

|                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                               |                                                                                                                                      |                             |                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------------------|
| <b>Prüfbericht-Nr.:</b><br><i>Test report No.:</i>                                                                                                                                                                                                                                                                                                                                                                                                         | <b>50324151 001</b>                                                                                                                                                           | <b>Auftrags-Nr.:</b><br><i>Order No.:</i>                                                                                            | 168136562                   | <b>Seite 1 von 26</b><br><i>Page 1 of 26</i> |
| <b>Kunden-Referenz-Nr.:</b><br><i>Client reference No.:</i>                                                                                                                                                                                                                                                                                                                                                                                                | N/A                                                                                                                                                                           | <b>Auftragsdatum:</b><br><i>Order date.:</i>                                                                                         | 12.11.2019                  |                                              |
| <b>Auftraggeber:</b><br><i>Client:</i>                                                                                                                                                                                                                                                                                                                                                                                                                     | <b>UP Global Sourcing Ltd.</b><br>UP Global Sourcing, Manor Mill, Victoria Street, Chadderton, Oldham, OL9 0DD, United Kingdom                                                |                                                                                                                                      |                             |                                              |
| <b>Prüfgegenstand:</b><br><i>Test item:</i>                                                                                                                                                                                                                                                                                                                                                                                                                | Tower Speaker                                                                                                                                                                 |                                                                                                                                      |                             |                                              |
| <b>Bezeichnung / Typ-Nr.:</b><br><i>Identification / Type No.:</i>                                                                                                                                                                                                                                                                                                                                                                                         | EE5649X(X means colour code), EE5649CORPRIFOB, EE5649BLKPRIFOB<br>(Trademark: Primark)                                                                                        |                                                                                                                                      |                             |                                              |
| <b>Auftrags-Inhalt:</b><br><i>Order content:</i>                                                                                                                                                                                                                                                                                                                                                                                                           | FCC approval                                                                                                                                                                  |                                                                                                                                      |                             |                                              |
| <b>Prüfgrundlage:</b><br><i>Test specification:</i>                                                                                                                                                                                                                                                                                                                                                                                                        | CFR47 FCC Part 15: Subpart C Section 15.247<br>CFR47 FCC Part 15: Subpart B Section 15.107<br>CFR47 FCC Part 15: Subpart B Section 15.109<br>CFR47 FCC Part 2: Section 2.1093 |                                                                                                                                      |                             |                                              |
| <b>Wareneingangsdatum:</b><br><i>Date of receipt:</i>                                                                                                                                                                                                                                                                                                                                                                                                      | 15.11.2019                                                                                                                                                                    | Please refer to photo documents                                                                                                      |                             |                                              |
| <b>Prüfmuster-Nr.:</b><br><i>Test sample No.:</i>                                                                                                                                                                                                                                                                                                                                                                                                          | A001022230-001~002<br>A001021720-005                                                                                                                                          |                                                                                                                                      |                             |                                              |
| <b>Prüfzeitraum:</b><br><i>Testing period:</i>                                                                                                                                                                                                                                                                                                                                                                                                             | 27.11.2019-16.12.2019                                                                                                                                                         |                                                                                                                                      |                             |                                              |
| <b>Ort der Prüfung:</b><br><i>Place of testing:</i>                                                                                                                                                                                                                                                                                                                                                                                                        | TÜV Rheinland (Shenzhen)<br>Co., Ltd.                                                                                                                                         |                                                                                                                                      |                             |                                              |
| <b>Prüflaboratorium:</b><br><i>Testing laboratory:</i>                                                                                                                                                                                                                                                                                                                                                                                                     | TÜV Rheinland (Shenzhen)<br>Co., Ltd.                                                                                                                                         |                                                                                                                                      |                             |                                              |
| <b>Prüfergebnis*:</b><br><i>Test result*:</i>                                                                                                                                                                                                                                                                                                                                                                                                              | Pass                                                                                                                                                                          |                                                                                                                                      |                             |                                              |
| <b>geprüft von / tested by:</b>                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                               | <b>kontrolliert von / reviewed by:</b>                                                                                               |                             |                                              |
| <br>13.01.2020 Ryan Yang / Assistant Project Manager                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                               | <br>13.01.2020 Winnie Hou / Technical Certifier |                             |                                              |
| <b>Datum</b><br><i>Date</i>                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Name/Stellung</b><br><i>Name/Position</i>                                                                                                                                  | <b>Unterschrift</b><br><i>Signature</i>                                                                                              | <b>Datum</b><br><i>Date</i> | <b>Name/Stellung</b><br><i>Name/Position</i> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                               |                                                                                                                                      |                             |                                              |
| <b>Sonstiges / Other:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                               |                                                                                                                                      |                             |                                              |
| FCC ID: 2AAR2EE5649                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                               |                                                                                                                                      |                             |                                              |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br><i>Condition of the test item at delivery:</i>                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                               | <b>Prüfmuster vollständig und unbeschädigt</b><br><i>Test item complete and undamaged:</i>                                           |                             |                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                               |                                                                                                                                      |                             |                                              |
| * Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft<br>P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet<br>Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor<br>P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested                        |                                                                                                                                                                               |                                                                                                                                      |                             |                                              |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br><i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i> |                                                                                                                                                                               |                                                                                                                                      |                             |                                              |

## ***Test Summary***

**5.1.1 ANTENNA REQUIREMENT***RESULT: Pass***5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER***RESULT: Pass***5.1.3 99% BANDWIDTH***RESULT: Pass***5.1.4 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 kHz BANDWIDTH***RESULT: Pass***5.1.5 RADIATED SPURIOUS EMISSION***RESULT: Pass***5.1.6 20dB BANDWIDTH***RESULT: Pass***5.1.7 CARRIER FREQUENCY SEPARATION***RESULT: Pass***5.1.8 NUMBER OF HOPPING FREQUENCY***RESULT: Pass***5.1.9 TIME OF OCCUPANCY***RESULT: Pass***5.1.10 CONDUCTED EMISSION ON AC MAINS***RESULT: Pass***5.1.11 RADIATED EMISSION***RESULT: Pass*

## Contents

|               |                                                                         |           |
|---------------|-------------------------------------------------------------------------|-----------|
| <b>1</b>      | <b>GENERAL REMARKS.....</b>                                             | <b>4</b>  |
| <b>1.1</b>    | <b>COMPLEMENTARY MATERIALS .....</b>                                    | <b>4</b>  |
| <b>2</b>      | <b>TEST SITES .....</b>                                                 | <b>5</b>  |
| <b>2.1</b>    | <b>TEST FACILITIES.....</b>                                             | <b>5</b>  |
| <b>2.2</b>    | <b>LIST OF TEST AND MEASUREMENT INSTRUMENTS .....</b>                   | <b>5</b>  |
| <b>2.3</b>    | <b>TRACEABILITY .....</b>                                               | <b>7</b>  |
| <b>2.4</b>    | <b>CALIBRATION.....</b>                                                 | <b>7</b>  |
| <b>2.5</b>    | <b>MEASUREMENT UNCERTAINTY .....</b>                                    | <b>7</b>  |
| <b>2.6</b>    | <b>LOCATION OF ORIGINAL DATA .....</b>                                  | <b>7</b>  |
| <b>2.7</b>    | <b>STATUS OF FACILITY USED FOR TESTING .....</b>                        | <b>7</b>  |
| <b>3</b>      | <b>GENERAL PRODUCT INFORMATION.....</b>                                 | <b>8</b>  |
| <b>3.1</b>    | <b>PRODUCT FUNCTION AND INTENDED USE.....</b>                           | <b>8</b>  |
| <b>3.2</b>    | <b>RATINGS AND SYSTEM DETAILS .....</b>                                 | <b>8</b>  |
| <b>3.3</b>    | <b>INDEPENDENT OPERATION MODES.....</b>                                 | <b>9</b>  |
| <b>3.4</b>    | <b>NOISE GENERATING AND NOISE SUPPRESSING PARTS.....</b>                | <b>10</b> |
| <b>3.5</b>    | <b>SUBMITTED DOCUMENTS .....</b>                                        | <b>10</b> |
| <b>4</b>      | <b>TEST SET-UP AND OPERATION MODES.....</b>                             | <b>11</b> |
| <b>4.1</b>    | <b>PRINCIPLE OF CONFIGURATION SELECTION.....</b>                        | <b>11</b> |
| <b>4.2</b>    | <b>TEST OPERATION AND TEST SOFTWARE.....</b>                            | <b>11</b> |
| <b>4.3</b>    | <b>SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....</b>                 | <b>12</b> |
| <b>4.4</b>    | <b>COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE .....</b>                  | <b>12</b> |
| <b>4.5</b>    | <b>TEST SETUP DIAGRAM .....</b>                                         | <b>13</b> |
| <b>5</b>      | <b>TEST RESULTS.....</b>                                                | <b>15</b> |
| <b>5.1</b>    | <b>TRANSMITTER REQUIREMENT &amp; TEST SUITES.....</b>                   | <b>15</b> |
| <b>5.1.1</b>  | <i>Antenna Requirement.....</i>                                         | <i>15</i> |
| <b>5.1.2</b>  | <i>Maximum Peak Conducted Output Power .....</i>                        | <i>16</i> |
| <b>5.1.3</b>  | <i>99% Bandwidth.....</i>                                               | <i>17</i> |
| <b>5.1.4</b>  | <i>Conducted Spurious Emissions Measured in 100 kHz Bandwidth .....</i> | <i>18</i> |
| <b>5.1.5</b>  | <i>Radiated Spurious Emission .....</i>                                 | <i>19</i> |
| <b>5.1.6</b>  | <i>20dB Bandwidth.....</i>                                              | <i>20</i> |
| <b>5.1.7</b>  | <i>Carrier Frequency Separation .....</i>                               | <i>21</i> |
| <b>5.1.8</b>  | <i>Number of Hopping Frequency.....</i>                                 | <i>22</i> |
| <b>5.1.9</b>  | <i>Time of Occupancy.....</i>                                           | <i>23</i> |
| <b>5.1.10</b> | <i>Conducted Emission on AC Mains .....</i>                             | <i>24</i> |
| <b>5.1.11</b> | <i>Radiated Emission.....</i>                                           | <i>25</i> |
| <b>6</b>      | <b>PHOTOGRAPHS OF THE TEST SET-UP .....</b>                             | <b>26</b> |
| <b>7</b>      | <b>LIST OF TABLES .....</b>                                             | <b>26</b> |

# 1 General Remarks

## 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results of Bluetooth

Appendix C: Test Results of Part 15B

## 2 Test Sites

### 2.1 Test Facilities

**TÜV Rheinland (Shenzhen) Co., Ltd.**

1F East & 2-4F, Cybio Technology Building No. 1, No. 16 Kejibei 2nd Road, High-Tech Industrial Park  
North Nanshan District, Shenzhen, 518057

FCC accredited testing laboratory: CN1260

ISED wireless device testing laboratory: 25069

### 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

**TÜV Rheinland (Shenzhen) Co., Ltd.**

| <b>Radio Spectrum Testing (TS8997)</b>    |                                                 |                     |                      |                   |                   |
|-------------------------------------------|-------------------------------------------------|---------------------|----------------------|-------------------|-------------------|
| <b>Equip. No.</b>                         | <b>Equipment</b>                                | <b>Manufacturer</b> | <b>Model</b>         | <b>Serial No.</b> | <b>Cal. until</b> |
| 1825795                                   | Signal Analyzer                                 | R & S               | FSV 40               | 101441            | 20.08.2020        |
| 1825798                                   | OSP                                             | R & S               | OSP 150              | 101017            | 20.12.2019        |
| 1825799                                   | Control PC                                      | DELL                | OptiPlex 7050        | FTJZ9P2           | N/A               |
| 1825800                                   | Test Software                                   | R & S               | WMS32<br>(V10.40.10) | N/A               | N/A               |
| 1825801                                   | Power Meter                                     | R & S               | NRP2                 | 107105            | 20.12.2019        |
| 1825802                                   | Wideband Power<br>Sensor                        | R & S               | NRP-Z81              | 105350            | 20.12.2019        |
| 1826431                                   | Shielding Room 8#                               | Albatross           | SR8                  | APC17151-<br>SR8  | 23.07.2020        |
| <b>Unwanted Emission Testing (TS9975)</b> |                                                 |                     |                      |                   |                   |
| <b>Equip. No.</b>                         | <b>Equipment</b>                                | <b>Manufacturer</b> | <b>Model</b>         | <b>Serial No.</b> | <b>Cal. until</b> |
| 1826021                                   | EMI Test Receiver                               | R & S               | ESR 7                | 102021            | 19.08.2020        |
| 1826023                                   | Signal Analyzer                                 | R & S               | FSV 40               | 101439            | 21.08.2020        |
| 1826024                                   | System Controller<br>Interface                  | R & S               | SCI-100              | S10010038         | N/A               |
| 1826025                                   | Filterbank                                      | R & S               | Wlan                 | 100759            | 21.08.2020        |
| 1826026                                   | OSP                                             | R & S               | OSP 120              | 102040            | N/A               |
| 1826028                                   | Pre-amplifier                                   | R & S               | SCU08F1              | 08320031          | 20.08.2020        |
| 1826029                                   | Amplifier                                       | R & S               | SCU-18F              | 180070            | 20.08.2020        |
| 1826030                                   | Amplifier                                       | R & S               | SCU40A               | 100475            | 20.09.2020        |
| 1826031                                   | Trilog Broadband<br>Antenna<br>(30 MHz - 7 GHz) | Schwarzbeck         | VULB 9162            | 193               | 02.09.2020        |
| 1826032                                   | Double-Ridged<br>Antenna (1 -18 GHz)            | ETS-LINDGREN        | 3117                 | 00218717          | 02.09.2020        |

|         |                                          |             |                 |              |            |
|---------|------------------------------------------|-------------|-----------------|--------------|------------|
| 1826033 | Wideband Ridged Horn Antenna (18-40 GHz) | Steatite    | QMS-00880       | 19067        | 02.09.2020 |
| 1826034 | Active Loop Antenna                      | Schwarzbeck | FMZB 1513       | 302          | 01.09.2020 |
| 1826035 | Wideband Ridged Horn Antenna (12-18 GHz) | Steatite    | QMS-00208       | 18313        | 02.09.2020 |
| 1826036 | Test software                            | R & S       | V10.40.10-EMC32 | N/A          | N/A        |
| 1826037 | Control PC                               | Dell        | OptiPlex 7050   | 36NV9P2      | N/A        |
| 1826433 | 3m Semi-Anechoic Chamber                 | Albatross   | SAC-3m          | APC17151-SAC | 06.07.2020 |

**Conducted Emission on AC Mains**

| Equip. No. | Equipment                | Manufacturer | Model No.                 | Serial No. | Cali. until |
|------------|--------------------------|--------------|---------------------------|------------|-------------|
| 1822625    | EMI Test Receiver        | R&S          | ESR3                      | 102428     | 03.09.2020  |
| 1822627    | Artificial Mains Network | R&S          | ENV216                    | 102333     | 19.08.2020  |
| 1825090    | EMC32 test software      | R&S          | EMC32(Ver.10.50.01)       | N/A        | N/A         |
| 1825094    | Click test software      | R&S          | Click Rate Analyzer 2.4.2 | N/A        | N/A         |

**Radiated Emission (3m chamber)**

| Equip. No. | Equipment                      | Manufacturer | Model No.           | Serial No.     | Cali. until |
|------------|--------------------------------|--------------|---------------------|----------------|-------------|
| 1822620    | 3m SAC                         | ETS          | SAC3                | CT001632-Q1362 | 23.08.2021  |
| 1825044    | EMI Test Receiver              | R&S          | ESR7                | 102111         | 23.01.2020  |
| 1825004    | Horn Antenna                   | R&S          | HF907               | 102706         | 01.09.2020  |
| 1825005    | Preamplifier                   | FIT          | SCU-18F             | 180077         | 19.08.2020  |
| 1825072    | Switching Controller Interface | R&S          | OSP 120             | 102039         | N/A         |
| 1825090    | EMC32 test software            | R&S          | EMC32(Ver.10.50.01) | N/A            | N/A         |

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

| Parameter                                              | Uncertainty                   |
|--------------------------------------------------------|-------------------------------|
| Radio Frequency                                        | $\pm 1 \times 10^{-7}$        |
| RF Power (conducted)                                   | $\pm 2.5$ dB                  |
| Radiated Emission of Transmitter, valid up to 26.5 GHz | $\pm 6$ dB                    |
| Radiated Emission of Receiver, valid up to 26.5 GHz    | $\pm 6$ dB                    |
| Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz) | $\pm 3.70$ dB / $\pm 3.30$ dB |
| Radiated Emission (3m SAC), 30MHz to 1000MHz           | $\pm 4.52$ dB                 |
| Radiated Emission (3m SAC), above 1000MHz              | $\pm 4.37$ dB                 |
| Temperature                                            | $\pm 1$ °C                    |
| Humidity                                               | $\pm 5$ %                     |
| Voltage (DC)                                           | $\pm 1$ %                     |
| Voltage (AC, <10kHz)                                   | $\pm 2$ %                     |

## 2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B & C of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at 1F East & 2-4F, Cybio Technology Building No. 1, No. 16 Kejibei 2nd Road, High-Tech Industrial Park North Nanshan District, Shenzhen, 518057 is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

## 3 General Product Information

### 3.1 Product Function and Intended Use

The EUT is a Tower Speaker which supports Bluetooth 5.0 technology.

According to the declaration of the applicant, the electrical circuit design, PCB layout and construction design are identical for all models, only the model number and colour are different.

| Model Name      | Remark              |
|-----------------|---------------------|
| EE5649X         | X means colour code |
| EE5649CORPRIFOB | Red                 |
| EE5649BLKPRIFOB | Black               |

For details refer to the User Manual, Technical Description and Circuit Diagram.

### 3.2 Ratings and System Details

**Table 2: Technical Specification of EUT**

| General Information of EUT           | Value                                                                                  |
|--------------------------------------|----------------------------------------------------------------------------------------|
| Kind of Equipment                    | Tower Speaker                                                                          |
| Type Designation                     | EE5649X(X means colour code), EE5649CORPRIFOB, EE5649BLKPRIFOB                         |
| Trademark                            | Primark                                                                                |
| FCC ID                               | 2AAR2EE5649                                                                            |
| Operating Voltage                    | DC 5.0V via USB port for charging<br>DC 3.7V via internal rechargeable lithium battery |
| Testing Voltage                      | Fully charged battery for Part 15C<br>DC 5.0V for Part 15B                             |
| Battery                              | Model: 523450(YPT)<br>DC 3.7V@800mAh via internal rechargeable lithium battery         |
| Technical Specification of Bluetooth |                                                                                        |
| Operating Frequency                  | 2402.0 to 2480.0 MHz                                                                   |
| Type of Modulation                   | GFSK(BDR), $\pi/4$ DQPSK(EDR)                                                          |
| Channel Number                       | 79 channels                                                                            |
| Channel Separation                   | 1MHz                                                                                   |
| Antenna Type                         | Integral antenna                                                                       |
| Antenna Gain                         | -0.68 dBi                                                                              |

**Table 3: Operating Frequencies/Channels of EUT**

| Operating Mode | Description                                                                                                                                                                                          |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bluetooth®     | <input checked="" type="checkbox"/> BDR/EDR<br>$f_c = 2402 + k \text{ MHz}$ , where $k = 0 \sim 78$<br><input type="checkbox"/> Low Energy<br>$f_c = 2402 + k*2 \text{ MHz}$ , where $k = 0 \sim 39$ |

**Table 4: Frequency Hopping Information**

| Technical Specification  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hopping Range            | Hereby we declare that the frequency range of this device is: 2402-2480MHz. This is according the Bluetooth Core Specification V5.0 + EDR for devices which will be operated in the USA. This was checked during the Bluetooth Qualification tests (Test Case: TRM/CA/04-E).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Hopping Sequence         | <p>Example of a 79 hopping sequence in data mode:</p> <p>33,04,21,44,23,42,53,46,55,48,40,59,72,29,76,31,08,73,07,75,09,45,60,39,58,13,47,11,77,52,35,50,65,54,67,56,69,62,71,64,7,25,27,66,57,70,74,61,78,63,10,41,05,43,15,44,64,68,02,70,06,01,51,03,55,05,03,66,53,49,36,47,</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Receiver input bandwidth | <p>The input bandwidth of the receiver is 1MHz. In every connection one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master.</p> <p>Additionally the type of connection is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also the slave of the connection will use these settings.</p> <p>Repeating of a packer has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case.</p> <p>That means a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.</p> |

### 3.3 Independent Operation Modes

The basic operation modes are:

A. On, Bluetooth transmitting mode (BDR & EDR mode)

- 1) Low Channel
- 2) Middle Channel
- 3) High Channel

B. On, Transmitting on Hopping channel

- C. On, Bluetooth connecting mode
- D. On, Aux in playing mode
- E. On, Charging mode
- F. On, TF card playing mode
- G. Off

### **3.4 Noise Generating and Noise Suppressing Parts**

Refer to Circuit Diagram for further details.

### **3.5 Submitted Documents**

- |                                  |               |
|----------------------------------|---------------|
| - Block Diagram                  | - Schematics  |
| - FCC/IC Label and Location Info | - User Manual |

## 4 Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

**Radio Spectrum:** The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013 and ANSI C63.4: 2014.

According to clause 3.1, all tests were performed on model EE5649CORPRIFOB in this report.

**Table 5: List of Frequencies under Test**

| <input checked="" type="checkbox"/> Bluetooth |                              |                   |                    |                           |
|-----------------------------------------------|------------------------------|-------------------|--------------------|---------------------------|
| Operation mode                                | Frequencies under Test (MHz) |                   |                    | Power Level setting (dBm) |
|                                               | CH <sub>Low</sub>            | CH <sub>Mid</sub> | CH <sub>High</sub> |                           |
| <input checked="" type="checkbox"/> BDR/EDR   | 2402.0                       | 2441.0            | 2480.0             | Level 3                   |

## 4.3 Special Accessories and Auxiliary Equipment

Table 6: Auxiliary Equipment Used during Test

| Description | Manufacturer | Model | S/N       | Rating |
|-------------|--------------|-------|-----------|--------|
| Laptop      | Lenovo       | T480  | PF-16A6N8 | N/A    |

## 4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

## 4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

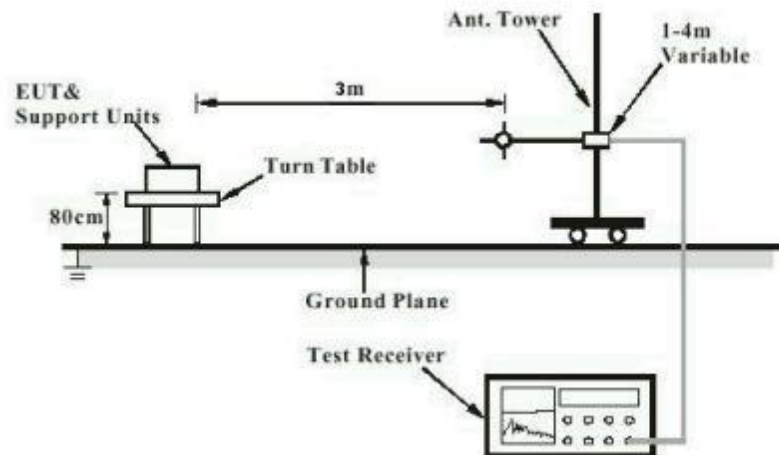
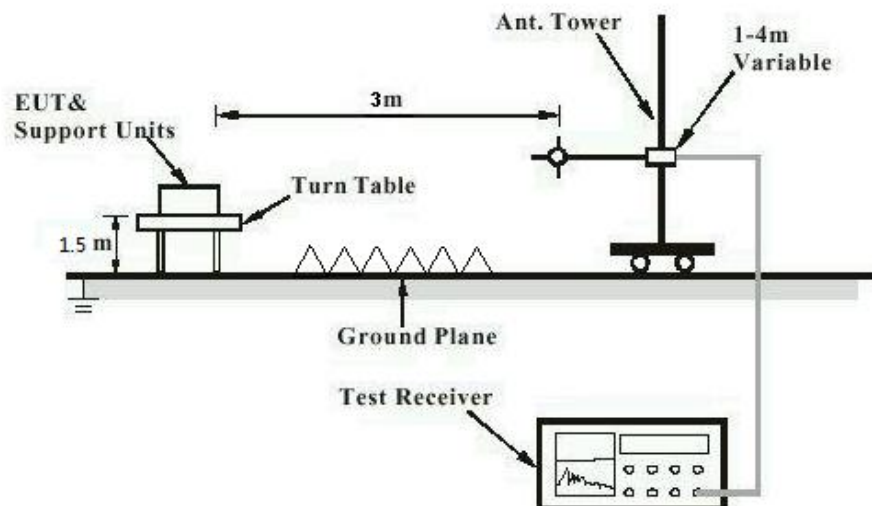
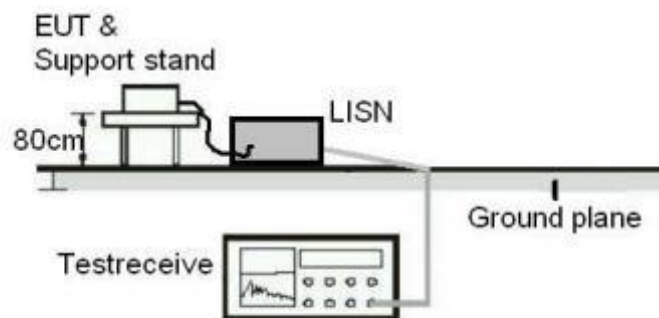


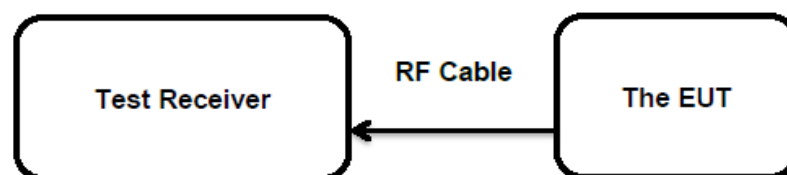
Diagram of Measurement Configuration for Radiation Test (Above 1GHz)



### Diagram of Measurement Configuration for Mains Conduction Measurement



### Diagram of Measurement Configuration for Conducted Transmitter Measurement



## 5 Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

RESULT:

Pass

**Test Specification**

Test standard : FCC Part 15.247(b)(4) and Part 15.203

According to the manufacturer declared, the EUT has an integral antenna, the directional gain of antenna is -0.68 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

## 5.1.2 Maximum Peak Conducted Output Power

**RESULT:**
**Pass**
**Test Specification**

Test standard : FCC Part 15.247(b)(1)  
 Basic standard : ANSI C63.10: 2013  
 Limits : DSS < 0.125 Watts  
 Kind of test site : Shielded Room

**Test Setup**

Date of testing : 04.12.2019  
 Input voltage : Fully charged battery  
 Operation mode : A  
 Test channel : Low / Middle / High  
 Ambient temperature : 25 °C  
 Relative humidity : 56 %  
 Atmospheric pressure : 101 kPa

**Table 7: Test Result of Maximum Peak Conducted Output Power, Bluetooth**

| Test Mode              | Test Channel (MHz) | Measured Peak Power |        | Limit (W) |
|------------------------|--------------------|---------------------|--------|-----------|
|                        |                    | (dBm)               | (W)    |           |
| GFSK                   | 2402.0             | 1.44                | 0.0014 | < 0.125   |
|                        | 2441.0             | 2.35                | 0.0017 |           |
|                        | 2480.0             | 2.69                | 0.0019 |           |
| Maximum Measured Value |                    | 2.69                | 0.0019 |           |

| Test Mode              | Test Channel (MHz) | Measured Peak Power |        | Limit (W) |
|------------------------|--------------------|---------------------|--------|-----------|
|                        |                    | (dBm)               | (W)    |           |
| π/4DQPSK               | 2402.0             | 2.31                | 0.0017 | < 0.125   |
|                        | 2441.0             | 3.28                | 0.0021 |           |
|                        | 2480.0             | 3.57                | 0.0023 |           |
| Maximum Measured Value |                    | 3.57                | 0.0023 |           |

Note:

- 1) The cable loss is taken into account in results.
- 2) Antenna gain(G): -0.68 dBi,  
 $e.i.r.p. = P_{(Peak\ power)} + G$ , which is far below the 4 W

### 5.1.3 99% Bandwidth

**RESULT:****Pass****Test Specification**

|                   |                      |
|-------------------|----------------------|
| Test standard     | : FCC Part 15.247(a) |
| Basic standard    | : ANSI C63.10: 2013  |
| Kind of test site | : Shielded Room      |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : Refer to test result  |
| Input voltage        | : Fully charged battery |
| Operation mode       | : A                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 25 °C                 |
| Relative humidity    | : 56 %                  |
| Atmospheric pressure | : 101 kPa               |

For the measurement records, refer to the appendix B.

## 5.1.4 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

**RESULT:****Pass****Test Specification**

|                   |                                                                                                                                                                                                                                                                    |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test standard     | : FCC Part 15.247(d)                                                                                                                                                                                                                                               |
| Basic standard    | : ANSI C63.10: 2013                                                                                                                                                                                                                                                |
| Limits            | : 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power);<br>In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a) |
| Kind of test site | : Shielded Room                                                                                                                                                                                                                                                    |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : Refer to test result  |
| Input voltage        | : Fully charged battery |
| Operation mode       | : A                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 25 °C                 |
| Relative humidity    | : 56 %                  |
| Atmospheric pressure | : 101 kPa               |

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix B.

**Prüfbericht - Nr.: 50324151 001**

Test Report No.

Seite 19 von 26

Page 19 of 26

## 5.1.5 Radiated Spurious Emission

**RESULT:****Pass****Test Specification**

|                   |                                            |
|-------------------|--------------------------------------------|
| Test standard     | : FCC Part 15.247(d) & FCC Part 15.205     |
| Basic standard    | : ANSI C63.10: 2013                        |
| Limits            | : Refer to 15.209(a) of FCC part 15.247(d) |
| Kind of test site | : 3m Semi-anechoic Chamber                 |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : Refer to test result  |
| Input voltage        | : Fully charged battery |
| Operation mode       | : A                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 22 °C                 |
| Relative humidity    | : 54 %                  |
| Atmospheric pressure | : 101 kPa               |

**Remark:**

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix B.

**5.1.6 20dB Bandwidth****RESULT:****Pass****Test Specification**

|                   |                         |
|-------------------|-------------------------|
| Test standard     | : FCC Part 15.247(a)(1) |
| Basic standard    | : ANSI C63.10: 2013     |
| Kind of test site | : Shielded Room         |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : Refer to test result  |
| Input voltage        | : Fully charged battery |
| Operation mode       | : A                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 25 °C                 |
| Relative humidity    | : 56 %                  |
| Atmospheric pressure | : 101 kPa               |

For the measurement records, refer to the appendix B.

## 5.1.7 Carrier Frequency Separation

**RESULT:****Pass****Test Specification**

|                   |                                                                      |
|-------------------|----------------------------------------------------------------------|
| Test standard     | : FCC Part 15.247(a)(1)                                              |
| Basic standard    | : ANSI C63.10: 2013                                                  |
| Limits            | : $\geq 25\text{kHz}$ or 2/3 of 20dB bandwidth, whichever is greater |
| Kind of test site | : Shielded Room                                                      |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : Refer to test result  |
| Input voltage        | : Fully charged battery |
| Operation mode       | : B                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 25 °C                 |
| Relative humidity    | : 56 %                  |
| Atmospheric pressure | : 101 kPa               |

For the measurement records, refer to the appendix B.

## 5.1.8 Number of Hopping Frequency

**RESULT:****Pass****Test Specification**

|                   |                                      |
|-------------------|--------------------------------------|
| Test standard     | : FCC part 15.247(a)(1)(iii)         |
| Basic standard    | : ANSI C63.10: 2013                  |
| Limits            | : $\geq 15$ non-overlapping channels |
| Kind of test site | : Shielded Room                      |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : Refer to test result  |
| Input voltage        | : Fully charged battery |
| Operation mode       | : B                     |
| Ambient temperature  | : 25 °C                 |
| Relative humidity    | : 56 %                  |
| Atmospheric pressure | : 101 kPa               |

For the measurement records, refer to the appendix B.

## 5.1.9 Time of Occupancy

**RESULT:****Pass****Test Specification**

|                   |                              |
|-------------------|------------------------------|
| Test standard     | : FCC part 15.247(a)(1)(iii) |
| Basic standard    | : ANSI C63.10: 2013          |
| Limits            | : < 0.4s                     |
| Kind of test site | : Shielded Room              |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : Refer to test result  |
| Input voltage        | : Fully charged battery |
| Operation mode       | : B                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 25 °C                 |
| Relative humidity    | : 56 %                  |
| Atmospheric pressure | : 101 kPa               |

**Note:**

Dwell time = Pulse width x Number of channels in Period

Period = 0.4 (seconds/ channel) x 79 (channel) = 31.6 seconds

For the measurement records, refer to the appendix B.

**5.1.10 Conducted Emission on AC Mains****RESULT:****Pass****Test Specification**

|                   |                                           |
|-------------------|-------------------------------------------|
| Test standard     | : FCC Part 15.207(a) & FCC Part 15.107(a) |
| Basic standard    | : ANSI C63.10: 2013 & ANSI C63.4: 2014    |
| Frequency range   | : 0.15 – 30MHz                            |
| Limits            | : FCC Part 15.207(a) & FCC Part 15.107(a) |
| Kind of test site | : Shielded Room                           |

**Test Setup**

|                      |                        |
|----------------------|------------------------|
| Date of testing      | : Refer to test result |
| Input voltage        | : DC 5.0V              |
| Operation mode       | : C, D, E, F           |
| Earthing             | : Not connected        |
| Ambient temperature  | : 22 °C                |
| Relative humidity    | : 64 %                 |
| Atmospheric pressure | : 101 kPa              |

For the measurement records, refer to the appendix B, C

**5.1.11 Radiated Emission****RESULT:****Pass****Test Specification**

|                   |                                                         |
|-------------------|---------------------------------------------------------|
| Test standard     | : FCC Part 15.109(a)                                    |
| Basic standard    | : ANSI C63.4: 2014                                      |
| Frequency range   | : 30 - 6000MHz                                          |
| Classification    | : Class B                                               |
| Limits            | : FCC Part 15.109(a)                                    |
| Kind of test site | : 10m Semi-anechoic Chamber<br>3m Semi-anechoic Chamber |

**Test Setup**

|                      |                        |
|----------------------|------------------------|
| Date of testing      | : Refer to test result |
| Input voltage        | : DC 5.0V              |
| Operation mode       | : D, E, F              |
| Earthing             | : Not connected        |
| Ambient temperature  | : 24 °C                |
| Relative humidity    | : 50 %                 |
| Atmospheric pressure | : 101 kPa              |

For the measurement records, refer to the appendix C.

## 6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

## 7 List of Tables

|                                                                              |    |
|------------------------------------------------------------------------------|----|
| Table 1: List of Test and Measurement Equipment .....                        | 5  |
| Table 2: Technical Specification of EUT .....                                | 8  |
| Table 3: Operating Frequencies/Channels of EUT .....                         | 9  |
| Table 4: Frequency Hopping Information .....                                 | 9  |
| Table 5: List of Frequencies under Test.....                                 | 11 |
| Table 6: Auxiliary Equipment Used during Test.....                           | 12 |
| Table 7: Test Result of Maximum Peak Conducted Output Power, Bluetooth ..... | 16 |

## Appendix B: Test Results of Bluetooth

|                                                                                                      |           |
|------------------------------------------------------------------------------------------------------|-----------|
| <b>APPENDIX B: TEST RESULTS OF BLUETOOTH.....</b>                                                    | <b>1</b>  |
| <b>APPENDIX B.1: TEST RESULTS OF 99% BANDWIDTH.....</b>                                              | <b>2</b>  |
| <i>GFSK mode.....</i>                                                                                | <i>2</i>  |
| <i><math>\pi/4</math>DQPSK mode.....</i>                                                             | <i>5</i>  |
| <b>APPENDIX B.2: TEST RESULTS OF 20dB BANDWIDTH .....</b>                                            | <b>8</b>  |
| <i>GFSK mode.....</i>                                                                                | <i>8</i>  |
| <i><math>\pi/4</math>DQPSK mode.....</i>                                                             | <i>11</i> |
| <b>APPENDIX B.3: TEST RESULTS OF CARRIER FREQUENCY SEPARATION.....</b>                               | <b>14</b> |
| <i>GFSK mode.....</i>                                                                                | <i>14</i> |
| <i><math>\pi/4</math>DQPSK mode.....</i>                                                             | <i>17</i> |
| <b>APPENDIX B.4: TEST RESULTS OF NUMBER OF HOPPING FREQUENCY.....</b>                                | <b>20</b> |
| <i>GFSK mode.....</i>                                                                                | <i>20</i> |
| <i><math>\pi/4</math>DQPSK mode.....</i>                                                             | <i>21</i> |
| <b>APPENDIX B.5: TEST RESULTS OF TIME OF OCCUPANCY .....</b>                                         | <b>22</b> |
| <i>GFSK mode.....</i>                                                                                | <i>22</i> |
| <i><math>\pi/4</math>DQPSK mode.....</i>                                                             | <i>25</i> |
| <b>APPENDIX B.6: TEST RESULTS OF CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 kHz BANDWIDTH.....</b> | <b>28</b> |
| <i>GFSK mode.....</i>                                                                                | <i>28</i> |
| <i><math>\pi/4</math>DQPSK mode.....</i>                                                             | <i>32</i> |
| <b>APPENDIX B.7: TEST RESULTS OF RADIATED SPURIOUS EMISSIONS .....</b>                               | <b>36</b> |
| <i>30MHz - 1GHz (Worst case).....</i>                                                                | <i>36</i> |
| <i>Above 1GHz.....</i>                                                                               | <i>40</i> |
| <b>APPENDIX B.8: TEST RESULTS OF RADIATED EMISSIONS IN RESTRICTED BANDS.....</b>                     | <b>46</b> |
| <i>Low channel.....</i>                                                                              | <i>46</i> |
| <i>High channel.....</i>                                                                             | <i>48</i> |
| <b>APPENDIX B.9: TEST RESULTS OF CONDUCTED EMISSION ON AC MAINS.....</b>                             | <b>50</b> |
| <i>Bluetooth connecting mode.....</i>                                                                | <i>50</i> |

## Appendix B.1: Test Results of 99% Bandwidth

GFSK mode

Low Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

Occupied Channel Bandwidth 99% (2402 MHz; 2.000 dBm; 1 MHz; Test Mode)

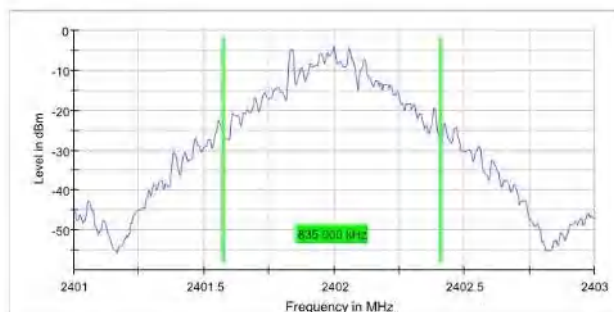
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2402.000000         | 0.835000        | ---             | ---             | 2401.572500          | 2402.407500           |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2402.000000         | PASS   |



Bandwidth

### Measurement

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.40100 GHz      | 2.40100 GHz   |
| Stop Frequency        | 2.40300 GHz      | 2.40300 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| SweepTime             | 189.648 µs       | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 500              | 500           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| SweepType             | FFT              | AUTO          |
| Preamplifier          | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.30 dB          | 0.30 dB       |
| Run                   | 4 / max. 150     | max. 150      |
| Stable                | 3 / 3            | 3             |
| Max Stable Difference | 0.18 dB          | 0.30 dB       |

## Middle Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Occupied Channel Bandwidth 99% (2441 MHz; 2.000 dBm; 1 MHz; Test Mode)

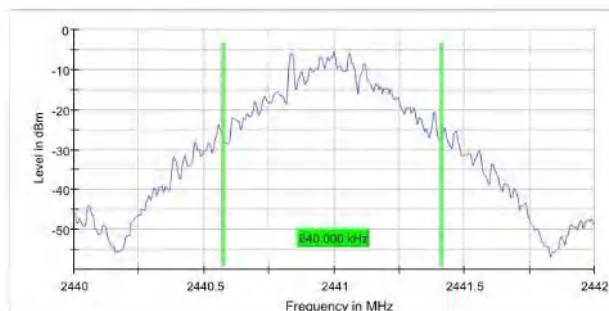
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2441.000000         | 0.840000        | ---             | ---             | 2440.572500          | 2441.412500           |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2441.000000         | PASS   |



#### Bandwidth

##### Measurement

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.44000 GHz      | 2.44000 GHz   |
| Stop Frequency        | 2.44200 GHz      | 2.44200 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| Sweptime              | 189.648 µs       | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 500              | 500           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| SweepType             | FFT              | AUTO          |
| Preamp                | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.30 dB          | 0.30 dB       |
| Run                   | 5 / max. 150     | max. 150      |
| Stable                | 3 / 3            | 3             |
| Max Stable Difference | 0.04 dB          | 0.30 dB       |

## High Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Occupied Channel Bandwidth 99% (2480 MHz; 2.000 dBm; 1 MHz; Test Mode)

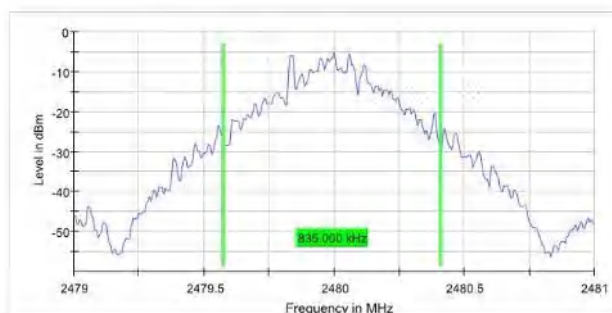
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2480.000000         | 0.835000        | ---             | ---             | 2479.572500          | 2480.407500           |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2480.000000         | PASS   |



#### Bandwidth

##### Measurement

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.47900 GHz      | 2.47900 GHz   |
| Stop Frequency        | 2.48100 GHz      | 2.48100 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| SweepTime             | 189.648 µs       | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 500              | 500           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| SweepType             | FFT              | AUTO          |
| Preamp                | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.30 dB          | 0.30 dB       |
| Run                   | 6 / max. 150     | max. 150      |
| Stable                | 3 / 3            | 3             |
| Max Stable Difference | 0.03 dB          | 0.30 dB       |

$\pi/4$ DQPSK mode  
Low Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

Occupied Channel Bandwidth 99% (2402 MHz; 2.000 dBm; 1 MHz; Test Mode)

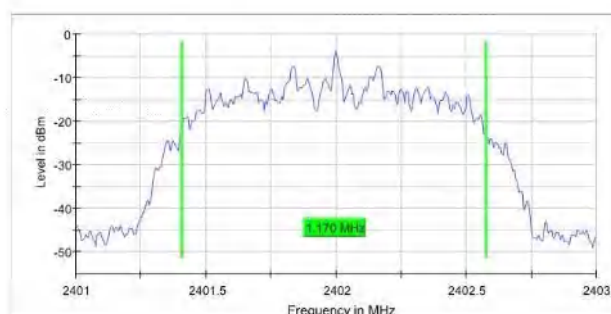
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2402.000000         | 1.170000        | ---             | ---             | 2401.407500          | 2402.577500           |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2402.000000         | PASS   |



Bandwidth

#### Measurement

| Setting               | Instrument Value | Target Value      |
|-----------------------|------------------|-------------------|
| Start Frequency       | 2.40100 GHz      | 2.40100 GHz       |
| Stop Frequency        | 2.40300 GHz      | 2.40300 GHz       |
| Span                  | 2.000 MHz        | 2.000 MHz         |
| RBW                   | 10.000 kHz       | $\geq 10.000$ kHz |
| VBW                   | 30.000 kHz       | $\geq 30.000$ kHz |
| SweepPoints           | 400              | $\sim 400$        |
| SweepTime             | 189.648 $\mu$ s  | AUTO              |
| Reference Level       | 0.000 dBm        | 0.000 dBm         |
| Attenuation           | 20.000 dB        | AUTO              |
| Detector              | MaxPeak          | MaxPeak           |
| SweepCount            | 500              | 500               |
| Filter                | 3 dB             | 3 dB              |
| Trace Mode            | Max Hold         | Max Hold          |
| SweepType             | FFT              | AUTO              |
| Preamp                | off              | off               |
| Stablemode            | Trace            | Trace             |
| Stablevalue           | 0.30 dB          | 0.30 dB           |
| Run                   | 5 / max. 150     | max. 150          |
| Stable                | 3 / 3            | 3                 |
| Max Stable Difference | 0.21 dB          | 0.30 dB           |

## Middle Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Occupied Channel Bandwidth 99% (2441 MHz; 2.000 dBm; 1 MHz; Test Mode)

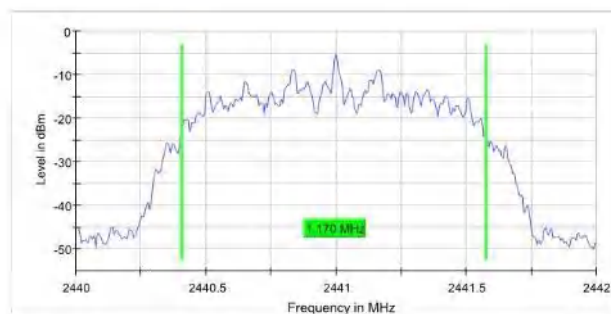
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2441.000000         | 1.170000        | ---             | ---             | 2440.407500          | 2441.577500           |

(continuation of the "99 % Bandwidth" table from column 6...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2441.000000         | PASS   |



#### Bandwidth

##### Measurement

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.44000 GHz      | 2.44000 GHz   |
| Stop Frequency        | 2.44200 GHz      | 2.44200 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| SweepTime             | 189.648 µs       | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 500              | 500           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| SweepType             | FFT              | AUTO          |
| Preamp                | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.30 dB          | 0.30 dB       |
| Run                   | 6 / max. 150     | max. 150      |
| Stable                | 3 / 3            | 3             |
| Max Stable Difference | 0.09 dB          | 0.30 dB       |

## High Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Occupied Channel Bandwidth 99% (2480 MHz; 2.000 dBm; 1 MHz; Test Mode)

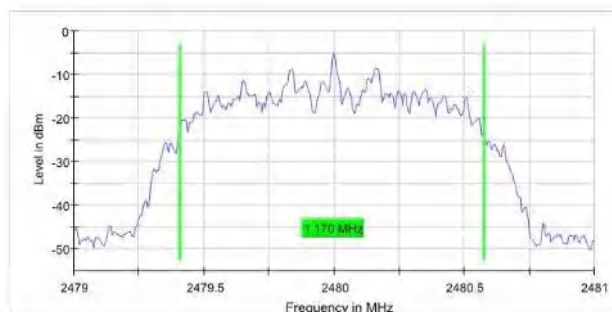
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2480.000000         | 1.170000        | ---             | ---             | 2479.407500          | 2480.577500           |

(continuation of the "99 % Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2480.000000         | PASS   |



#### Bandwidth

##### Measurement

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.47900 GHz      | 2.47900 GHz   |
| Stop Frequency        | 2.48100 GHz      | 2.48100 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| Sweeptime             | 189.648 µs       | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 500              | 500           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| Sweeptype             | FFT              | AUTO          |
| Preamplifier          | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.30 dB          | 0.30 dB       |
| Run                   | 7 / max. 150     | max. 150      |
| Stable                | 3 / 3            | 3             |
| Max Stable Difference | 0.05 dB          | 0.30 dB       |

## Appendix B.2: Test Results of 20dB Bandwidth

GFSK mode

Low Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

Emission Bandwidth 20 dB (2402 MHz; 2.000 dBm; 1 MHz; Test Mode)

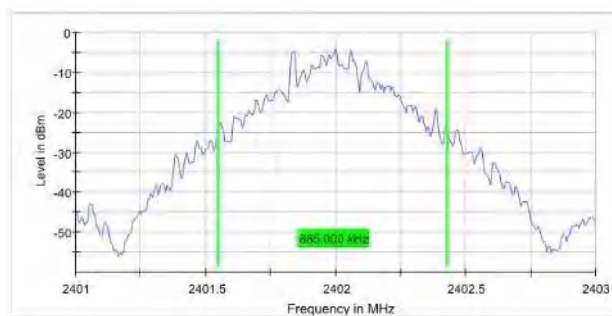
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

### 20 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2402.000000         | 0.885000        | ---             | ---             | 2401.547500          | 2402.432500           |

(continuation of the "20 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 2402.000000         | -4.2            | PASS   |



Bandwidth

### Measurement

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.40100 GHz      | 2.40100 GHz   |
| Stop Frequency        | 2.40300 GHz      | 2.40300 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| SweepTime             | 189.648 µs       | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 200              | 200           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| SweepType             | FFT              | AUTO          |
| Preamp                | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.50 dB          | 0.50 dB       |
| Run                   | 9 / max. 150     | max. 150      |
| Stable                | 5 / 5            | 5             |
| Max Stable Difference | 0.00 dB          | 0.50 dB       |

## Middle Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Emission Bandwidth 20 dB (2441 MHz; 2.000 dBm; 1 MHz; Test Mode)

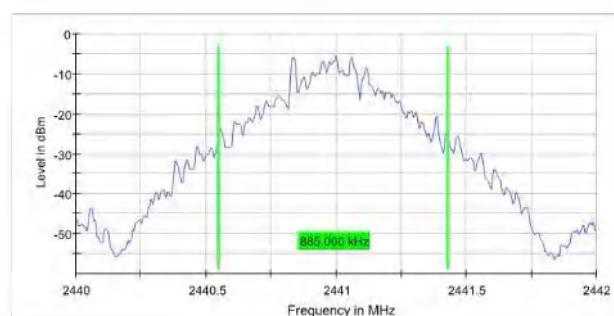
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### 20 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2441.000000         | 0.885000        | ---             | ---             | 2440.547500          | 2441.432500           |

(continuation of the "20 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 2441.000000         | -5.5            | PASS   |



#### Bandwidth

##### Measurement

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.44000 GHz      | 2.44000 GHz   |
| Stop Frequency        | 2.44200 GHz      | 2.44200 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| Sweptime              | 189.648 µs       | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 200              | 200           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| SweepType             | FFT              | AUTO          |
| Preamp                | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.50 dB          | 0.50 dB       |
| Run                   | 8 / max. 150     | max. 150      |
| Stable                | 5 / 5            | 5             |
| Max Stable Difference | 0.24 dB          | 0.50 dB       |

## High Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Emission Bandwidth 20 dB (2480 MHz; 2.000 dBm; 1 MHz; Test Mode)

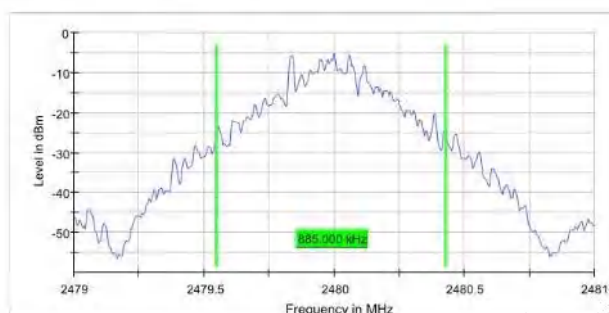
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### 20 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2480.000000         | 0.885000        | ---             | ---             | 2479.547500          | 2480.432500           |

(continuation of the "20 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 2480.000000         | -5.3            | PASS   |



#### Bandwidth

##### Measurement

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.47900 GHz      | 2.47900 GHz   |
| Stop Frequency        | 2.48100 GHz      | 2.48100 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| SweepTime             | 189.648 µs       | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 200              | 200           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| SweepType             | FFT              | AUTO          |
| Preamp                | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.50 dB          | 0.50 dB       |
| Run                   | 9 / max. 150     | max. 150      |
| Stable                | 5 / 5            | 5             |
| Max Stable Difference | 0.05 dB          | 0.50 dB       |

$\pi/4$ DQPSK mode  
Low Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

**Emission Bandwidth 20 dB (2402 MHz; 2.000 dBm; 1 MHz; Test Mode)**

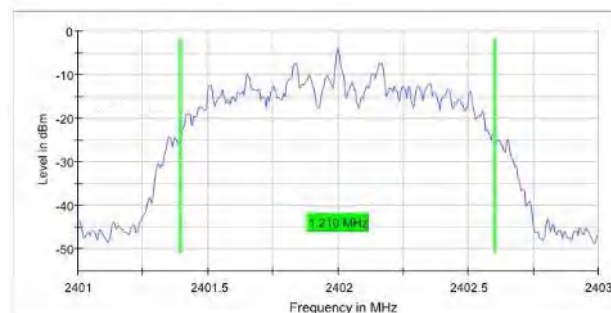
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

**20 dB Bandwidth**

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2402.000000         | 1.210000        | ---             | ---             | 2401.392500          | 2402.602500           |

(continuation of the "20 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 2402.000000         | -4.1            | PASS   |



**Bandwidth**

**Measurement**

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.40100 GHz      | 2.40100 GHz   |
| Stop Frequency        | 2.40300 GHz      | 2.40300 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| SweepTime             | 189.648 $\mu$ s  | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 200              | 200           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| SweepType             | FFT              | AUTO          |
| Preamp                | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.50 dB          | 0.50 dB       |
| Run                   | 11 / max. 150    | max. 150      |
| Stable                | 5 / 5            | 5             |
| Max Stable Difference | 0.04 dB          | 0.50 dB       |

## Middle Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Emission Bandwidth 20 dB (2441 MHz; 2.000 dBm; 1 MHz; Test Mode)

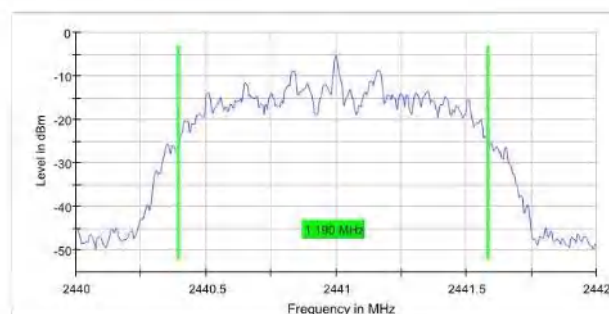
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### 20 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2441.000000         | 1.190000        | ---             | ---             | 2440.392500          | 2441.582500           |

(continuation of the "20 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 2441.000000         | -5.3            | PASS   |



### Bandwidth

#### Measurement

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.44000 GHz      | 2.44000 GHz   |
| Stop Frequency        | 2.44200 GHz      | 2.44200 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| SweepTime             | 189.648 µs       | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 200              | 200           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| SweepType             | FFT              | AUTO          |
| Preamp                | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.50 dB          | 0.50 dB       |
| Run                   | 11 / max. 150    | max. 150      |
| Stable                | 5 / 5            | 5             |
| Max Stable Difference | 0.12 dB          | 0.50 dB       |

## High Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Emission Bandwidth 20 dB (2480 MHz; 2.000 dBm; 1 MHz; Test Mode)

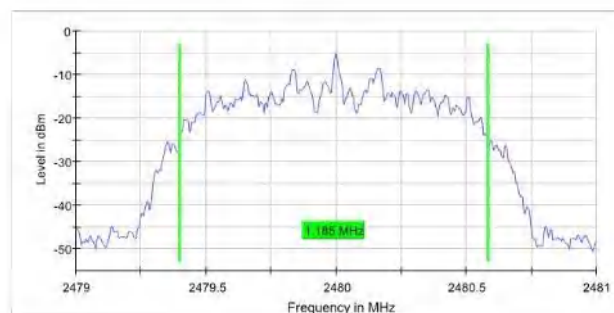
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### 20 dB Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2480.000000         | 1.185000        | ---             | ---             | 2479.397500          | 2480.582500           |

(continuation of the "20 dB Bandwidth" table from column 6 ...)

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 2480.000000         | -5.3            | PASS   |



#### Bandwidth

##### Measurement

| Setting               | Instrument Value | Target Value  |
|-----------------------|------------------|---------------|
| Start Frequency       | 2.47900 GHz      | 2.47900 GHz   |
| Stop Frequency        | 2.48100 GHz      | 2.48100 GHz   |
| Span                  | 2.000 MHz        | 2.000 MHz     |
| RBW                   | 10.000 kHz       | >= 10.000 kHz |
| VBW                   | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints           | 400              | ~ 400         |
| SweepTime             | 189.648 µs       | AUTO          |
| Reference Level       | 0.000 dBm        | 0.000 dBm     |
| Attenuation           | 20.000 dB        | AUTO          |
| Detector              | MaxPeak          | MaxPeak       |
| SweepCount            | 200              | 200           |
| Filter                | 3 dB             | 3 dB          |
| Trace Mode            | Max Hold         | Max Hold      |
| SweepType             | FFT              | AUTO          |
| Preamp                | off              | off           |
| Stablemode            | Trace            | Trace         |
| Stablevalue           | 0.50 dB          | 0.50 dB       |
| Run                   | 8 / max. 150     | max. 150      |
| Stable                | 5 / 5            | 5             |
| Max Stable Difference | 0.27 dB          | 0.50 dB       |

## Appendix B.3: Test Results of Carrier Frequency Separation

GFSK mode

Low Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Carrier Frequency Separation (2402 MHz; 2.000 dBm; 1 MHz; Test Mode)

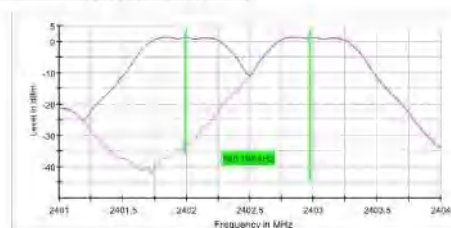
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

Result

| DUT Frequency (MHz) | Frequency Separation (MHz) | Limit Min (MHz) | Limit Max (MHz) | Center Frequency low Channel (MHz) | Center Frequency high Channel (MHz) |
|---------------------|----------------------------|-----------------|-----------------|------------------------------------|-------------------------------------|
| 2402.000000         | 0.980198                   | 0.590000        | ---             | 2401.995050                        | 2402.975248                         |

(continuation of the "Result" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2402.000000         | PASS   |



CFS1

CFS2

#### Measurement 1

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.40100 GHz      | 2.40100 GHz    |
| Stop Frequency        | 2.40400 GHz      | 2.40400 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| SweepTime             | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 13 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.17 dB          | 0.50 dB        |

#### Measurement 2

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.40100 GHz      | 2.40100 GHz    |
| Stop Frequency        | 2.40400 GHz      | 2.40400 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| SweepTime             | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 11 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.00 dB          | 0.50 dB        |

## Middle Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Carrier Frequency Separation (2441 MHz; 2.000 dBm; 1 MHz; Test Mode)

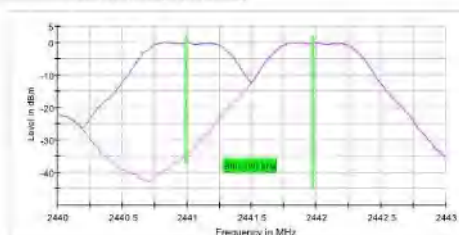
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### Result

| DUT Frequency (MHz) | Frequency Separation (MHz) | Limit Min (MHz) | Limit Max (MHz) | Center Frequency low Channel (MHz) | Center Frequency high Channel (MHz) |
|---------------------|----------------------------|-----------------|-----------------|------------------------------------|-------------------------------------|
| 2441.000000         | 0.980198                   | 0.590000        | ---             | 2440.995050                        | 2441.975248                         |

(continuation of the "Result" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2441.000000         | PASS   |



CFS1  
CFS2

#### Measurement 1

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.44000 GHz      | 2.44000 GHz    |
| Stop Frequency        | 2.44300 GHz      | 2.44300 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| SweepTime             | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 14 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.01 dB          | 0.50 dB        |

#### Measurement 2

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.44000 GHz      | 2.44000 GHz    |
| Stop Frequency        | 2.44300 GHz      | 2.44300 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| SweepTime             | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 11 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.34 dB          | 0.50 dB        |

## High Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Carrier Frequency Separation (2480 MHz; 2.000 dBm; 1 MHz; Test Mode)

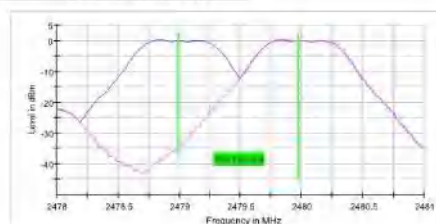
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### Result

| DUT Frequency (MHz) | Frequency Separation (MHz) | Limit Min (MHz) | Limit Max (MHz) | Center Frequency low Channel (MHz) | Center Frequency high Channel (MHz) |
|---------------------|----------------------------|-----------------|-----------------|------------------------------------|-------------------------------------|
| 2480.000000         | 0.980198                   | 0.590000        | ---             | 2478.995050                        | 2479.975248                         |

(continuation of the "Result" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2480.000000         | PASS   |



CFS1

CFS2

#### Measurement 1

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.47800 GHz      | 2.47800 GHz    |
| Stop Frequency        | 2.48100 GHz      | 2.48100 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| Sweptime              | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 16 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.01 dB          | 0.50 dB        |

#### Measurement 2

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.47800 GHz      | 2.47800 GHz    |
| Stop Frequency        | 2.48100 GHz      | 2.48100 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| Sweptime              | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 11 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.05 dB          | 0.50 dB        |

$\pi$ /4DQPSK mode  
Low Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

**Carrier Frequency Separation (2402 MHz; 2.000 dBm; 1 MHz; Test Mode)**

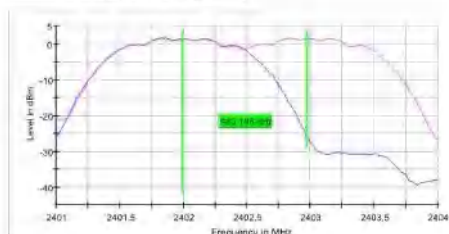
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

**Result**

| DUT Frequency (MHz) | Frequency Separation (MHz) | Limit Min (MHz) | Limit Max (MHz) | Center Frequency low Channel (MHz) | Center Frequency high Channel (MHz) |
|---------------------|----------------------------|-----------------|-----------------|------------------------------------|-------------------------------------|
| 2402.000000         | 0.980198                   | 0.806667        | ---             | 2401.995050                        | 2402.975248                         |

(continuation of the "Result" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2402.000000         | PASS   |



CFS1

CFS2

**Measurement 1**

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.40100 GHz      | 2.40100 GHz    |
| Stop Frequency        | 2.40400 GHz      | 2.40400 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| Sweeptime             | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| Sweeptype             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 12 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.00 dB          | 0.50 dB        |

**Measurement 2**

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.40100 GHz      | 2.40100 GHz    |
| Stop Frequency        | 2.40400 GHz      | 2.40400 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| Sweeptime             | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| Sweeptype             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 13 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.01 dB          | 0.50 dB        |

## Middle Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Carrier Frequency Separation (2441 MHz; 2.000 dBm; 1 MHz; Test Mode)

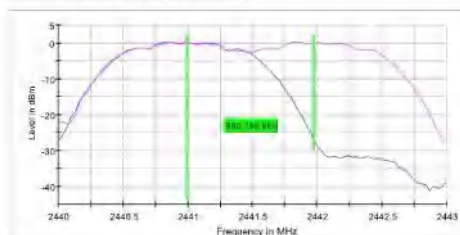
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### Result

| DUT Frequency (MHz) | Frequency Separation (MHz) | Limit Min (MHz) | Limit Max (MHz) | Center Frequency low Channel (MHz) | Center Frequency high Channel (MHz) |
|---------------------|----------------------------|-----------------|-----------------|------------------------------------|-------------------------------------|
| 2441.000000         | 0.980198                   | 0.793333        | ---             | 2440.995050                        | 2441.975248                         |

(continuation of the "Result" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2441.000000         | PASS   |



CFS1  
CFS2

#### Measurement 1

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.44000 GHz      | 2.44000 GHz    |
| Stop Frequency        | 2.44300 GHz      | 2.44300 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| SweepTime             | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 12 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.01 dB          | 0.50 dB        |

#### Measurement 2

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.44000 GHz      | 2.44000 GHz    |
| Stop Frequency        | 2.44300 GHz      | 2.44300 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| SweepTime             | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 13 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.02 dB          | 0.50 dB        |

## High Channel

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Carrier Frequency Separation (2480 MHz; 2.000 dBm; 1 MHz; Test Mode)

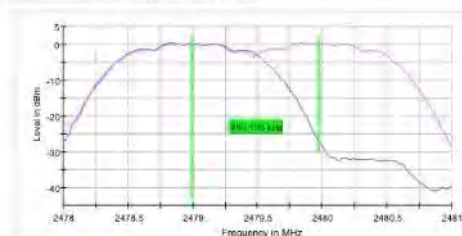
Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### Result

| DUT Frequency (MHz) | Frequency Separation (MHz) | Limit Min (MHz) | Limit Max (MHz) | Center Frequency low Channel (MHz) | Center Frequency high Channel (MHz) |
|---------------------|----------------------------|-----------------|-----------------|------------------------------------|-------------------------------------|
| 2480.000000         | 0.980198                   | 0.790000        | ---             | 2478.995050                        | 2479.975248                         |

(continuation of the "Result" table from column 6 ...)

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2480.000000         | PASS   |



CFS1  
CFS2

#### Measurement 1

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.47800 GHz      | 2.47800 GHz    |
| Stop Frequency        | 2.48100 GHz      | 2.48100 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| SweepTime             | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 13 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.02 dB          | 0.50 dB        |

#### Measurement 2

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.47800 GHz      | 2.47800 GHz    |
| Stop Frequency        | 2.48100 GHz      | 2.48100 GHz    |
| Span                  | 3.000 MHz        | 3.000 MHz      |
| RBW                   | 300.000 kHz      | <= 300.000 kHz |
| VBW                   | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints           | 101              | ~ 10           |
| SweepTime             | 1.000 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 200              | 200            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | Sweep          |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 13 / max. 150    | max. 150       |
| Stable                | 10 / 10          | 10             |
| Max Stable Difference | 0.02 dB          | 0.50 dB        |

## Appendix B.4: Test Results of Number of Hopping Frequency

GFSK mode

All hopping channels

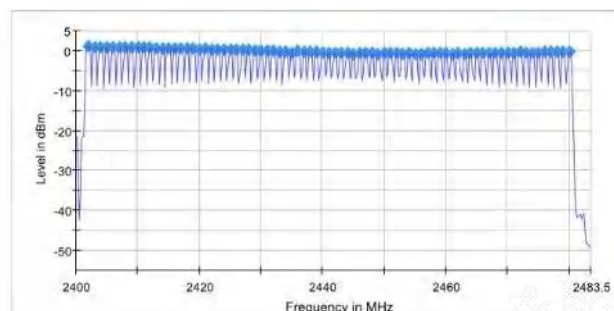
FCC Part 47 §15.247 2400-2483.5 MHz 2017

**Hopping Frequencies (frequency independent; 2.000 dBm; 1 MHz)**

Test according to FCC title 47 part 15 §15.247(a),(g), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

### Channels

| Channels | Limit Min | Limit Max | Result |
|----------|-----------|-----------|--------|
| 79       | 15        | ---       | PASS   |



Sequence

### Measurement

| Setting               | Instrument Value | Target Value   |
|-----------------------|------------------|----------------|
| Start Frequency       | 2.40000 GHz      | 2.40000 GHz    |
| Stop Frequency        | 2.48350 GHz      | 2.48350 GHz    |
| Span                  | 83.500 MHz       | 83.500 MHz     |
| RBW                   | 200.000 kHz      | <= 299.000 kHz |
| VBW                   | 200.000 kHz      | >= 200.000 kHz |
| SweepPoints           | 418              | ~ 418          |
| SweepTime             | 1.060 ms         | AUTO           |
| Reference Level       | 0.000 dBm        | 0.000 dBm      |
| Attenuation           | 20.000 dB        | AUTO           |
| Detector              | MaxPeak          | MaxPeak        |
| SweepCount            | 100              | 100            |
| Filter                | 3 dB             | 3 dB           |
| Trace Mode            | Max Hold         | Max Hold       |
| SweepType             | Sweep            | AUTO           |
| Preamp                | off              | off            |
| Stablemode            | Trace            | Trace          |
| Stablevalue           | 0.50 dB          | 0.50 dB        |
| Run                   | 70 / max. 150    | max. 150       |
| Stable                | 3 / 3            | 3              |
| Max Stable Difference | 0.10 dB          | 0.50 dB        |

$\pi$ /4DQPSK mode  
All hopping channels

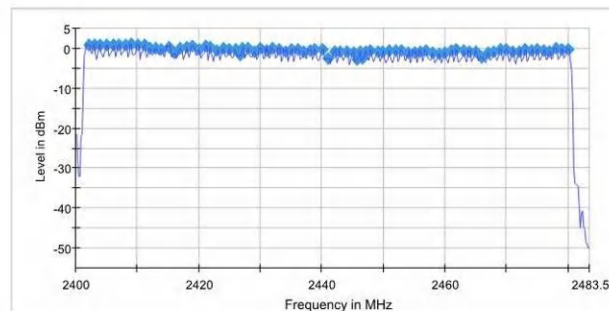
FCC Part 47 §15.247 2400-2483.5 MHz 2017

Hopping Frequencies (frequency independent; 2.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a),(g), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### Channels

| Channels | Limit Min | Limit Max | Result |
|----------|-----------|-----------|--------|
| 82       | 15        | ---       | PASS   |



Sequence

#### Measurement

| Setting               | Instrument Value | Target Value       |
|-----------------------|------------------|--------------------|
| Start Frequency       | 2.40000 GHz      | 2.40000 GHz        |
| Stop Frequency        | 2.48350 GHz      | 2.48350 GHz        |
| Span                  | 83.500 MHz       | 83.500 MHz         |
| RBW                   | 200.000 kHz      | $\leq 299.000$ kHz |
| VBW                   | 200.000 kHz      | $\geq 200.000$ kHz |
| SweepPoints           | 418              | $\sim 418$         |
| SweepTime             | 1.060 ms         | AUTO               |
| Reference Level       | 0.000 dBm        | 0.000 dBm          |
| Attenuation           | 20.000 dB        | AUTO               |
| Detector              | MaxPeak          | MaxPeak            |
| SweepCount            | 100              | 100                |
| Filter                | 3 dB             | 3 dB               |
| Trace Mode            | Max Hold         | Max Hold           |
| SweepType             | Sweep            | AUTO               |
| Preamp                | off              | off                |
| Stablemode            | Trace            | Trace              |
| Stablevalue           | 0.50 dB          | 0.50 dB            |
| Run                   | 124 / max. 150   | max. 150           |
| Stable                | 3 / 3            | 3                  |
| Max Stable Difference | 0.00 dB          | 0.50 dB            |

## Appendix B.5: Test Results of Time of Occupancy

GFSK mode

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Time of Channel Occupancy (2441 MHz; 2.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### Result

| DUT Frequency (MHz) | Result | Number of Hops | Average time of occupancy (ms) | Threshold (dBm) |
|---------------------|--------|----------------|--------------------------------|-----------------|
| 2441.000000         | PASS   | 319            | 124.230                        | -18.0           |

#### Periode

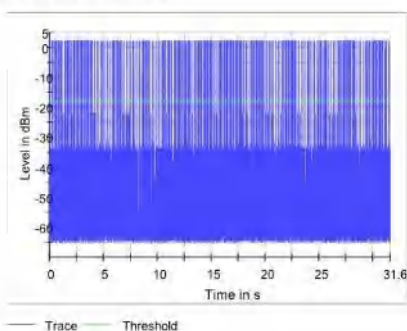
| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 2.500    | 196.250  | 98.736    |

#### Transmit Time per Hop

| Min (ms) | Max (ms) | Limit Max for Max (ms) | Limit Min for Max (ms) | Mean (ms) |
|----------|----------|------------------------|------------------------|-----------|
| 0.380    | 0.390    | 400.000                | 0.000                  | 0.388     |

#### DwellTime

| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 0.380    | 0.390    | 0.388     |



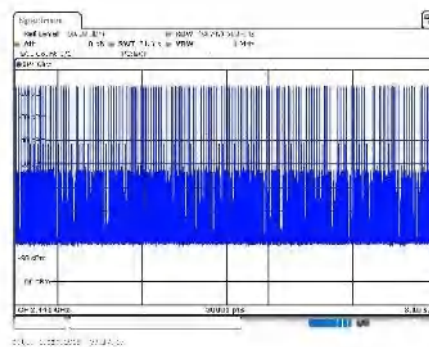
Time of Channel Occupancy

#### Measurement

| Setting          | Instrument Value | Target Value  |
|------------------|------------------|---------------|
| Center Frequency | 2.44100 GHz      | 2.44100 GHz   |
| Span             | ZeroSpan         | ZeroSpan      |
| RBW              | 500.000 kHz      | ~ 500.000 kHz |
| VBW              | 1.000 MHz        | ~ 1.500 MHz   |
| SweepPoints      | 30001            | ~ 30001       |
| SweepTime        | 31.600 s         | 31.600 s      |
| Reference Level  | -10.000 dBm      | -10.000 dBm   |
| Attenuation      | 0.000 dB         | 0.000 dB      |
| Detector         | MaxPeak          | MaxPeak       |
| SweepCount       | 1                | 1             |
| Filter           | Channel          | Channel       |
| Trace Mode       | Clear Write      | Clear Write   |
| SweepType        | Sweep            | AUTO          |
| Preamplifier     | off              | off           |
| Trigger          | External         | External      |
| Trigger Offset   | 0.000 s          | 0.000 s       |

#### OSP

| Setting          | Instrument Value | Target Value |
|------------------|------------------|--------------|
| Measurement Time | 31.600 s         | 31.600 s     |
| Tracepoints      | 31600000         | 31600000     |
| Time resolution  | 1.000 µs         | 1.000 µs     |
| Detector         | RMS              | RMS          |



FCC Part 47 §15.247 2400-2483.5 MHz 2017

**Time of Channel Occupancy(2) (2441 MHz; 2.000 dBm; 1 MHz)**

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

**Result**

| DUT Frequency (MHz) | Result | Number of Hops | Average time of occupancy (ms) | Threshold (dBm) |
|---------------------|--------|----------------|--------------------------------|-----------------|
| 2441.000000         | PASS   | 104            | 172.790                        | -18.0           |

**Periode**

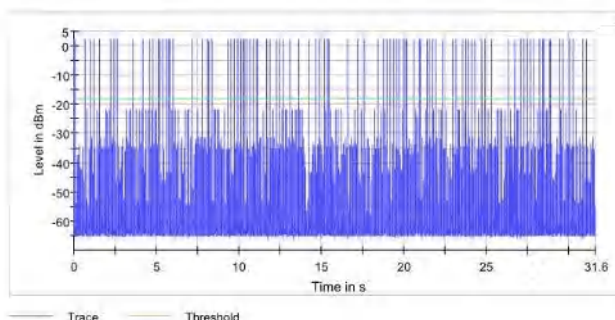
| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 7.500    | 1154.980 | 299.157   |

**Transmit Time per Hop**

| Min (ms) | Max (ms) | Limit Max for Max (ms) | Limit Min for Max (ms) | Mean (ms) |
|----------|----------|------------------------|------------------------|-----------|
| 1.640    | 1.650    | 400.000                | 0.000                  | 1.646     |

**DwellTime**

| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 1.640    | 1.650    | 1.646     |



Time of Channel Occupancy(2)

**Measurement**

| Setting          | Instrument Value | Target Value  |
|------------------|------------------|---------------|
| Center Frequency | 2.44100 GHz      | 2.44100 GHz   |
| Span             | ZeroSpan         | ZeroSpan      |
| RBW              | 500.000 kHz      | ~ 500.000 kHz |
| VBW              | 1.000 MHz        | ~ 1.500 MHz   |
| SweepPoints      | 30001            | ~ 30001       |
| SweepTime        | 31.600 s         | 31.600 s      |
| Reference Level  | -10.000 dBm      | -10.000 dBm   |
| Attenuation      | 0.000 dB         | 0.000 dB      |
| Detector         | MaxPeak          | MaxPeak       |
| SweepCount       | 1                | 1             |
| Filter           | Channel          | Channel       |
| Trace Mode       | Clear Write      | Clear Write   |
| SweepType        | Sweep            | AUTO          |
| Preamplifier     | off              | off           |
| Trigger          | External         | External      |
| Trigger Offset   | 0.000 s          | 0.000 s       |

**OSP**

| Setting          | Instrument Value | Target Value |
|------------------|------------------|--------------|
| Measurement Time | 31.600 s         | 31.600 s     |
| Tracepoints      | 31600000         | 31600000     |
| Time resolution  | 1.000 µs         | 1.000 µs     |
| Detector         | RMS              | RMS          |

FCC Part 47 §15.247 2400-2483.5 MHz 2017

**Time of Channel Occupancy(3) (2441 MHz; 2.000 dBm; 1 MHz)**

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

**Result**

| DUT Frequency (MHz) | Result | Number of Hops | Average time of occupancy (ms) | Threshold (dBm) |
|---------------------|--------|----------------|--------------------------------|-----------------|
| 2441.000000         | PASS   | 59             | 173.530                        | -18.0           |

**Periode**

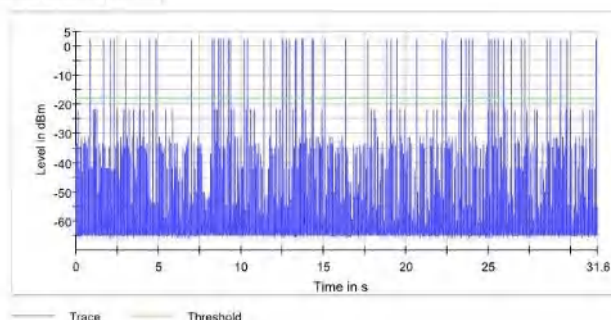
| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 18.750   | 2187.460 | 497.619   |

**Transmit Time per Hop**

| Min (ms) | Max (ms) | Limit Max for Max (ms) | Limit Min for Max (ms) | Mean (ms) |
|----------|----------|------------------------|------------------------|-----------|
| 2.890    | 2.900    | 400.000                | 0.000                  | 2.892     |

**DwellTime**

| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 2.890    | 2.900    | 2.892     |



Time of Channel Occupancy(3)

**Measurement**

| Setting          | Instrument Value | Target Value  |
|------------------|------------------|---------------|
| Center Frequency | 2.44100 GHz      | 2.44100 GHz   |
| Span             | ZeroSpan         | ZeroSpan      |
| RBW              | 500.000 kHz      | ~ 500.000 kHz |
| VBW              | 1.000 MHz        | ~ 1.500 MHz   |
| SweepPoints      | 30001            | ~ 30001       |
| SweepTime        | 31.600 s         | 31.600 s      |
| Reference Level  | -10.000 dBm      | -10.000 dBm   |
| Attenuation      | 0.000 dB         | 0.000 dB      |
| Detector         | MaxPeak          | MaxPeak       |
| SweepCount       | 1                | 1             |
| Filter           | Channel          | Channel       |
| Trace Mode       | Clear Write      | Clear Write   |
| SweepType        | Sweep            | AUTO          |
| Preamp           | off              | off           |
| Trigger          | External         | External      |
| Trigger Offset   | 0.000 s          | 0.000 s       |

**OSP**

| Setting          | Instrument Value | Target Value |
|------------------|------------------|--------------|
| Measurement Time | 31.600 s         | 31.600 s     |
| Tracepoints      | 31600000         | 31600000     |
| Time resolution  | 1.000 µs         | 1.000 µs     |
| Detector         | RMS              | RMS          |

## π/4DQPSK mode

FCC Part 47 §15.247 2400-2483.5 MHz 2017

### Time of Channel Occupancy (2441 MHz; 2.000 dBm; 1 MHz)

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

#### Result

| DUT Frequency (MHz) | Result | Number of Hops | Average time of occupancy (ms) | Threshold (dBm) |
|---------------------|--------|----------------|--------------------------------|-----------------|
| 2441.000000         | PASS   | 316            | 126.770                        | -18.0           |

#### Periode

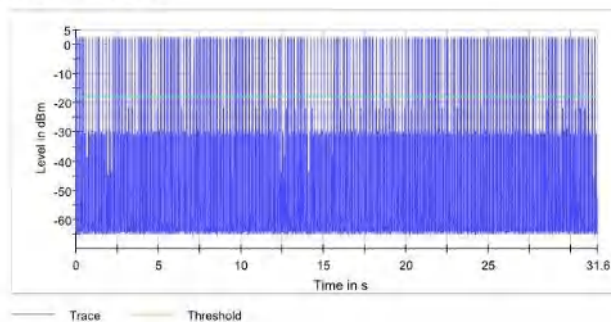
| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 2.500    | 192.500  | 99.708    |

#### Transmit Time per Hop

| Min (ms) | Max (ms) | Limit Max for Max (ms) | Limit Min for Max (ms) | Mean (ms) |
|----------|----------|------------------------|------------------------|-----------|
| 0.38     | 0.80     | 400.000                | 0.000                  | 0.400     |

#### DwellTime

| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 0.39     | 1.650    | 0.409     |



#### Time of Channel Occupancy

##### Measurement

| Setting          | Instrument Value | Target Value  |
|------------------|------------------|---------------|
| Center Frequency | 2.44100 GHz      | 2.44100 GHz   |
| Span             | ZeroSpan         | ZeroSpan      |
| RBW              | 500.000 kHz      | ~ 500.000 kHz |
| VBW              | 1.000 MHz        | ~ 1.500 MHz   |
| SweepPoints      | 30001            | ~ 30001       |
| SweepTime        | 31.600 s         | 31.600 s      |
| Reference Level  | -10.000 dBm      | -10.000 dBm   |
| Attenuation      | 0.000 dB         | 0.000 dB      |
| Detector         | MaxPeak          | MaxPeak       |
| SweepCount       | 1                | 1             |
| Filter           | Channel          | Channel       |
| Trace Mode       | Clear Write      | Clear Write   |
| SweepType        | Sweep            | AUTO          |
| Preamp           | off              | off           |
| Trigger          | External         | External      |
| Trigger Offset   | 0.000 s          | 0.000 s       |

##### OSP

| Setting          | Instrument Value | Target Value |
|------------------|------------------|--------------|
| Measurement Time | 31.600 s         | 31.600 s     |
| Tracepoints      | 31600000         | 31600000     |
| Time resolution  | 1.000 μs         | 1.000 μs     |
| Detector         | RMS              | RMS          |

FCC Part 47 §15.247 2400-2483.5 MHz 2017

**Time of Channel Occupancy(2) (2441 MHz; 2.000 dBm; 1 MHz)**

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

**Result**

| DUT Frequency (MHz) | Result | Number of Hops | Average time of occupancy (ms) | Threshold (dBm) |
|---------------------|--------|----------------|--------------------------------|-----------------|
| 2441.000000         | PASS   | 114            | 189.550                        | -18.0           |

**Periode**

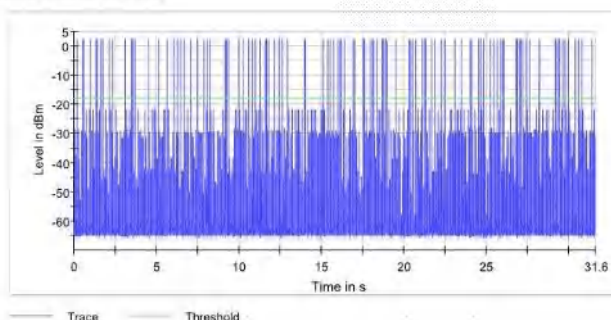
| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 15.000   | 1136.230 | 270.890   |

**Transmit Time per Hop**

| Min (ms) | Max (ms) | Limit Max for Max (ms) | Limit Min for Max (ms) | Mean (ms) |
|----------|----------|------------------------|------------------------|-----------|
| 1.630    | 1.650    | 400.000                | 0.000                  | 1.648     |

**DwellTime**

| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 1.640    | 1.650    | 1.649     |



**Time of Channel Occupancy(2)**

**Measurement**

| Setting          | Instrument Value | Target Value  |
|------------------|------------------|---------------|
| Center Frequency | 2.44100 GHz      | 2.44100 GHz   |
| Span             | ZeroSpan         | ZeroSpan      |
| RBW              | 500.000 kHz      | ~ 500.000 kHz |
| VBW              | 1.000 MHz        | ~ 1.500 MHz   |
| SweepPoints      | 30001            | ~ 30001       |
| SweepTime        | 31.600 s         | 31.600 s      |
| Reference Level  | -10.000 dBm      | -10.000 dBm   |
| Attenuation      | 0.000 dB         | 0.000 dB      |
| Detector         | MaxPeak          | MaxPeak       |
| SweepCount       | 1                | 1             |
| Filter           | Channel          | Channel       |
| Trace Mode       | Clear Write      | Clear Write   |
| SweepType        | Sweep            | AUTO          |
| Preamplifier     | off              | off           |
| Trigger          | External         | External      |
| Trigger Offset   | 0.000 s          | 0.000 s       |

**OSP**

| Setting          | Instrument Value | Target Value |
|------------------|------------------|--------------|
| Measurement Time | 31.600 s         | 31.600 s     |
| Tracepoints      | 31600000         | 31600000     |
| Time resolution  | 1.000 µs         | 1.000 µs     |
| Detector         | RMS              | RMS          |

FCC Part 47 §15.247 2400-2483.5 MHz 2017

**Time of Channel Occupancy(3) (2441 MHz; 2.000 dBm; 1 MHz)**

Test according to FCC title 47 part 15 §15.247(a), KDB 558074 D01 DTS Meas Guidance v04 and ANSI C63.10-2013

**Result**

| DUT Frequency (MHz) | Result | Number of Hops | Average time of occupancy (ms) | Threshold (dBm) |
|---------------------|--------|----------------|--------------------------------|-----------------|
| 2441.000000         | PASS   | 65             | 191.030                        | -18.0           |

**Periode**

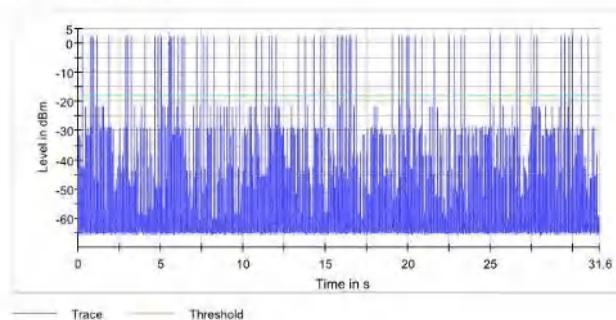
| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 31.250   | 2149.960 | 472.451   |

**Transmit Time per Hop**

| Min (ms) | Max (ms) | Limit Max for Max (ms) | Limit Min for Max (ms) | Mean (ms) |
|----------|----------|------------------------|------------------------|-----------|
| 2.880    | 2.900    | 400.000                | 0.000                  | 2.894     |

**DwellTime**

| Min (ms) | Max (ms) | Mean (ms) |
|----------|----------|-----------|
| 2.890    | 2.900    | 2.897     |



**Time of Channel Occupancy(3)**

**Measurement**

| Setting          | Instrument Value | Target Value  |
|------------------|------------------|---------------|
| Center Frequency | 2.44100 GHz      | 2.44100 GHz   |
| Span             | ZeroSpan         | ZeroSpan      |
| RBW              | 500.000 kHz      | ~ 500.000 kHz |
| VBW              | 1.000 MHz        | ~ 1.500 MHz   |
| SweepPoints      | 30001            | ~ 30001       |
| SweepTime        | 31.600 s         | 31.600 s      |
| Reference Level  | -10.000 dBm      | -10.000 dBm   |
| Attenuation      | 0.000 dB         | 0.000 dB      |
| Detector         | MaxPeak          | MaxPeak       |
| SweepCount       | 1                | 1             |
| Filter           | Channel          | Channel       |
| Trace Mode       | Clear Write      | Clear Write   |
| SweepType        | Sweep            | AUTO          |
| Preamp           | off              | off           |
| Trigger          | External         | External      |
| Trigger Offset   | 0.000 s          | 0.000 s       |

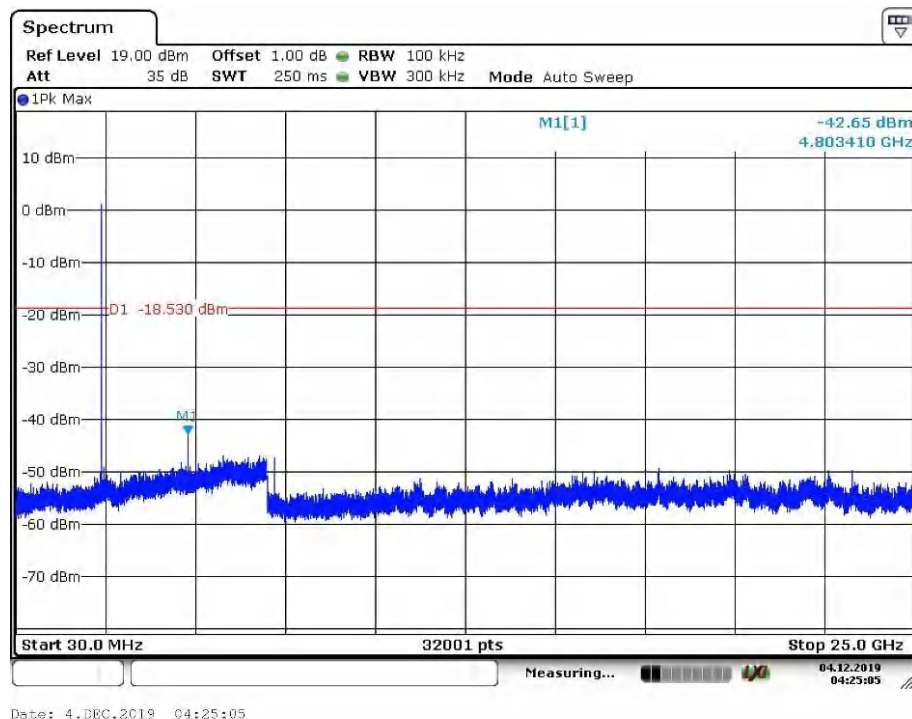
**OSP**

| Setting          | Instrument Value | Target Value |
|------------------|------------------|--------------|
| Measurement Time | 31.600 s         | 31.600 s     |
| Tracepoints      | 31600000         | 31600000     |
| Time resolution  | 1.000 µs         | 1.000 µs     |
| Detector         | RMS              | RMS          |

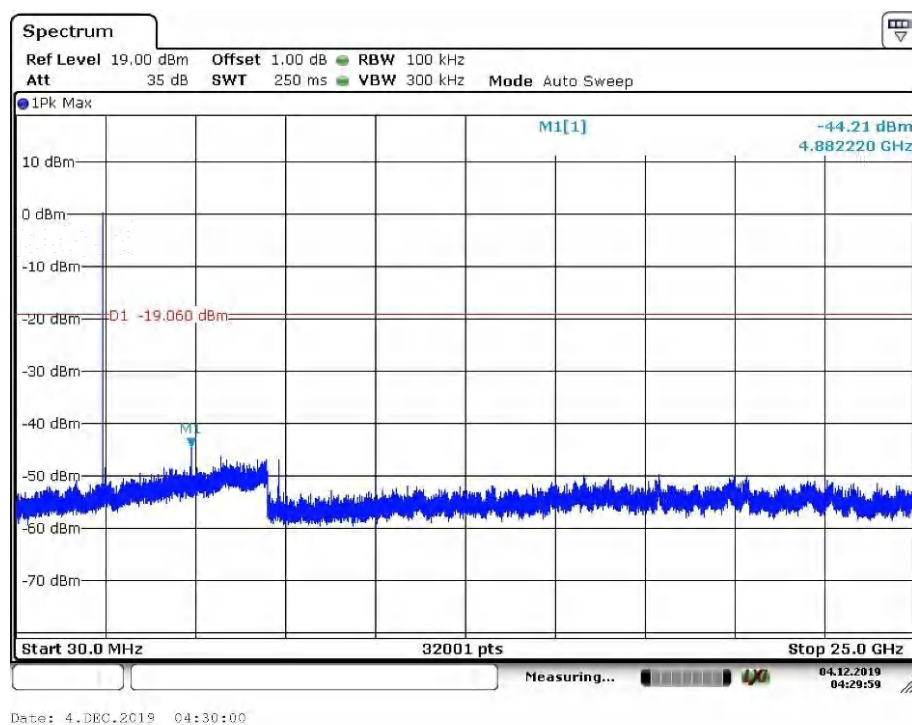
## Appendix B.6: Test Results of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

GFSK mode

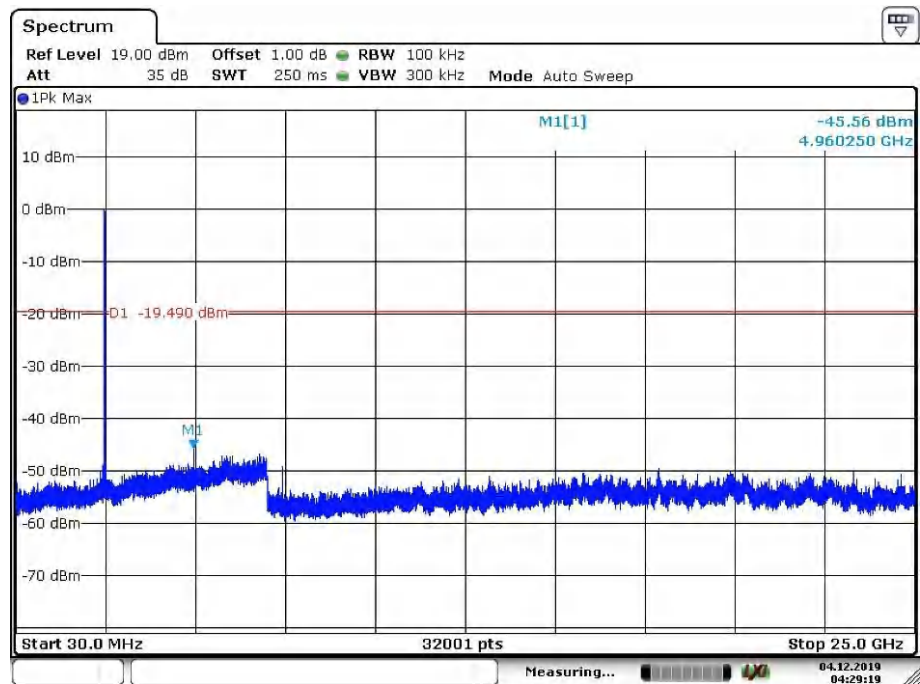
Low Channel



Middle Channel

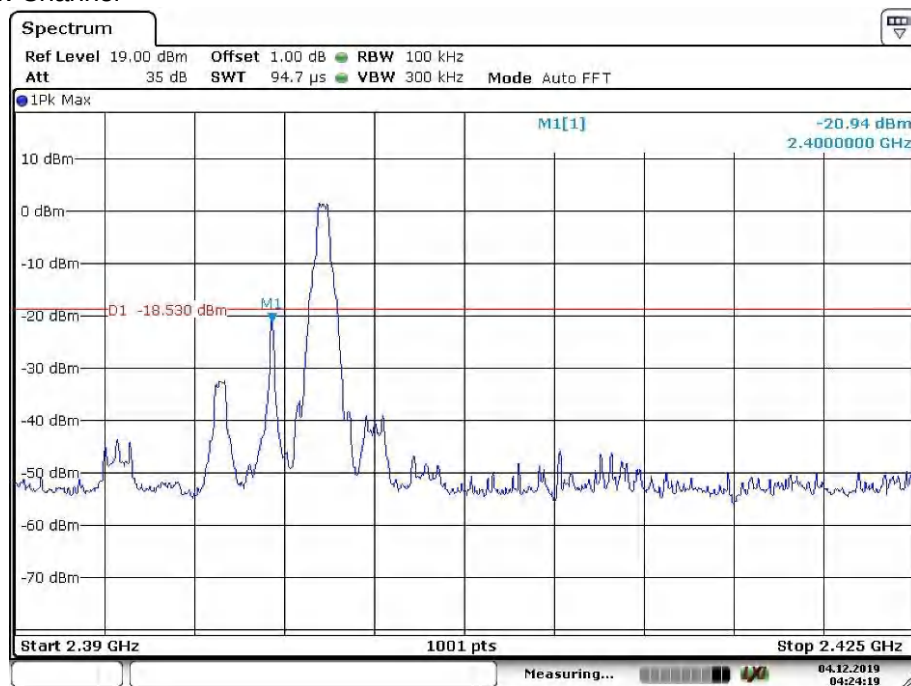


## High Channel



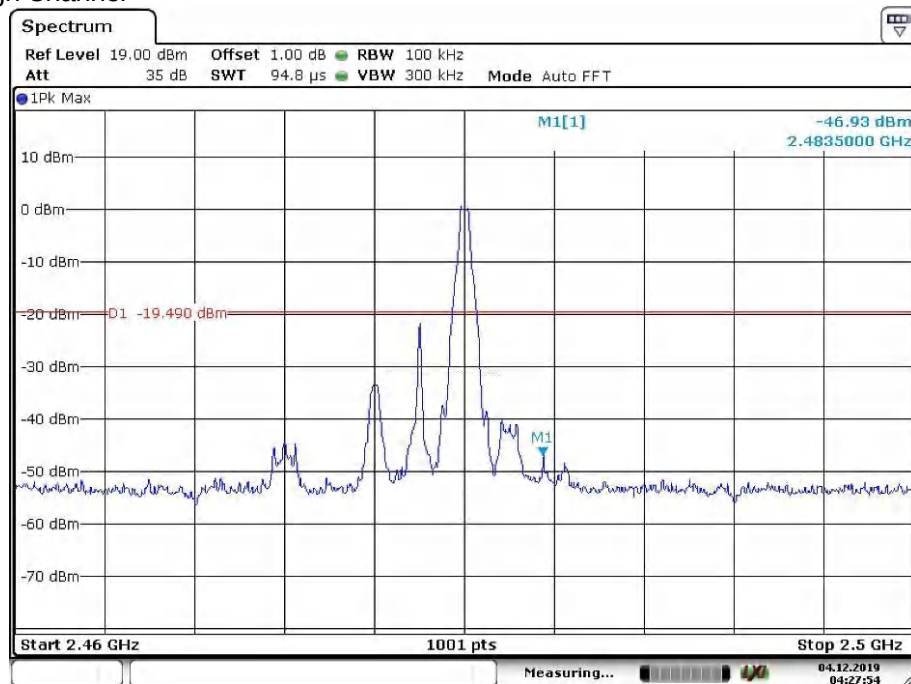
Date: 4.DEC.2019 04:29:19

### Band Edge, Low Channel



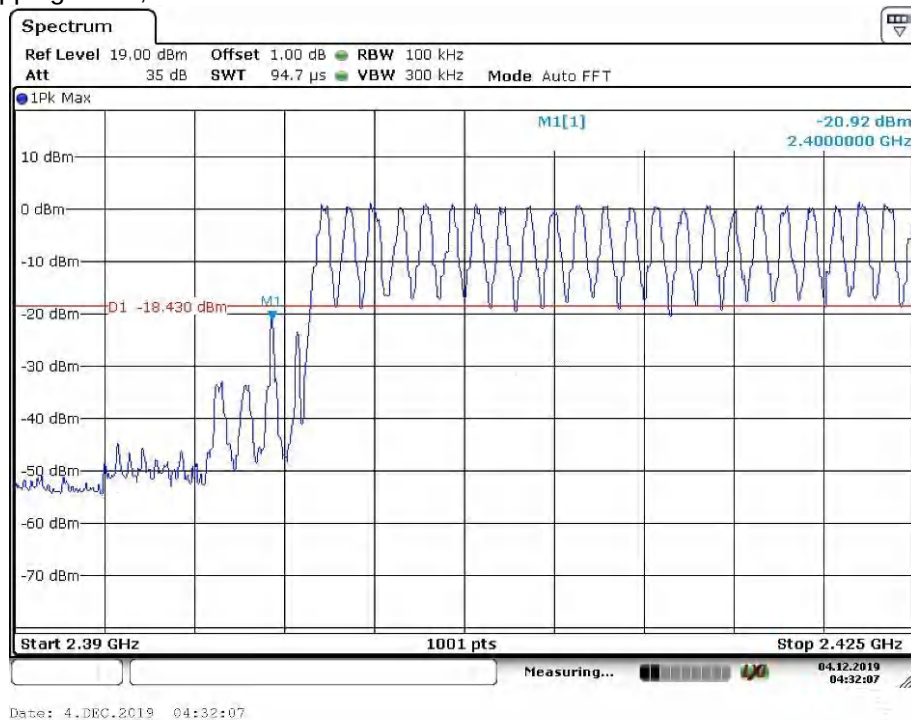
Date: 4.DEC.2019 04:24:19

### Band Edge, High Channel

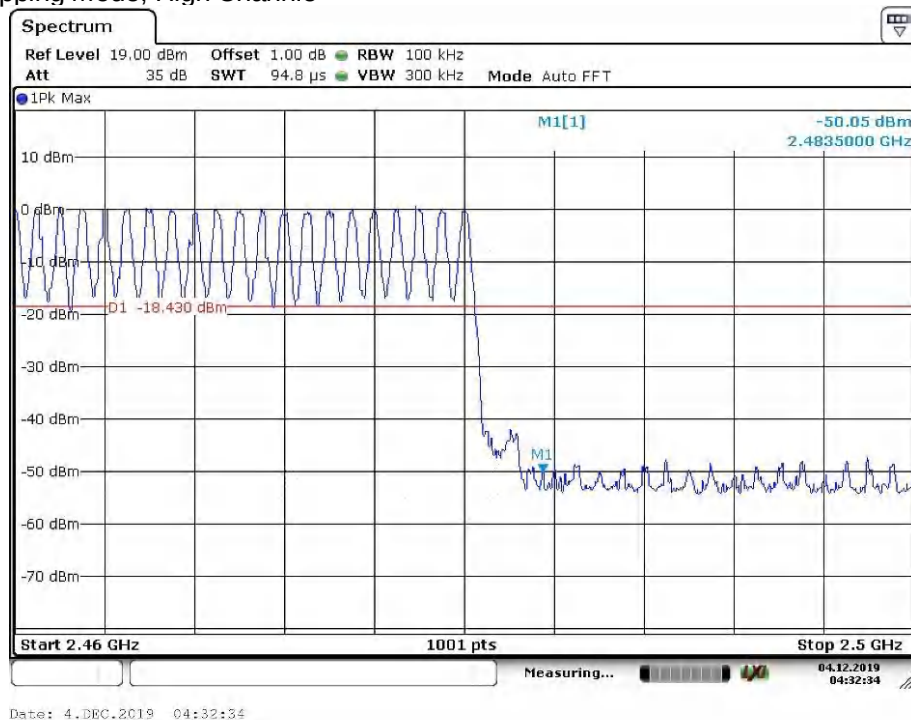


Date: 4.DEC.2019 04:27:54

### Band Edge, Hopping Mode, Low Channel

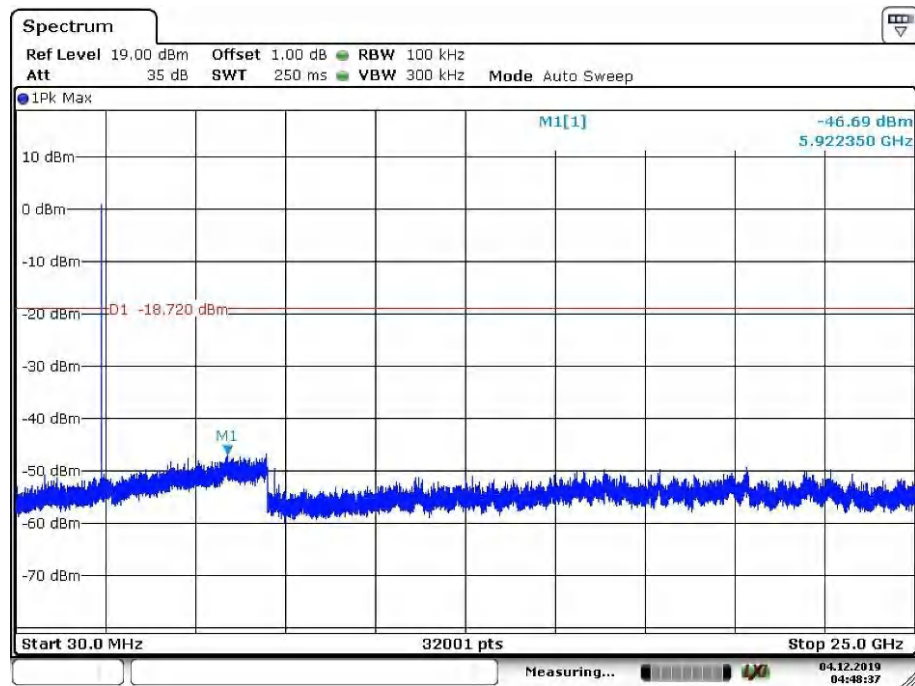


### Band Edge, Hopping Mode, High Channel

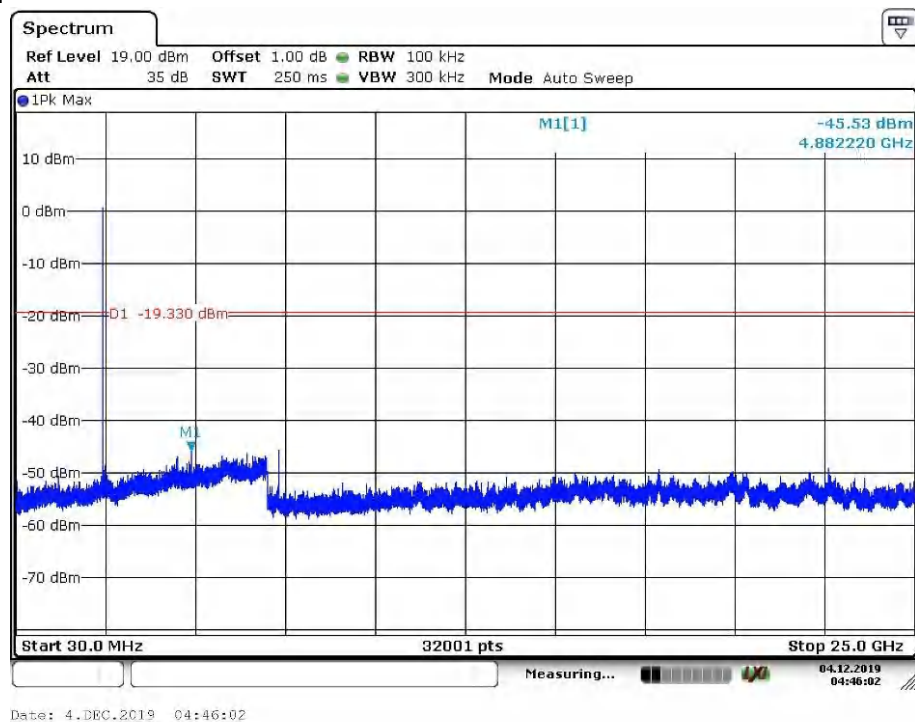


$\pi$ /4DQPSK mode

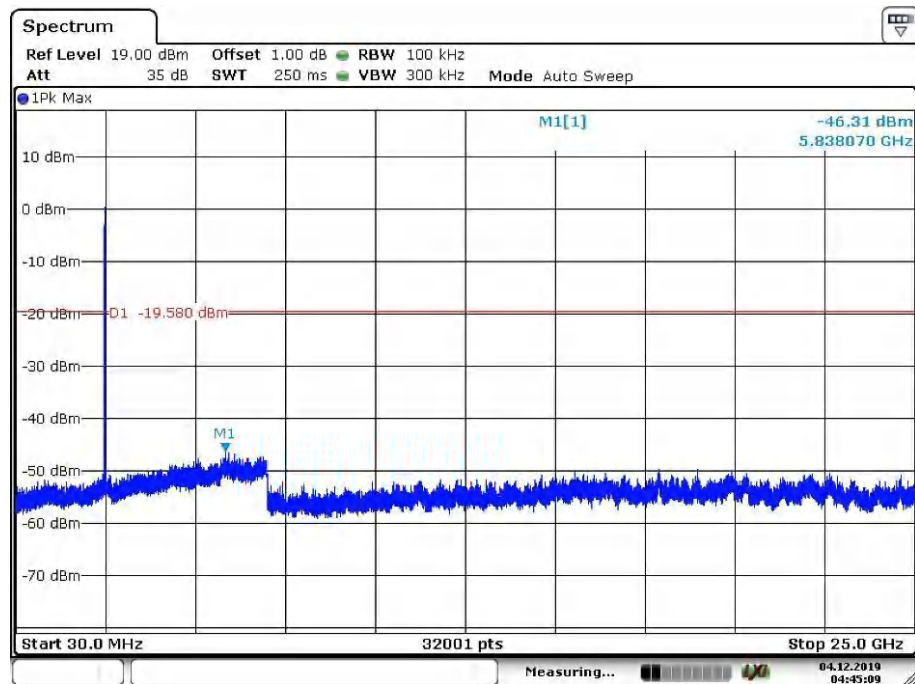
Low Channel



Middle Channel

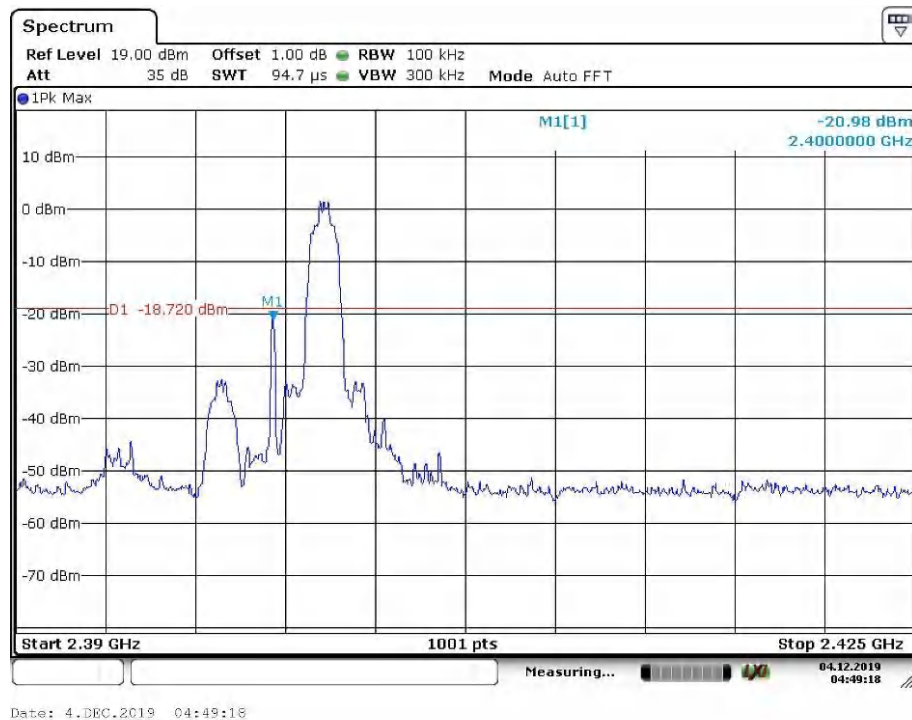


## High Channel

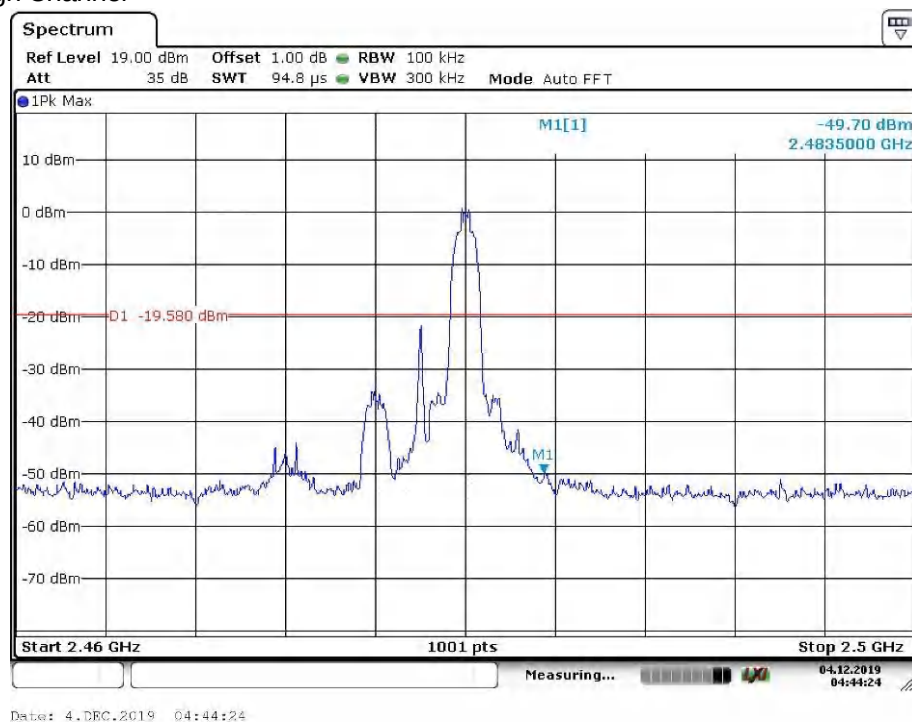


Date: 4.DEC.2019 04:45:09

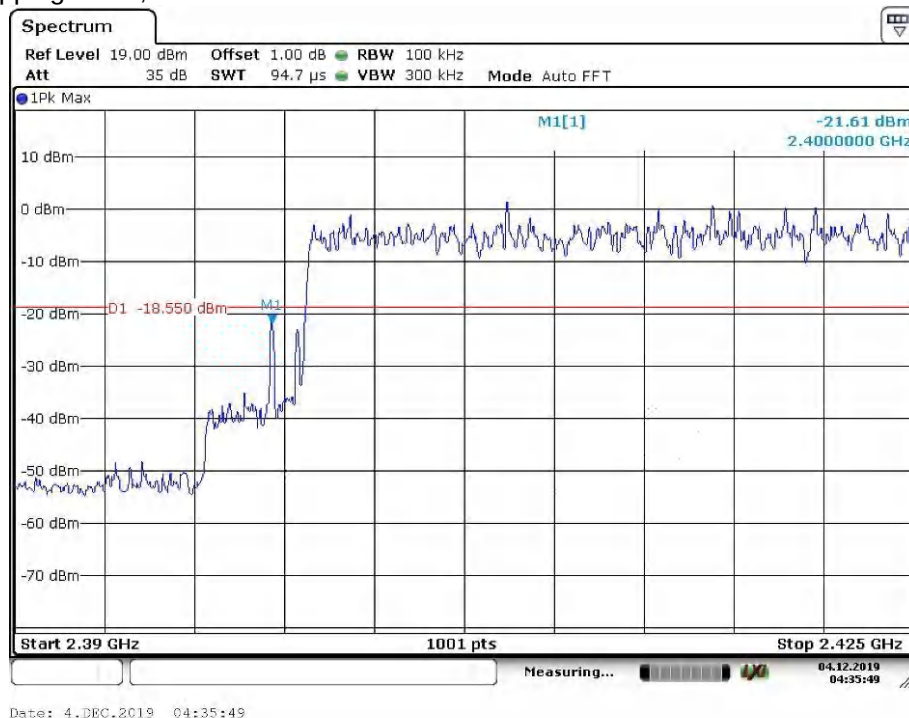
### Band Edge, Low Channel



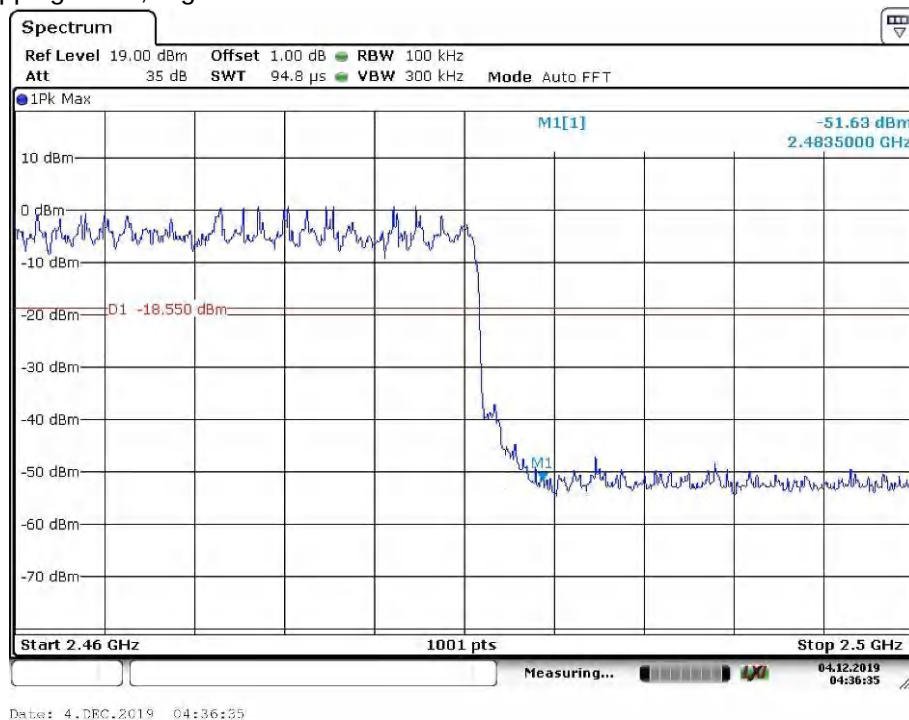
### Band Edge, High Channel



### Band Edge, Hopping Mode, Low Channel



### Band Edge, Hopping Mode, High Channel



Note: Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

## Appendix B.7: Test Results of Radiated Spurious Emissions

30MHz - 1GHz (Worst case)

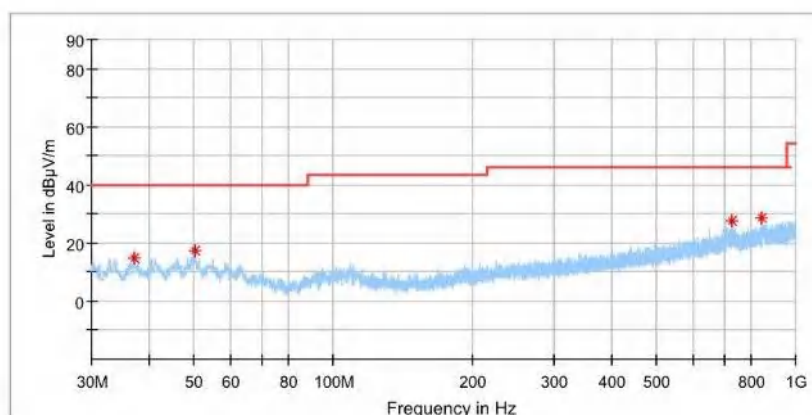
EMI Auto Test(1)

1 / 1

### Test Report

#### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_Low Channel         |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 24 Humi:47%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



#### Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 37.178000       | 14.59            | ---              | 40.00          | 25.41       | 100.0       | H   | 316.0         | -21.4        |
| 50.321500       | 17.28            | ---              | 40.00          | 22.72       | 100.0       | H   | 2.0           | -18.6        |
| 728.400000      | 27.83            | ---              | 46.00          | 18.17       | 100.0       | H   | 356.0         | -7.9         |
| 845.818500      | 28.65            | ---              | 46.00          | 17.35       | 100.0       | H   | 119.0         | -6.0         |

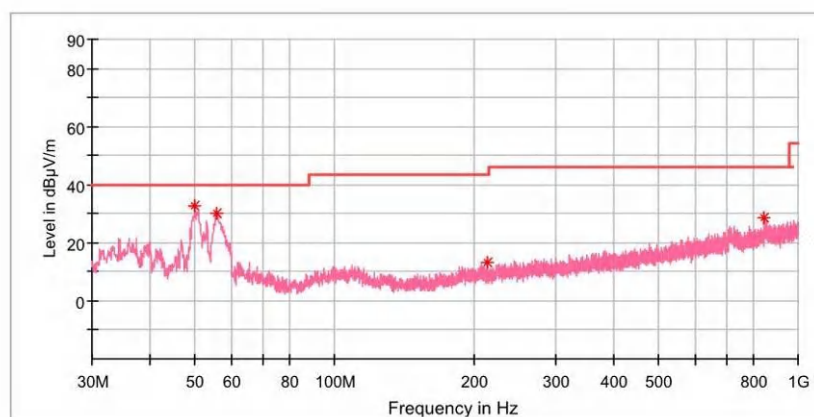
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_Low Channel         |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 24 Humi:47%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 49.982000       | 32.54            | ---              | 40.00          | 7.46        | 100.0       | V   | 68.0          | -18.6        |
| 55.705000       | 29.97            | ---              | 40.00          | 10.03       | 100.0       | V   | 256.0         | -18.8        |
| 213.330000      | 13.36            | ---              | 43.50          | 30.14       | 100.0       | V   | 166.0         | -19.1        |
| 844.994000      | 28.47            | ---              | 46.00          | 17.53       | 100.0       | V   | 338.0         | -6.0         |

5/12/2019

5:06:46 PM

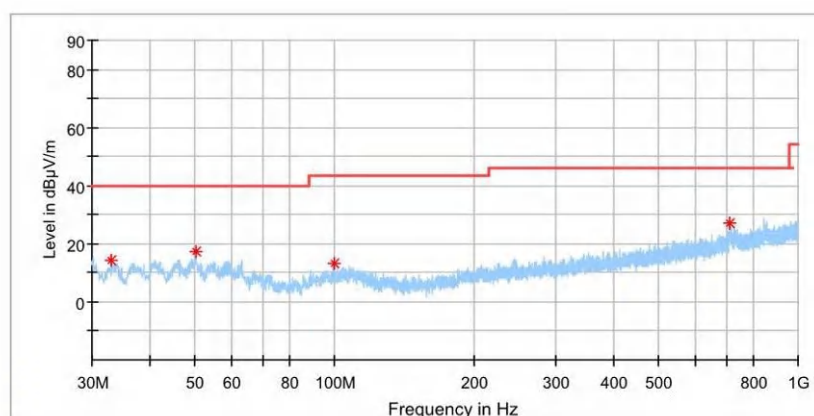
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_High Channel        |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 24 Humi:47%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 33.104000       | 14.22            | ---              | 40.00          | 25.78       | 100.0       | H   | 22.0          | -22.8        |
| 50.370000       | 17.14            | ---              | 40.00          | 22.86       | 100.0       | H   | 284.0         | -18.6        |
| 100.034000      | 13.00            | ---              | 43.50          | 30.50       | 100.0       | H   | 218.0         | -19.3        |
| 709.679000      | 27.04            | ---              | 46.00          | 18.96       | 100.0       | H   | 0.0           | -8.3         |

5/12/2019

5:14:58 PM

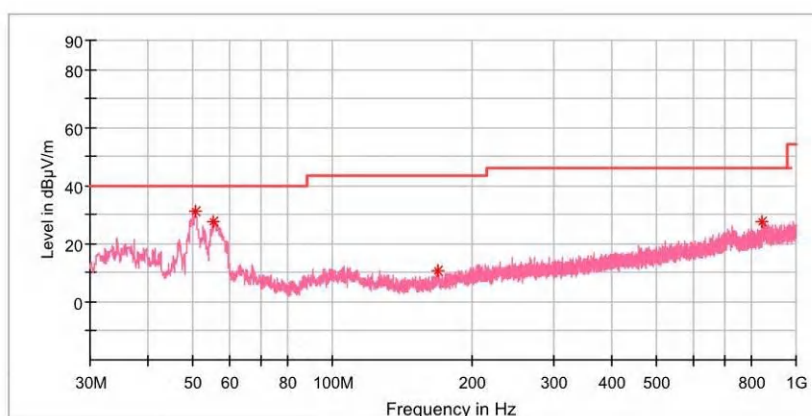
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_High Channel        |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 24 Humi:47%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 50.612500       | 31.16            | ---              | 40.00          | 8.84        | 100.0       | V   | 204.0         | -18.6        |
| 55.511000       | 27.62            | ---              | 40.00          | 12.38       | 100.0       | V   | 212.0         | -18.8        |
| 169.146500      | 10.91            | ---              | 43.50          | 32.59       | 100.0       | V   | 286.0         | -21.6        |
| 844.945500      | 27.63            | ---              | 46.00          | 18.37       | 100.0       | V   | 204.0         | -6.0         |

5/12/2019

5:27:37 PM

Above 1GHz  
Low Channel

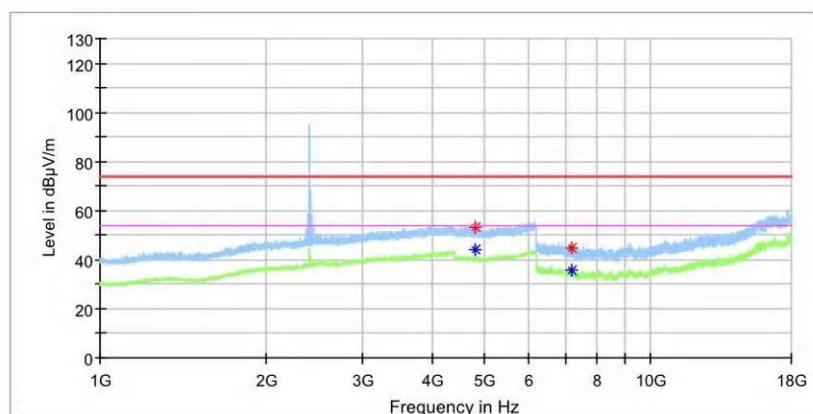
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_Low Channel         |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 24 Humi:45%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4804.000000     | 53.09            | ---              | 74.00          | 20.91       | 100.0       | H   | 76.0          | 13.6         |
| 4804.000000     | ---              | 44.00            | 54.00          | 10.00       | 100.0       | H   | 76.0          | 13.6         |
| 7205.458333     | ---              | 35.49            | 54.00          | 18.51       | 100.0       | H   | 145.0         | 8.8          |
| 7207.916667     | 44.47            | ---              | 74.00          | 29.53       | 100.0       | H   | 338.0         | 8.8          |

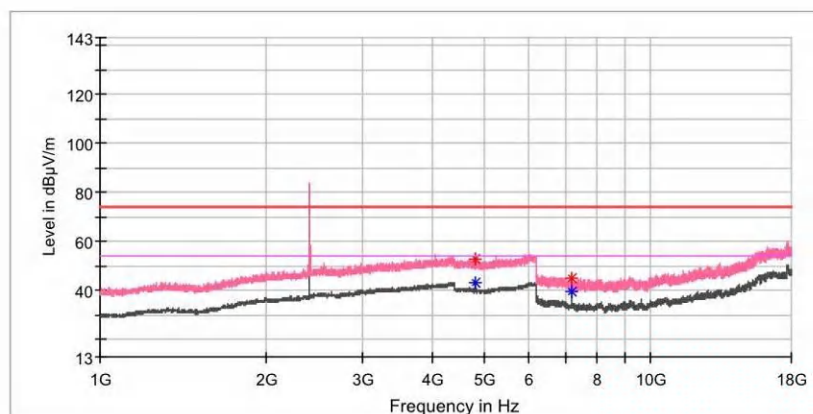
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_Low Channel         |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 24 Humi:45%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4804.000000     | ---              | 43.18            | 54.00          | 10.82       | 100.0       | V   | 158.0         | 13.6         |
| 4804.000000     | 52.91            | ---              | 74.00          | 21.09       | 100.0       | V   | 158.0         | 13.6         |
| 7205.458333     | 45.20            | ---              | 74.00          | 28.80       | 100.0       | V   | 356.0         | 8.8          |
| 7205.950000     | ---              | 39.31            | 54.00          | 14.69       | 100.0       | V   | 356.0         | 8.8          |

3/12/2019

4:56:59 PM

Middle Channel

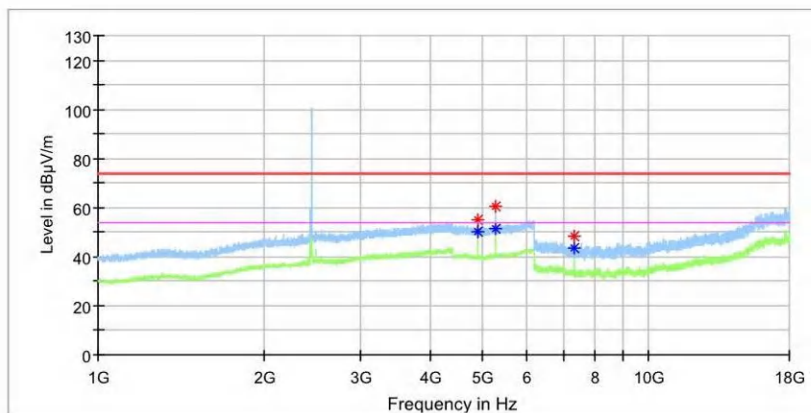
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_Mid Channel         |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 23 Humi:47%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4882.000000     | ---              | 50.47            | 54.00          | 3.53        | 100.0       | H   | 131.0         | 13.4         |
| 4882.000000     | 54.84            | ---              | 74.00          | 19.16       | 100.0       | H   | 131.0         | 13.4         |
| 5260.500000     | ---              | 51.25            | 54.00          | 2.75        | 100.0       | H   | 105.0         | 14.0         |
| 5260.500000     | 60.27            | ---              | 74.00          | 13.73       | 100.0       | H   | 105.0         | 14.0         |
| 7322.475000     | ---              | 43.83            | 54.00          | 10.17       | 100.0       | H   | 156.0         | 8.2          |
| 7322.966667     | 48.39            | ---              | 74.00          | 25.61       | 100.0       | H   | 135.0         | 8.2          |

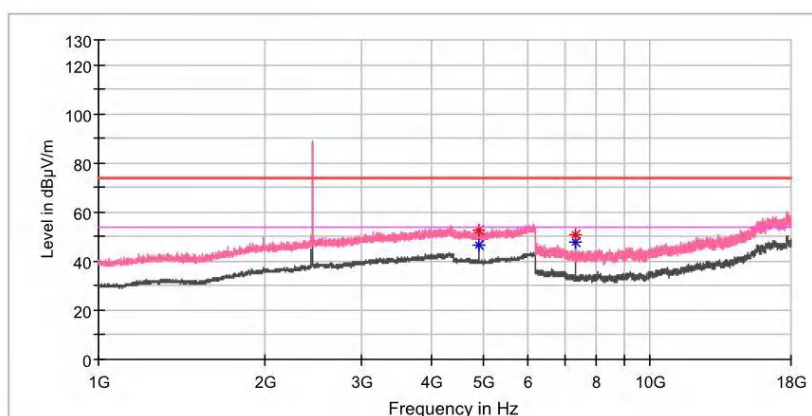
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_Mid Channel         |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 23 Humi:47%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4882.000000     | ---              | 46.81            | 54.00          | 7.19        | 100.0       | V   | 355.0         | 13.4         |
| 4882.500000     | 52.79            | ---              | 74.00          | 21.21       | 100.0       | V   | 355.0         | 13.4         |
| 7322.475000     | ---              | 48.03            | 54.00          | 5.97        | 100.0       | V   | 138.0         | 8.2          |
| 7322.475000     | 51.05            | ---              | 74.00          | 22.95       | 100.0       | V   | 138.0         | 8.2          |

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2:01:39 PM

## High Channel

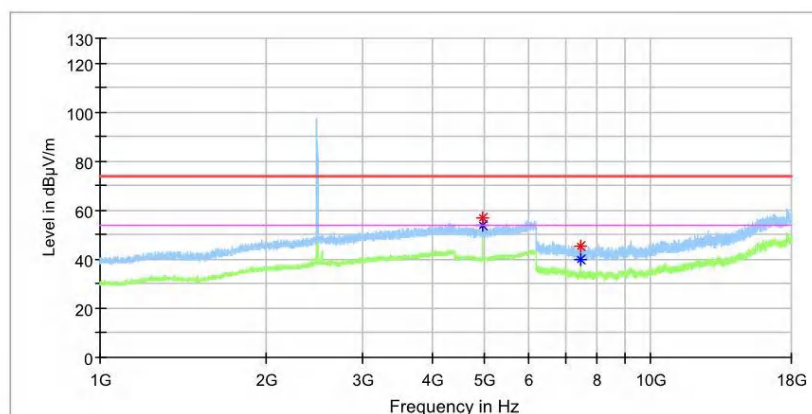
EMI Auto Test(1)

1 / 1

# Test Report

## EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_High Channel        |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 24 Humi:45%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



## Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4959.500000     | 56.95            | ---              | 74.00          | 17.05       | 100.0       | H   | 122.0         | 13.2         |
| 4960.000000     | ---              | 52.97            | 54.00          | 1.03        | 100.0       | H   | 122.0         | 13.2         |
| 7439.983333     | ---              | 39.61            | 54.00          | 14.39       | 100.0       | H   | 355.0         | 8.4          |
| 7439.983333     | 45.64            | ---              | 74.00          | 28.36       | 100.0       | H   | 355.0         | 8.4          |

4/12/2019

9:07:24 AM

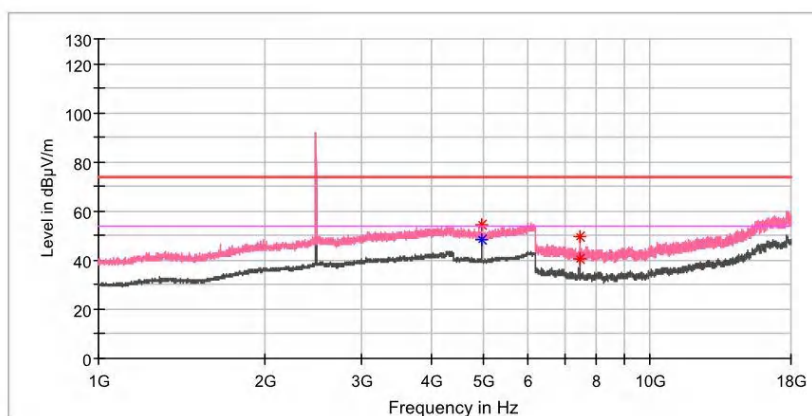
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_High Channel        |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 23 Humi:47%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 4960.000000     | ---              | 48.25            | 54.00          | 5.75        | 100.0       | V   | 0.0           | 13.2         |
| 4960.000000     | 54.39            | ---              | 74.00          | 19.61       | 100.0       | V   | 0.0           | 13.2         |
| 7439.491667     | 49.51            | ---              | 74.00          | 24.49       | 100.0       | V   | 97.0          | 8.4          |
| 7442.441667     | ---              | 40.61            | 54.00          | 13.39       | 100.0       | V   | 0.0           | 8.4          |

4/12/2019

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Note: The highest waveform in the figure is Bluetooth 2.4GHz fundamental.

## Appendix B.8: Test Results of Radiated Emissions in Restricted Bands

Low channel

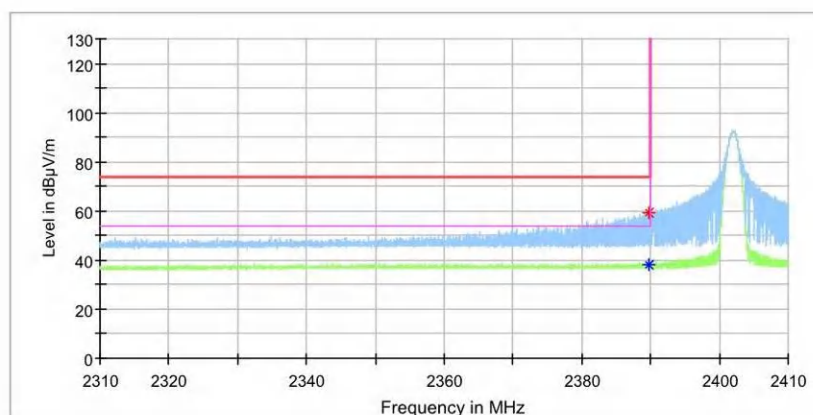
EMI Auto Test(1)

1 / 1

### Test Report

#### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_Low Channel         |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 24 Humi:45%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



#### Critical Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2389.647059     | ---              | 38.12            | 54.00          | 15.88       | 100.0       | H   | 113.0         | 7.0          |
| 2389.720588     | 59.34            | ---              | 74.00          | 14.66       | 100.0       | H   | 316.0         | 7.0          |

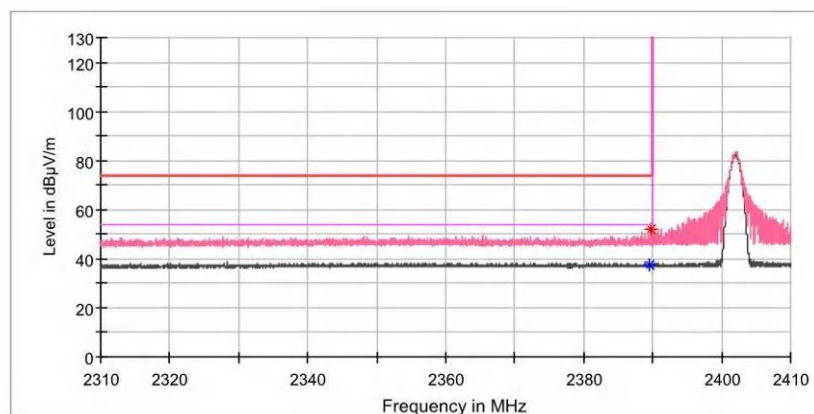
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_Low Channel         |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 24 Humi:45%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2389.514706     | ---              | 37.76            | 54.00          | 16.24       | 100.0       | V   | 35.0          | 7.0          |
| 2389.691177     | 51.92            | ---              | 74.00          | 22.08       | 100.0       | V   | 70.0          | 7.0          |

3/12/2019

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High channel

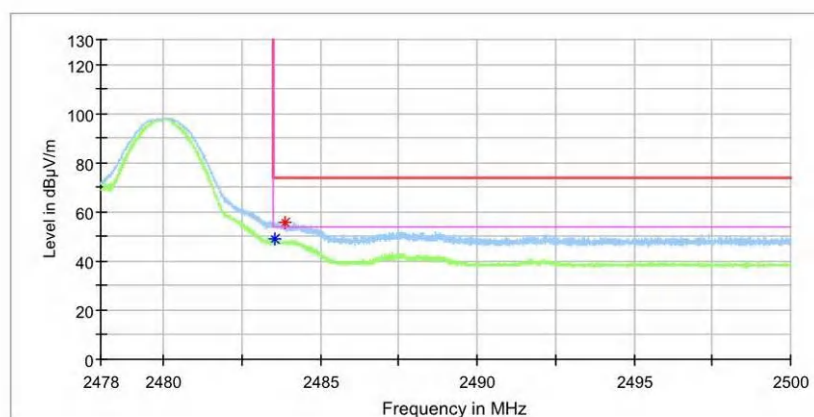
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_High Channel        |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 23 Humi:47%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBμV/m) | Average (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2483.529118     | ---              | 48.82            | 54.00          | 5.18        | 100.0       | H   | 127.0         | 7.4          |
| 2483.878530     | 55.89            | ---              | 74.00          | 18.11       | 100.0       | H   | 56.0          | 7.4          |

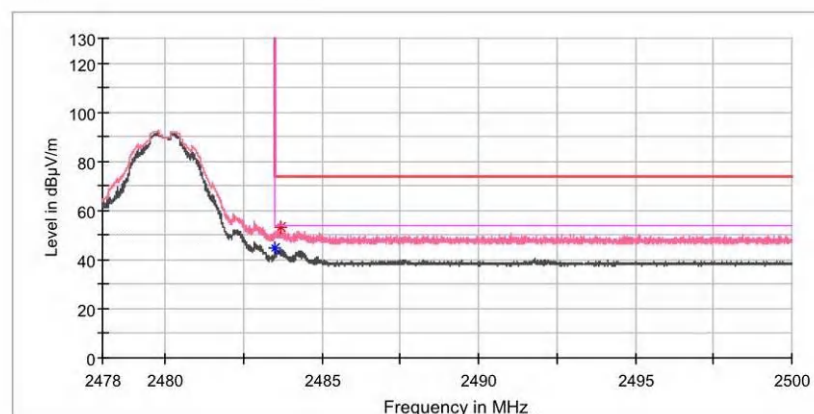
EMI Auto Test(1)

1 / 1

## Test Report

### EUT Information

|                |                        |
|----------------|------------------------|
| EUT Name:      | WIRELESS TOWER SPEAKER |
| Model:         | EE5649                 |
| Test Mode:     | TX_High Channel        |
| Test Voltage:: | DC 5V From USB         |
| Remark:        | Temp 23 Humi:47%       |
| Test Standard: | FCC 15.247             |
| Tested By:     | Kei Zhang              |
| Reviewed By:   | Terry Yin              |



### Critical Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|------------------|------------------|----------------|-------------|-------------|-----|---------------|--------------|
| 2483.500000     | ---              | 44.78            | 54.00          | 9.22        | 100.0       | V   | 77.0          | 7.4          |
| 2483.687647     | 53.17            | ---              | 74.00          | 20.83       | 100.0       | V   | 77.0          | 7.4          |

4/12/2019

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## Appendix B.9: Test Results of Conducted Emission on AC Mains

Bluetooth connecting mode

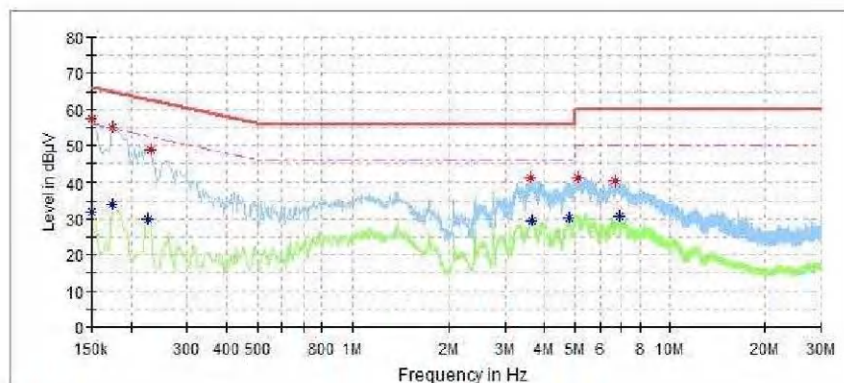
Test

1 / 1

### Test Report

#### EUT Information

|               |                                |
|---------------|--------------------------------|
| EUT Name:     | WIRELESS TOWER SPEAKER         |
| Model:        | EE5649                         |
| Order No.:    | 168136562(130)                 |
| Test Mode:    | Bluetooth connecting +Charging |
| Test Voltage: | DC5V                           |
| Test By:      | Leon Liu                       |
| Review By:    | Gary Chen                      |
| Remark:       |                                |



#### Critical Freqs

| Frequency (MHz) | MaxPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|----------------|----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.150000        | ---            | 32.00          | 56.00        | 24.00       | ---             | ---             | L1   | 9.6        |
| 0.150000        | 57.54          | ---            | 66.00        | 8.46        | ---             | ---             | L1   | 9.6        |
| 0.174000        | ---            | 34.17          | 54.77        | 20.60       | ---             | ---             | L1   | 9.6        |
| 0.174000        | 54.80          | ---            | 64.77        | 9.97        | ---             | ---             | L1   | 9.6        |
| 0.226000        | ---            | 30.09          | 52.60        | 22.50       | ---             | ---             | L1   | 9.6        |
| 0.230000        | 48.89          | ---            | 62.45        | 13.56       | ---             | ---             | L1   | 9.6        |
| 3.636000        | 41.03          | ---            | 56.00        | 14.97       | ---             | ---             | L1   | 9.8        |
| 3.672000        | ---            | 29.69          | 46.00        | 16.31       | ---             | ---             | L1   | 9.8        |
| 4.804000        | ---            | 30.24          | 46.00        | 15.76       | ---             | ---             | L1   | 9.9        |
| 5.104000        | 41.23          | ---            | 60.00        | 18.77       | ---             | ---             | L1   | 9.9        |
| 6.712000        | 40.41          | ---            | 60.00        | 19.59       | ---             | ---             | L1   | 10.0       |
| 6.916000        | ---            | 30.81          | 50.00        | 19.19       | ---             | ---             | L1   | 10.0       |

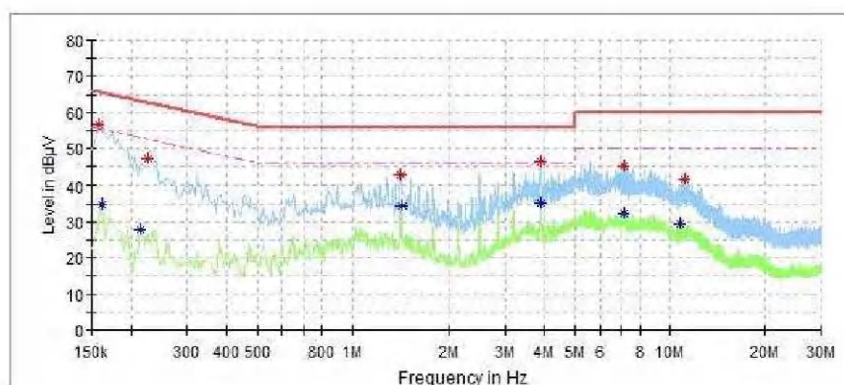
Test

1 / 1

## Test Report

### EUT Information

|               |                                |
|---------------|--------------------------------|
| EUT Name:     | WIRELESS TOWER SPEAKER         |
| Model:        | EE5649                         |
| Order No.:    | 168136562(130)                 |
| Test Mode:    | Bluetooth connecting +Charging |
| Test Voltage: | DC5V                           |
| Test By:      | Leon Liu                       |
| Review By:    | Gary Chen                      |
| Remark:       |                                |



### Critical\_Freqs

| Frequency (MHz) | MaxPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|----------------|----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.158000        | 56.52          | ---            | 65.57        | 9.05        | ---             | ---             | N    | 9.6        |
| 0.162000        | ---            | 34.68          | 55.36        | 20.68       | ---             | ---             | N    | 9.6        |
| 0.214000        | ---            | 28.02          | 53.05        | 25.03       | ---             | ---             | N    | 9.6        |
| 0.226000        | 47.24          | ---            | 62.60        | 15.36       | ---             | ---             | N    | 9.6        |
| 1.420000        | 42.59          | ---            | 56.00        | 13.41       | ---             | ---             | N    | 9.7        |
| 1.424000        | ---            | 34.38          | 46.00        | 11.62       | ---             | ---             | N    | 9.7        |
| 3.912000        | 46.32          | ---            | 56.00        | 9.68        | ---             | ---             | N    | 9.9        |
| 3.916000        | ---            | 35.30          | 46.00        | 10.70       | ---             | ---             | N    | 9.9        |
| 7.112000        | ---            | 32.53          | 50.00        | 17.47       | ---             | ---             | N    | 10.0       |
| 7.116000        | 45.17          | ---            | 60.00        | 14.83       | ---             | ---             | N    | 10.0       |
| 10.780000       | ---            | 29.55          | 50.00        | 20.45       | ---             | ---             | N    | 10.1       |
| 11.104000       | 41.49          | ---            | 60.00        | 18.51       | ---             | ---             | N    | 10.1       |

12/13/2019

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