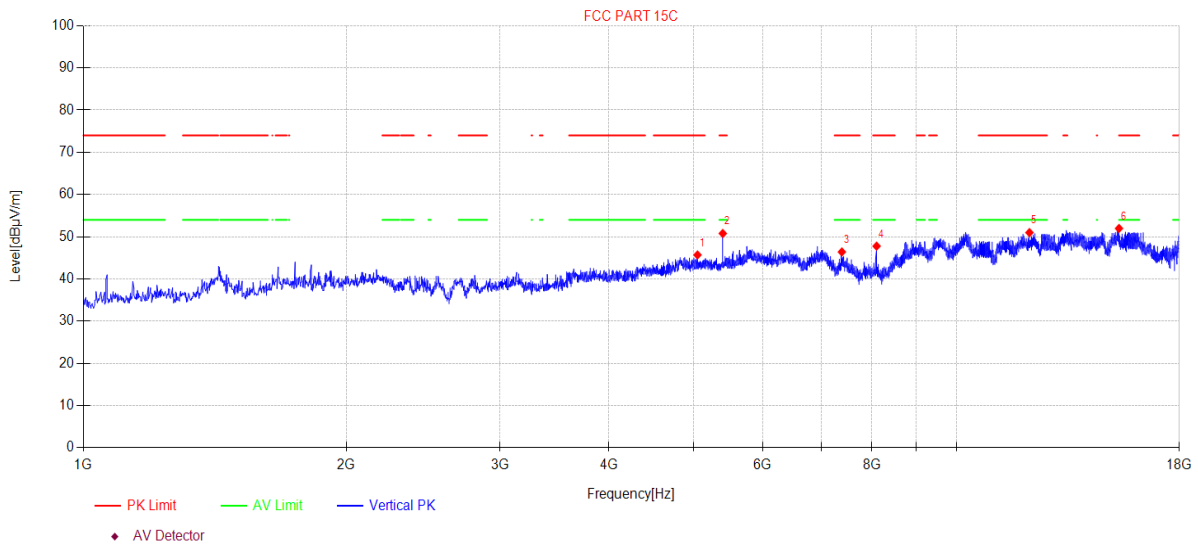
Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 1M 2402MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\20  
**Memo:** Sample Number: S23121811-003

### Test Graph



| Data List |             |                  |                     |                 |          |                |                |             |          |          |
|-----------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|----------|
| N O.      | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity |
| 1         | 5051.10     | 44.51            | 33.30               | 7.94            | -40.07   | 45.68          | 74.00          | 28.32       | PK       | Vertical |
| 2         | 5399.60     | 49.27            | 33.10               | 8.44            | -40.03   | 50.78          | 74.00          | 23.22       | PK       | Vertical |
| 3         | 7392.00     | 43.72            | 36.72               | 7.64            | -41.68   | 46.40          | 74.00          | 27.60       | PK       | Vertical |
| 4         | 8100.90     | 45.54            | 37.20               | 7.79            | -42.76   | 47.77          | 74.00          | 26.23       | PK       | Vertical |
| 5         | 12123.10    | 40.75            | 39.30               | 10.54           | -39.61   | 50.98          | 74.00          | 23.02       | PK       | Vertical |
| 6         | 15351.40    | 38.60            | 39.39               | 12.94           | -38.97   | 51.96          | 74.00          | 22.04       | PK       | Vertical |

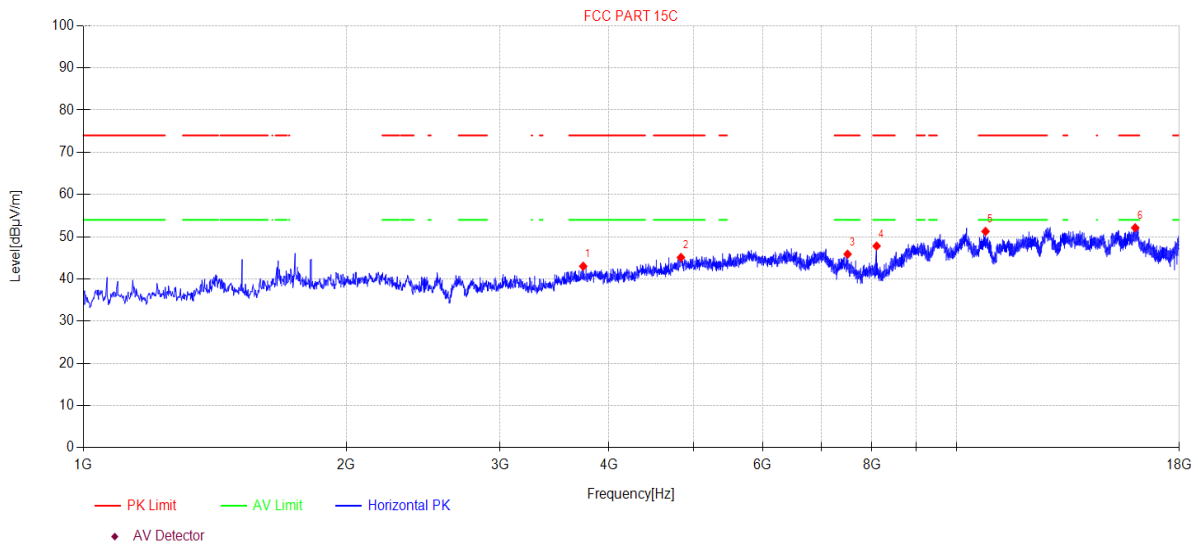
#### Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 1M 2440MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\21  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|------------|
| 1    | 3737.00     | 47.04            | 30.47               | 5.79            | -40.29   | 43.01          | 74.00          | 30.99       | PK       | Horizontal |
| 2    | 4835.20     | 44.27            | 33.42               | 7.54            | -40.14   | 45.09          | 74.00          | 28.91       | PK       | Horizontal |
| 3    | 7504.20     | 43.69            | 36.49               | 7.65            | -41.96   | 45.87          | 74.00          | 28.13       | PK       | Horizontal |
| 4    | 8100.90     | 45.56            | 37.20               | 7.79            | -42.76   | 47.79          | 74.00          | 26.21       | PK       | Horizontal |
| 5    | 10795.40    | 41.37            | 39.40               | 9.50            | -39.01   | 51.26          | 74.00          | 22.74       | PK       | Horizontal |
| 6    | 16021.20    | 37.71            | 37.98               | 15.80           | -39.38   | 52.11          | 74.00          | 21.89       | PK       | Horizontal |

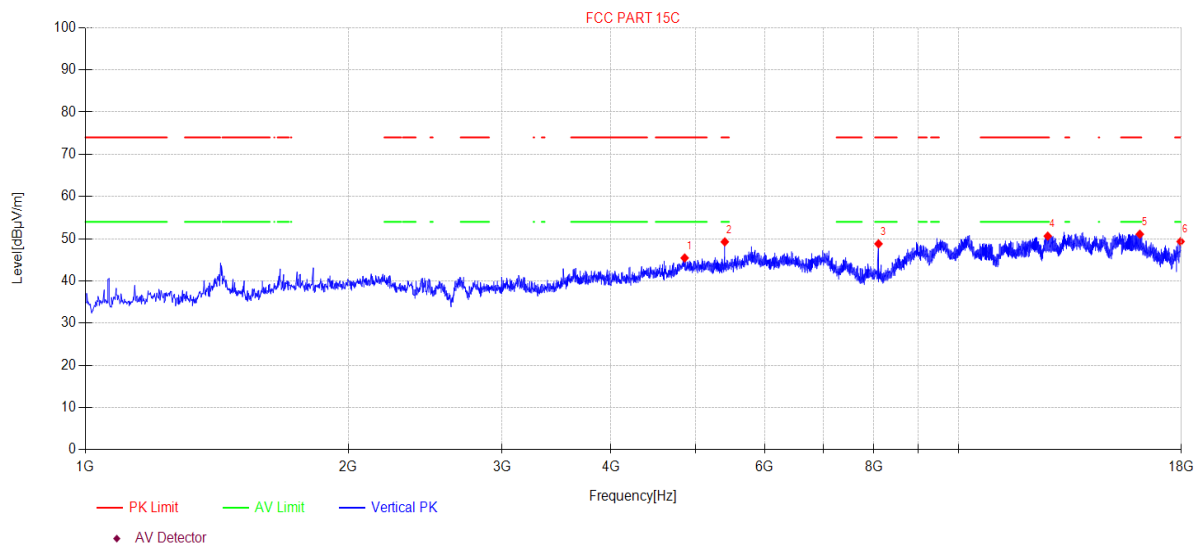
### Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 1M 2440MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\22  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|----------|
| 1    | 4857.30     | 44.32            | 33.68               | 7.58            | -40.13   | 45.45          | 74.00          | 28.55       | PK       | Vertical |
| 2    | 5399.60     | 47.75            | 33.10               | 8.44            | -40.03   | 49.26          | 74.00          | 24.74       | PK       | Vertical |
| 3    | 8099.20     | 46.57            | 37.20               | 7.78            | -42.76   | 48.79          | 74.00          | 25.21       | PK       | Vertical |
| 4    | 12655.20    | 40.39            | 39.51               | 10.54           | -39.82   | 50.62          | 74.00          | 23.38       | PK       | Vertical |
| 5    | 16133.40    | 37.32            | 37.87               | 15.35           | -39.47   | 51.07          | 74.00          | 22.93       | PK       | Vertical |
| 6    | 17966.00    | 36.34            | 42.23               | 13.09           | -42.32   | 49.34          | 74.00          | 24.66       | PK       | Vertical |

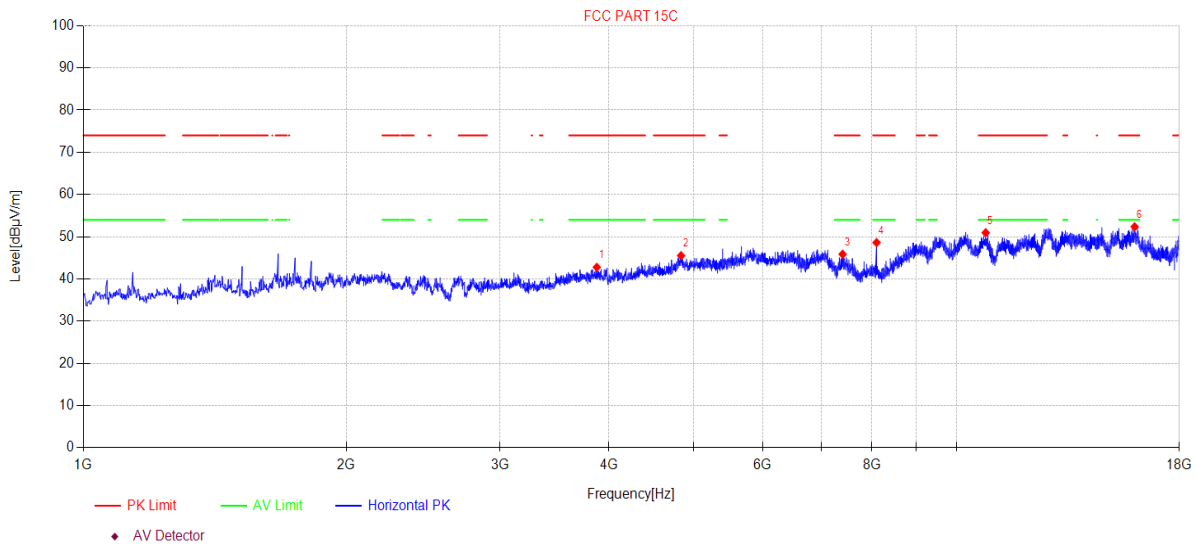
### Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 1M 2480MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\23  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|------------|
| 1    | 3873.00     | 46.28            | 31.04               | 5.82            | -40.37   | 42.77          | 74.00          | 31.23       | PK       | Horizontal |
| 2    | 4836.90     | 44.66            | 33.46               | 7.54            | -40.14   | 45.52          | 74.00          | 28.48       | PK       | Horizontal |
| 3    | 7407.30     | 43.25            | 36.69               | 7.64            | -41.72   | 45.86          | 74.00          | 28.14       | PK       | Horizontal |
| 4    | 8100.90     | 46.39            | 37.20               | 7.79            | -42.76   | 48.62          | 74.00          | 25.38       | PK       | Horizontal |
| 5    | 10800.50    | 41.06            | 39.40               | 9.51            | -39.02   | 50.95          | 74.00          | 23.05       | PK       | Horizontal |
| 6    | 15999.10    | 37.85            | 38.00               | 15.88           | -39.36   | 52.37          | 74.00          | 21.63       | PK       | Horizontal |

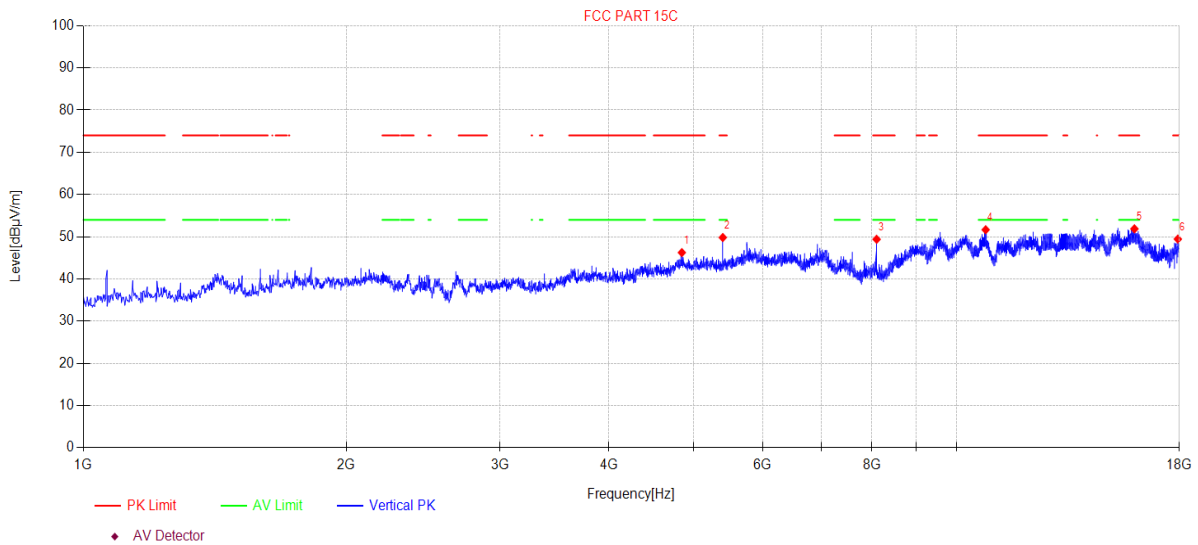
### Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04  
**Tested By:** Bairong  
**EUT:** Multimedia  
**Model Number:** Kansas City 150  
**Test Mode:** BLE 1M 2480MHz TX  
**Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4%  
**Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\24  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|----------|
| 1    | 4847.10     | 45.10            | 33.72               | 7.56            | -40.14   | 46.24          | 74.00          | 27.76       | PK       | Vertical |
| 2    | 5399.60     | 48.30            | 33.10               | 8.44            | -40.03   | 49.81          | 74.00          | 24.19       | PK       | Vertical |
| 3    | 8100.90     | 47.16            | 37.20               | 7.79            | -42.76   | 49.39          | 74.00          | 24.61       | PK       | Vertical |
| 4    | 10800.50    | 41.76            | 39.40               | 9.51            | -39.02   | 51.65          | 74.00          | 22.35       | PK       | Vertical |
| 5    | 15988.90    | 37.38            | 38.01               | 15.83           | -39.35   | 51.87          | 74.00          | 22.13       | PK       | Vertical |
| 6    | 17928.60    | 36.60            | 42.04               | 13.04           | -42.24   | 49.44          | 74.00          | 24.56       | PK       | Vertical |

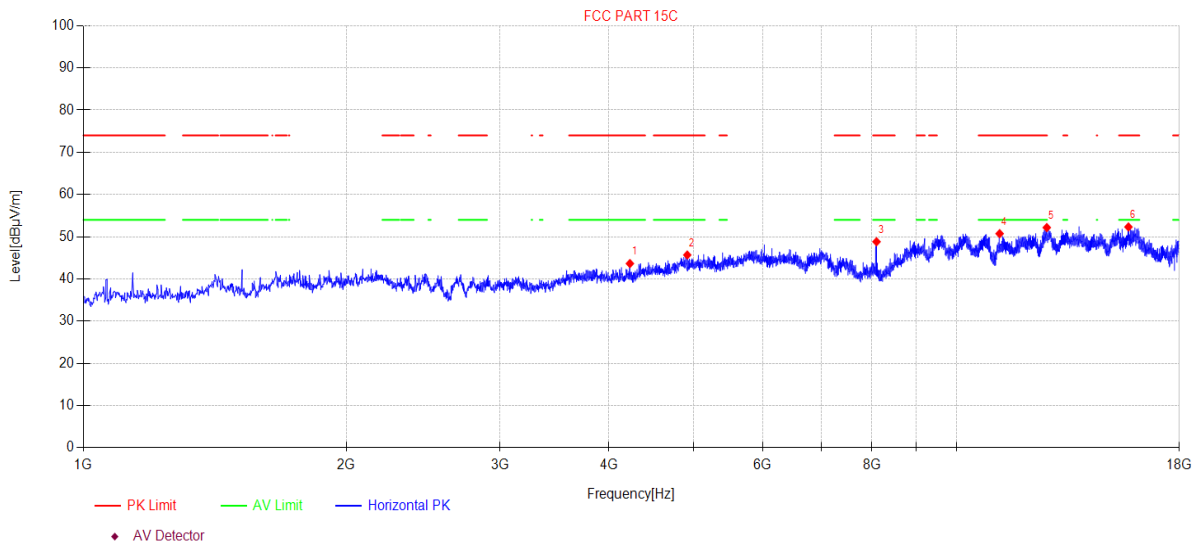
### Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 2M 2404MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\25  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|------------|
| 1    | 4226.60     | 46.39            | 31.31               | 6.31            | -40.37   | 43.64          | 74.00          | 30.36       | PK       | Horizontal |
| 2    | 4916.80     | 45.06            | 33.03               | 7.70            | -40.11   | 45.68          | 74.00          | 28.32       | PK       | Horizontal |
| 3    | 8099.20     | 46.60            | 37.20               | 7.78            | -42.76   | 48.82          | 74.00          | 25.18       | PK       | Horizontal |
| 4    | 11205.10    | 40.89            | 39.20               | 9.83            | -39.19   | 50.73          | 74.00          | 23.27       | PK       | Horizontal |
| 5    | 12690.90    | 41.88            | 39.58               | 10.54           | -39.83   | 52.17          | 74.00          | 21.83       | PK       | Horizontal |
| 6    | 15739.00    | 38.40            | 38.42               | 14.70           | -39.20   | 52.32          | 74.00          | 21.68       | PK       | Horizontal |

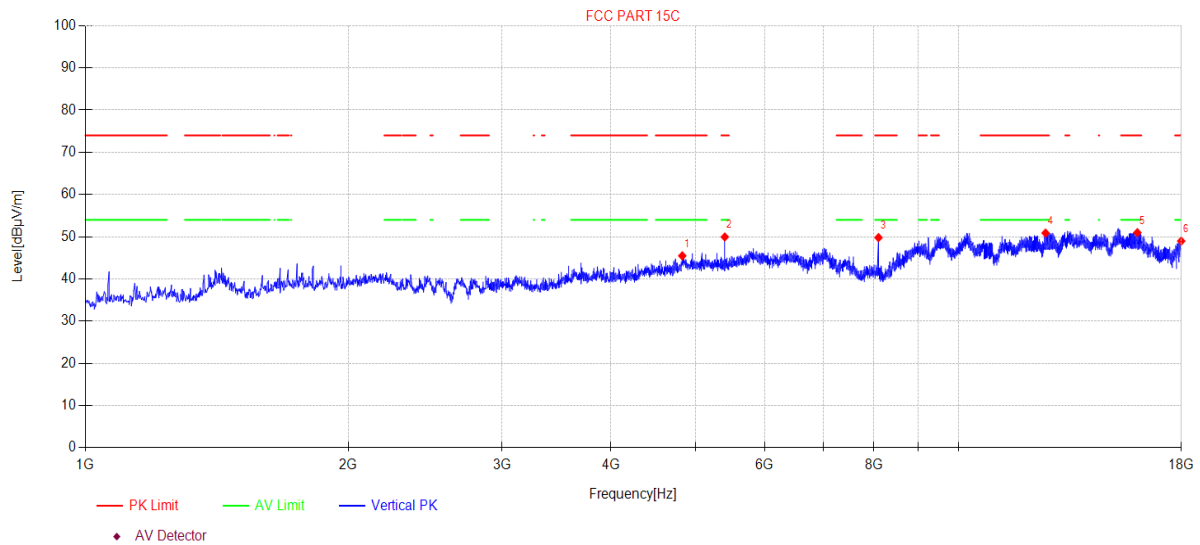
### Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 2M 2404MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\26  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|----------|
| 1    | 4826.70     | 44.91            | 33.19               | 7.52            | -40.14   | 45.48          | 74.00          | 28.52       | PK       | Vertical |
| 2    | 5399.60     | 48.44            | 33.10               | 8.44            | -40.03   | 49.95          | 74.00          | 24.05       | PK       | Vertical |
| 3    | 8099.20     | 47.58            | 37.20               | 7.78            | -42.76   | 49.80          | 74.00          | 24.20       | PK       | Vertical |
| 4    | 12582.10    | 40.72            | 39.40               | 10.54           | -39.79   | 50.87          | 74.00          | 23.13       | PK       | Vertical |
| 5    | 16029.70    | 36.62            | 37.97               | 15.76           | -39.38   | 50.97          | 74.00          | 23.03       | PK       | Vertical |
| 6    | 17993.20    | 35.86            | 42.37               | 13.12           | -42.38   | 48.97          | 74.00          | 25.03       | PK       | Vertical |

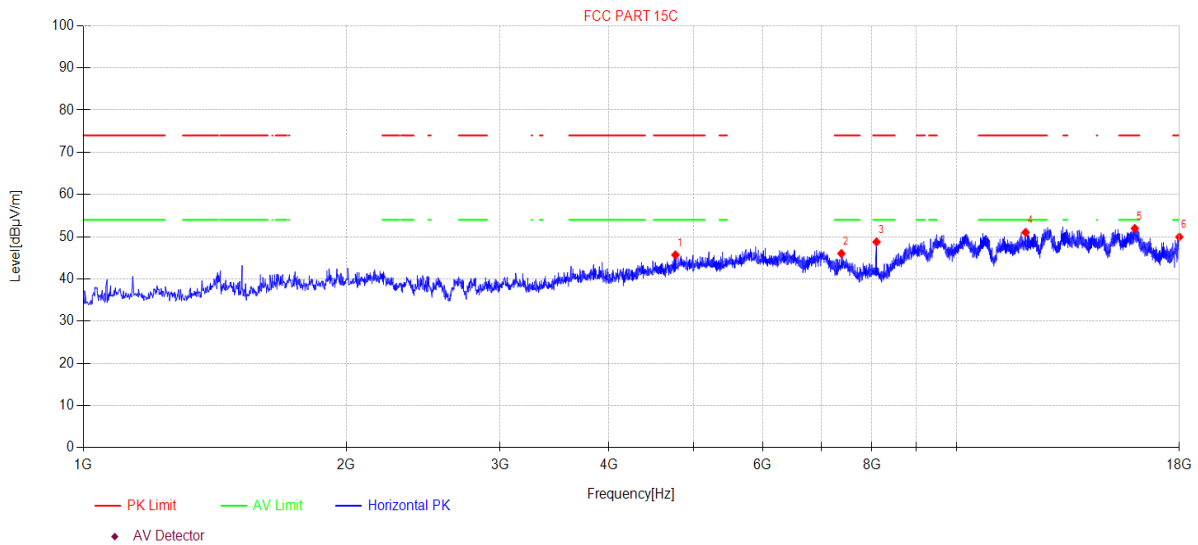
### Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 2M 2440MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\27  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|------------|
| 1    | 4765.50     | 46.10            | 32.36               | 7.40            | -40.17   | 45.69          | 74.00          | 28.31       | PK       | Horizontal |
| 2    | 7381.80     | 43.29            | 36.74               | 7.64            | -41.65   | 46.02          | 74.00          | 27.98       | PK       | Horizontal |
| 3    | 8099.20     | 46.54            | 37.20               | 7.78            | -42.76   | 48.76          | 74.00          | 25.24       | PK       | Horizontal |
| 4    | 12000.70    | 40.85            | 39.20               | 10.54           | -39.56   | 51.03          | 74.00          | 22.97       | PK       | Horizontal |
| 5    | 16005.90    | 37.47            | 37.99               | 15.86           | -39.36   | 51.96          | 74.00          | 22.04       | PK       | Horizontal |
| 6    | 18000.00    | 36.82            | 42.40               | 13.13           | -42.40   | 49.95          | 74.00          | 24.05       | PK       | Horizontal |

### Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

TR-4-E-009 Radiated Emission Test Result

Test Date:

2024-01-04

Tested By:

Bairong

EUT:

Multimedia

Model Number:

Kansas City 150

Test Mode:

BLE 2M 2440MHz TX

Power Supply:

DC 12V

Condition:

Temp:23.2°C;Humi:45.4%

Test Site:

DDT 3# Chamber

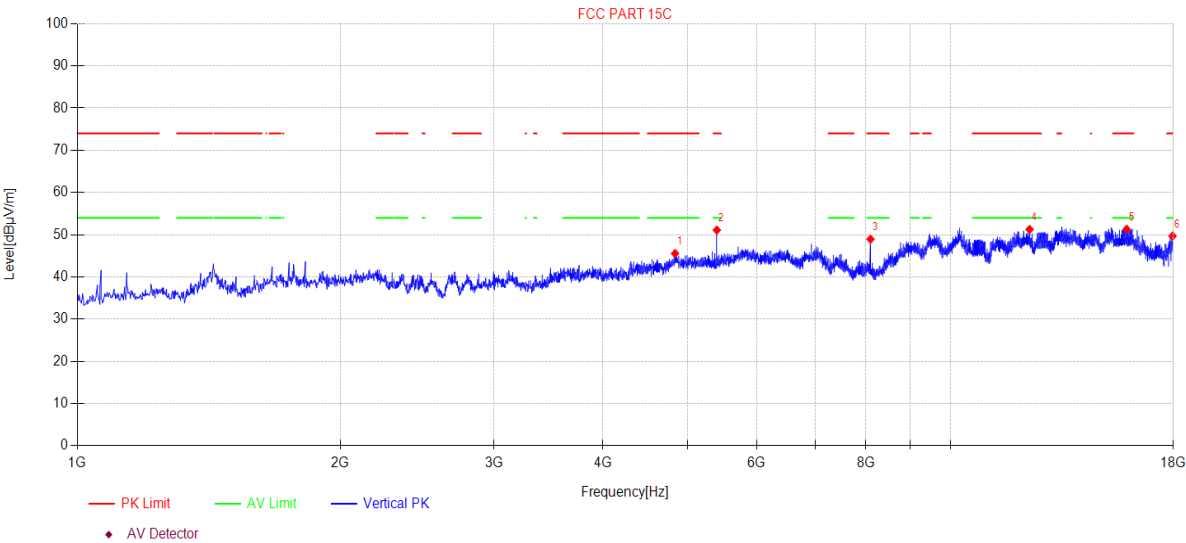
File Path:

d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\28

Memo:

Sample Number: S23121811-003

Test Graph



| Data List |             |                  |                     |                 |          |                |                |             |          |          |
|-----------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|----------|
| N O.      | Freq. [MHz] | Reading [dBµV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBµV/m] | Limit [dBµV/m] | Margin [dB] | Detector | Polarity |
| 1         | 4836.90     | 44.70            | 33.46               | 7.54            | -40.14   | 45.56          | 74.00          | 28.44       | PK       | Vertical |
| 2         | 5399.60     | 49.59            | 33.10               | 8.44            | -40.03   | 51.10          | 74.00          | 22.90       | PK       | Vertical |
| 3         | 8099.20     | 46.72            | 37.20               | 7.78            | -42.76   | 48.94          | 74.00          | 25.06       | PK       | Vertical |
| 4         | 12322.00    | 41.11            | 39.30               | 10.54           | -39.69   | 51.26          | 74.00          | 22.74       | PK       | Vertical |
| 5         | 15919.20    | 37.02            | 38.08               | 15.51           | -39.31   | 51.30          | 74.00          | 22.70       | PK       | Vertical |
| 6         | 17960.90    | 36.73            | 42.20               | 13.08           | -42.31   | 49.70          | 74.00          | 24.30       | PK       | Vertical |

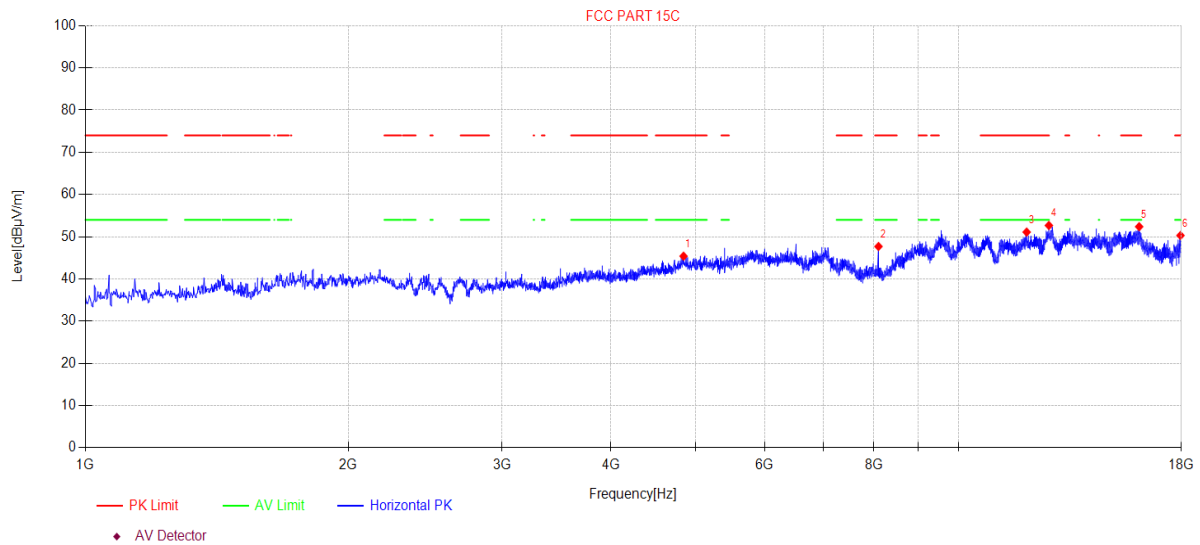
Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 2M 2478MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\29  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|------------|
| 1    | 4843.70     | 44.34            | 33.64               | 7.55            | -40.14   | 45.39          | 74.00          | 28.61       | PK       | Horizontal |
| 2    | 8099.20     | 45.47            | 37.20               | 7.78            | -42.76   | 47.69          | 74.00          | 26.31       | PK       | Horizontal |
| 3    | 11970.10    | 41.03            | 39.11               | 10.51           | -39.55   | 51.10          | 74.00          | 22.90       | PK       | Horizontal |
| 4    | 12692.60    | 42.37            | 39.59               | 10.54           | -39.83   | 52.67          | 74.00          | 21.33       | PK       | Horizontal |
| 5    | 16104.50    | 38.45            | 37.90               | 15.47           | -39.44   | 52.38          | 74.00          | 21.62       | PK       | Horizontal |
| 6    | 17959.20    | 37.32            | 42.20               | 13.08           | -42.31   | 50.29          | 74.00          | 23.71       | PK       | Horizontal |

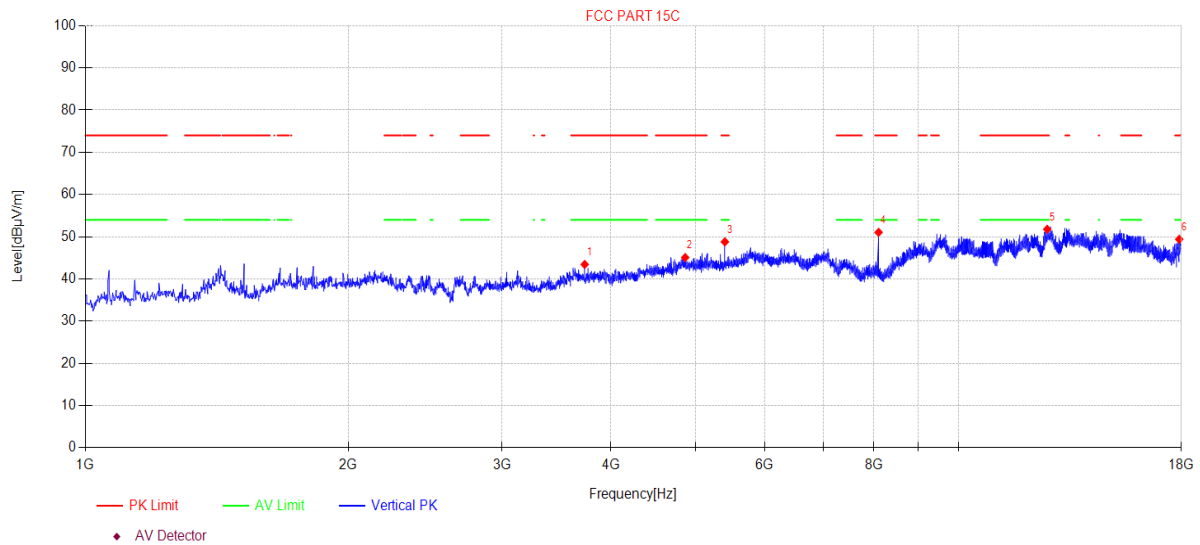
### Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 2M 2478MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\30  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|----------|
| 1    | 3731.90     | 47.48            | 30.46               | 5.79            | -40.29   | 43.44          | 74.00          | 30.56       | PK       | Vertical |
| 2    | 4864.10     | 44.04            | 33.57               | 7.60            | -40.13   | 45.08          | 74.00          | 28.92       | PK       | Vertical |
| 3    | 5401.30     | 47.28            | 33.10               | 8.44            | -40.03   | 48.79          | 74.00          | 25.21       | PK       | Vertical |
| 4    | 8100.90     | 48.81            | 37.20               | 7.79            | -42.76   | 51.04          | 74.00          | 22.96       | PK       | Vertical |
| 5    | 12636.50    | 41.58            | 39.47               | 10.54           | -39.81   | 51.78          | 74.00          | 22.22       | PK       | Vertical |
| 6    | 17899.70    | 36.67            | 41.90               | 13.01           | -42.18   | 49.40          | 74.00          | 24.60       | PK       | Vertical |

### Note:

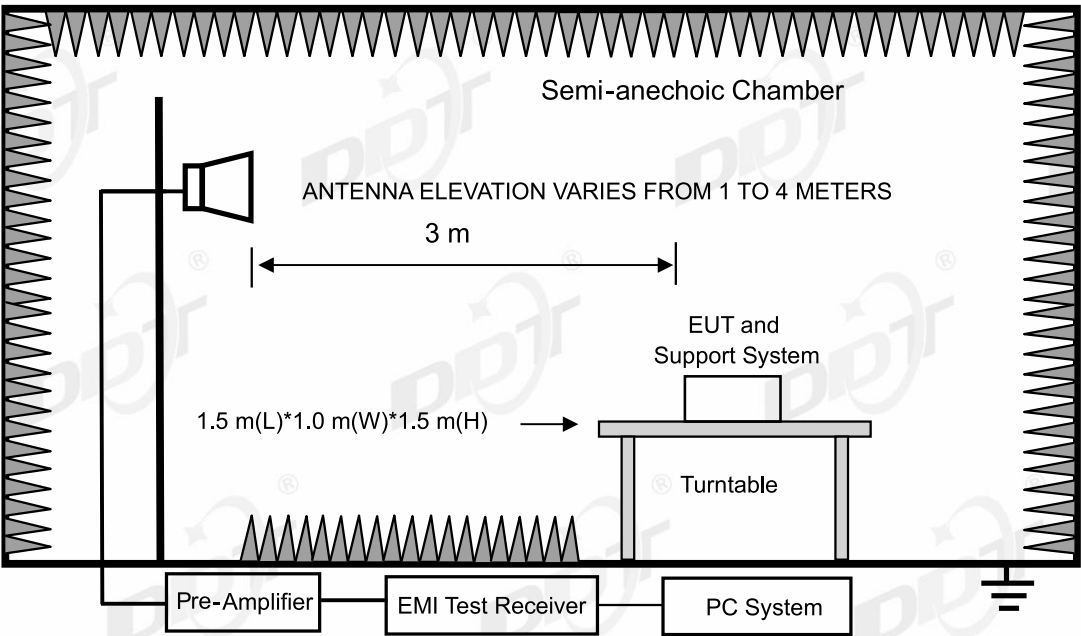
- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

11. Emissions in Restricted Frequency Bands

11.1. Test equipment

| Equipment                  | Manufacturer | Model No.                               | Serial Number | Due Date   |
|----------------------------|--------------|-----------------------------------------|---------------|------------|
| ☑Radiation 3#Chamber       |              |                                         |               |            |
| EMI TEST RECEIVER          | R&S          | ESU26                                   | 100472        | 2024/04/22 |
| Double Ridged Horn Antenna | Schwarzbeck  | BBHA 9120 D                             | 02468         | 2024/09/17 |
| Pre-amplifier              | COM-POWER    | PAM-118A                                | 18040084      | 2024/07/14 |
| RF Cable                   | Yuhu         | JCTB810-NJ-NJ-9M+<br>ZT26S-SMAJ-SMAJ-1M | 21123964      | 2024/04/22 |
| Test Software              | Tonscend     | JS32-RE                                 | V 5.0.0.1     | N/A        |

11.2. Block diagram of test setup



11.3. Limit

All restriction band should comply with 15.209, other emission should be at least 20 dB below the fundamental.

11.4. Test procedure

Same with Radiated Emission except change investigated frequency range.

Remark: All restriction band have been tested, and only the worst case is shown in report.

11.5. Test result

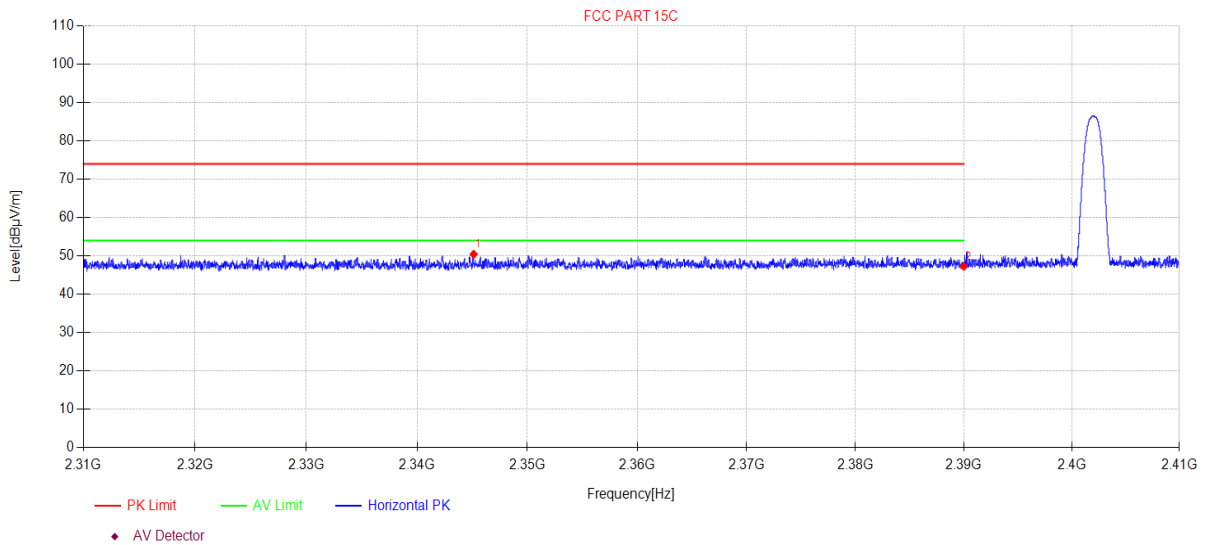
Pass. (See below detailed test result)

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04  
**EUT:** Multimedia  
**Test Mode:** BLE 1M 2402MHz TX  
**Condition:** Temp:23.2°C;Humi:45.4%  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\31  
**Memo:** Sample Number: S23121811-003

**Tested By:** Bairong  
**Model Number:** Kansas City 150  
**Power Supply:** DC 12V  
**Test Site:** DDT 3# Chamber

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|------------|
| 1    | 2345.13     | 19.54            | 27.07               | 3.83            | 0.00     | 50.44          | 74.00          | 23.56       | PK       | Horizontal |
| 2    | 2390.00     | 16.15            | 27.26               | 3.87            | 0.00     | 47.28          | 74.00          | 26.72       | PK       | Horizontal |

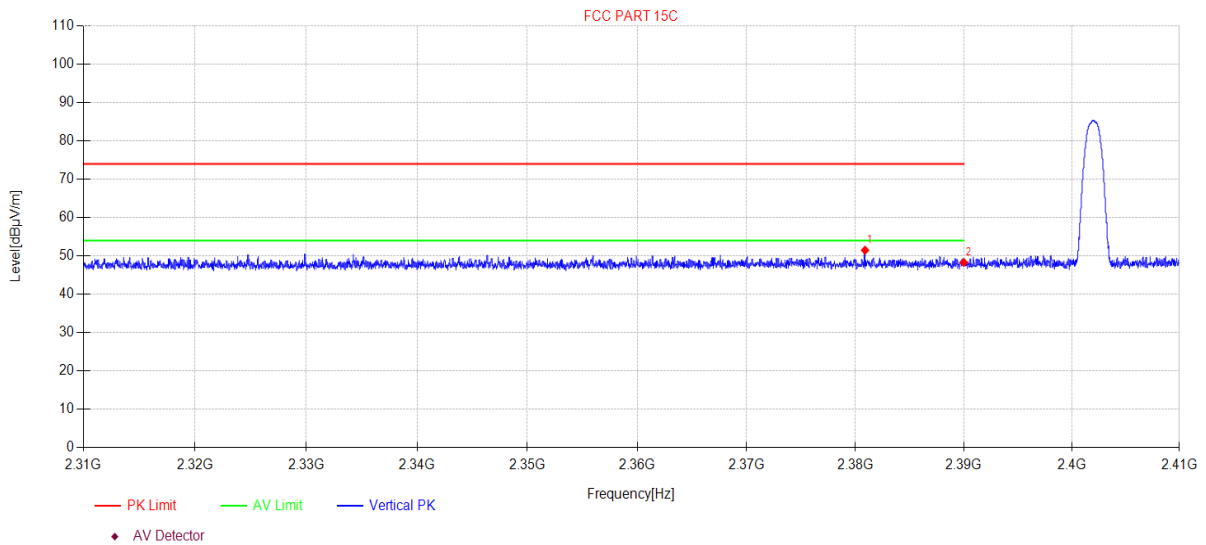
### Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 1M 2402MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\32  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|----------|
| 1    | 2380.89     | 20.41            | 27.22               | 3.86            | 0.00     | 51.49          | 74.00          | 22.51       | PK       | Vertical |
| 2    | 2390.00     | 17.15            | 27.26               | 3.87            | 0.00     | 48.28          | 74.00          | 25.72       | PK       | Vertical |

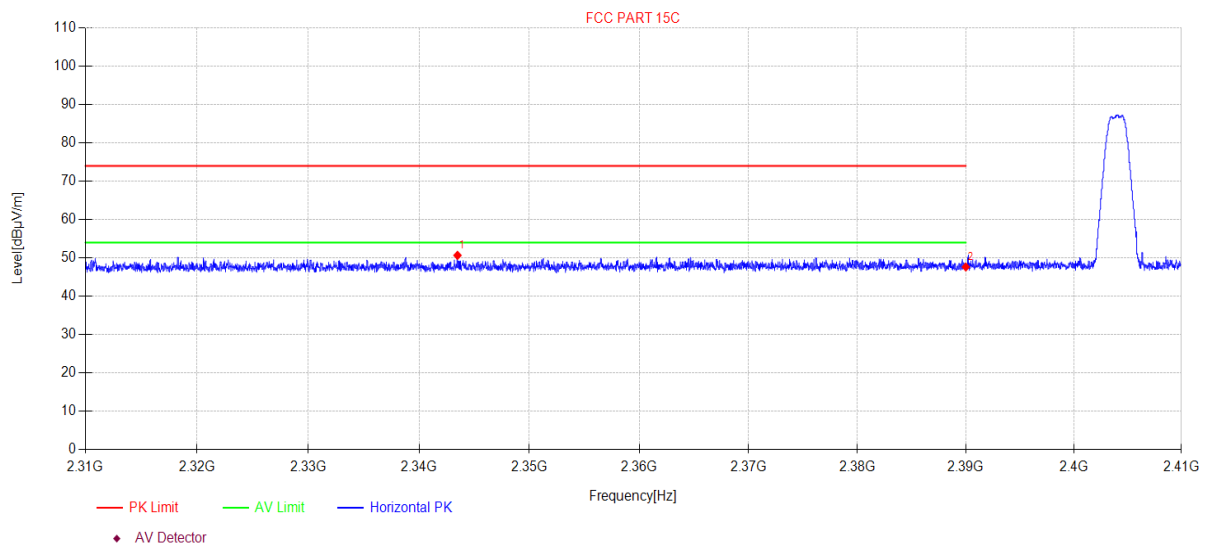
### Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 2M 2404MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\33  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|------------|
| 1    | 2343.48     | 19.77            | 27.06               | 3.83            | 0.00     | 50.66          | 74.00          | 23.34       | PK       | Horizontal |
| 2    | 2390.00     | 16.51            | 27.26               | 3.87            | 0.00     | 47.64          | 74.00          | 26.36       | PK       | Horizontal |

### Note:

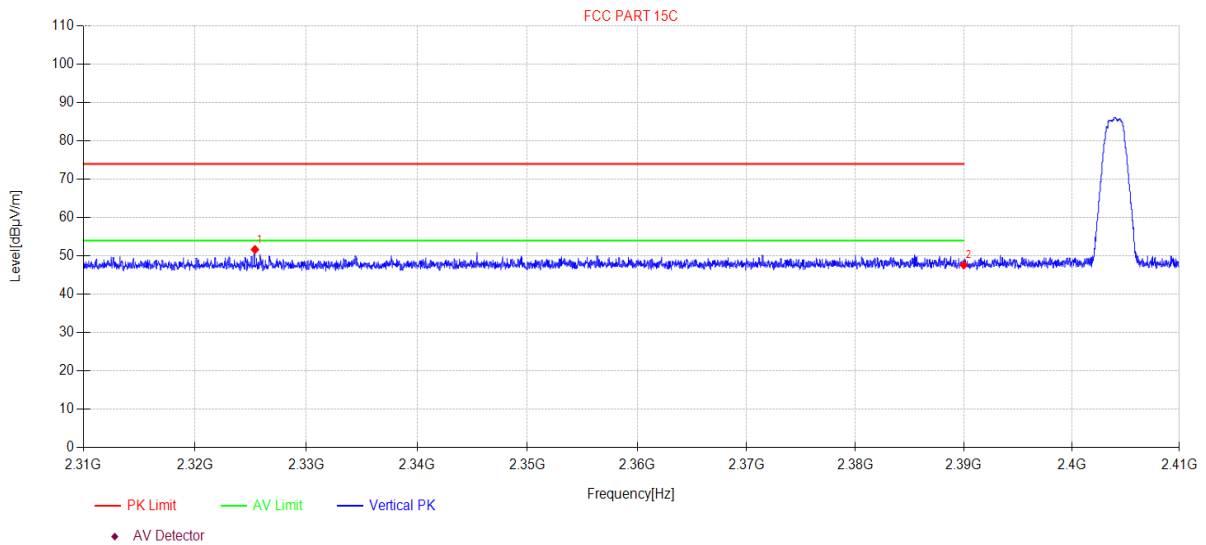
1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04  
**EUT:** Multimedia  
**Test Mode:** BLE 2M 2404MHz TX  
**Condition:** Temp:23.2°C;Humi:45.4%  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\34  
**Memo:** Sample Number: S23121811-003

**Tested By:** Bairong  
**Model Number:** Kansas City 150  
**Power Supply:** DC 12V  
**Test Site:** DDT 3# Chamber

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|----------|
| 1    | 2325.38     | 20.89            | 26.95               | 3.82            | 0.00     | 51.66          | 74.00          | 22.34       | PK       | Vertical |
| 2    | 2390.00     | 16.52            | 27.26               | 3.87            | 0.00     | 47.65          | 74.00          | 26.35       | PK       | Vertical |

### Note:

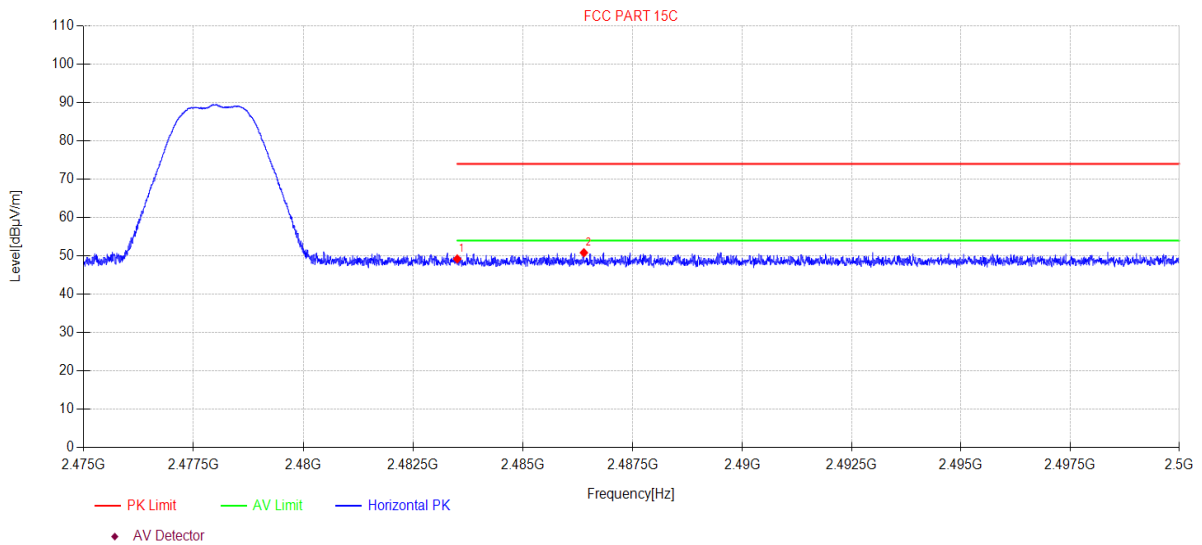
1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04  
**EUT:** Multimedia  
**Test Mode:** BLE 2M 2478MHz TX  
**Condition:** Temp:23.2°C;Humi:45.4%  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\35  
**Memo:** Sample Number: S23121811-003

**Tested By:** Bairong  
**Model Number:** Kansas City 150  
**Power Supply:** DC 12V  
**Test Site:** DDT 3# Chamber

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|------------|
| 1    | 2483.50     | 17.74            | 27.53               | 3.94            | 0.00     | 49.21          | 74.00          | 24.79       | PK       | Horizontal |
| 2    | 2486.39     | 19.35            | 27.55               | 3.94            | 0.00     | 50.84          | 74.00          | 23.16       | PK       | Horizontal |

### Note:

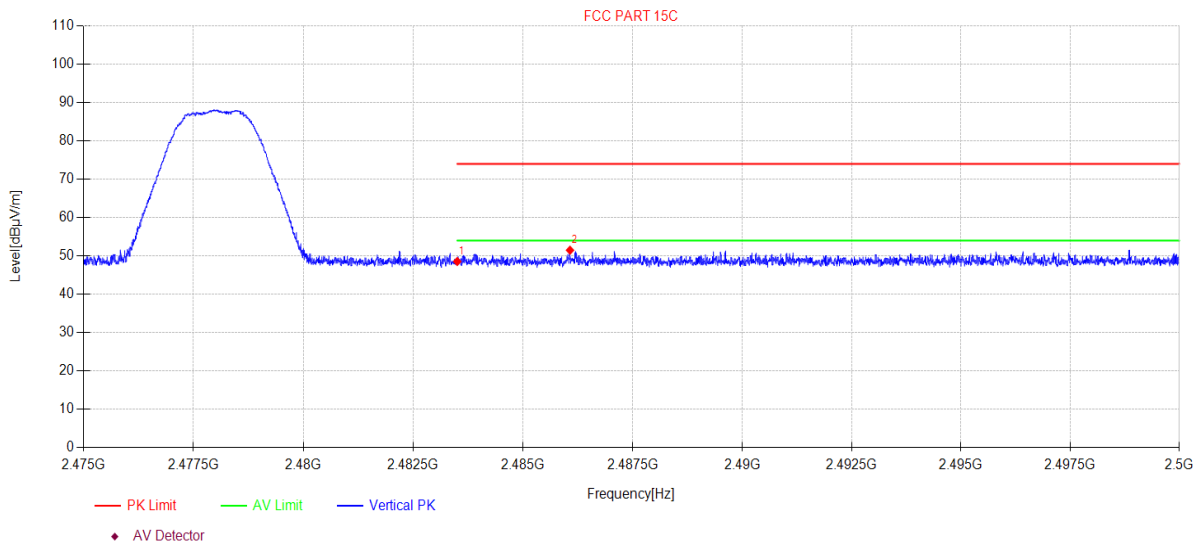
1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04  
**EUT:** Multimedia  
**Test Mode:** BLE 2M 2478MHz TX  
**Condition:** Temp:23.2°C;Humi:45.4%  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\36  
**Memo:** Sample Number: S23121811-003

**Tested By:** Bairong  
**Model Number:** Kansas City 150  
**Power Supply:** DC 12V  
**Test Site:** DDT 3# Chamber

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|----------|
| 1    | 2483.50     | 17.07            | 27.53               | 3.94            | 0.00     | 48.54          | 74.00          | 25.46       | PK       | Vertical |
| 2    | 2486.07     | 20.01            | 27.54               | 3.94            | 0.00     | 51.49          | 74.00          | 22.51       | PK       | Vertical |

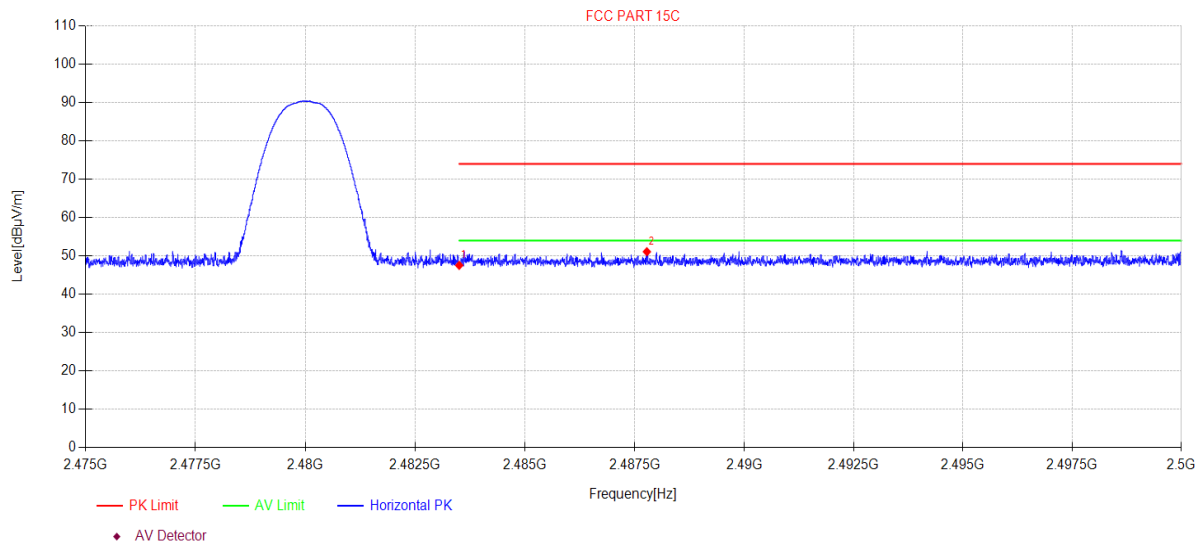
### Note:

1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04 **Tested By:** Bairong  
**EUT:** Multimedia **Model Number:** Kansas City 150  
**Test Mode:** BLE 1M 2480MHz TX **Power Supply:** DC 12V  
**Condition:** Temp:23.2°C;Humi:45.4% **Test Site:** DDT 3# Chamber  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\37  
**Memo:** Sample Number: S23121811-003

### Test Graph



### Data List

| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity   |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|------------|
| 1    | 2483.50     | 16.07            | 27.53               | 3.94            | 0.00     | 47.54          | 74.00          | 26.46       | PK       | Horizontal |
| 2    | 2487.78     | 19.60            | 27.55               | 3.94            | 0.00     | 51.09          | 74.00          | 22.91       | PK       | Horizontal |

### Note:

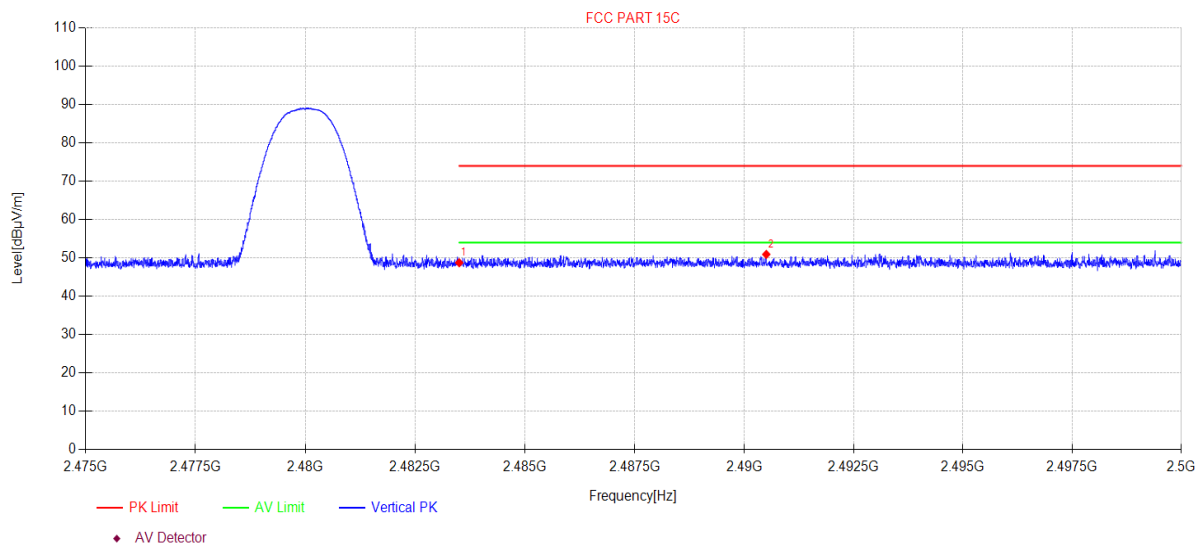
1. Level = Reading + Cable loss + Antenna Factor + AMP
2. If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Date:** 2024-01-04  
**EUT:** Multimedia  
**Test Mode:** BLE 1M 2480MHz TX  
**Condition:** Temp:23.2°C;Humi:45.4%  
**File Path:** d:\ts\2024 report data\Q23121811-2E Kansas City 150\FCC ABOVE 1G BT&BLE\38  
**Memo:** Sample Number: S23121811-003

**Tested By:** Bairong  
**Model Number:** Kansas City 150  
**Power Supply:** DC 12V  
**Test Site:** DDT 3# Chamber

### Test Graph



### Data List

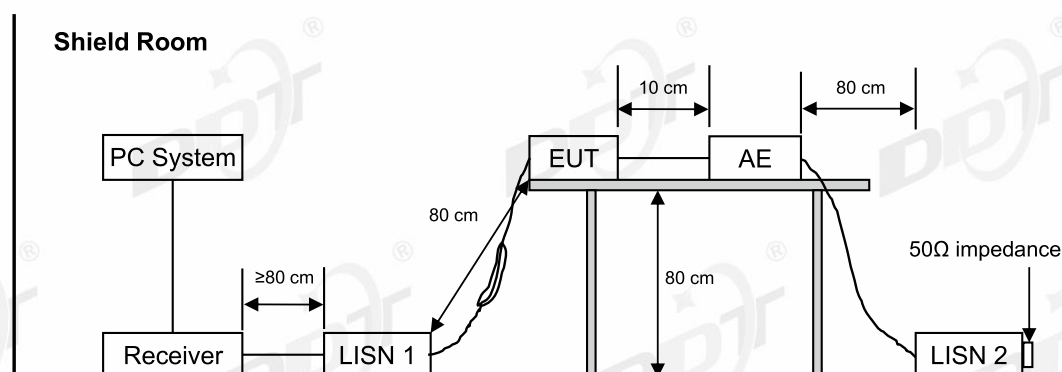
| N O. | Freq. [MHz] | Reading [dBμV/m] | Antenna Factor [dB] | Cable loss [dB] | AMP [dB] | Level [dBμV/m] | Limit [dBμV/m] | Margin [dB] | Detector | Polarity |
|------|-------------|------------------|---------------------|-----------------|----------|----------------|----------------|-------------|----------|----------|
| 1    | 2483.50     | 17.27            | 27.53               | 3.94            | 0.00     | 48.74          | 74.00          | 25.26       | PK       | Vertical |
| 2    | 2490.50     | 19.42            | 27.56               | 3.94            | 0.00     | 50.92          | 74.00          | 23.08       | PK       | Vertical |

### Note:

- Level = Reading + Cable loss + Antenna Factor + AMP
- If Peak Result complies with AV limit, AV Result is deemed to comply with AV limit.
- Test setup: RBW: 1 MHz, VBW: 3 MHz, Sweep time: auto.

## 12. Power Line Conducted Emission

### 12.1. Block diagram of test setup



### 12.2. Power line conducted emission limits

| Frequency         | Quasi-Peak Level<br>dB( $\mu$ V) | Average Level<br>dB( $\mu$ V) |
|-------------------|----------------------------------|-------------------------------|
| 150 kHz ~ 500 kHz | 66 ~ 56*                         | 56 ~ 46*                      |
| 500 kHz ~ 5 MHz   | 56                               | 46                            |
| 5 MHz ~ 30 MHz    | 60                               | 50                            |

Note 1: \* Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

### 12.3. Test procedure

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80 cm above the ground plane.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 kHz.

#### **12.4. Test result**

Not Applicable

Remark: Conducted limits are not required for devices which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines according to 15.207(C).

## 13. Antenna Requirements

### 13.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 13.2. Result

The antenna used for this product as Antenna information described in section 2.1 of this report, and there is no other antenna than that furnished by the responsible party shall be used with the device.

## 15. Photos of the EUT

Please refer to DDT-Q23121811-1E appendix I.

**END OF REPORT**