# TEST REPORT

| | |
|---|---|
| **Application No.:** | GZCR2203000262AT |
| **Applicant:** | SKULLCANDY, INC. |
| **Address of Applicant:** | 6301 N Landmark Dr Park City UT 84098, Utah United States of America |
| **Manufacturer:** | SKULLCANDY, INC. |
| **Address of Manufacturer:** | 6301 N Landmark Dr Park City UT 84098, Utah United States of America |
| **Equipment Under Test (EUT):** | |
| **EUT Name:** | Jib True/Jib True 2/Jib True XT 2 |
| **Model No.:** | S1JTW |
| **Trade Mark:** | Skullcandy |
| **Standard(s) :** | 47 CFR Part 15, Subpart C 15.247 |
| **Date of Receipt:** | 2022-02-28 |
| **Date of Test:** | 2022-03-01 to 2022-03-17 |
| **Date of Issue:** | 2022-03-18 |
| **Test Result:** | **Pass*** |

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

Kobe Jian
EMC Laboratory Manager

| Revision Record | | | | |
|---|---|---|---|---|
| **Version** | **Chapter** | **Date** | **Modifier** | **Remark** |
| *01* | | *2022-03-18* | | *Original* |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| **Authorized for issue by:** | | | | |
| **Tested By** | |  **Curry Wu/Project Engineer** | | |
| **Reviewed By** | |  **Ricky Liu/Reviewer** | | |

# 2 Test Summary

| Radio Spectrum Matter Part | | | | |
|---|---|---|---|---|
| **Item** | **Standard** | **Method** | **Requirement** | **Result** |
| Conducted Peak Output Power | 47 CFR Part 15, Subpart C 15.247 | ANSI C63.10 (2013) Section 7.8.5 | 47 CFR Part 15, Subpart C 15.247(b)(1) | Pass |
| Conducted Spurious Emissions | | ANSI C63.10 (2013) Section 7.8.8 | 47 CFR Part 15, Subpart C 15.247(d) | Pass |
| Radiated Spurious Emissions (Below 1GHz) | | ANSI C63.10 (2013) Section 6.4,6.5,6.6 | 47 CFR Part 15, Subpart C 15.205 & 15.209 | Pass |
| Radiated Spurious Emissions (Above 1GHz) | | ANSI C63.10 (2013) Section 6.4,6.5,6.6 | 47 CFR Part 15, Subpart C 15.205 & 15.209 | Pass |

**Note:**

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

**Remark:**

Model No.: S1JTW

This test report (Ref. No.: GZCR220300026201) is only valid with the original test report (Ref. No.: SZEM210200210802).

According to the declaration from the applicant, the models in this report and models in original report were identical, only difference on Changing the digital circuit PCB Layout and components the product, Detailed change information is as follows:

| |
|---|
| 1. Delete the R12, R6 and R1 of previous version |
| a. These components don't affect the entire board's electric parameter |
| 2. Modify the match circuit's parameter |
| a. previous version: R1_0R; R2_0R; C2_NC; C3_0.5pF |
| b. current version: Left: Delete R1; R2_1nH; C2_1.2pF; C3_NC<br>Right: Delete R1; R2_1Nh; C2_1pF; C3_NC |
| 3. Change the protection IC and microphone |
| a. previous version: protection IC---XB6052I2; Microphone---GES2718AB-381A |
| b. current version: protection IC---WSDF13D2N2H; Microphone---SM2718B381QN3-01 |

Considering to the difference, pre-scan were performed on the sample in this report to find the items which can be influential to the result in the original test report for fully retest.

Therefore in this report Maximum Conducted Output Power, Conducted Spurious Emissions, Radiated Emissions below 1GHz, Radiated Emissions Above 1GHz were fully retested on model S1JTW and shown the data in this report, other test data please refer to the original report SZEM210200210802.

# 3 Contents

# 4 General Information

## 4.1 Details of E.U.T.

| | |
|---|---|
| Power supply: | Left earbuds: Li-Ion Polymer Battery 3.7V 55mAh (Charge by travel case)<br>Right earbuds: Li-Ion Polymer Battery 3.7V 55mAh (Charge by travel case)<br>travel case with backup battery: Li-Ion Polymer Battery 3.7V 500mAh (Charged by mirco-usb port) |
| Cable(s): | Mirco-USB cable: 13cm unshielded |
| Operation Frequency: | 2402MHz to 2480MHz |
| Bluetooth Version: | V5.0 Dual mode |
| Modulation Type: | GFSK, pi/4DQPSK, 8DPSK |
| Number of Channels: | 79 |
| Channel Spacing: | 1MHz |
| Spectrum Spread Technology: | Frequency Hopping Spread Spectrum(FHSS) |
| Antenna Type: | FPC Antenna |
| Antenna Gain: | Left: 1.22dBi; Right: -0.15dBi |

## 4.2 Description of Support Units

| Description | Manufacturer | Model No. | Serial No. |
|---|---|---|---|
| -- | -- | -- | -- |
| The EUT has been tested as an independent unit. | | | |

## 4.3 Measurement Uncertainty

| Test Item | Measurement Uncertainty |
|---|---|
| Conducted Peak Output Power | ± 0.75dB |
| Conducted Spurious Emissions | ± 0.75dB |
| Radiated Spurious Emissions (Below 1GHz) | ±5.00dB (30MHz-1GHz; 3m);±4.38dB (30MHz-1GHz; 10m) |
| Radiated Spurious Emissions (Above 1GHz) | ± 4.52dB (1GHz-6GHz);± 4.54dB (above 6GHz) |

## 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

## 4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

## 4.6 Deviation from Standards

None

## 4.7 Abnormalities from Standard Conditions

None



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# 5 Equipment List

| Conducted Peak Output Power | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| Power Meter (U2021XA_Ch2) | Agilent Technologies | U2021XA_Ch2 | SEM009-02 | 2021-05-19 | 2022-05-18 |
| 6dB Attenuator | HP | 8491A | EMC2062 | 2020-04-15 | 2022-04-14 |
| MI CABLE | SGS-EMC | 0.8M | EMC2136 | 2021-11-01 | 2023-11-01 |
| Test Software | TST | V2.0 | GZE100-78 | N/A | N/A |

| Conducted Spurious Emissions | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| EXA Signal Analzer(10Hz-44GHz) | Agilent Technologies | N9010A | EMC2138 | 2021-09-16 | 2022-09-15 |
| 6dB Attenuator | HP | 8491A | EMC2062 | 2020-04-15 | 2022-04-14 |
| MI CABLE | SGS-EMC | 0.8M | EMC2136 | 2021-11-01 | 2023-11-01 |
| Test Software | TST | V2.0 | GZE100-78 | N/A | N/A |

| Radiated Spurious Emissions (Below 1GHz) | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| EMI Test Receiver(10Hz-26.5GHz) | Rohde & Schwarz | ESIB26 | EMC0522 | 2021-12-17 | 2022-12-16 |
| Chamber cable | HangTianXing | N/A | EMC0542 | 2020-09-09 | 2022-09-08 |
| Trilog Broadband Antenna(25MHz-1GHz)-Lab | SCHWARZBECK MESS-ELEKTRONIK | VULB 9168 | SEM003-18 | 2019-02-22 | 2022-02-22 |
| Amplifier(9kHz-1.3GHz) | HP | 8447F | EMC2065 | 2021-05-19 | 2022-05-18 |
| High Pass Filter (915MHz) | FSY MICROWAVE | HM1465-9SS | EMC2079 | 2021-12-17 | 2022-12-16 |
| 10m Semi-Anechoic Chamber | ETS | N/A | EMC0530 | 2019-10-20 | 2022-10-19 |
| Test Software E3 | Audix | Ver.6.120110a | GZE100-61 | N/A | N/A |
| EMI Test Receiver(1Hz-8GHz) | Rohde & Schwarz | ESW8 | EMC2220 | 2021-05-26 | 2022-05-25 |

| Radiated Spurious Emissions (Above 1GHz) | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| EMI Test Receiver(20Hz-26.5GHz) | Rohde & Schwarz | ESIB26 | EMC0522 | 2021-12-17 | 2022-12-16 |
| Chamber cable(Above 1GHz) | Scoflex | KMKM-8.0m | EMC0545 | 2020-09-09 | 2022-09-08 |


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中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86–20) 82155555 f (86–20) 82075058 sgs.china@sgs.com

| | | | | | |
|---|---|---|---|---|---|
| Horn Antenna(1GHz-18GHz) | SCHWARZBECK MESS-ELEKTRONIK | BBHA 9120D | EMC2026 | 2019-09-25 | 2022-09-24 |
| 1GHz-26.5 GHz Pre-Amplifier | Agilent | 8449B | EMC0521 | 2021-12-17 | 2022-12-16 |
| 2.4GHz Filter | Micro-Tronics | BRM 50702 | EMC2069 | 2021-12-17 | 2022-12-16 |
| 966 Anechoic Chamber | C.R.T | 9m x 6m x 6m | EMC2142 | 2020-12-20 | 2023-12-19 |
| MXE EMI Receiver(10Hz-8.4GHz) | Keysight | N9038A | EMC2139 | 2021-11-01 | 2022-10-31 |
| EXA Signal Analyzer(10Hz-44GHz) | Keysight | N9010A | EMC2138 | 2021-09-16 | 2022-09-15 |
| Test Software E3 | Audix | Ver.6.120110a | GZE100-61 | N/A | N/A |
| Notch Filter (5150-5880) | Mico-Tronics | BRM50716 | EMC2168 | 2021-07-29 | 2022-07-28 |
| Horn Antenna(14-40GHz) | SCHWARZBECK | BBHA 9170 | EMC2041 | 2020-06-28 | 2023-06-27 |
| Microwave Broadband Preamplifier (18-40GHz) | SCHWARZBECK | BBV 9721 | EMC2172 | 2021-08-30 | 2022-08-29 |

**General used equipment**

| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
|---|---|---|---|---|---|
| DMM | Fluke | 73 | EMC0006 | 2021-07-05 | 2022-07-05 |
| DMM | Fluke | 73 | EMC0007 | 2021-07-05 | 2022-07-05 |

# 6 Radio Spectrum Matter Test Results

## 6.1 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(1)

Test Method: ANSI C63.10 (2013) Section 7.8.5

Limit:

| Frequency range(MHz) | Output power of the intentional radiator(watt) |
|---|---|
| 902-928 | 1 for ≥50 hopping channels |
| | 0.25 for 25≤ hopping channels <50 |
| | 1 for digital modulation |
| 2400-2483.5 | 1 for ≥75 non-overlapping hopping channels |
| | 0.125 for all other frequency hopping systems |
| | 1 for digital modulation |
| 5725-5850 | 1 for frequency hopping systems and digital modulation |

### 6.1.1 E.U.T. Operation

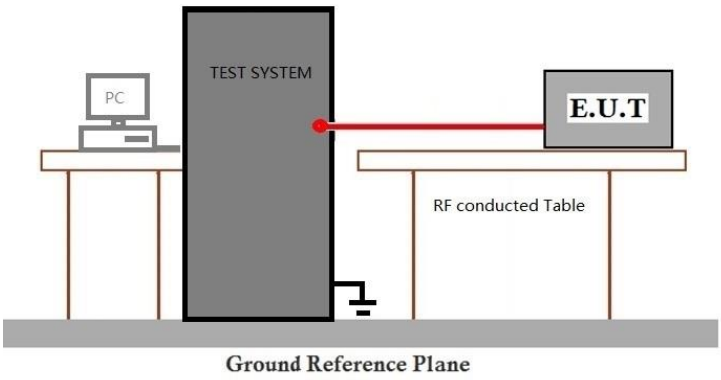
Operating Environment:

Temperature: 21.5 °C Humidity: 52.7 % RH Atmospheric Pressure: 1020 mbar

### 6.1.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 00 | TX_non-Hop mode(Left earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, p/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report. |
| Final test | 01 | TX_non-Hop mode(Right earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, p/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report. |

### 6.1.3 Test Setup Diagram




### 6.1.4 Measurement Procedure and Data

cable loss=0.9dB

Please Refer to Appendix for Details

## 6.2 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2013) Section 7.8.8

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c).

### 6.2.1 E.U.T. Operation

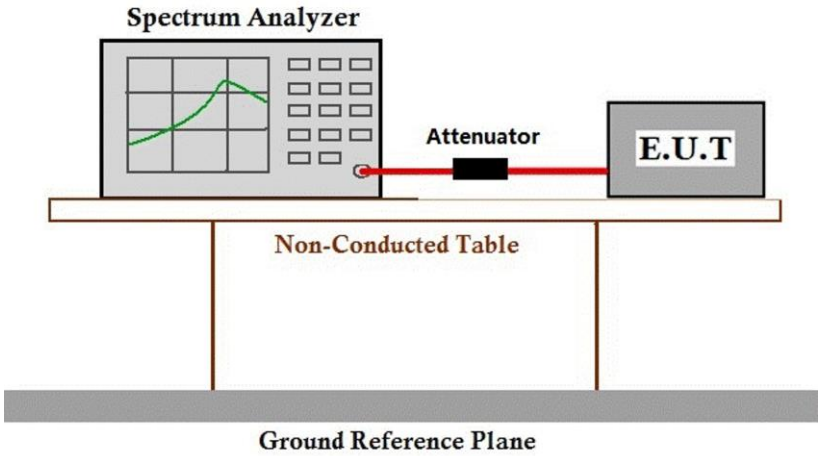
Operating Environment:

Temperature: 21.5 °C Humidity: 52.7 % RH Atmospheric Pressure: 1020 mbar

### 6.2.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| **Final test** | 00 | TX_non-Hop mode(Left earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, p/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report. |
| **Final test** | 01 | TX_non-Hop mode(Right earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, p/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report. |

### 6.2.3 Test Setup Diagram



**6.2.4 Measurement Procedure and Data**

cable loss=0.9dB

Please Refer to Appendix for Details

## 6.3 Radiated Spurious Emissions (Below 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6
Measurement Distance: 10m
Limit:

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|---|---|---|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |
| Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. | | |

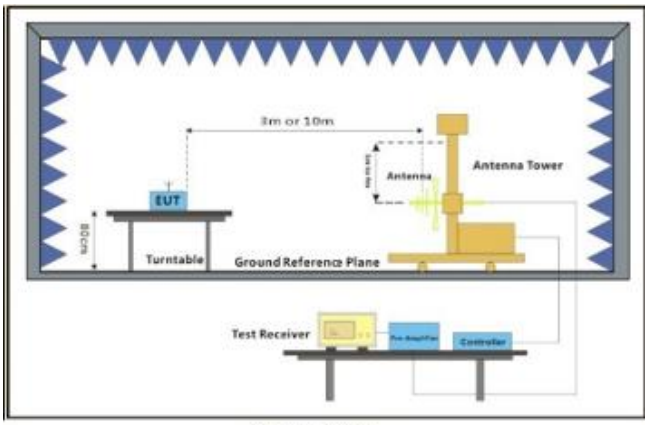
### 6.3.1 E.U.T. Operation

Operating Environment:
Temperature: 22.6 °C Humidity: 50.1 % RH Atmospheric Pressure: 1020 mbar

### 6.3.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| Final test | 00 | TX_non-Hop mode(Left earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, p/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report. |
| Final test | 01 | TX_non-Hop mode(Right earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, p/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report. |

### 6.3.3 Test Setup Diagram




30MHz-1GHz

### 6.3.4 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

i. Repeat above procedures until all frequencies measured was complete.

Remark:

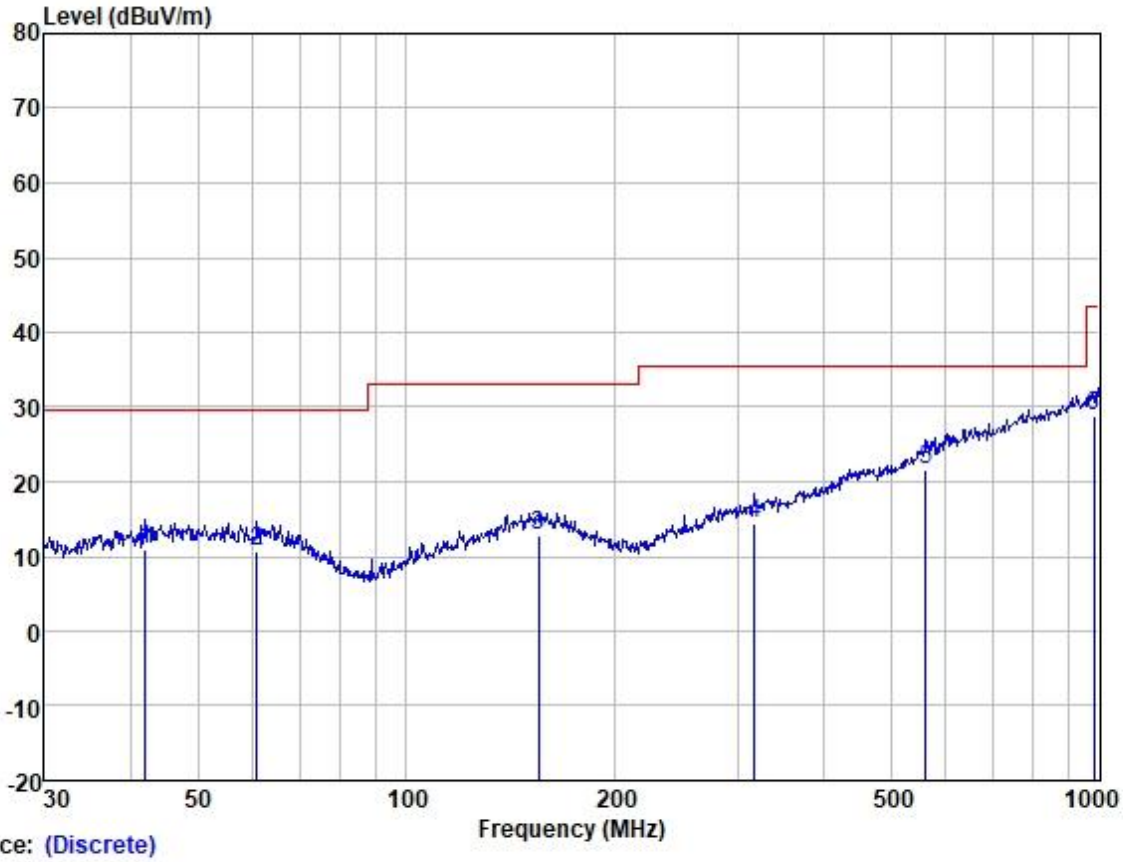
1) Through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

3) Scan from 9kHz to 1 GHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

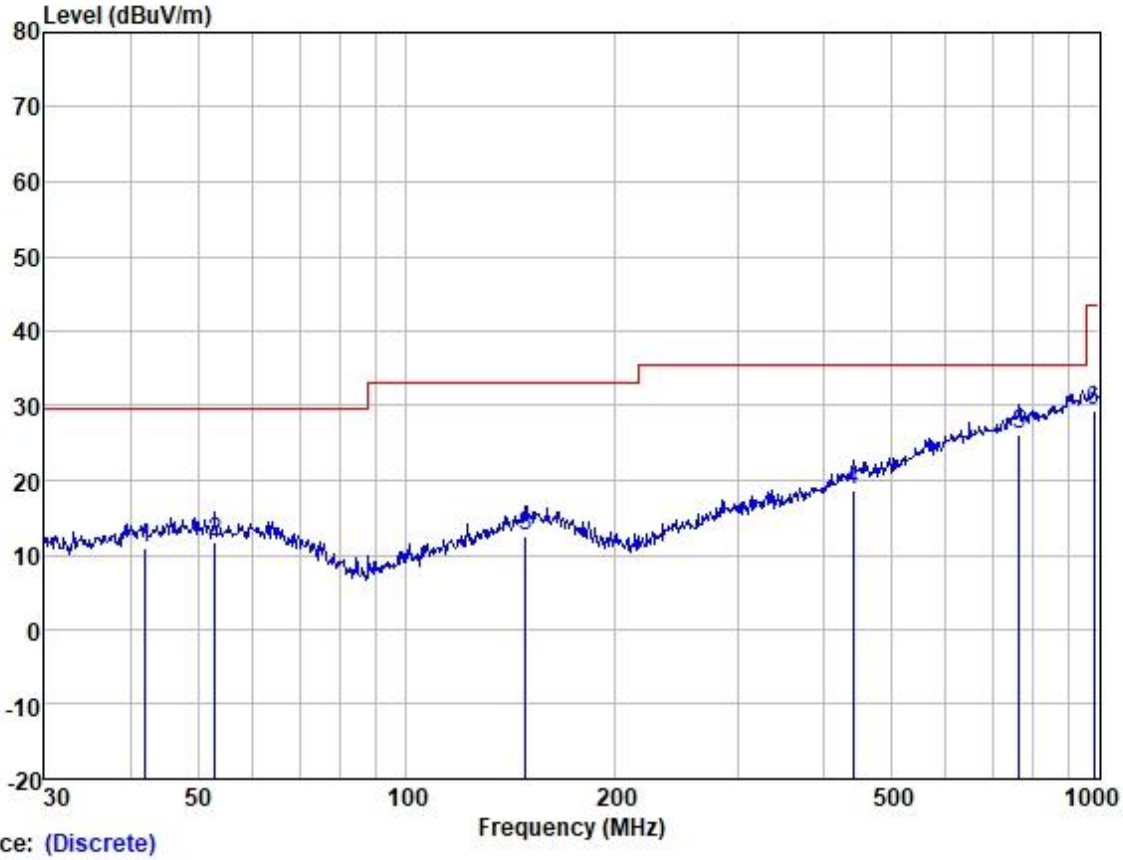
Test Mode: 00; Polarity: Horizontal; Modulation:GFSK; ; Channel:Low




Trace: (Discrete)
Site : SGS
Condition:
Job :
Model :
Power :
Test Mode: L BT

| | Freq | ReadAntenna Level | Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 42.007 | 23.55 | 13.50 | 1.11 | 27.17 | 10.99 | 29.50 | -18.51 | HORIZONTAL | QP |
| 2 | 60.704 | 23.48 | 13.10 | 1.27 | 27.16 | 10.69 | 29.50 | -18.81 | HORIZONTAL | QP |
| 3 | 154.821 | 23.95 | 13.45 | 2.28 | 26.81 | 12.87 | 33.10 | -20.23 | HORIZONTAL | QP |
| 4 | 317.701 | 23.79 | 13.91 | 3.29 | 26.65 | 14.34 | 35.60 | -21.26 | HORIZONTAL | QP |
| 5 | 560.693 | 26.38 | 18.50 | 4.88 | 28.14 | 21.62 | 35.60 | -13.98 | HORIZONTAL | QP |
| 6 | 982.620 | 25.34 | 23.82 | 7.31 | 27.68 | 28.79 | 43.50 | -14.71 | HORIZONTAL | QP |

Test Mode: 00; Polarity: Vertical; Modulation:GFSK; ; Channel:Low




Trace: (Discrete)
Site : SGS
Condition:
Job :
Model :
Power :
Test Mode: L BT

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 42.007 | 23.57 | 13.50 | 1.11 | 27.17 | 11.01 | 29.50 | -18.49 | VERTICAL | QP |
| 2 | 52.945 | 23.92 | 13.70 | 1.17 | 27.17 | 11.62 | 29.50 | -17.88 | VERTICAL | QP |
| 3 | 148.441 | 23.84 | 13.45 | 2.22 | 26.84 | 12.67 | 33.10 | -20.43 | VERTICAL | QP |
| 4 | 441.743 | 25.20 | 16.85 | 4.16 | 27.59 | 18.62 | 35.60 | -16.98 | VERTICAL | QP |
| 5 | 766.057 | 25.99 | 22.12 | 6.05 | 28.06 | 26.10 | 35.60 | -9.50 | VERTICAL | QP |
| 6 | 982.620 | 25.81 | 23.82 | 7.31 | 27.68 | 29.26 | 43.50 | -14.24 | VERTICAL | QP |

| Frequency (MHz) | Level @ 10m (dBuV/m) | Level @ 10m (uV/m) | Level @ 3m (uV/m) | Level @ 3m (dBuV/m) | Limit @ 3m (dBuV/m) | Margin (dB) | Ant. Polarization |
|---|---|---|---|---|---|---|---|
| 42.007 | 11.01 | 3.55 | 11.84 | 21.47 | 40.00 | -18.53 | V |
| 52.945 | 11.62 | 3.81 | 12.70 | 22.08 | 40.00 | -17.92 | V |
| 148.441 | 12.67 | 4.30 | 14.33 | 23.13 | 43.50 | -20.37 | V |
| 441.743 | 18.62 | 8.53 | 28.44 | 29.08 | 46.00 | -16.92 | V |
| 766.057 | 26.10 | 20.18 | 67.28 | 36.56 | 46.00 | -9.44 | V |
| 982.620 | 29.26 | 29.04 | 96.80 | 39.72 | 54.00 | -14.28 | V |
| 42.007 | 10.99 | 3.54 | 11.81 | 21.45 | 40.00 | -18.55 | H |
| 60.704 | 10.69 | 3.42 | 11.41 | 21.15 | 40.00 | -18.85 | H |
| 154.821 | 12.87 | 4.40 | 14.67 | 23.33 | 43.50 | -20.17 | H |
| 317.701 | 14.34 | 5.21 | 17.37 | 24.80 | 46.00 | -21.20 | H |
| 560.693 | 21.62 | 12.05 | 40.17 | 32.08 | 46.00 | -13.92 | H |
| 982.620 | 28.79 | 27.51 | 91.70 | 39.25 | 54.00 | -14.75 | H |

The test was performed at a 10m test site. According to below formulate and the test data at 10m test distance,

$L_3 / L_{10} = D_{10} / D_3$

Note:

$L_3$: Level @ 3m distance. Unit: uV/m;

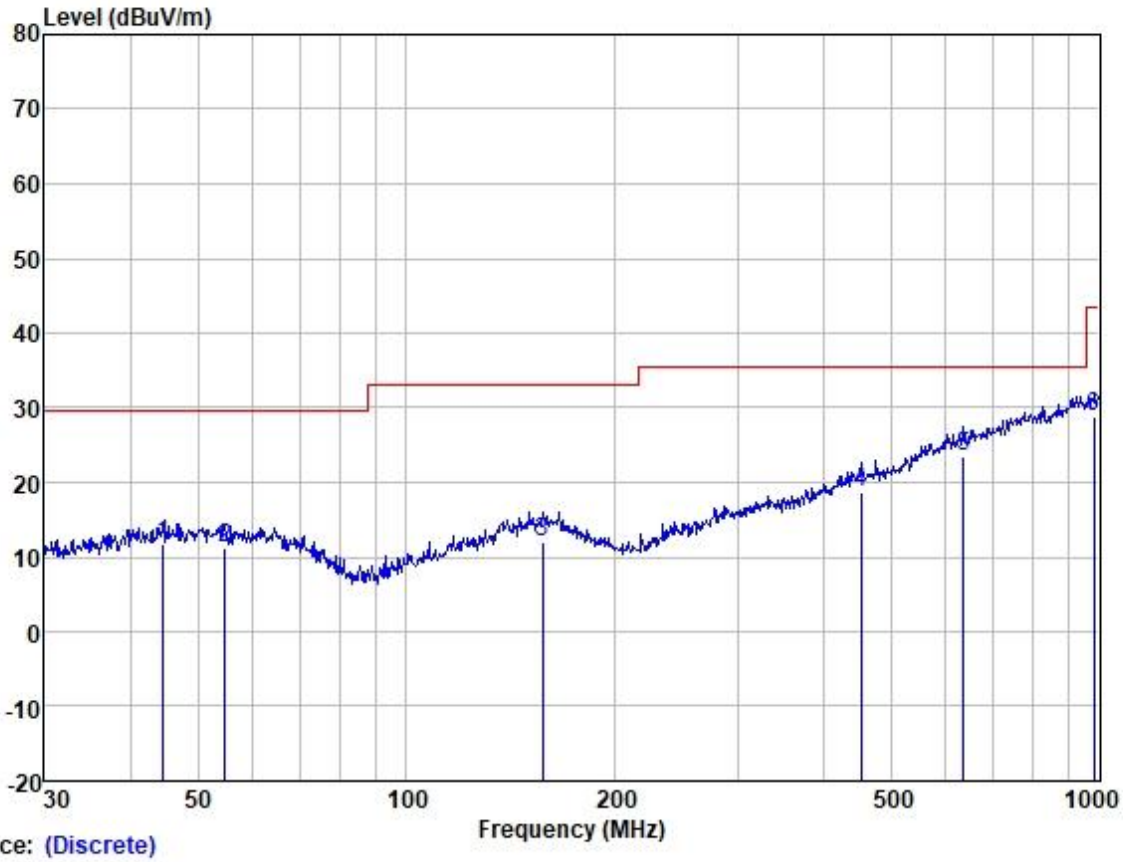
$L_{10}$: Level @ 10m distance. Unit: uV/m;

$D_3$: 3m distance. Unit: m

$D_{10}$: 10m distance. Unit: m

The level at 3m test distance is below:

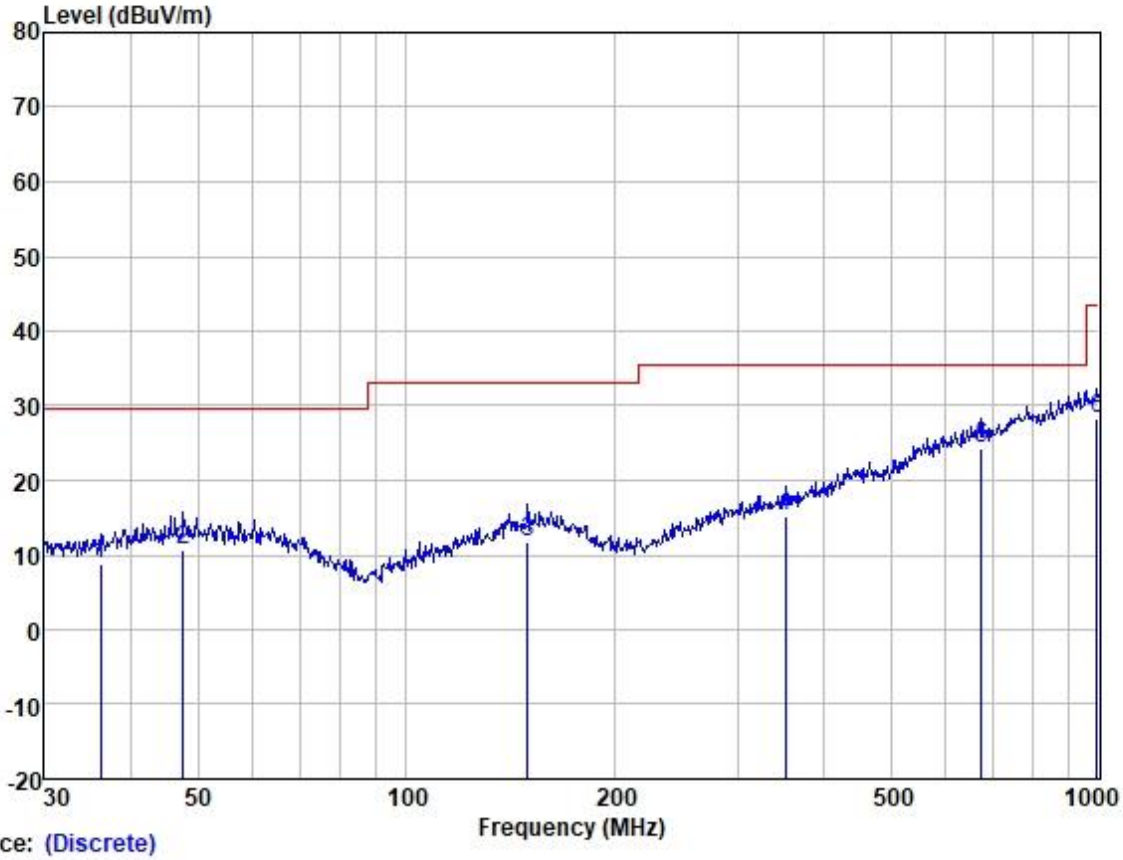
Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; ; Channel:Low




Trace: (Discrete)
Site : SGS
Condition:
Job :
Model :
Power :
Test Mode: R BT

| | Freq | ReadAntenna Level | Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 44.587 | 24.09 | 13.63 | 1.12 | 27.17 | 11.67 | 29.50 | -17.83 | HORIZONTAL | QP |
| 2 | 54.643 | 23.68 | 13.62 | 1.19 | 27.16 | 11.33 | 29.50 | -18.17 | HORIZONTAL | QP |
| 3 | 157.007 | 23.20 | 13.42 | 2.31 | 26.81 | 12.12 | 33.10 | -20.98 | HORIZONTAL | QP |
| 4 | 452.720 | 25.20 | 17.10 | 4.22 | 27.72 | 18.80 | 35.60 | -16.80 | HORIZONTAL | QP |
| 5 | 636.134 | 26.24 | 20.00 | 5.39 | 28.19 | 23.44 | 35.60 | -12.16 | HORIZONTAL | QP |
| 6 | 982.620 | 25.30 | 23.82 | 7.31 | 27.68 | 28.75 | 43.50 | -14.75 | HORIZONTAL | QP |

Test Mode: 01; Polarity: Vertical; Modulation:GFSK; ; Channel:Low




Trace: (Discrete)
Site : SGS
Condition:
Job :
Model :
Power :
Test Mode: R BT

| | Freq | ReadAntenna Level | Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 36.127 | 22.27 | 12.51 | 1.07 | 27.18 | 8.67 | 29.50 | -20.83 | VERTICAL | QP |
| 2 | 47.659 | 23.08 | 13.70 | 1.13 | 27.17 | 10.74 | 29.50 | -18.76 | VERTICAL | QP |
| 3 | 149.486 | 22.99 | 13.49 | 2.22 | 26.84 | 11.86 | 33.10 | -21.24 | VERTICAL | QP |
| 4 | 351.708 | 24.34 | 14.23 | 3.63 | 27.02 | 15.18 | 35.60 | -20.42 | VERTICAL | QP |
| 5 | 675.208 | 26.41 | 20.45 | 5.65 | 28.17 | 24.34 | 35.60 | -11.26 | VERTICAL | QP |
| 6 | 993.011 | 24.61 | 23.87 | 7.37 | 27.67 | 28.18 | 43.50 | -15.32 | VERTICAL | QP |

| Frequency (MHz) | Level @ 10m (dBuV/m) | Level @ 10m (uV/m) | Level @ 3m (uV/m) | Level @ 3m (dBuV/m) | Limit @ 3m (dBuV/m) | Margin (dB) | Ant. Polarization |
|---|---|---|---|---|---|---|---|
| 36.127 | 8.67 | 2.71 | 9.04 | 19.13 | 40.00 | -20.87 | V |
| 47.659 | 10.74 | 3.44 | 11.48 | 21.20 | 40.00 | -18.80 | V |
| 149.486 | 11.86 | 3.92 | 13.06 | 22.32 | 43.50 | -21.18 | V |
| 351.708 | 15.18 | 5.74 | 19.14 | 25.64 | 46.00 | -20.36 | V |
| 675.208 | 24.34 | 16.48 | 54.94 | 34.80 | 46.00 | -11.20 | V |
| 993.011 | 28.18 | 25.64 | 85.48 | 38.64 | 54.00 | -15.36 | V |
| 44.587 | 11.67 | 3.83 | 12.78 | 22.13 | 40.00 | -17.87 | H |
| 54.643 | 11.33 | 3.69 | 12.29 | 21.79 | 40.00 | -18.21 | H |
| 157.007 | 12.12 | 4.04 | 13.45 | 22.58 | 43.50 | -20.92 | H |
| 452.720 | 18.80 | 8.71 | 29.03 | 29.26 | 46.00 | -16.74 | H |
| 636.134 | 23.44 | 14.86 | 49.53 | 33.90 | 46.00 | -12.10 | H |
| 982.620 | 28.75 | 27.38 | 91.28 | 39.21 | 54.00 | -14.79 | H |

The test was performed at a 10m test site. According to below formulate and the test data at 10m test distance,

$L_3 / L_{10} = D_{10} / D_3$

Note:

$L_3$: Level @ 3m distance. Unit: uV/m;

$L_{10}$: Level @ 10m distance. Unit: uV/m;

$D_3$: 3m distance. Unit: m

$D_{10}$: 10m distance. Unit: m

The level at 3m test distance is below:

## 6.4 Radiated Spurious Emissions (Above 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209
Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6
Measurement Distance: 3m
Limit:

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|---|---|---|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |
| Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. | | |

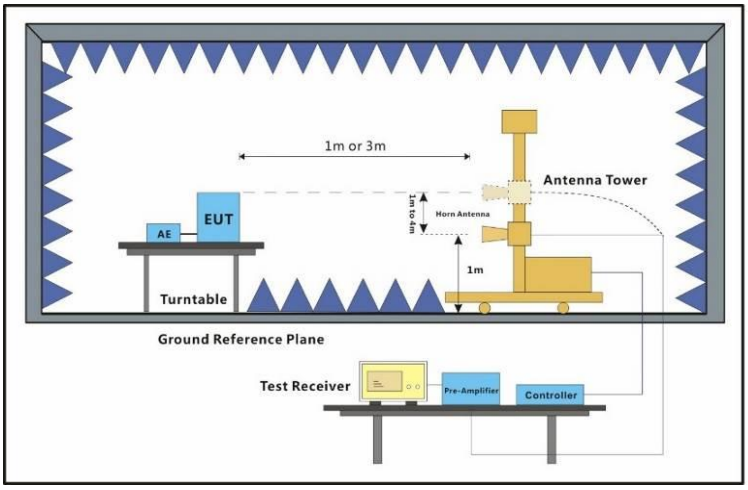
### 6.4.1 E.U.T. Operation

Operating Environment:
Temperature: 20.8 °C Humidity: 52.9 % RH Atmospheric Pressure: 1020 mbar

### 6.4.2 Test Mode Description

| Pre-scan / Final test | Mode Code | Description |
|---|---|---|
| **Final test** | 00 | TX_non-Hop mode(Left earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, p/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report. |
| **Final test** | 01 | TX_non-Hop mode(Right earbuds)_Keep the EUT in continuously transmitting mode with GFSK modulation, p/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report. |

### 6.4.3 Test Setup Diagram



### 6.4.4 Measurement Procedure and Data

a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

i. Repeat above procedures until all frequencies measured was complete.

Remark:

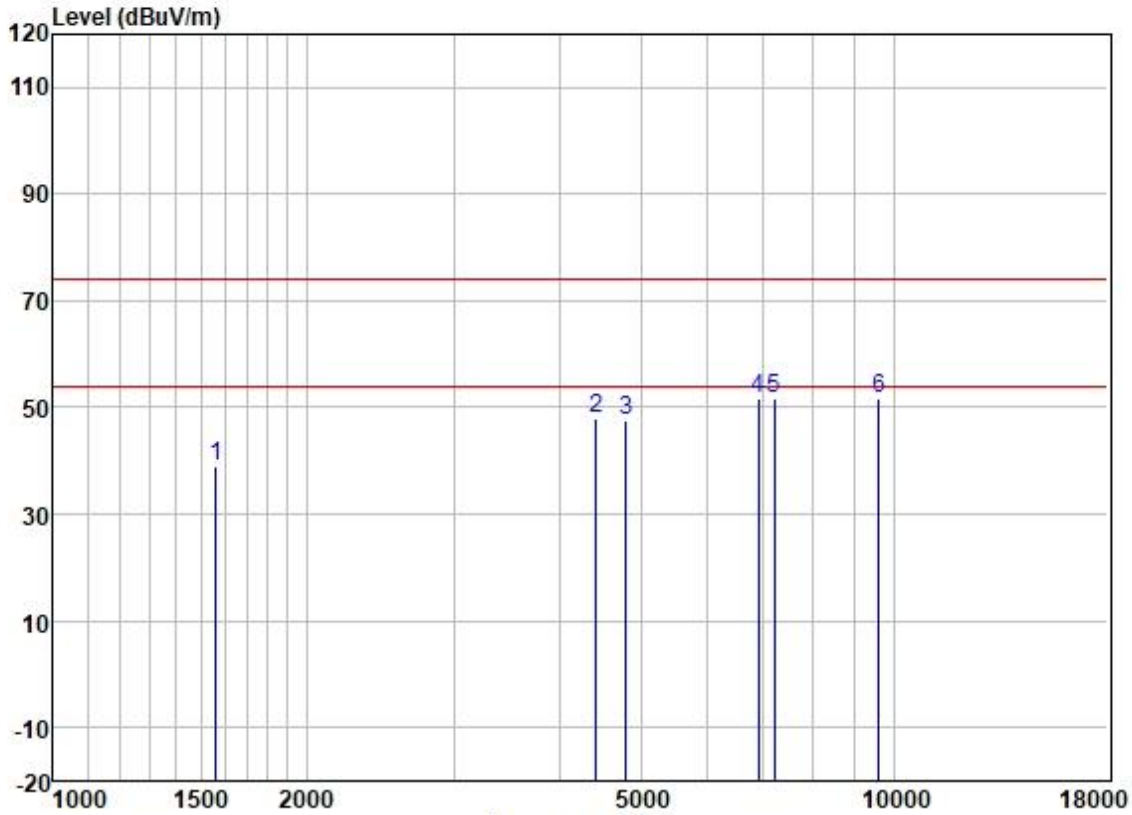
1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

2) Scan from 1GHz to 25GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3) The field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

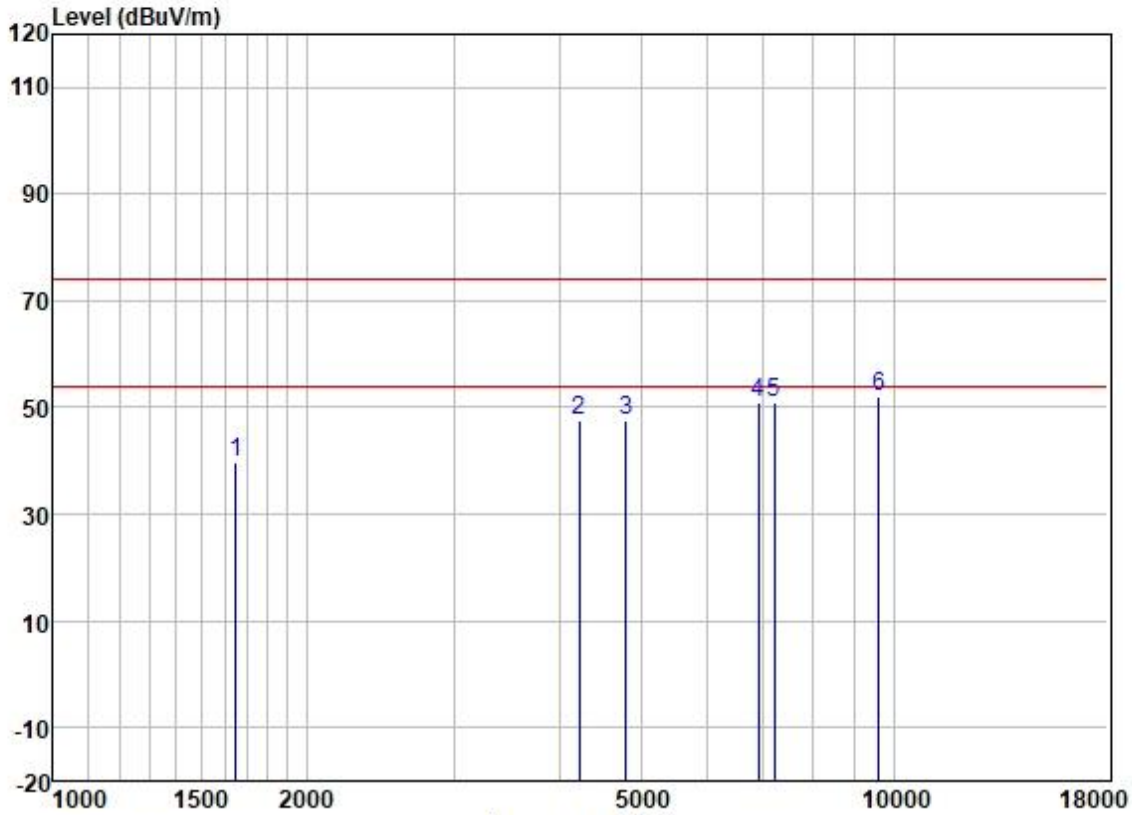
Test Mode: 00; Polarity: Horizontal; Modulation:GFSK; ; Channel:Low




Trace: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1560.673 | 48.79 | 25.54 | 2.80 | 38.03 | 39.10 | 74.00 | -34.90 | HORIZONTAL | Peak |
| 2 | 4430.628 | 49.26 | 30.72 | 4.78 | 36.81 | 47.95 | 74.00 | -26.05 | HORIZONTAL | Peak |
| 3 | 4804.000 | 47.44 | 31.42 | 5.40 | 36.83 | 47.43 | 74.00 | -26.57 | HORIZONTAL | Peak |
| 4 | 6894.806 | 48.16 | 34.85 | 5.81 | 37.18 | 51.64 | 74.00 | -22.36 | HORIZONTAL | Peak |
| 5 | 7206.000 | 47.60 | 35.54 | 5.98 | 37.38 | 51.74 | 74.00 | -22.26 | HORIZONTAL | Peak |
| 6 | 9608.000 | 43.54 | 38.37 | 7.07 | 37.42 | 51.56 | 74.00 | -22.44 | HORIZONTAL | Peak |

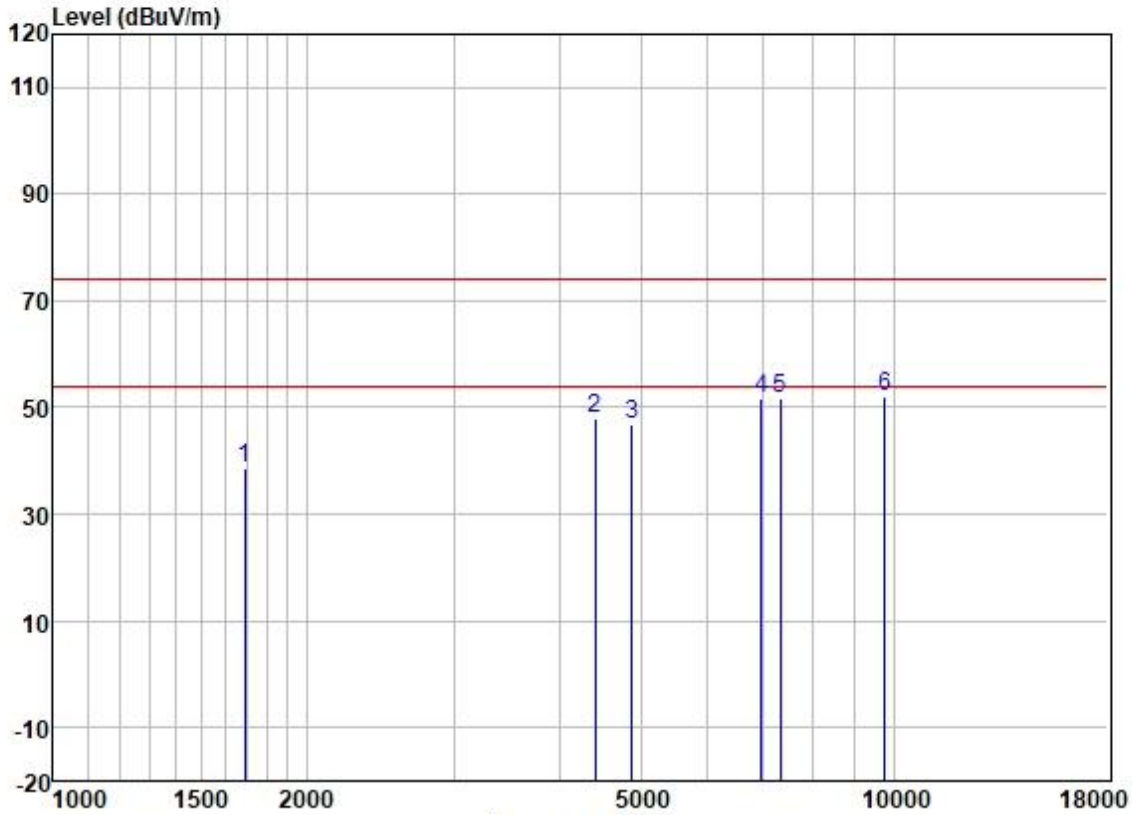
Test Mode: 00; Polarity: Vertical; Modulation:GFSK; ; Channel:Low




Trace: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1648.778 | 49.40 | 25.63 | 2.80 | 37.93 | 39.90 | 74.00 | -34.10 | VERTICAL | Peak |
| 2 | 4230.396 | 49.65 | 30.26 | 4.61 | 36.81 | 47.71 | 74.00 | -26.29 | VERTICAL | Peak |
| 3 | 4804.000 | 47.41 | 31.42 | 5.40 | 36.83 | 47.40 | 74.00 | -26.60 | VERTICAL | Peak |
| 4 | 6894.806 | 47.54 | 34.85 | 5.81 | 37.18 | 51.02 | 74.00 | -22.98 | VERTICAL | Peak |
| 5 | 7206.000 | 46.96 | 35.54 | 5.98 | 37.38 | 51.10 | 74.00 | -22.90 | VERTICAL | Peak |
| 6 | 9608.000 | 44.03 | 38.37 | 7.07 | 37.42 | 52.05 | 74.00 | -21.95 | VERTICAL | Peak |

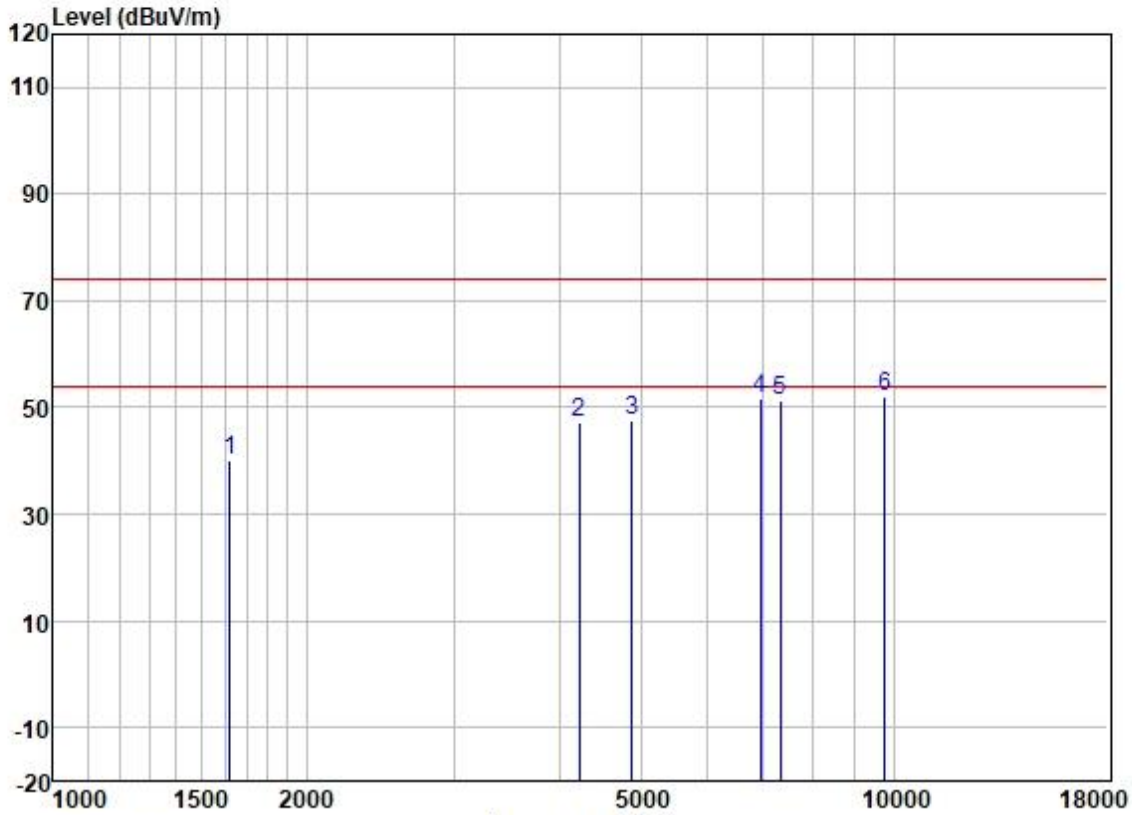
Test Mode: 00; Polarity: Horizontal; Modulation:GFSK; ; Channel:middle




race: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1692.231 | 47.98 | 25.70 | 2.80 | 37.89 | 38.59 | 74.00 | -35.41 | HORIZONTAL | Peak |
| 2 | 4417.841 | 49.28 | 30.70 | 4.74 | 36.81 | 47.91 | 74.00 | -26.09 | HORIZONTAL | Peak |
| 3 | 4882.000 | 46.61 | 31.56 | 5.52 | 36.84 | 46.85 | 74.00 | -27.15 | HORIZONTAL | Peak |
| 4 | 6954.852 | 48.28 | 34.95 | 5.81 | 37.21 | 51.83 | 74.00 | -22.17 | HORIZONTAL | Peak |
| 5 | 7323.000 | 46.93 | 36.00 | 6.13 | 37.43 | 51.63 | 74.00 | -22.37 | HORIZONTAL | Peak |
| 6 | 9764.000 | 43.98 | 38.50 | 7.02 | 37.41 | 52.09 | 74.00 | -21.91 | HORIZONTAL | Peak |

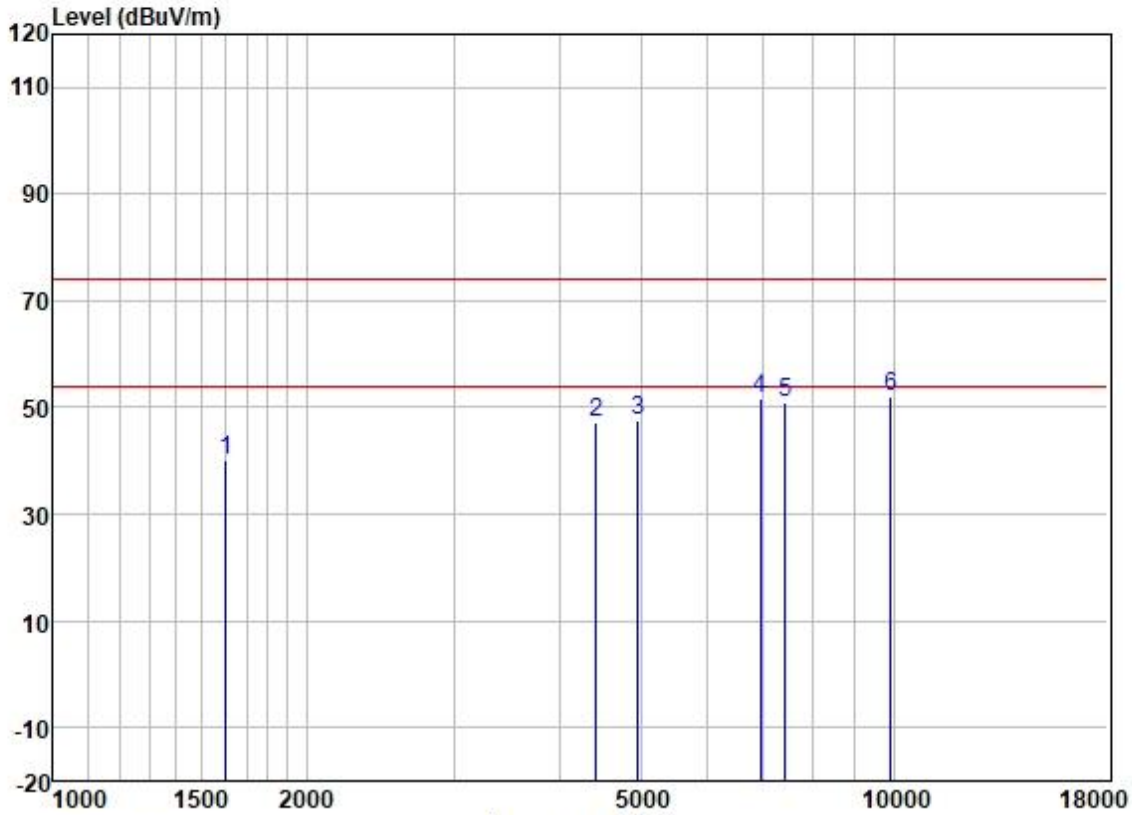
Test Mode: 00; Polarity: Vertical; Modulation:GFSK; ; Channel:middle




race: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1620.431 | 49.55 | 25.60 | 2.80 | 37.95 | 40.00 | 74.00 | -34.00 | VERTICAL | Peak |
| 2 | 4230.396 | 49.04 | 30.26 | 4.61 | 36.81 | 47.10 | 74.00 | -26.90 | VERTICAL | Peak |
| 3 | 4882.000 | 47.16 | 31.56 | 5.52 | 36.84 | 47.40 | 74.00 | -26.60 | VERTICAL | Peak |
| 4 | 6934.778 | 48.27 | 34.92 | 5.81 | 37.19 | 51.81 | 74.00 | -22.19 | VERTICAL | Peak |
| 5 | 7323.000 | 46.52 | 36.00 | 6.13 | 37.43 | 51.22 | 74.00 | -22.78 | VERTICAL | Peak |
| 6 | 9764.000 | 43.99 | 38.50 | 7.02 | 37.41 | 52.10 | 74.00 | -21.90 | VERTICAL | Peak |

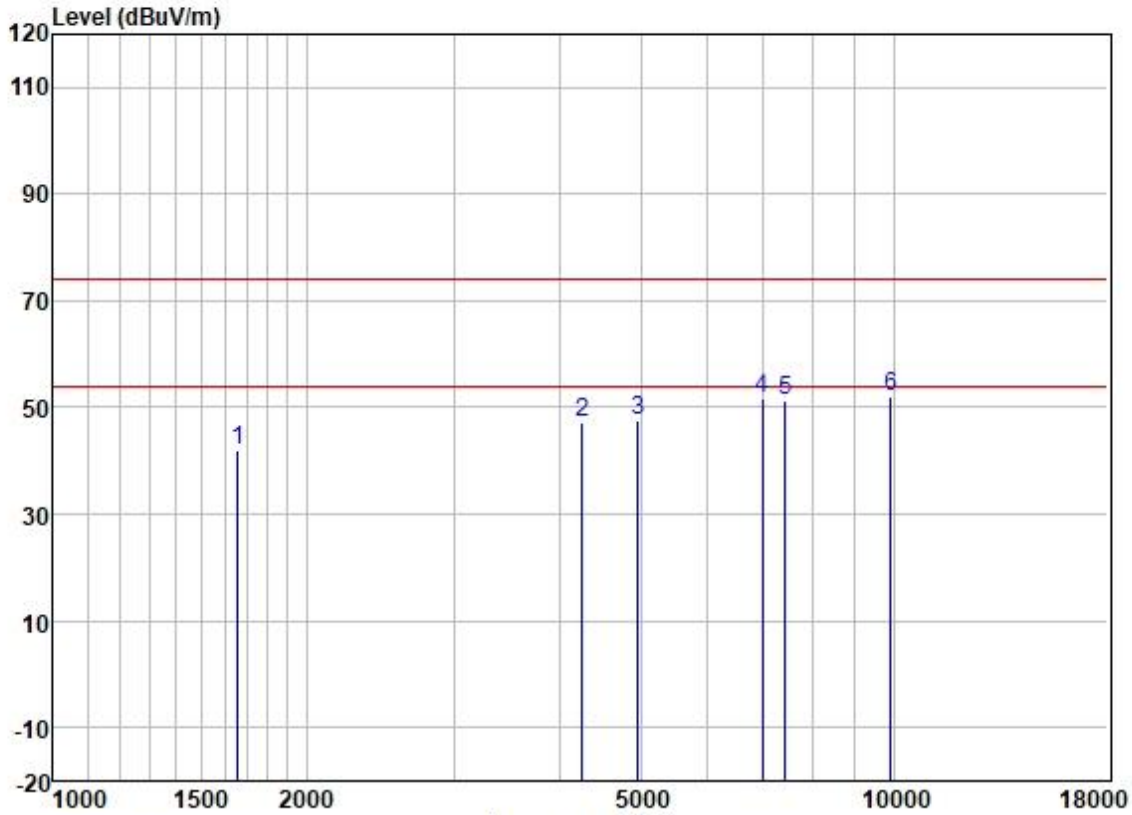
Test Mode: 00; Polarity: Horizontal; Modulation:GFSK; ; Channel:High




Trace: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1606.441 | 49.66 | 25.59 | 2.80 | 37.98 | 40.07 | 74.00 | -33.93 | HORIZONTAL | Peak |
| 2 | 4430.628 | 48.59 | 30.72 | 4.78 | 36.81 | 47.28 | 74.00 | -26.72 | HORIZONTAL | Peak |
| 3 | 4960.000 | 47.23 | 31.65 | 5.65 | 36.84 | 47.69 | 74.00 | -26.31 | HORIZONTAL | Peak |
| 4 | 6934.778 | 47.99 | 34.92 | 5.81 | 37.19 | 51.53 | 74.00 | -22.47 | HORIZONTAL | Peak |
| 5 | 7440.000 | 46.05 | 36.27 | 6.22 | 37.47 | 51.07 | 74.00 | -22.93 | HORIZONTAL | Peak |
| 6 | 9920.000 | 43.90 | 38.65 | 6.96 | 37.40 | 52.11 | 74.00 | -21.89 | HORIZONTAL | Peak |

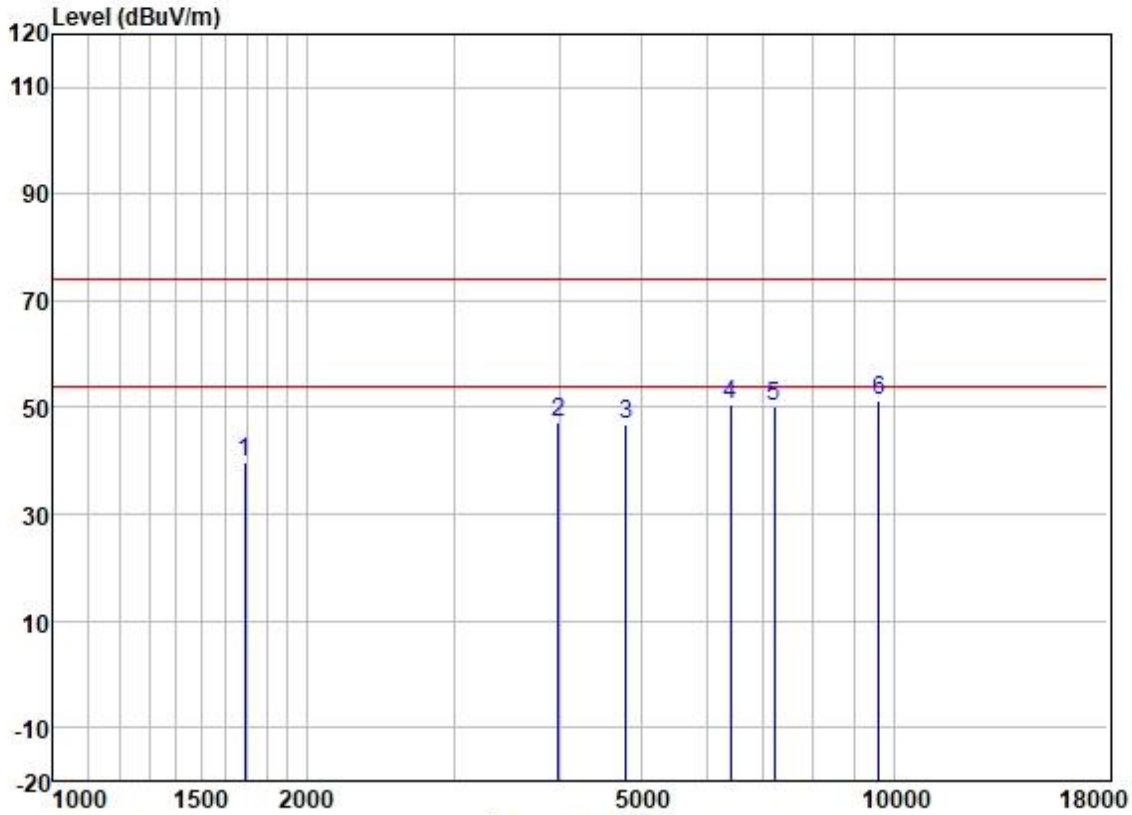
Test Mode: 00; Polarity: Vertical; Modulation:GFSK; ; Channel:High




Trace: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1658.337 | 51.32 | 25.65 | 2.80 | 37.93 | 41.84 | 74.00 | -32.16 | VERTICAL | Peak |
| 2 | 4254.921 | 48.98 | 30.34 | 4.62 | 36.81 | 47.13 | 74.00 | -26.87 | VERTICAL | Peak |
| 3 | 4960.000 | 46.99 | 31.65 | 5.65 | 36.84 | 47.45 | 74.00 | -26.55 | VERTICAL | Peak |
| 4 | 6974.982 | 48.01 | 34.97 | 5.81 | 37.23 | 51.56 | 74.00 | -22.44 | VERTICAL | Peak |
| 5 | 7440.000 | 46.35 | 36.27 | 6.22 | 37.47 | 51.37 | 74.00 | -22.63 | VERTICAL | Peak |
| 6 | 9920.000 | 43.87 | 38.65 | 6.96 | 37.40 | 52.08 | 74.00 | -21.92 | VERTICAL | Peak |

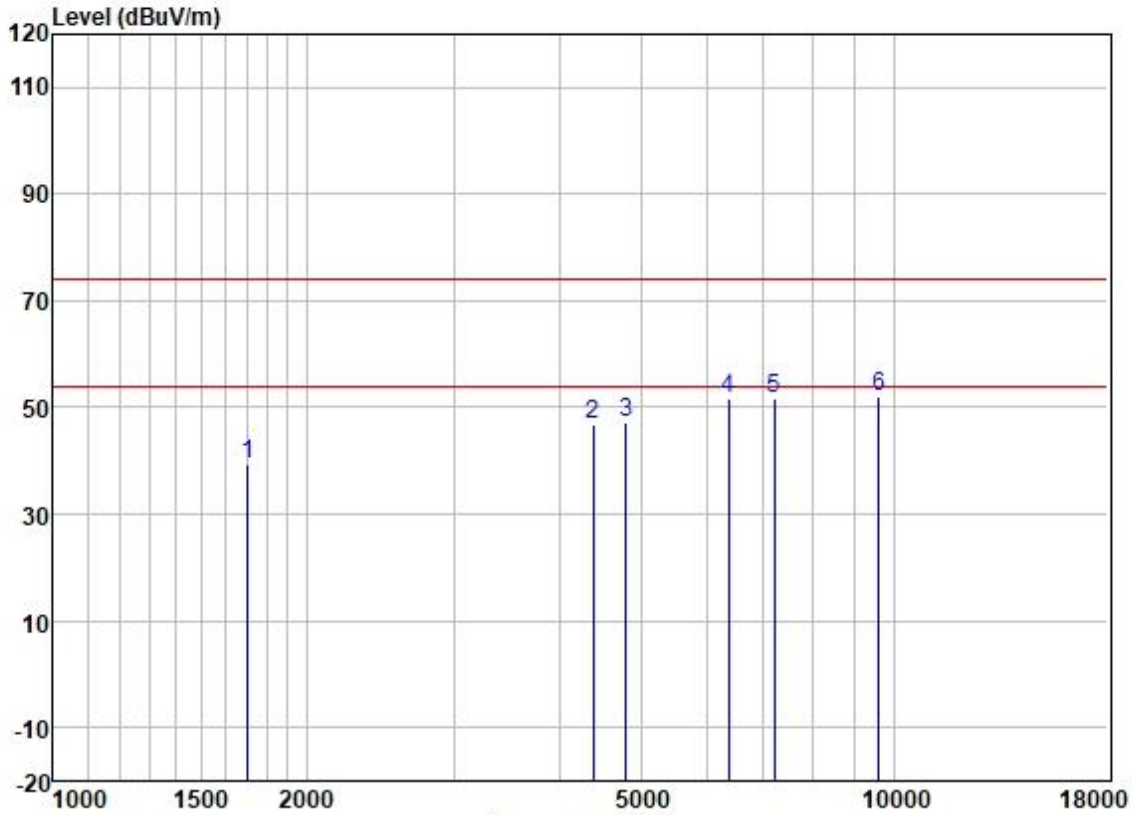
Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; ; Channel:Low




race: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1692.231 | 49.08 | 25.70 | 2.80 | 37.89 | 39.69 | 74.00 | -34.31 | HORIZONTAL | Peak |
| 2 | 3992.781 | 49.72 | 29.79 | 4.60 | 36.80 | 47.31 | 74.00 | -26.69 | HORIZONTAL | Peak |
| 3 | 4804.000 | 46.93 | 31.42 | 5.40 | 36.83 | 46.92 | 74.00 | -27.08 | HORIZONTAL | Peak |
| 4 | 6395.654 | 47.72 | 33.74 | 5.90 | 36.98 | 50.38 | 74.00 | -23.62 | HORIZONTAL | Peak |
| 5 | 7206.000 | 46.00 | 35.54 | 5.98 | 37.38 | 50.14 | 74.00 | -23.86 | HORIZONTAL | Peak |
| 6 | 9608.000 | 43.35 | 38.37 | 7.07 | 37.42 | 51.37 | 74.00 | -22.63 | HORIZONTAL | Peak |

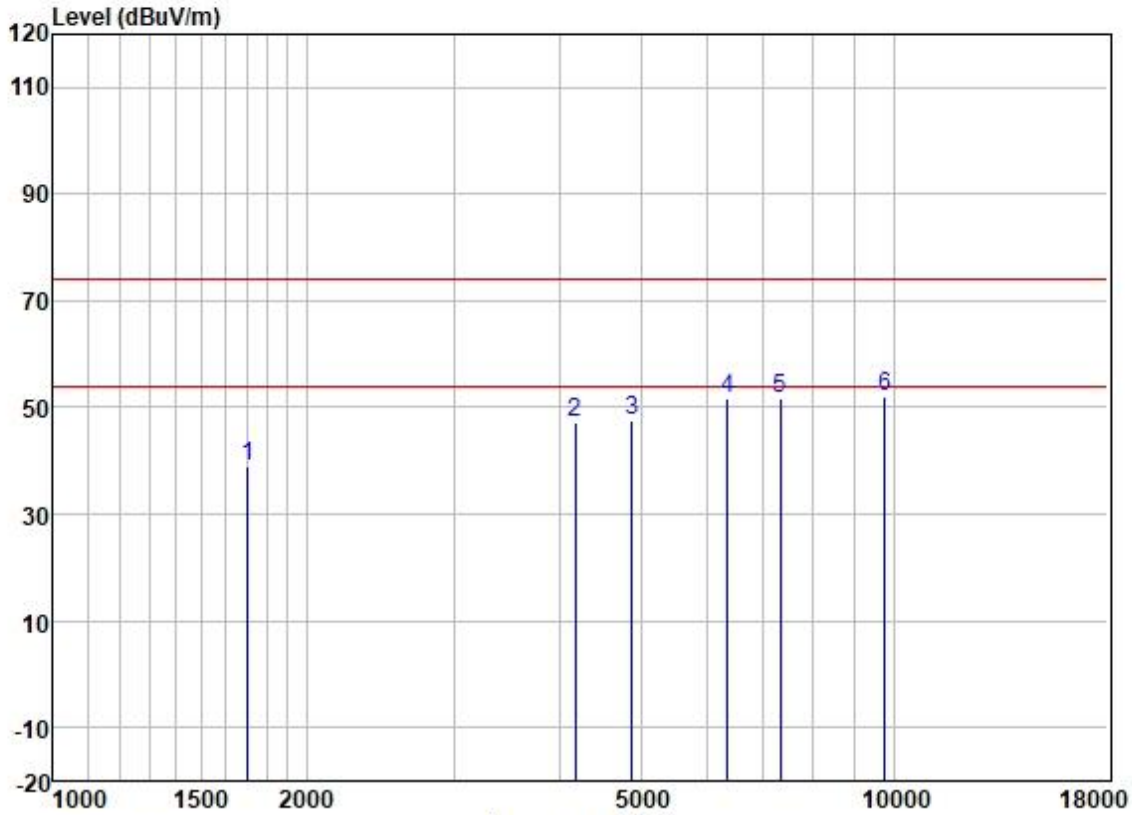
Test Mode: 01; Polarity: Vertical; Modulation:GFSK; ; Channel:Low




race: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1702.042 | 48.78 | 25.72 | 2.80 | 37.89 | 39.41 | 74.00 | -34.59 | VERTICAL | Peak |
| 2 | 4392.376 | 48.41 | 30.66 | 4.70 | 36.81 | 46.96 | 74.00 | -27.04 | VERTICAL | Peak |
| 3 | 4804.000 | 47.28 | 31.42 | 5.40 | 36.83 | 47.27 | 74.00 | -26.73 | VERTICAL | Peak |
| 4 | 6358.789 | 49.01 | 33.63 | 5.92 | 36.97 | 51.59 | 74.00 | -22.41 | VERTICAL | Peak |
| 5 | 7206.000 | 47.63 | 35.54 | 5.98 | 37.38 | 51.77 | 74.00 | -22.23 | VERTICAL | Peak |
| 6 | 9608.000 | 44.18 | 38.37 | 7.07 | 37.42 | 52.20 | 74.00 | -21.80 | VERTICAL | Peak |

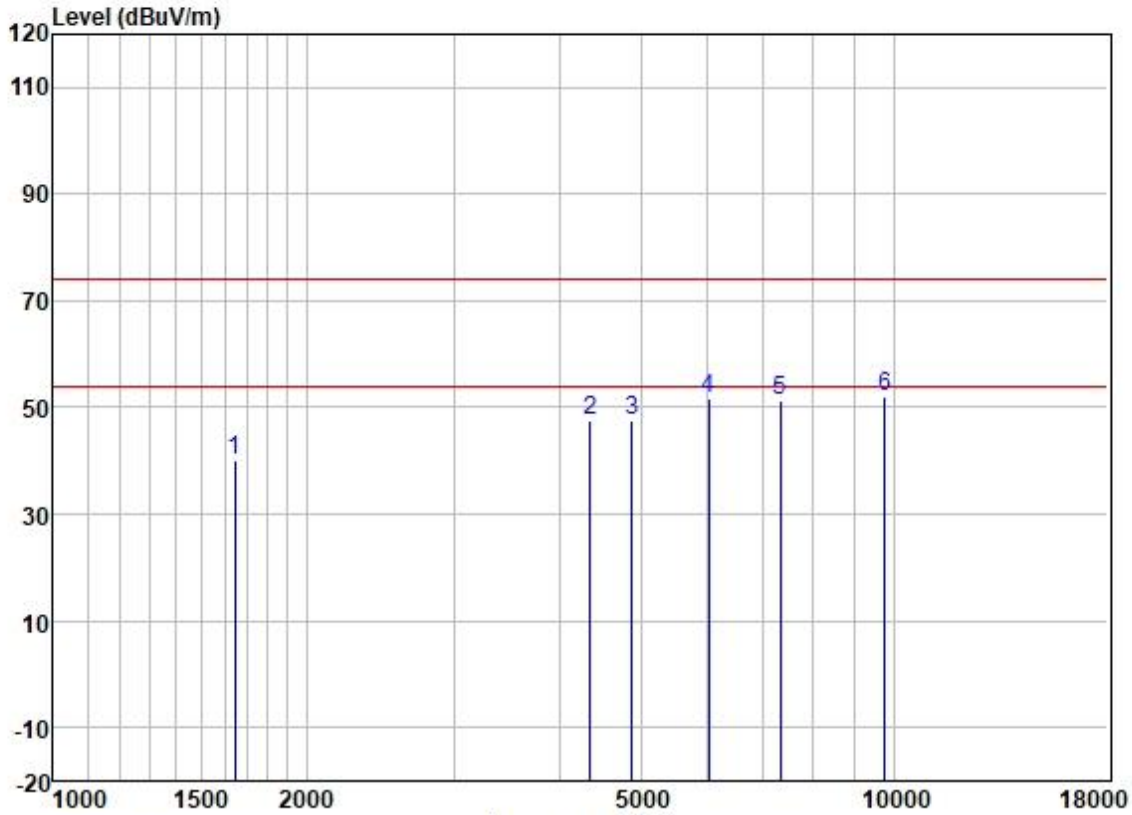
Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; ; Channel:middle




Trace: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1702.042 | 48.52 | 25.72 | 2.80 | 37.89 | 39.15 | 74.00 | -34.85 | HORIZONTAL | Peak |
| 2 | 4181.768 | 49.21 | 30.12 | 4.60 | 36.80 | 47.13 | 74.00 | -26.87 | HORIZONTAL | Peak |
| 3 | 4882.000 | 47.35 | 31.56 | 5.52 | 36.84 | 47.59 | 74.00 | -26.41 | HORIZONTAL | Peak |
| 4 | 6340.436 | 49.15 | 33.57 | 5.94 | 36.97 | 51.69 | 74.00 | -22.31 | HORIZONTAL | Peak |
| 5 | 7323.000 | 46.95 | 36.00 | 6.13 | 37.43 | 51.65 | 74.00 | -22.35 | HORIZONTAL | Peak |
| 6 | 9764.000 | 43.94 | 38.50 | 7.02 | 37.41 | 52.05 | 74.00 | -21.95 | HORIZONTAL | Peak |

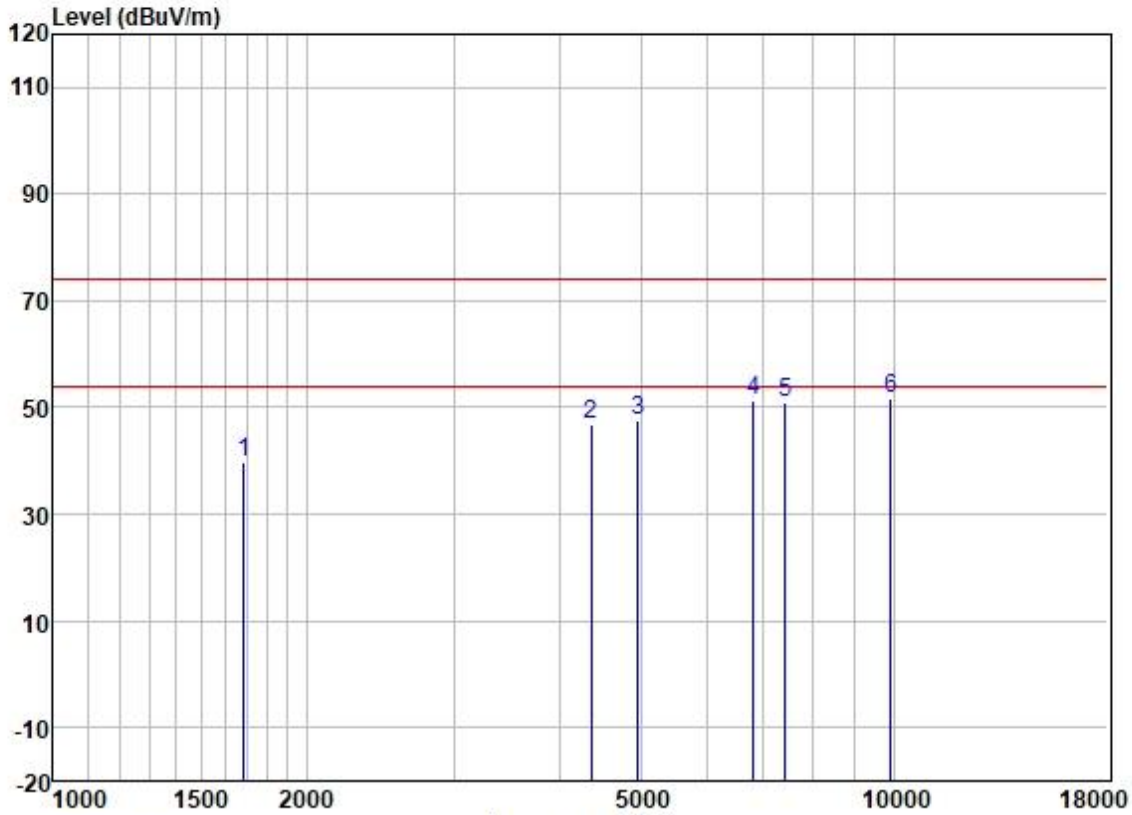
Test Mode: 01; Polarity: Vertical; Modulation:GFSK; ; Channel:middle




race: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1644.019 | 49.49 | 25.63 | 2.80 | 37.93 | 39.99 | 74.00 | -34.01 | VERTICAL | Peak |
| 2 | 4354.454 | 49.09 | 30.59 | 4.68 | 36.81 | 47.55 | 74.00 | -26.45 | VERTICAL | Peak |
| 3 | 4882.000 | 47.34 | 31.56 | 5.52 | 36.84 | 47.58 | 74.00 | -26.42 | VERTICAL | Peak |
| 4 | 6018.999 | 50.04 | 32.44 | 6.19 | 36.90 | 51.77 | 74.00 | -22.23 | VERTICAL | Peak |
| 5 | 7323.000 | 46.53 | 36.00 | 6.13 | 37.43 | 51.23 | 74.00 | -22.77 | VERTICAL | Peak |
| 6 | 9764.000 | 43.98 | 38.50 | 7.02 | 37.41 | 52.09 | 74.00 | -21.91 | VERTICAL | Peak |

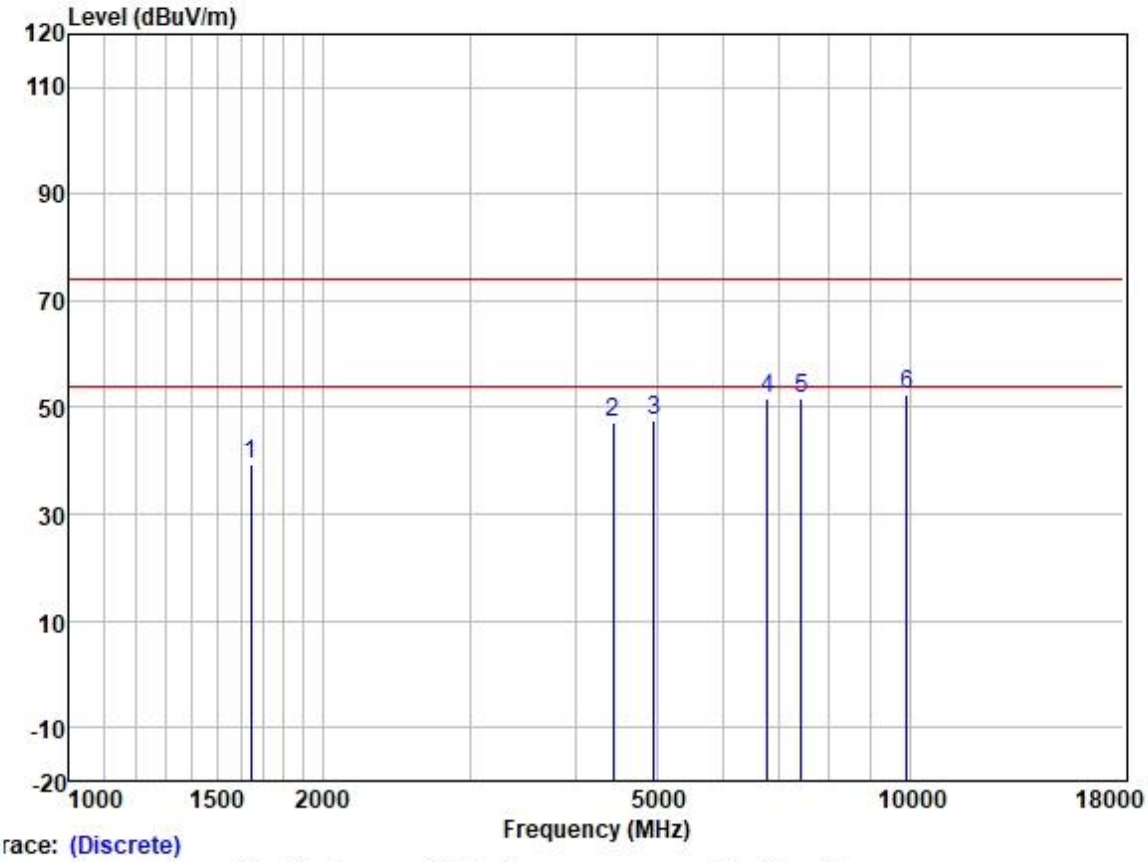
Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; ; Channel:High




race: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1687.347 | 49.23 | 25.69 | 2.80 | 37.91 | 39.81 | 74.00 | -34.19 | HORIZONTAL | Peak |
| 2 | 4367.058 | 48.47 | 30.62 | 4.68 | 36.81 | 46.96 | 74.00 | -27.04 | HORIZONTAL | Peak |
| 3 | 4960.000 | 47.12 | 31.65 | 5.65 | 36.84 | 47.58 | 74.00 | -26.42 | HORIZONTAL | Peak |
| 4 | 6815.551 | 47.94 | 34.70 | 5.82 | 37.13 | 51.33 | 74.00 | -22.67 | HORIZONTAL | Peak |
| 5 | 7440.000 | 46.06 | 36.27 | 6.22 | 37.47 | 51.08 | 74.00 | -22.92 | HORIZONTAL | Peak |
| 6 | 9920.000 | 43.61 | 38.65 | 6.96 | 37.40 | 51.82 | 74.00 | -22.18 | HORIZONTAL | Peak |

Test Mode: 01; Polarity: Vertical; Modulation:GFSK; ; Channel:High




race: (Discrete)

| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Pol/Phase | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | | |
| 1 | 1644.019 | 49.04 | 25.63 | 2.80 | 37.93 | 39.54 | 74.00 | -34.46 | VERTICAL | Peak |
| 2 | 4443.453 | 48.43 | 30.73 | 4.83 | 36.81 | 47.18 | 74.00 | -26.82 | VERTICAL | Peak |
| 3 | 4960.000 | 46.96 | 31.65 | 5.65 | 36.84 | 47.42 | 74.00 | -26.58 | VERTICAL | Peak |
| 4 | 6776.265 | 48.47 | 34.61 | 5.82 | 37.11 | 51.79 | 74.00 | -22.21 | VERTICAL | Peak |
| 5 | 7440.000 | 46.70 | 36.27 | 6.22 | 37.47 | 51.72 | 74.00 | -22.28 | VERTICAL | Peak |
| 6 | 9920.000 | 44.08 | 38.65 | 6.96 | 37.40 | 52.29 | 74.00 | -21.71 | VERTICAL | Peak |

# 7 Test Setup Photo

Refer to Appendix –Setup Photos for GZCR2203000262AT

# 8 EUT Constructional Details (EUT Photos)

Refer to Appendix – External and Internal Photos for GZCR2203000262AT

# 9 Appendix

**For Right earbuds:**

## 1. Maximum Conducted Output Power

### 1.1 Power

#### 1.1.1 Test Result

| Mode | TX Type | Frequency (MHz) | Packet Type | Maximum Peak Conducted Output Power (dBm) | | Verdict |
|---|---|---|---|---|---|---|
| | | | | Ant1 | Limit | |
| GFSK | SISO | 2402 | DH5 | 8.90 | <=30 | Pass |
| | | 2441 | DH5 | 9.15 | <=30 | Pass |
| | | 2480 | DH5 | 9.51 | <=30 | Pass |
| Pi/4DQPSK | SISO | 2402 | 2DH5 | 5.30 | <=20.97 | Pass |
| | | 2441 | 2DH5 | 5.80 | <=20.97 | Pass |
| | | 2480 | 2DH5 | 6.44 | <=20.97 | Pass |
| 8DPSK | SISO | 2402 | 3DH5 | 5.37 | <=20.97 | Pass |
| | | 2441 | 3DH5 | 5.86 | <=20.97 | Pass |
| | | 2480 | 3DH5 | 6.50 | <=20.97 | Pass |
| Note1: Antenna Gain: Ant1: -0.15dBi; | | | | | | |

# 2. Unwanted Emissions In Non-restricted Frequency Bands

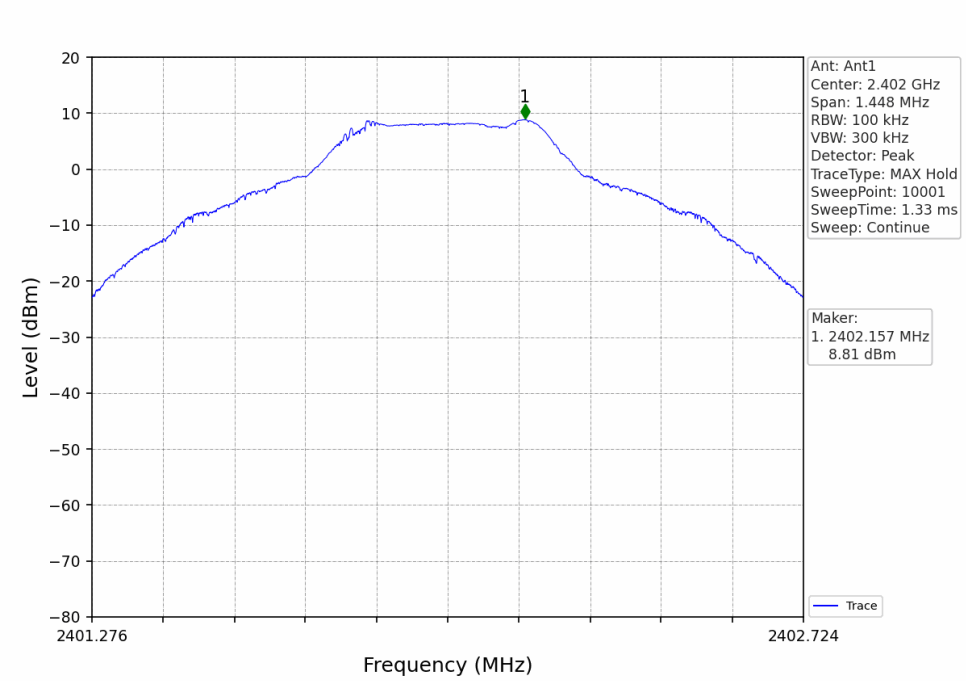
## 2.1 Ref

### 2.1.1 Test Result

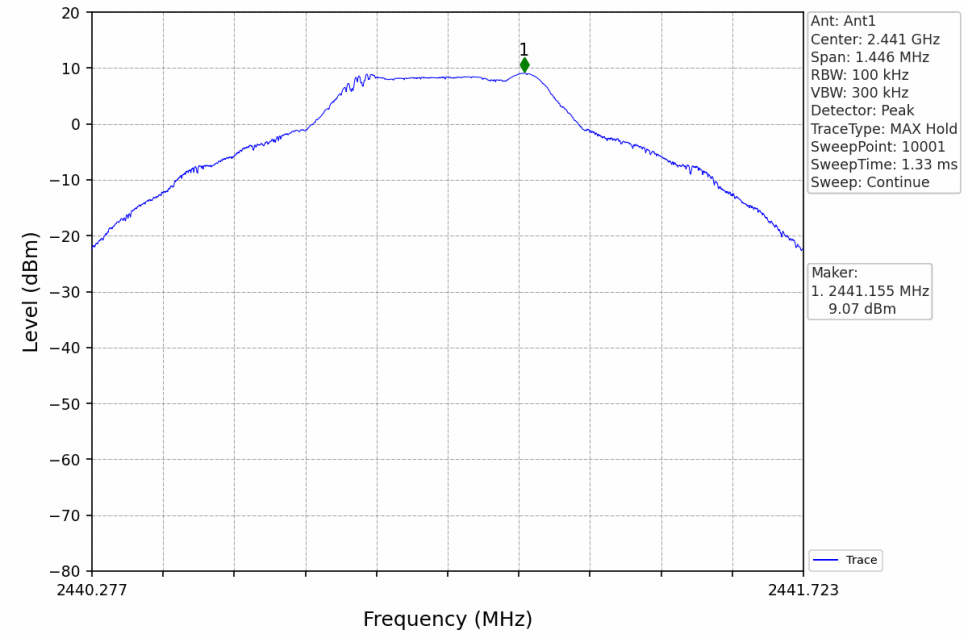
| Mode | TX Type | Frequency (MHz) | Packet Type | Ant | Level of Reference (dBm) |
|---|---|---|---|---|---|
| GFSK | SISO | 2402 | DH5 | 1 | 8.81 |
| | | 2441 | DH5 | 1 | 9.07 |
| | | 2480 | DH5 | 1 | 9.38 |
| Pi/4DQPSK | SISO | 2402 | 2DH5 | 1 | 5.20 |
| | | 2441 | 2DH5 | 1 | 5.68 |
| | | 2480 | 2DH5 | 1 | 6.32 |
| 8DPSK | SISO | 2402 | 3DH5 | 1 | 5.20 |
| | | 2441 | 3DH5 | 1 | 5.51 |
| | | 2480 | 3DH5 | 1 | 6.32 |
| Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.<br>Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB. | | | | | |

## 2.1.2 Test Graph

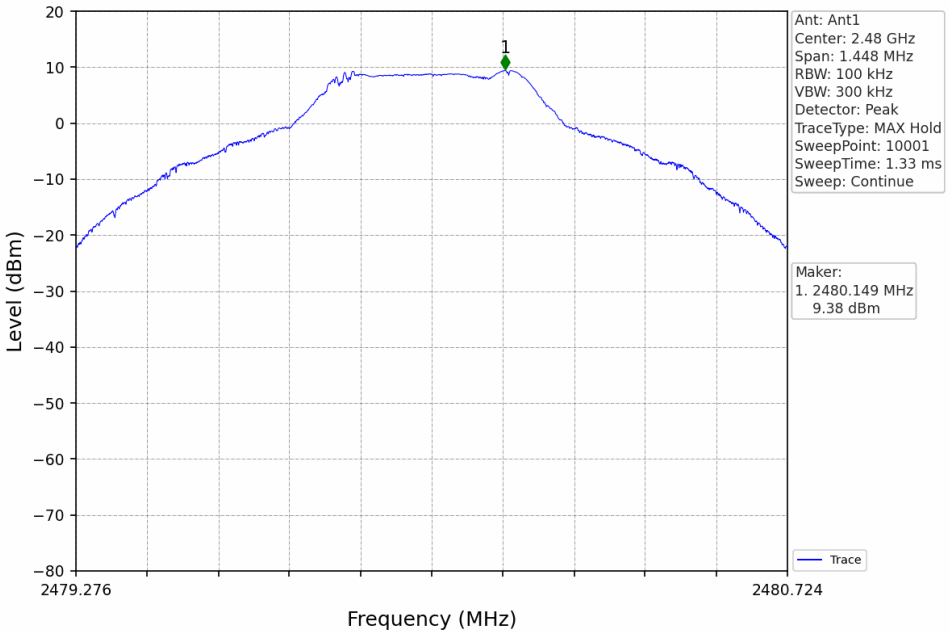
GFSK_DH5_LCH_2402MHz_Ant1_NTNV



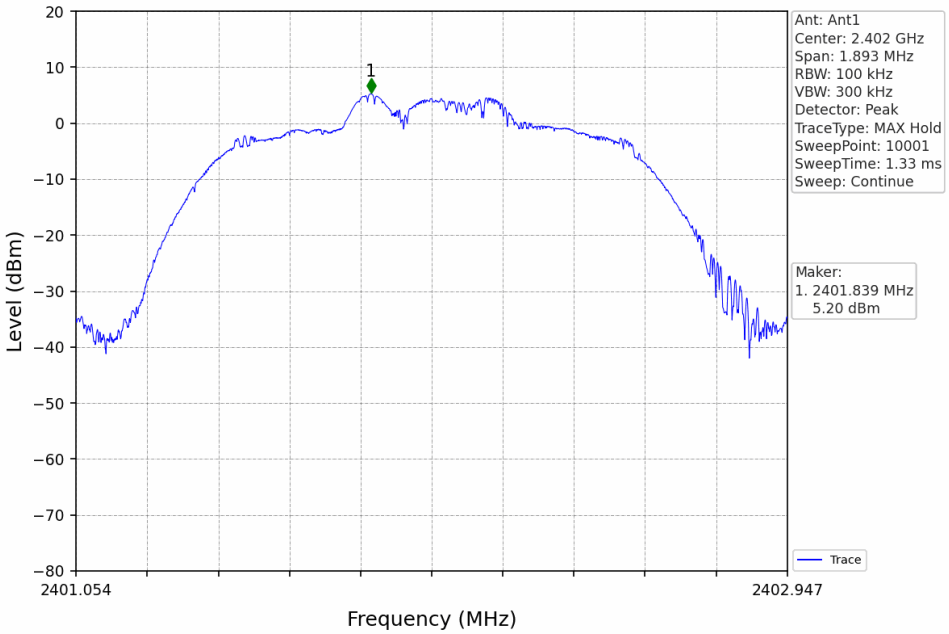

GFSK_DH5_MCH_2441MHz_Ant1_NTNV



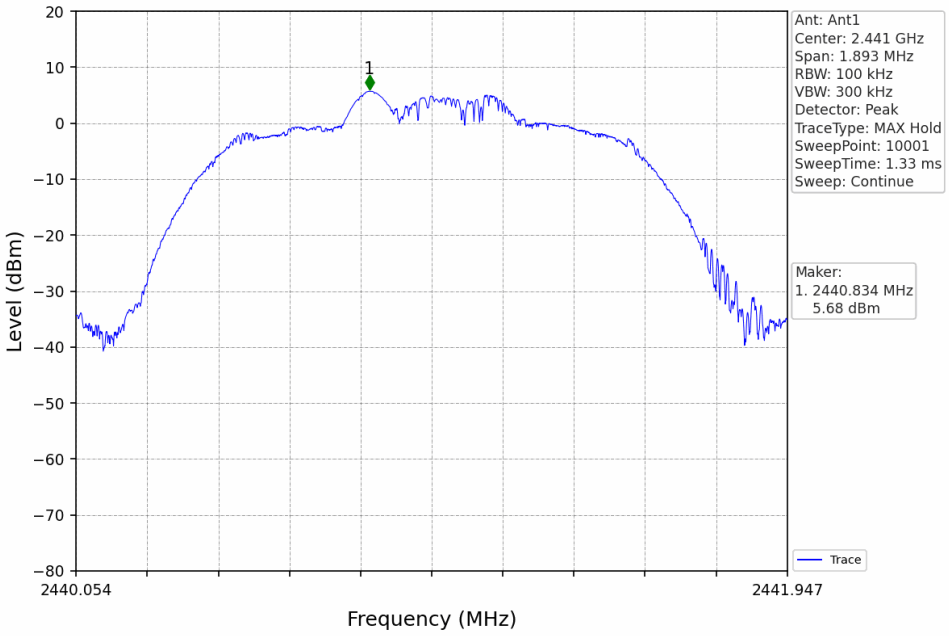
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



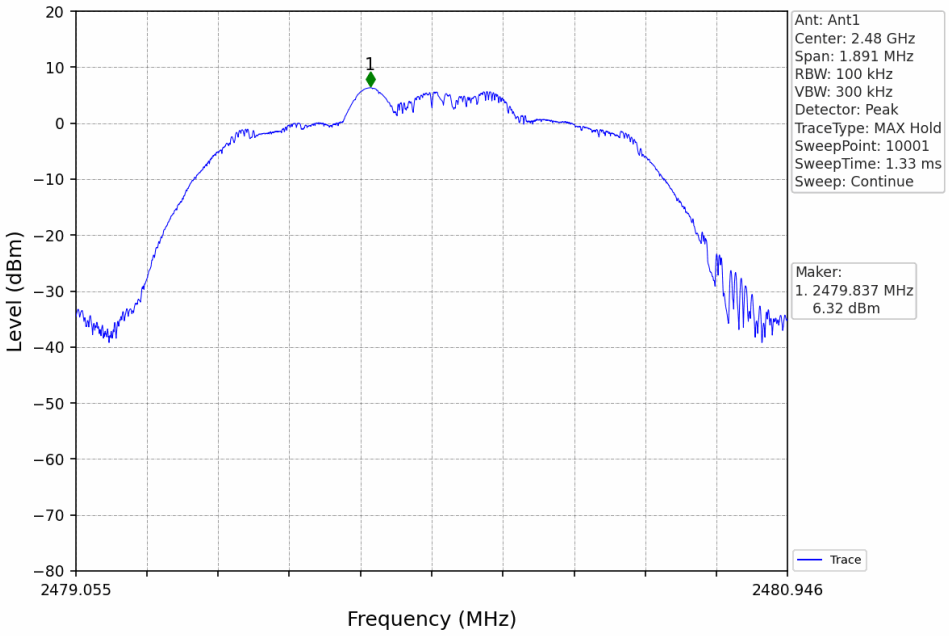

Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



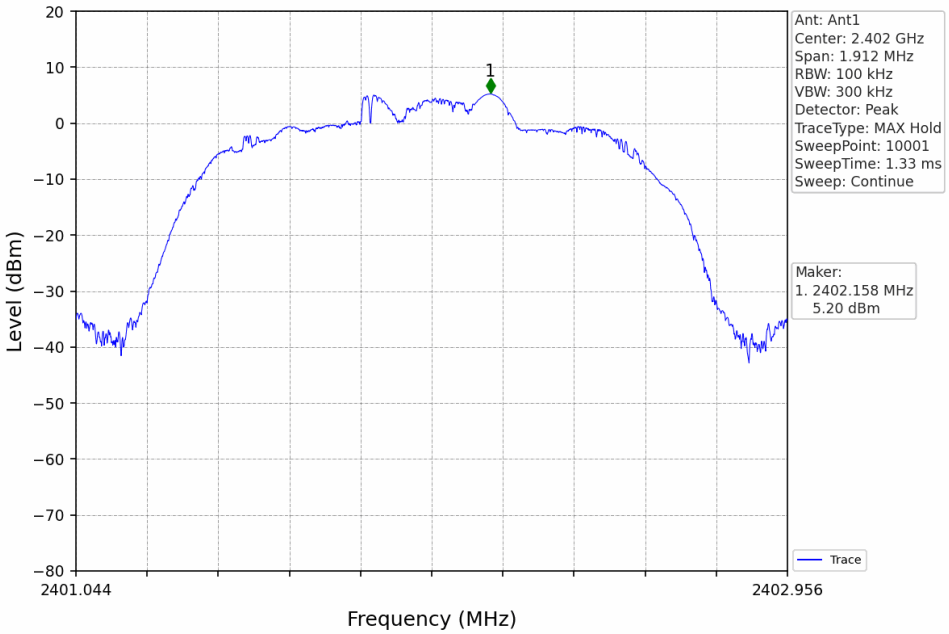
Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



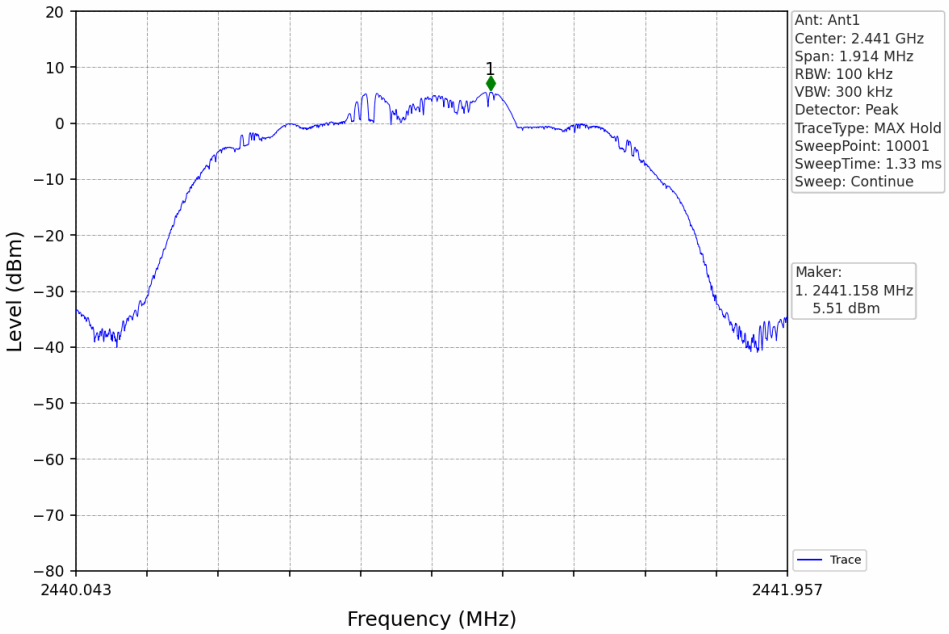

Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



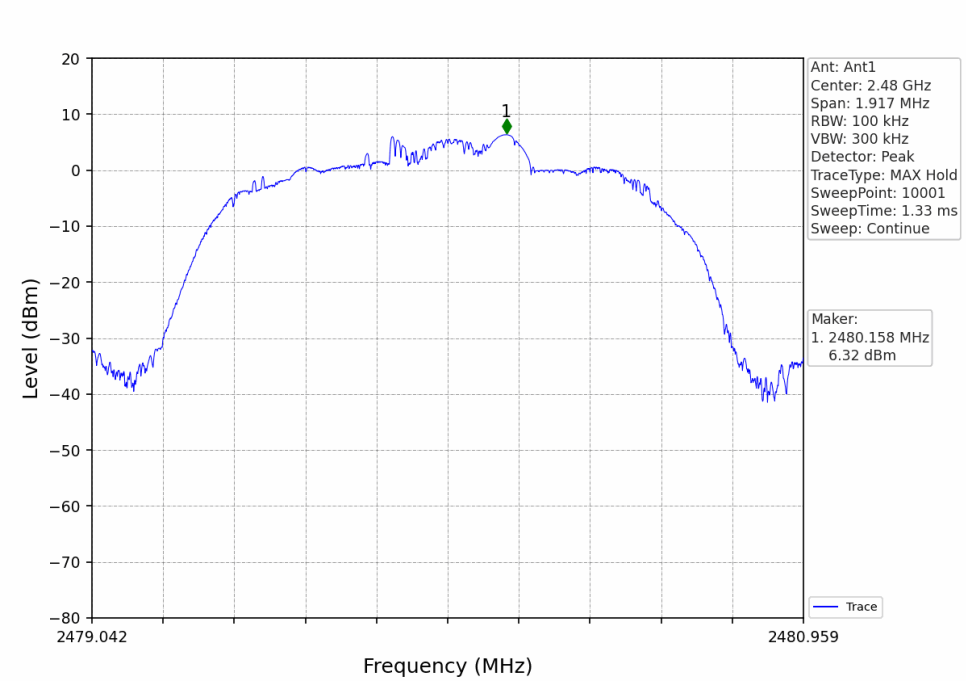
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV




8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



## 2.2 CSE

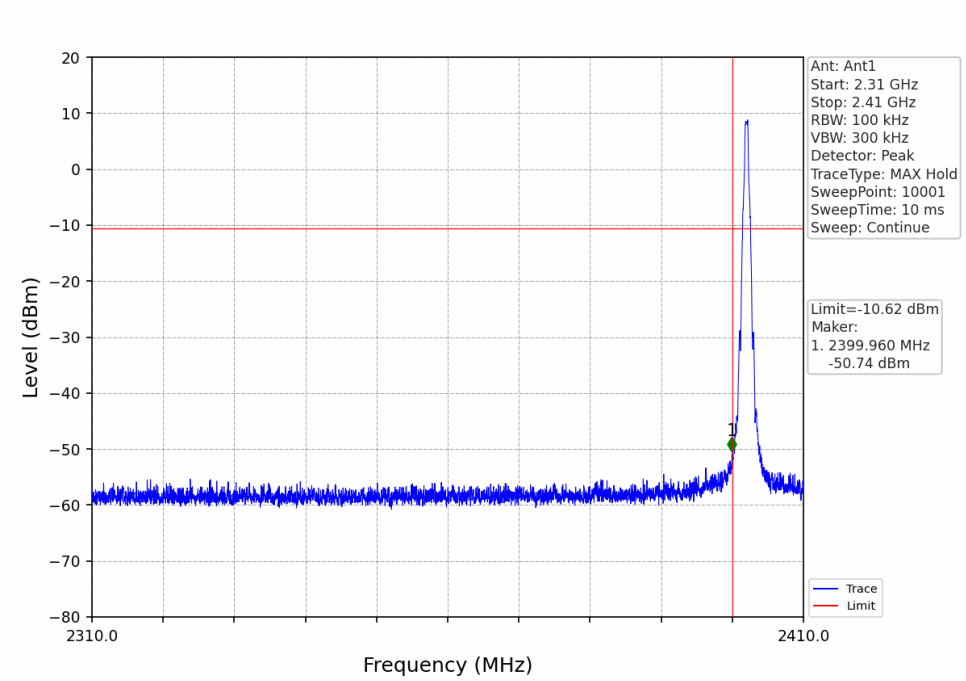
### 2.2.1 Test Result

| Mode | TX Type | Frequency (MHz) | Packet Type | Ant | Level of Reference (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|---|
| GFSK | SISO | 2402 | DH5 | 1 | 9.38 | -10.62 | Pass |
| | | 2441 | DH5 | 1 | 9.38 | -10.62 | Pass |
| | | 2480 | DH5 | 1 | 9.38 | -10.62 | Pass |
| | | HOPP | DH5 | 1 | 9.38 | -10.62 | Pass |
| Pi/4DQPSK | SISO | 2402 | 2DH5 | 1 | 6.32 | -13.68 | Pass |
| | | 2441 | 2DH5 | 1 | 6.32 | -13.68 | Pass |
| | | 2480 | 2DH5 | 1 | 6.32 | -13.68 | Pass |
| | | HOPP | 2DH5 | 1 | 6.32 | -13.68 | Pass |
| 8DPSK | SISO | 2402 | 3DH5 | 1 | 6.32 | -13.68 | Pass |
| | | 2441 | 3DH5 | 1 | 6.32 | -13.68 | Pass |
| | | 2480 | 3DH5 | 1 | 6.32 | -13.68 | Pass |
| | | HOPP | 3DH5 | 1 | 6.32 | -13.68 | Pass |

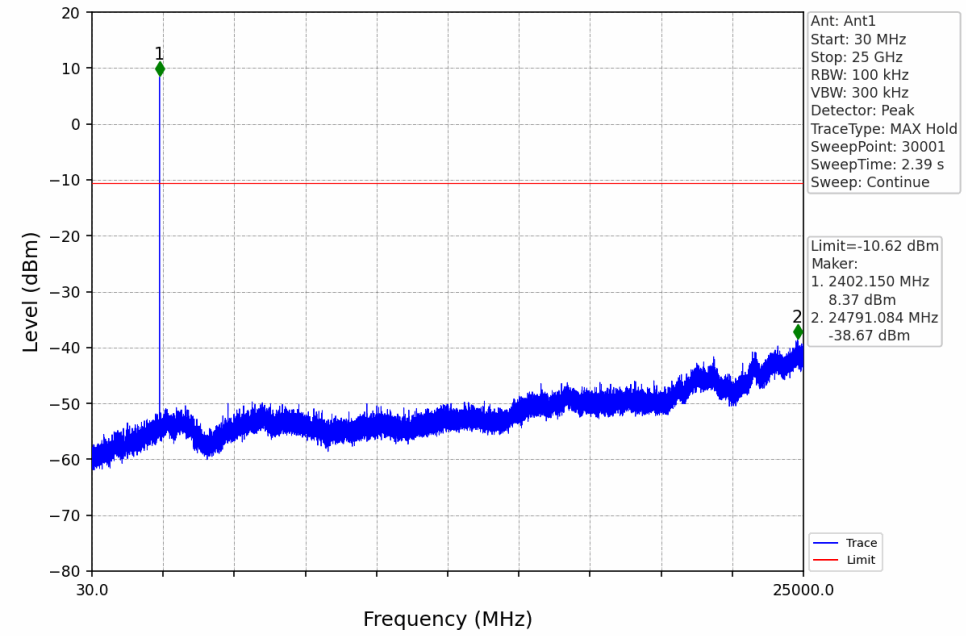
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.
Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

## 2.2.2 Test Graph

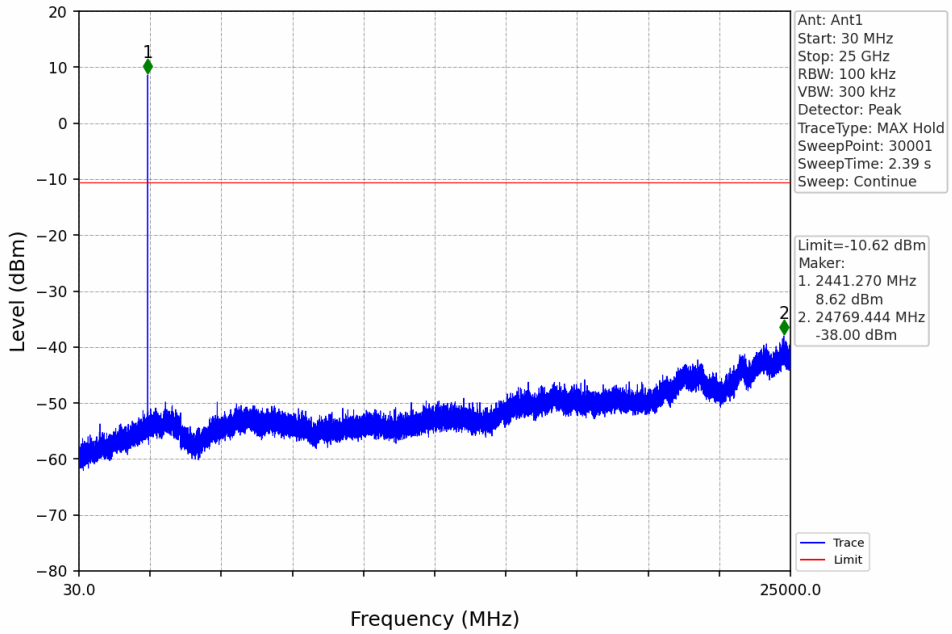
GFSK_DH5_LCH_2402MHz_Ant1_NTNV



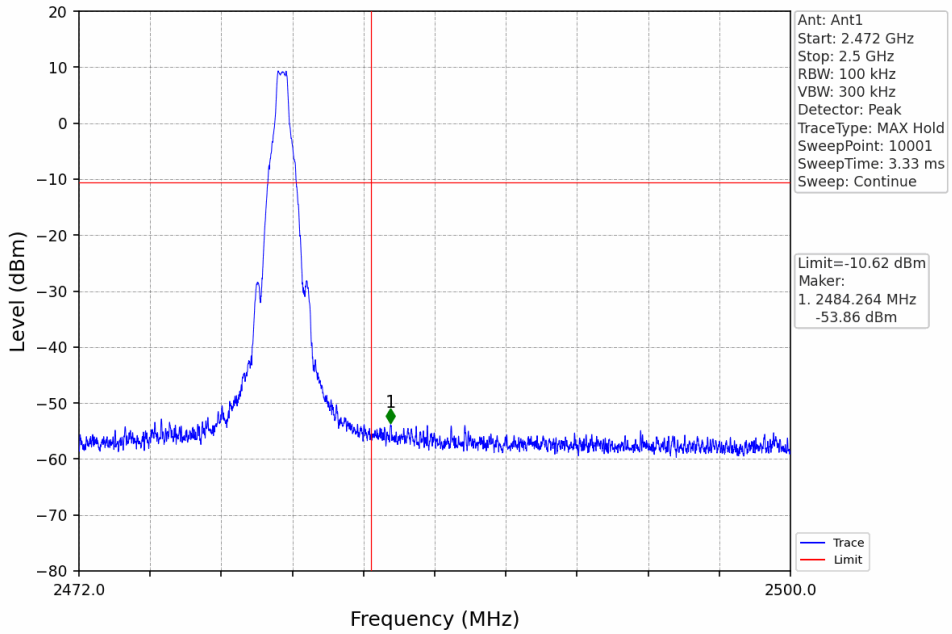

GFSK_DH5_LCH_2402MHz_Ant1_NTNV



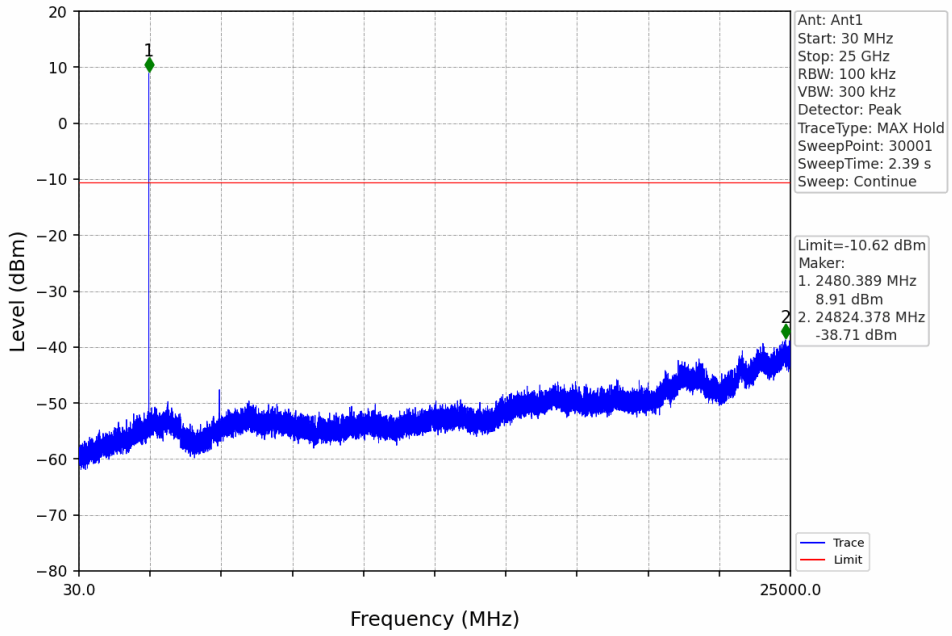
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



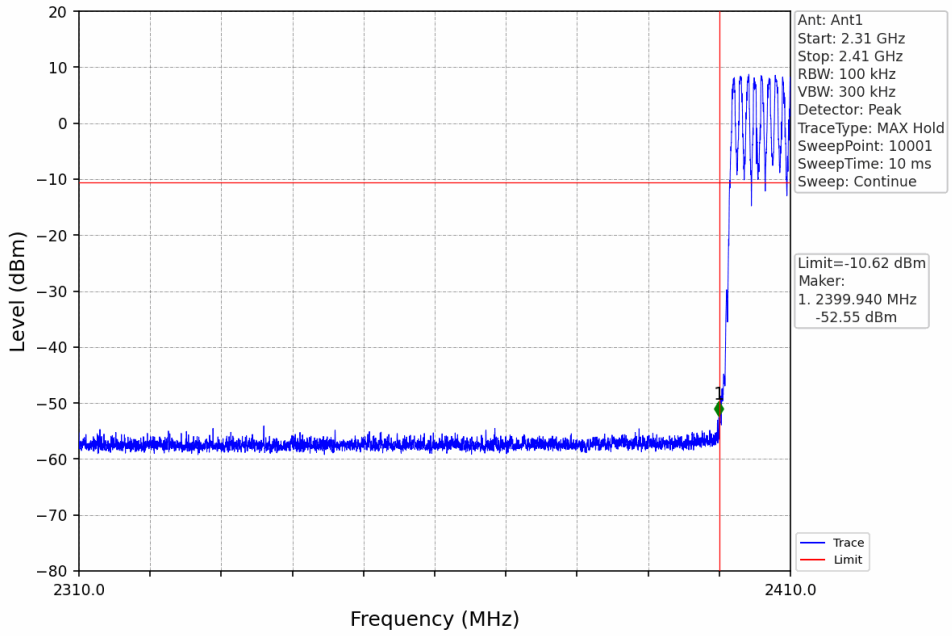

GFSK_DH5_HCH_2480MHz_Ant1_NTNV



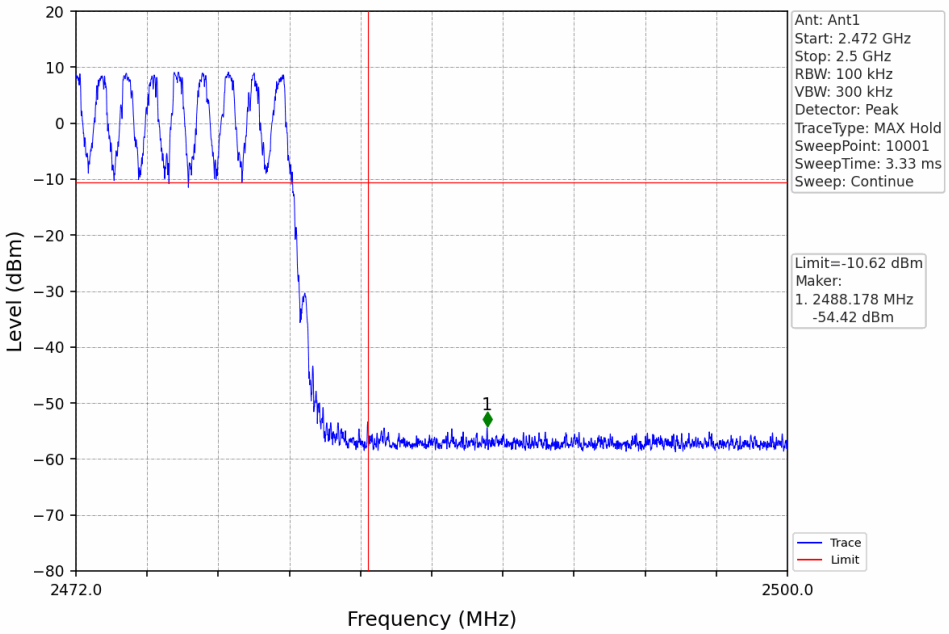
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



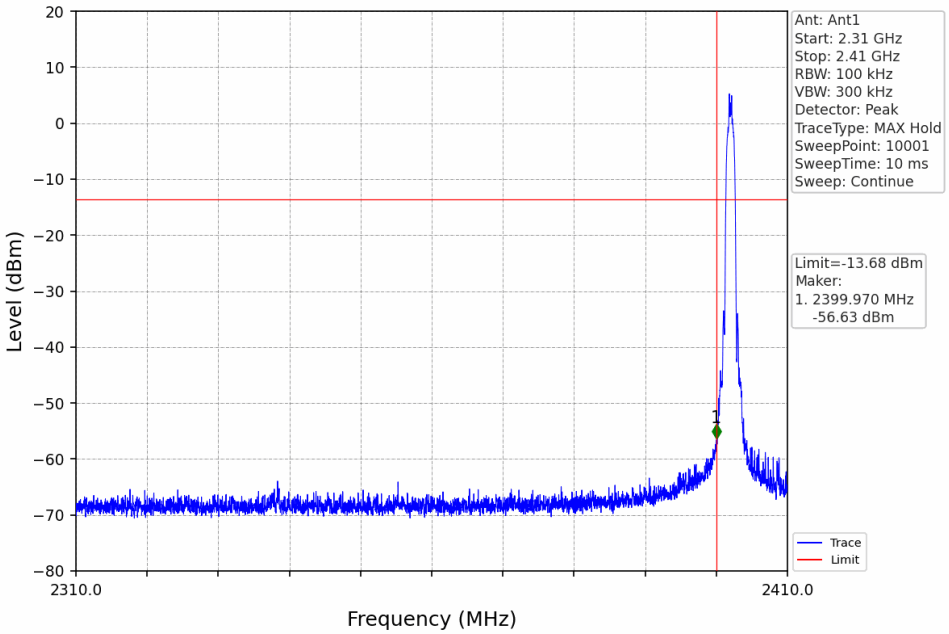

GFSK_DH5_HOPP_Ant1_NTNV



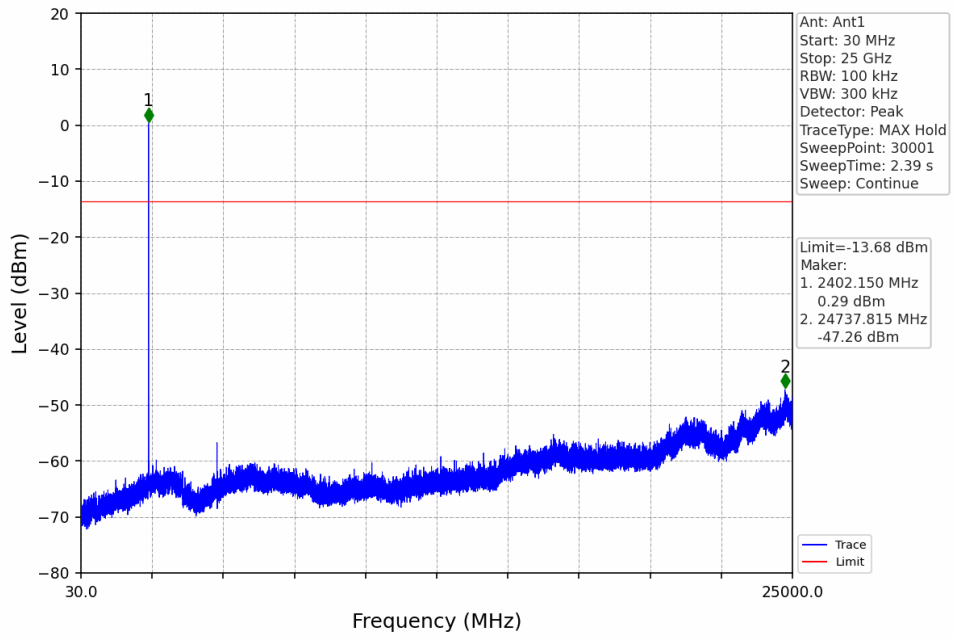
GFSK_DH5_HOPP_Ant1_NTNV



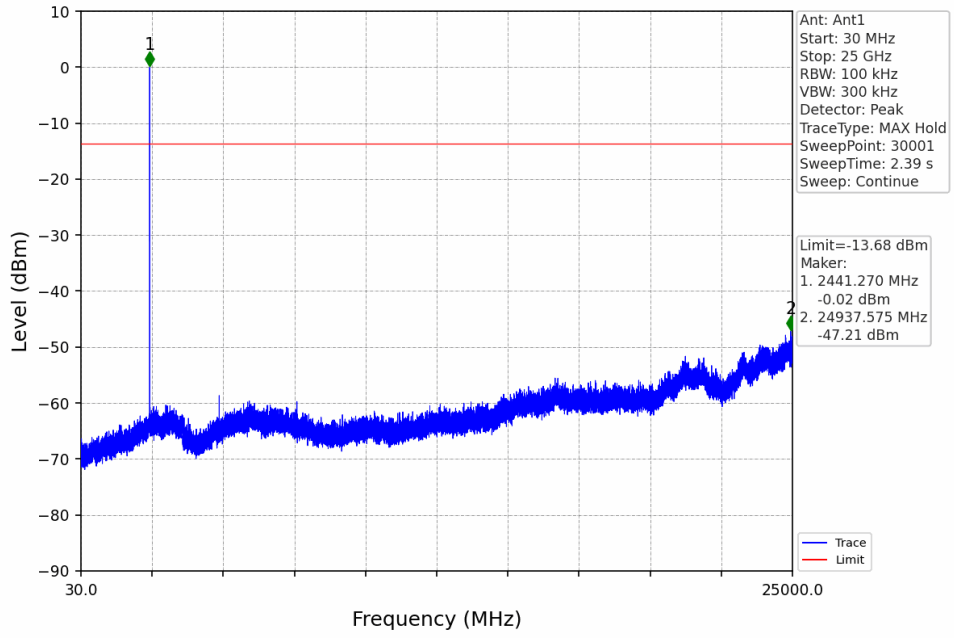

Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



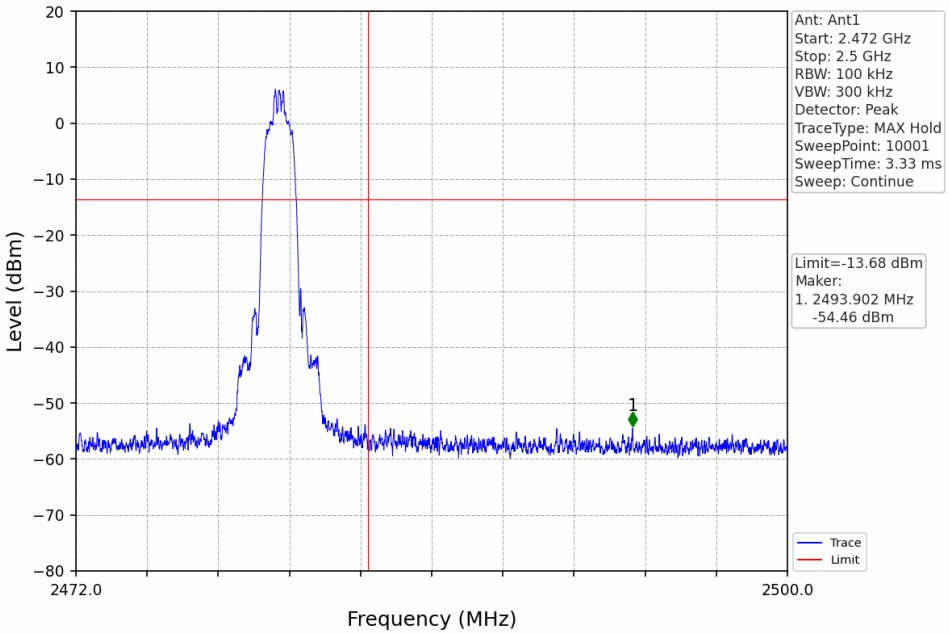
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



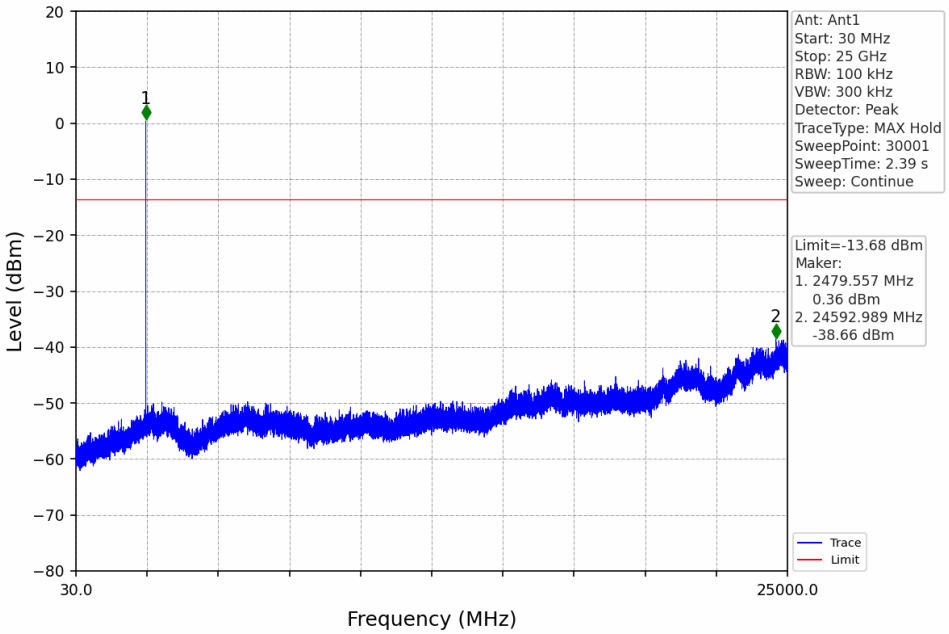

Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



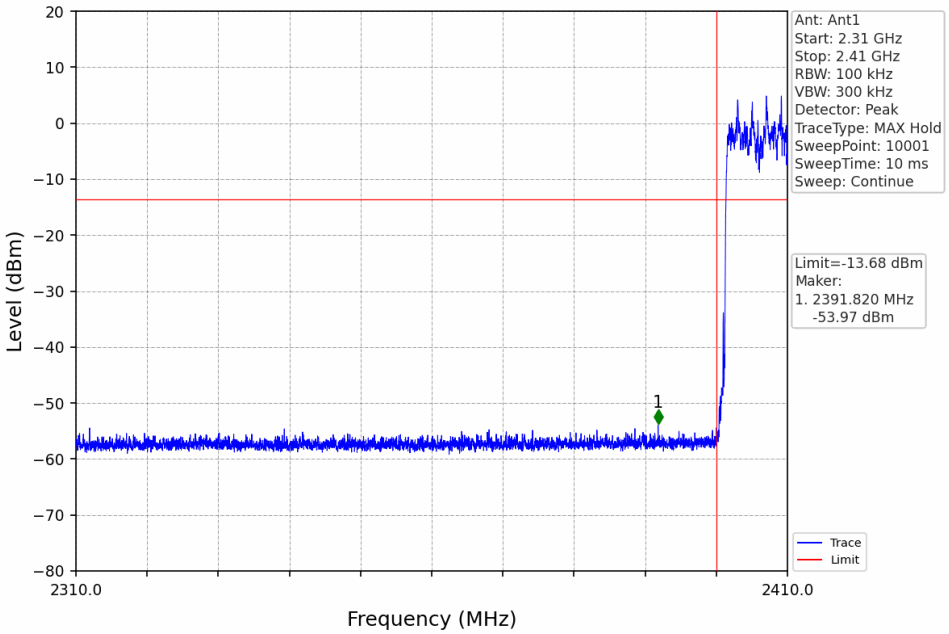
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



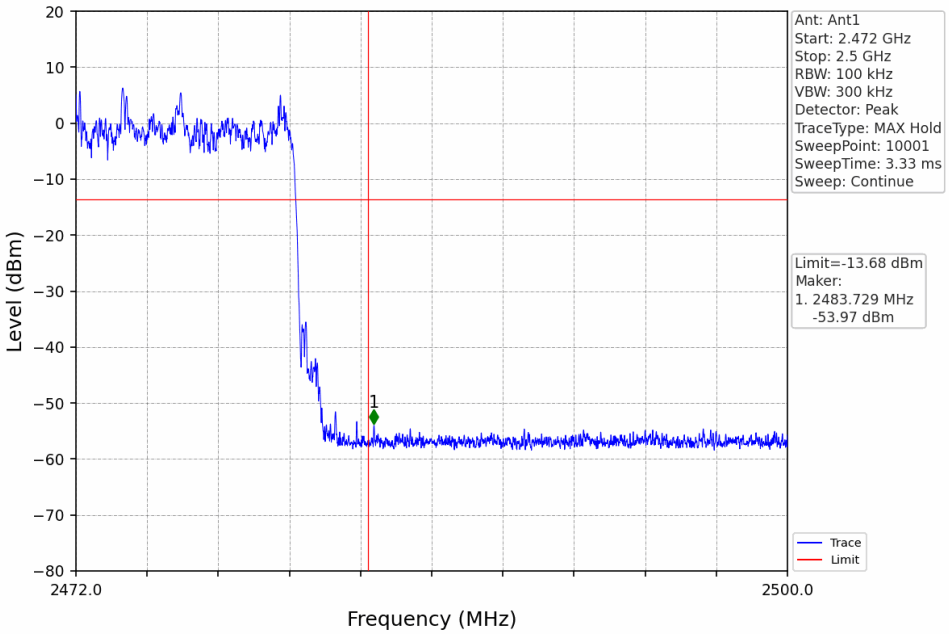

Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



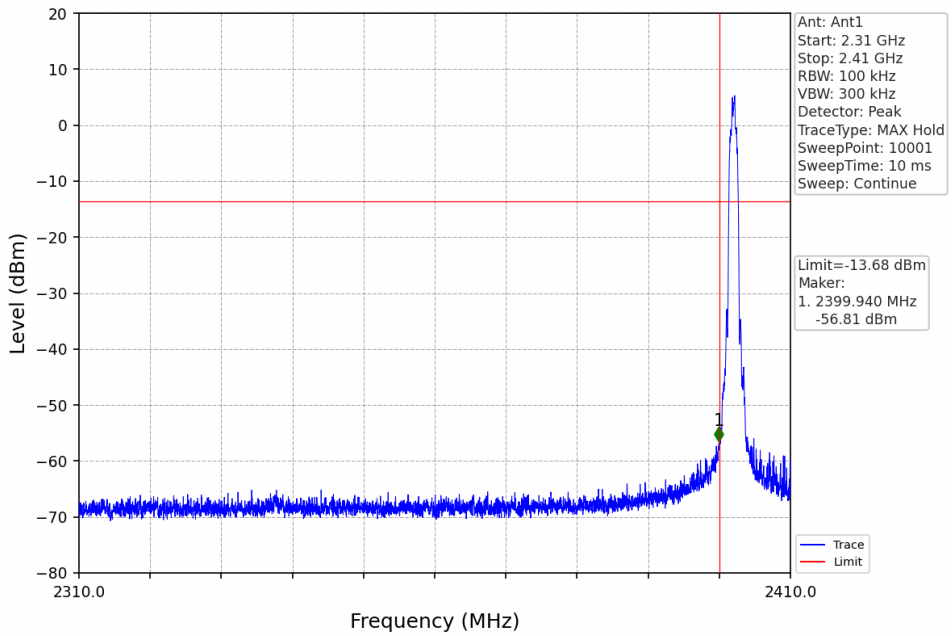
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



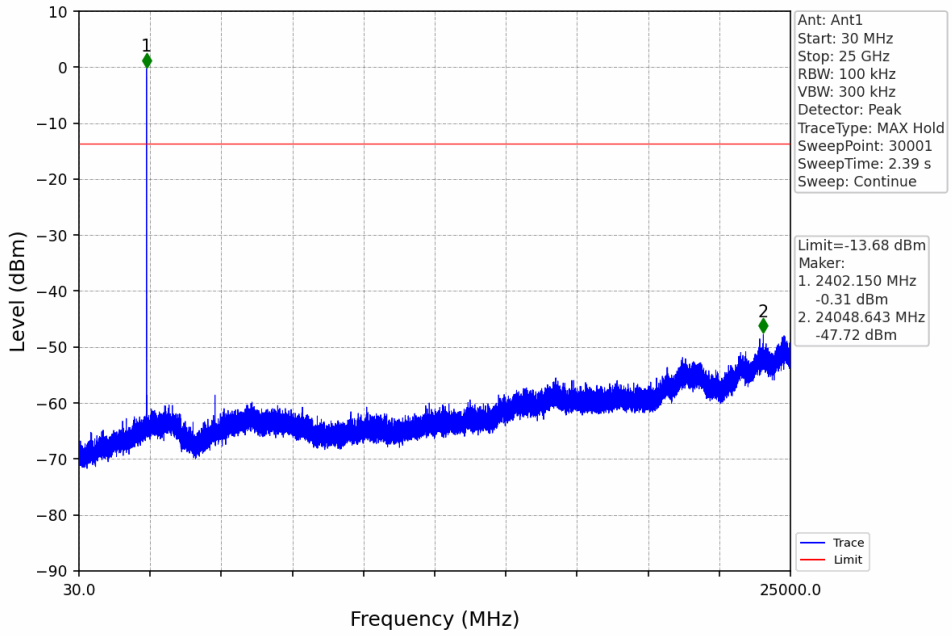

Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



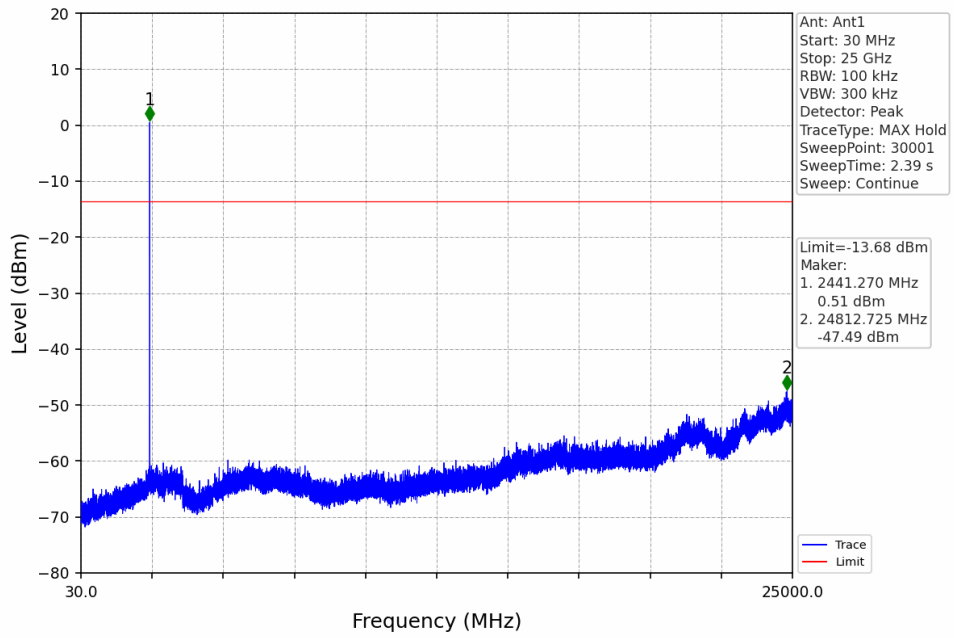
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



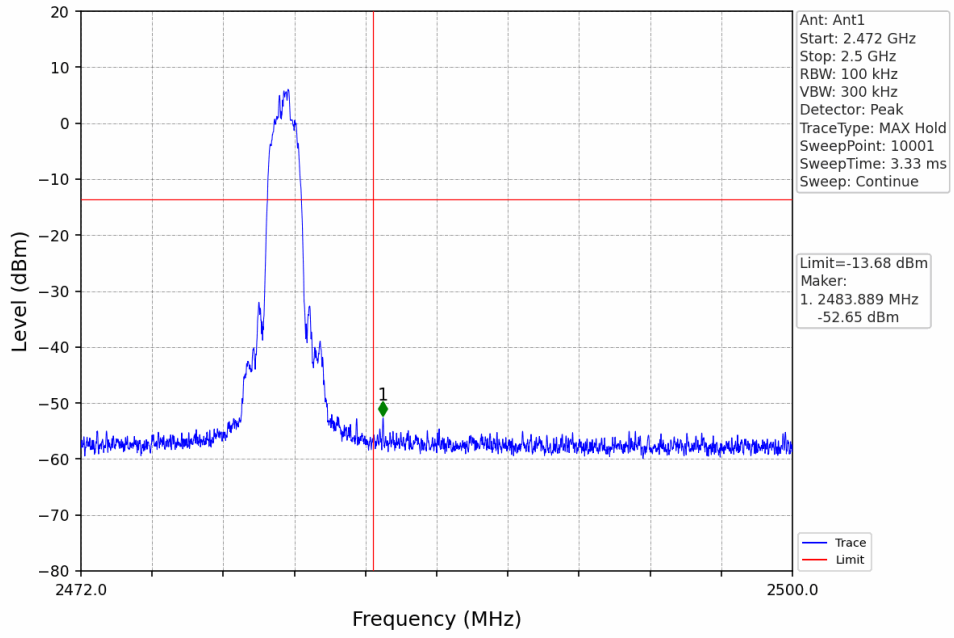

8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



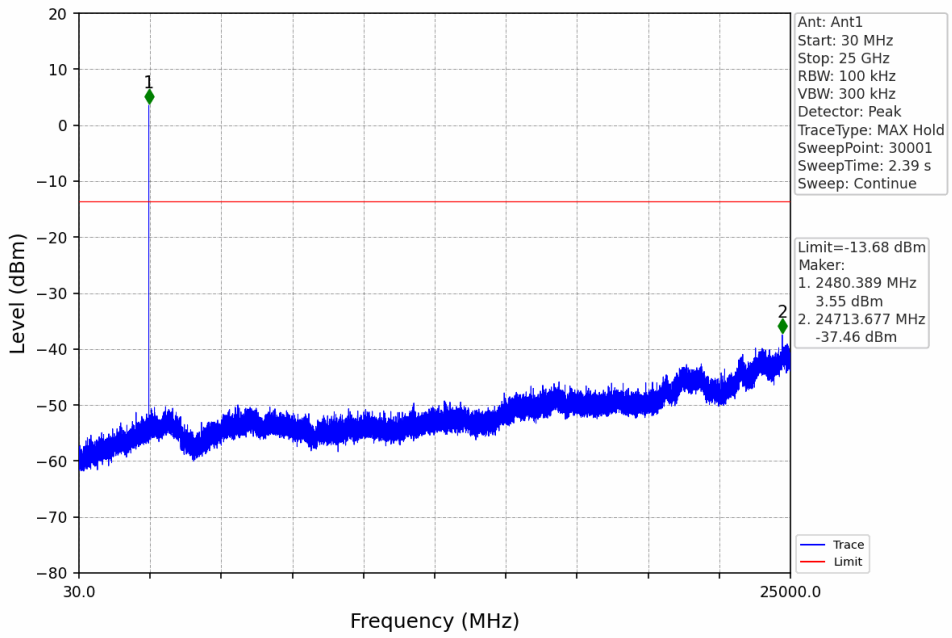
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



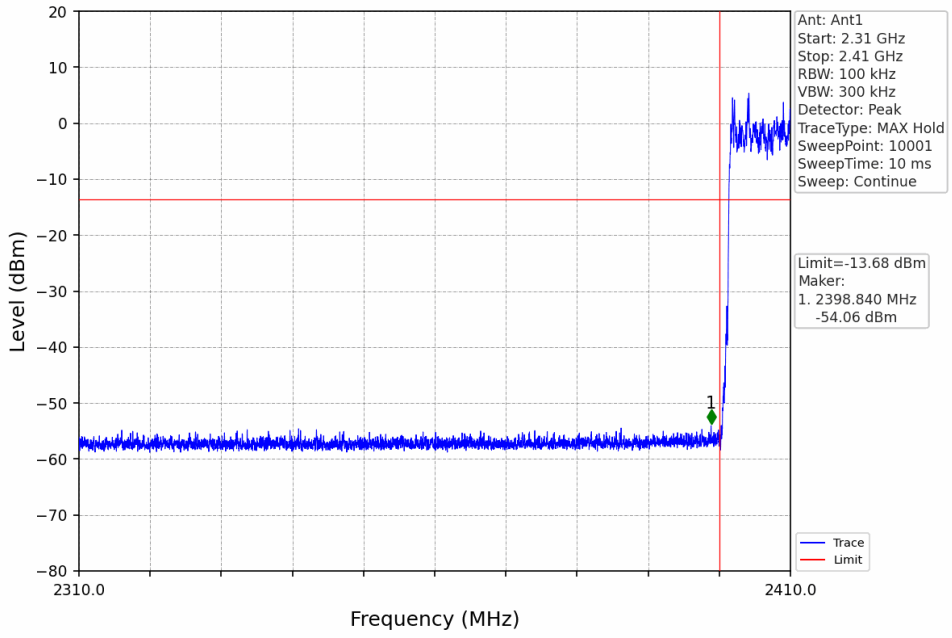

8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



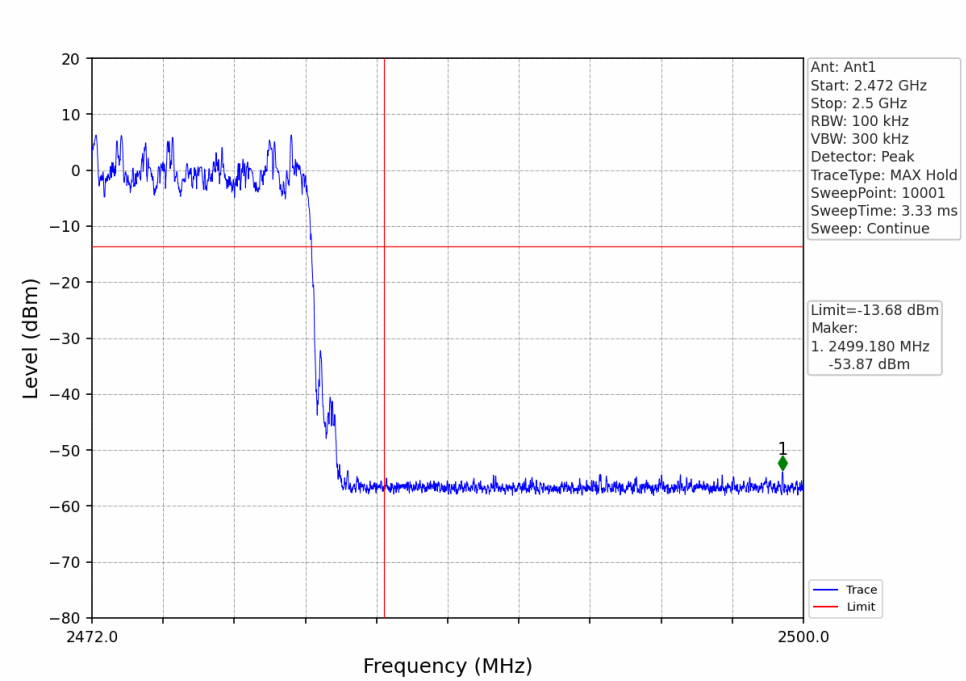
8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV




8DPSK_3DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



**For Left earbuds:**

# 1. Maximum Conducted Output Power

## 1.1 Power

### 1.1.1 Test Result

| Mode | TX Type | Frequency (MHz) | Packet Type | Maximum Peak Conducted Output Power (dBm) | | Verdict |
|---|---|---|---|---|---|---|
| | | | | Ant1 | Limit | |
| GFSK | SISO | 2402 | DH5 | 7.22 | <=30 | Pass |
| | | 2441 | DH5 | 7.52 | <=30 | Pass |
| | | 2480 | DH5 | 7.94 | <=30 | Pass |
| Pi/4DQPSK | SISO | 2402 | 2DH5 | 7.18 | <=20.97 | Pass |
| | | 2441 | 2DH5 | 7.44 | <=20.97 | Pass |
| | | 2480 | 2DH5 | 7.88 | <=20.97 | Pass |
| 8DPSK | SISO | 2402 | 3DH5 | 7.20 | <=20.97 | Pass |
| | | 2441 | 3DH5 | 7.45 | <=20.97 | Pass |
| | | 2480 | 3DH5 | 7.90 | <=20.97 | Pass |
| Note1: Antenna Gain: Ant1: 1.22dBi; | | | | | | |

# 2. Unwanted Emissions In Non-restricted Frequency Bands

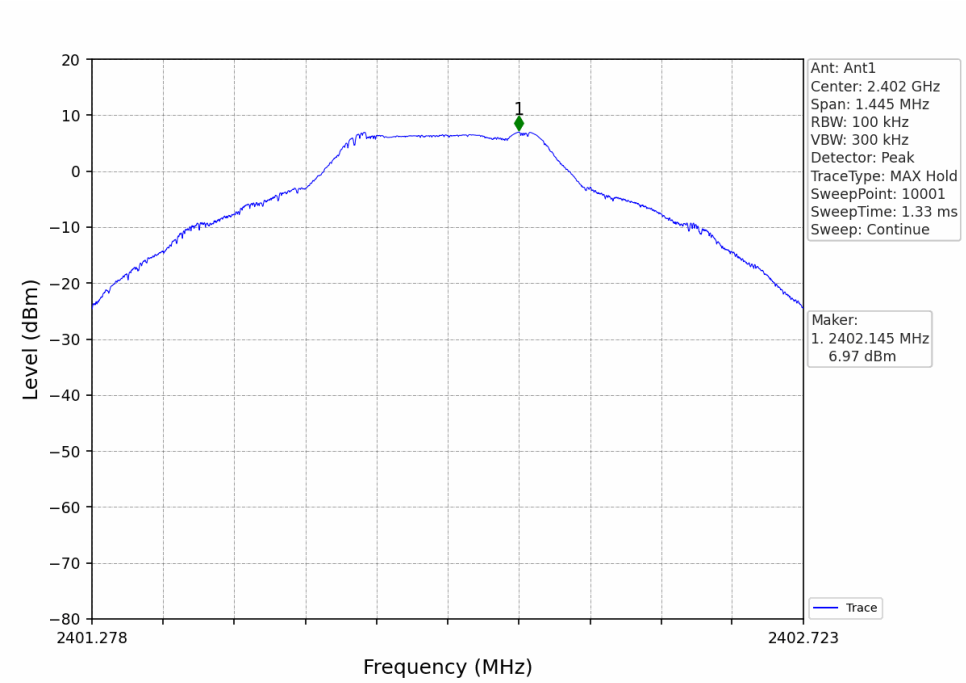
## 2.1 Ref

### 2.1.1 Test Result

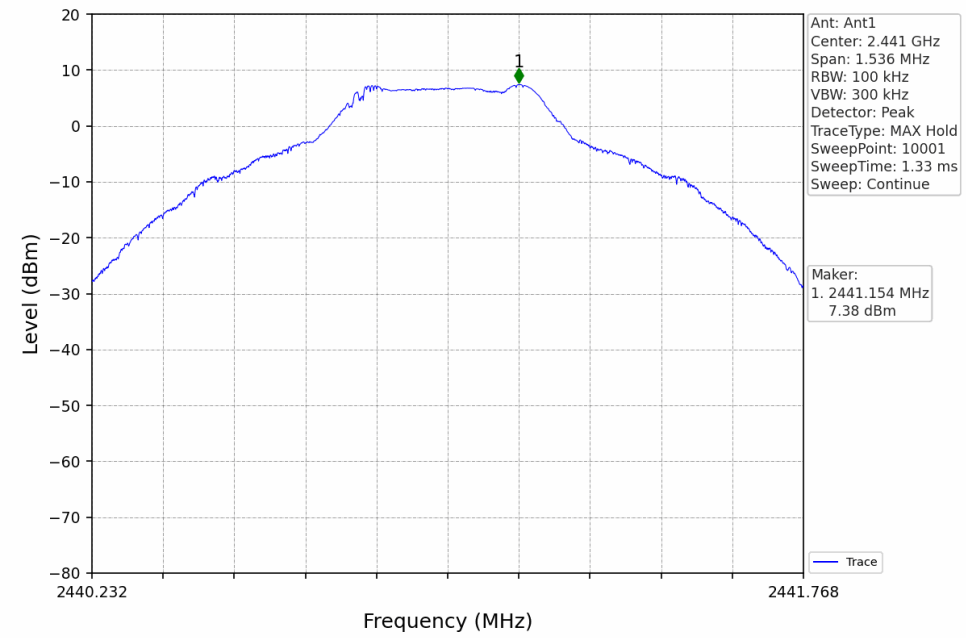
| Mode | TX Type | Frequency (MHz) | Packet Type | Ant | Level of Reference (dBm) |
|---|---|---|---|---|---|
| GFSK | SISO | 2402 | DH5 | 1 | 6.97 |
| | | 2441 | DH5 | 1 | 7.38 |
| | | 2480 | DH5 | 1 | 7.84 |
| Pi/4DQPSK | SISO | 2402 | 2DH5 | 1 | 7.13 |
| | | 2441 | 2DH5 | 1 | 7.37 |
| | | 2480 | 2DH5 | 1 | 7.85 |
| 8DPSK | SISO | 2402 | 3DH5 | 1 | 7.10 |
| | | 2441 | 3DH5 | 1 | 7.39 |
| | | 2480 | 3DH5 | 1 | 7.66 |
| Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.<br>Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB. | | | | | |

## 2.1.2 Test Graph

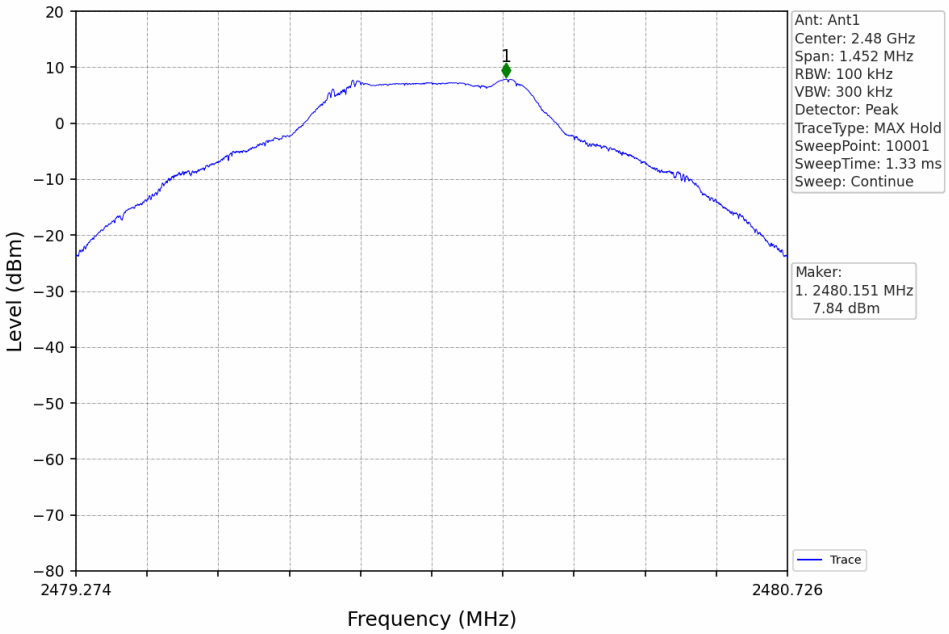
GFSK_DH5_LCH_2402MHz_Ant1_NTNV



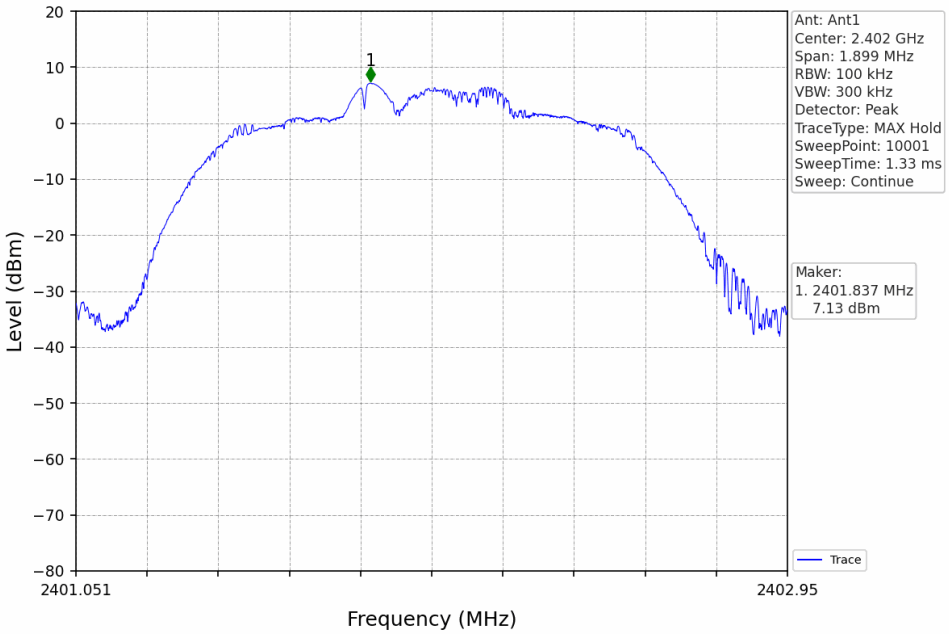

GFSK_DH5_MCH_2441MHz_Ant1_NTNV



GFSK_DH5_HCH_2480MHz_Ant1_NTNV




Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



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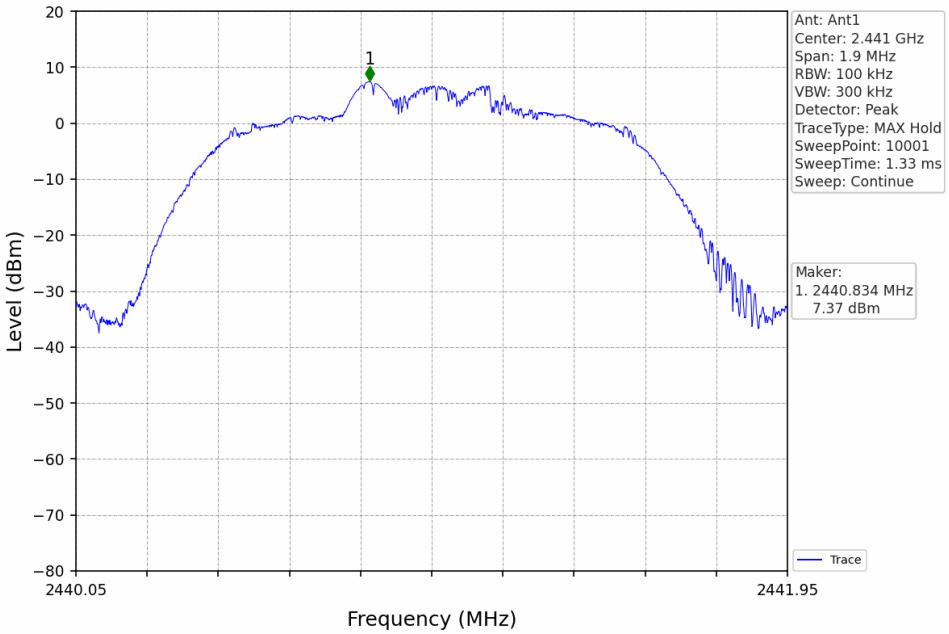
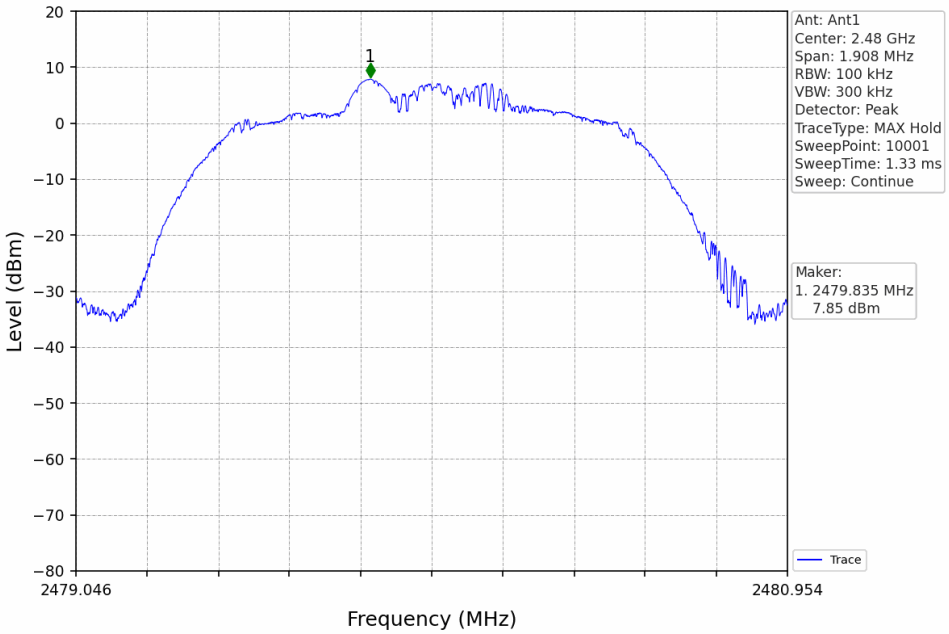
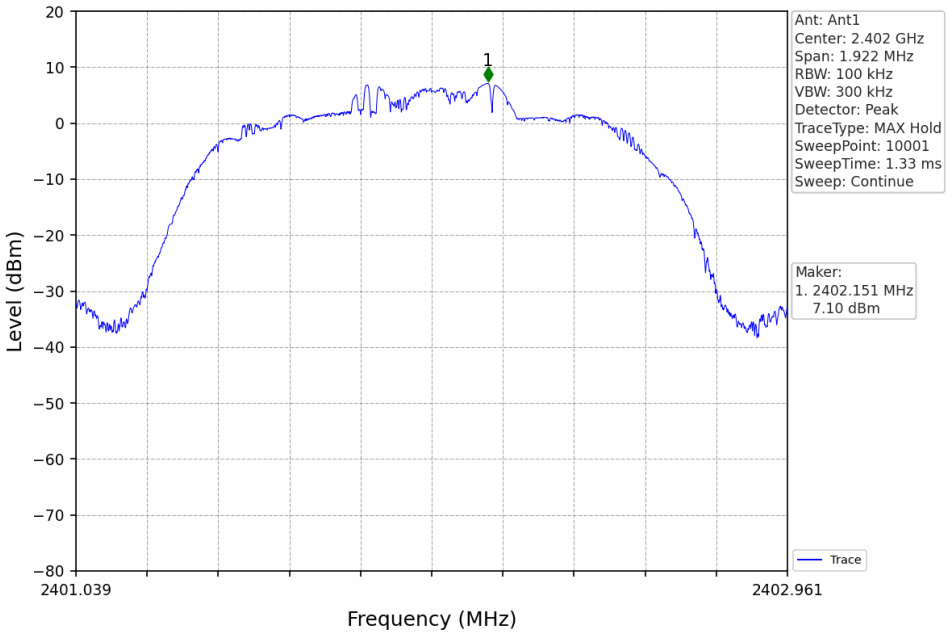


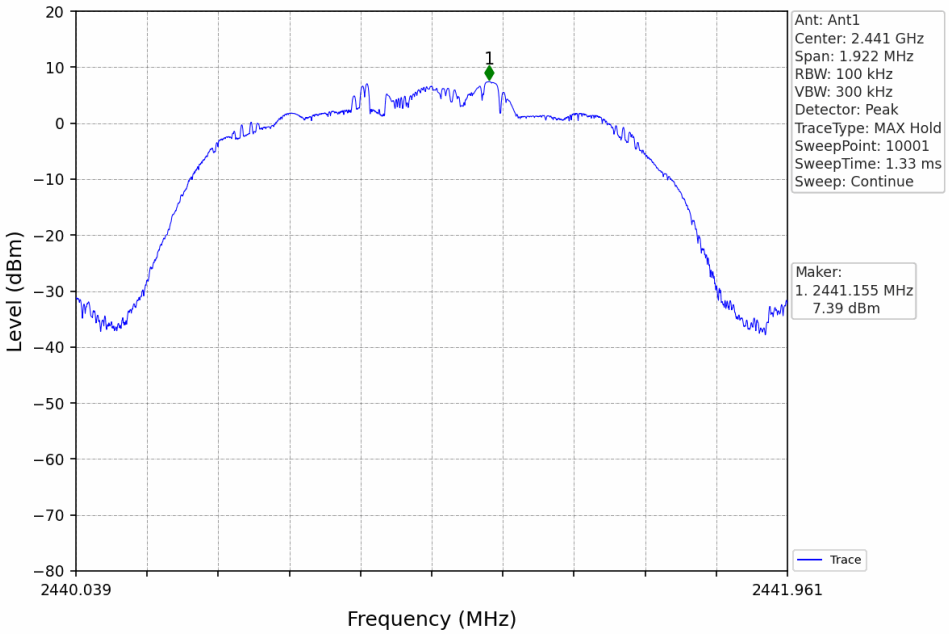

Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



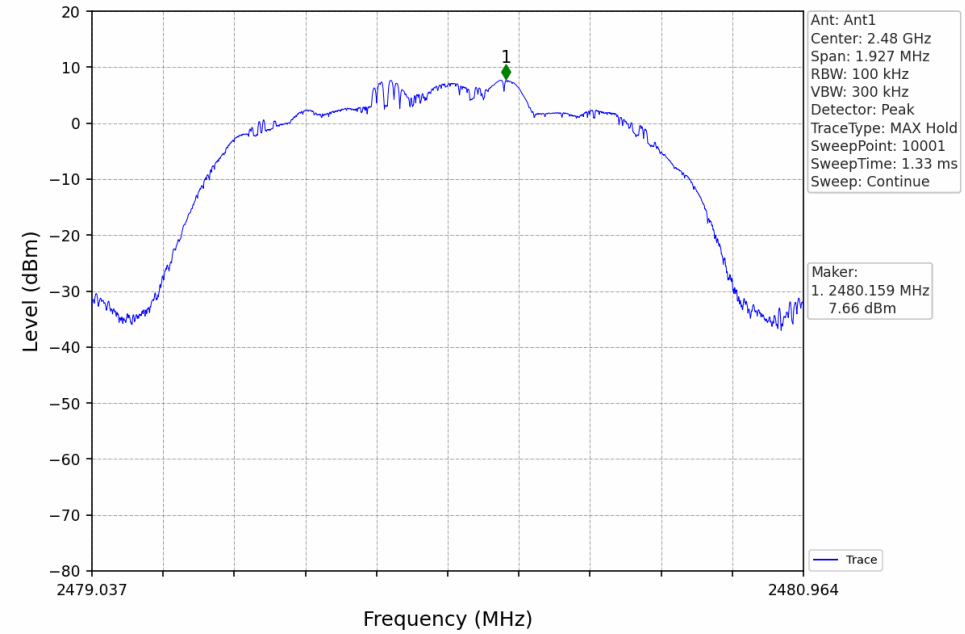
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV




8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



## 2.2 CSE

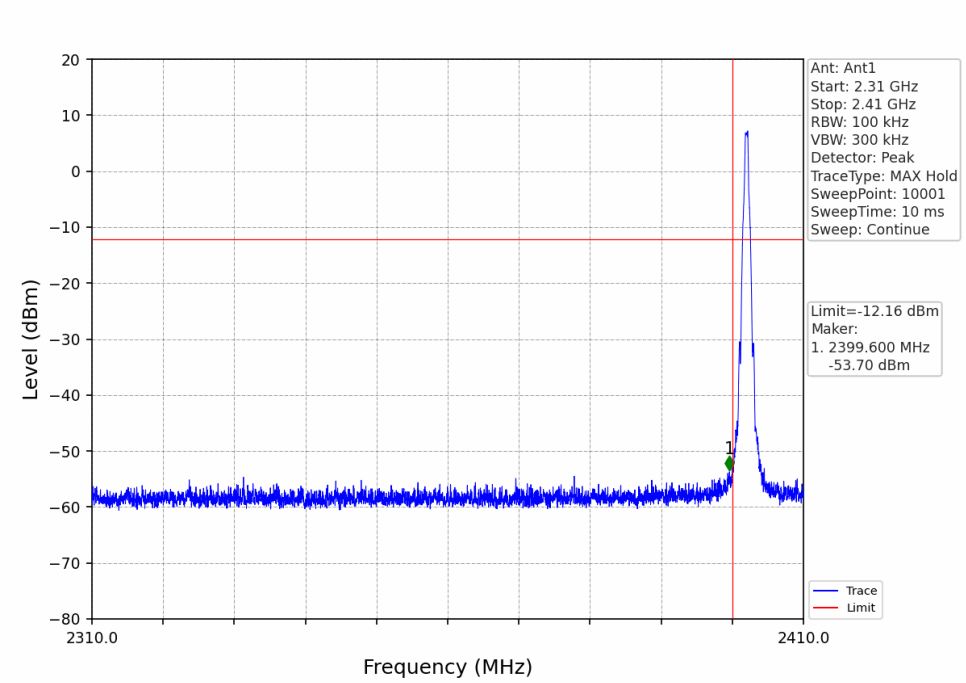
### 2.2.1 Test Result

| Mode | TX Type | Frequency (MHz) | Packet Type | Ant | Level of Reference (dBm) | Limit (dBm) | Verdict |
|---|---|---|---|---|---|---|---|
| GFSK | SISO | 2402 | DH5 | 1 | 7.84 | -12.16 | Pass |
| | | 2441 | DH5 | 1 | 7.84 | -12.16 | Pass |
| | | 2480 | DH5 | 1 | 7.84 | -12.16 | Pass |
| | | HOPP | DH5 | 1 | 7.84 | -12.16 | Pass |
| Pi/4DQPSK | SISO | 2402 | 2DH5 | 1 | 7.75 | -12.25 | Pass |
| | | 2441 | 2DH5 | 1 | 7.75 | -12.25 | Pass |
| | | 2480 | 2DH5 | 1 | 7.75 | -12.25 | Pass |
| | | HOPP | 2DH5 | 1 | 7.75 | -12.25 | Pass |
| 8DPSK | SISO | 2402 | 3DH5 | 1 | 7.57 | -12.43 | Pass |
| | | 2441 | 3DH5 | 1 | 7.57 | -12.43 | Pass |
| | | 2480 | 3DH5 | 1 | 7.57 | -12.43 | Pass |
| | | HOPP | 3DH5 | 1 | 7.57 | -12.43 | Pass |

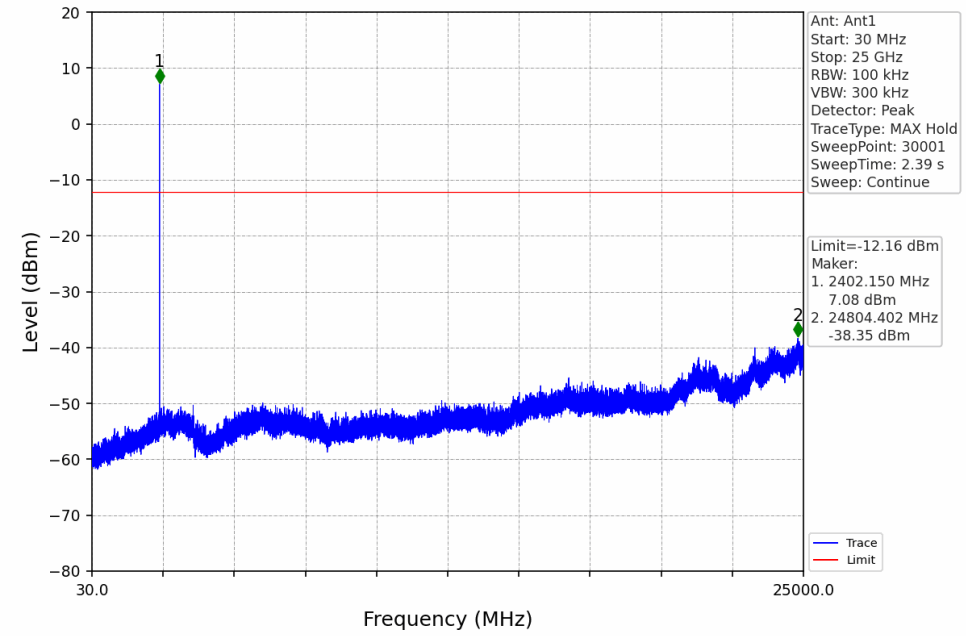
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2013, the channel contains the maximum PSD level was used to establish the reference level.
Note2: RBW = 1MHz was used during the pre-test. The final test will be performed at RBW=100kHz while the margin is less than 3dB.

## 2.2.2 Test Graph

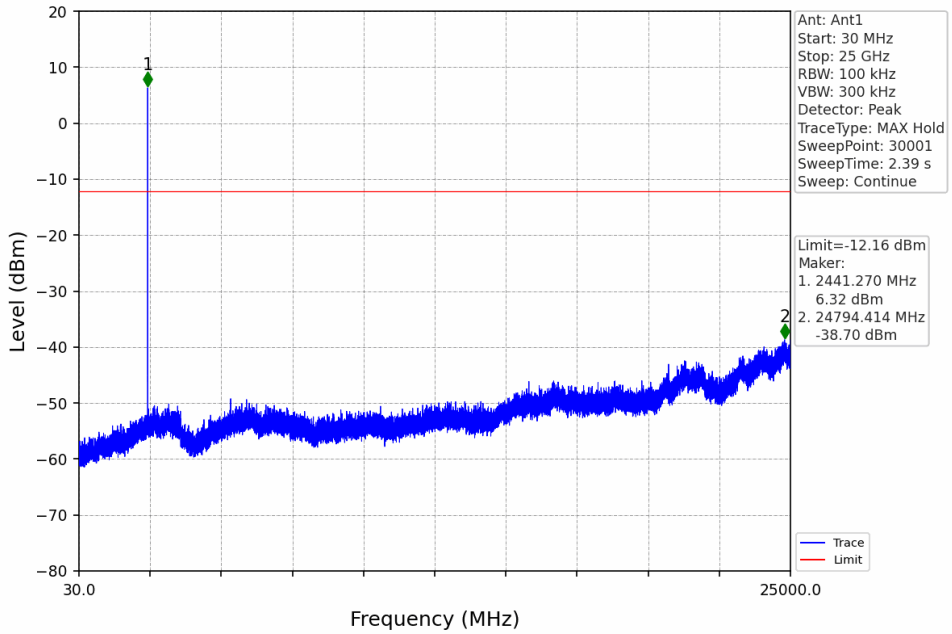
GFSK_DH5_LCH_2402MHz_Ant1_NTNV



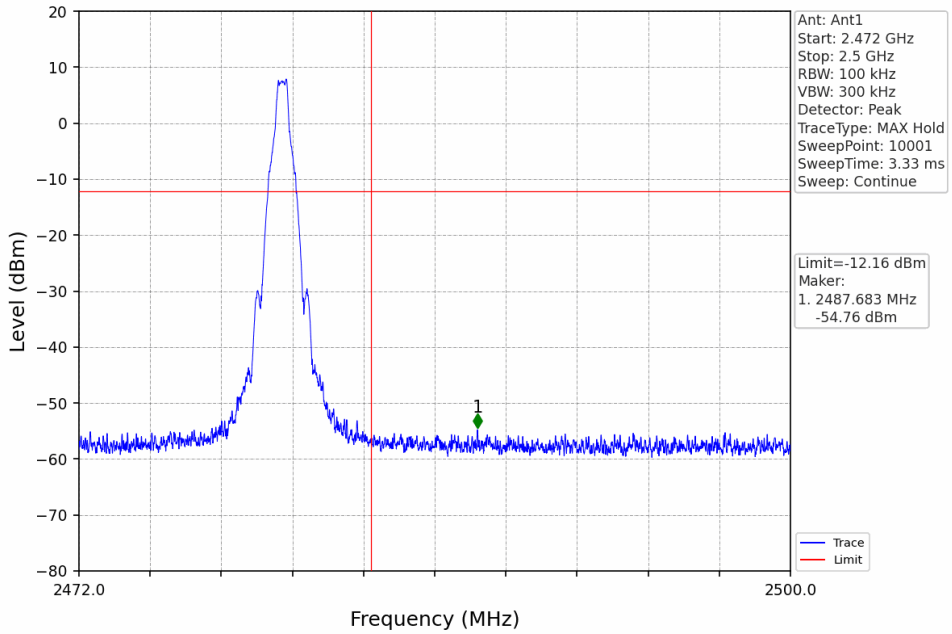

GFSK_DH5_LCH_2402MHz_Ant1_NTNV



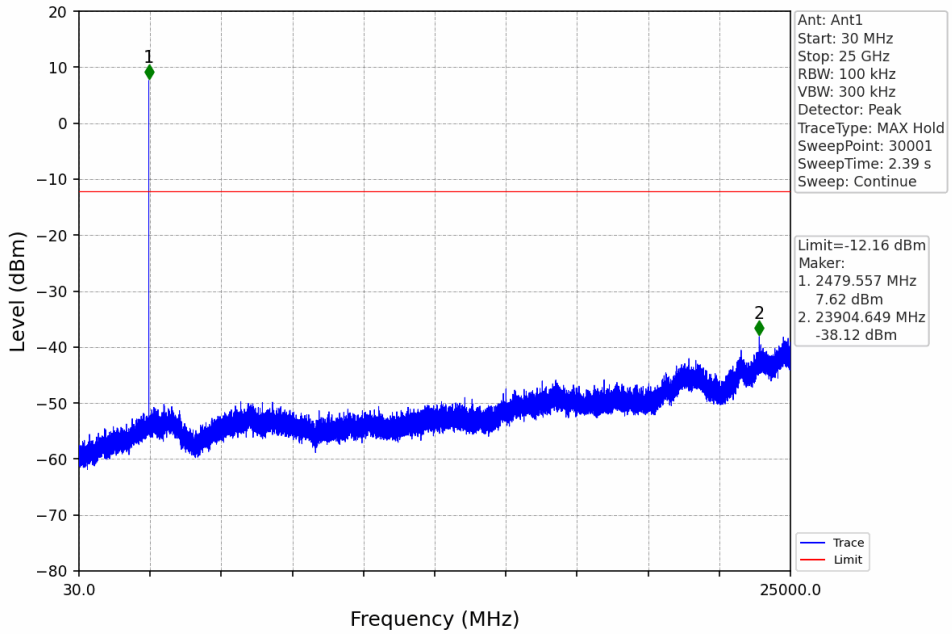
GFSK_DH5_MCH_2441MHz_Ant1_NTNV



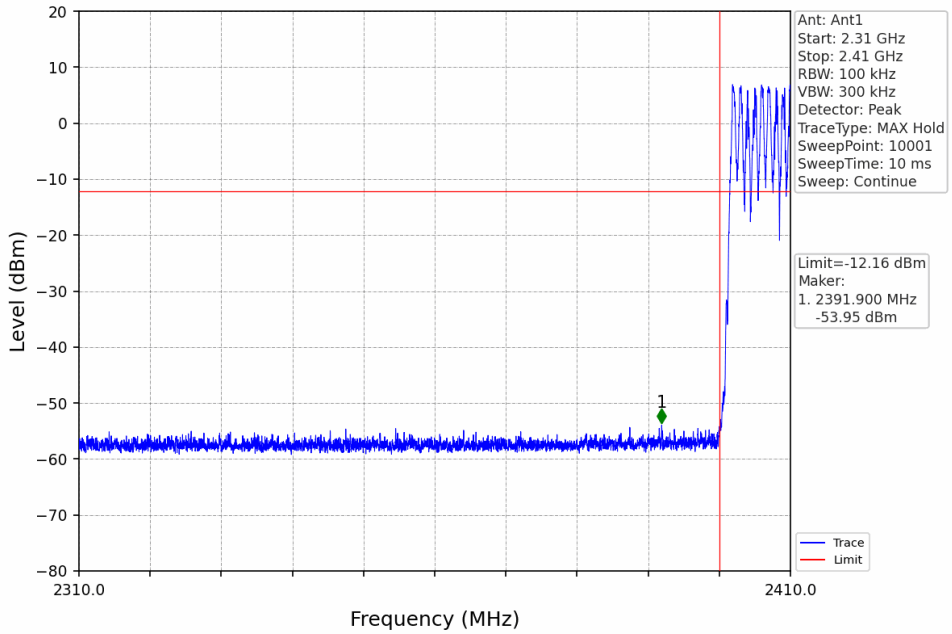

GFSK_DH5_HCH_2480MHz_Ant1_NTNV



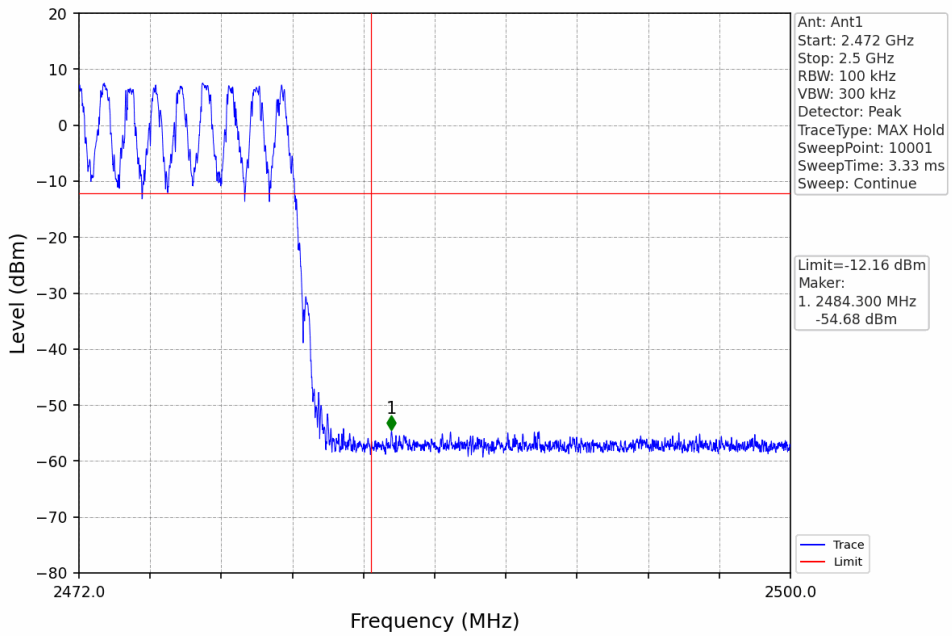
GFSK_DH5_HCH_2480MHz_Ant1_NTNV



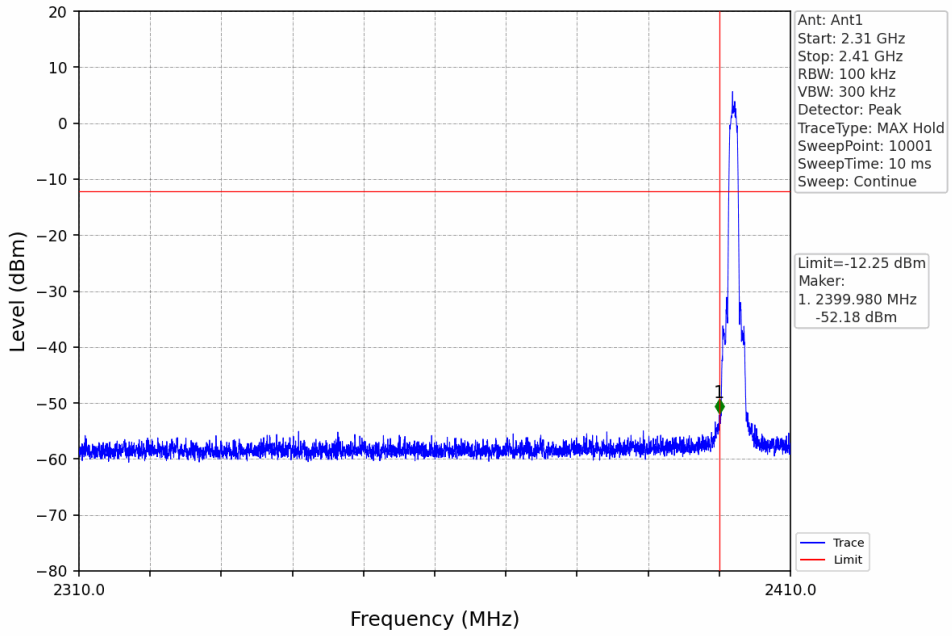

GFSK_DH5_HOPP_Ant1_NTNV



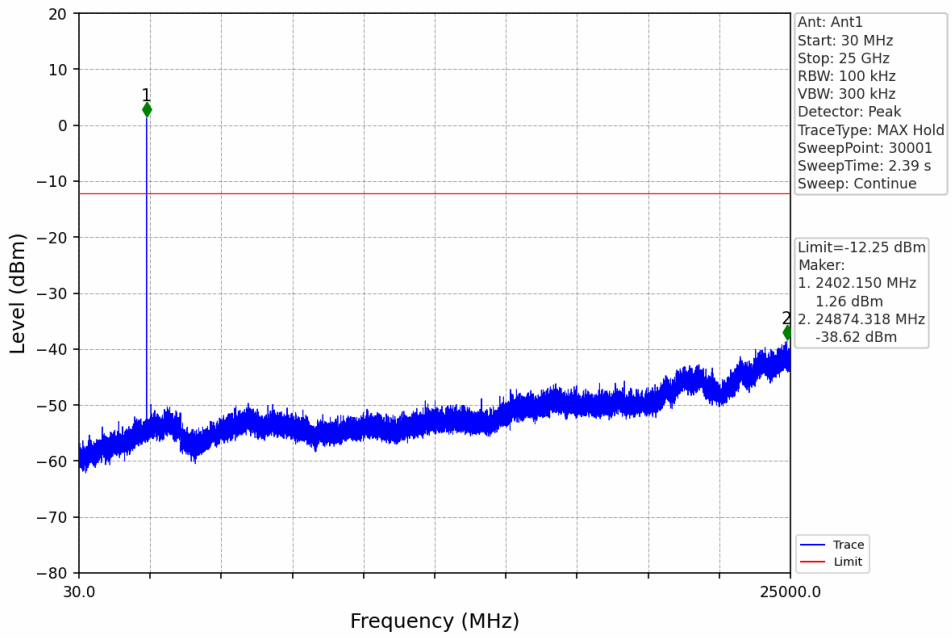
GFSK_DH5_HOPP_Ant1_NTNV



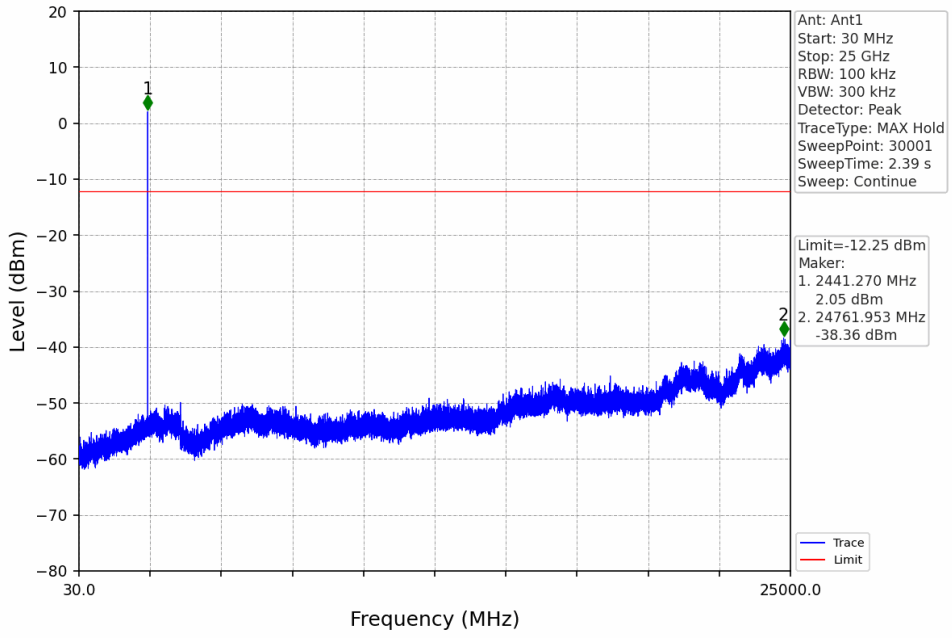

Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



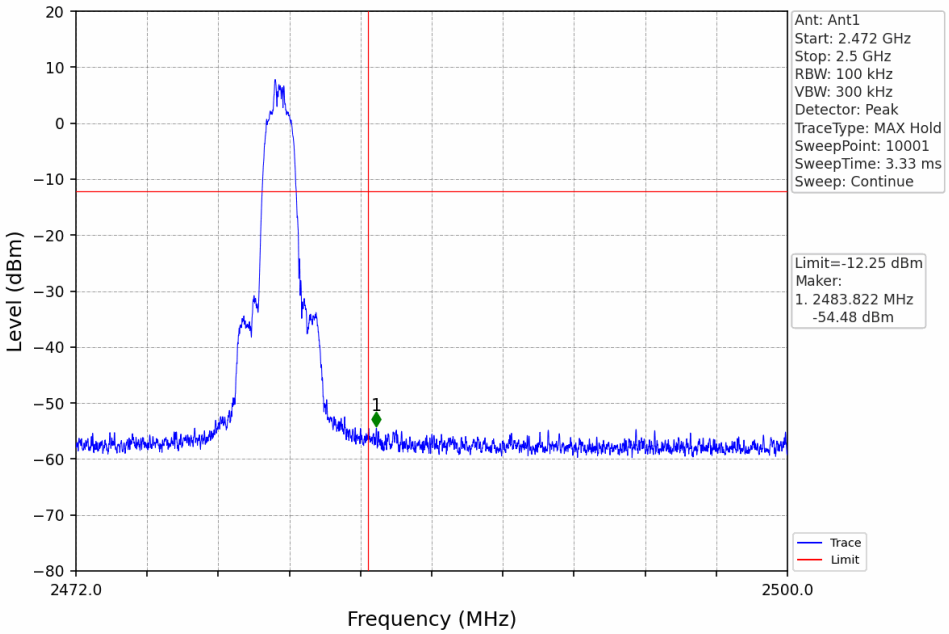
Pi/4DQPSK_2DH5_LCH_2402MHz_Ant1_NTNV



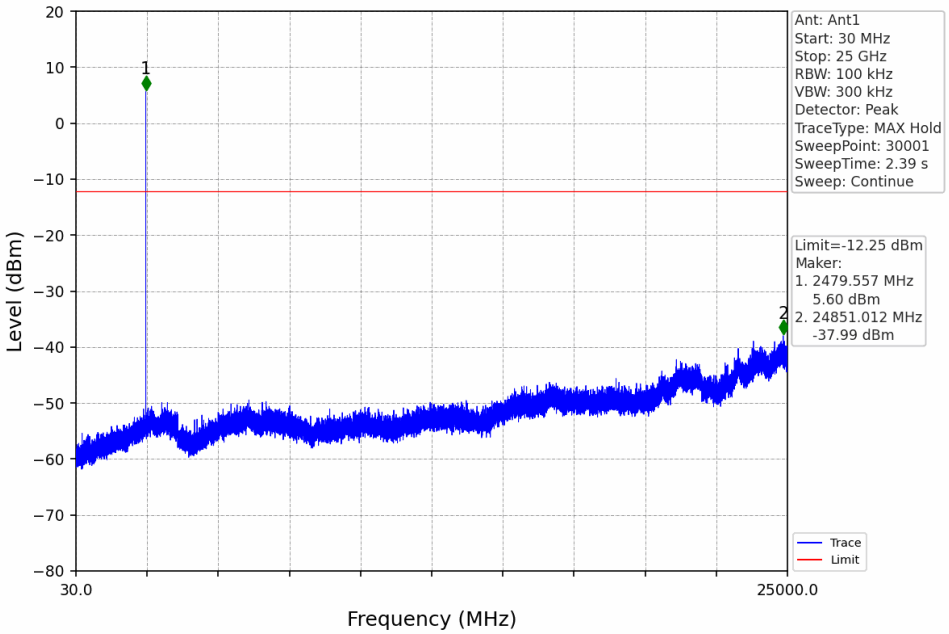

Pi/4DQPSK_2DH5_MCH_2441MHz_Ant1_NTNV



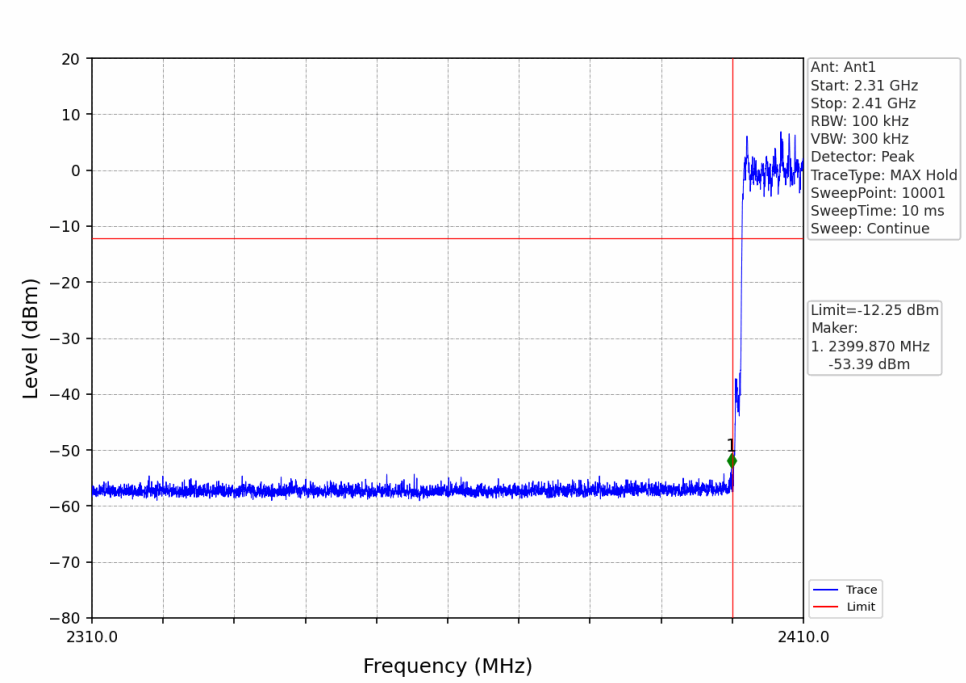
Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



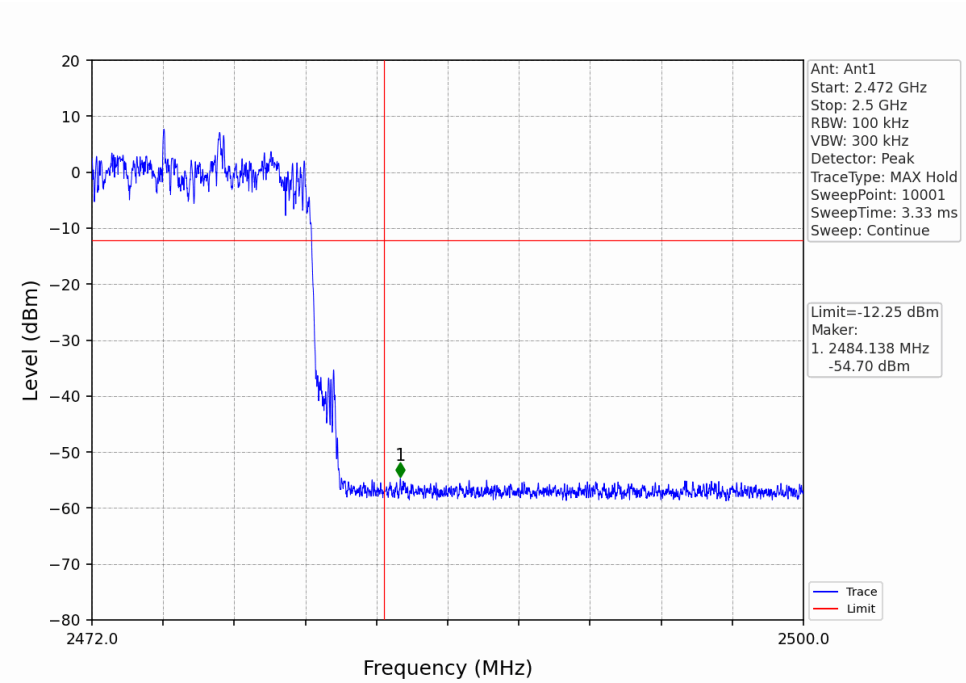

Pi/4DQPSK_2DH5_HCH_2480MHz_Ant1_NTNV



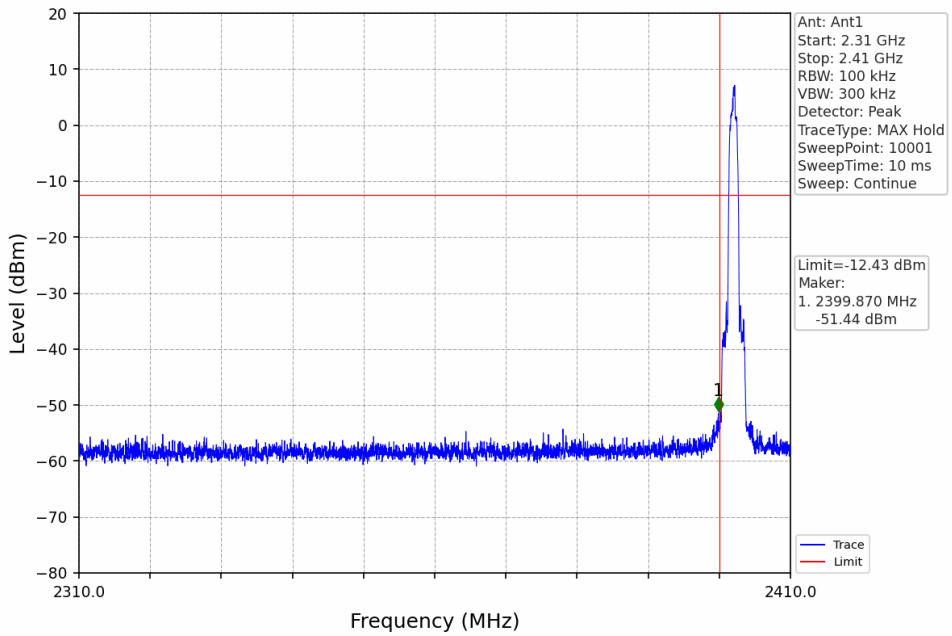
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



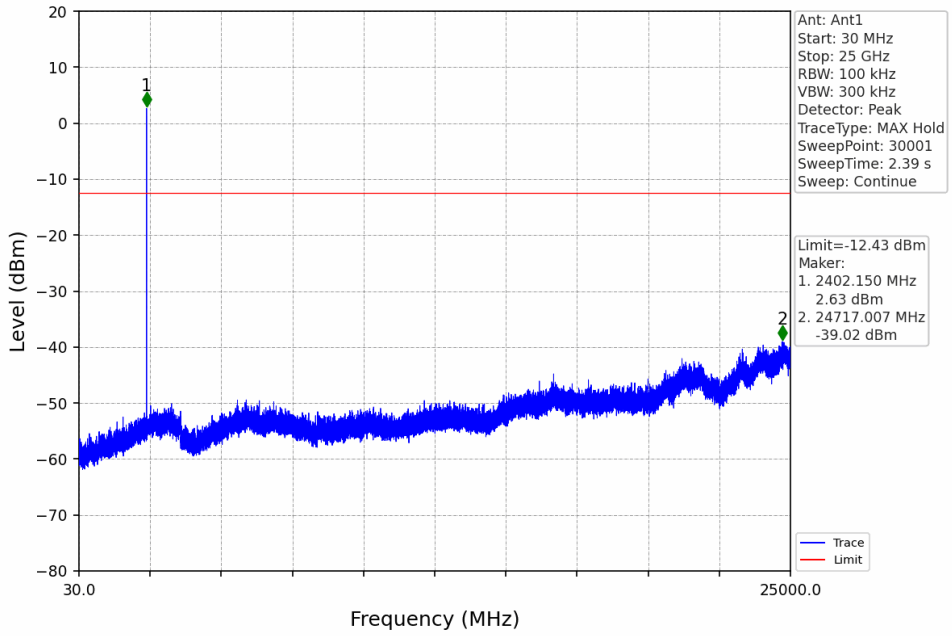

Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



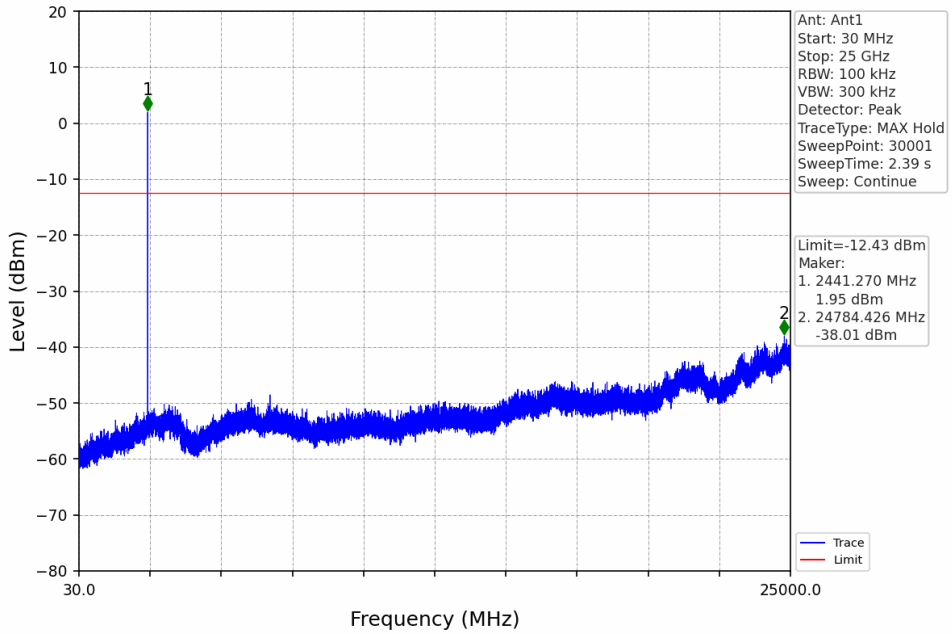
8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



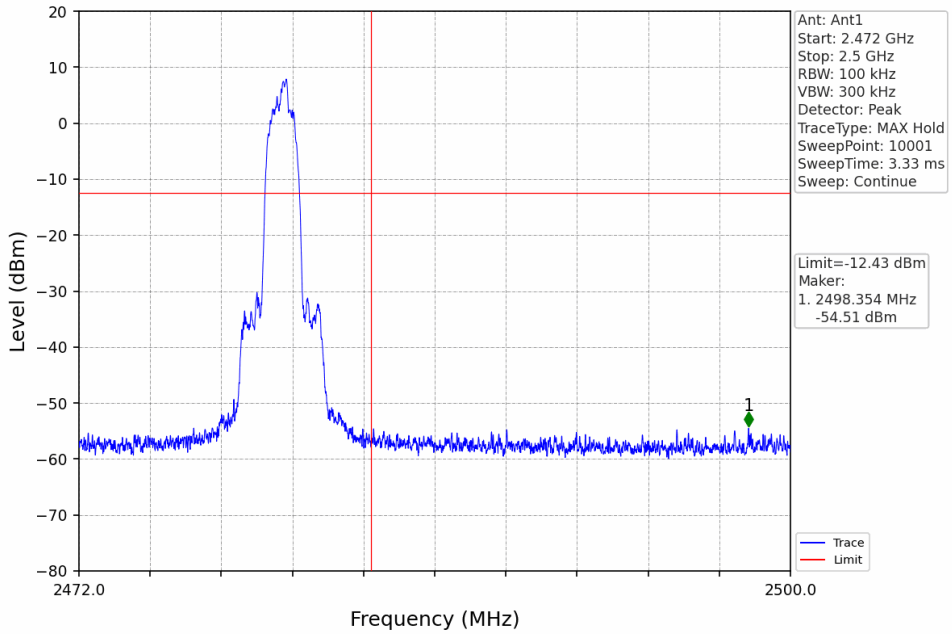

8DPSK_3DH5_LCH_2402MHz_Ant1_NTNV



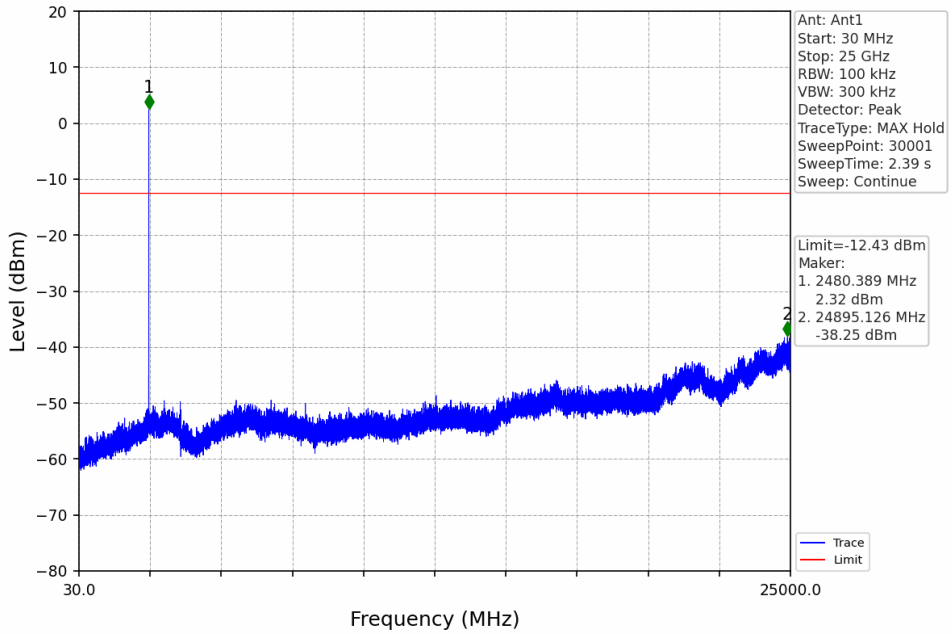
8DPSK_3DH5_MCH_2441MHz_Ant1_NTNV



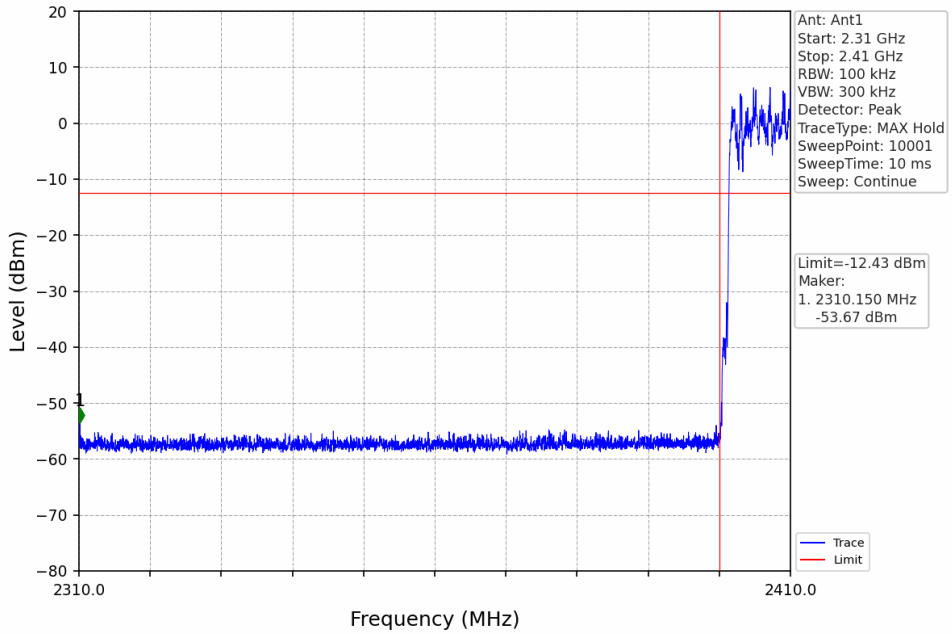

8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV



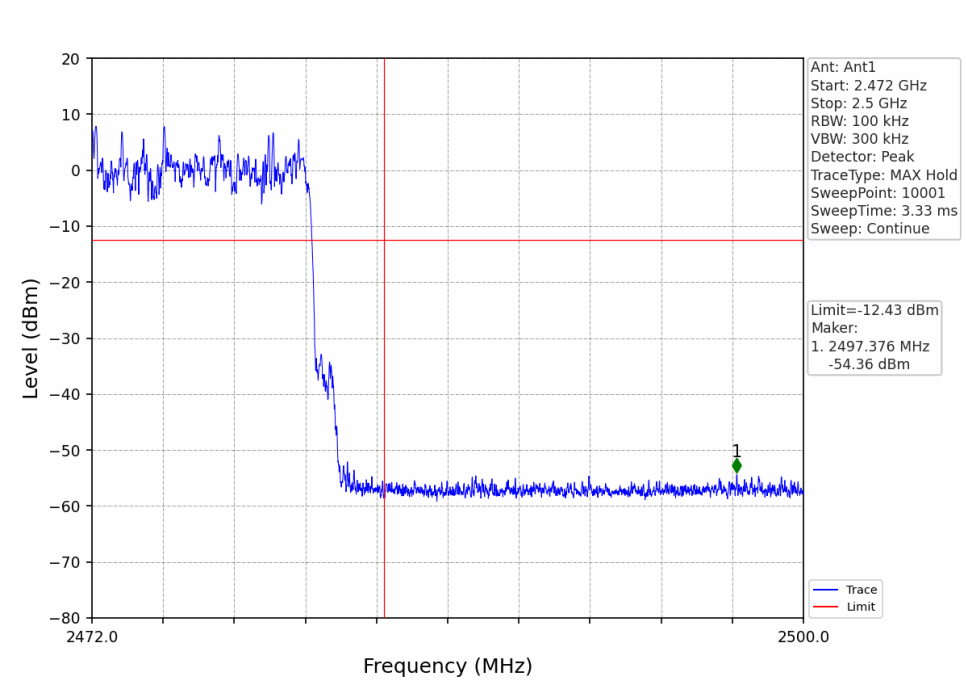
8DPSK_3DH5_HCH_2480MHz_Ant1_NTNV




8DPSK_3DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV




- End of the Report -