| | | | | |
|---|---|---|---|---|
| **Prüfbericht-Nr.:**<br>*Test report No.:* | **50352719 001** | **Auftrags-Nr.:**<br>*Order No.:* | 168150302 | Seite 1 von 27<br>*Page 1 of 27* |
| **Kunden-Referenz-Nr.:**<br>*Client reference No.:* | N/A | **Auftragsdatum:**<br>*Order date:* | 11.01.2020 | |
| **Auftraggeber:**<br>*Client:* | **Edifier International Limited**<br>P.O. Box 6264 General Post Office Hong Kong | | | |
| **Prüfgegenstand:**<br>*Test item:* | Active Speaker | | | |
| **Bezeichnung / Typ-Nr.:**<br>*Identification / Type No.:* | R1280DBs<br>(Trademark: EDIFIER) | | | |
| **Auftrags-Inhalt:**<br>*Order content:* | FCC and IC approval | | | |
| **Prüfgrundlage:**<br>*Test specification:* | CFR47 FCC Part 15: Subpart C Section 15.247<br>CFR47 FCC Part 15: Subpart C Section 15.207<br>CFR47 FCC Part 15: Subpart C Section 15.209<br>CFR47 FCC Part 2.1091 | | RSS-247 Issue 2 February 2017<br>RSS-Gen Issue 5 April 2015<br>RSS-102 Issue 5 March 2015 | |

| | | |
|---|---|---|
| **Wareneingangsdatum:**<br>*Date of receipt:* | 15.01.2020 | Please refer to photo documents |
| **Prüfmuster-Nr.:**<br>*Test sample No.:* | A001056906-004 | |
| **Prüfzeitraum:**<br>*Testing period:* | 26.02.2020 - 11.03.2020 | |
| **Ort der Prüfung:**<br>*Place of testing:* | TÜV Rheinland (Shenzhen) Co., Ltd. | |
| **Prüflaboratorium:**<br>*Testing laboratory:* | TÜV Rheinland (Shenzhen) Co., Ltd. | |
| **Prüfergebnis*:**<br>*Test result*:* | Pass | |

**geprüft von** / *tested by:*

| **Datum**<br>*Date* | **Name/Stellung**<br>*Name/Position* | **Unterschrift**<br>*Signature* |
|---|---|---|
| 07.04.2020 | Alex Lan / Senior Project Engineer | |

**kontrolliert von** / *reviewed by:*

| **Datum**<br>*Date* | **Name/Stellung**<br>*Name/Position* | **Unterschrift**<br>*Signature* |
|---|---|---|
| 07.04.2020 | Winnie Hou / Technical Certifier | |

**Sonstiges** / *Other:*

FCC ID: Z9G-EDF98
IC: 10004A-EDF98 HVIN: R1280DBs

| | |
|---|---|
| **Zustand des Prüfgegenstandes bei Anlieferung:**<br>*Condition of the test item at delivery:* | Prüfmuster vollständig und unbeschädigt<br>*Test item complete and undamaged:* |

| | | | | | |
|---|---|---|---|---|---|
| *Legende: | 1 = sehr gut | 2 = gut | 3 = befriedigend | 4 = ausreichend | 5 = mangelhalt |
| | P(ass) = entspricht o.g. Prüfgrundlage(n) | | F(ail) = entspricht nicht o.g. Prüfgrundlage(n) | N/A = nicht anwendbar | N/T = nicht getestet |
| *Legend:* | *1 = very good* | *2 = good* | *3 = satisfactory* | *4 = sufficient* | *5 = poor* |
| | *P(ass) = passed a.m. test specifications(s)* | | *F(ail) = failed a.m. test specifications(s)* | *N/A = not applicable* | *N/T = not tested* |

# *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*

**6.1.1 ELECTROMAGNETIC FIELDS**
*RESULT: Pass*

# Contents

# 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 Conducted Testing

Appendix C: Test Results of Radiated Testing & AC Mains Conducted Emission

# 2 Test Sites

## 2.1 Test Facilities

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

No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, People's Republic of China

FCC Registration No.: 694916

IC Registration No.: 25069

## 2.2 List of Test and Measurement Instruments

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

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

| **Radiated Emission** | | | | |
|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Until** |
| EMI Test Receiver | R&S | ESR7 | 102022 | 2020-08-19 |
| Bilog Antenna | TESEQ | CBL6112D | 51321 | 2020-08-29 |
| **Conducted Emissions** | | | | |
| **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Until** |
| EMI Test Receiver | R&S | ESR3 | 102428 | 2020-08-19 |
| Artificial Mains Network | R&S | ENV216 | 102333 | 2020-08-19 |
| **Radio Spectrum Testing** | | | | |
| **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Until** |
| Wireless Connectivity Tester | Rohde & Schwarz | CMW270 | 101375 | 2020-08-30 |
| Signal Analyzer | Rohde & Schwarz | FSV 40 | 101441 | 2020-08-30 |
| Vector Signal Generator | Rohde & Schwarz | SMBV100A | 263301 | 2020-08-30 |
| Signal Generator | Rohde & Schwarz | SMB100A | 115186 | 2020-08-30 |
| OSP | Rohde & Schwarz | OSP 150 | 101017 | 2020-12-20 |
| Control PC | DELL | OptiPlex 7050 | FTJZ9P2 | N/A |
| Test Software | Rohde & Schwarz | WMS32 (V10.40.10) | N/A | N/A |
| Power Meter | Rohde & Schwarz | NRP2 | 107105 | 2020-12-20 |
| Wideband Power Sensor | Rohde & Schwarz | NRP-Z81 | 105350 | 2020-12-20 |
| **Unwanted Emission Testing** | | | | |
| **Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal. Until** |
| Signal Generator | Rohde & Schwarz | SMB100A | 180840 | 2020-08-30 |
| Wideband Radio Communication Tester | Rohde & Schwarz | CMW500 | 165339 | 2020-08-30 |
| Signal Analyzer | Rohde & Schwarz | FSV 40 | 101440 | 2020-08-30 |
| System Controller Interface | Rohde & Schwarz | SCI-100 | S10010036 | N/A |
| Filterbank | Rohde & Schwarz | CDMA | 100751 | 2020-08-30 |
| Filterbank | Rohde & Schwarz | GSM | 100811 | 2020-08-30 |
| OSP | Rohde & Schwarz | OSP 120 | 102041 | N/A |
| OSP | Rohde & Schwarz | OSP 150 | 101385 | N/A |
| Pre-amplifier | Rohde & Schwarz | SCU08F1 | 08320030 | 2020-08-30 |
| Amplifier | Rohde & Schwarz | SCU-18F | 180079 | 2020-08-30 |
| Amplifier | Rohde & Schwarz | SCU40A | 100450 | 2020-09-03 |
| Trilog Broadband Antenna (30 MHz - 1 GHz) | Schwarzbeck | VULB9162 | 192 | 2020-09-02 |

| | | | | |
|---|---|---|---|---|
| Double-Ridged Antenna (1 -18 GHz) | ETS-LINDGREN | 3117 | 00218719 | 2020-09-02 |
| Wideband Ridged Horn Antenna (12-18 GHz) | Steatite | QMS-00208 | 18312 | 2020-09-02 |
| Wideband Ridged Horn Antenna (18-40 GHz) | Steatite | QMS-00880 | 19066 | 2020-09-02 |
| Biconical Broadband Antenna (30 MHz - 1 GHz) | Schwarzbeck | VUBA 9117 | 357 | 2020-09-02 |
| Double Ridged Broadband Horn Antenna (1 – 18 GHz) | Schwarzbeck | BBHA 9120 D | 01760 | 2020-09-02 |
| Broadband Horn Antenna (15 – 40 GHz) | Schwarzbeck | BBHA 9170 | 00862 | 2020-09-02 |
| Test software | Rohde & Schwarz | EMC32 (V10.40.00) | N/A | N/A |
| Control PC | Dell | OptiPlex 7050 | 36NW9P2 | 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 basics 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

| Item | | Extended Uncertainty |
|---|---|---|
| Conducted Emission | | ± 2.74 dB |
| Radiated Emission (30-1000MHz) | Field strength (dBμV/m) | 4.27dB |
| Radiated Emission (above 1000MHz) | Field strength (dBμV/m) | 4.46dB |
| Radio Spectrum | | ± 1.5 dB |

## 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) file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 362 Huanguan Road Middle, Longhua District, Shenzhen 518110, People's Republic of China 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 an Active Speaker which supports Bluetooth 5.0 (BDR&EDR) technology.

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

## 3.2 Ratings and System Details

**Table 2: Technical Specification of EUT**

| Technical Specification | Value |
|---|---|
| Kind of Equipment | Active Speaker |
| Type Designation | R1280DBs |
| FCC ID | Z9G-EDF98 |
| IC | 10004A-EDF98 |
| HVIN | R1280DBs |
| Operating Frequency | 2402 - 2480 MHz |
| Operating Voltage | AC 100-240V, 50/60Hz, 300mA |
| Testing Voltage | AC 120V, 60Hz |
| Type of Modulation | GFSK, π/4DQPSK, 8DPSK |
| Channel Number | BDR & EDR mode:79 channels |
| Channel Separation | BDR & EDR mode:1MHz |
| Wireless Technology | Bluetooth 5.0 |
| Antenna Type | Integral Antenna |
| Max. Antenna Gain | 2.59 dBi |

**Table 3: RF Channel and Frequency of Bluetooth**

| RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) |
|---|---|---|---|---|---|---|---|
| **00** | **2402.00** | 20 | 2422.00 | 40 | 2442.00 | 60 | 2462.00 |
| 01 | 2403.00 | 21 | 2423.00 | 41 | 2443.00 | 61 | 2463.00 |
| 02 | 2404.00 | 22 | 2424.00 | 42 | 2444.00 | 62 | 2464.00 |
| 03 | 2405.00 | 23 | 2425.00 | 43 | 2445.00 | 63 | 2465.00 |
| 04 | 2406.00 | 24 | 2426.00 | 44 | 2446.00 | 64 | 2466.00 |
| 05 | 2407.00 | 25 | 2427.00 | 45 | 2447.00 | 65 | 2467.00 |
| 06 | 2408.00 | 26 | 2428.00 | 46 | 2448.00 | 66 | 2468.00 |
| 07 | 2409.00 | 27 | 2429.00 | 47 | 2449.00 | 67 | 2469.00 |
| 08 | 2410.00 | 28 | 2430.00 | 48 | 2450.00 | 68 | 2470.00 |
| 09 | 2411.00 | 29 | 2431.00 | 49 | 2451.00 | 69 | 2471.00 |
| 10 | 2412.00 | 30 | 2432.00 | 50 | 2452.00 | 70 | 2472.00 |
| 11 | 2413.00 | 31 | 2433.00 | 51 | 2453.00 | 71 | 2473.00 |
| 12 | 2414.00 | 32 | 2434.00 | 52 | 2454.00 | 72 | 2474.00 |
| 13 | 2415.00 | 33 | 2435.00 | 53 | 2455.00 | 73 | 2475.00 |
| 14 | 2416.00 | 34 | 2436.00 | 54 | 2456.00 | 74 | 2476.00 |
| 15 | 2417.00 | 35 | 2437.00 | 55 | 2457.00 | 75 | 2477.00 |
| 16 | 2418.00 | 36 | 2438.00 | 56 | 2458.00 | 76 | 2478.00 |
| 17 | 2419.00 | 37 | 2439.00 | 57 | 2459.00 | 77 | 2479.00 |
| 18 | 2420.00 | 38 | 2440.00 | 58 | 2460.00 | **78** | **2480.00** |
| 19 | 2421.00 | **39** | **2441.00** | 59 | 2461.00 | -- | -- |

**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 for devices which will be operated in the USA. This was checked during the Bluetooth Qualification tests. |
| Hopping Sequence | Example of a 79 hopping sequence in data mode:<br><br>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.. |
| Receiver input bandwidth | 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.<br><br>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.<br><br>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.<br><br>That means a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence. |

## 3.3 Independent Operation Modes

The basic operation modes are:

A. On
   1. Bluetooth transmitting mode (BDR & EDR mode)
      a) Low Channel
      b) Middle Channel
      c) High Channel

B. On, Transmitting on Hopping channel

C. On, Bluetooth connecting mode

D. Off

## 3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

## 3.5 Submitted Documents

- Application Form
- Block Diagram
- Schematics
- Technical Description
- FCC/IC Label and Location Info
- Photo Document
- 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 testing were performed according to the procedures in ANSI C63.10: 2013.

## 4.3 Special Accessories and Auxiliary Equipment

**Table 5: List of Accessories and Auxiliary Equipment**

| Description | Manufacturer | Model | S/N |
|---|---|---|---|
| iPhone6S PLUS | Apple | ML6D2 CH/A | C35QJ76JGRWM |
| DVD Player | KENUO | DVD-966S | 2003010805086710 |
| Audio Analyzer | R&S | SB3493 | 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)**

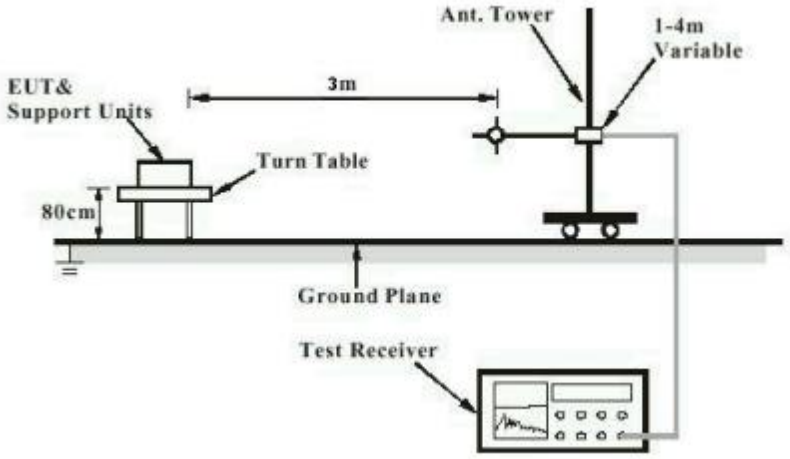



**Diagram of Measurement Configuration for Radiation Test (Above 1GHz)**

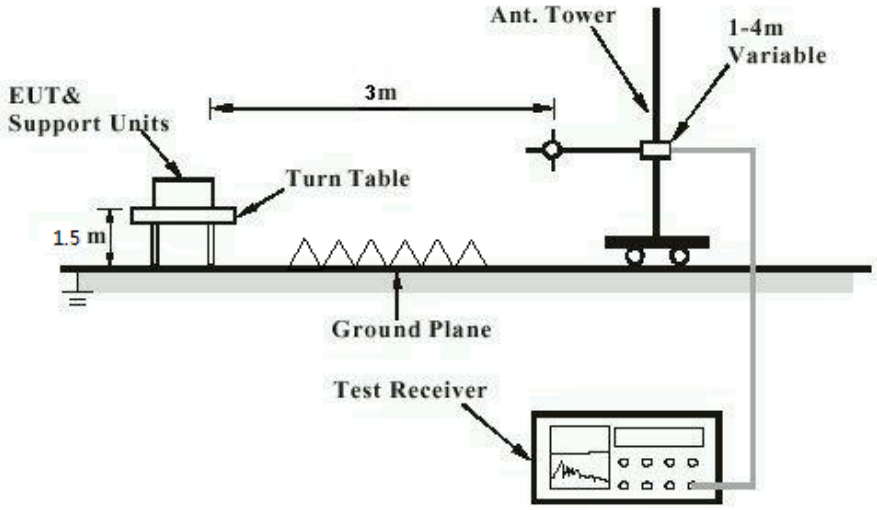


**Diagram of Measurement Configuration for Mains Conduction Measurement**

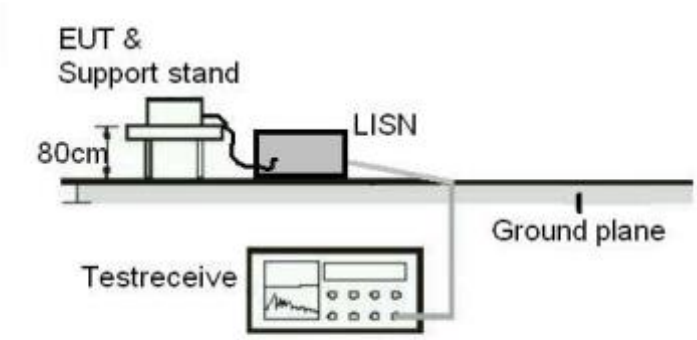
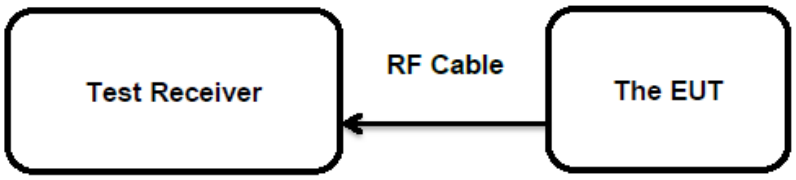



**Diagram of Measurement Configuration for Conducted Transmitter Measurement**



# 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
RSS-Gen Clause 8.3

According to the manufacturer declared, the EUT has an integral antenna, the directional gain of antenna is 2.59 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.

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)<br>RSS-247 Clause 5.4(b) |
| Basic standard | : | ANSI C63.10: 2013 |
| Limits : | | FHSS<0.125W(Maximum peak conducted output power)<br>< 4 W (e.i.r.p.) |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 26.02.2020 |
| Input voltage | : | AC 120V/60Hz |
| Operation mode | : | A.1 |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 25 ℃ |
| Relative humidity | : | 56 % |
| Atmospheric pressure | : | 101 kPa |

**Table 6: Test Result of Maximum Peak Conducted Output Power**

| Test Mode | Channel Frequency (MHz) | Measured Peak Output Power | | Limit (W) |
|---|---|---|---|---|
| | | (dBm) | (W) | |
| BDR | 2402 | -5.85 | 0.00026 | < 0.125 |
| | 2441 | -3.03 | 0.00050 | |
| | 2480 | -2.99 | 0.00050 | |
| EDR | 2402 | -11.10 | 0.00008 | < 0.125 |
| | 2441 | -8.18 | 0.00015 | |
| | 2480 | -8.16 | 0.00015 | |

Note: The cable loss is taken into account in results and the maximum e.i.r.p. is -0.4 dBm less than 4W(36dBm).

## 5.1.3 99% Bandwidth

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | RSS-Gen Clause 6.7 |
| Basic standard | : | ANSI C63.10: 2013 |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 26.02.2020 |
| Input voltage | : | AC 120V/60Hz |
| Operation mode | : | A.1 |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 25 ℃ |
| Relative humidity | : | 56 % |
| Atmospheric pressure | : | 101 kPa |

**Table 7: Test Result of 99% Bandwidth**

| Test Mode | Channel Frequency (MHz) | 99% Bandwidth (kHz) | Limit (kHz) |
|---|---|---|---|
| BDR | 2402 | 865 | / |
| | 2441 | 865 | |
| | 2480 | 865 | |
| EDR | 2402 | 1175 | / |
| | 2441 | 1175 | |
| | 2480 | 1175 | |

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)<br>RSS-247 Clause 5.5 |
| 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); |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 26.02.2020 |
| Input voltage | : | AC 120V/60Hz |
| Operation mode | : | A.1 |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 25 ℃ |
| Relative humidity | : | 56 % |
| Atmospheric pressure | : | 101 kPa |

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

For the measurement records, refer to the appendix B.

## 5.1.5 Radiated Spurious Emission

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.247(d) & FCC Part 15.205<br>RSS-247 Clause 3.3 |
| Basic standard | : | ANSI C63.10: 2013 |
| Limits | : | Refer to 15.209(a) of FCC part 15.247(d)<br>RSS-Gen Table 6 & Table 7 |
| Kind of test site | : | 3m Semi-anechoic Chamber |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 20.02.2020 - 26.02.2020 |
| Input voltage | : | AC 120V/60Hz |
| Operation mode | : | A.1, B |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 23 ℃ |
| Relative humidity | : | 56 % |
| Atmospheric pressure | : | 101 kPa |

Remark:
During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test set-up photos.

Testing was carried out within frequency range 9kHz to the tenth harmonics.

For the measurement records, refer to the appendix C.

## 5.1.6 20dB Bandwidth

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.247(a)(1)<br>RSS-247 Clause 5.1(a) |
| Basic standard | : | ANSI C63.10: 2013 |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 26.02.2020 |
| Input voltage | : | AC 120V/60Hz |
| Operation mode | : | A.1 |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 25 ℃ |
| Relative humidity | : | 56 % |
| Atmospheric pressure | : | 101 kPa |

**Table 8: Test Result of 20dB Bandwidth**

| Test Mode | Channel Frequency (MHz) | 20dB Bandwidth (kHz) | 2/3 of 20dB Bandwidth (kHz) | Limit (MHz) |
|---|---|---|---|---|
| BDR | 2402 | 925 | 616.667 | / |
| | 2441 | 940 | 626.667 | |
| | 2480 | 940 | 626.667 | |
| EDR | 2402 | 1205 | 803.333 | / |
| | 2441 | 1210 | 806.667 | |
| | 2480 | 1210 | 806.667 | |

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)<br>RSS-247 Clause 5.1(b) |
| Basic standard | : | ANSI C63.10: 2013 |
| Limits | : | ≥ 25kHz or 2/3 of 20dB bandwidth, whichever is greater |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 26.02.2020 |
| Input voltage | : | AC 120V/60Hz |
| Operation mode | : | B |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 25 ℃ |
| Relative humidity | : | 56 % |
| Atmospheric pressure | : | 101 kPa |

**Table 9: Test Result of Carrier Frequency Separation**

| Test Mode | Channel | Channel Frequency (MHz) | Measured Channel Separation (MHz) | Limit (kHz) | Result |
|---|---|---|---|---|---|
| BDR | Low Channel | 2401.995050 | 1.009900 | ≥ 25kHz or 2/3 of 20dB bandwidth | Pass |
| | Adjacency Channel | 2403.004950 | | | |
| | Middle Channel | 2440.995050 | 0.980198 | | Pass |
| | Adjacency Channel | 2441.975248 | | | |
| | High Channel | 2478.965347 | 1.009901 | | Pass |
| | Adjacency Channel | 2479.975248 | | | |
| EDR | Low Channel | 2401.995050 | 0.980198 | ≥ 25kHz or 2/3 of 20dB bandwidth | Pass |
| | Adjacency Channel | 2402.975248 | | | |
| | Middle Channel | 2440.995050 | 0.980198 | | Pass |
| | Adjacency Channel | 2441.975248 | | | |
| | High Channel | 2478.995050 | 0.980198 | | Pass |
| | Adjacency Channel | 2479.975248 | | | |

Note:

The limit is maximum 2/3 of the 20 dB bandwidth: 806.667 KHz.

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)<br>RSS-247 Clause 5.1(d) |
| Basic standard | : | ANSI C63.10: 2013 |
| Limits | : | ≥ 15 non-overlapping channels |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 26.02.2020 |
| Input voltage | : | AC 120V/60Hz |
| Operation mode | : | B |
| Ambient temperature | : | 25 ℃ |
| Relative humidity | : | 56 % |
| Atmospheric pressure | : | 101 kPa |

**Table 10: Test Result of Number of Hopping Frequency**

| Frequency Range | Measured Quantity of Hopping Channel | Limit | Result |
|---|---|---|---|
| 2402 to 2480 MHz | 79 | ≥15 | Pass |

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)<br>RSS-247 Clause 5.1(d) |
| Basic standard | : | ANSI C63.10: 2013 |
| Limits | : | < 0.4s |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 26.02.2020 |
| Input voltage | : | AC 120V/60Hz |
| Operation mode | : | B |
| Test channel | : | Low / Middle / High |
| Ambient temperature | : | 25 ℃ |
| Relative humidity | : | 56 % |
| Atmospheric pressure | : | 101 kPa |

**Table 11: Test Result of Time of Occupancy**

| Test Mode | Channel | Data Packet | Pulse width (ms) | Measured Dwell time(s) | Limit (s) |
|---|---|---|---|---|---|
| BDR | 2441 | DH1 | 0.405 | 0.130 | < 0.4s |
| | | DH3 | 1.661 | 0.266 | |
| | | DH5 | 2.909 | 0.310 | |
| EDR | 2441 | 2DH1 | 0.416 | 0.133 | < 0.4s |
| | | 2DH3 | 1.655 | 0.265 | |
| | | 2DH5 | 2.861 | 0.305 | |

Note:

Dwell time = Pulse width x (Hopping rate / Number of channels) x Period

Period = 0.4 x 79 (channel) = 31.6 seconds

## 5.1.10 Conducted Emission on AC Mains

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | FCC Part 15.207(a)<br>RSS-Gen Clause 8.8 |
| Basic standard | : | ANSI C63.10: 2013 |
| Frequency range | : | 0.15 – 30MHz |
| Limits | : | FCC Part 15.207(a)<br>RSS-Gen Table 4 |
| Kind of test site | : | Shielded Room |

**Test Setup**

| | | |
|---|---|---|
| Date of testing | : | 11.03.2020 |
| Input voltage | : | AC 120V/60Hz |
| Operation mode | : | C |
| Earthing | : | Not connected |
| Ambient temperature | : | 25 ℃ |
| Relative humidity | : | 56 % |
| Atmospheric pressure | : | 101 kPa |

For the measurement records, refer to the appendix C.

# 6 Safety Human Exposure

## 6.1 Radio Frequency Exposure Compliance

### 6.1.1 Electromagnetic Fields

**RESULT:** **Pass**

**Test Specification**

| | | |
|---|---|---|
| Test standard | : | CFR47 FCC Part 2.1091 |
| | | RSS-102 Issue 5 March 2015 |
| | | FCC KDB Publication 447498 v06 |
| Limit | : | CFR47 FCC Part 1.1310 |

The measured maximum conducted output power of the EUT is -2.99dBm ≈ 0.50 mW which is far below the SAR exclusion threshold level 10mW (SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm), hence the EUT is excluded from SAR evaluation according to FCC KDB publication 447498 D01: Mobile and Portable RF Exposure. Guidance v06.

The measured maximum specified e.i.r.p of the EUT is -0.4dBm ≈ 0.91mW, which is far below the SAR exclusion threshold level 4mW, hence the EUT is excluded from SAR evaluation according to RSS-102 Issue 5 section 2.5.1.

# 7 Photographs of the Test Set-Up

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

# 8 List of Tables

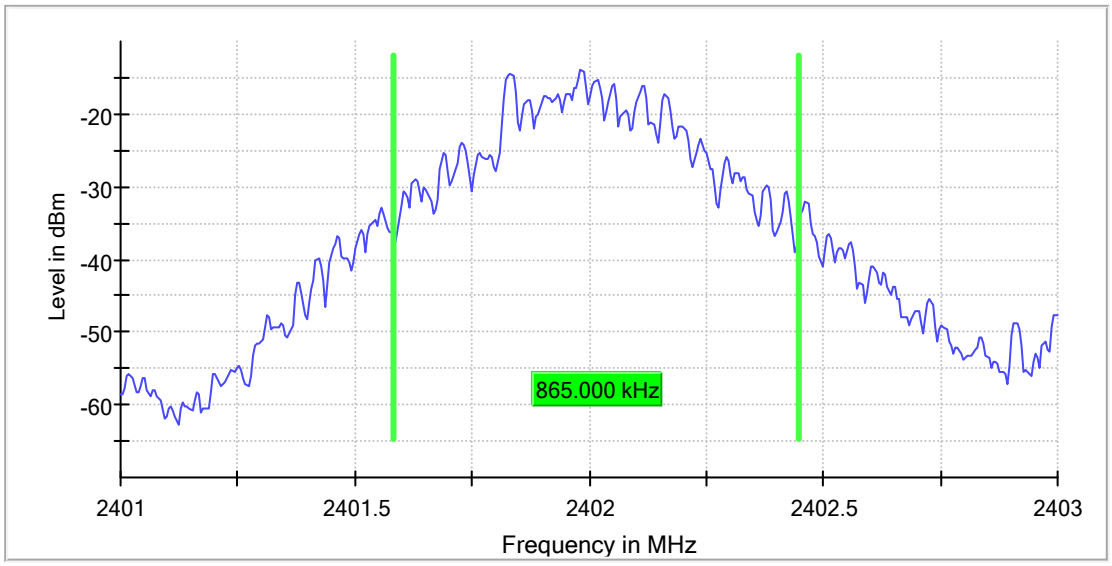
# Appendix B

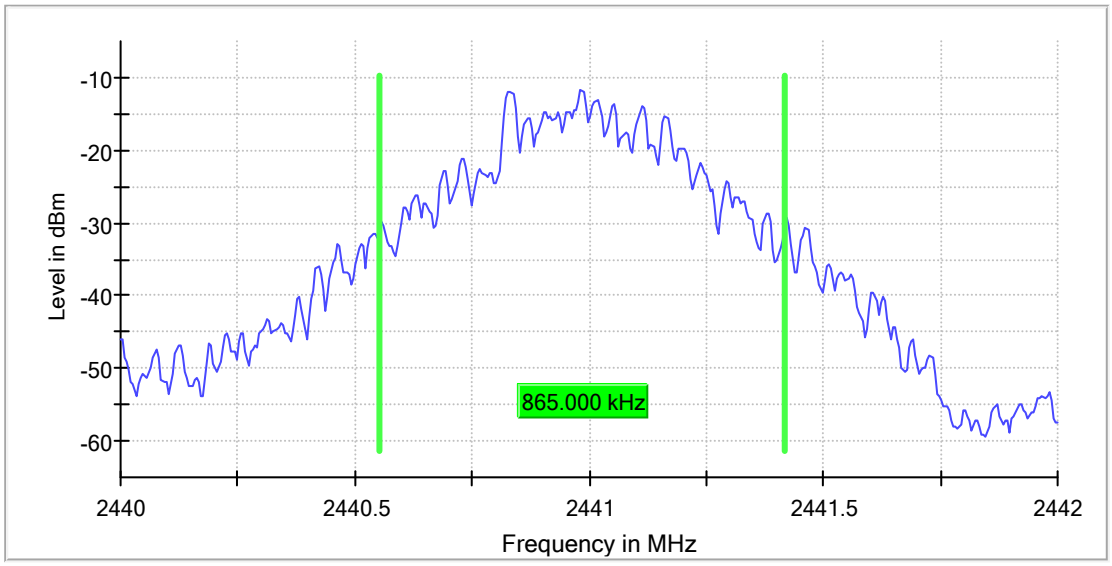
## Test Results of Conducted Testing

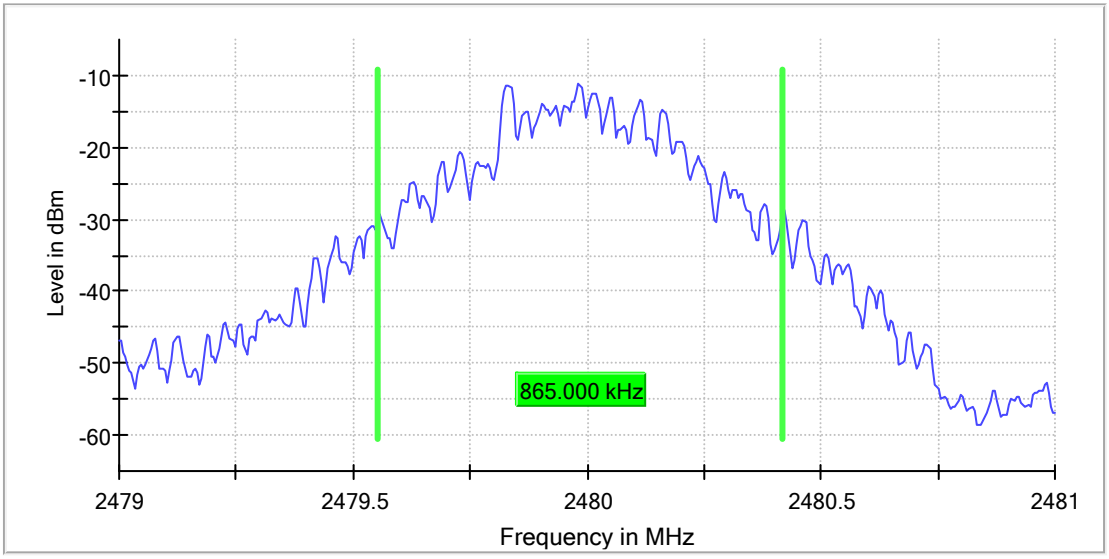
## Appendix B.1: Test Plots of 99% Bandwidth

**BDR Mode, DH1**

RBW=10KHz, VBW=30KHz

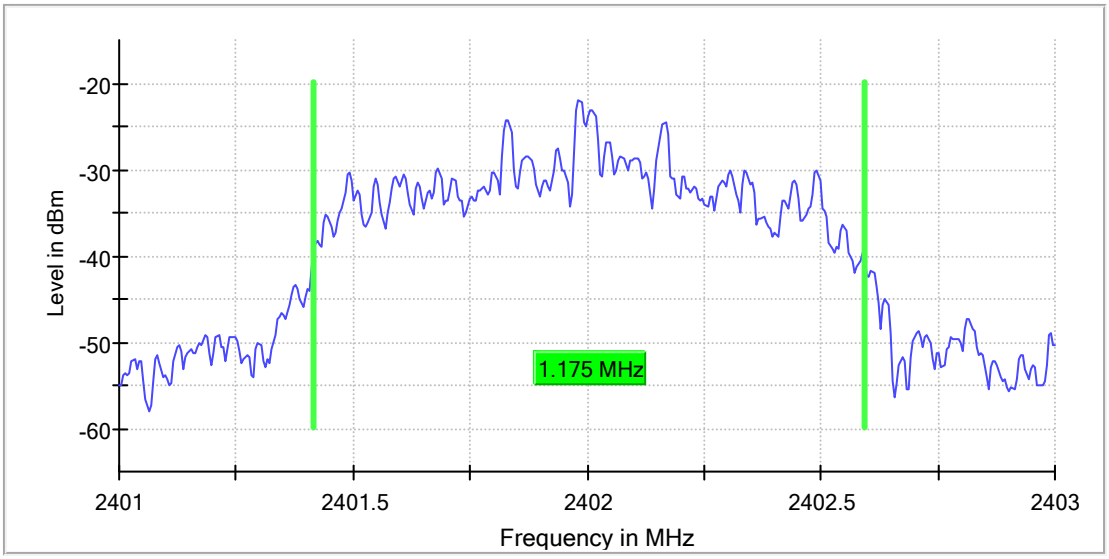


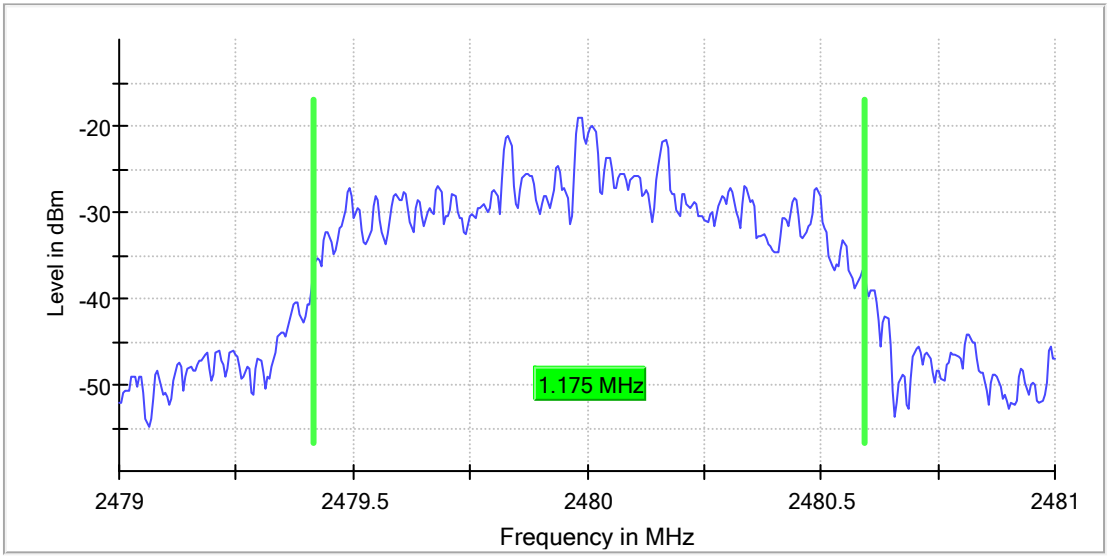



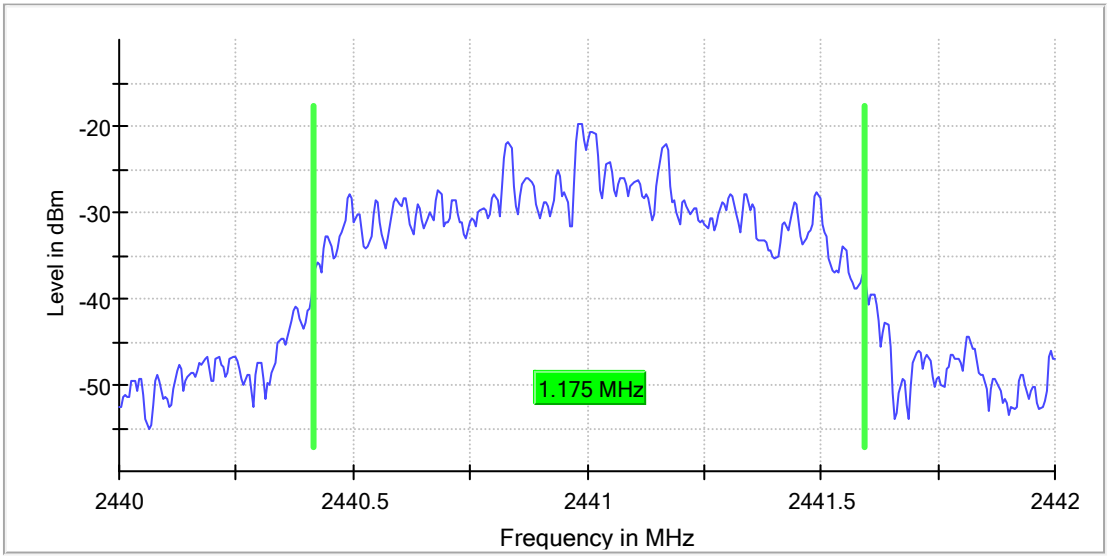



**EDR Mode, 3DH1**

RBW=30KHz VBW=100KHz



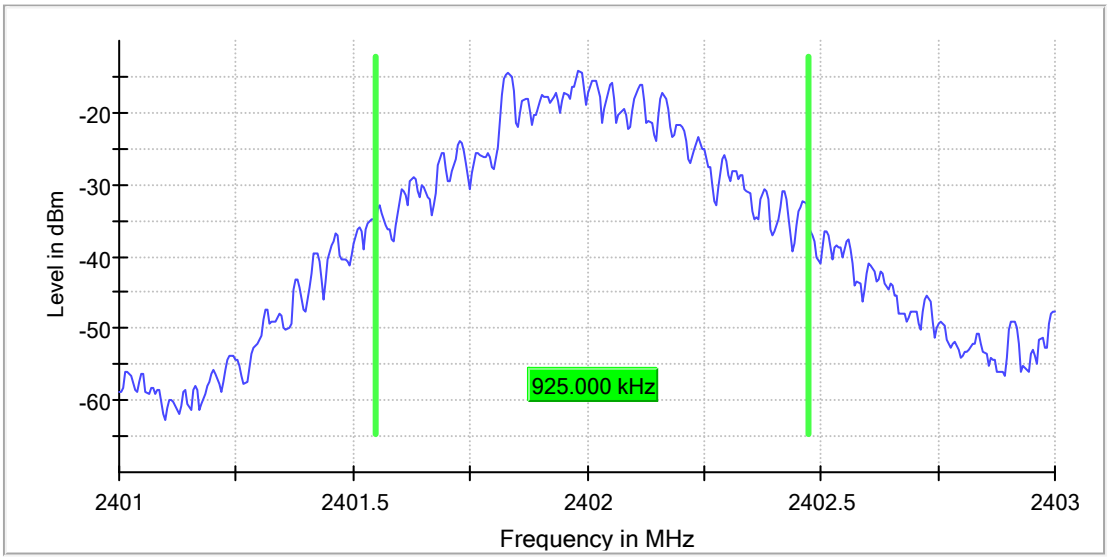

-20
-30
-40
-50
Level in dBm
1.175 MHz
2479
2479.5
2480
2480.5
2481
Frequency in MHz

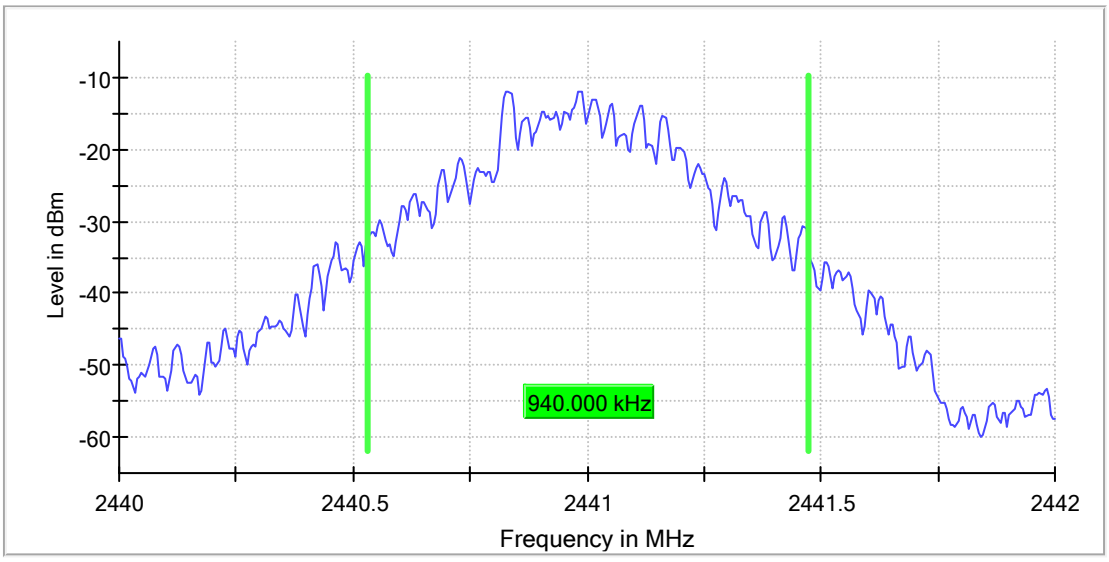

-20
-30
-40
-50
Level in dBm
1.175 MHz
2440
2440.5
2441
2441.5
2442
Frequency in MHz

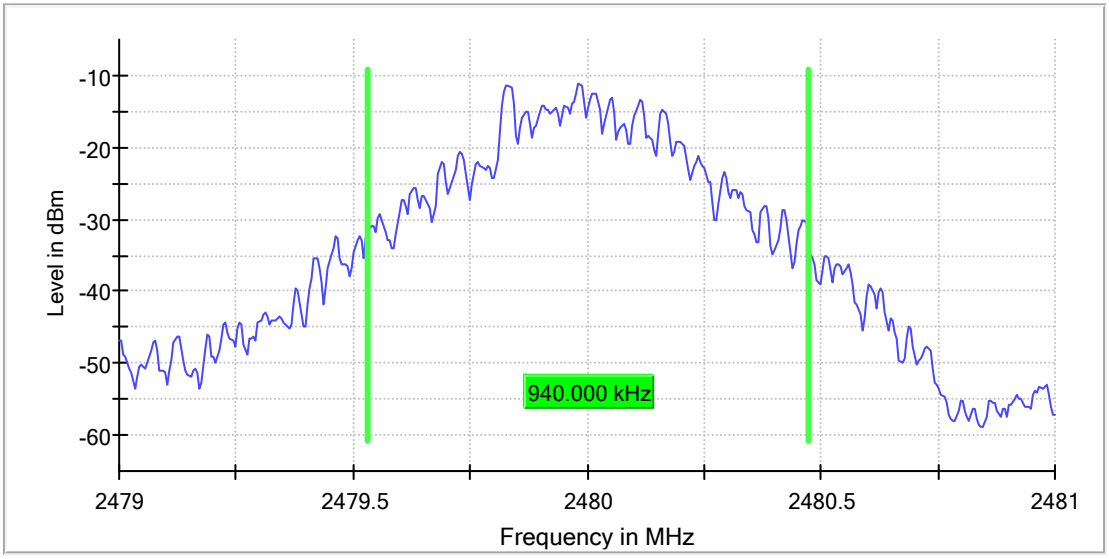
## Appendix B.2: Test Plots of 20dB Bandwidth

**BDR Mode, DH1**

RBW=10KHz VBW=30KHz

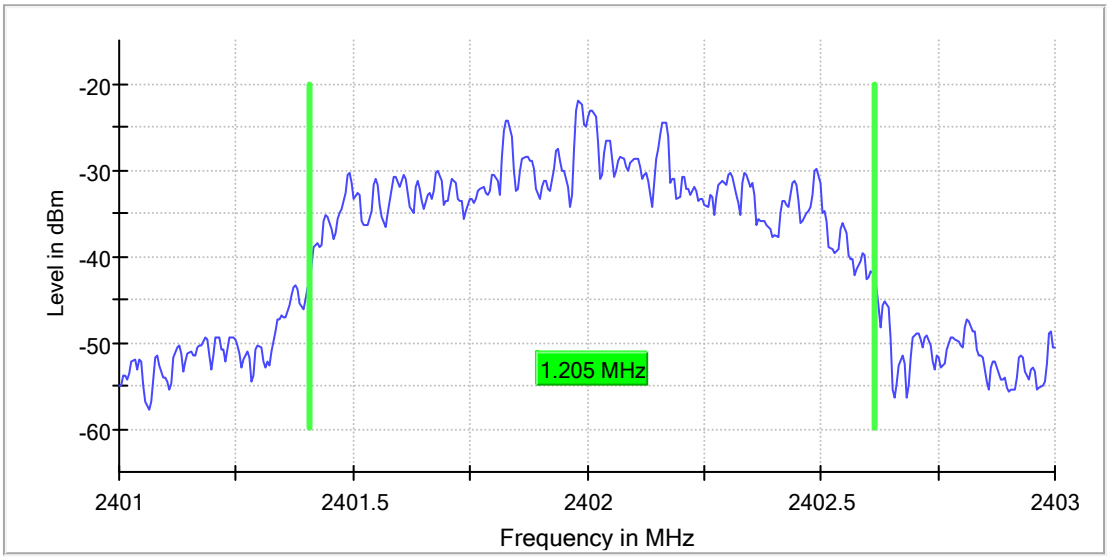


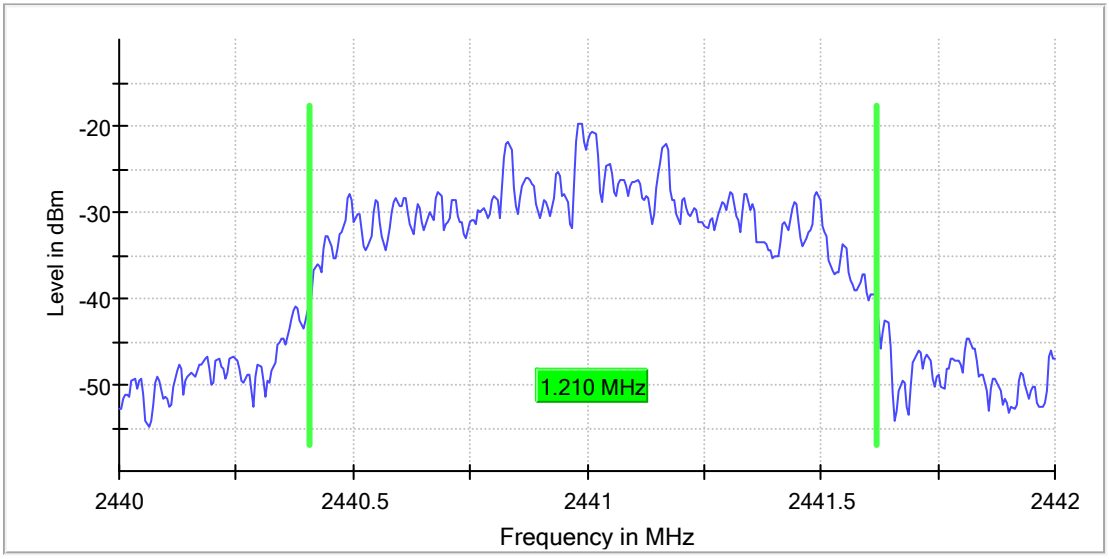



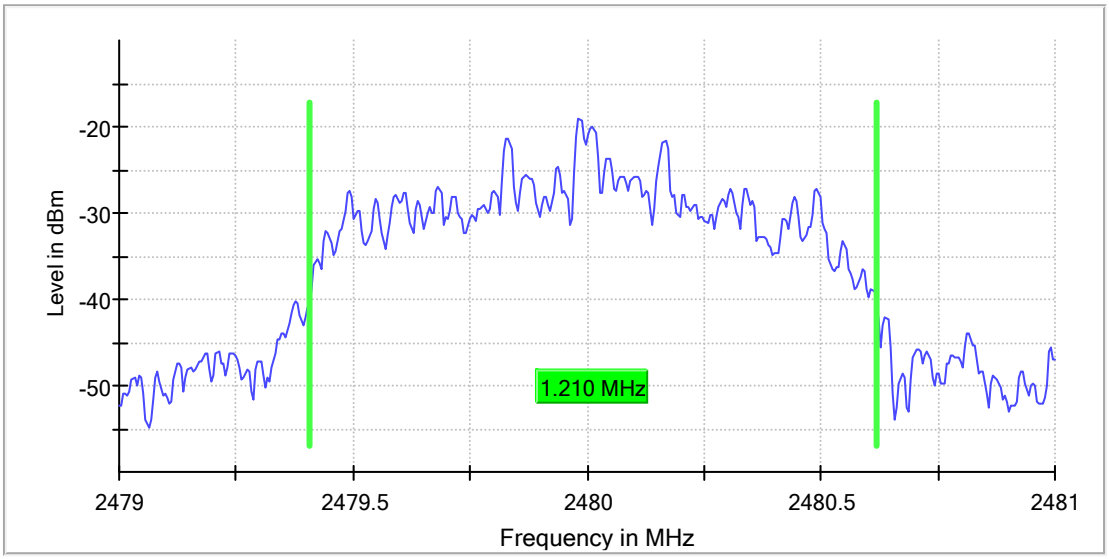



**EDR Mode, 3DH1**

RBW=30KHz VBW=100KHz

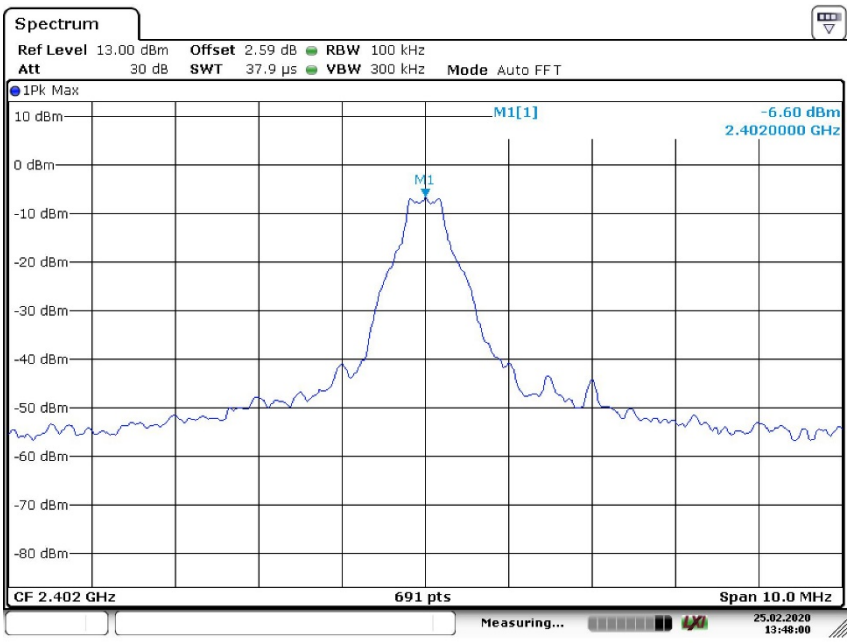



-20
-30
-40
-50
Level in dBm
1.210 MHz
2440
2440.5
2441
2441.5
2442
Frequency in MHz

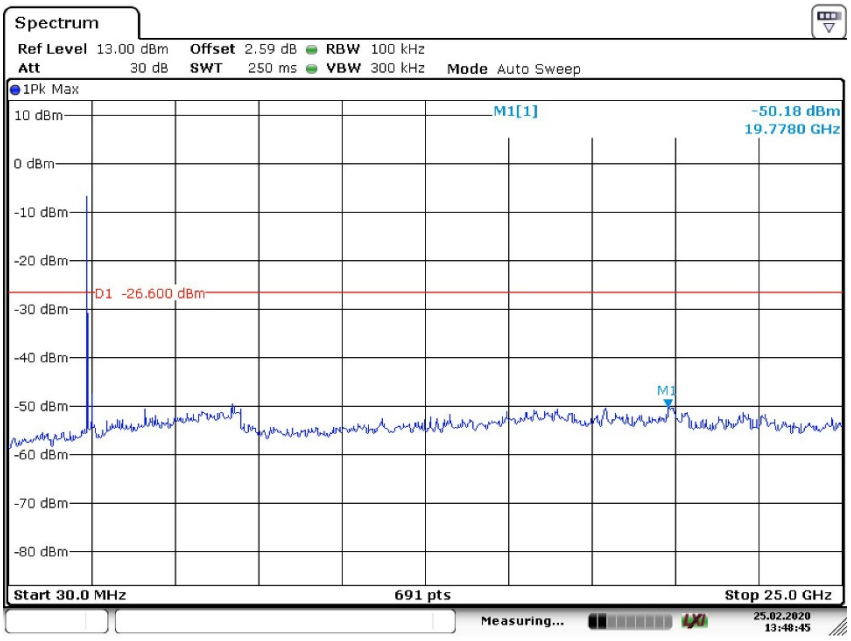

-20
-30
-40
-50
Level in dBm
1.210 MHz
2479
2479.5
2480
2480.5
2481
Frequency in MHz

## Appendix B.3: Test Plots of Conducted Spurious Emissions Measured in 100 kHz Bandwidth

### BDR Mode, Low Channel

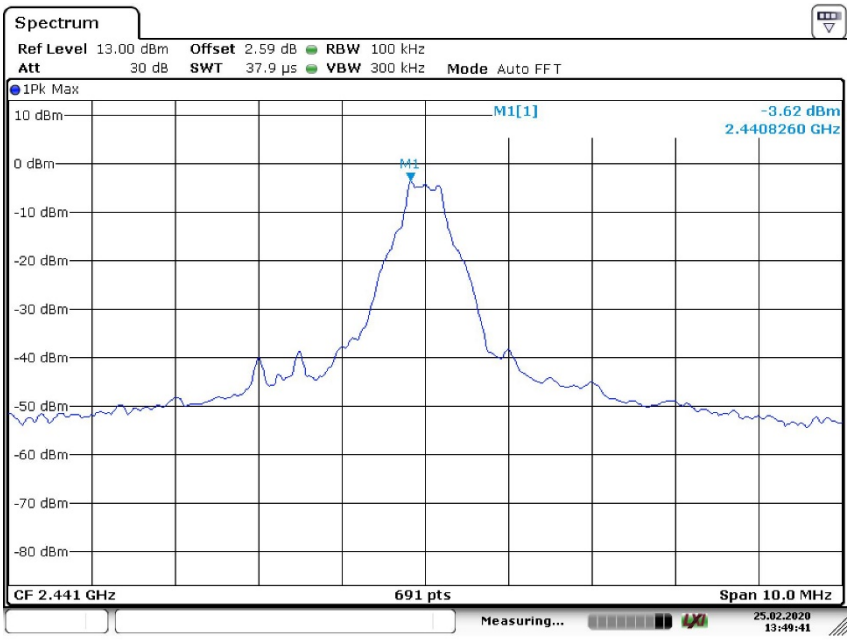



Date: 25.FEB.2020 13:47:59

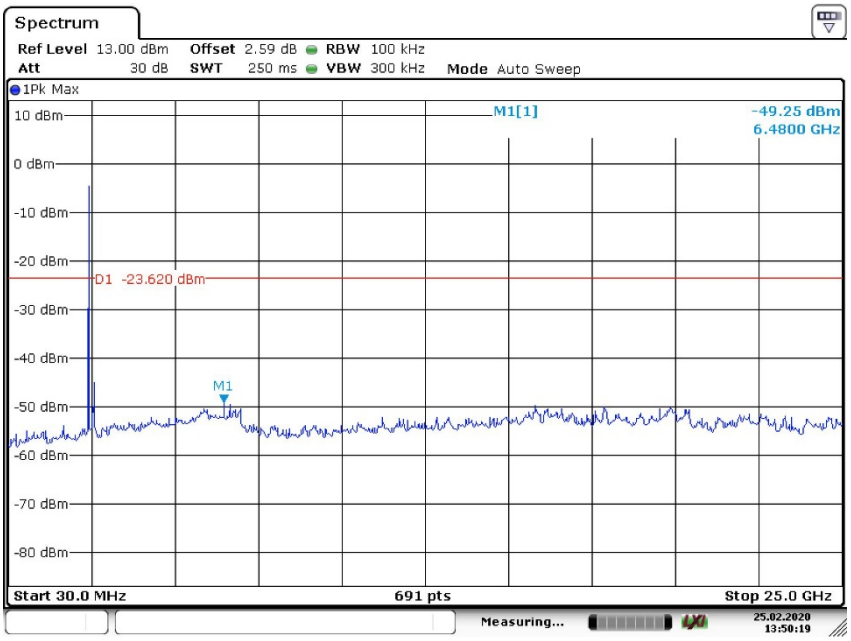



Date: 25.FEB.2020 13:48:45

## BDR Mode, Middle Channel

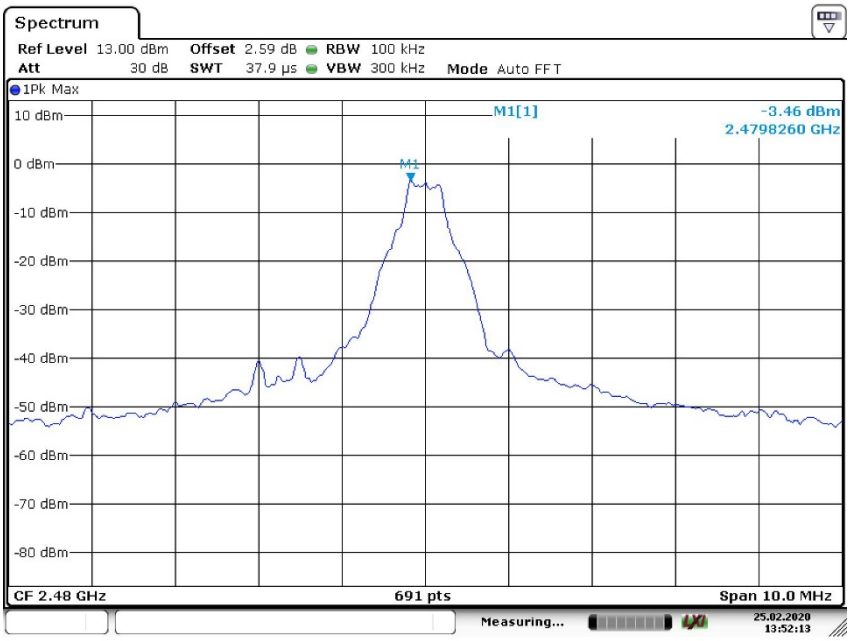



Date: 25.FEB.2020 13:49:41

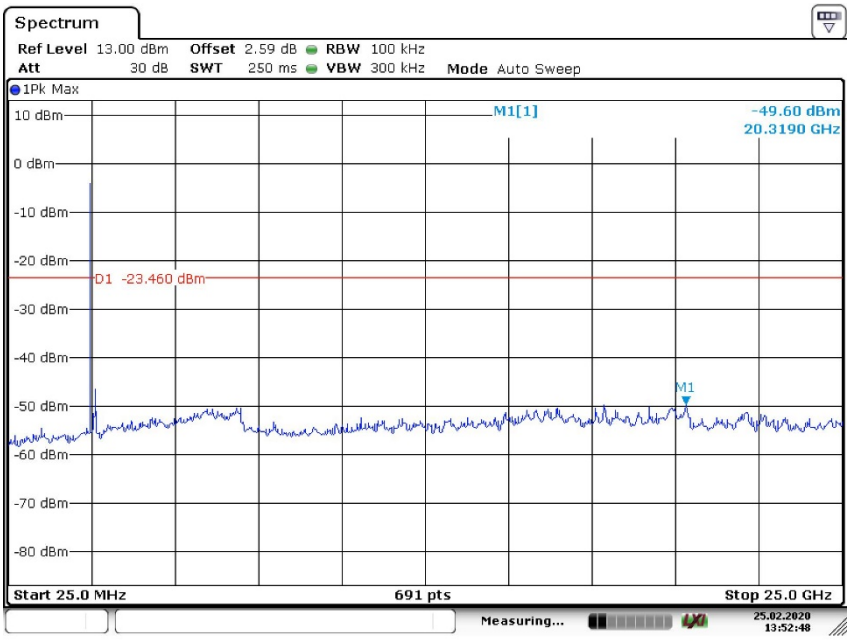



Date: 25.FEB.2020 13:50:19

## BDR Mode, High Channel

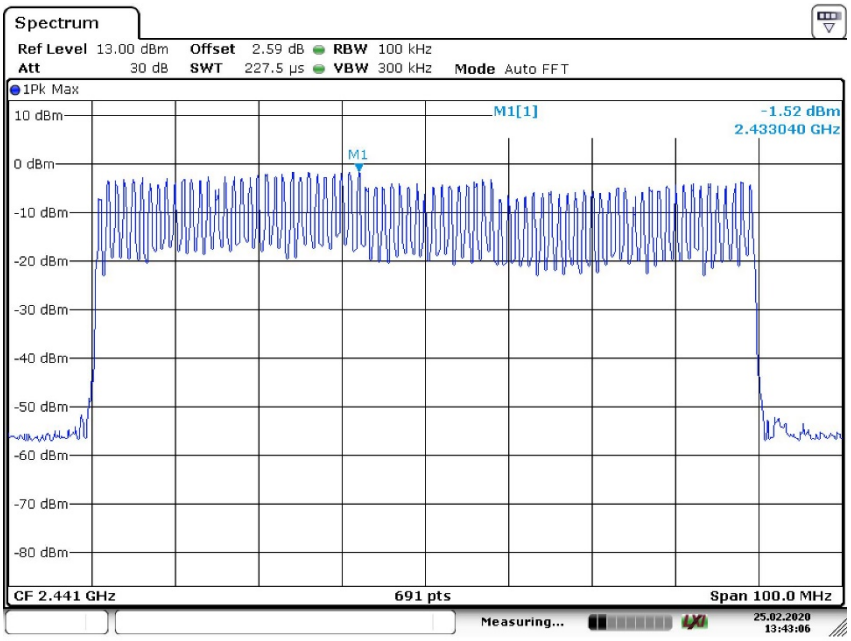



Date: 25.FEB.2020 13:52:13

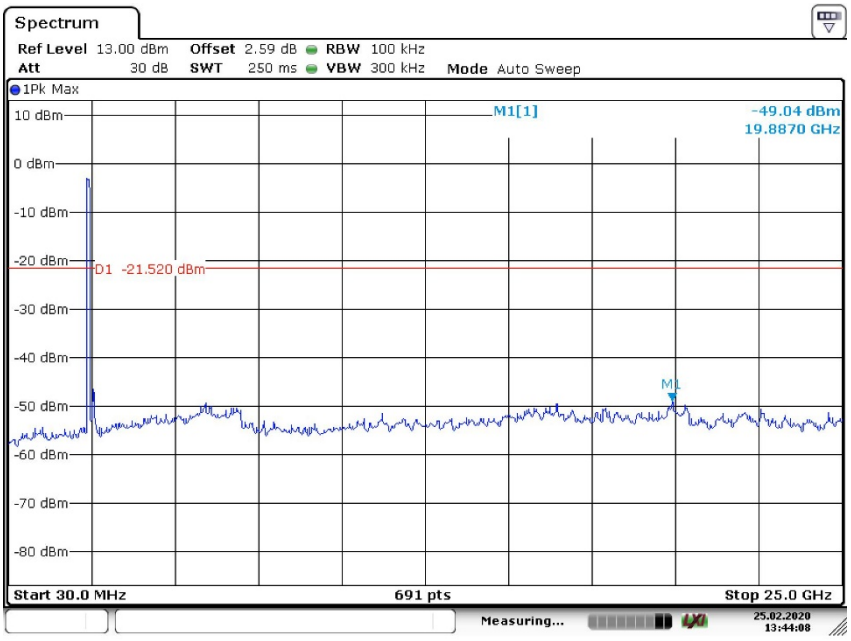



Date: 25.FEB.2020 13:52:48

## BDR, Hopping

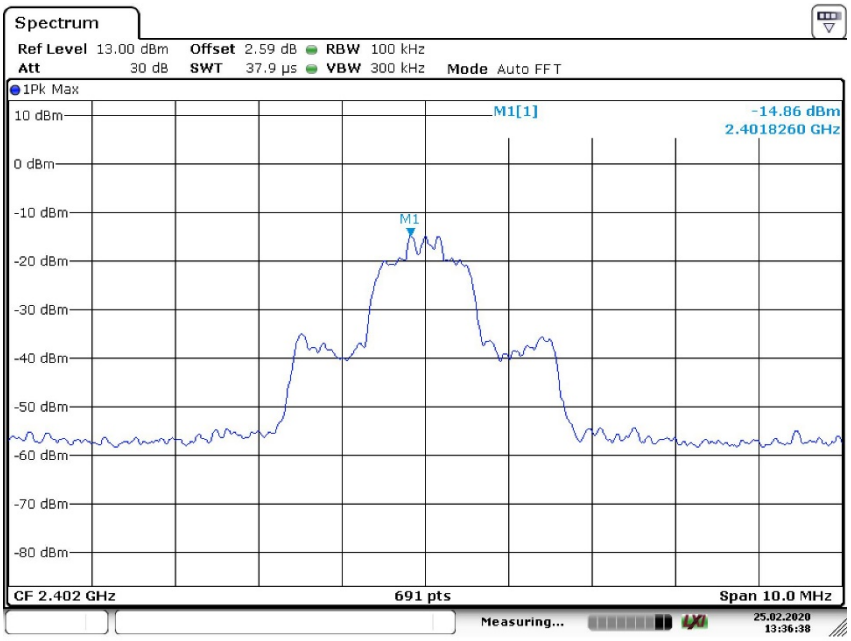



Date: 25.FEB.2020 13:43:06

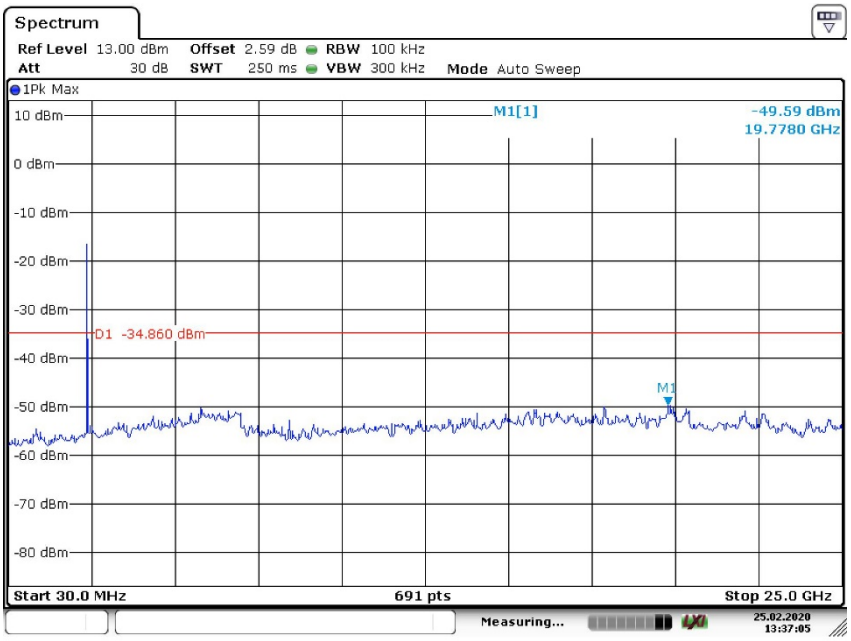



Date: 25.FEB.2020 13:44:08

## EDR Mode, Low Channel

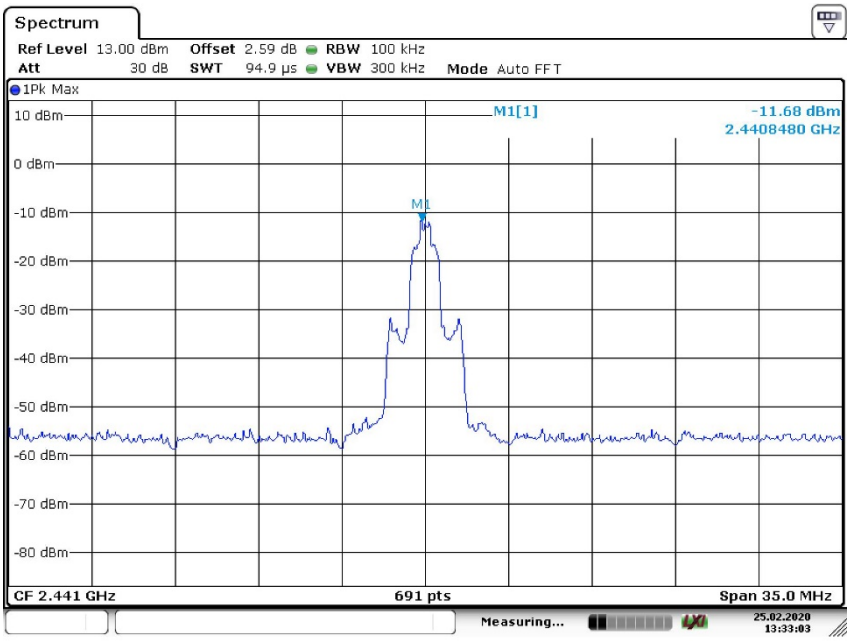



Date: 25.FEB.2020 13:36:38

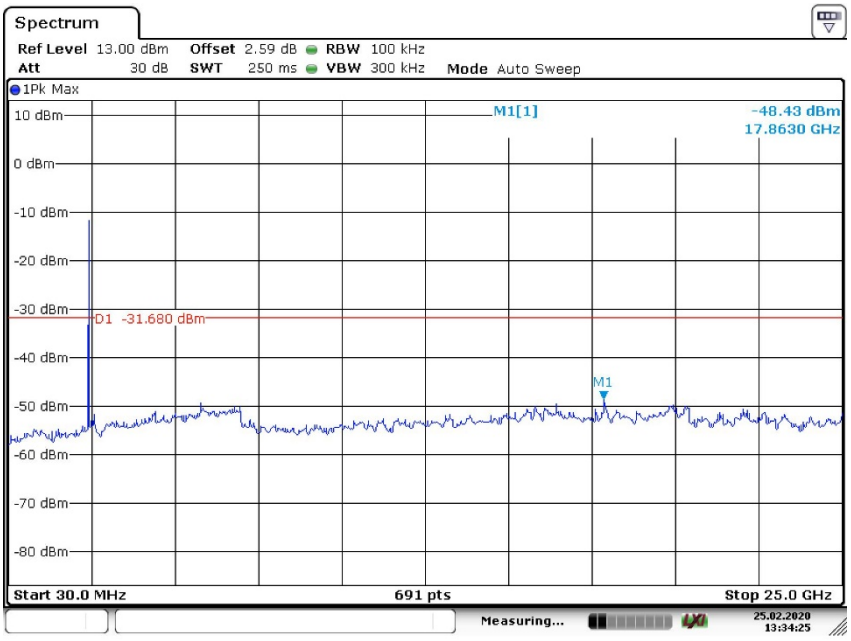



Date: 25.FEB.2020 13:37:05

## EDR Mode, Middle Channel

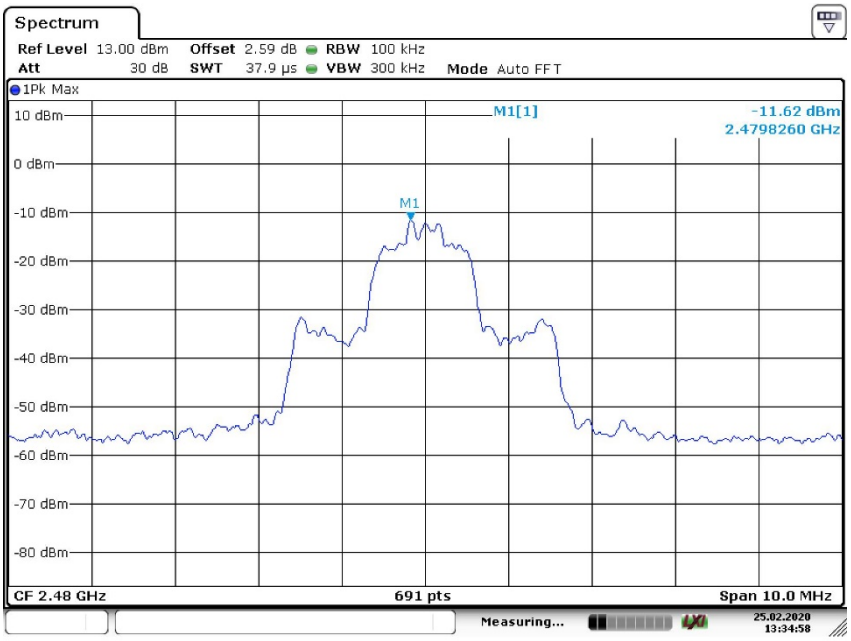



Date: 25.FEB.2020 13:33:03

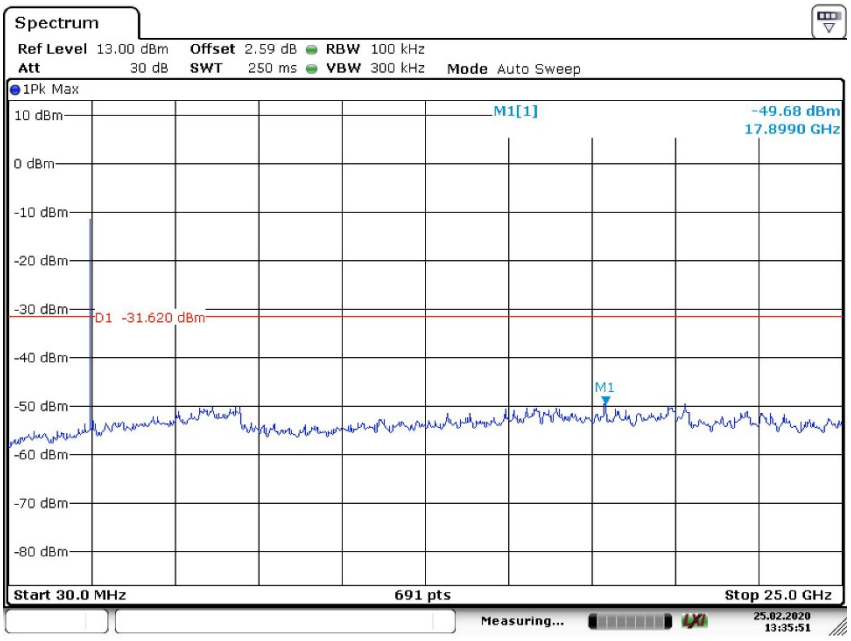



Date: 25.FEB.2020 13:34:25

## EDR Mode, High Channel

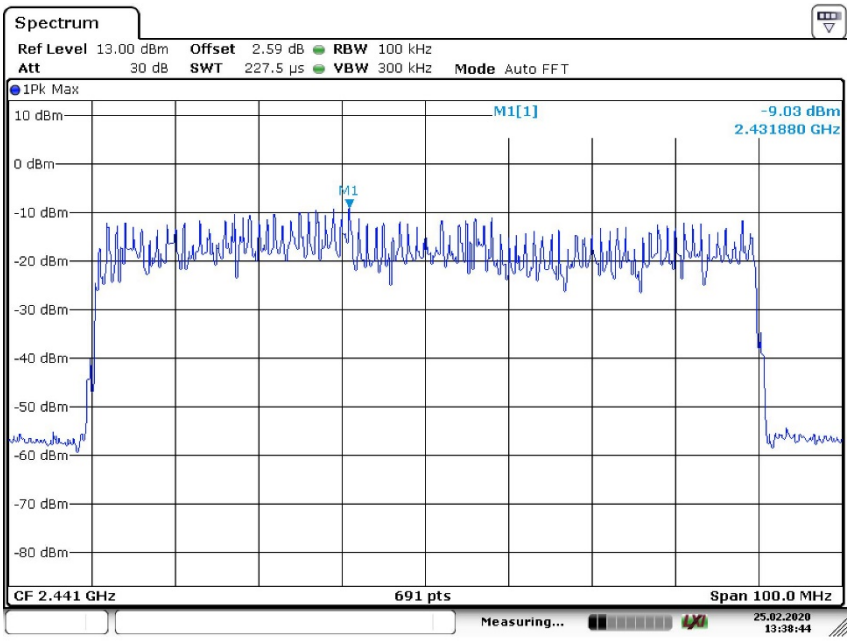



Date: 25.FEB.2020 13:34:58

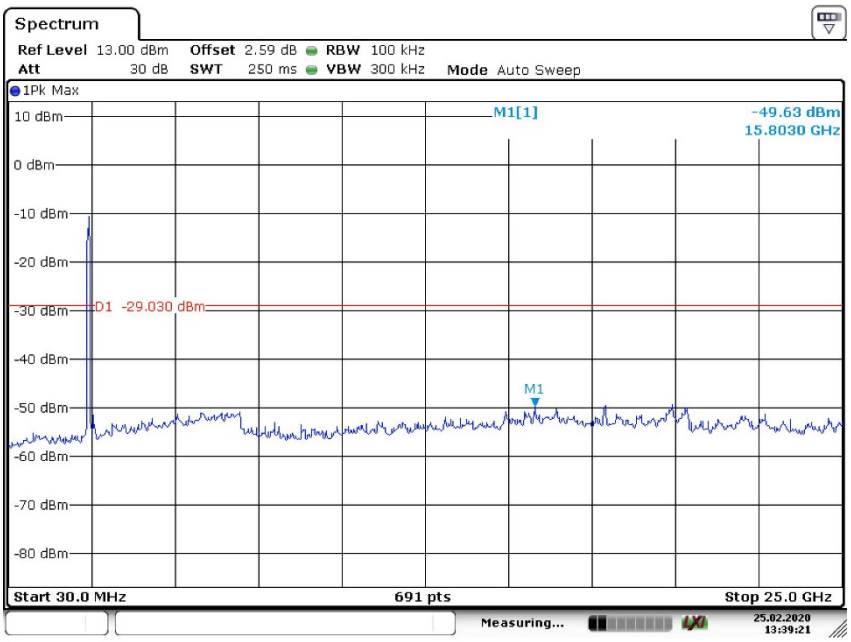



Date: 25.FEB.2020 13:35:51

## EDR, Hopping

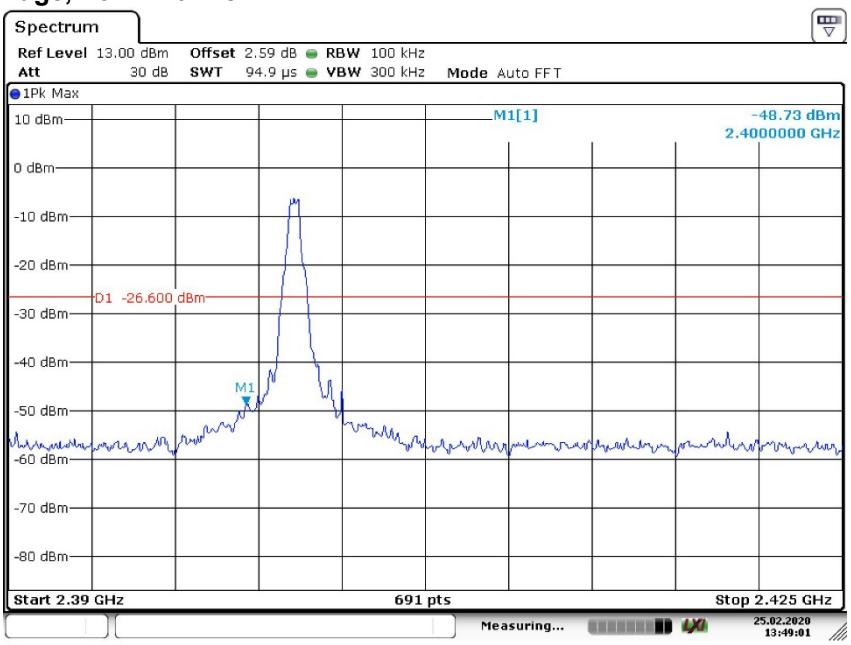



Date: 25.FEB.2020 13:38:44



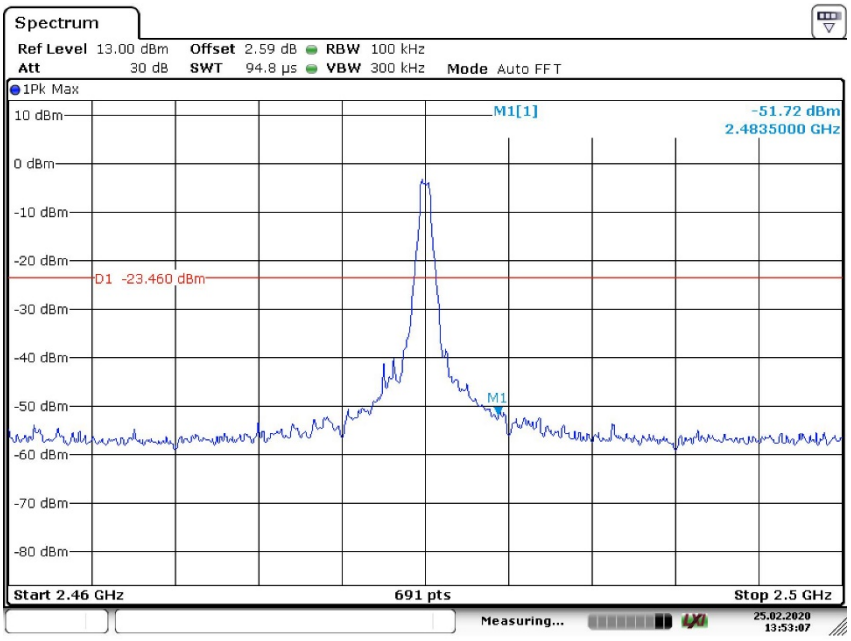

Date: 25.FEB.2020 13:39:21

## BDR Mode, Band Edge, Low Channel



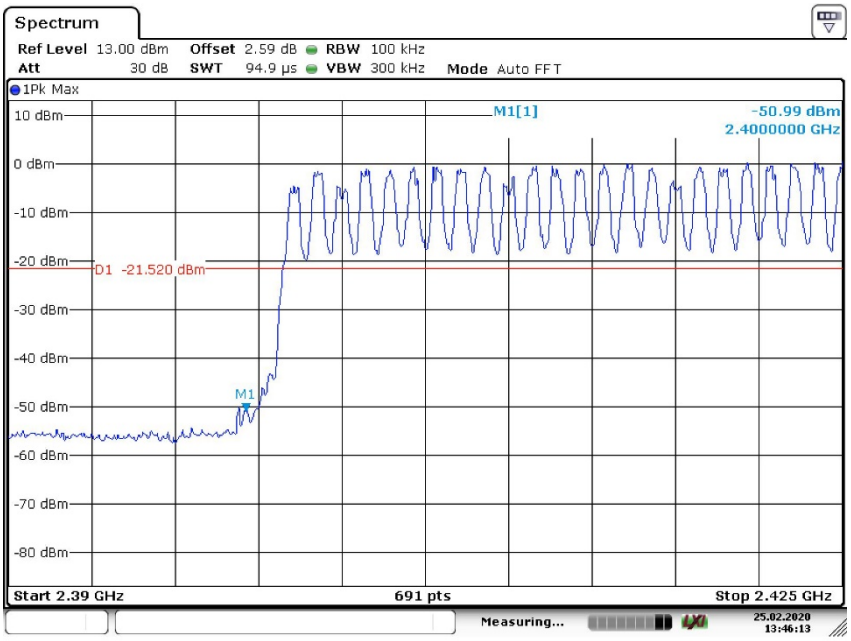

Date: 25.FEB.2020 13:49:01

## BDR Mode, Band Edge, High Channel

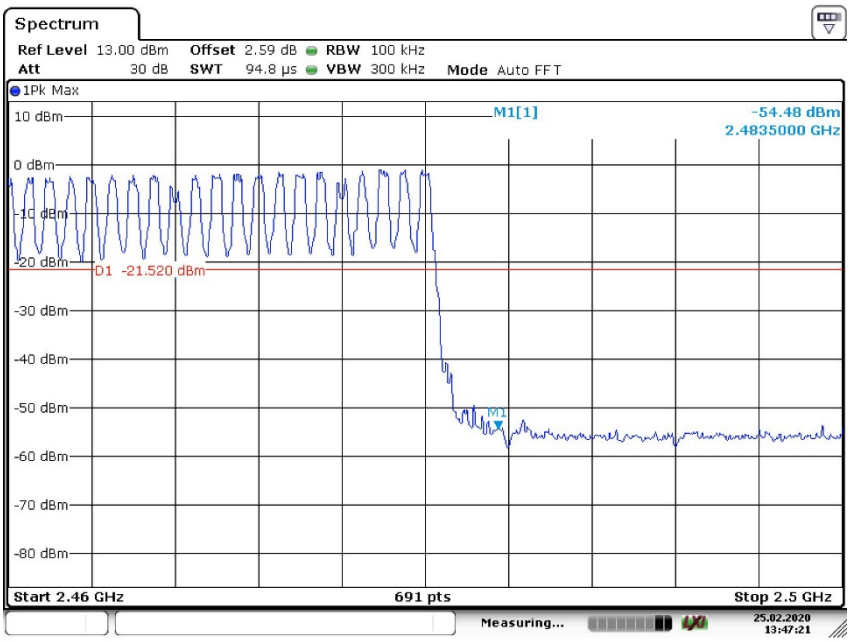



Date: 25.FEB.2020 13:53:07

## BDR Mode, Hopping Band Edge

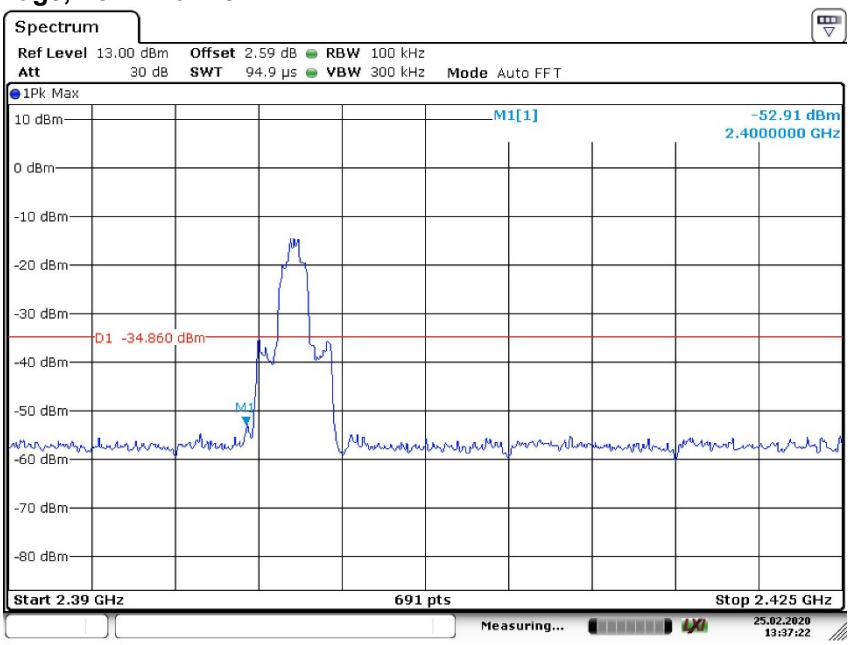



Date: 25.FEB.2020 13:46:12



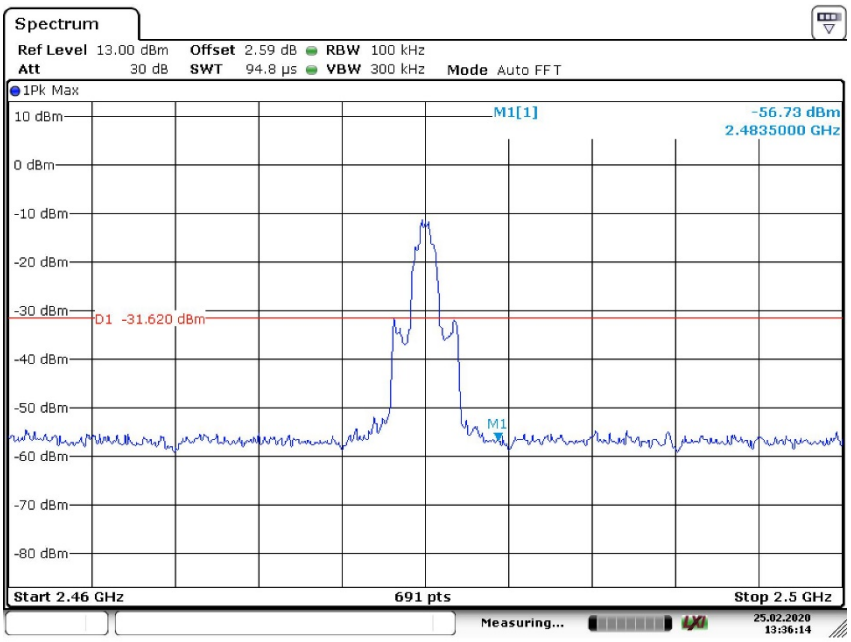

Date: 25.FEB.2020 13:47:21

## EDR Mode, Band Edge, Low Channel



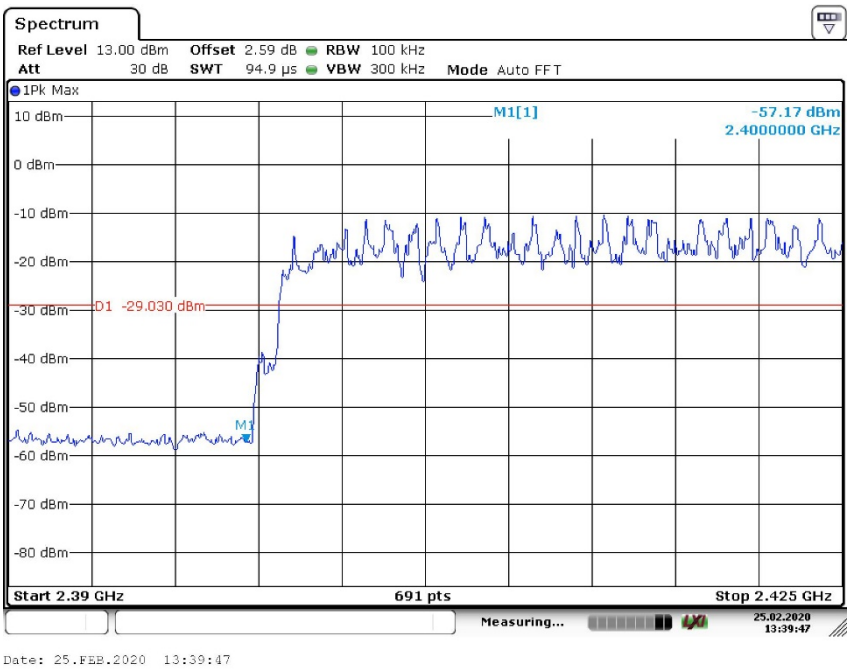

Date: 25.FEB.2020 13:37:22

## EDR Mode, Band Edge, High Channel

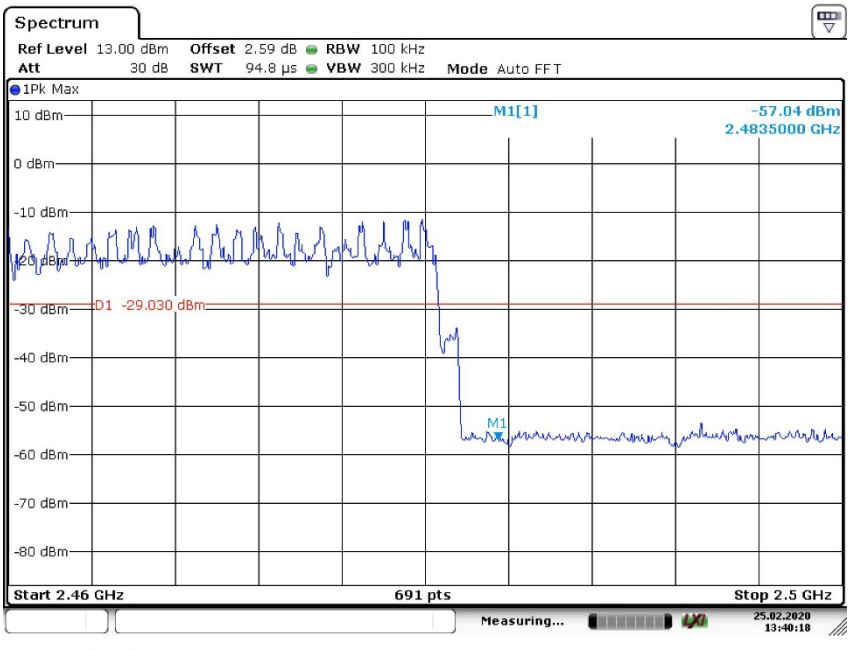



Date: 25.FEB.2020 13:36:14

## EDR Mode, Hopping Band Edge



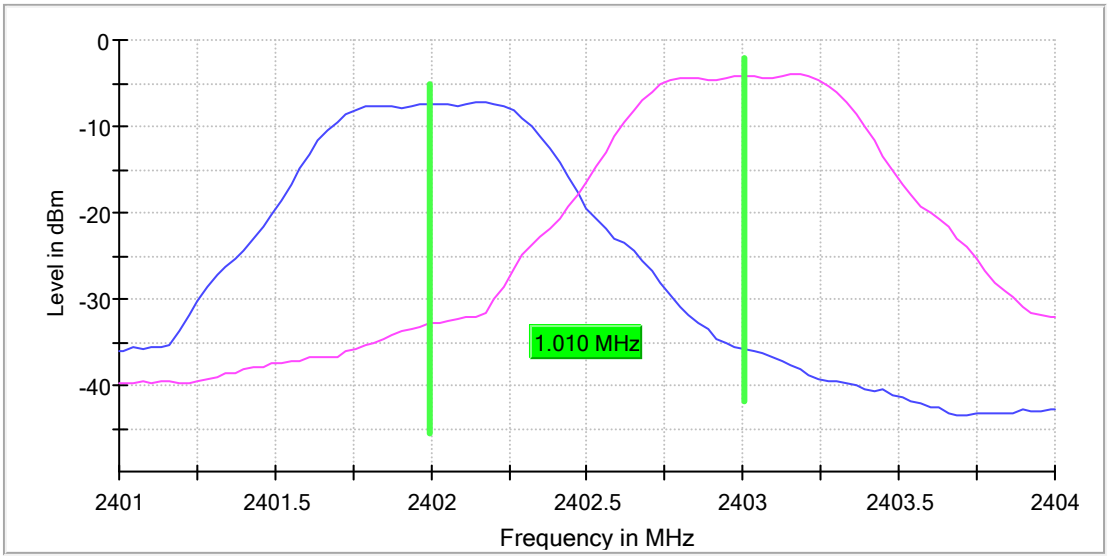

Date: 25.FEB.2020 13:39:47



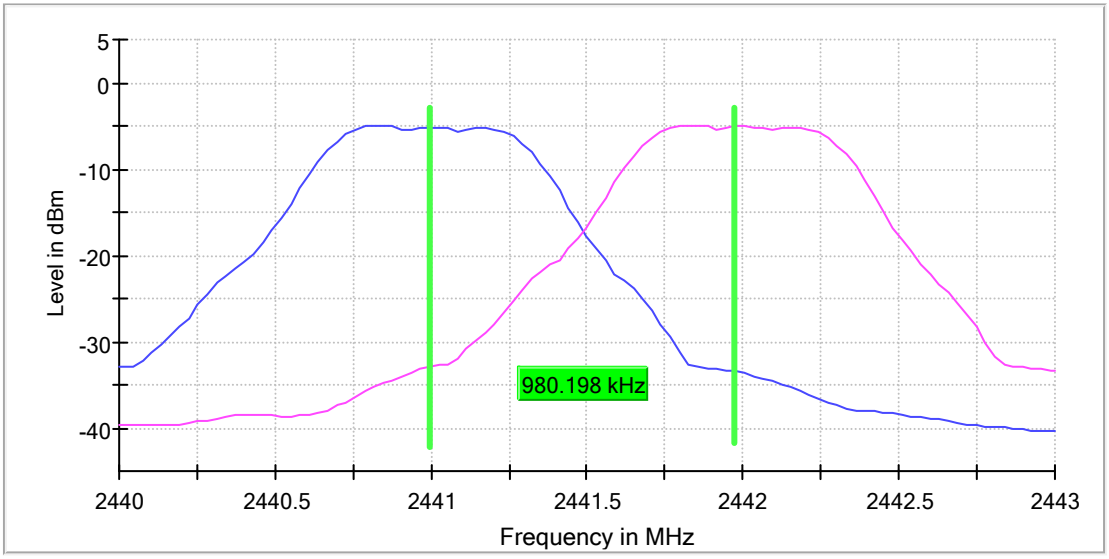

Date: 25.FEB.2020 13:40:18

## Appendix B.4: Test Plots of Carrier Frequency Separation

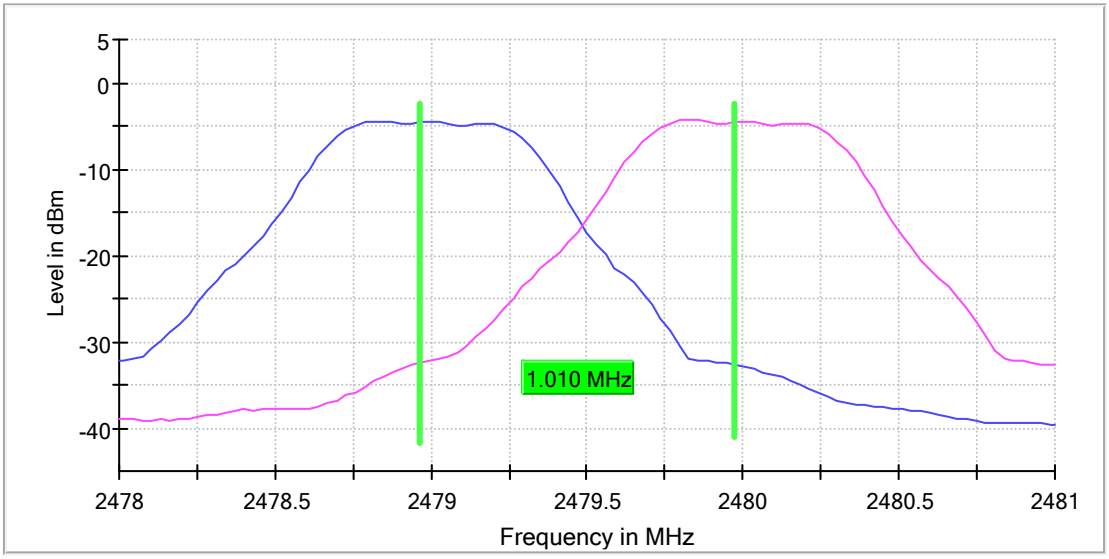
**BDR, Low Channel**
RBW=300KHz, VBW=300KHz



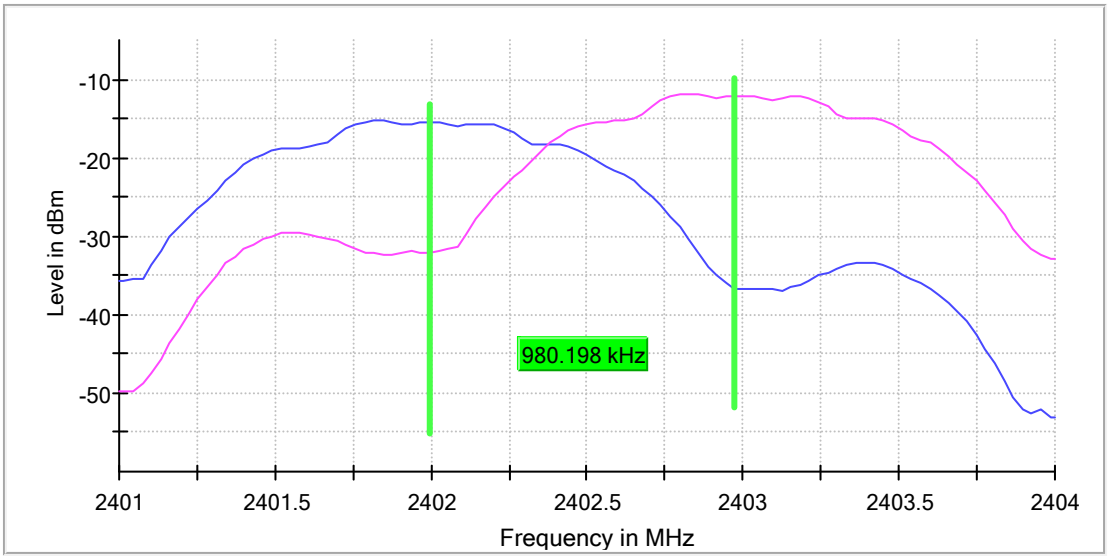

**BDR, Middle Channel**
RBW=300KHz, VBW=300KHz



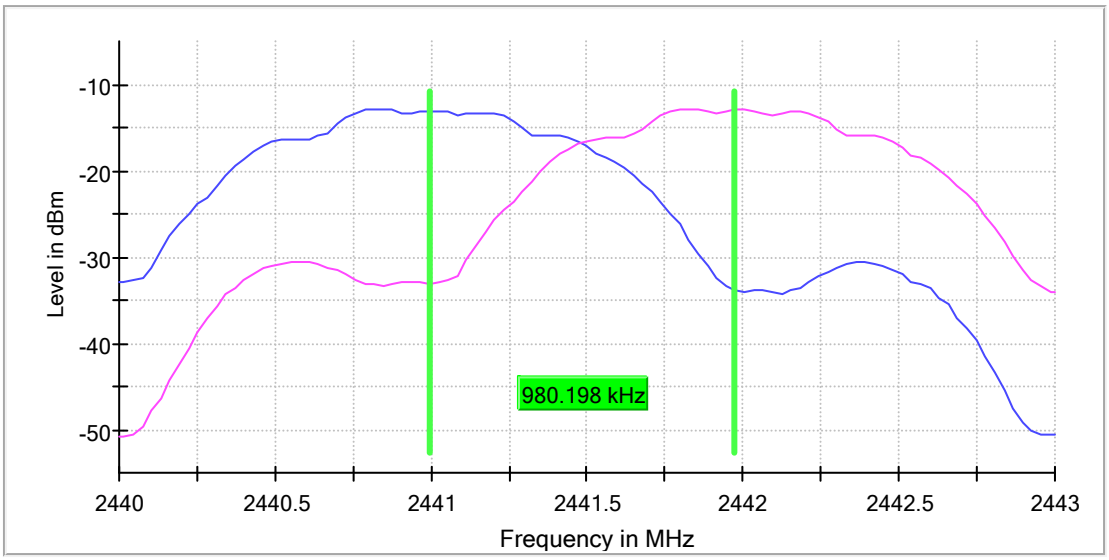
**BDR, High Channel**
RBW=300KHz, VBW=300KHz



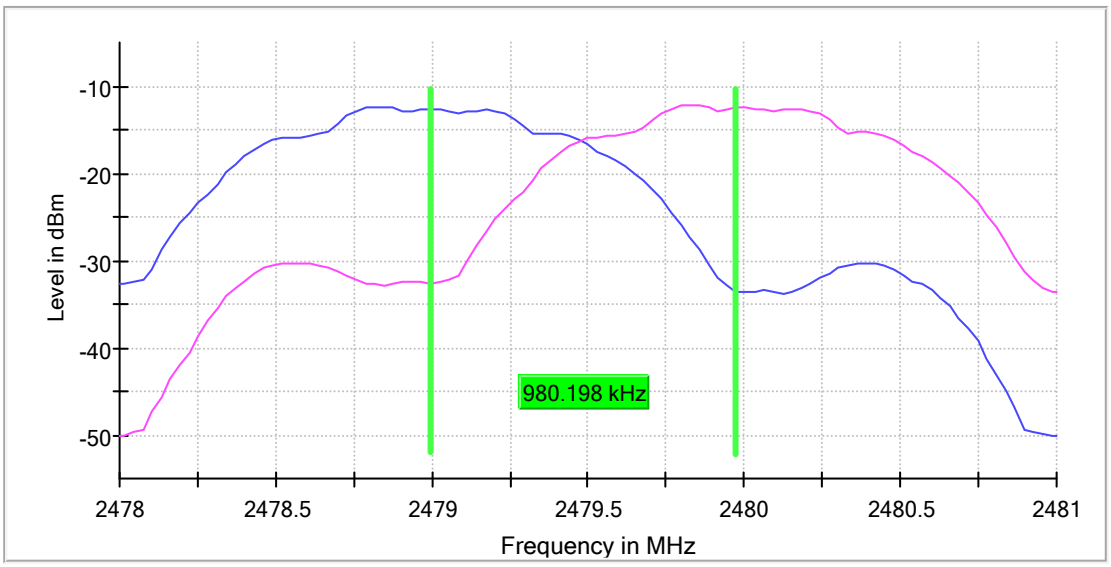

**EDR, Low Channel**
RBW=300KHz, VBW=300KHz



**EDR, Middle Channel**
RBW=300KHz, VBW=300KHz

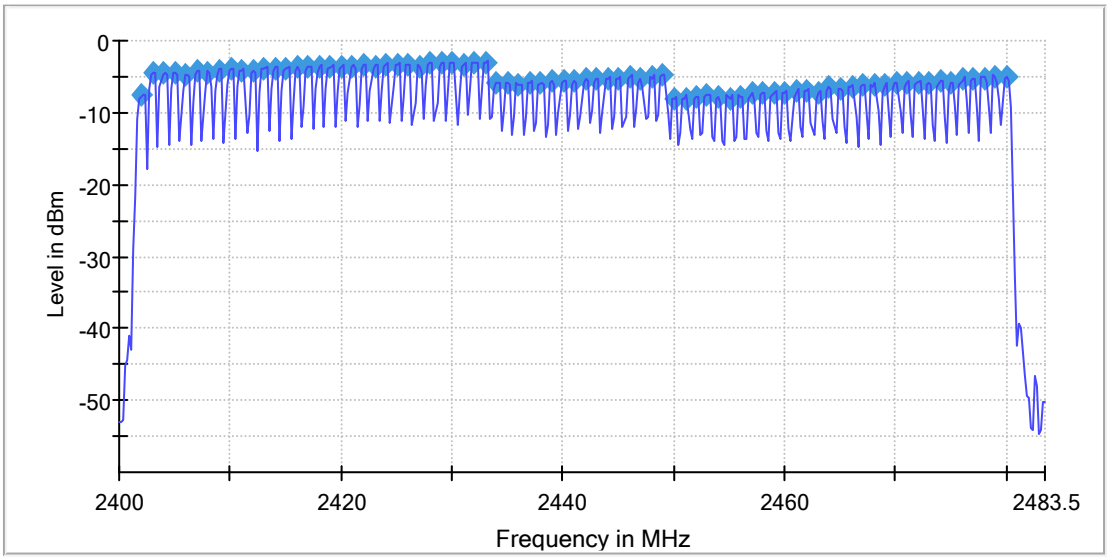



**EDR, High Channel**
RBW=300KHz, VBW=300KHz

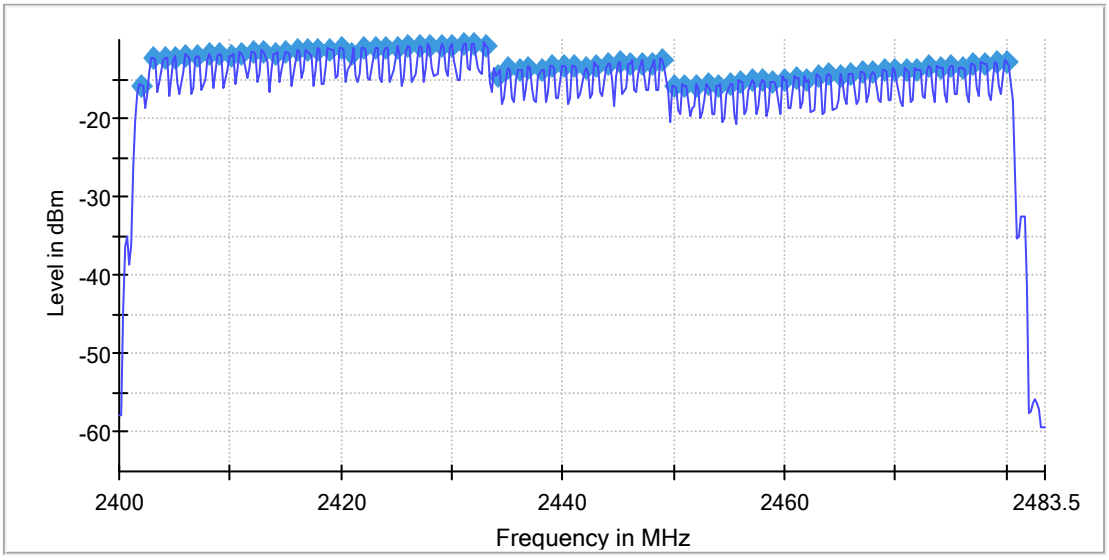


## Appendix B.5: Test Plots of Number of Hopping Frequency

**BDR, Hopping**
RBW=200KHzM, VBW=200KHz

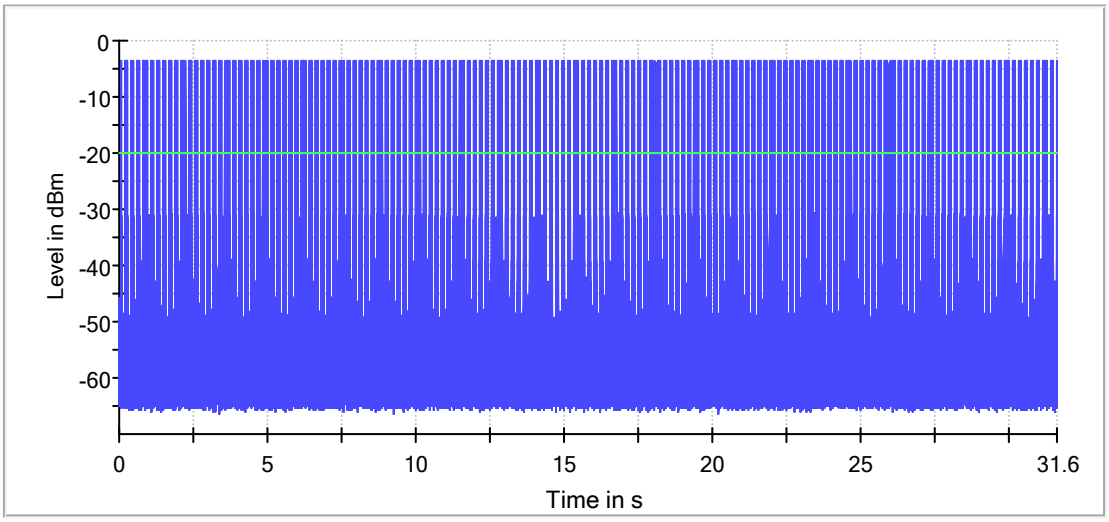



**EDR, Hopping**
RBW=200KHzM, VBW=200KHz

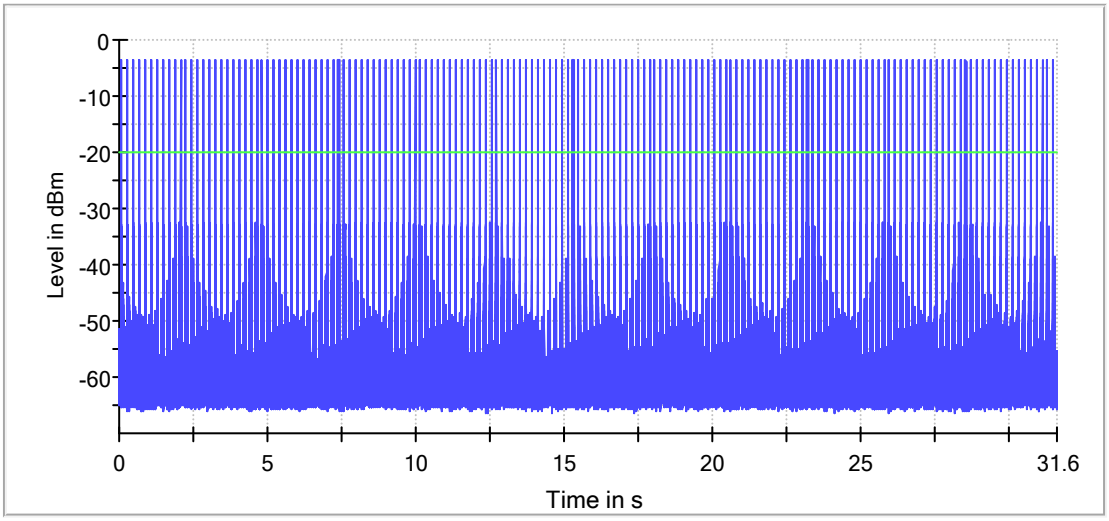


## Appendix B.6: Test Plots of Time of Occupancy

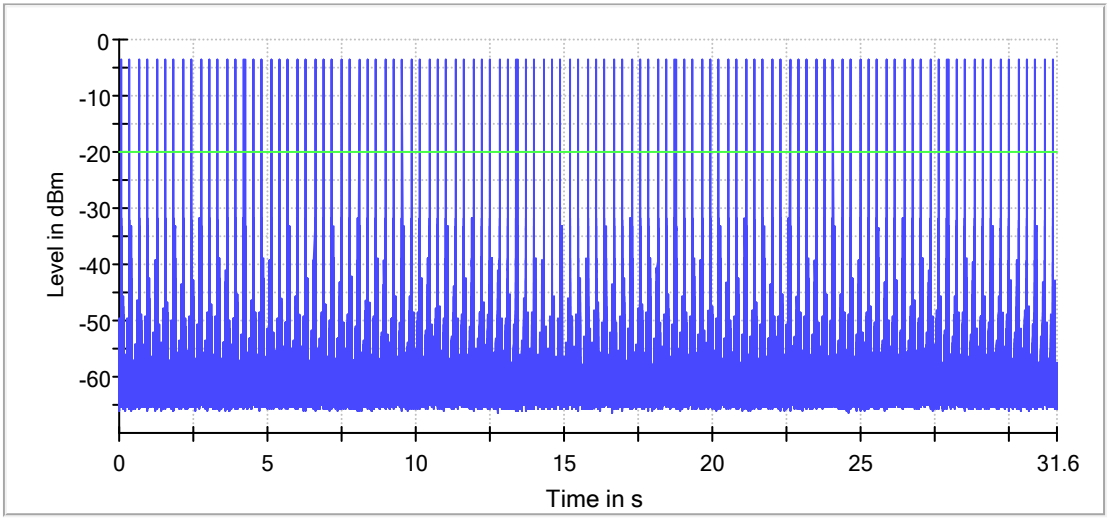
**BDR Mode, DH1, Middle Channel**
RBW=500KHzM, VBW=1MHz



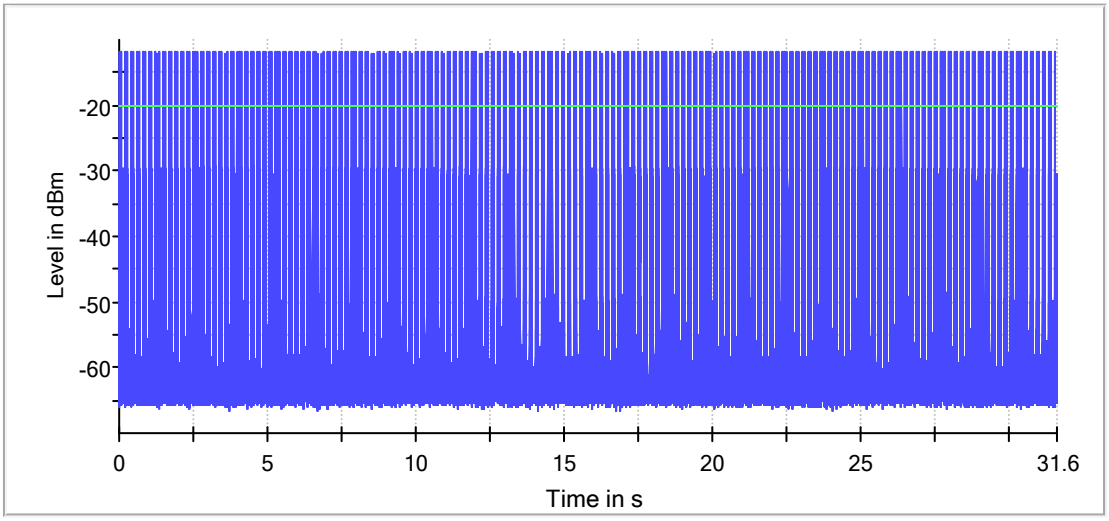

**BDR Mode, DH3, Middle Channel**
RBW=500KHzM, VBW=1MHz



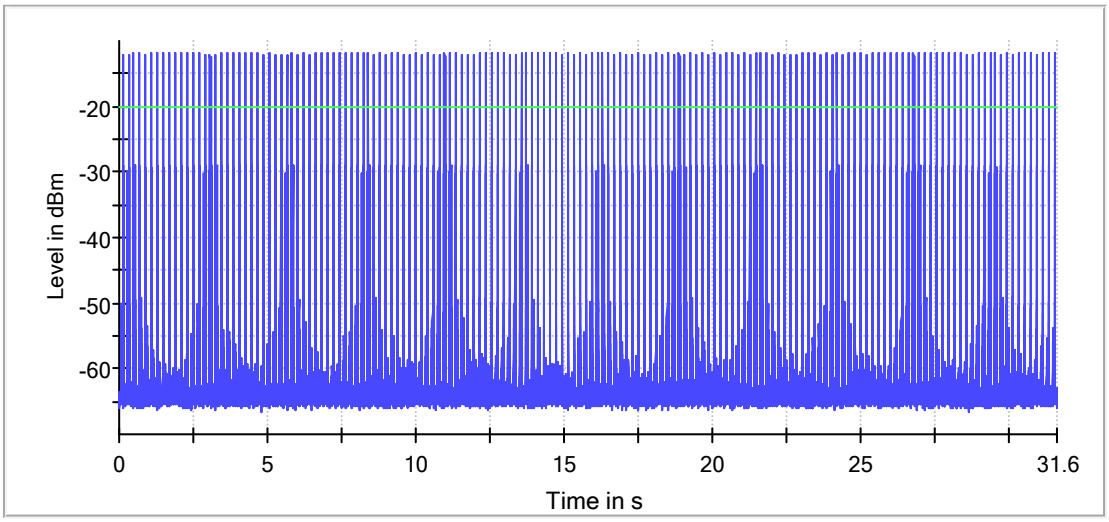
**BDR Mode, DH5, Middle Channel**
RBW=500KHzM, VBW=1MHz



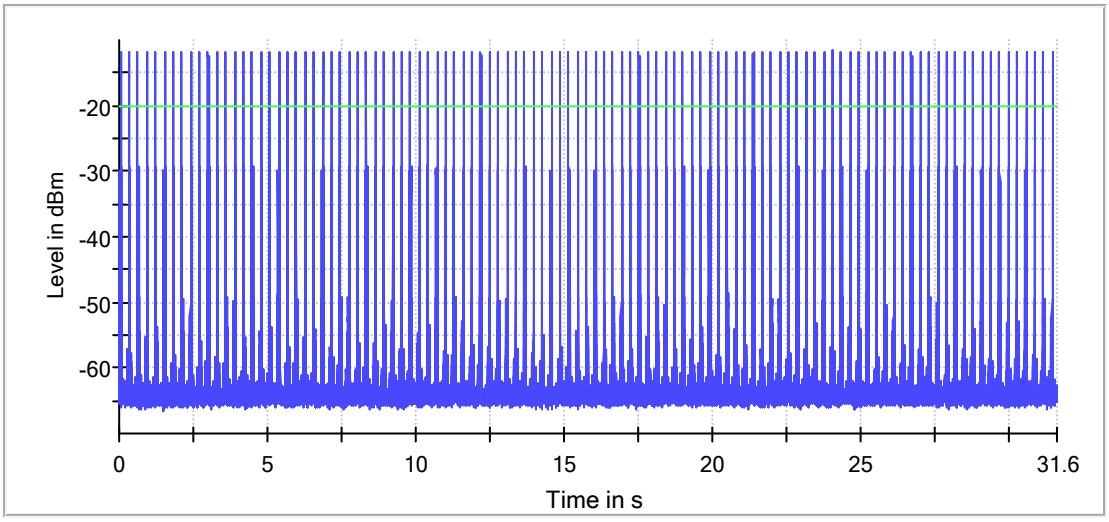

**EDR Mode, 3DH1, Middle Channel**
RBW=500KHzM, VBW=1MHz



**EDR Mode, 3DH3, Middle Channel**
RBW=500KHzM, VBW=1MHz




**EDR Mode, 3DH5, Middle Channel**
RBW=500KHzM, VBW=1MHz



# Appendix C

# Test Results of Radiated Emission & AC Mains Conducted Emission

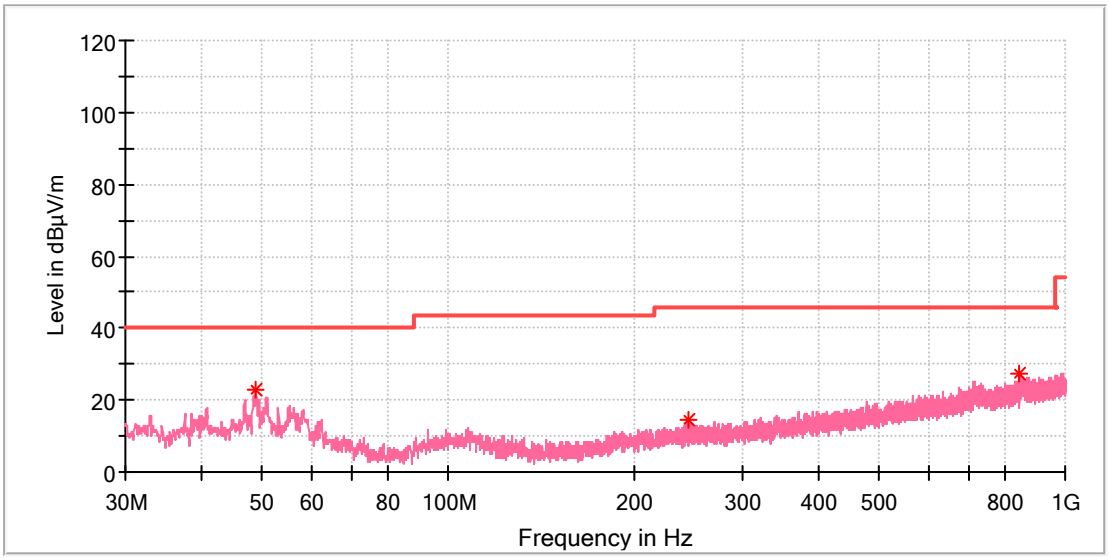
Note: The radiated spurious emission were measured from 9KHz to 26.5GHz, the measurement results below 30MHz and above 18GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

## Appendix C.1: Test Plots of Radiated Spurious Emission

**BDR mode, 30MHz - 1GHz**

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

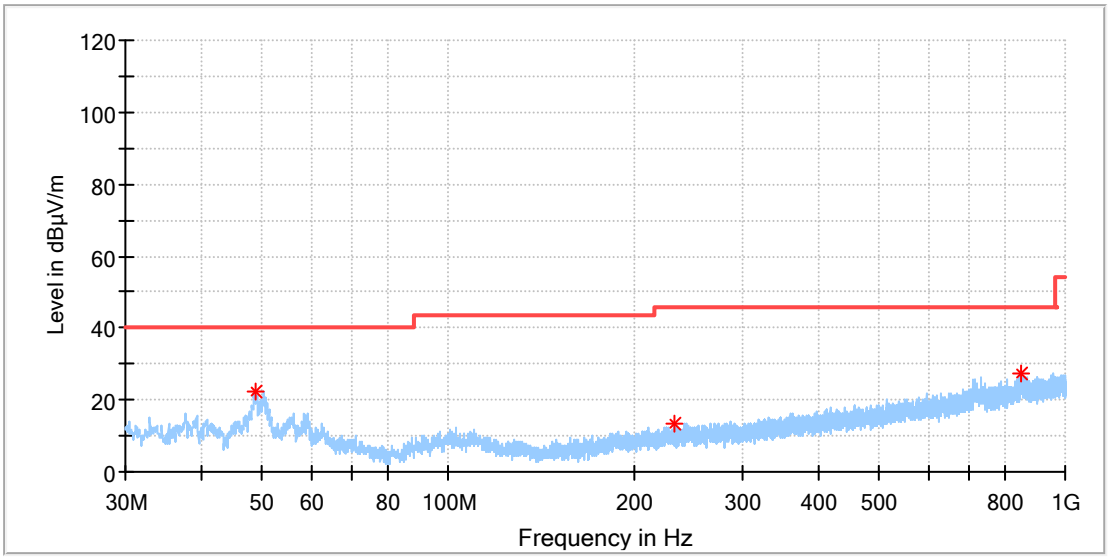



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 48.818000 | 22.70 | --- | 40.00 | 17.30 | 100.0 | V | 15.0 | -18.6 |
| 245.825000 | 14.69 | --- | 46.00 | 31.31 | 100.0 | V | 243.0 | -17.8 |
| 844.897000 | 27.31 | --- | 46.00 | 18.69 | 100.0 | V | 284.0 | -6.0 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

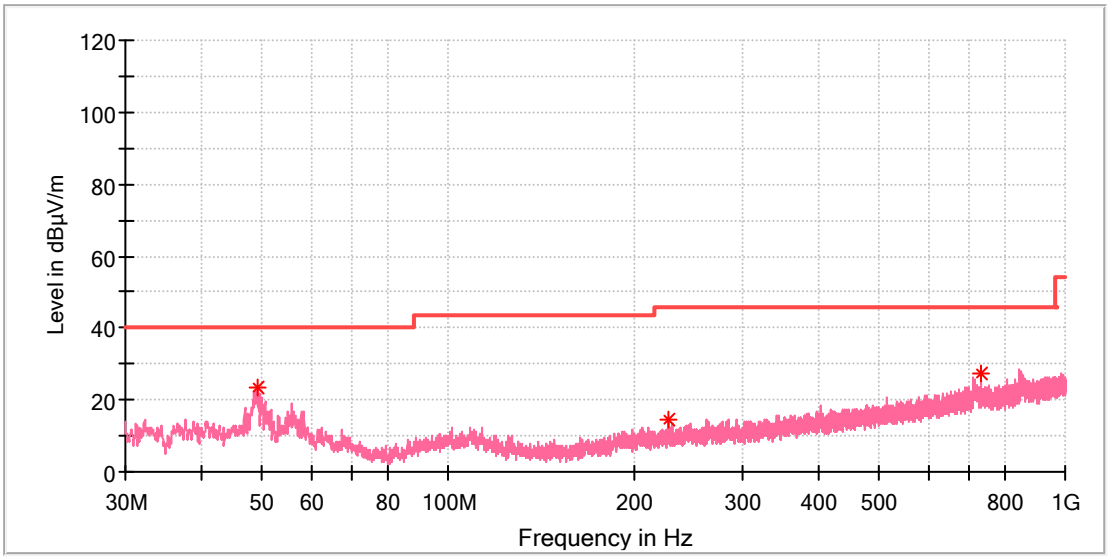



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 48.624000 | 22.54 | --- | 40.00 | 17.46 | 100.0 | H | 0.0 | -18.7 |
| 233.360500 | 13.54 | --- | 46.00 | 32.46 | 100.0 | H | 69.0 | -18.3 |
| 845.576000 | 27.43 | --- | 46.00 | 18.57 | 100.0 | H | 274.0 | -6.0 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

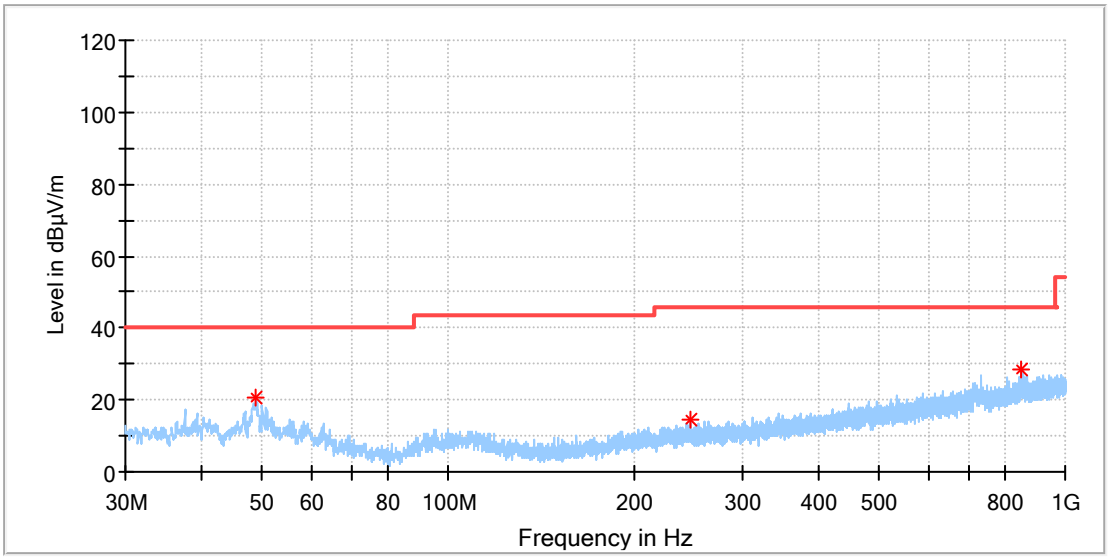



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 49.060500 | 23.34 | --- | 40.00 | 16.66 | 100.0 | V | 217.0 | -18.6 |
| 227.589000 | 14.47 | --- | 46.00 | 31.53 | 100.0 | V | 69.0 | -18.5 |
| 729.321500 | 27.12 | --- | 46.00 | 18.88 | 100.0 | V | 258.0 | -7.9 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |



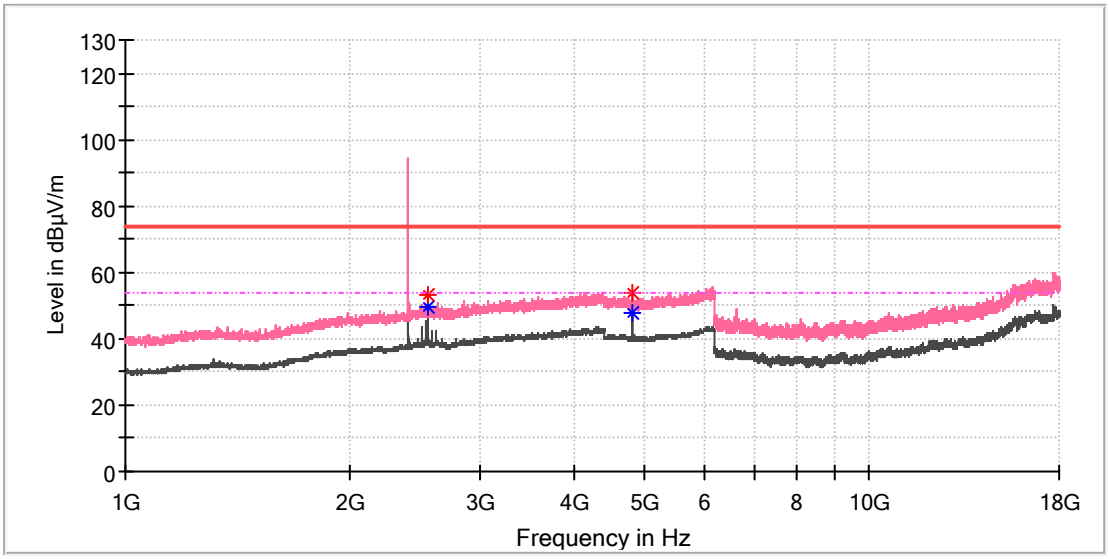

# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 48.818000 | 20.80 | --- | 40.00 | 19.20 | 100.0 | H | 14.0 | -18.6 |
| 246.649500 | 14.24 | --- | 46.00 | 31.76 | 100.0 | H | 0.0 | -17.8 |
| 845.867000 | 28.38 | --- | 46.00 | 17.62 | 100.0 | H | 307.0 | -6.0 |

**BDR mode, 1GHz - 18GHz**

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

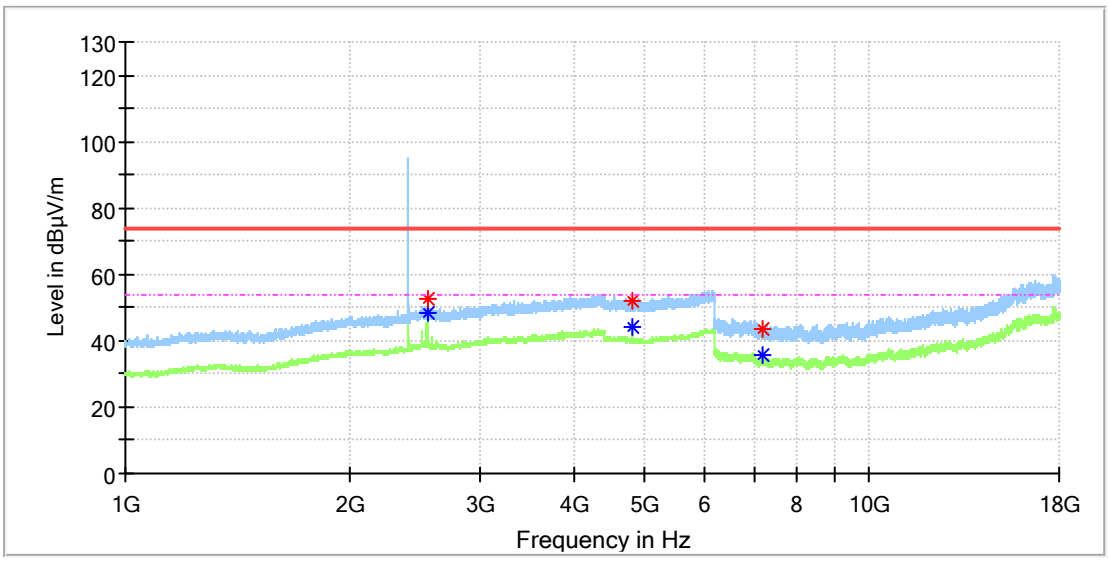



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2557.500000 | 53.09 | --- | 74.00 | 20.91 | 100.0 | V | 277.0 | 7.6 |
| 2558.000000 | --- | 49.57 | 54.00 | 4.43 | 100.0 | V | 277.0 | 7.6 |
| 4803.500000 | 53.78 | --- | 74.00 | 20.22 | 100.0 | V | 288.0 | 13.6 |
| 4804.000000 | --- | 47.59 | 54.00 | 6.41 | 100.0 | V | 288.0 | 13.6 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

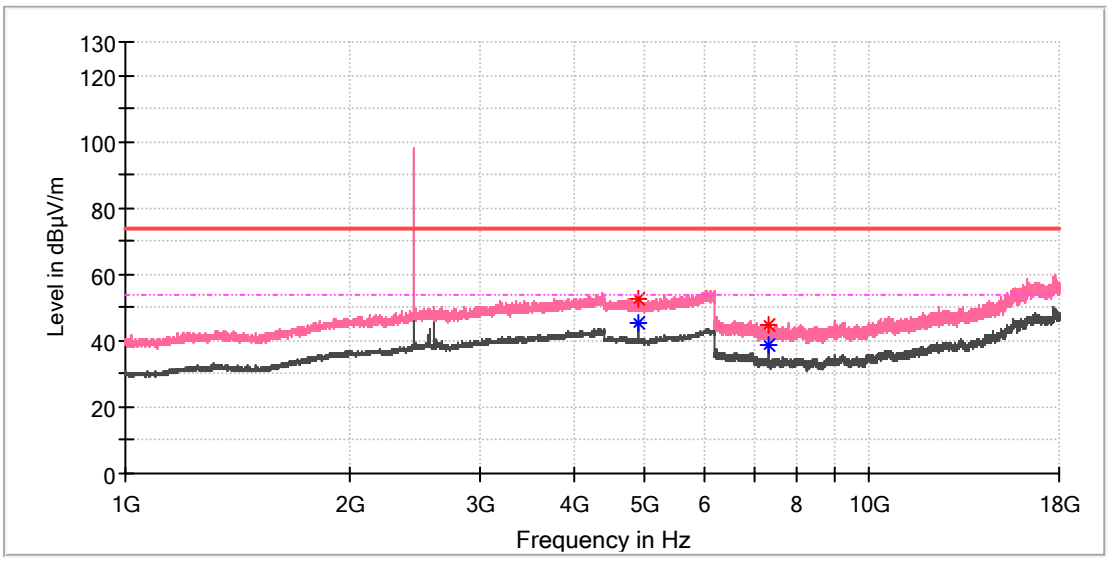



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2558.000000 | --- | 48.53 | 54.00 | 5.47 | 100.0 | H | 150.0 | 7.6 |
| 2558.000000 | 52.41 | --- | 74.00 | 21.59 | 100.0 | H | 150.0 | 7.6 |
| 4804.000000 | --- | 44.20 | 54.00 | 9.80 | 100.0 | H | 182.0 | 13.6 |
| 4804.500000 | 51.88 | --- | 74.00 | 22.12 | 100.0 | H | 182.0 | 13.6 |
| 7203.983333 | 43.74 | --- | 74.00 | 30.26 | 100.0 | H | 132.0 | 8.8 |
| 7205.950000 | --- | 35.43 | 54.00 | 18.57 | 100.0 | H | 191.0 | 8.8 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_Mid channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

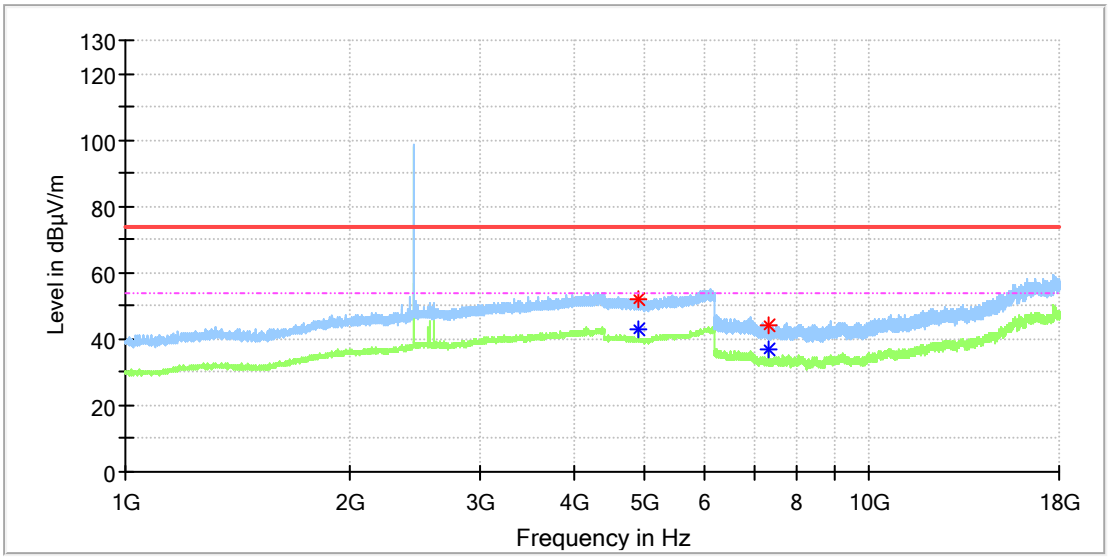



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4881.500000 | 52.36 | --- | 74.00 | 21.64 | 100.0 | V | 290.0 | 13.4 |
| 4882.000000 | --- | 45.23 | 54.00 | 8.77 | 100.0 | V | 290.0 | 13.4 |
| 7322.475000 | 45.00 | --- | 74.00 | 29.00 | 100.0 | V | 276.0 | 8.2 |
| 7322.966667 | --- | 38.70 | 54.00 | 15.30 | 100.0 | V | 276.0 | 8.2 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_Mid channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

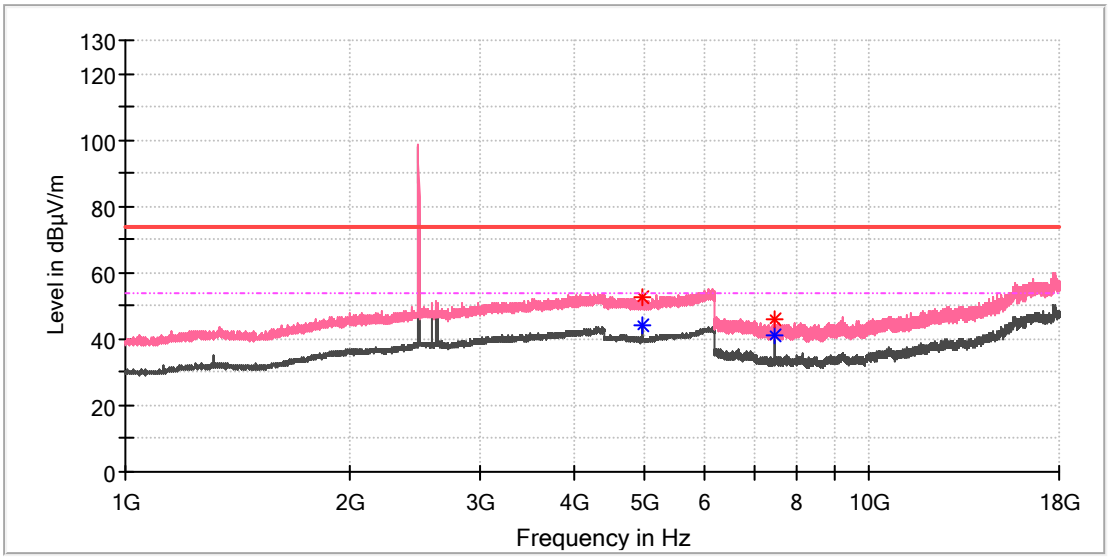



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4882.000000 | --- | 42.65 | 54.00 | 11.35 | 100.0 | H | 243.0 | 13.4 |
| 4884.000000 | 51.90 | --- | 74.00 | 22.10 | 100.0 | H | 117.0 | 13.4 |
| 7322.966667 | 44.21 | --- | 74.00 | 29.79 | 100.0 | H | 262.0 | 8.2 |
| 7322.966667 | --- | 37.01 | 54.00 | 16.99 | 100.0 | H | 262.0 | 8.2 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

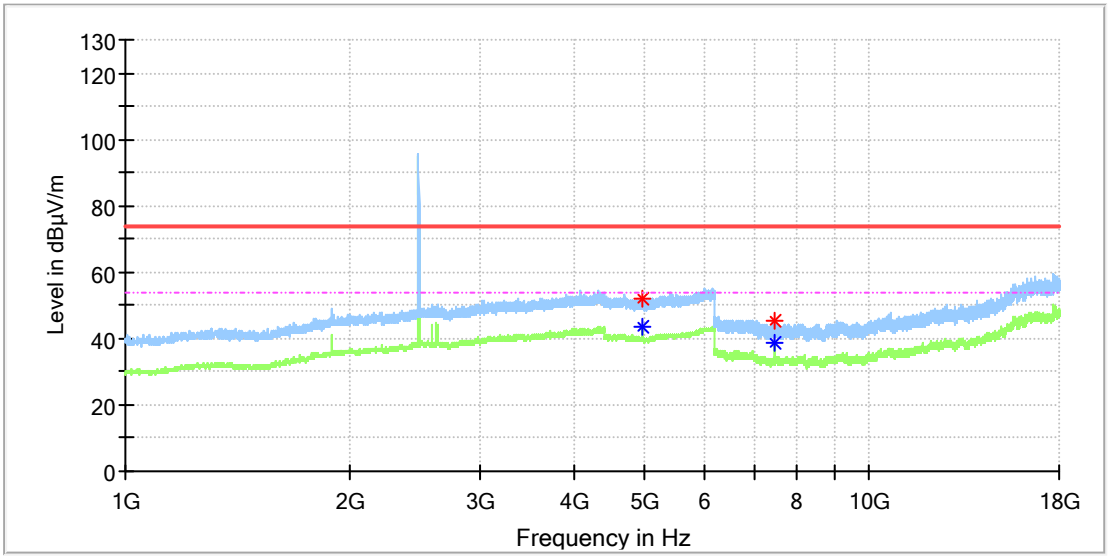



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4960.000000 | --- | 43.88 | 54.00 | 10.12 | 100.0 | V | 280.0 | 13.2 |
| 4963.000000 | 52.52 | --- | 74.00 | 21.48 | 100.0 | V | 170.0 | 13.2 |
| 7439.983333 | --- | 41.10 | 54.00 | 12.90 | 100.0 | V | 276.0 | 8.4 |
| 7439.983333 | 45.70 | --- | 74.00 | 28.30 | 100.0 | V | 276.0 | 8.4 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |



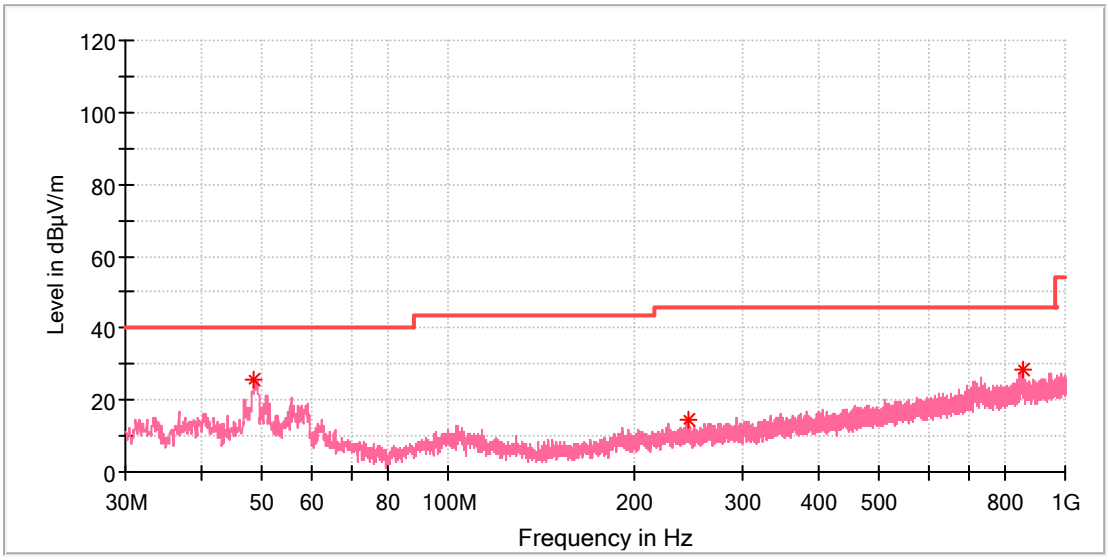

# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4960.000000 | --- | 43.83 | 54.00 | 10.17 | 100.0 | H | 242.0 | 13.2 |
| 4960.500000 | 52.16 | --- | 74.00 | 21.84 | 100.0 | H | 333.0 | 13.2 |
| 7439.491667 | 45.39 | --- | 74.00 | 28.61 | 100.0 | H | 224.0 | 8.4 |
| 7439.983333 | --- | 38.46 | 54.00 | 15.54 | 100.0 | H | 224.0 | 8.4 |

**EDR mode, 30MHz - 1GHz**

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

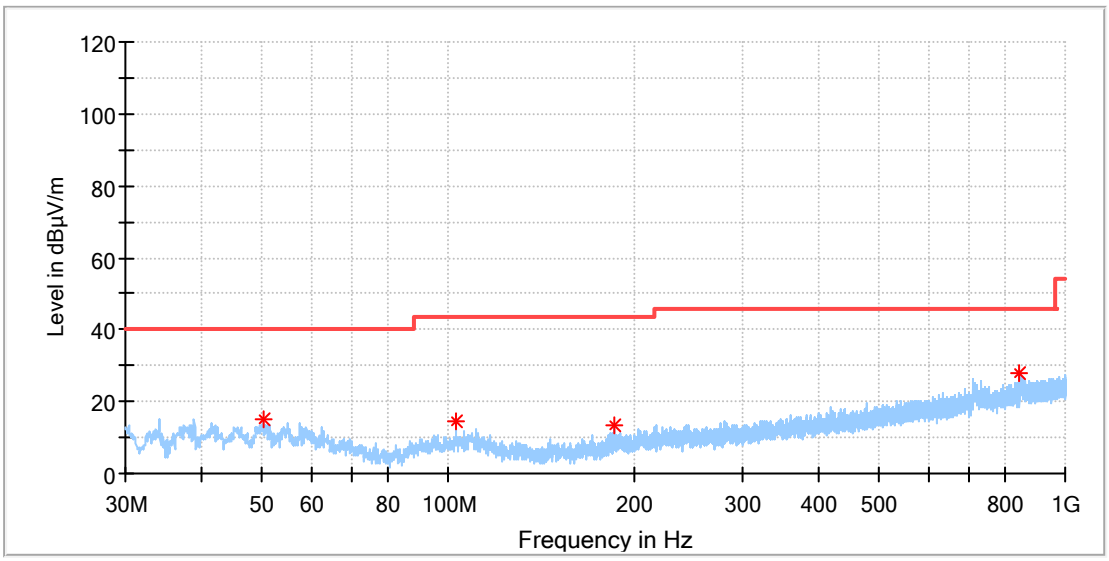



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 48.575500 | 25.78 | --- | 40.00 | 14.22 | 100.0 | V | 36.0 | -18.7 |
| 244.612500 | 14.62 | --- | 46.00 | 31.38 | 100.0 | V | 282.0 | -17.9 |
| 852.657000 | 28.39 | --- | 46.00 | 17.61 | 100.0 | V | 192.0 | -5.9 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

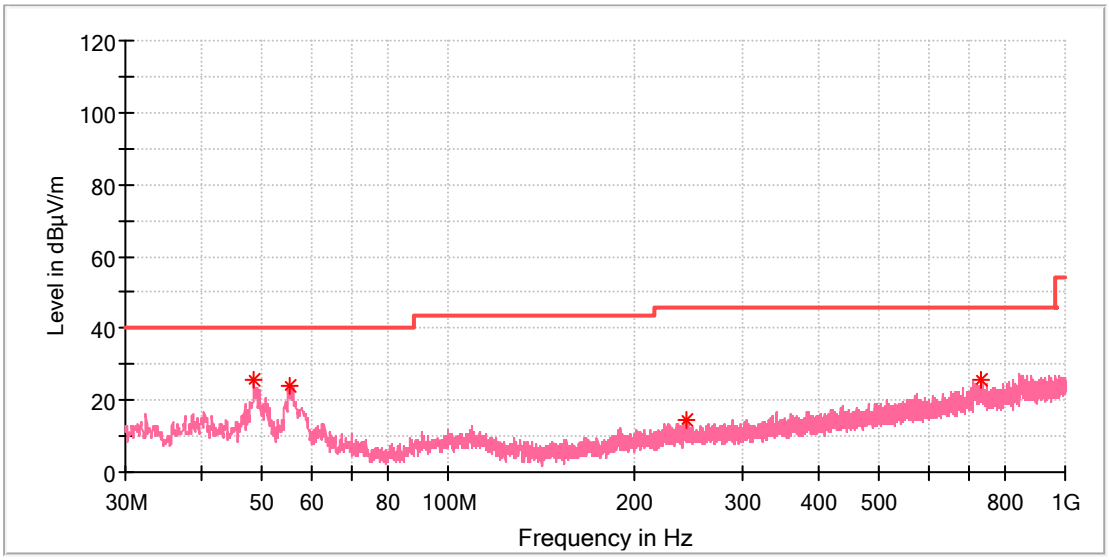



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 50.079000 | 15.20 | --- | 40.00 | 24.80 | 100.0 | H | 249.0 | -18.6 |
| 103.089500 | 14.58 | --- | 43.50 | 28.92 | 100.0 | H | 200.0 | -19.2 |
| 185.976000 | 13.13 | --- | 43.50 | 30.37 | 100.0 | H | 340.0 | -20.2 |
| 845.091000 | 28.07 | --- | 46.00 | 17.93 | 100.0 | H | 70.0 | -6.0 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

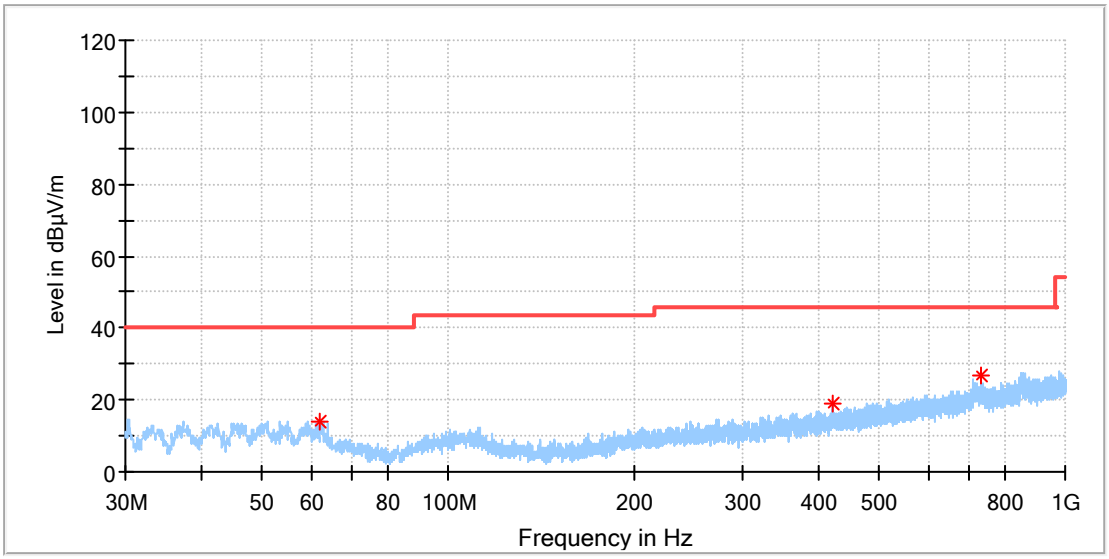



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 48.478500 | 25.41 | --- | 40.00 | 14.59 | 100.0 | V | 2.0 | -18.7 |
| 55.462500 | 23.78 | --- | 40.00 | 16.22 | 100.0 | V | 135.0 | -18.8 |
| 243.594000 | 14.53 | --- | 46.00 | 31.47 | 100.0 | V | 266.0 | -17.9 |
| 728.594000 | 25.74 | --- | 46.00 | 20.26 | 100.0 | V | 127.0 | -7.9 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |



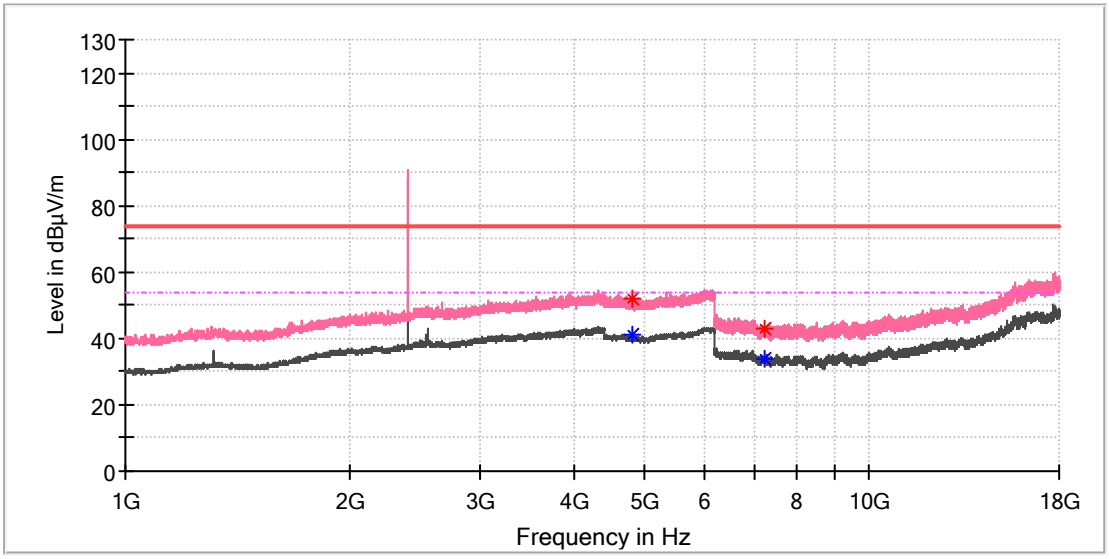

# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 62.058500 | 14.23 | --- | 40.00 | 25.77 | 100.0 | H | 323.0 | -19.8 |
| 419.503500 | 19.08 | --- | 46.00 | 26.92 | 100.0 | H | 233.0 | -13.7 |
| 729.321500 | 26.95 | --- | 46.00 | 19.05 | 100.0 | H | 126.0 | -7.9 |

**EDR mode, 1GHz - 18GHz**

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

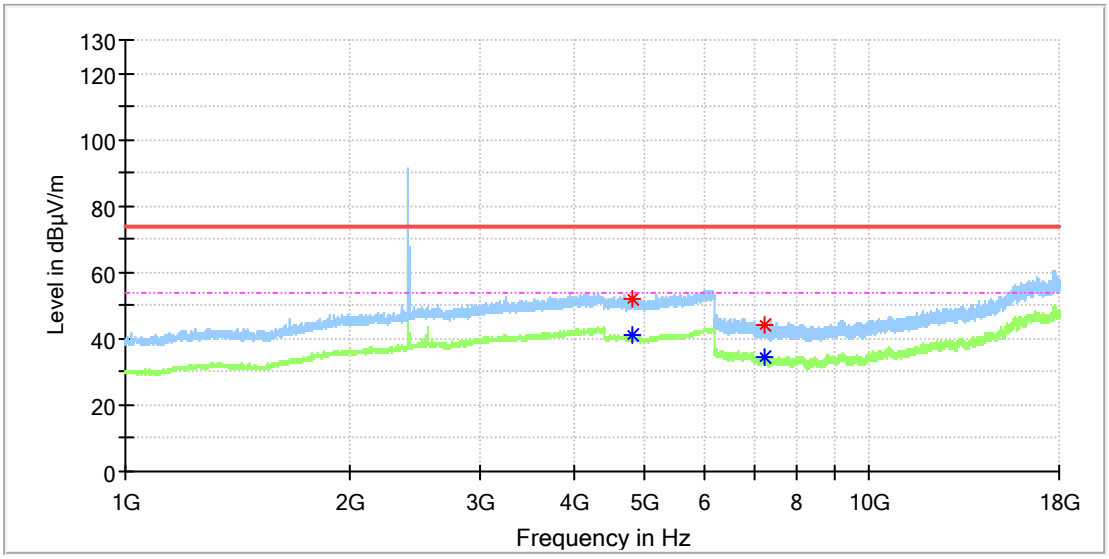



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4804.000000 | --- | 41.36 | 54.00 | 12.64 | 100.0 | V | 266.0 | 13.6 |
| 4805.000000 | 51.86 | --- | 74.00 | 22.14 | 100.0 | V | 355.0 | 13.6 |
| 7210.866667 | --- | 34.09 | 54.00 | 19.91 | 100.0 | V | 148.0 | 8.7 |
| 7210.866667 | 42.67 | --- | 74.00 | 31.33 | 100.0 | V | 148.0 | 8.7 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

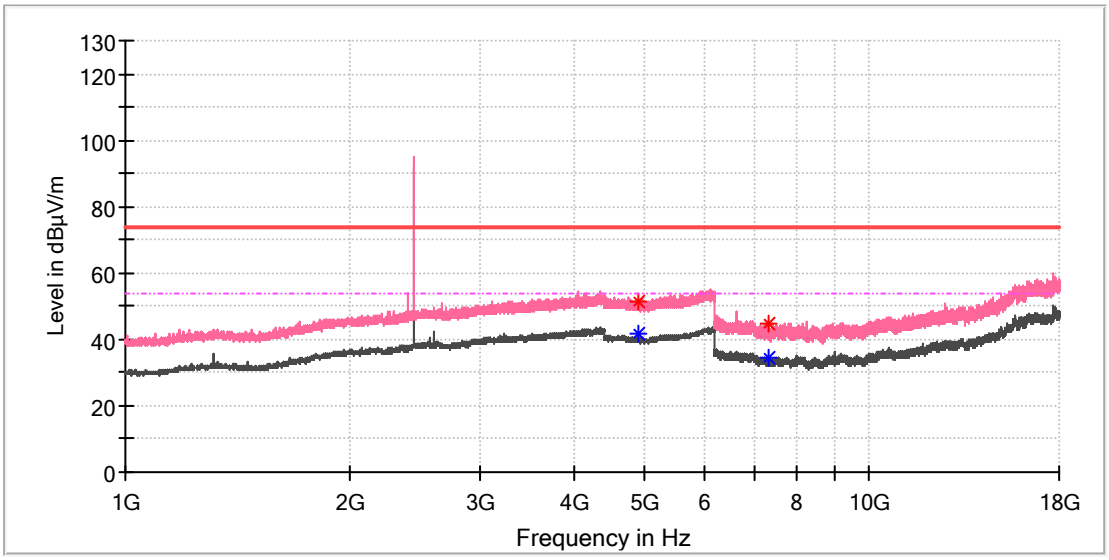



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4802.000000 | 51.79 | --- | 74.00 | 22.21 | 100.0 | H | 44.0 | 13.6 |
| 4803.500000 | --- | 41.24 | 54.00 | 12.76 | 100.0 | H | 233.0 | 13.6 |
| 7210.866667 | 44.17 | --- | 74.00 | 29.83 | 100.0 | H | 265.0 | 8.7 |
| 7215.783333 | --- | 34.36 | 54.00 | 19.64 | 100.0 | H | 246.0 | 8.7 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_Mid channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

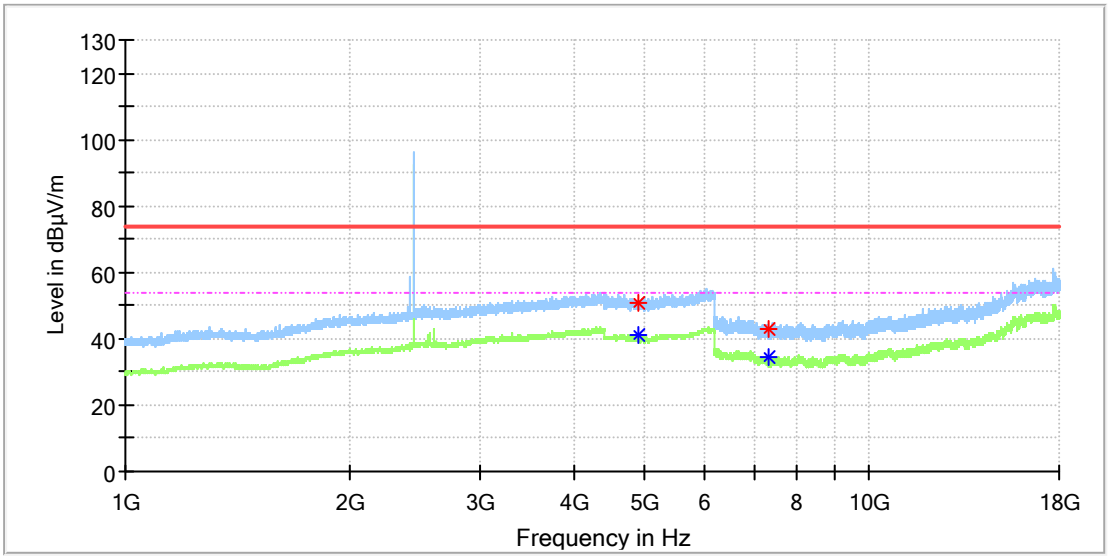



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4880.000000 | 51.46 | --- | 74.00 | 22.54 | 100.0 | V | 64.0 | 13.4 |
| 4882.000000 | --- | 41.56 | 54.00 | 12.44 | 100.0 | V | 288.0 | 13.4 |
| 7323.458333 | --- | 34.24 | 54.00 | 19.76 | 100.0 | V | 0.0 | 8.2 |
| 7324.441667 | 44.52 | --- | 74.00 | 29.48 | 100.0 | V | 343.0 | 8.2 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_Mid channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

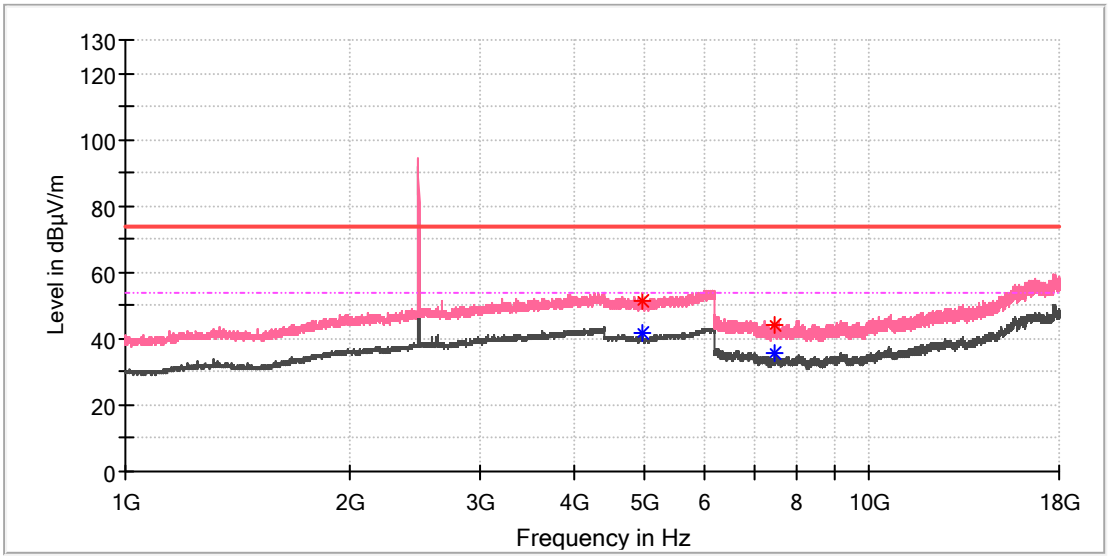



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4882.000000 | --- | 40.91 | 54.00 | 13.09 | 100.0 | H | 241.0 | 13.4 |
| 4886.500000 | 51.05 | --- | 74.00 | 22.95 | 100.0 | H | 216.0 | 13.3 |
| 7302.808333 | --- | 34.53 | 54.00 | 19.47 | 100.0 | H | 173.0 | 8.3 |
| 7324.441667 | 43.13 | --- | 74.00 | 30.87 | 100.0 | H | 59.0 | 8.2 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

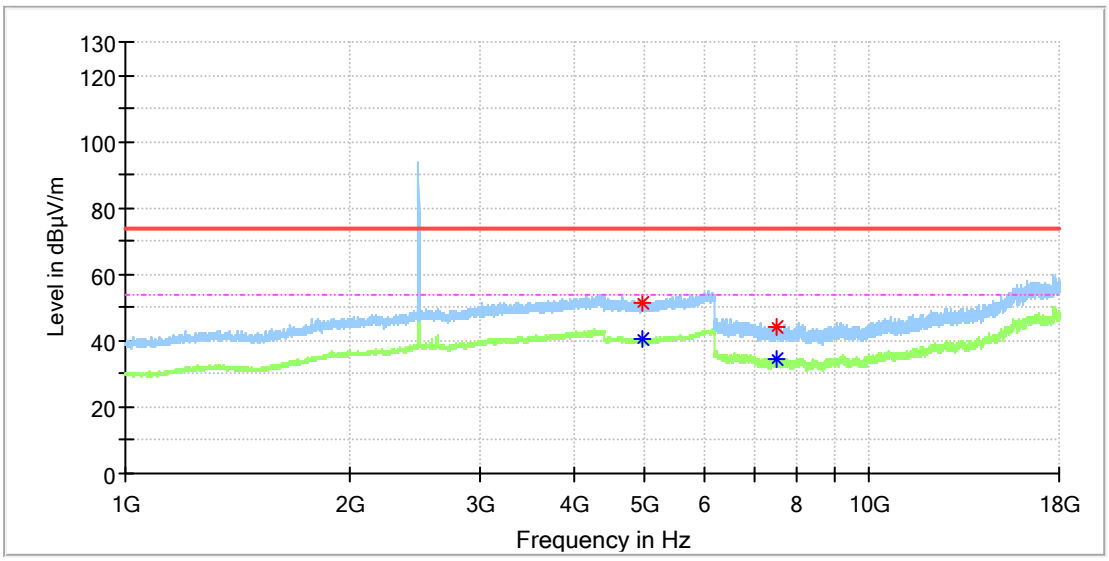



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4950.500000 | 51.68 | --- | 74.00 | 22.32 | 100.0 | V | 265.0 | 13.2 |
| 4960.000000 | --- | 41.43 | 54.00 | 12.57 | 100.0 | V | 335.0 | 13.2 |
| 7439.491667 | --- | 35.67 | 54.00 | 18.33 | 100.0 | V | 273.0 | 8.4 |
| 7439.983333 | 44.33 | --- | 74.00 | 29.67 | 100.0 | V | 273.0 | 8.4 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |




# Critical_Freqs

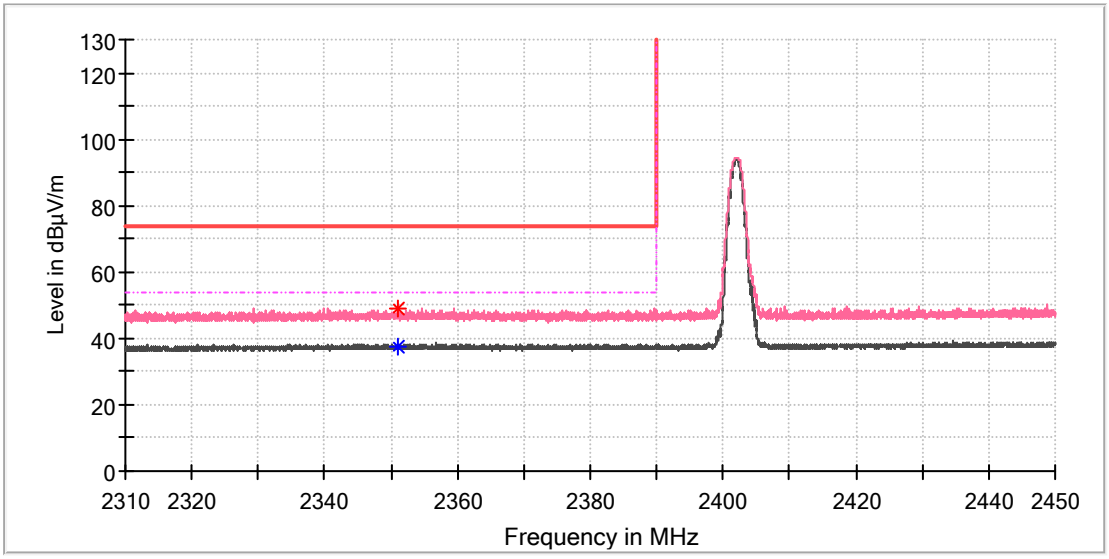
| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 4959.500000 | --- | 40.62 | 54.00 | 13.38 | 100.0 | H | 1.0 | 13.2 |
| 4964.000000 | 51.17 | --- | 74.00 | 22.83 | 100.0 | H | 211.0 | 13.2 |
| 7503.408333 | 43.95 | --- | 74.00 | 30.05 | 100.0 | H | 288.0 | 8.7 |
| 7518.650000 | --- | 34.29 | 54.00 | 19.71 | 100.0 | H | 67.0 | 8.7 |

## Appendix C.2: Test Plots of Band Edge (Radiated)

**BDR mode, Low Channel**

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

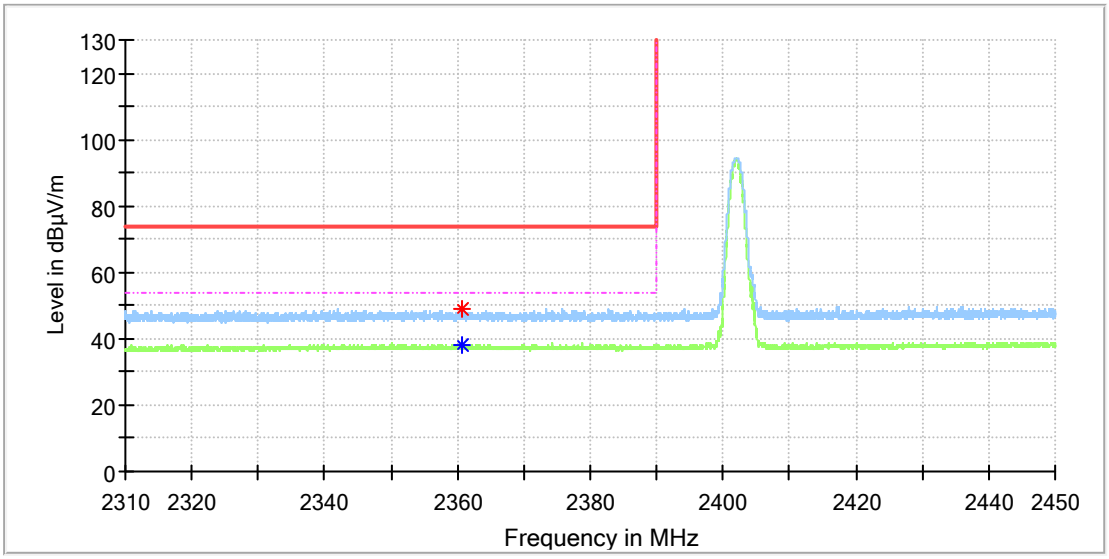



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2350.929412 | --- | 37.72 | 54.00 | 16.28 | 100.0 | V | 345.0 | 6.9 |
| 2350.929412 | 49.00 | --- | 74.00 | 25.00 | 100.0 | V | 345.0 | 6.9 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |



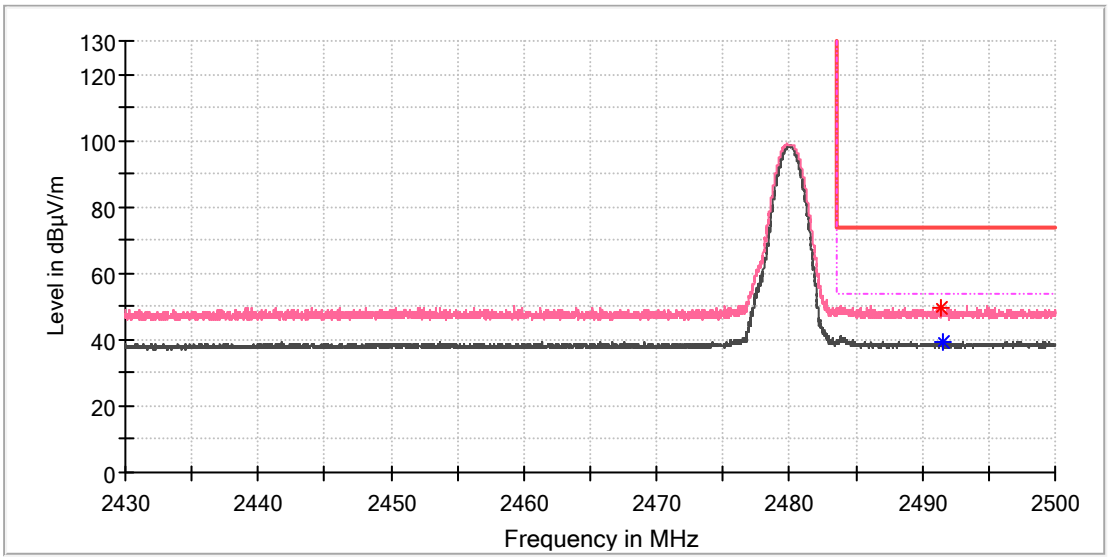

# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2360.605882 | --- | 38.18 | 54.00 | 15.82 | 100.0 | H | 210.0 | 6.9 |
| 2360.832353 | 48.94 | --- | 74.00 | 25.06 | 100.0 | H | 22.0 | 6.9 |

**BDR mode, High Channel**

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

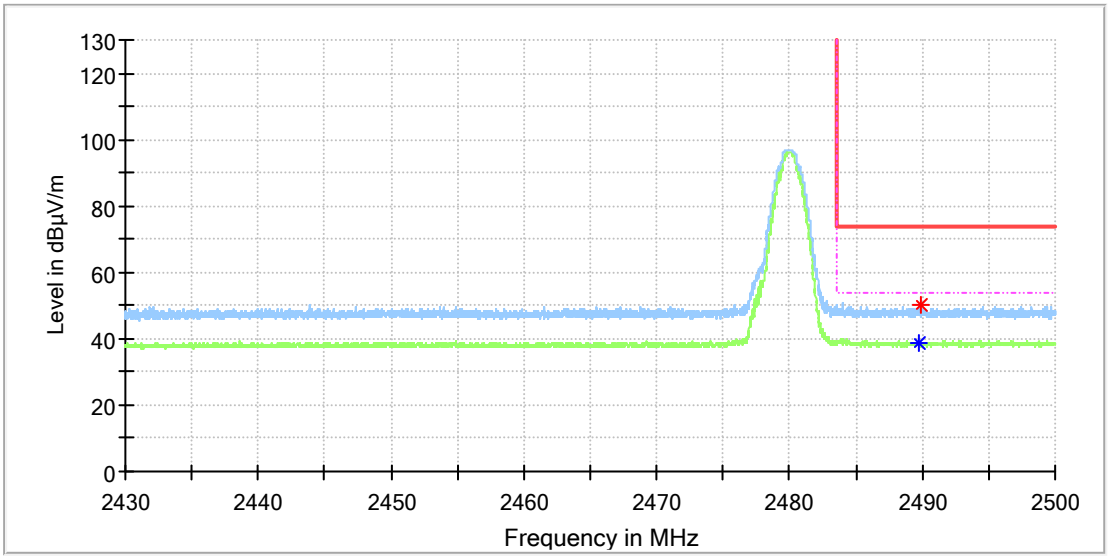



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2491.373529 | 49.73 | --- | 74.00 | 24.27 | 100.0 | V | 287.0 | 7.4 |
| 2491.497059 | --- | 39.05 | 54.00 | 14.95 | 100.0 | V | 210.0 | 7.4 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_GFSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |



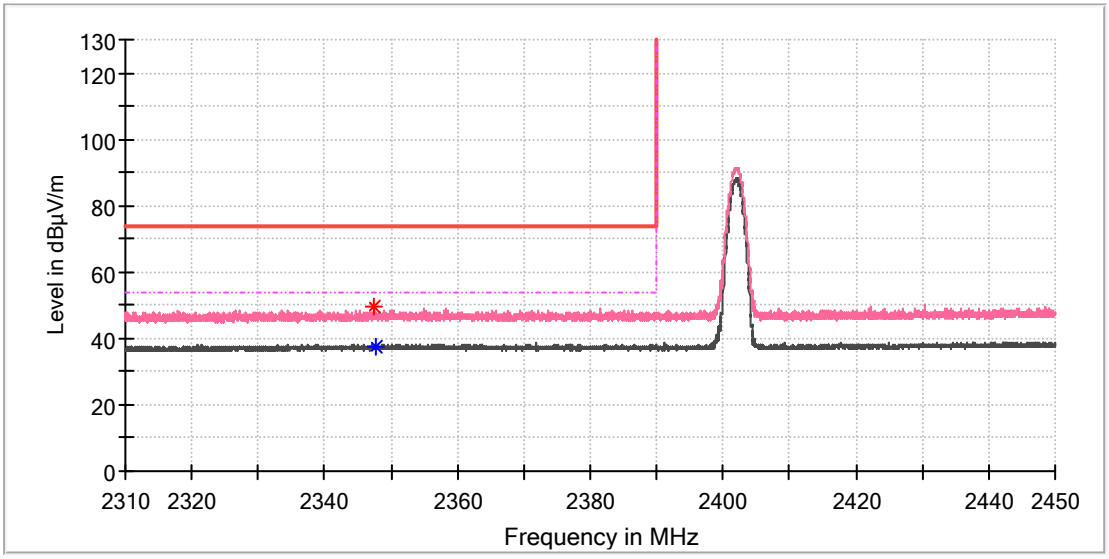

# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2489.695588 | --- | 38.65 | 54.00 | 15.35 | 100.0 | H | 16.0 | 7.4 |
| 2489.819118 | 49.93 | --- | 74.00 | 24.07 | 100.0 | H | 79.0 | 7.4 |

**EDR mode, Low Channel**

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

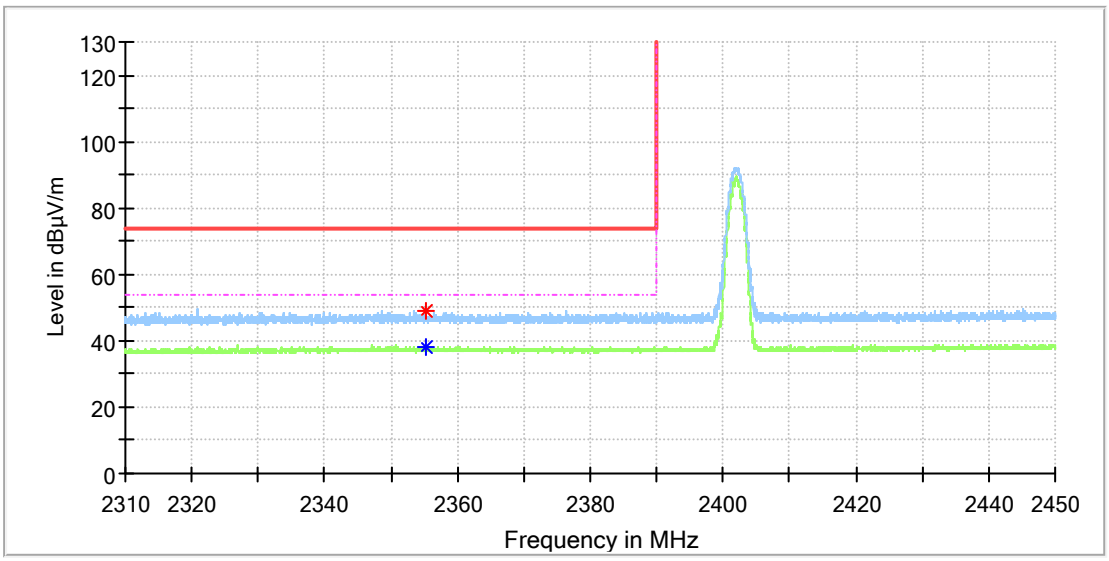



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2347.552941 | 49.83 | --- | 74.00 | 24.17 | 100.0 | V | 178.0 | 6.9 |
| 2347.841177 | --- | 37.59 | 54.00 | 16.41 | 100.0 | V | 323.0 | 6.9 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_Low channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |



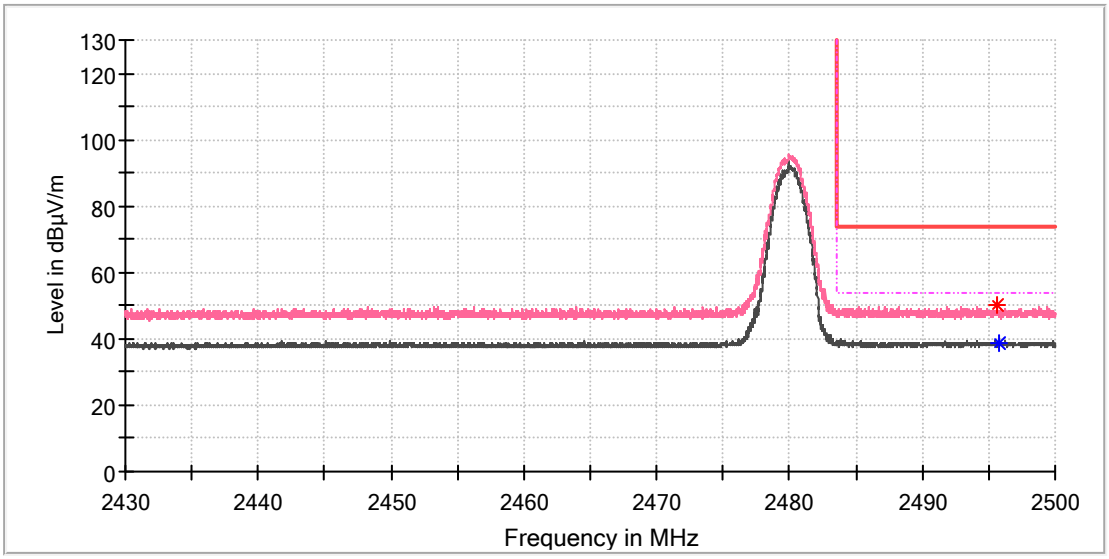

# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2355.252941 | 49.21 | --- | 74.00 | 24.79 | 100.0 | H | 0.0 | 6.9 |
| 2355.294118 | --- | 37.87 | 54.00 | 16.13 | 100.0 | H | 184.0 | 6.9 |

**EDR mode, High Channel**

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

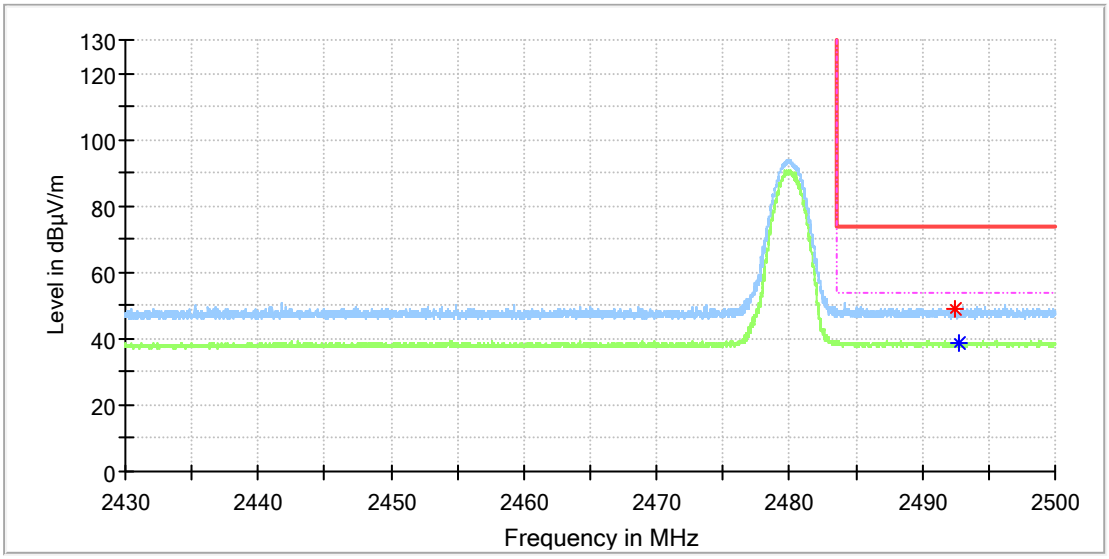



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2495.686765 | 50.08 | --- | 74.00 | 23.92 | 100.0 | V | 330.0 | 7.4 |
| 2495.830882 | --- | 38.79 | 54.00 | 15.21 | 100.0 | V | 355.0 | 7.4 |

# EUT Information

| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT_8DPSK_TX_High channel |
| Test Voltage:: | AC 120V, 60Hz |
| Remark: | Temp 22 Humi:50% |
| Test Standard: | FCC 15.247 |
| Tested By: | Kei Zhang |
| Reviewed By: | Terry Yin |

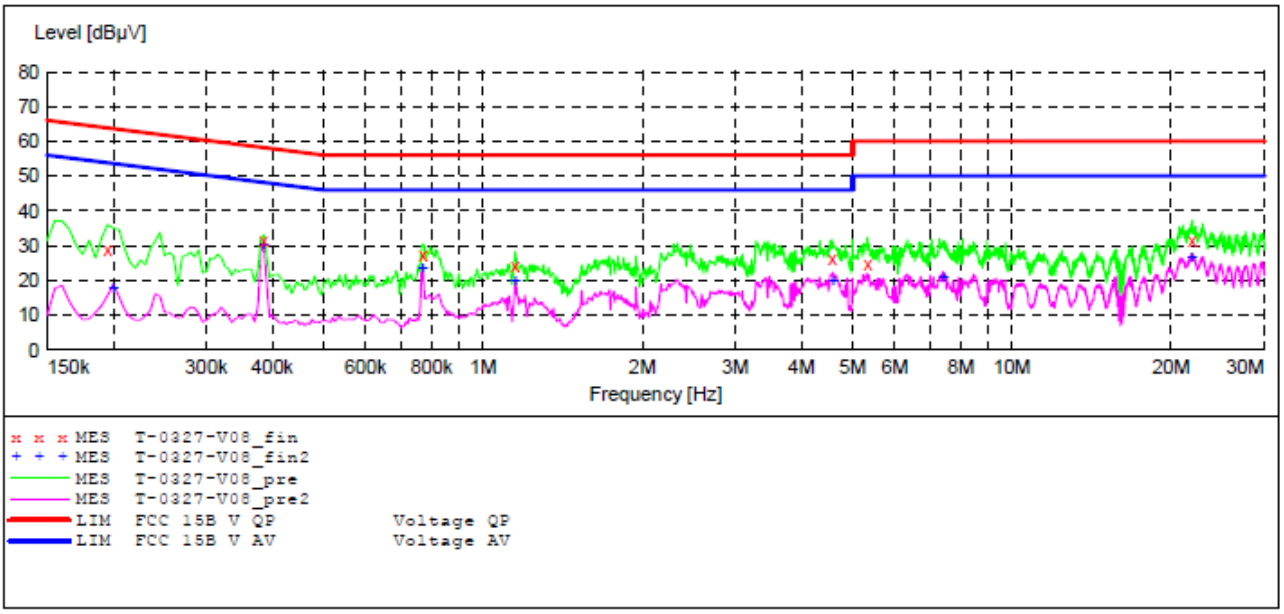



# Critical_Freqs

| Frequency (MHz) | MaxPeak (dBµV/m) | Average (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|---|---|---|---|---|---|---|---|---|
| 2492.454412 | 49.25 | --- | 74.00 | 24.75 | 100.0 | H | 84.0 | 7.4 |
| 2492.773529 | --- | 38.70 | 54.00 | 15.30 | 100.0 | H | 230.0 | 7.4 |

## Appendix C.3: Test Plots of AC Mains Conducted Emission

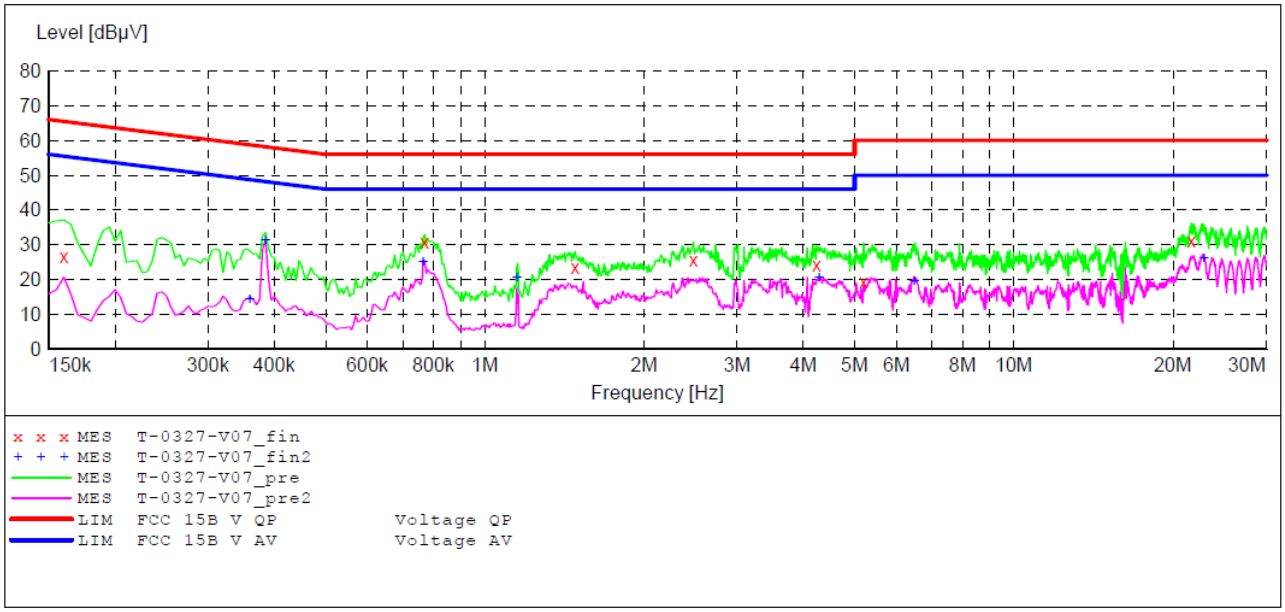
| | |
|---|---|
| EUT Name: | ActiveSpeaker |
| Model: | R1280DBs |
| Test Mode: | BT CH0 |
| Comment: | Line |




## Final_Result

| Frequency (MHz) | QuasiPeak (dBµV) | Average (dBµV) | Transd (dB) | Limit (dB | Margin (dB) | Meas. Time (ms) | Line |
|---|---|---|---|---|---|---|---|
| 0.195000 | 29.00 | | 10.5 | 64 | 34.8 | | L |
| 0.385000 | 31.30 | | 10.7 | 58 | 26.9 | | L |
| 0.770000 | 27.30 | | 10.8 | 56 | 28.7 | | L |
| 1.150000 | 24.40 | | 10.9 | 56 | 31.6 | | L |
| 4.570000 | 26.20 | | 11.1 | 56 | 29.8 | | L |
| 5.330000 | 24.70 | | 11.2 | 60 | 35.3 | | L |
| 21.910000 | 31.60 | | 11.4 | 60 | 28.4 | | L |
| 0.200000 | | 17.70 | 10.5 | 54 | 35.9 | | L |
| 0.385000 | | 30.30 | 10.7 | 48 | 17.9 | | L |
| 0.770000 | | 23.60 | 10.8 | 46 | 22.4 | | L |
| 1.150000 | | 20.20 | 10.9 | 46 | 25.8 | | L |
| 4.590000 | | 19.90 | 11.1 | 46 | 26.1 | | L |

EUT Name: ActiveSpeaker
Model: R1280DBs
Test Mode: BT CH0
Comment: Nature




## Final_Result

| Frequency (MHz) | QuasiPeak (dBµV) | Average (dBµV) | Transd (dB) | Limit (dBµV) | Margin (dB) | Meas. Time (ms) | Line |
|---|---|---|---|---|---|---|---|
| 0.160000 | 26.70 | | 10.5 | 66 | 38.8 | | N |
| 0.770000 | 30.60 | | 10.8 | 56 | 25.4 | | N |
| 1.480000 | 23.50 | | 10.9 | 56 | 32.5 | | N |
| 2.480000 | 25.50 | | 11.0 | 56 | 30.5 | | N |
| 4.240000 | 24.20 | | 11.1 | 56 | 31.8 | | N |
| 5.200000 | 19.30 | | 11.2 | 60 | 40.7 | | N |
| 21.670000 | 31.20 | | 11.4 | 60 | 28.8 | | N |
| 0.360000 | | 14.60 | 10.6 | 49 | 34.1 | | N |
| 0.385000 | | 31.30 | 10.7 | 48 | 16.9 | | N |
| 0.765000 | | 25.30 | 10.8 | 46 | 20.7 | | N |
| 1.150000 | | 20.70 | 10.9 | 46 | 25.3 | | N |
| 4.290000 | | 20.70 | 11.1 | 46 | 25.3 | | N |