# FCC PART 15C
# TEST REPORT
# No. I18N00176-BT

**for**

**Meizu Technology Co., Ltd.**

**LTE Mobile Phone**

**M810L**

**with**

**Hardware Version: V1.0**

**Software Version: Flyme 6.3.5.0G**

**FCC ID: 2ANQ6-M810L**

**Issued Date: 2018-03-16**

**Designation Number: CN1210**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

**Test Laboratory:**

Shenzhen Academy of Information and Communications Technology

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# REPORT HISTORY

| Report Number | Revision | Description | Issue Date |
|---|---|---|---|
| I18N00176-BT | Rev.0 | 1st edition | 2018-03-16 |

# CONTENTS

# 1. Test Laboratory

## 1.1. Testing Location

| | |
|---|---|
| Location: | Shenzhen Academy of Information and Communications Technology |
| Address: | Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong Province ,China |
| Postal Code: | 518026 |
| Telephone: | +86(0)755-33322000 |
| Fax: | +86(0)755-33322001 |

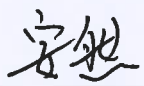
## 1.2. Testing Environment

| | |
|---|---|
| Normal Temperature: | 15-30℃ |
| Relative Humidity: | 35-60% |

## 1.3. Project data

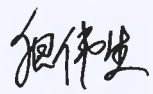
| | |
|---|---|
| Testing Start Date: | 2018-02-26 |
| Testing End Date: | 2018-03-09 |

## 1.4. Signature



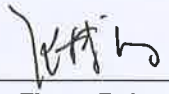
**An Ran**

**(Prepared this test report)**



**Tang Weisheng**

**(Reviewed this test report)**



**Zhang Bojun**

**(Approved this test report)**

# 2. Client Information

## 2.1. Applicant Information

| | |
|---|---|
| Company Name: | Meizu Technology Co., Ltd. |
| Address: | Meizu Tech Bldg., Technology&Innovation Coast, Zhuhai, Guangdong Province, China |
| Contact Person | Sally |
| E-Mail | shenling@meizu.com |
| Telephone: | +86-0756-6116256 |
| Fax: | / |

## 2.2. Manufacturer Information

| | |
|---|---|
| Company Name: | Meizu Technology Co., Ltd. |
| Address: | Meizu Tech Bldg., Technology&Innovation Coast, Zhuhai, Guangdong Province, China |
| Contact Person | Sally |
| E-Mail | shenling@meizu.com |
| Telephone: | +86-0756-6116256 |
| Fax: | / |

# 3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

## 3.1. About EUT

| | |
|---|---|
| Description | LTE Mobile Phone |
| Model Name | M810L |
| Market Name | Meizu M8c |
| Frequency Band | 2400MHz~2483.5MHz |
| Type of Modulation | GFSK/ π /4 DQPSK/8DPSK |
| Number of Channels | 79 |
| Antenna Type | Integrated |
| Antenna Gain | -2.0dBi |
| Power Supply | 3.85V DC by Battery |
| FCC ID | 2ANQ6-M810L |

Note: Components list, please refer to documents of the manufacturer.

## 3.2. Internal Identification of EUT

| EUT ID* | IMEI | HW Version | SW Version | Receive Date |
|---|---|---|---|---|
| EUT1 | / | V1.0 | Flyme 6.3.5.0G | 2018-02-12 |

*EUT ID: is used to identify the test sample in the lab internally.

## 3.3. Internal Identification of AE

| AE ID* | Description | Mode | Manufacturer |
|---|---|---|---|
| AE1 | Battery | BA810 | / |
| AE2 | USB POWER ADAPTER | UP0520A | Salcomp(Shenzhen)Co., Ltd |

*AE ID: is used to identify the test sample in the lab internally.

## 3.4. General Description

The Equipment Under Test (EUT) are a model of Mobile Phone with integrated antenna.
It consists of normal options: travel charger, USB cable.
Manual and specifications of the EUT were provided to fulfil the test.
Samples undergoing test were selected by the client.

# 4. Reference Documents

## 4.1. Documents supplied by applicant

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

## 4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference | Title | Version |
|---|---|---|
| FCC Part 15 | FCC CFR 47, Part 15, Subpart C:<br>15.205 Restricted bands of operation;<br>15.209 Radiated emission limits, general requirements;<br>15.247 Operation within the bands 902–928MHz, 2400–2483.5 MHz, and 5725–5850 MHz | 2016 |
| ANSI C63.10 | American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices | 2013 |

# 5. Test Results

## 5.1. Summary of Test Results

| No | Test cases | Sub-clause of Part 15C | Verdict |
|---|---|---|---|
| 0 | Antenna Requirement | 15.203 | **P** |
| 1 | Maximum Peak Output Power | 15.247 (b) | **P** |
| 2 | Band Edges Compliance | 15.247 (d) | **P** |
| 3 | Conducted Spurious Emission | 15.247 (d) | **P** |
| 4 | Radiated Spurious Emission | 15.247,15.205,15.209 | **P** |
| 5 | Occupied 20dB bandwidth | 15.247(a) | **P** |
| 6 | Time of Occupancy (Dwell Time) | 15.247(a) | **P** |
| 7 | Number of Hopping Channel | 15.247(a) | **P** |
| 8 | Carrier Frequency Separation | 15.247(a) | **P** |
| 9 | AC Powerline Conducted Emission | 15.107,15.207 | **P** |

See **ANNEX A and below** for details.

## 5.2. Statements

SAICT has evaluated the test cases requested by the applicant/manufacturer as listed in section 5.1 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in section 4.2.

## 5.3. Terms used in the result table

Terms used in Verdict column

| | |
|---|---|
| P | Pass |
| NA | Not Available |
| F | Fail |

Abbreviations

| | |
|---|---|
| AC | Alternating Current |
| AFH | Adaptive Frequency Hopping |
| BW | Band Width |
| E.I.R.P. | equivalent isotropic radiated power |
| ISM | Industrial, Scientific and Medical |
| R&TTE | Radio and Telecommunications Terminal Equipment |
| RF | Radio Frequency |
| Tx | Transmitter |

## 5.4. Laboratory Environment

**Semi-anechoic chamber** did not exceed following limits along the EMC testing

| | |
|---|---|
| Temperature | Min. = 15 ˚C, Max. = 30 ˚C |
| Relative humidity | Min. = 35 %, Max. = 60 % |
| Shielding effectiveness | 0.014MHz - 1MHz, >60dB;<br>1MHz - 1000MHz, >90dB. |
| Electrical insulation | > 2 MΩ |
| Ground system resistance | < 4Ω |
| Normalised site attenuation (NSA) | < ±4dB, 3m/10m distance, from 30 to 1000 MHz |
| Uniformity of field strength | Between 0 and 6 dB, from 80 to 3000 MHz |

**Shielded room** did not exceed following limits along the EMC testing

| | |
|---|---|
| Temperature | Min. = 15 ˚C, Max. = 30 ˚C |
| Relative humidity | Min. = 35 %, Max. = 60 % |
| Shielding effectiveness | 0.014MHz - 1MHz, >60dB;<br>1MHz - 1000MHz, >90dB. |
| Electrical insulation | > 2 MΩ |
| Ground system resistance | < 4 Ω |

**Fully-anechoic chamber** did not exceed following limits along the EMC testing

| | |
|---|---|
| Temperature | Min. = 15 ˚C, Max. = 30 ˚C |
| Relative humidity | Min. = 35 %, Max. = 60 % |
| Shielding effectiveness | 0.014MHz - 1MHz, >60dB;<br>1MHz - 1000MHz, >90dB. |
| Electrical insulation | > 2 MΩ |
| Ground system resistance | < 4Ω |
| Voltage Standing Wave Ratio (VSWR) | ≤6dB, from 1 to 18 GHz,3m distance |

# 6. Test Facilities Utilized

### Conducted test system

| No. | Equipment | Model | Serial Number | Manufacturer | Calibration Due date | Calibration Period |
|---|---|---|---|---|---|---|
| 1 | Vector Signal Analyzer | FSV40 | 100903 | Rohde & Schwarz | 2019.01.17 | 1 year |
| 2 | Bluetooth Tester | CBT32 | 100584 | Rohde & Schwarz | 2019.01.03 | 1 year |
| 3 | Test Receiver | ESCI | 100702 | Rohde & Schwarz | 2018.06.25 | 1 year |
| 4 | LISN | ENV216 | 102067 | Rohde & Schwarz | 2018.07.19 | 1 year |

### Radiated emission test system

| No. | Equipment | Model | Serial Number | Manufacturer | Calibration Due date | Calibration Period |
|---|---|---|---|---|---|---|
| 1 | Chamber | FACT3-2.0 | 1285 | ETS-Lindgren | 2019.11.27 | 3 years |
| 2 | Test Receiver | ESR7 | 101676 | Rohde & Schwarz | 2018.11.29 | 1 year |
| 3 | Spectrum Analyser | FSV40 | 102192 | Rohde & Schwarz | 2018.05.22 | 1 year |
| 4 | BiLog Antenna | VULB9163 | 9163 329 | Schwarzbeck | 2020.02.27 | 3 years |
| 5 | Horn Antenna | 3117 | 00066577 | ETS-Lindgren | 2019.04.05 | 3 years |
| 6 | Loop Antenna | HLA6120 | 35779 | TESEQ | 2019.05.02 | 3 years |
| 7 | Horn Antenna | QSH-SL-1 8-26-S-20 | 17013 | Q-par | 2020.01.15 | 3 years |

### Test software

| No. | Equipment | Manufacturer | Version |
|---|---|---|---|
| 1 | TechMgr Software | CAICT | 2.1.1 |
| 2 | EMC32 | Rohde & Schwarz | 8.53.0 |
| 3 | EMC32 | Rohde & Schwarz | 10.01.00 |

EUT is engineering software provided by the customer to control the transmitting signal.
The EUT was programmed to be in continuously transmitting mode.

### Anechoic chamber

Fully anechoic chamber by ETS-Lindgren

## 7. Measurement Uncertainty

| Test Name | Uncertainty | |
|---|---|---|
| 1. RF Output Power - Conducted | ±1.32dB | |
| 2. Time of Occupancy - Conducted | ±0.58ms | |
| 3.Occupied channel bandwidth - Conducted | ±66Hz | |
| 4 Transmitter Spurious Emission - Conducted | 30MHz≤f≤1GHz | ±1.41dB |
| | 1GHz≤f≤7GHz | ±1.92dB |
| | 7GHz≤f≤13GHz | ±2.31dB |
| | 13GHz≤f≤26GHz | ±2.61dB |
| 5. Transmitter Spurious Emission - Radiated | 9kHz≤f≤30MHz | ±1.84dB |
| | 30MHz≤f≤1GHz | ±4.90dB |
| | 1GHz≤f≤18GHz | ±5.32dB |
| | 18GHz≤f≤40GHz | ±4.66dB |
| 6. AC Power line Conducted Emission | 150kHz≤f≤30MHz | ±2.72dB |

# ANNEX A: Detailed Test Results

## A.0 Antenna requirement

**Measurement Limit:**

| Standard | Requirement |
|---|---|
| FCC CRF Part 15.203 | An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded. |

**Conclusion: The Directional gains of antenna used for transmitting is -2.0dBi.**
**The RF transmitter uses an integrate antenna without connector.**

## A.1 Maximum Peak Output Power

**Method of Measurement: See ANSI C63.10-clause 7.8.5.**

Use the following spectrum analyzer settings:

a) Set Span = 6 MHz.

b) Set RBW = 3 MHz.

c) Set VBW = 3 MHz.

d) Sweep time = auto.

e) Detector = peak.

f) Trace = max hold.

g) Allow trace to stabilize.

h) Use the marker-to-peak function to set the marker to the peak of the emission.

I) The indicated level is the peak output power.

**Measurement Limit:**

| Standard | Limit (dBm) |
|---|---|
| FCC CRF Part 15.247(b)(1) & RSS-247 Section 5.4 | < 21 |

**Measurement Results:**

| Mode | Peak Conducted Output Power（dBm） | | |
|---|---|---|---|
| | 2402MHz (Ch0) | 2441MHz (Ch39) | 2480 MHz (Ch78) |
| GFSK | 10.45 | 10.20 | 10.09 |
| π/4 DQPSK | 11.40 | 10.92 | 10.99 |
| 8DPSK | 11.67 | 11.33 | 11.22 |

**See below for test graphs.**

**Conclusion: Pass**

## A.2 Band Edges Compliance

**Measurement Limit:**

| Standard | Limit (dBc) |
|---|---|
| FCC 47 CFR Part 15.247 (d) & RSS-247 Section 5.5 | > 20 |

**Measurement Result:**

| Mode | Channel | Hopping | Test Results | Conclusion |
|---|---|---|---|---|
| GFSK | 0 | ON | Fig.1 | **P** |
| | 78 | ON | Fig.2 | **P** |
| π /4 DQPSK | 0 | ON | Fig.3 | **P** |
| | 78 | ON | Fig.4 | **P** |
| 8DPSK | 0 | ON | Fig.5 | **P** |
| | 78 | ON | Fig.6 | **P** |

| Mode | Channel | Hopping | Test Results | Conclusion |
|---|---|---|---|---|
| GFSK | 0 | OFF | Fig.7 | **P** |
| | 78 | OFF | Fig.8 | **P** |
| π /4 DQPSK | 0 | OFF | Fig.9 | **P** |
| | 78 | OFF | Fig.10 | **P** |
| 8DPSK | 0 | OFF | Fig.11 | **P** |
| | 78 | OFF | Fig.12 | **P** |

**See below for test graphs.**

**Conclusion: Pass**

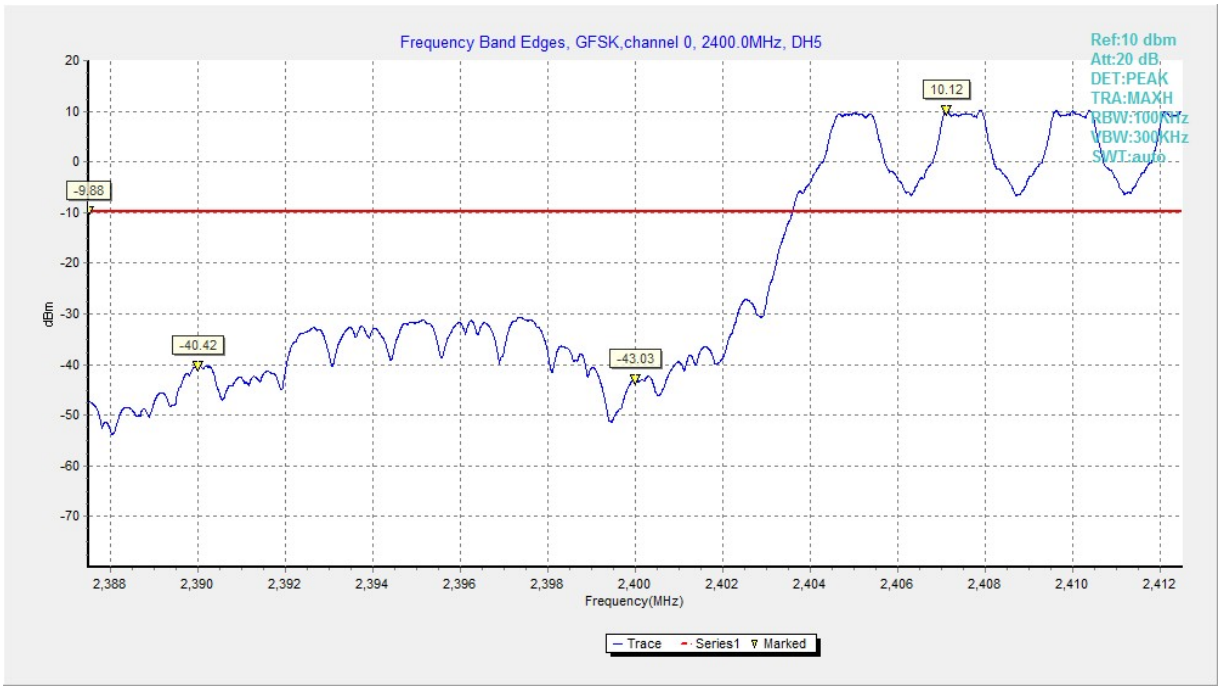



**Fig. 1 Band Edges (GFSK, Ch 0, Hopping ON)**

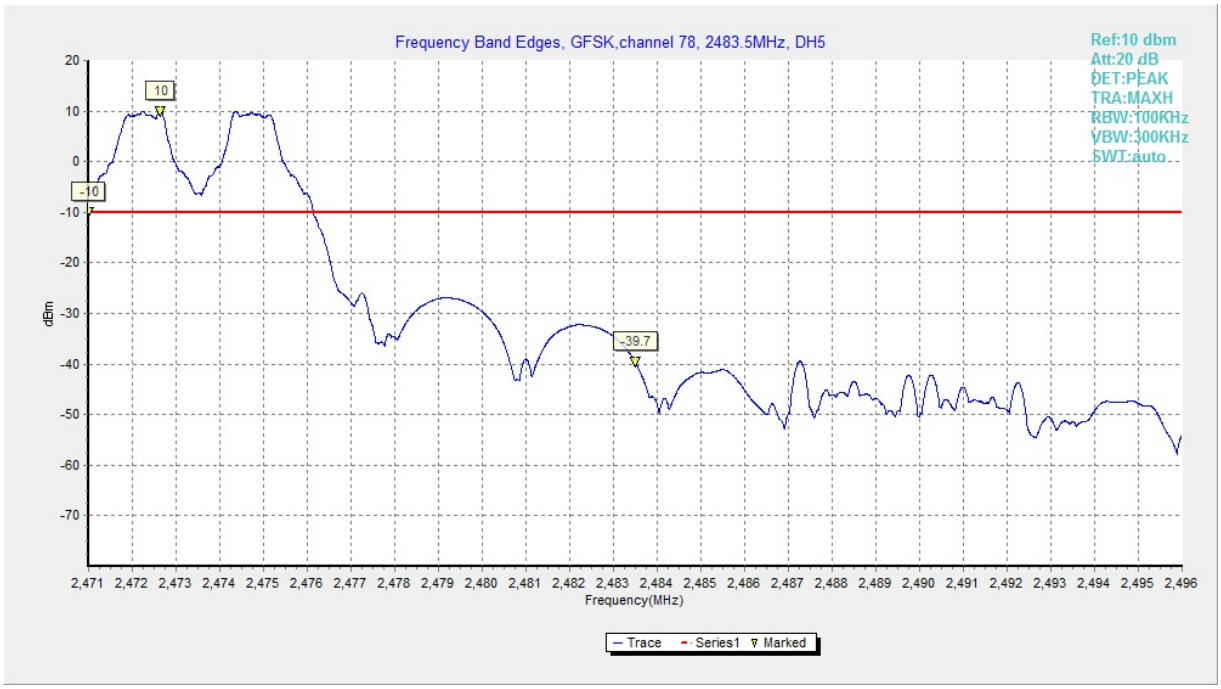



**Fig. 2 Band Edges (GFSK, Ch 78, Hopping ON)**

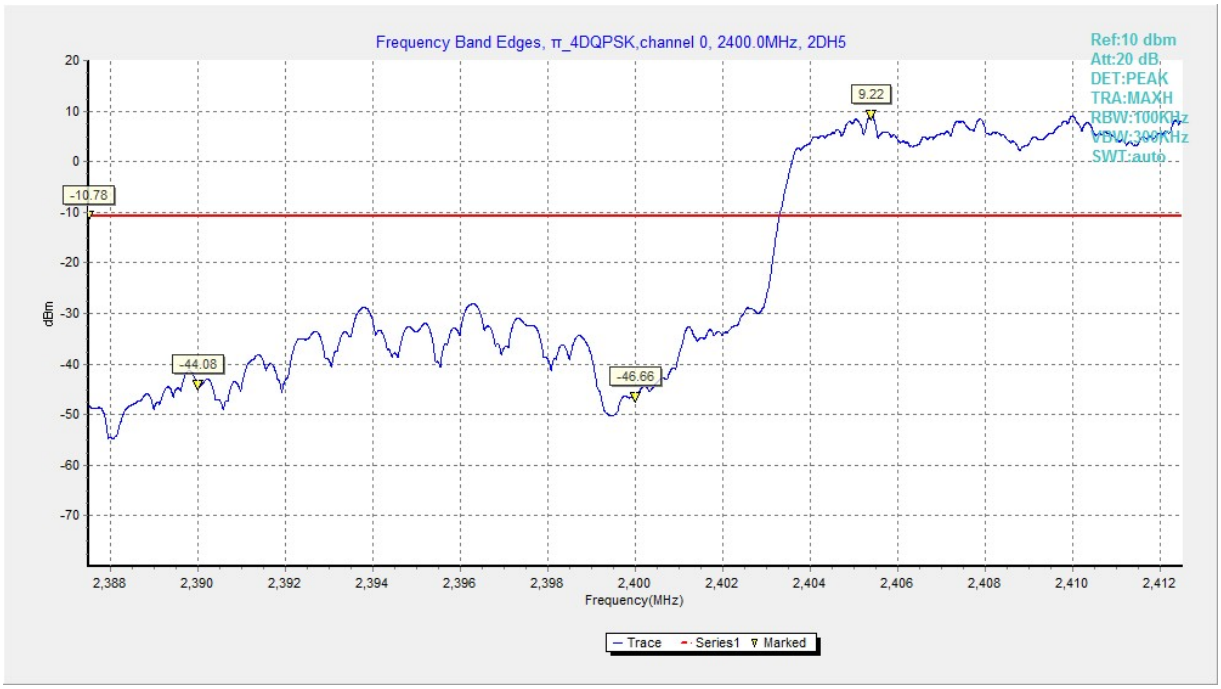



**Fig. 3 Band Edges ( π /4 DQPSK, Ch 0, Hopping ON)**

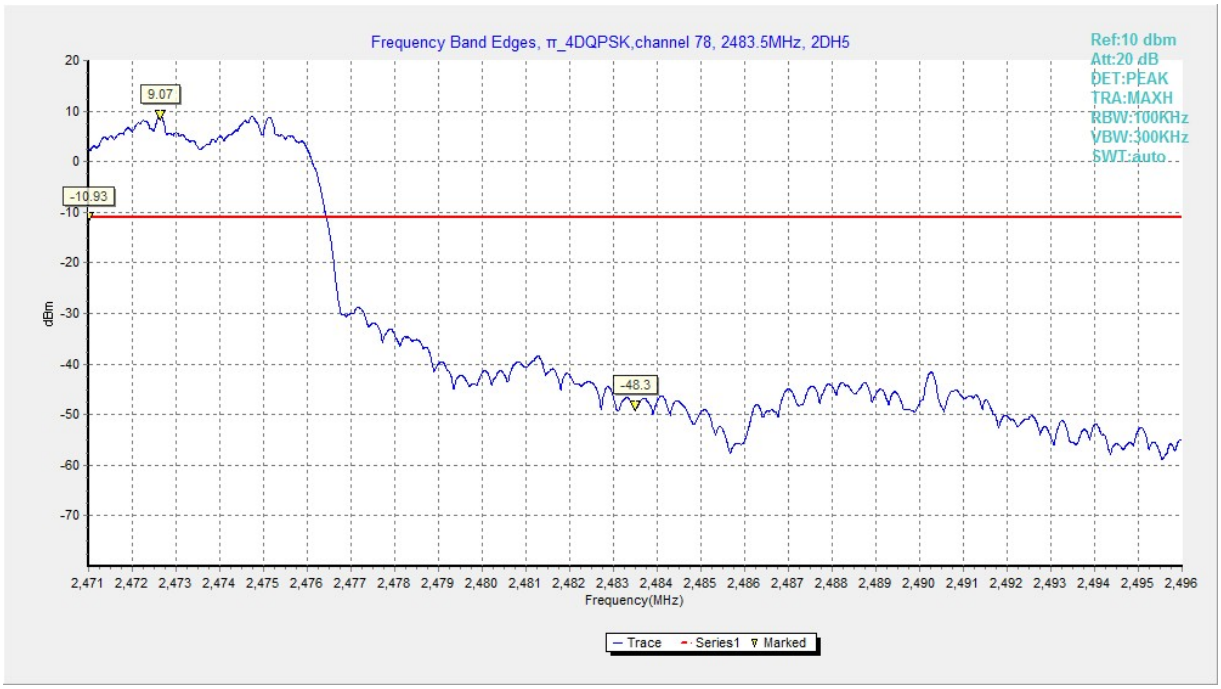



**Fig. 4 Band Edges ( π /4 DQPSK, Ch 78, Hopping ON)**

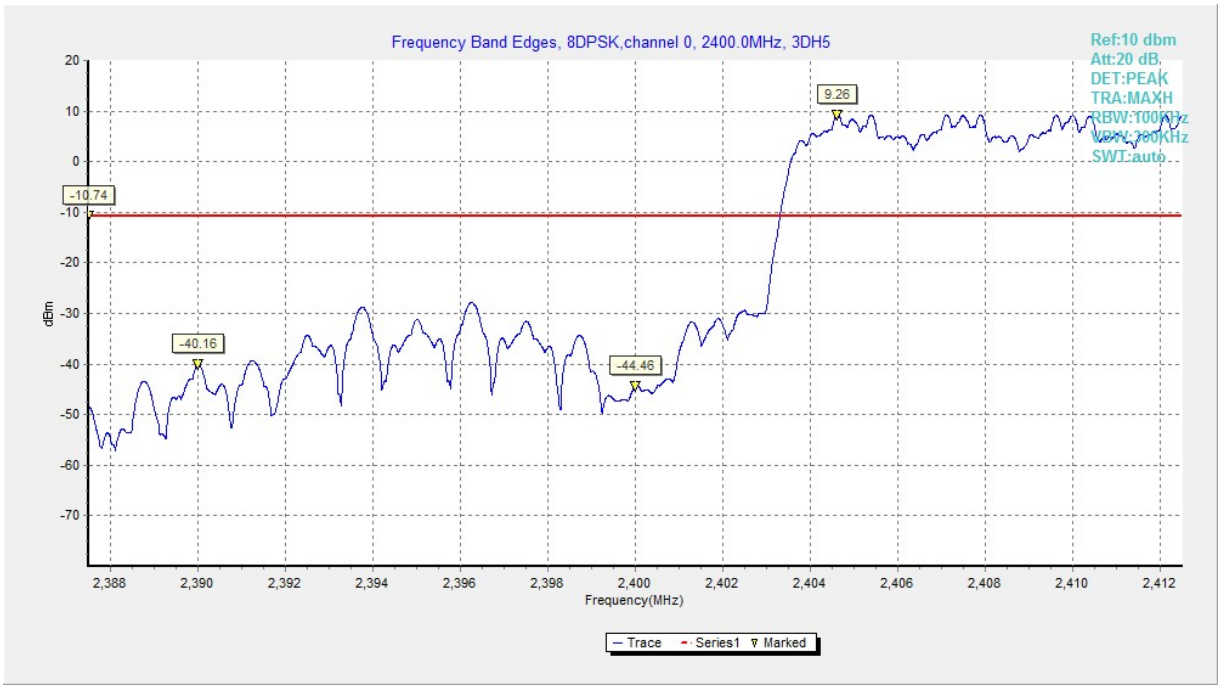



**Fig. 5 Band Edges (8DPSK, Ch 0, Hopping ON)**

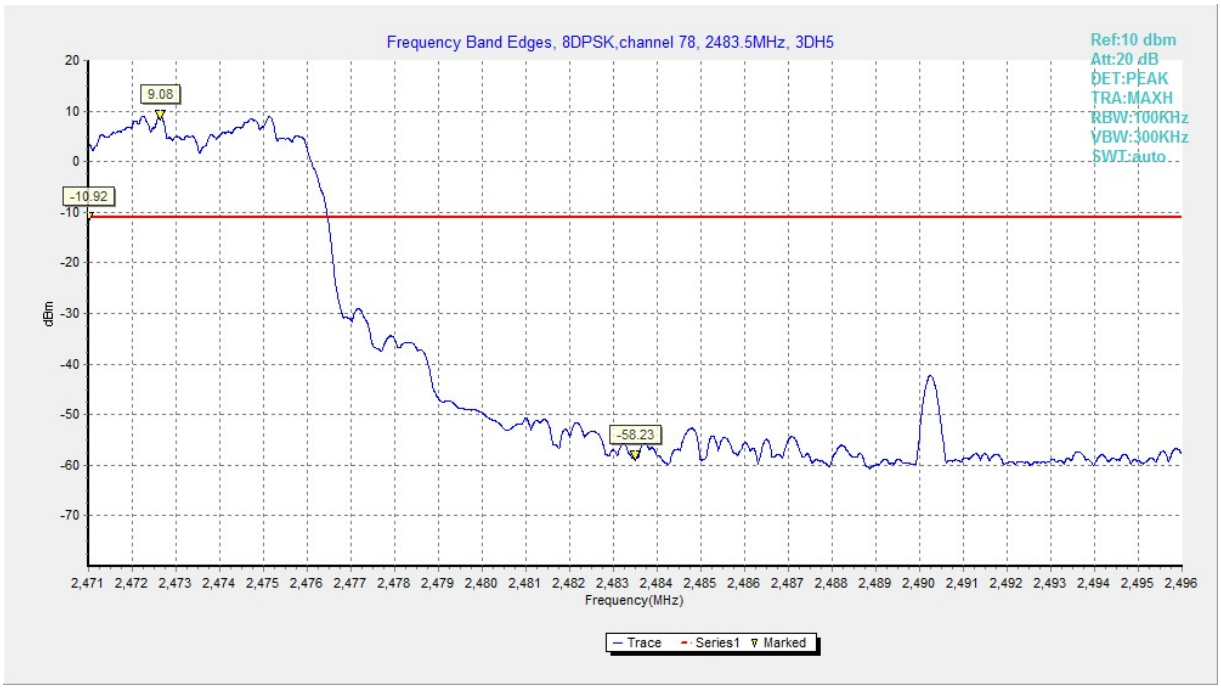



**Fig. 6 Band Edges (8DPSK, Ch 78, Hopping ON)**

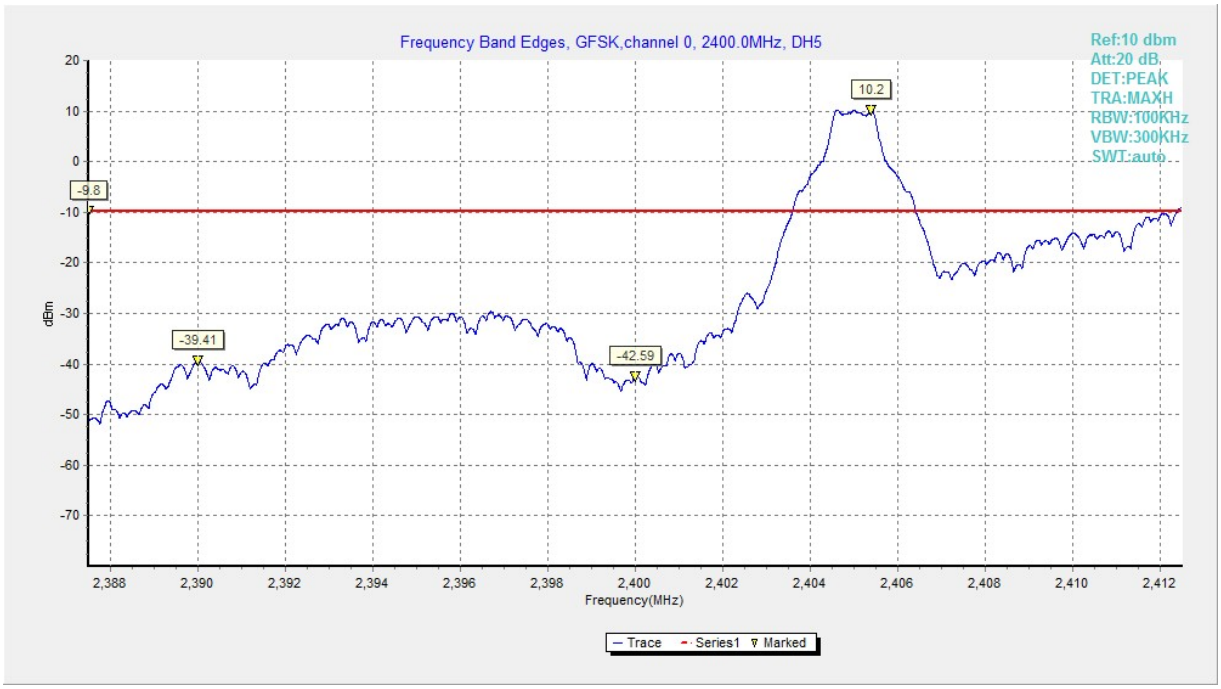



**Fig. 7 Band Edges (GFSK, Ch 0, Hopping OFF)**

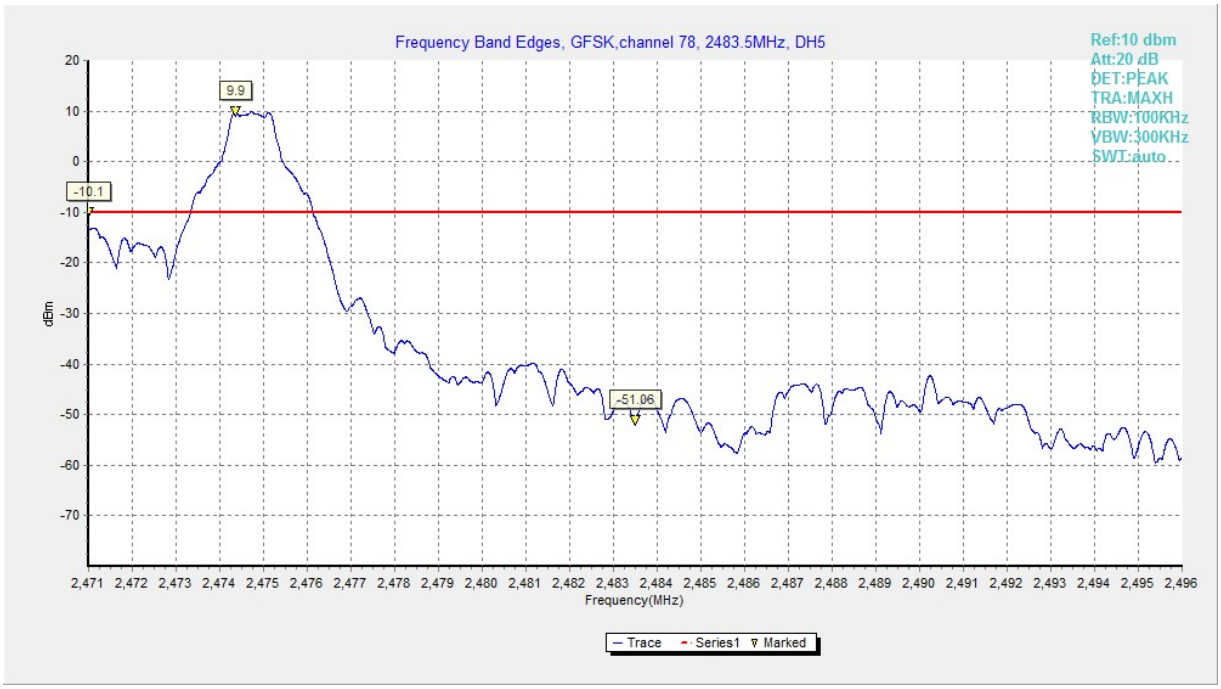



**Fig. 8 Band Edges (GFSK, Ch 78, Hopping OFF)**

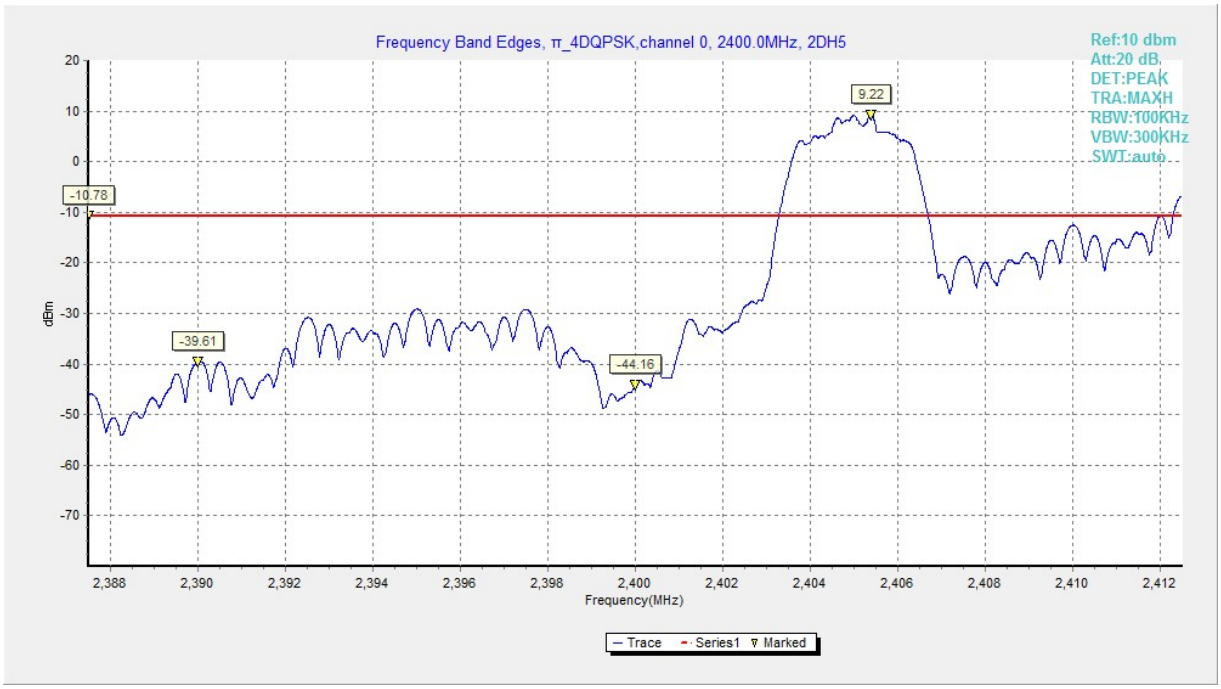



**Fig. 9 Band Edges ( π /4 DQPSK, Ch 0, Hopping OFF)**

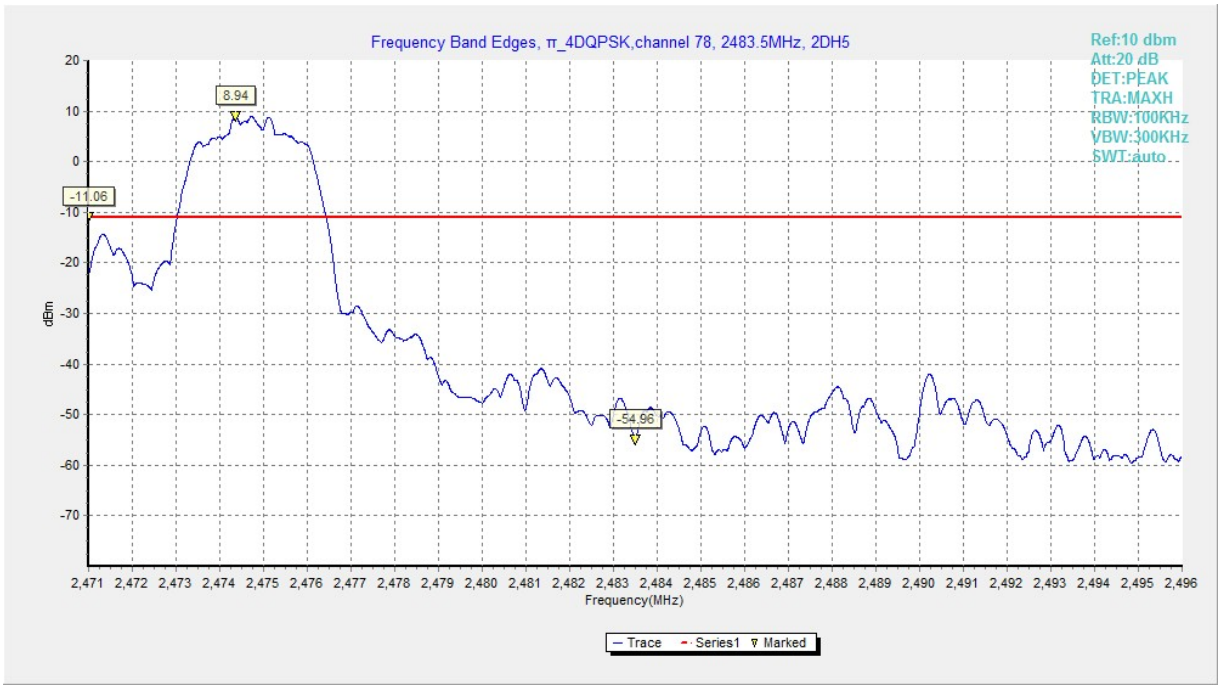



**Fig. 10 Band Edges ( π /4 DQPSK, Ch 78, Hopping OFF)**

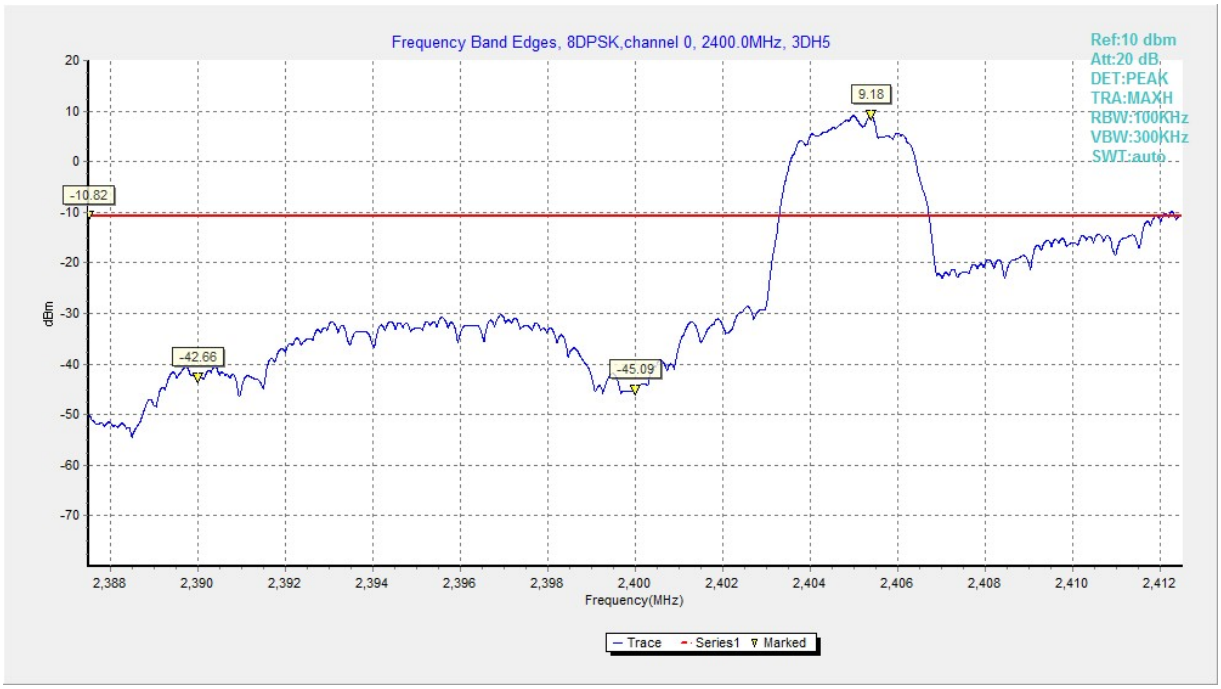



**Fig. 11 Band Edges (8DPSK, Ch 0, Hopping OFF)**

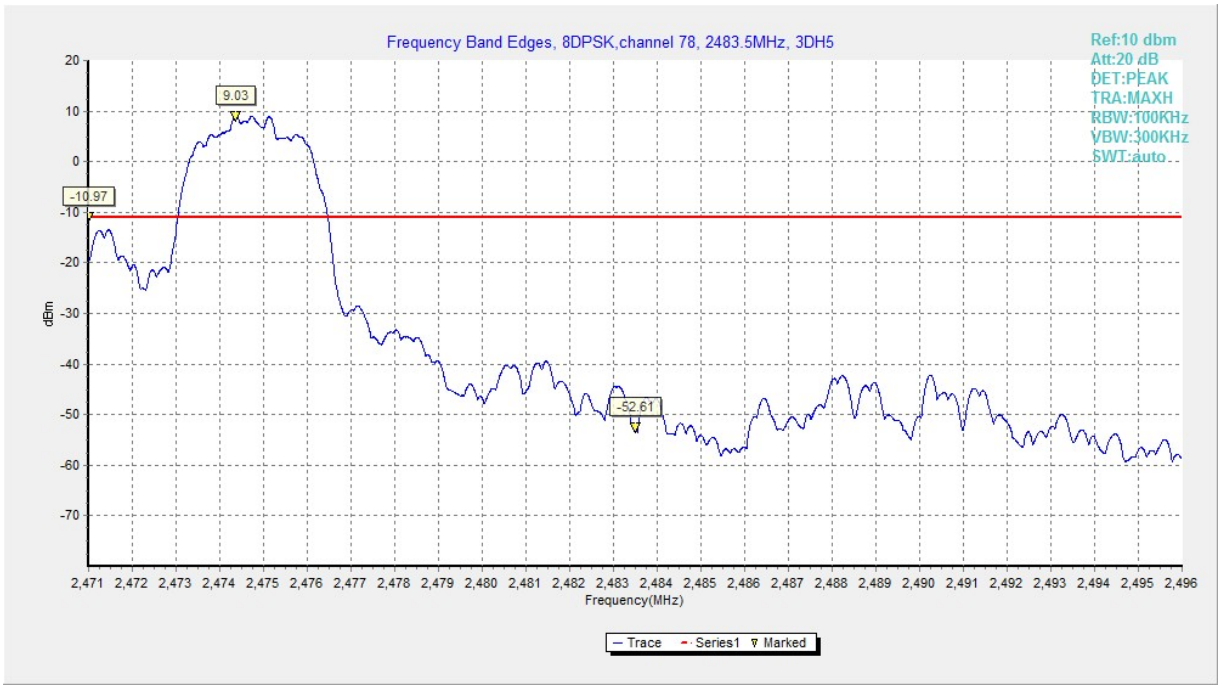



**Fig. 12 Band Edges (8DPSK, Ch 78, Hopping OFF)**

## A.3 Conducted Emission

**Measurement Limit:**

| Standard | Limit |
|---|---|
| FCC 47 CFR Part 15.247 (d) & RSS-247 Section 5.5 | 20dB below peak output power in 100 kHz bandwidth |

**Measurement Results:**

| MODE | Channel | Frequency Range | Test Results | Conclusion |
|---|---|---|---|---|
| GFSK | 0 | 1GHz-3GHz | Fig.13 | **P** |
| | | 3GHz-10GHz | Fig.14 | **P** |
| | 39 | 1GHz-3GHz | Fig.15 | **P** |
| | | 3GHz-10GHz | Fig.16 | **P** |
| | 78 | 1GHz-3GHz | Fig.17 | **P** |
| | | 3GHz-10GHz | Fig.18 | **P** |
| π/4 DQPSK | 0 | 1GHz-3GHz | Fig.19 | **P** |
| | | 3GHz-10GHz | Fig.20 | **P** |
| | 39 | 1GHz-3Ghz | Fig.21 | **P** |
| | | 3GHz-10GHz | Fig.22 | **P** |
| | 78 | 1GHz-3Ghz | Fig.23 | **P** |
| | | 3GHz-10GHz | Fig.24 | **P** |
| 8DPSK | 0 | 1GHz-3GHz | Fig.25 | **P** |
| | | 3GHz-10GHz | Fig.26 | **P** |
| | 39 | 1GHz-3GHz | Fig.27 | **P** |
| | | 3GHz-10GHz | Fig.28 | **P** |
| | 78 | 1GHz-3GHz | Fig.29 | **P** |
| | | 3GHz-10GHz | Fig.30 | **P** |
| / | All channels | 30 MHz-1GHz | Fig.31 | **P** |
| | | 10GHz-26GHz | Fig.32 | **P** |

**See below for test graphs.**

**Conclusion: Pass**

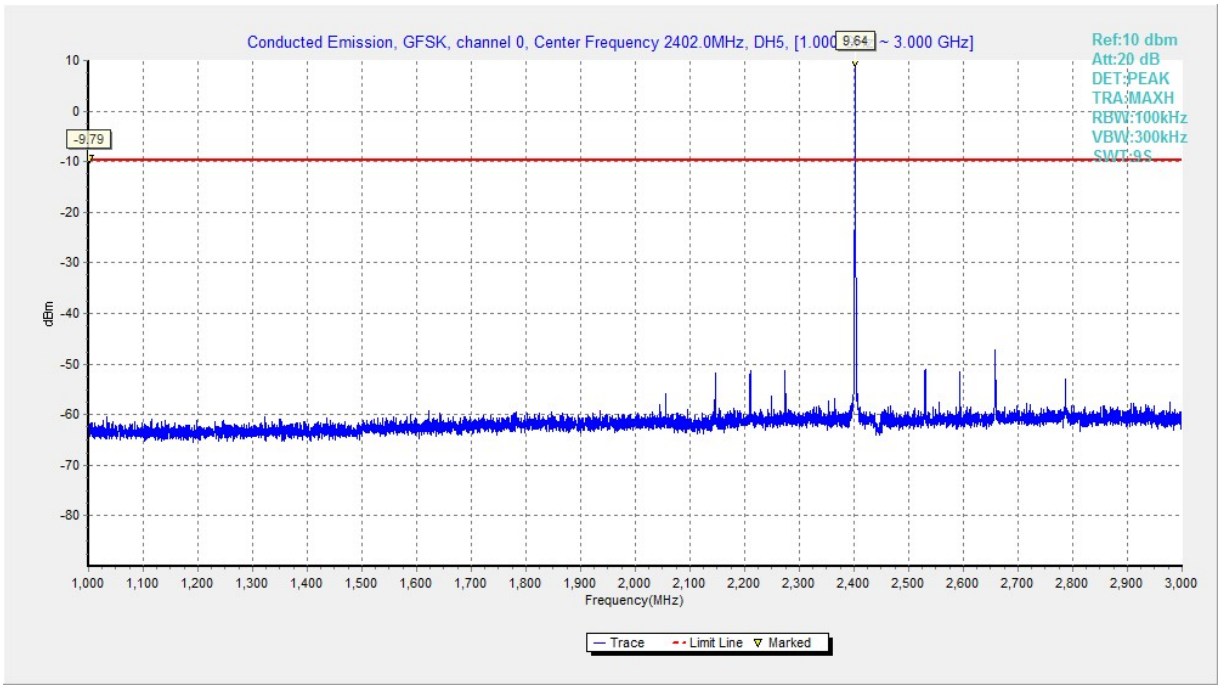



**Fig. 13 Conducted Spurious Emission (GFSK, Ch0, 1 GHz-3 GHz)**

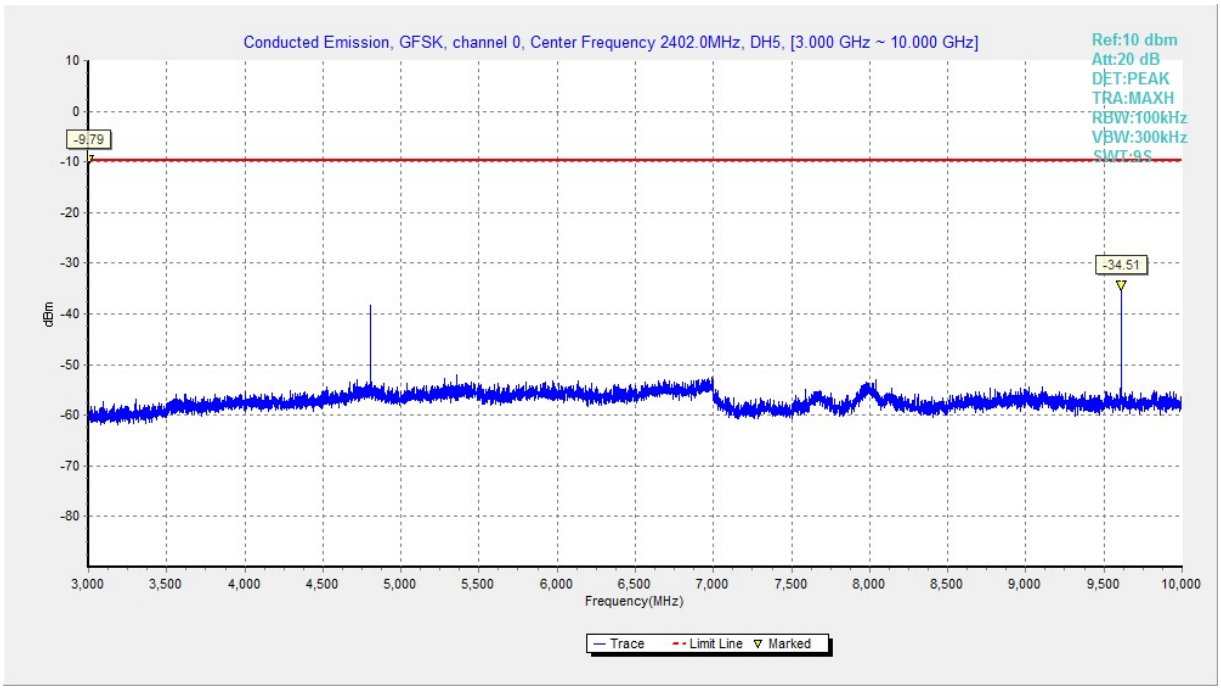



**Fig. 14 Conducted Spurious Emission (GFSK, Ch0, 3GHz-10 GHz)**

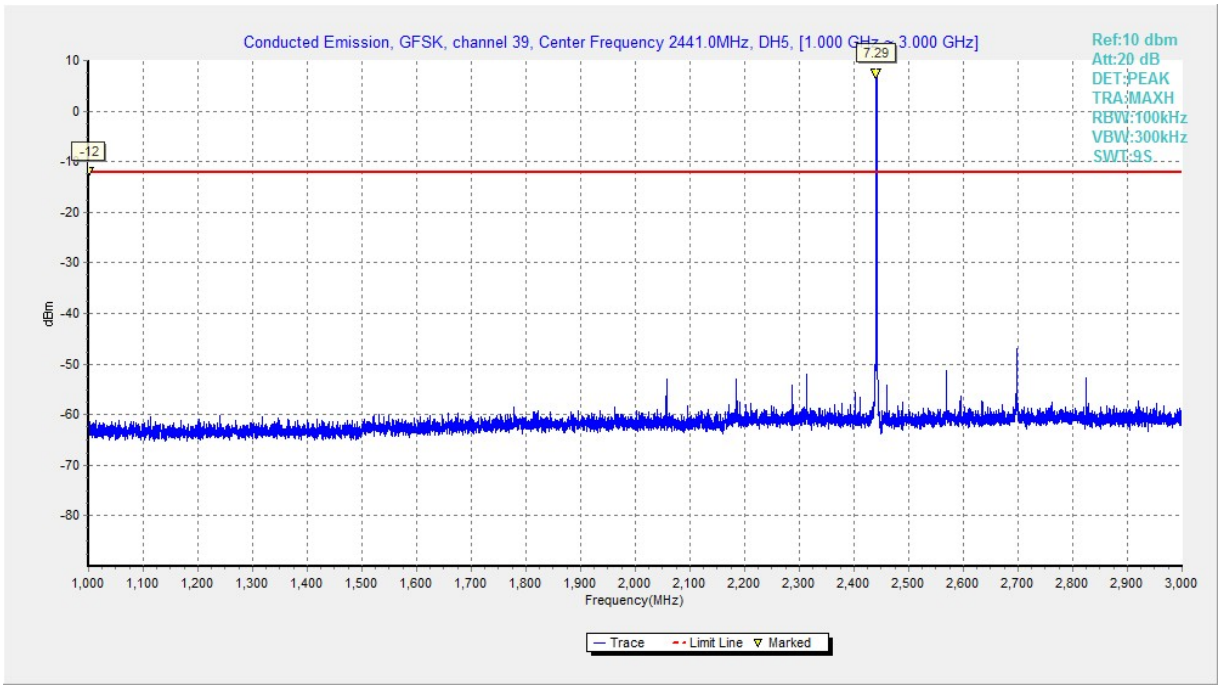



**Fig. 15 Conducted Spurious Emission (GFSK, Ch39, 1GHz-3 GHz)**

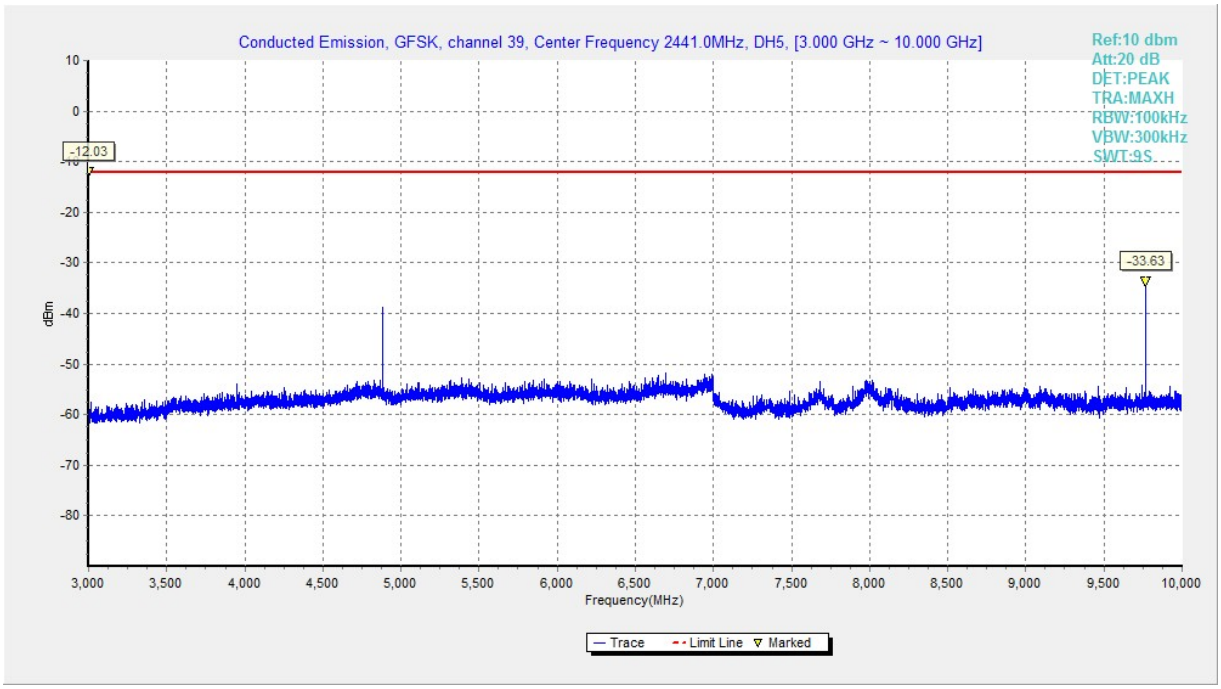



**Fig. 16 Conducted Spurious Emission (GFSK, Ch39, 3GHz-10 GHz)**

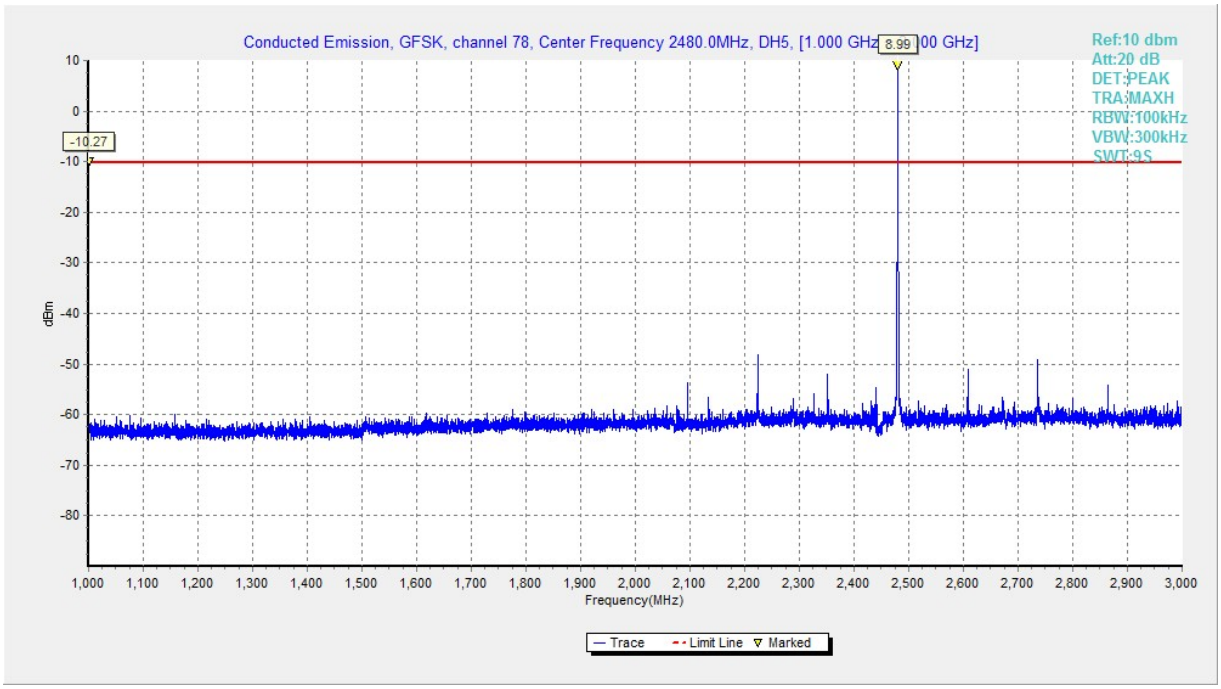



**Fig. 17 Conducted Spurious Emission (GFSK, Ch78, 1GHz-3 GHz)**

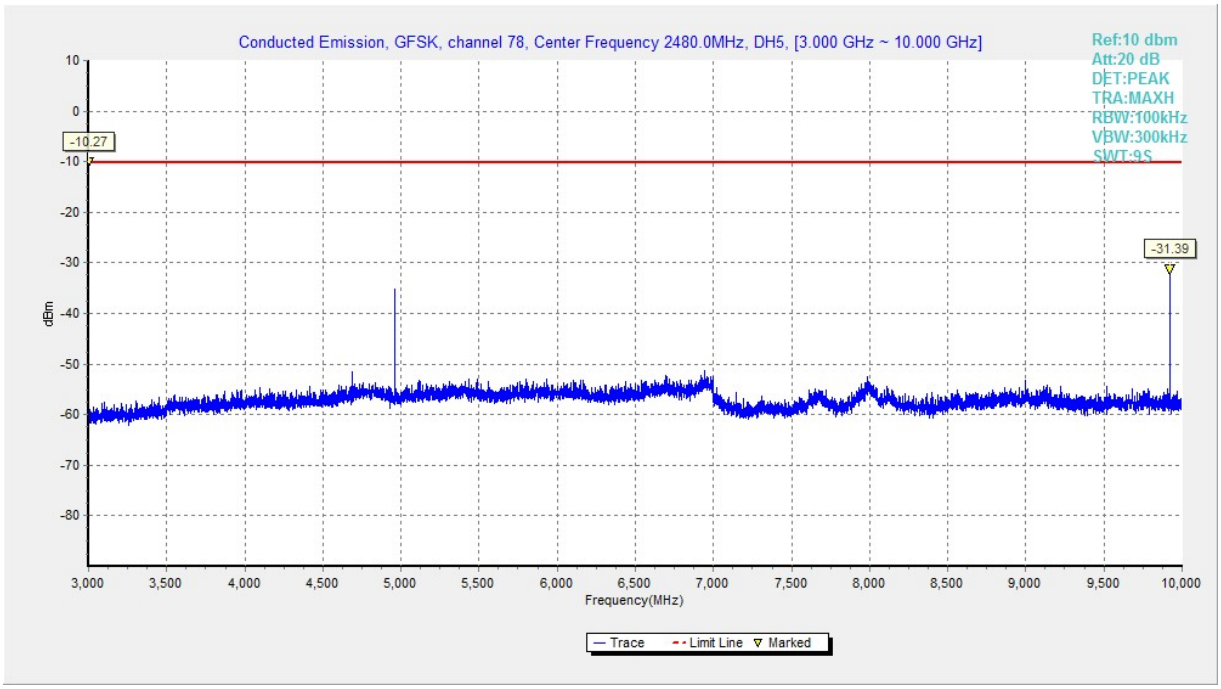



**Fig. 18 Conducted Spurious Emission (GFSK, Ch78, 3GHz-10 GHz)**

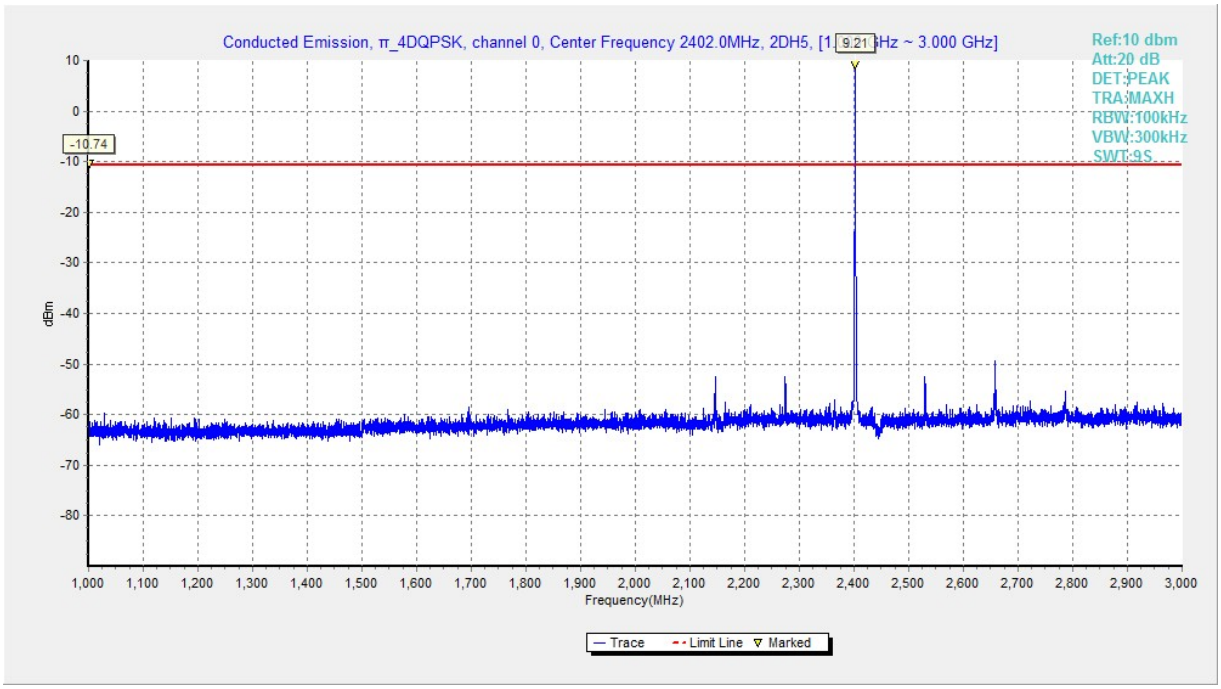



**Fig. 19 Conducted Spurious Emission (π/4 DQPSK, Ch0, 1GHz-3 GHz)**

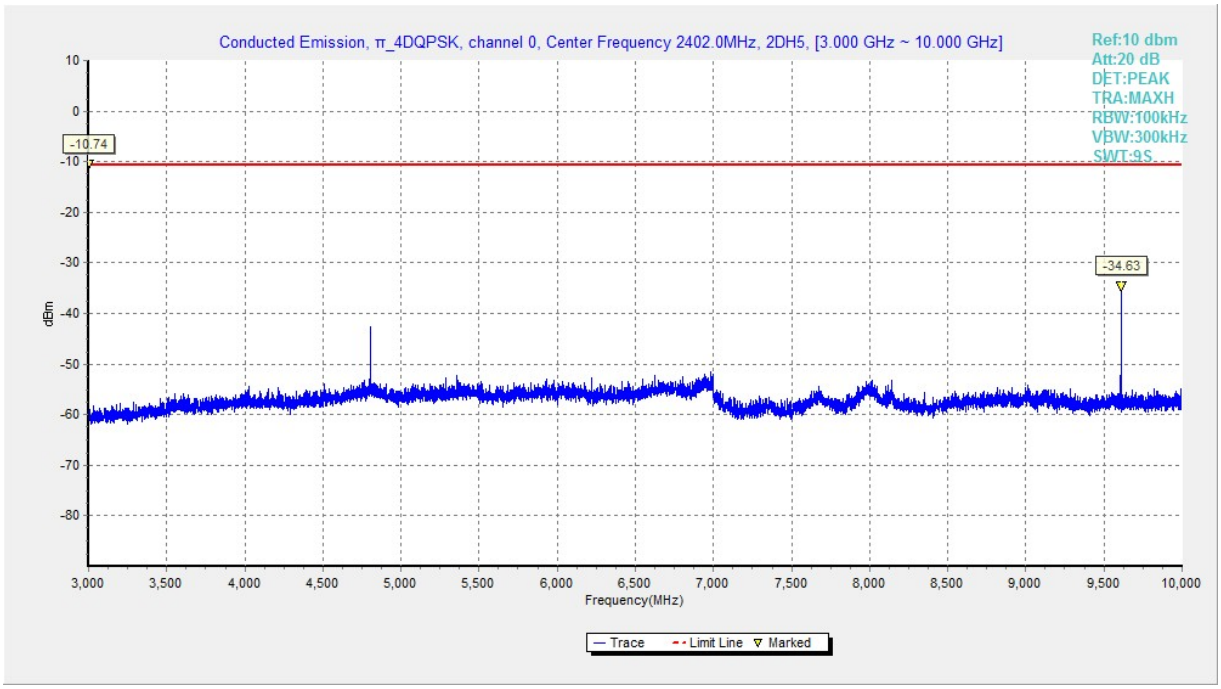



**Fig. 20 Conducted Spurious Emission (π/4 DQPSK, Ch0, 3GHz-10 GHz)**

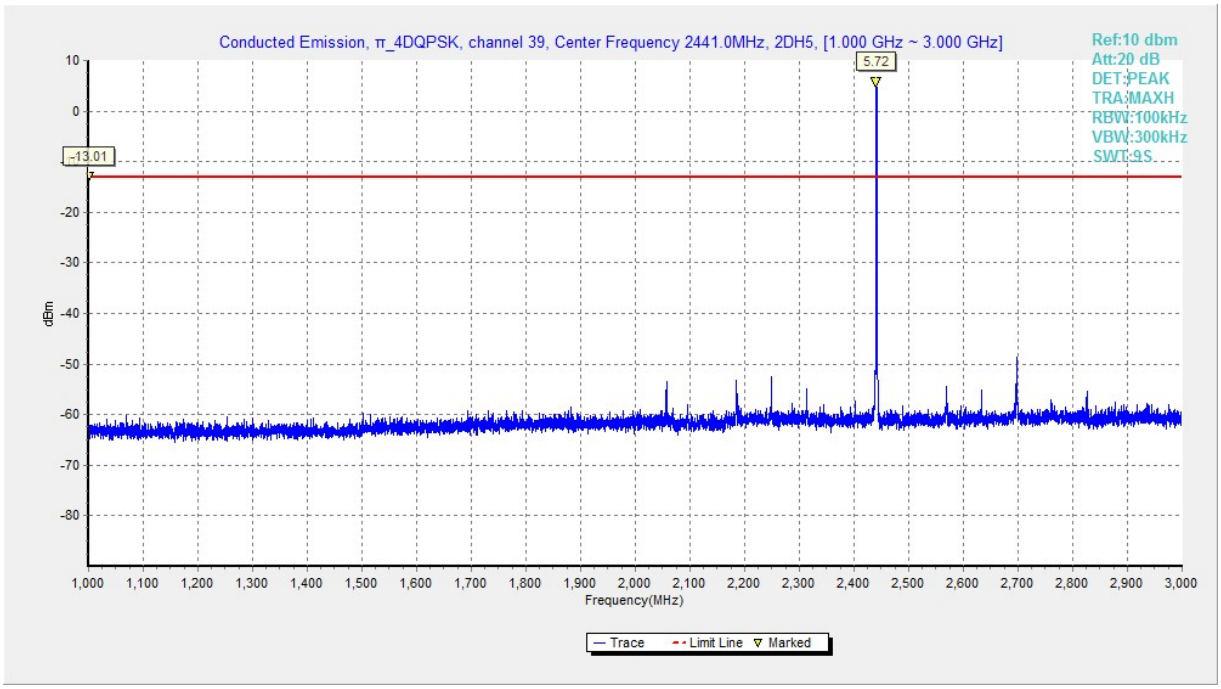



**Fig. 21 Conducted Spurious Emission ( π /4 DQPSK, Ch39, 1GHz-3 GHz)**

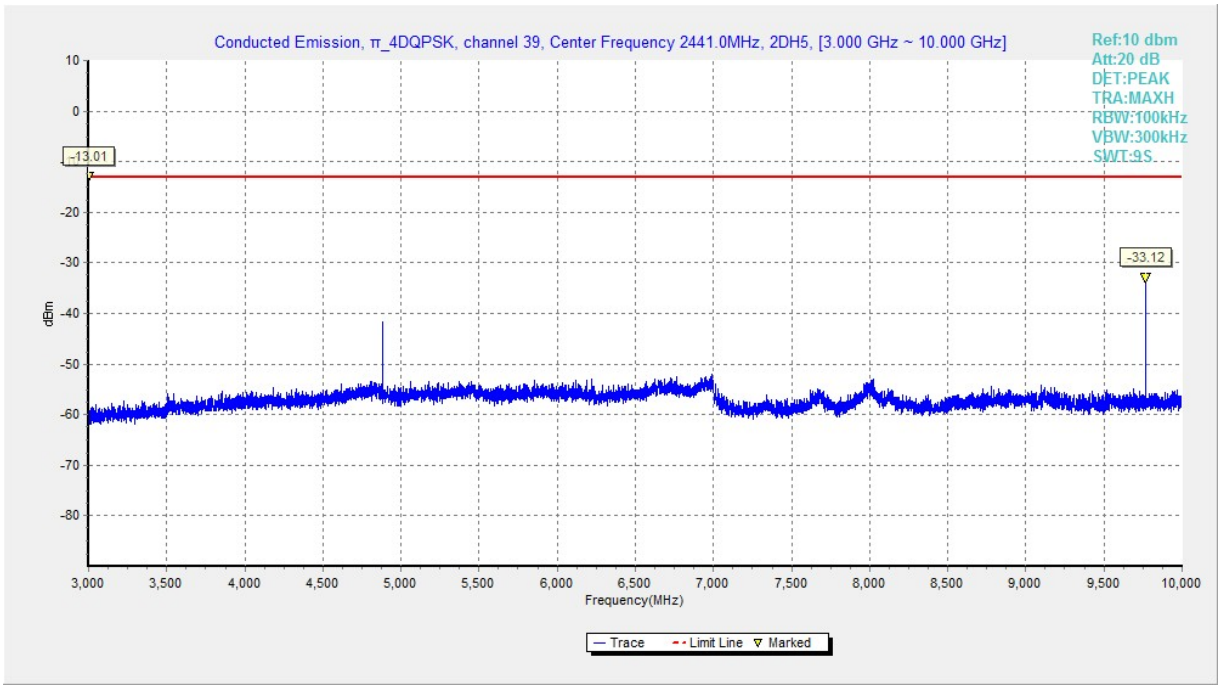



**Fig. 22 Conducted Spurious Emission ( π /4 DQPSK, Ch39, 3GHz-10 GHz)**

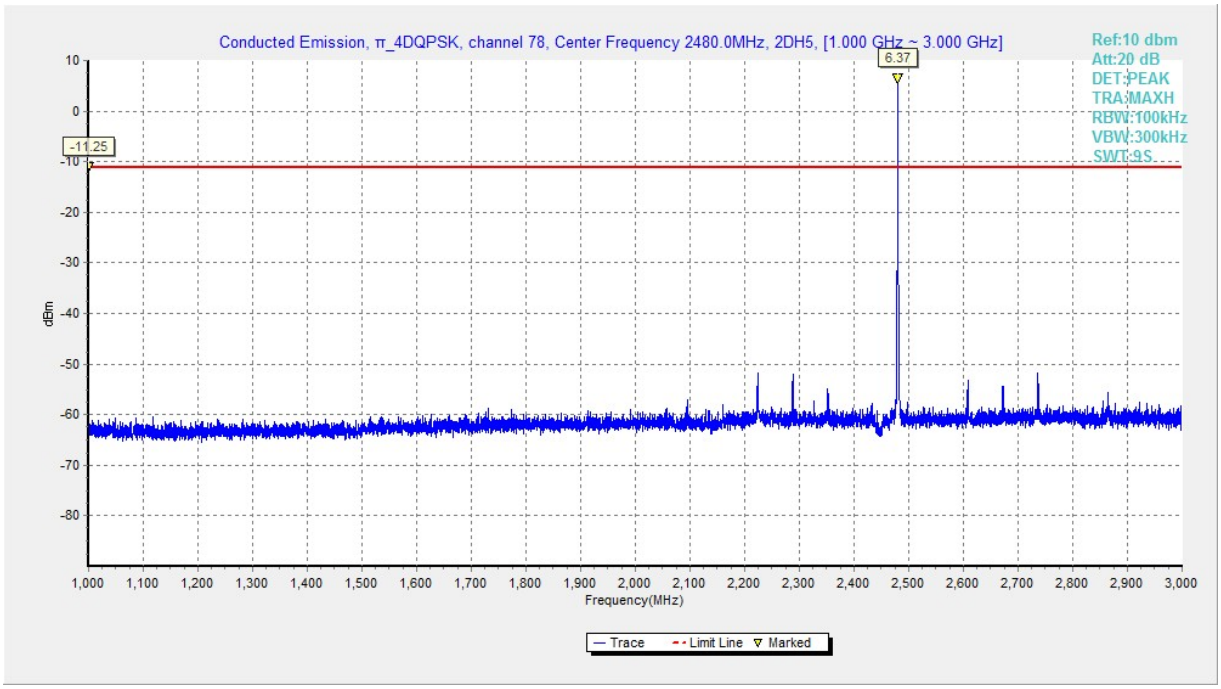



**Fig. 23 Conducted Spurious Emission ( π /4 DQPSK, Ch78, 1GHz-3 GHz)**

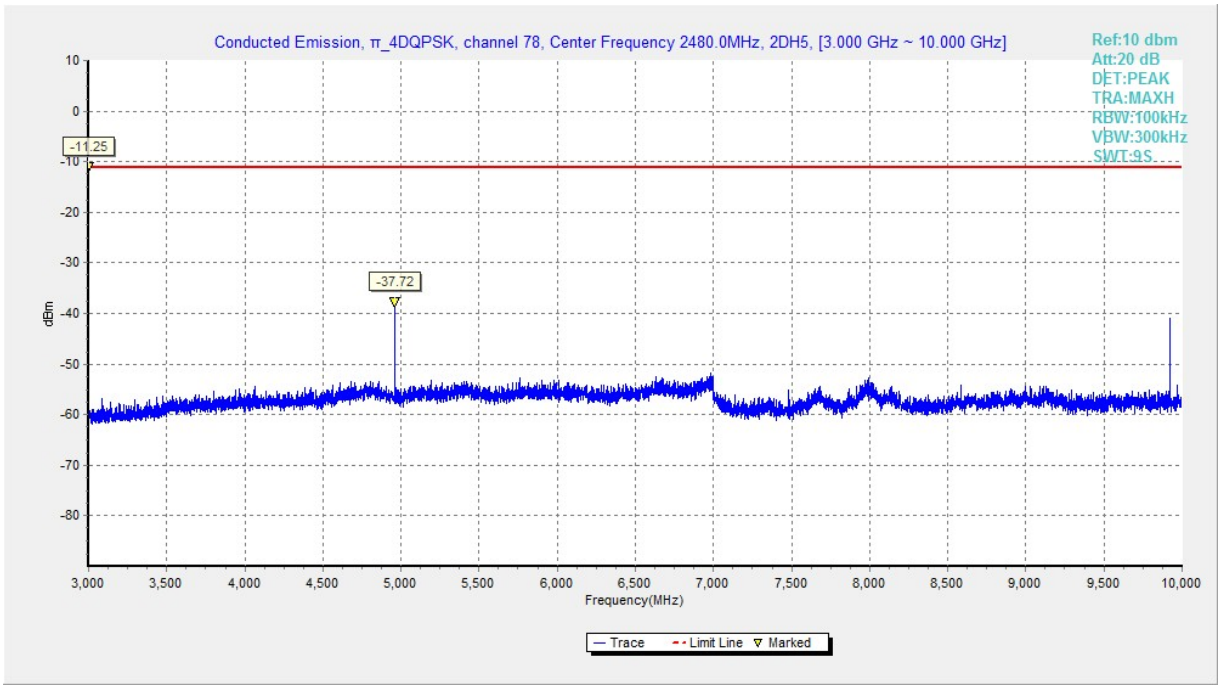



**Fig. 24 Conducted Spurious Emission ( π /4 DQPSK, Ch78, 3GHz-10 GHz)**

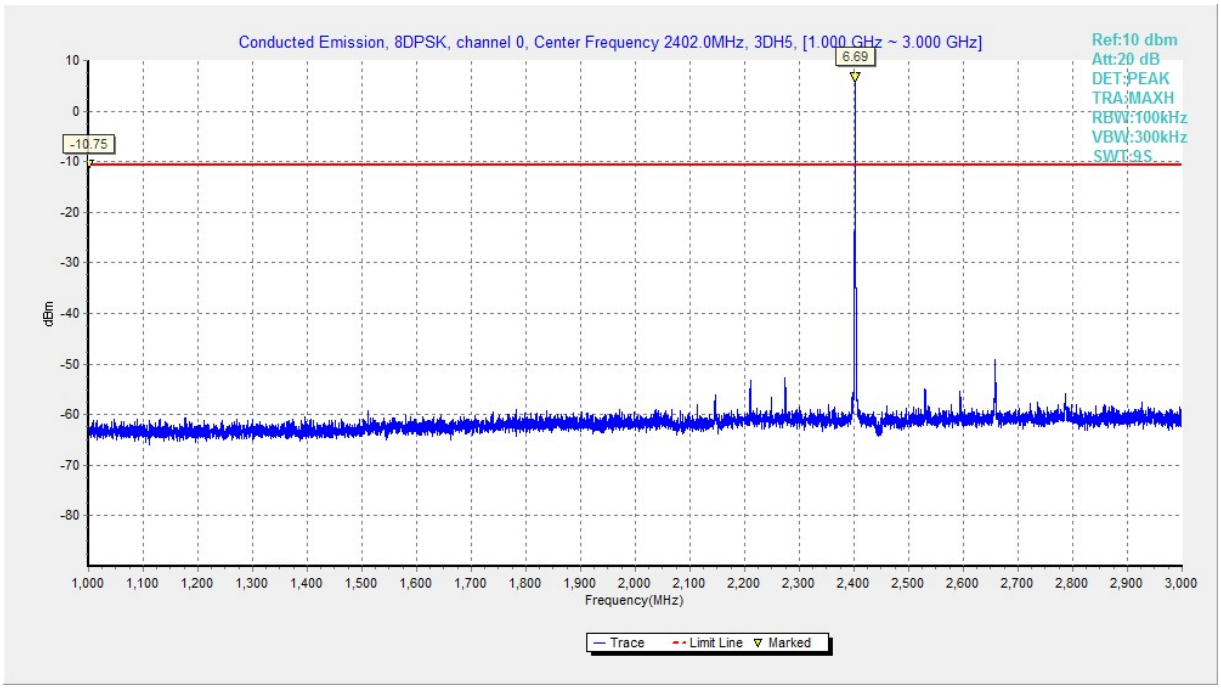



**Fig. 25 Conducted Spurious Emission (8DPSK, Ch0, 1GHz-3 GHz)**

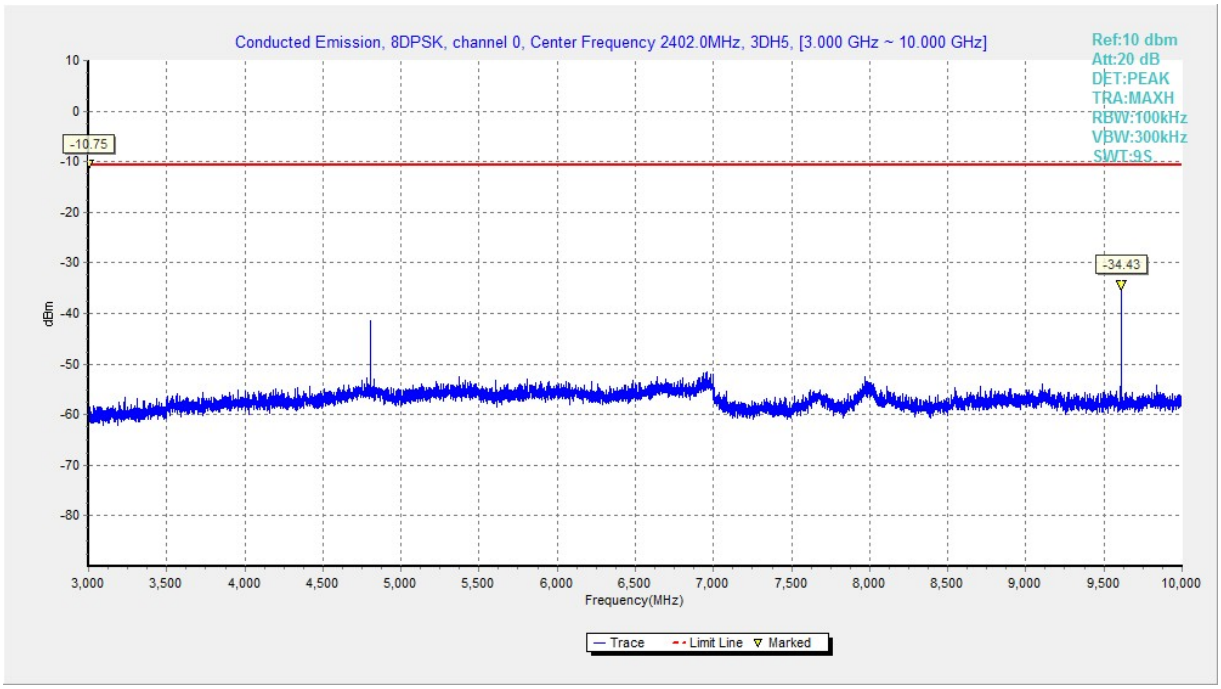



**Fig. 26 Conducted Spurious Emission (8DPSK, Ch0, 3GHz-10 GHz)**