



# FCC PART 15C TEST REPORT

No. I14Z47405-SRD02

for

**Sony Mobile Communications Inc.**

**Bluetooth Wristband**

**FCC ID: PY7-RD0140**

with

**Hardware Version: AP2**

**Software Version: 1.0.0.216.tar.gz**

**Issued Date: 2014-08-25**



*DAR accreditation (DIN EN ISO/IEC 17025): No. D-PL-12123-01-01*

*FCC 2.948 Listed: No.733176*

*IC O.A.T.S listed: No.6629A-1*

**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 TMC Beijing.

**Test Laboratory:**

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## 1. Test Laboratory

### 1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT  
Address: No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China  
Postal Code: 100191  
Telephone: +86-10-62304633-2054  
Fax: +86-10-62304633-2504

### 1.2. Testing Environment

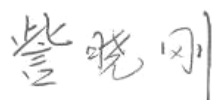
Normal Temperature: 15-35 °C  
Extreme Temperature: -20/+55 °C  
Relative Humidity: 30-60%  
Air Pressure 990hPa-1040hPa

Note: The climatic requirements above are general exclude the special requirements for dedicated test environments listed in section 5 and some specific test cases in other parts of this report.

### 1.3. Project data

Project Leader: Zi Xiaogang  
Testing Start Date: 2014-08-05  
Testing End Date: 2014-08-21

### 1.4. Signature



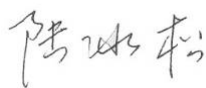
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**Zi Xiaogang**  
**(Prepared this test report)**



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**Sun Xiangqian**  
**(Reviewed this test report)**



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**Lu Bingsong**  
**Deputy Director of the laboratory**  
**(Approved this test report)**

## **2. Client Information**

### **2.1. Applicant Information**

Company Name: Sony Mobile Communications (China) Co. Ltd  
Address /Post: Sony Mobile R&D Center, No. 16, Guangshun South Street,  
Chaoyang District  
City: Beijing  
Postal Code: 100102  
Country: China  
Contact Person: Ma, Gang  
Telephone: +86-10-58656312  
Fax: +86-10-58659049

### **2.2. Manufacturer Information**

Company Name: Sony Mobile Communications Inc.  
Address /Post: 1-8-15 Konan, Minato-ku, Tokyo, 108-0075, Japan  
City: Tokyo  
Postal Code: 108-0075  
Country: Japan

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

#### **3.1. About EUT**

|                    |                                      |
|--------------------|--------------------------------------|
| Description        | Bluetooth Wristband                  |
| FCC ID             | PY7-RD0140                           |
| Frequency Range    | ISM 2400MHz~2483.5MHz                |
| Type of Modulation | GFSK/ $\pi/4$ DQPSK                  |
| Number of Channels | 79                                   |
| Antenna            | Integrated Antenna                   |
| Power Supply       | Battery ( charged by travel adapter) |

#### **3.2. Internal Identification of EUT used during the test**

| EUT ID* | HW Version | SW Version       |
|---------|------------|------------------|
| EUT1    | AP2        | 1.0.0.216.tar.gz |
| EUT2    | AP2        | 1.0.0.216.tar.gz |

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

#### **3.3. Internal Identification of AE used during the test**

| AE ID* | Description    | SN              | Revision |
|--------|----------------|-----------------|----------|
| AE1    | Travel Charger | 3412W48 503247  | 1        |
| #24287 | USB Cable      | 13230D76039863A | 3        |

AE1

|                 |                             |
|-----------------|-----------------------------|
| Commercial name | EP880                       |
| Type            | AC-0400-EU                  |
| Manufacturer    | SALCOMP                     |
| Length of cable | 15 cm (length of USB cable) |

#24287

|                 |             |
|-----------------|-------------|
| Commercial name | EC300       |
| Type            | AI-1000     |
| Manufacturer    | Sony Mobile |
| Length of cable | 15 cm       |

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

#### **3.4. General Description**

Fully charged battery was used during the test

#### **3.5. General Description**

The Equipment Under Test (EUT) is a model of Bluetooth Wristband with integrated antenna and embedded battery.

It has Bluetooth (EDR) and NFC (as tag) functions. For Bluetooth, the 8DPSK modulation theme is not supported.

It includes normal options: travel charger and 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.

|             |                                                                                      |         |
|-------------|--------------------------------------------------------------------------------------|---------|
|             | FCC CFR 47, Part 15, Subpart C:                                                      |         |
|             | 15.205 Restricted bands of operation;                                                | 10–1–13 |
| FCC Part15  | 15.209 Radiated emission limits, general requirements;                               | Edition |
|             | 15.247 Operation within the bands 902–928MHz,<br>2400–2483.5 MHz, and 5725–5850 MHz. |         |
| FCC Part 2  | Frequency Allocations and Radio Treaty Matters;                                      | 10–1–13 |
|             | General Rules and Regulations                                                        | Edition |
| ANSI C63.10 | American National Standard for Testing Unlicensed<br>Wireless Devices                | 2009    |

## 5. LABORATORY ENVIRONMENT

**Semi-anechoic chamber** (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

|                                   |                                               |
|-----------------------------------|-----------------------------------------------|
| Temperature                       | Min. = 15 °C, Max. = 30 °C                    |
| Relative humidity                 | Min. = 30 %, Max. = 60 %                      |
| Shielding effectiveness           | > 110 dB                                      |
| Electrical insulation             | > 2 MΩ                                        |
| Ground system resistance          | < 0.5 Ω                                       |
| Normalised site attenuation (NSA) | < ±3.2 dB, 10 m distance, from 30 to 1000 MHz |
| Uniformity of field strength      | Between 0 and 6 dB, from 80 to 2000 MHz       |

**Control room/ conducted chamber** did not exceed following limits along the EMC testing:

|                          |                            |
|--------------------------|----------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C |
| Relative humidity        | Min. =20 %, Max. = 80 %    |
| Shielding effectiveness  | > 110 dB                   |
| Electrical insulation    | > 2 MΩ                     |
| Ground system resistance | < 0.5 Ω                    |

**Fully-anechoic chamber1** (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

|                              |                                         |
|------------------------------|-----------------------------------------|
| Temperature                  | Min. = 15 °C, Max. = 30 °C              |
| Relative humidity            | Min. = 35 %, Max. = 60 %                |
| Shielding effectiveness      | > 110 dB                                |
| Electrical insulation        | > 2 MΩ                                  |
| Ground system resistance     | < 0.5 Ω                                 |
| Uniformity of field strength | Between 0 and 6 dB, from 80 to 3000 MHz |

**Fully-anechoic chamber2** (8.6 meters×6.1 meters×3.85 meters) did not exceed following limits along the EMC testing:

|                              |                                         |
|------------------------------|-----------------------------------------|
| Temperature                  | Min. = 15 °C, Max. = 30 °C              |
| Relative humidity            | Min. = 35 %, Max. = 60 %                |
| Shielding effectiveness      | > 110 dB                                |
| Electrical insulation        | > 2 MΩ                                  |
| Ground system resistance     | < 1 Ω                                   |
| Uniformity of field strength | Between 0 and 6 dB, from 80 to 4000 MHz |

**Fully-anechoic chamber3** (10 meters×6.7 meters×6.15 meters) did not exceed following limits along the EMC testing:

|                                                 |                                        |
|-------------------------------------------------|----------------------------------------|
| Temperature                                     | Min. = 15 °C, Max. = 30 °C             |
| Relative humidity                               | Min. = 35 %, Max. = 60 %               |
| Shielding effectiveness                         | > 100 dB                               |
| Electrical insulation                           | > 2 MΩ                                 |
| Ground system resistance                        | < 0.5 Ω                                |
| Site voltage standing-wave ratio ( $S_{VSWR}$ ) | Between 0 and 6 dB, from 1GHz to 18GHz |

**Additional Humidity Requirements for Electrostatic Discharge Test:** Min. = 30%, Max. = 60%.

## 6. SUMMARY OF TEST RESULTS

### 6.1. Summary of Test Results

| SUMMARY OF MEASUREMENT RESULTS  | Modulation    | Sub-clause of Part15C          | Verdict |
|---------------------------------|---------------|--------------------------------|---------|
| Peak Output Power (Conducted)   | GFSK/         | 15.247 (b)(1)                  | P       |
|                                 | $\pi/4$ DQPSK |                                | P       |
| Peak Output Power(Radiated)     | GFSK          | 15.247 (b)(1)                  | P       |
| Antenna Gain                    | GFSK/         | None                           | P       |
| Frequency Band Edges            | GFSK          | 15.247 (d)                     | P       |
|                                 | $\pi/4$ DQPSK |                                | P       |
| Conducted Emission              | GFSK          | 15.247 (d)                     | P       |
|                                 | $\pi/4$ DQPSK |                                | P       |
| Radiated Emission               | GFSK          | 15.247(d),15.205,15.209,15.109 | P       |
|                                 | $\pi/4$ DQPSK |                                | P       |
| Time of Occupancy (Dwell Time)  | GFSK          | 15.247 (a) (1)(iii)            | P       |
|                                 | $\pi/4$ DQPSK |                                | P       |
| 20dB Bandwidth                  | GFSK          | 15.247 (a)(1)                  | P       |
|                                 | $\pi/4$ DQPSK |                                | P       |
| Carrier Frequency Separation    | GFSK          | 15.247 (a)(1)                  | P       |
|                                 | $\pi/4$ DQPSK |                                | P       |
| Number of hopping channels      | GFSK          | 15.247 (a)(1)(iii)             | P       |
|                                 | $\pi/4$ DQPSK |                                | P       |
| AC Powerline Conducted Emission | GFSK          | 15.107, 15.207                 | P       |

Please refer to **ANNEX A** for detail.

The measurement is made according to ANSI C63.10.

Terms used in Verdict column

|    |                                                                               |
|----|-------------------------------------------------------------------------------|
| P  | Pass, The EUT complies with the essential requirements in the standard.       |
| NP | Not Perform, The test was not performed by TMC                                |
| NA | Not Applicable, The test was not applicable                                   |
| F  | Fail, The EUT does not comply with the essential requirements in the standard |

## 6.2. Statements

The test cases as listed in section 6.1 of this report for the EUT specified in section 3 was performed by TMC and according to the standards or reference documents listed in section 4.2

The EUT met all requirements of the standards or reference documents.

This report only deals with the Bluetooth including EDR functions among the features described in section 3.

## 6.3. Test Conditions

|       |                    |
|-------|--------------------|
| T nom | Normal Temperature |
| T min | Low Temperature    |
| T max | High Temperature   |
| V nom | Normal Voltage     |
| V min | Low Voltage        |
| V max | High Voltage       |
| H nom | Norm Humidity      |
| A nom | Norm Air Pressure  |

For this report, all the test case listed above are tested under Normal Temperature and Normal Voltage, and also under norm humidity, the specific conditions as following:

|              |       |         |
|--------------|-------|---------|
| Temperature  | T nom | 25°C    |
| Voltage      | V nom | 3.7V    |
| Humidity     | H nom | 38%     |
| Air Pressure | A nom | 1010hPa |

## 7. Test Equipments Utilized

### Conducted test system

| No. | Equipment              | Model | Serial Number | Manufacturer    | Calibration date | Calibration Due date |
|-----|------------------------|-------|---------------|-----------------|------------------|----------------------|
| 1   | Vector Signal Analyzer | FSQ26 | 200136        | Rohde & Schwarz | 2014-01-07       | 2015-01-06           |
| 2   | Bluetooth Tester       | CBT32 | 100649        | Rohde & Schwarz | 2014-02-10       | 2015-02-09           |

### Radiated emission test system

| No. | Equipment                         | Model     | Serial Number | Manufacturer    | Calibration date | Calibration Due date |
|-----|-----------------------------------|-----------|---------------|-----------------|------------------|----------------------|
| 1   | Test Receiver                     | ESCI 7    | 100948        | Rohde & Schwarz | 2014-07-19       | 2015-07-18           |
| 2   | EMI Antenna                       | VULB 9163 | 9163 175      | Schwarzbeck     | 2012-07-14       | 2015-07-13           |
| 3   | EMI Antenna                       | 3117      | 00119021      | ETS-Lindgren    | 2014-04-20       | 2017-04-19           |
| 4   | Dual-Ridge Waveguide Horn Antenna | 3116      | 2663          | ETS-Lindgren    | 2011-07-01       | 2017-06-30           |
| 5   | Dual-Ridge Waveguide Horn Antenna | 3116      | 2661          | ETS-Lindgren    | 2011-07-01       | 2017-06-30           |
| 6   | Bluetooth Tester                  | CBT       | 100153        | Rohde & Schwarz | 2013-09-16       | 2014-09-15           |
| 7   | LISN                              | ESH2-Z5   | 829991/012    | Rohde & Schwarz | 2014-04-15       | 2017-04-14           |
| 8   | Loop Antenna                      | HFH2-Z2   | 829324/007    | Rohde & Schwarz | 2011-12-13       | 2014-12-12           |
| 9   | Pre-amplifier(18GHz)              | SCU18     | 1005277       | Rohde & Schwarz | /                | /                    |
| 10  | Pre-amplifier(26.5GHz)            | SCU26     | 1006788       | Rohde & Schwarz | /                | /                    |

### Anechoic chamber

Fully anechoic chamber by Frankonia German.

Note : The pre amplifiers is calibrated with routes calibration every time before test, therefore no need for the calibration date.

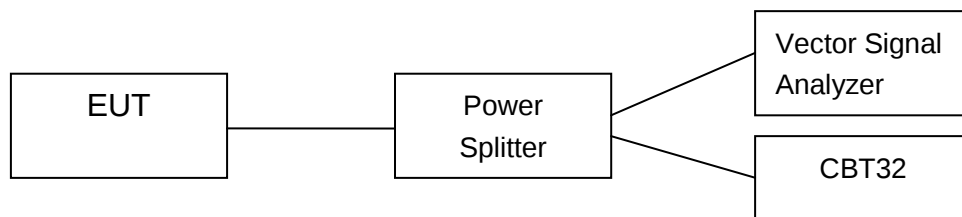
## **ANNEX A: MEASUREMENT RESULTS**

### **A.1. Measurement Method**

#### **A.1.1. Conducted Measurements**

The measurement is made according to ANSI C63.10.

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode (Transmitter, receiver or transmitter & receiver).
- 3). Set the EUT to the required channel.
- 4). Set the EUT hopping mode (hopping or hopping off).
- 5). Set the spectrum analyzer to start measurement.
- 6). Record the values. Vector Signal Analyzer



#### **A.1.2. Radiated Emission Measurements**

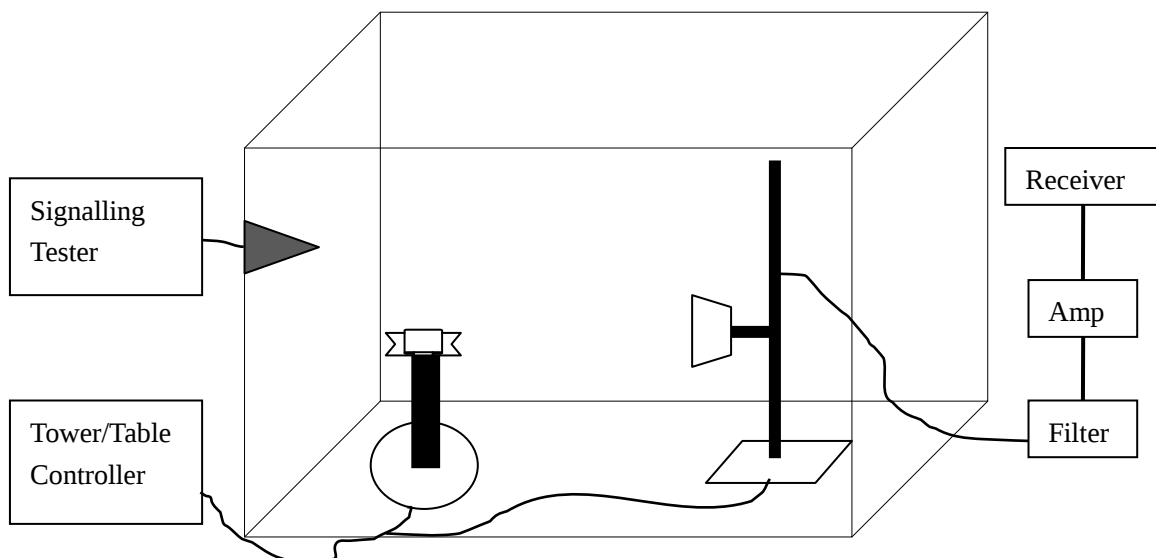
The measurement is made according to ANSI C63.10

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.

In the case of radiated emission, the used settings are as follows,

Sweep frequency from 30 MHz to 1GHz, RBW = 100 kHz, VBW = 300 kHz;

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 1MHz;



## A.2. Peak Output Power

### Measurement Limit:

| Standard              | Limit (dBm) |
|-----------------------|-------------|
| FCC Part 15.247(b)(1) | < 30        |

The measurement is made according to ANSI C63.10.

### Measurement Results:

#### A.2.1 Antenna gain

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the EUT.

Antenna gain = GFSK (Radiated) - GFSK (Conducted)

| Channel          | Ch 0<br>2402 MHz | Ch 39<br>2441 MHz | Ch 78<br>2480 MHz |
|------------------|------------------|-------------------|-------------------|
| GFSK (Conducted) | 10.25            | 10.32             | 10.07             |
| GFSK (Radiated)  | 9.74             | 9.94              | 9.48              |
| Gain(dBi)        | -0.51            | -0.38             | -0.59             |

**Conclusion: PASS**

#### A.2.2 Conducted Output Power

Peak(RBW=VBW=2MHz; SPAN=5MHz; Detector: Peak)

| Channel             | Ch 0<br>2402 MHz | Ch 39<br>2441 MHz | Ch 78<br>2480 MHz | Conclusion |
|---------------------|------------------|-------------------|-------------------|------------|
| GFSK (dBm)          | 10.25            | 10.32             | 10.07             | P          |
| $\pi/4$ DQPSK (dBm) | 8.11             | 8.50              | 8.22              | P          |
| 8DPSK (dBm)         | /                | /                 | /                 | /          |

**Measurement Uncertainty:  $\pm 1.17$ dB**

**Conclusion: PASS**

#### A.2.3 Radiated Output Power

Peak(RBW=VBW=8MHz; SPAN=8MHz; Detector: Peak)

| Channel               | Ch 0<br>2402 MHz | Ch 39<br>2441 MHz | Ch 78<br>2480 MHz | Conclusion |
|-----------------------|------------------|-------------------|-------------------|------------|
| GFSK (dBm)            | 9.74             | 9.94              | 9.48              | P          |
| $\pi/4$ DQPSK * (dBm) | 7.60             | 8.12              | 7.63              | P          |
| 8DPSK * (dBm)         | /                | /                 | /                 | /          |

Note:\* These values are calculated with the antenna gain

**Measurement Uncertainty:  $\pm 1.98$ dB**

**Conclusion: PASS**

### A.3. Frequency Band Edges - Conducted

#### Measurement Limit:

| Standard                   | Limit (dBc)                                                                                                                                                                                                                                                       |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FCC 47 CFR Part 15.247 (d) | <p>&lt;-20</p> <p>Note: The measurement results are calculated as power measured in any 100KHz bandwidth outside the frequency band in dBm minus power measured in the 100 kHz bandwidth within the band that contains the highest level of the desired power</p> |

The measurement is made according to ANSI C63.10.

#### Measurement Result:

##### For GFSK

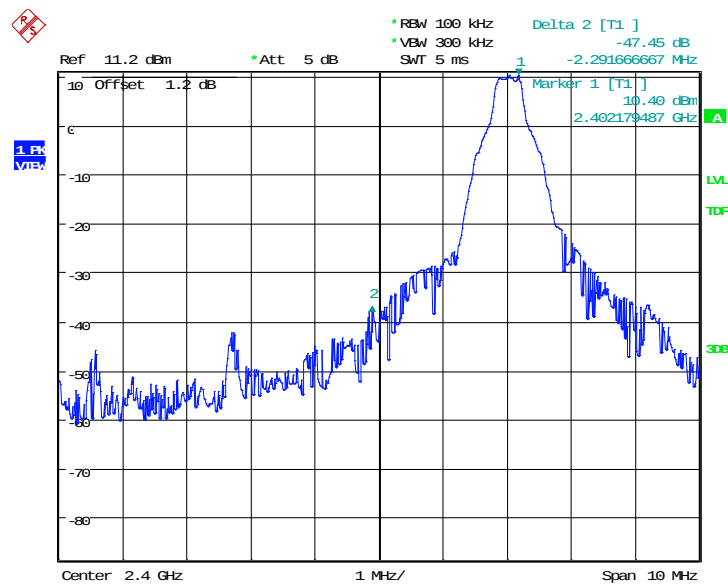
| Channel | Hopping     | Band Edge Power ( dBc) |        | Conclusion |
|---------|-------------|------------------------|--------|------------|
| 0       | Hopping OFF | Fig.1                  | -47.45 | P          |
|         | Hopping ON  | Fig.2                  | -49.76 | P          |
| 78      | Hopping OFF | Fig.3                  | -52.48 | P          |
|         | Hopping ON  | Fig.4                  | -52.31 | P          |

##### For $\pi/4$ DQPSK

| Channel | Hopping     | Band Edge Power ( dBc) |        | Conclusion |
|---------|-------------|------------------------|--------|------------|
| 0       | Hopping OFF | Fig.5                  | -46.90 | P          |
|         | Hopping ON  | Fig.6                  | -52.38 | P          |
| 78      | Hopping OFF | Fig.7                  | -51.50 | P          |
|         | Hopping ON  | Fig.8                  | -55.45 | P          |

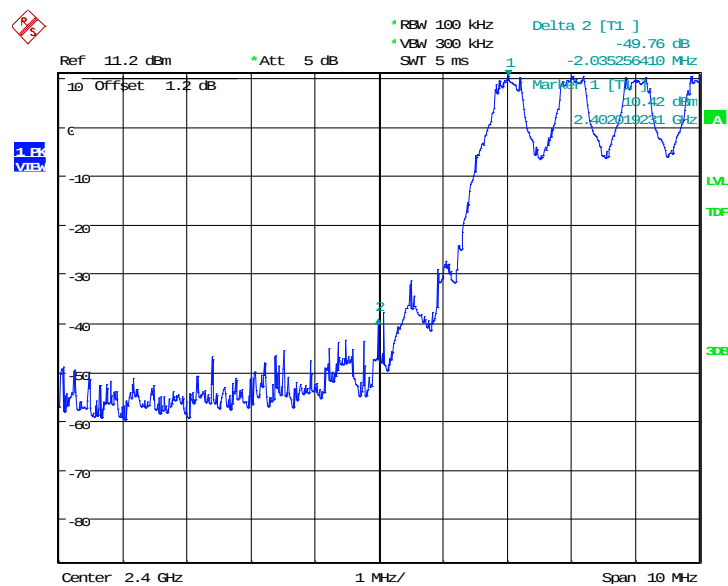
**Conclusion: PASS**

Test graphs as below



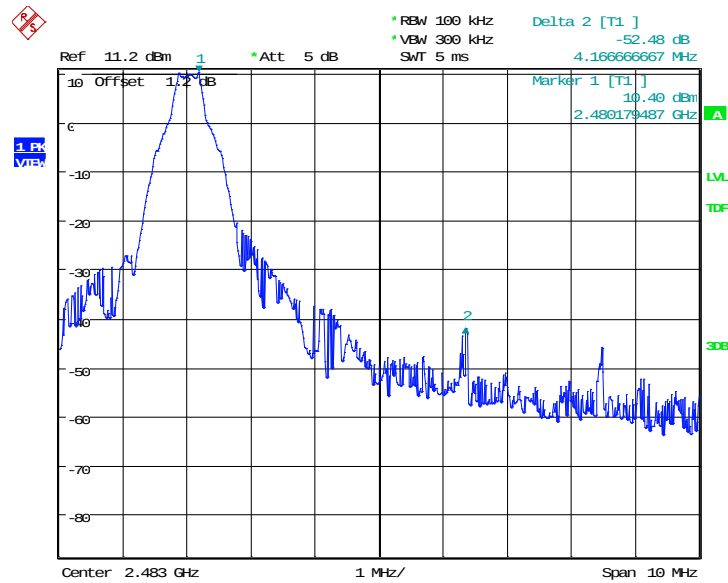
Date: 7.AUG.2014 17:07:26

Fig.1. Frequency Band Edges: GFSK, Channel 0, Hopping Off



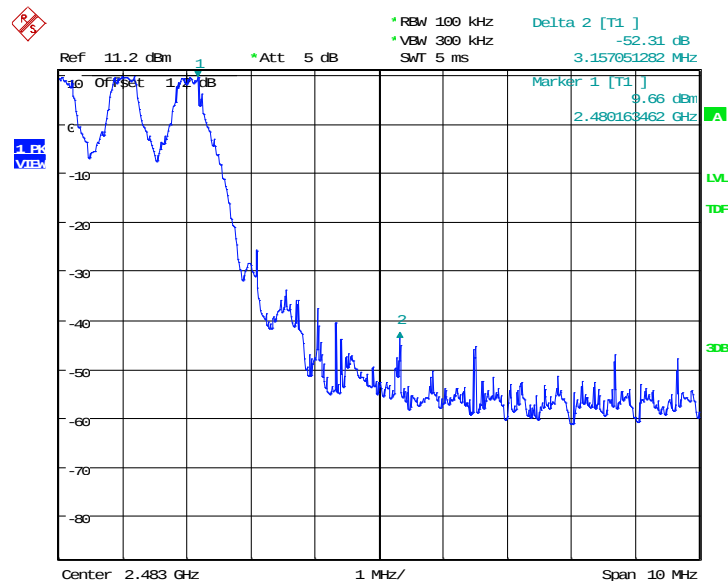
Date: 7.AUG.2014 17:09:46

Fig.2. Frequency Band Edges: GFSK, Channel 0, Hopping On



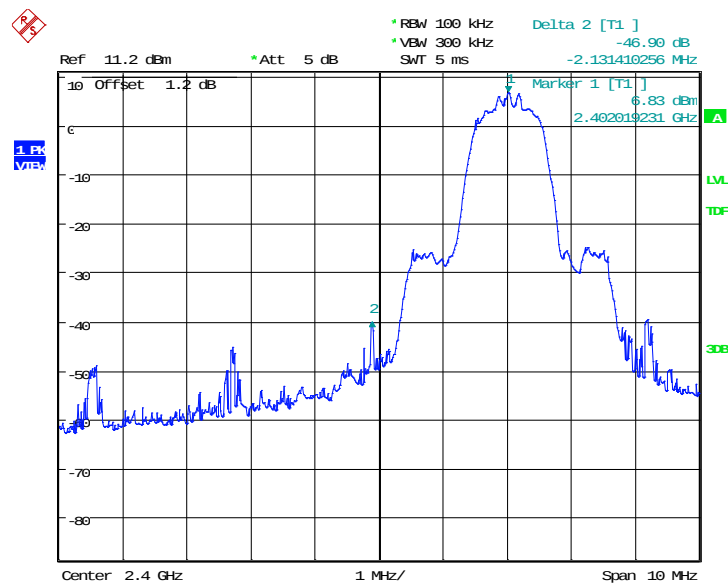
Date: 7.AUG.2014 17:07:44

Fig.3. Frequency Band Edges: GFSK, Channel 78, Hopping Off



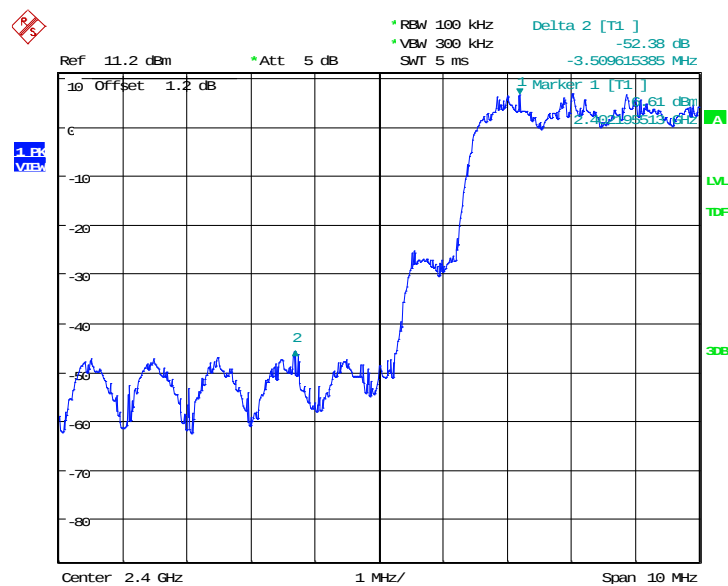
Date: 7.AUG.2014 17:11:48

Fig.4. Frequency Band Edges: GFSK, Channel 78, Hopping On



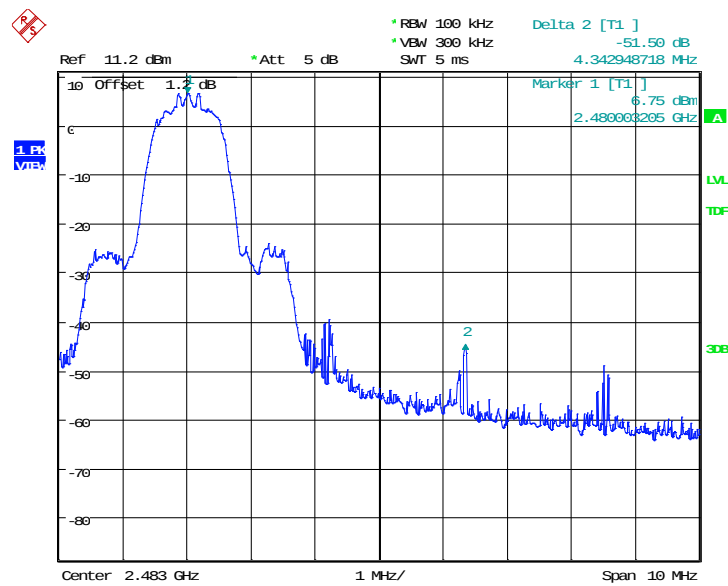
Date: 7.AUG.2014 17:28:50

Fig.5. Frequency Band Edges:  $\pi/4$  DQPSK, Channel 0, Hopping Off



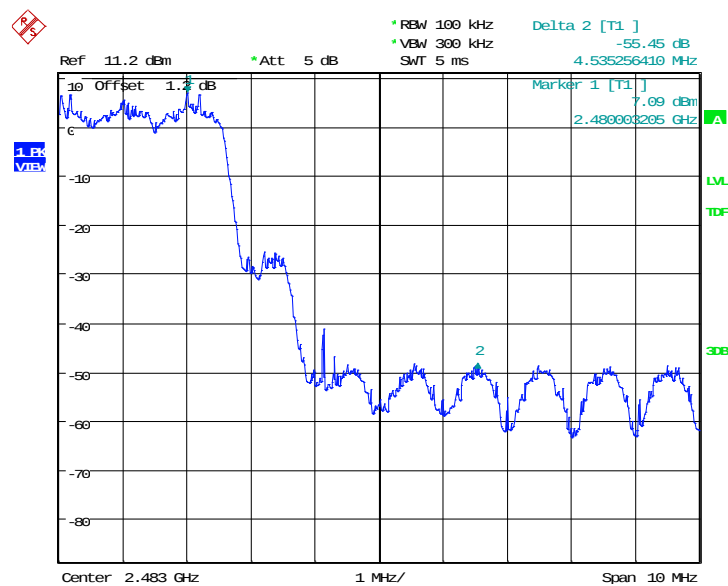
Date: 7.AUG.2014 17:31:10

Fig.6. Frequency Band Edges:  $\pi/4$  DQPSK, Channel 0, Hopping On



Date: 7.AUG.2014 17:29:08

Fig.7. Frequency Band Edges:  $\pi/4$  DQPSK, Channel 78, Hopping Off



Date: 7.AUG.2014 17:33:12

Fig.8. Frequency Band Edges:  $\pi/4$  DQPSK, Channel 78, Hopping On

#### A.4. Conducted Emission

##### Measurement Limit:

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

The measurement is made according to ANSI C63.10

##### Measurement Results:

###### For GFSK

| Channel           | Frequency Range  | Test Results | Conclusion |
|-------------------|------------------|--------------|------------|
| Ch 0<br>2402 MHz  | Center Frequency | Fig.9        | P          |
|                   | 30 MHz ~ 1 GHz   | Fig.10       | P          |
|                   | 1 GHz ~ 3 GHz    | Fig.11       | P          |
|                   | 3 GHz ~ 10 GHz   | Fig.12       | P          |
|                   | 10 GHz ~ 26 GHz  | Fig.13       | P          |
| Ch 39<br>2441 MHz | Center Frequency | Fig.14       | P          |
|                   | 30 MHz ~ 1 GHz   | Fig.15       | P          |
|                   | 1 GHz ~ 3 GHz    | Fig.16       | P          |
|                   | 3 GHz ~ 10 GHz   | Fig.17       | P          |
|                   | 10 GHz ~ 26 GHz  | Fig.18       | P          |
| Ch 78<br>2480 MHz | Center Frequency | Fig.19       | P          |
|                   | 30 MHz ~ 1 GHz   | Fig.20       | P          |
|                   | 1 GHz ~ 3 GHz    | Fig.21       | P          |
|                   | 3 GHz ~ 10 GHz   | Fig.22       | P          |
|                   | 10 GHz ~ 26 GHz  | Fig.23       | P          |

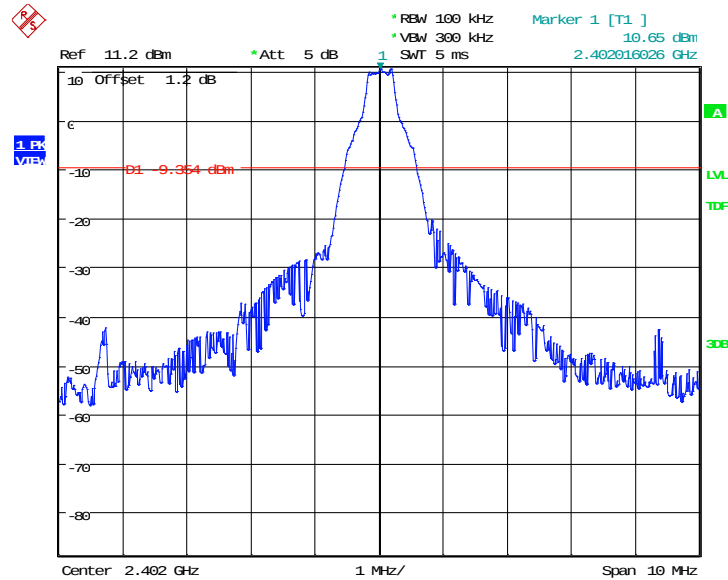
###### For $\pi/4$ DQPSK

| Channel           | Frequency Range  | Test Results | Conclusion |
|-------------------|------------------|--------------|------------|
| Ch 0<br>2402 MHz  | Center Frequency | Fig.24       | P          |
|                   | 30 MHz ~ 1 GHz   | Fig.25       | P          |
|                   | 1 GHz ~ 3 GHz    | Fig.26       | P          |
|                   | 3 GHz ~ 10 GHz   | Fig.27       | P          |
|                   | 10 GHz ~ 26 GHz  | Fig.28       | P          |
| Ch 39<br>2441 MHz | Center Frequency | Fig.29       | P          |
|                   | 30 MHz ~ 1 GHz   | Fig.30       | P          |
|                   | 1 GHz ~ 3 GHz    | Fig.31       | P          |
|                   | 3 GHz ~ 10 GHz   | Fig.32       | P          |
|                   | 10 GHz ~ 26 GHz  | Fig.33       | P          |
| Ch 78<br>2480 MHz | Center Frequency | Fig.34       | P          |
|                   | 30 MHz ~ 1 GHz   | Fig.35       | P          |

|  |                 |        |   |
|--|-----------------|--------|---|
|  | 1 GHz ~ 3 GHz   | Fig.36 | P |
|  | 3 GHz ~ 10 GHz  | Fig.37 | P |
|  | 10 GHz ~ 26 GHz | Fig.38 | P |

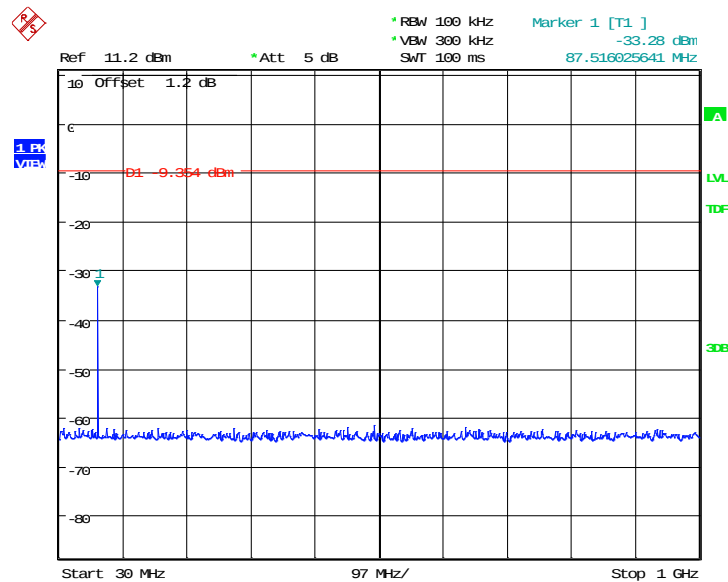
**Conclusion: PASS**

**Test graphs as below**



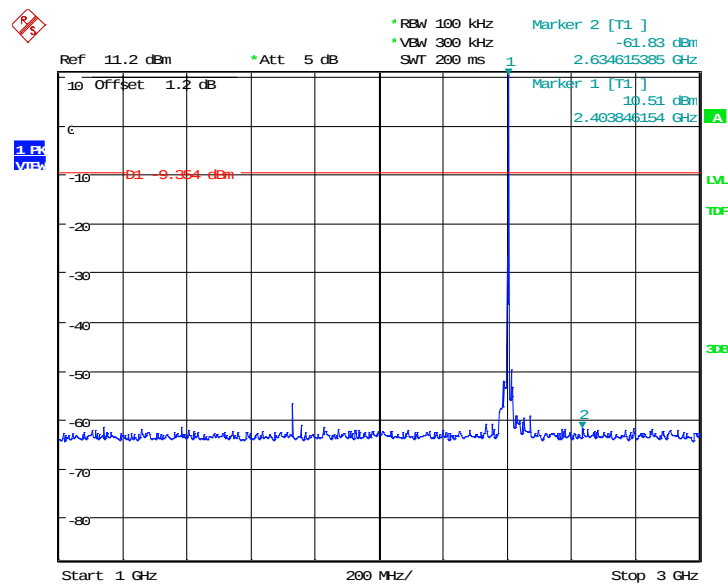
Date: 7.AUG.2014 17:12:07

Fig.9. Conducted spurious emission: GFSK, Channel 0,2402MHz



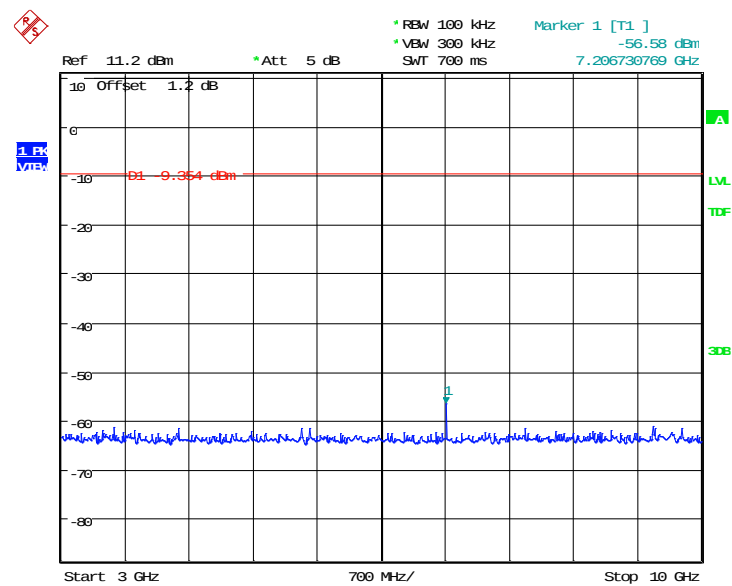
Date: 7.AUG.2014 17:12:24

Fig.10. Conducted spurious emission: GFSK, Channel 0, 30MHz - 1GHz



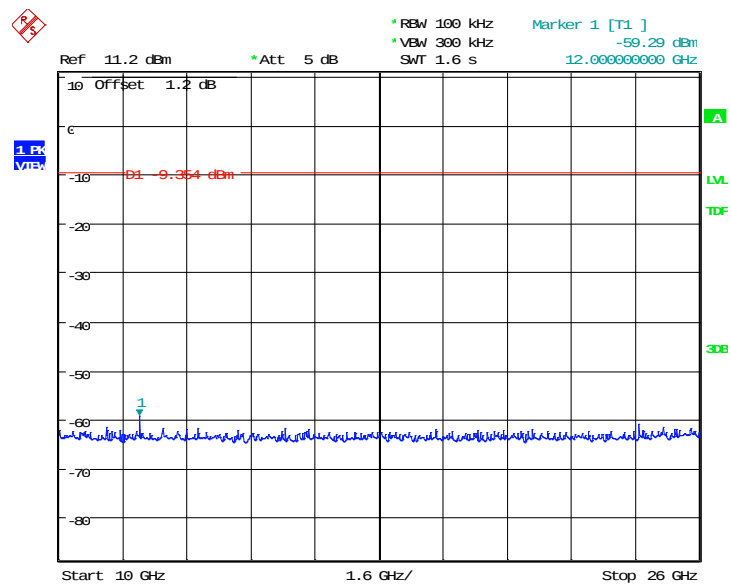
Date: 7.AUG.2014 17:12:55

Fig.11. Conducted spurious emission: GFSK, Channel 0, 1GHz - 3GHz



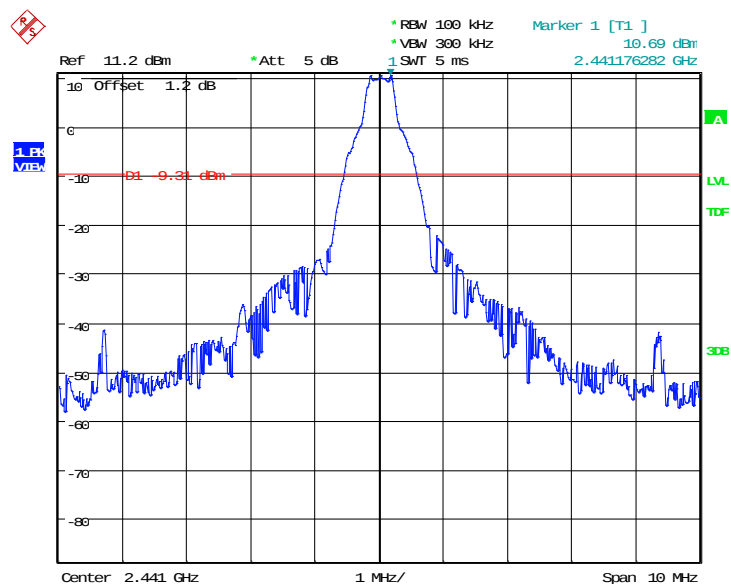
Date: 7.AUG.2014 17:13:12

Fig.12. Conducted spurious emission: GFSK, Channel 0, 3GHz - 10GHz



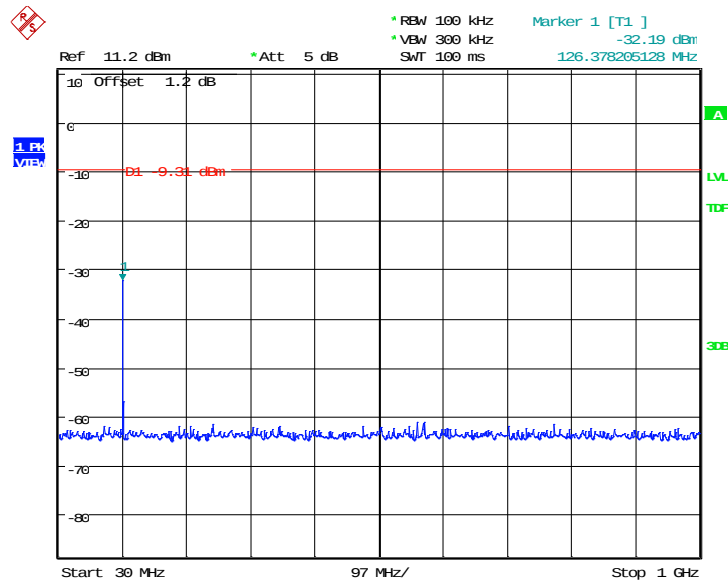
Date: 7.AUG.2014 17:13:28

Fig.13. Conducted spurious emission: GFSK, Channel 0,10GHz - 26GHz



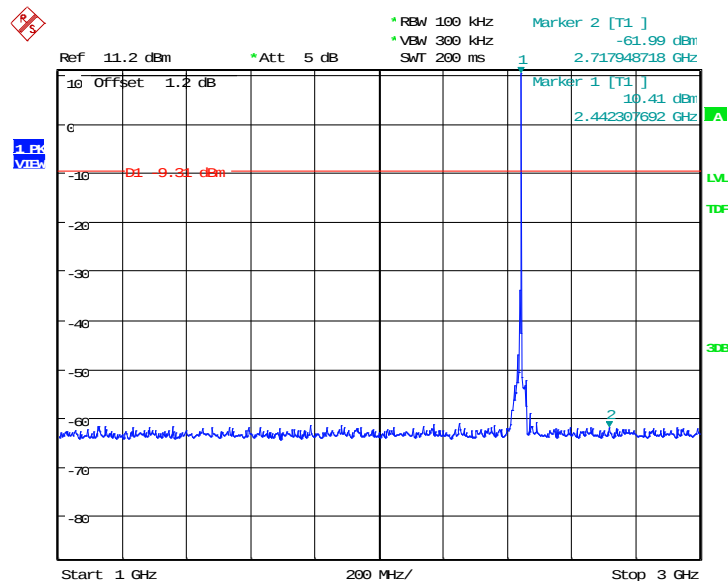
Date: 7.AUG.2014 17:13:45

Fig.14. Conducted spurious emission: GFSK, Channel 39, 2441MHz



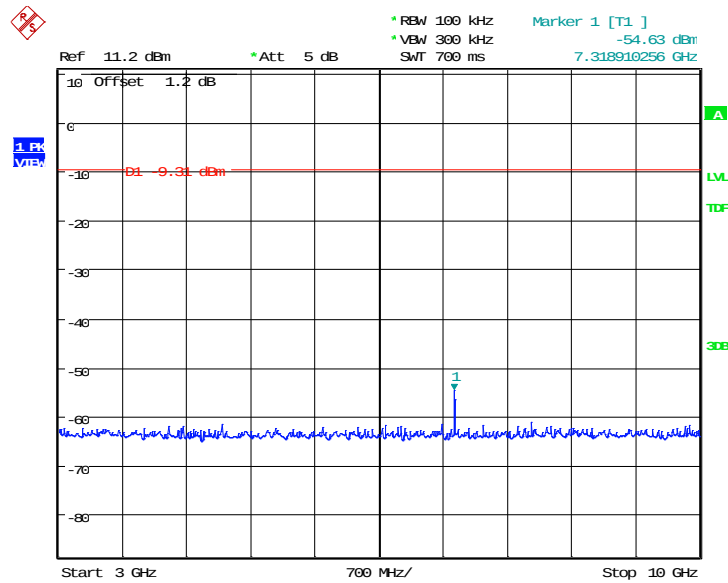
Date: 7.AUG.2014 17:14:02

Fig.15. Conducted spurious emission: GFSK, Channel 39, 30MHz - 1GHz



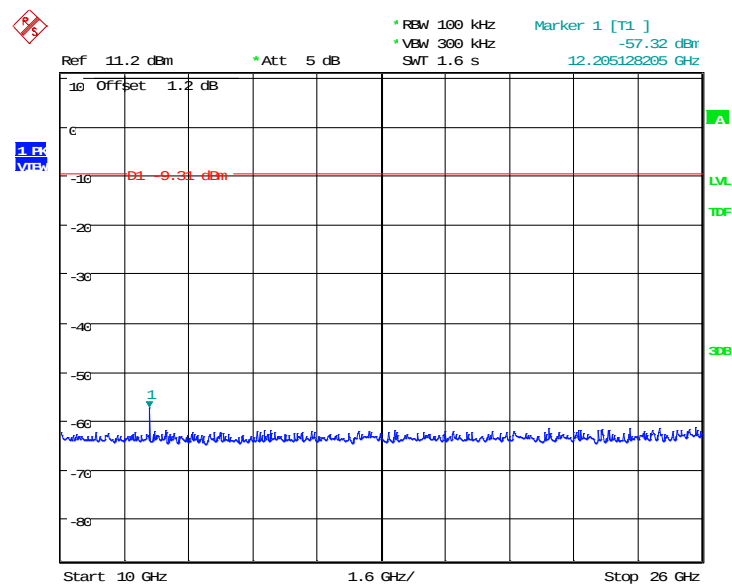
Date: 7.AUG.2014 17:14:33

Fig.16. Conducted spurious emission: GFSK, Channel 39, 1GHz – 3GHz



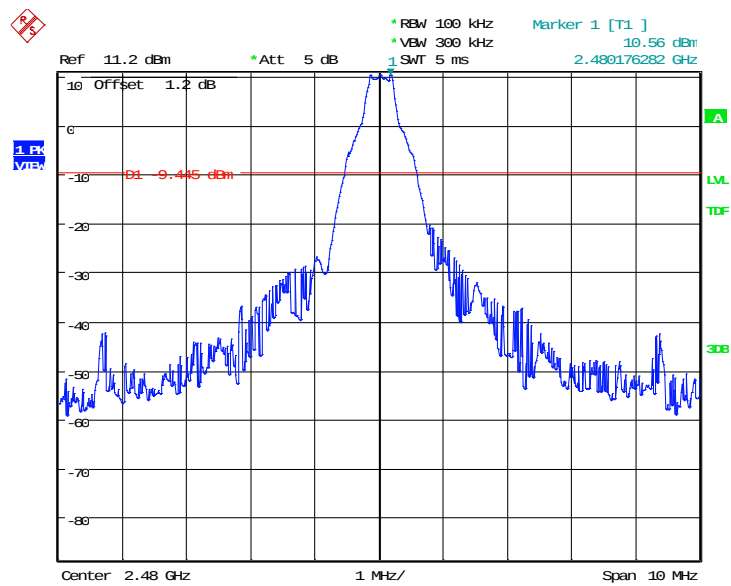
Date: 7.AUG.2014 17:14:50

Fig.17. Conducted spurious emission: GFSK, Channel 39, 3GHz – 10GHz



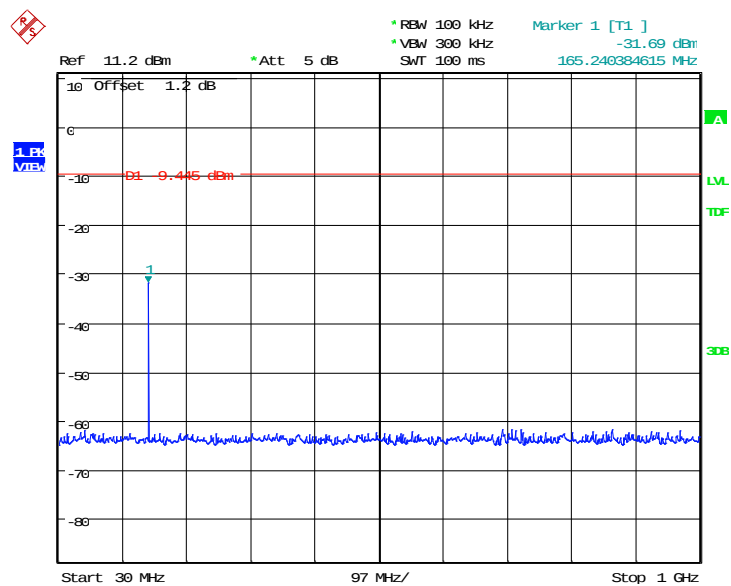
Date: 7.AUG.2014 17:15:06

Fig.18. Conducted spurious emission: GFSK, Channel 39, 10GHz – 26GHz



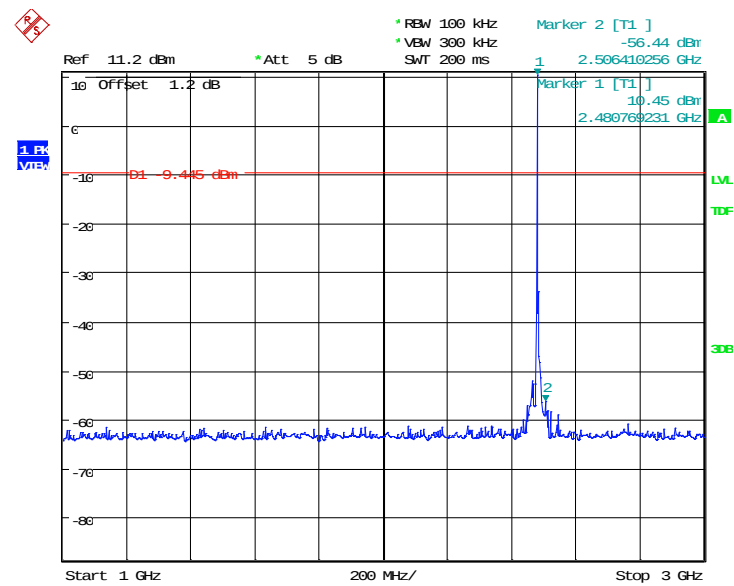
Date: 7.AUG.2014 17:15:23

Fig.19. Conducted spurious emission: GFSK, Channel 78, 2480MHz



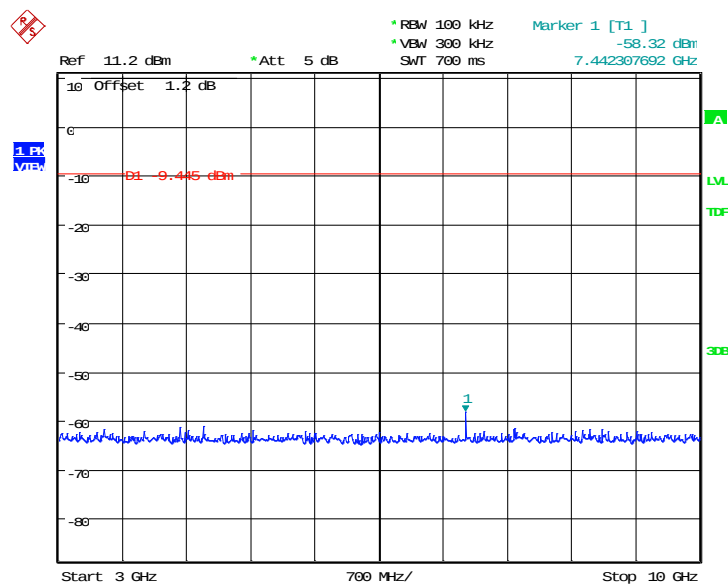
Date: 7.AUG.2014 17:15:40

Fig.20. Conducted spurious emission: GFSK, Channel 78, 30MHz - 1GHz



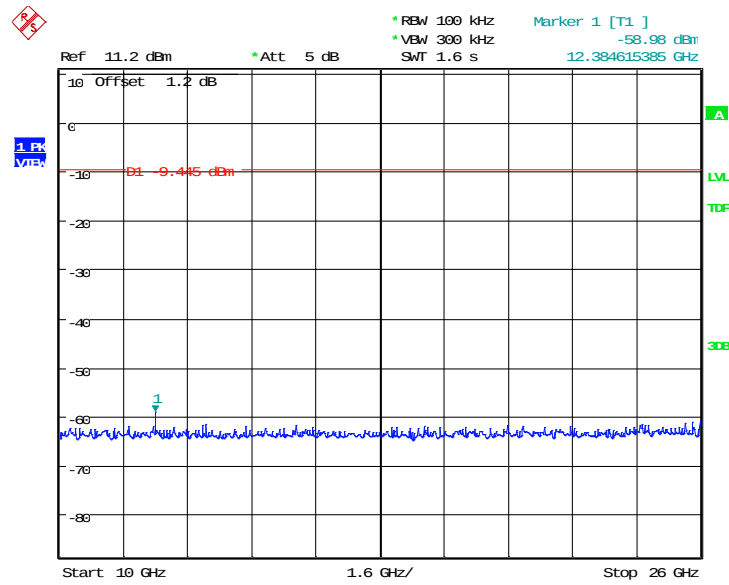
Date: 7.AUG.2014 17:16:11

Fig.21. Conducted spurious emission: GFSK, Channel 78, 1GHz - 3GHz



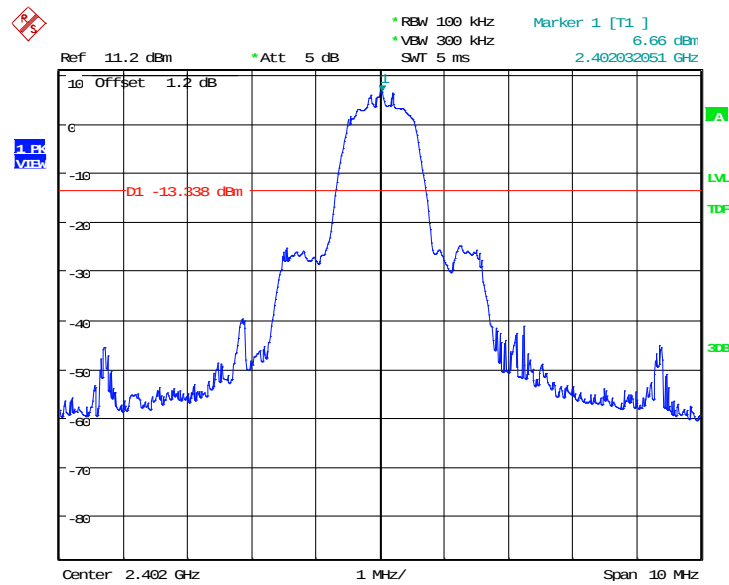
Date: 7.AUG.2014 17:16:28

Fig.22. Conducted spurious emission: GFSK, Channel 78, 3GHz - 10GHz



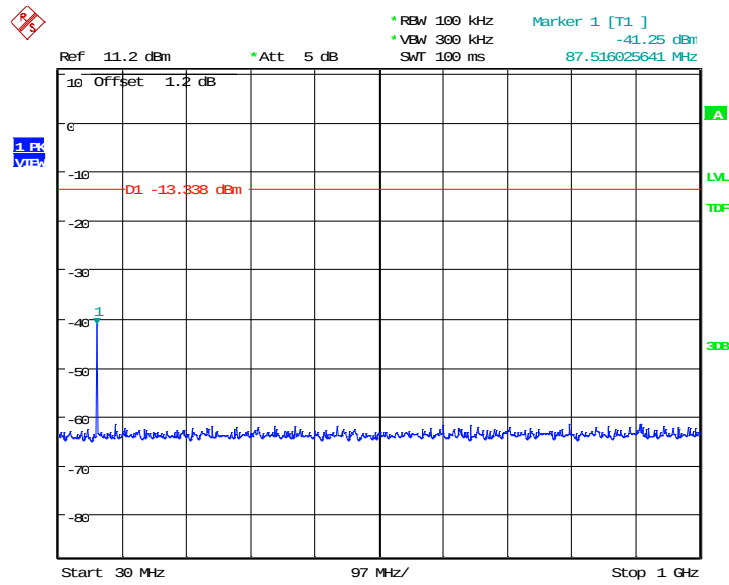
Date: 7.AUG.2014 17:16:44

Fig.23. Conducted spurious emission: GFSK, Channel 78, 10GHz - 26GHz



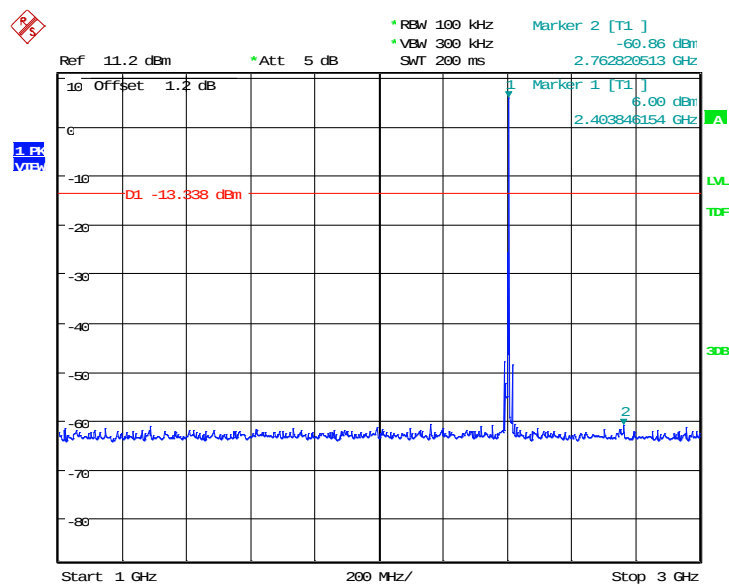
Date: 7.AUG.2014 17:33:31

Fig.24. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 0, 2402MHz



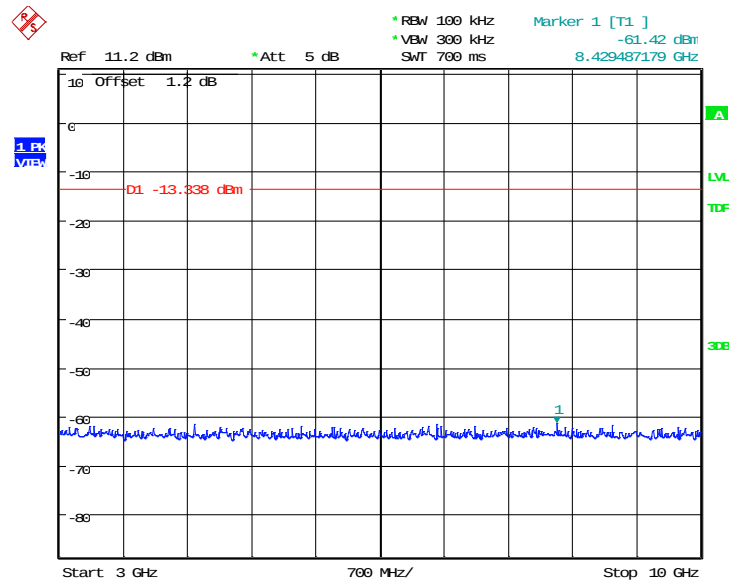
Date: 7.AUG.2014 17:33:48

Fig.25. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 0, 30MHz - 1GHz



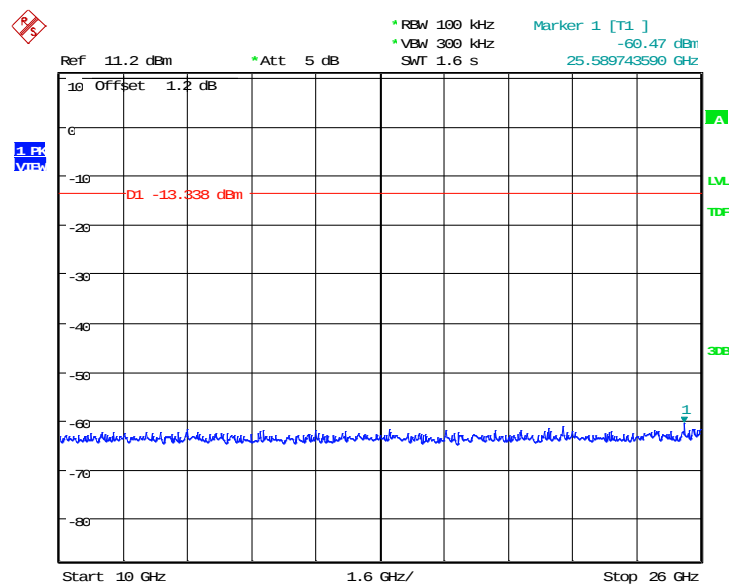
Date: 7.AUG.2014 17:34:19

Fig.26. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 0, 1GHz - 3GHz



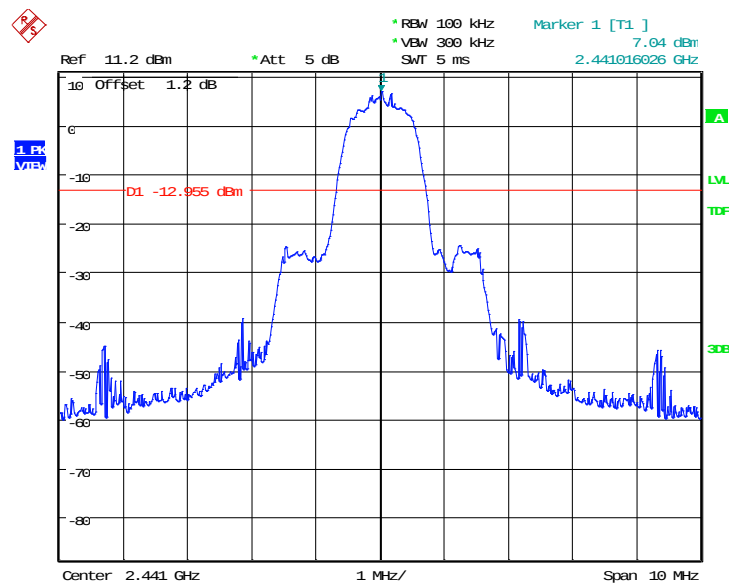
Date: 7.AUG.2014 17:34:36

Fig.27. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 0, 3GHz - 10GHz



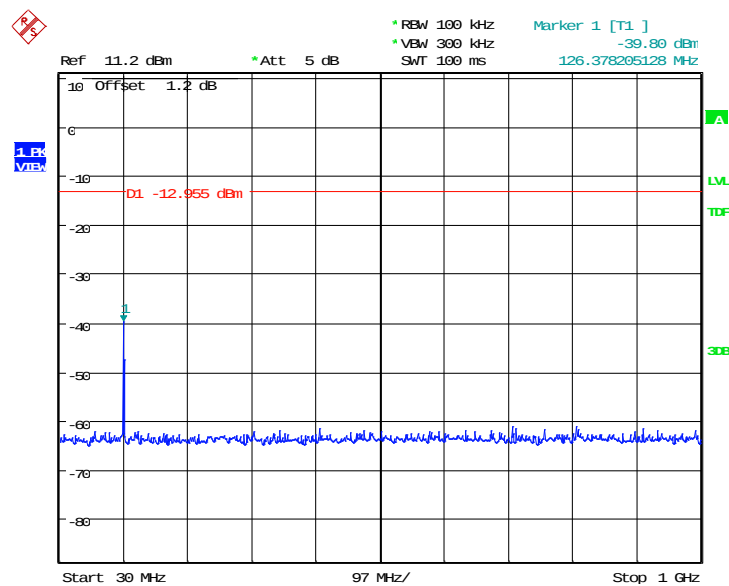
Date: 7.AUG.2014 17:34:52

Fig.28. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 0, 10GHz - 26GHz



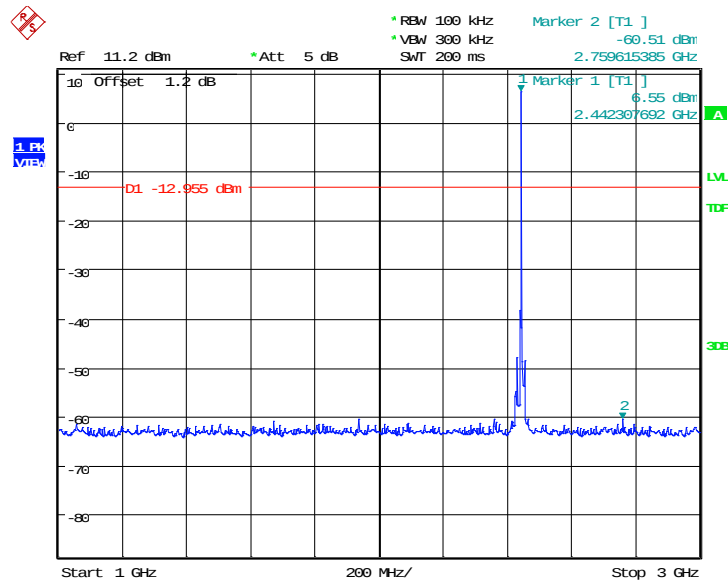
Date: 7.AUG.2014 17:35:09

Fig.29. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 39, 2441MHz



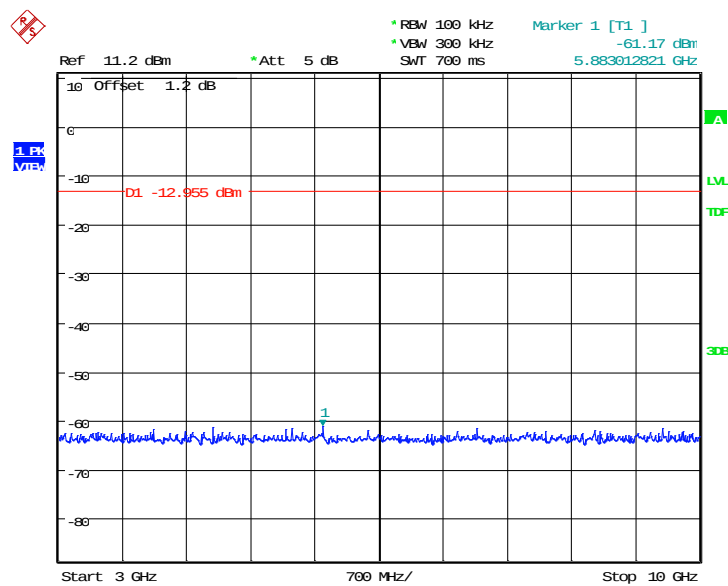
Date: 7.AUG.2014 17:35:26

Fig.30. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 39, 30MHz - 1GHz



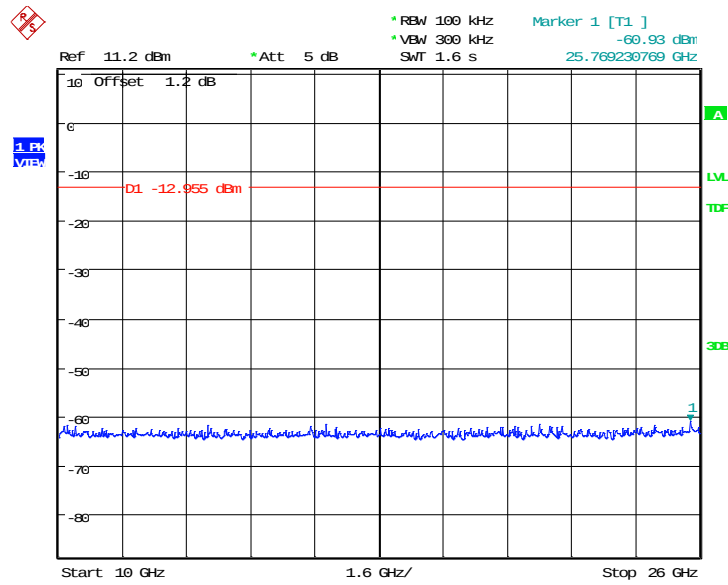
Date: 7.AUG.2014 17:35:57

Fig.31. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 39, 1GHz - 3GHz



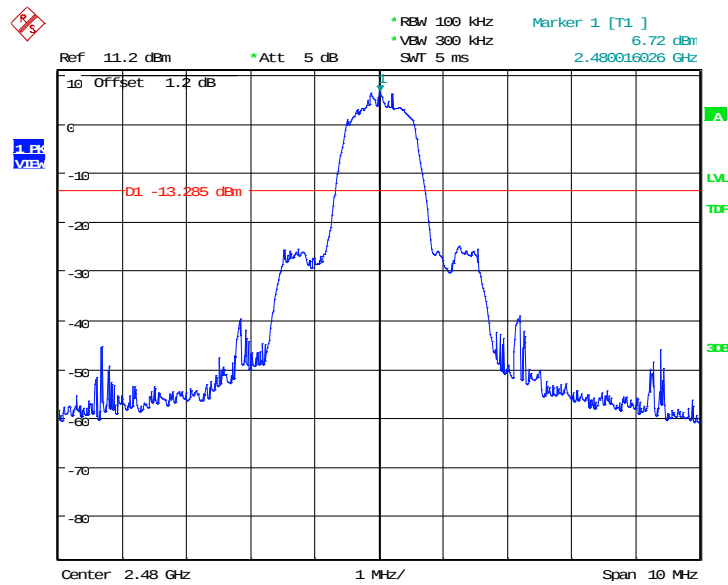
Date: 7.AUG.2014 17:36:14

Fig.32. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 39, 3GHz - 10GHz



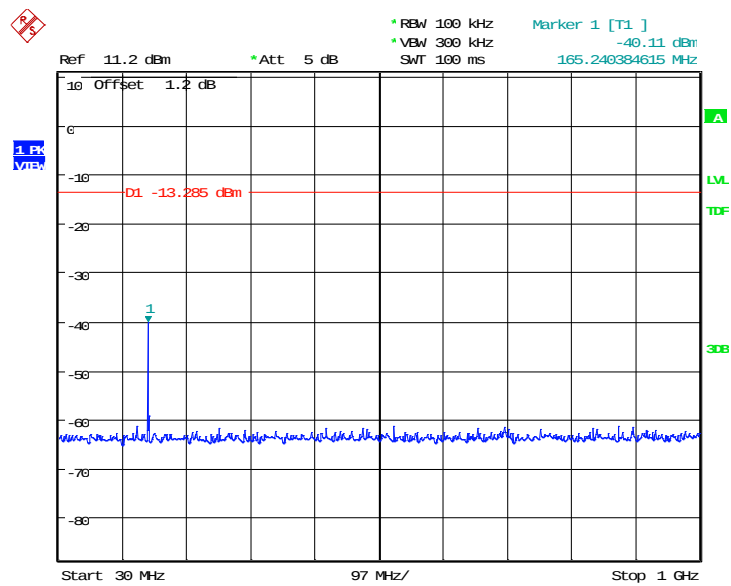
Date: 7.AUG.2014 17:36:30

Fig.33. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 39, 10GHz – 26GHz



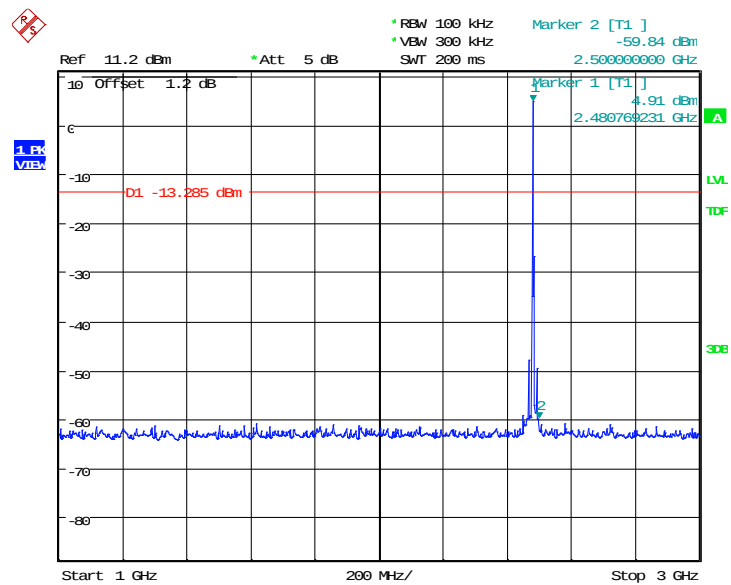
Date: 7.AUG.2014 17:36:47

Fig.34. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 78, 2480MHz



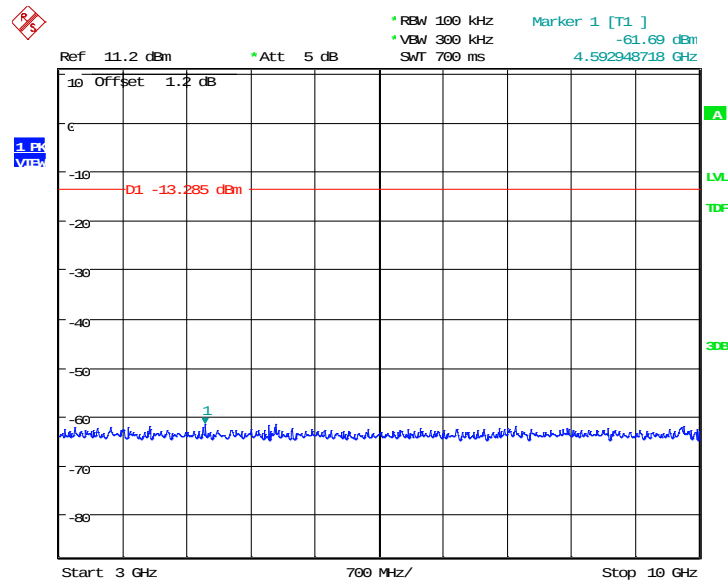
Date: 7.AUG.2014 17:37:03

Fig.35. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 78, 30MHz - 1GHz



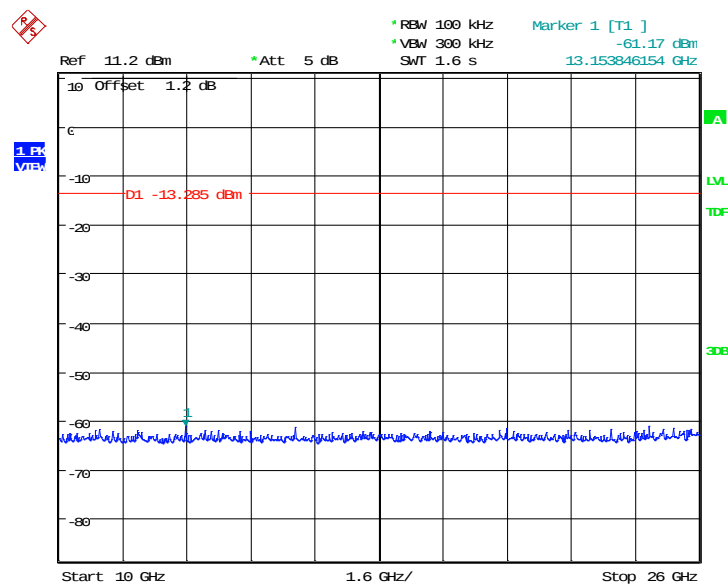
Date: 7.AUG.2014 17:37:35

Fig.36. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 78, 1GHz - 3GHz



Date: 7.AUG.2014 17:37:52

Fig.37. Conducted spurious emission:  $\pi/4$  DQPSK, Channel 78, 3GHz - 10GHz



Date: 7.AUG.2014 17:38:08

Fig.38. Fig.30 Conducted spurious emission:  $\pi/4$  DQPSK, Channel 78, 10GHz - 26GHz

## A.5. Radiated Emission

### Measurement Limit:

| Standard                               | Limit             |
|----------------------------------------|-------------------|
| FCC 47 CFR Part 15.247, 15.205, 15.209 | Listed as follows |

| Frequency (MHz) Field strength | 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                             |

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)).

The measurement is made according to ANSI C63.10

### Limit in restricted band:

| Frequency of emission (MHz) | Field strength(uV/m) | Field strength(dBuV/m) |
|-----------------------------|----------------------|------------------------|
| 30-88                       | 100                  | 40                     |
| 88-216                      | 150                  | 43.5                   |
| 216-960                     | 200                  | 46                     |
| Above 960                   | 500                  | 54                     |

### Test Condition

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

| Frequency of emission (MHz) | RBW/VBW       | Sweep Time(s) |
|-----------------------------|---------------|---------------|
| 0.009-30                    | 100KHz/300KHz | 5             |
| 30-1000                     | 100KHz/300KHz | 5             |
| 1000-4000                   | 1MHz/1MHz     | 15            |
| 4000-18000                  | 1MHz/1MHz     | 40            |
| 18000-26500                 | 1MHz/1MHz     | 20            |

### Measurement Results:

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and

including the gain of receive antenna, the gain of the preamplifier, the cable los.  
The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}}$$

#### For GFSK

| Channel           | Frequency Range    | Test Results | Conclusion |
|-------------------|--------------------|--------------|------------|
| Ch 0<br>2402 MHz  | 1 GHz ~ 3 GHz      | Fig.39       | P          |
|                   | 3 GHz ~ 18 GHz     | Fig.40       | P          |
| Ch 39<br>2441 MHz | 9kHz ~ 30 MHz      | Fig.41       | P          |
|                   | 30 MHz ~ 1 GHz     | Fig.42       | P          |
|                   | 1 GHz ~ 3 GHz      | Fig.43       | P          |
|                   | 3 GHz ~ 18 GHz     | Fig.44       | P          |
| Ch 78<br>2480 MHz | 1 GHz ~ 3 GHz      | Fig.45       | P          |
|                   | 3 GHz ~ 18 GHz     | Fig.46       | P          |
| Power             | 2.38GHz~2.4GHz---L | Fig.47       | P          |
| Power             | 2.45GHz~2.5GHz---H | Fig.48       | P          |
| For all channels  | 18 GHz ~ 26 GHz    | Fig.49       | P          |

#### For $\pi/4$ DQPSK

| Channel           | Frequency Range    | Test Results | Conclusion |
|-------------------|--------------------|--------------|------------|
| Ch 0<br>2402 MHz  | 1 GHz ~ 3 GHz      | Fig.50       | P          |
|                   | 3 GHz ~ 18 GHz     | Fig.51       | P          |
| Ch 39<br>2441 MHz | 30 MHz ~ 1 GHz     | Fig.52       | P          |
|                   | 1 GHz ~ 3 GHz      | Fig.53       | P          |
|                   | 3 GHz ~ 18 GHz     | Fig.54       | P          |
| Ch 78<br>2480 MHz | 1 GHz ~ 3 GHz      | Fig.55       | P          |
|                   | 3 GHz ~ 18 GHz     | Fig.56       | P          |
| Power             | 2.38GHz~2.4GHz---L | Fig.57       | P          |
| Power             | 2.45GHz~2.5GHz---H | Fig.58       | P          |
| For all channels  | 18 GHz ~ 26 GHz    | Fig.59       | P          |

Note: Only worst case result is given.

Test graphs as below:

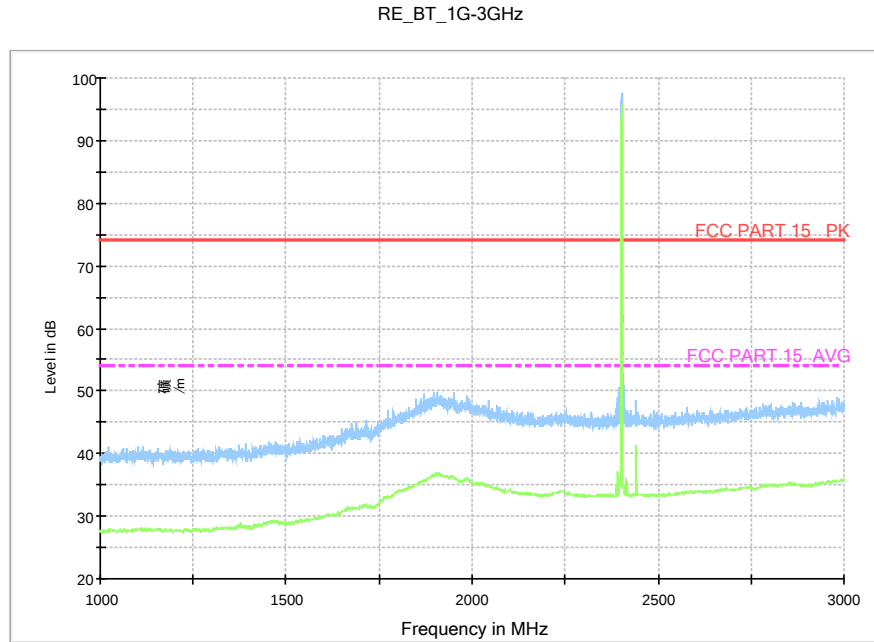


Fig.39. Radiated emission: GFSK, Channel 0, 1 GHz - 3 GHz

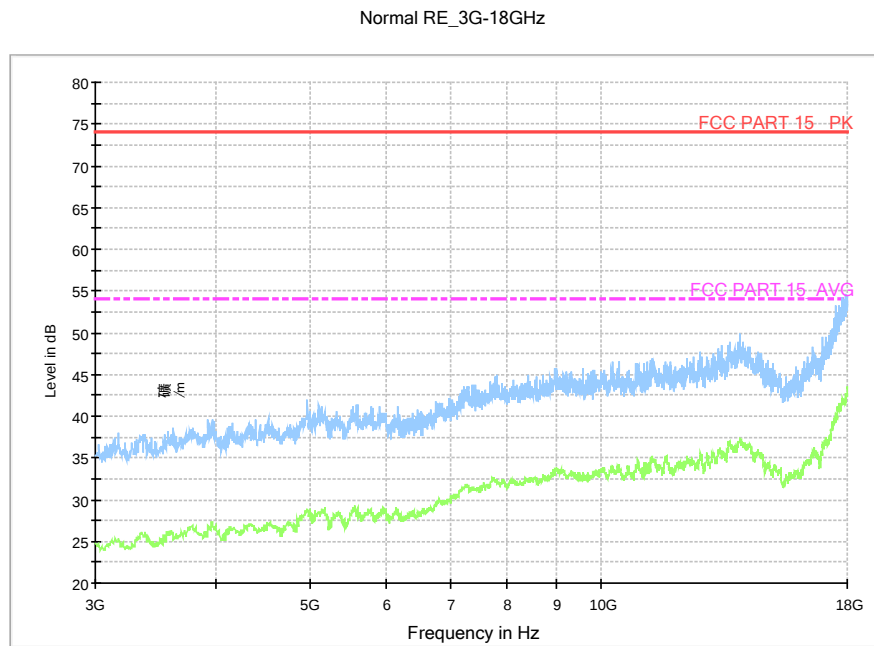


Fig.40. Radiated emission: GFSK, Channel 0, 3 GHz - 18 GHz

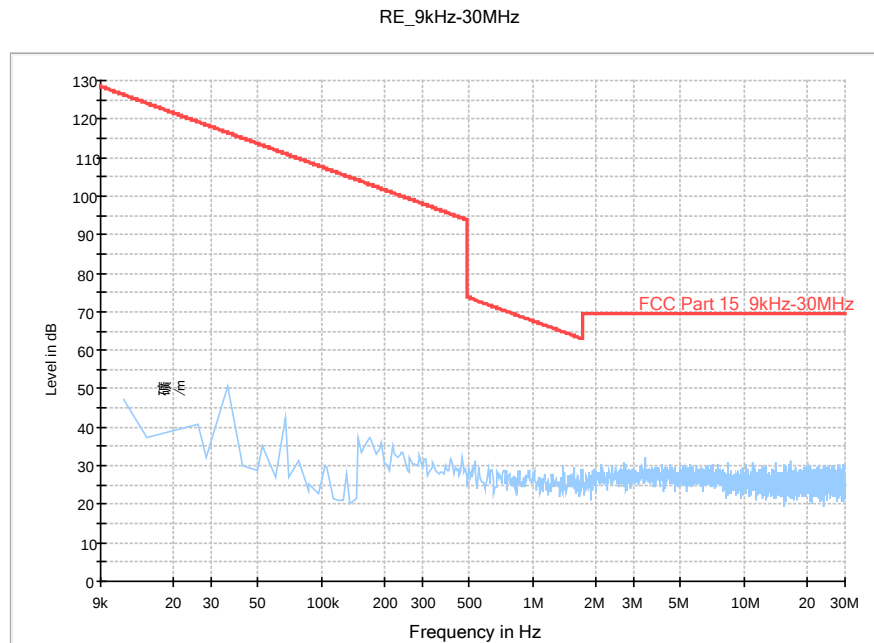


Fig.41. Radiated emission: GFSK, Channel 39, 9 kHz - 30 MHz

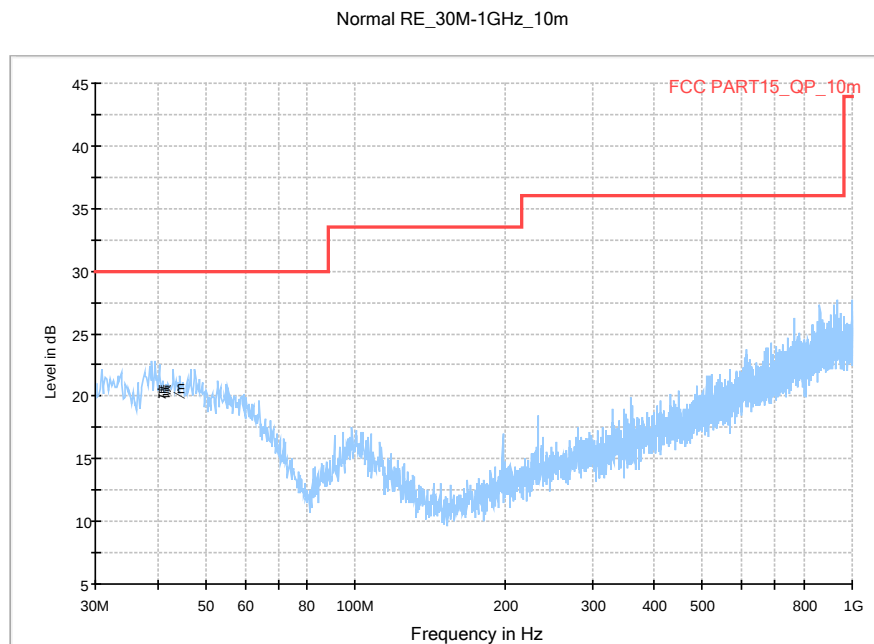


Fig.42. Radiated emission: GFSK, Channel 39, 30 MHz - 1 GHz

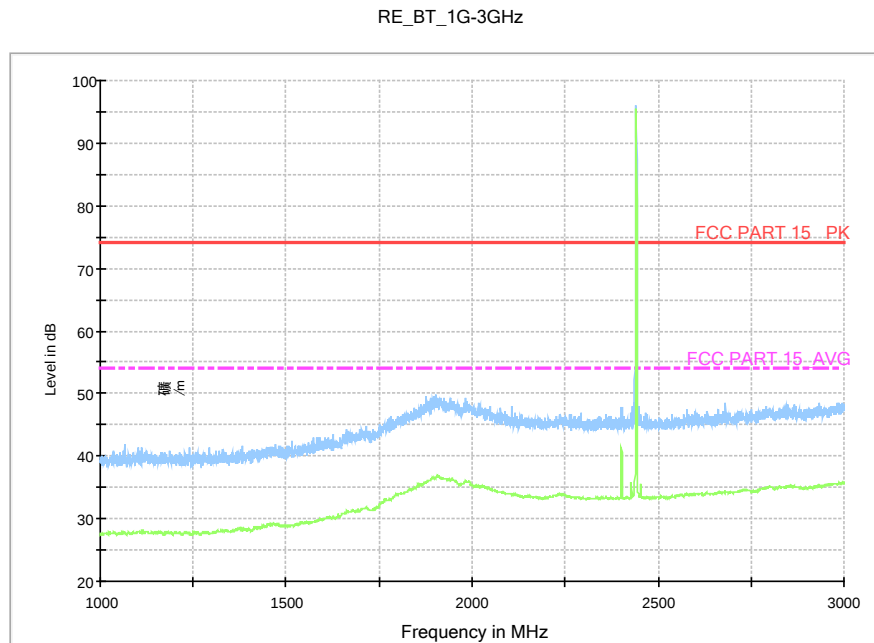


Fig.43. Radiated emission: GFSK, Channel 39, 1 GHz - 3 GHz

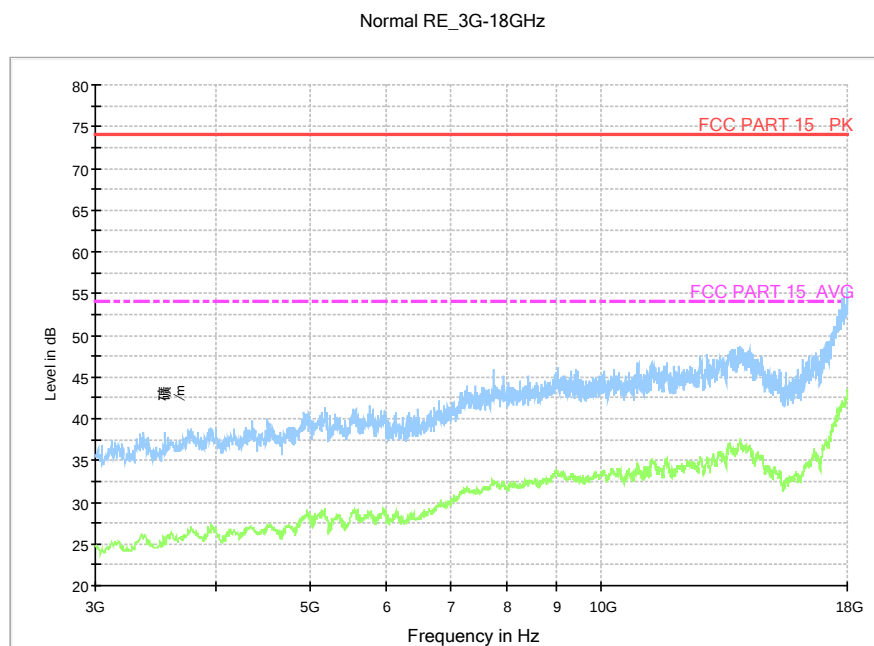


Fig.44. Radiated emission: GFSK, Channel 39, 3 GHz - 18 GHz

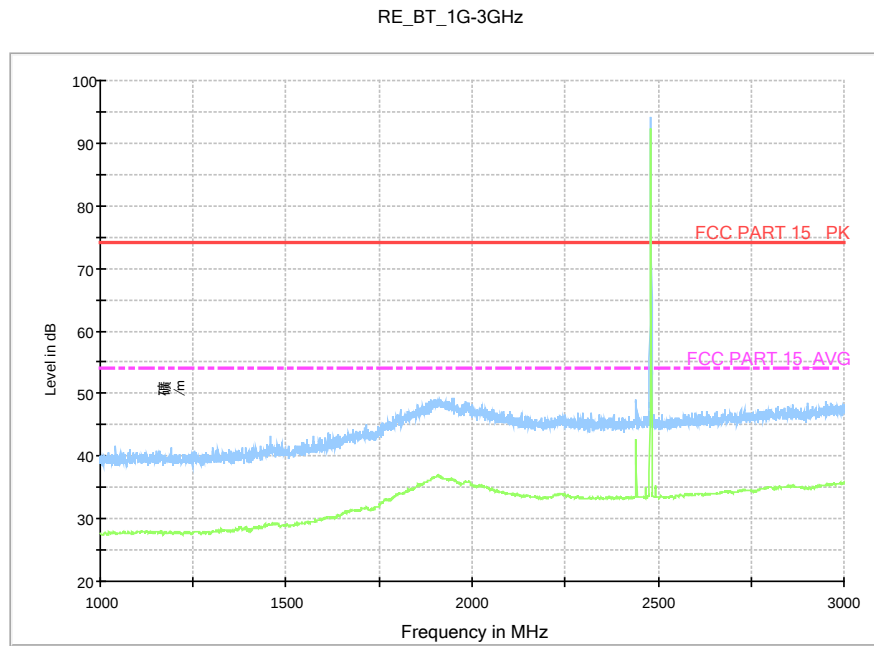


Fig.45. Radiated emission: GFSK, Channel 78, 1 GHz - 3 GHz

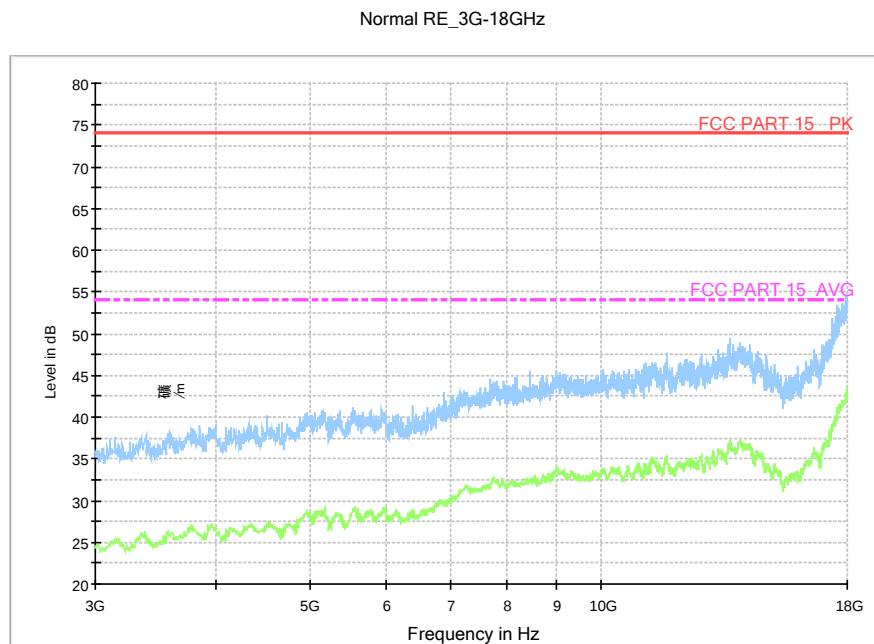


Fig.46. Radiated emission: GFSK, Channel 78, 3 GHz - 18 GHz

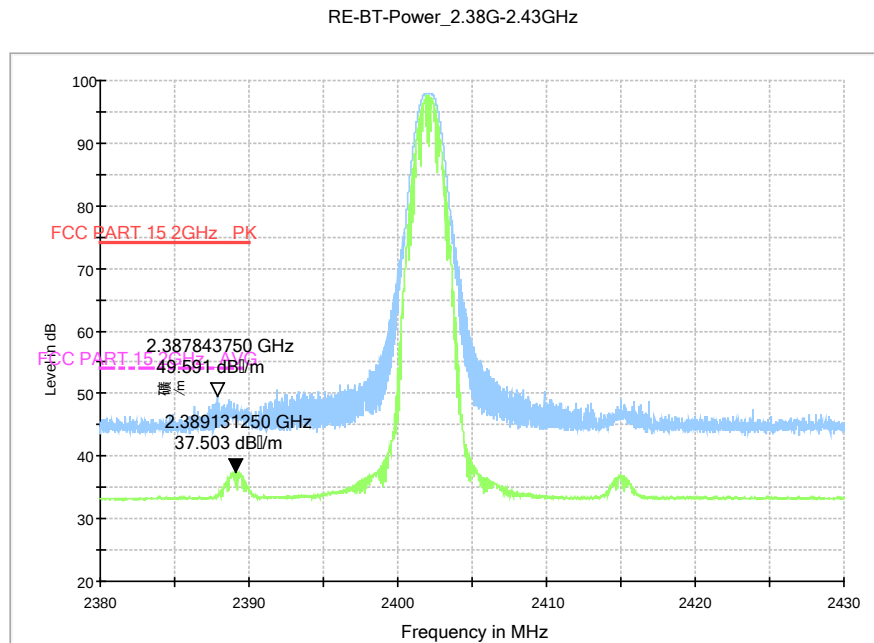


Fig.47. Radiated emission (Power): GFSK, low channel

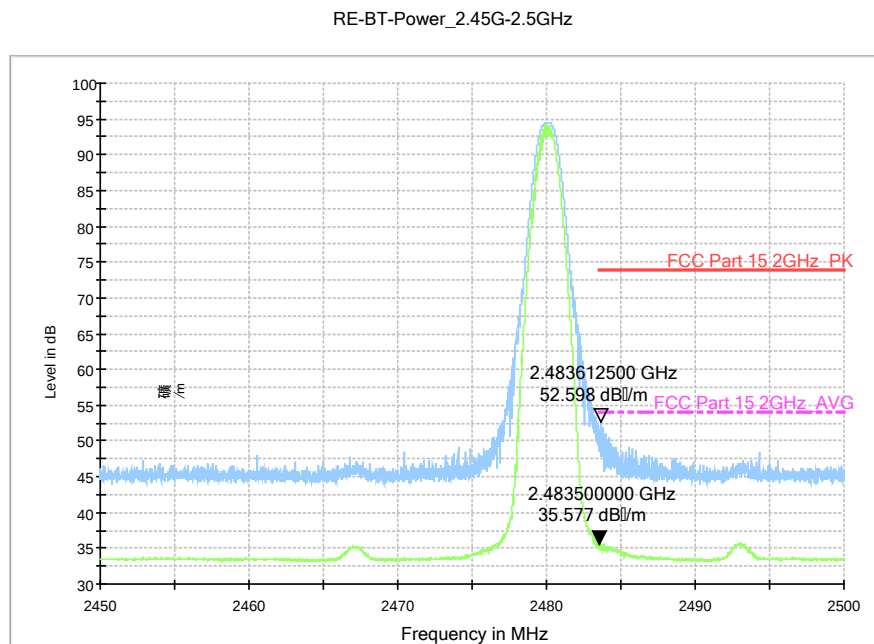


Fig.48. Radiated emission (Power) GFSK, high channel

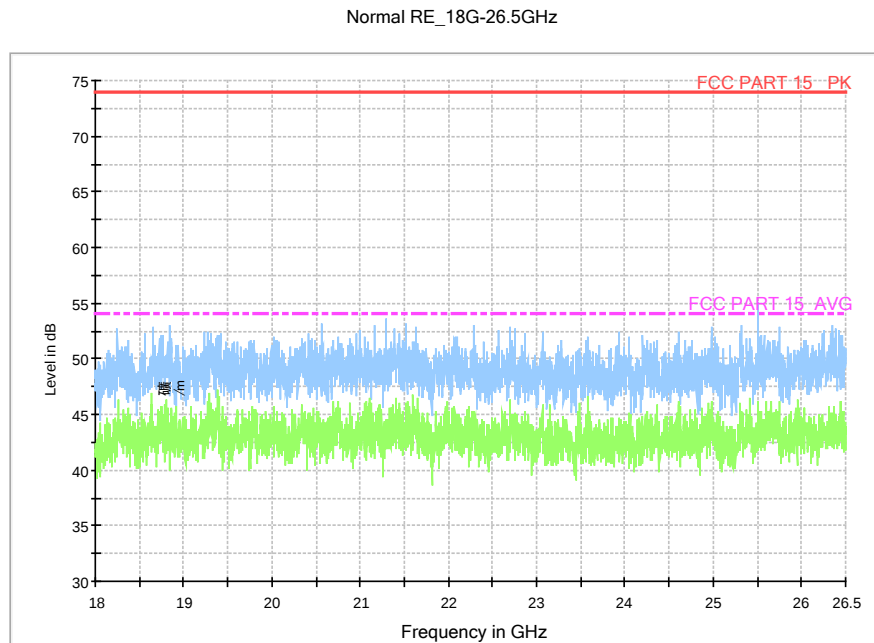


Fig.49. Radiated emission: GFSK, 18 GHz - 26 GHz

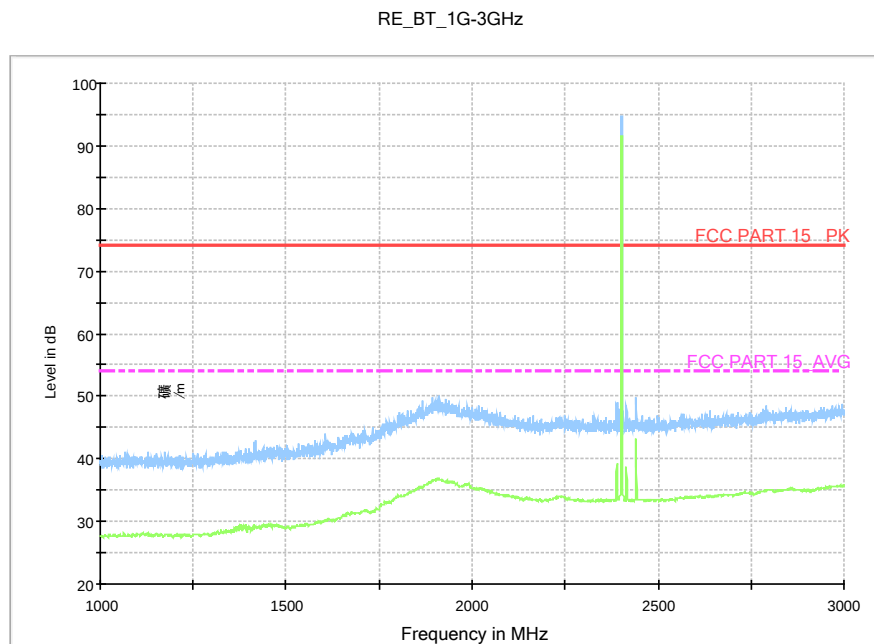


Fig.50. Radiated emission:  $\pi/4$  DQPSK, Channel 0, 1 GHz - 3 GHz

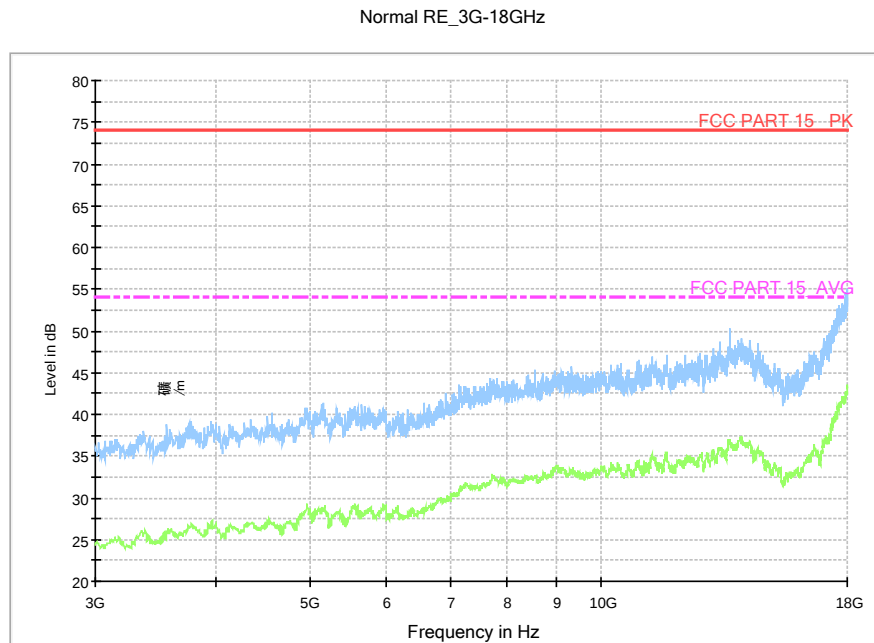


Fig.51. Radiated emission:  $\pi/4$  DQPSK, Channel 0, 3 GHz - 18 GHz

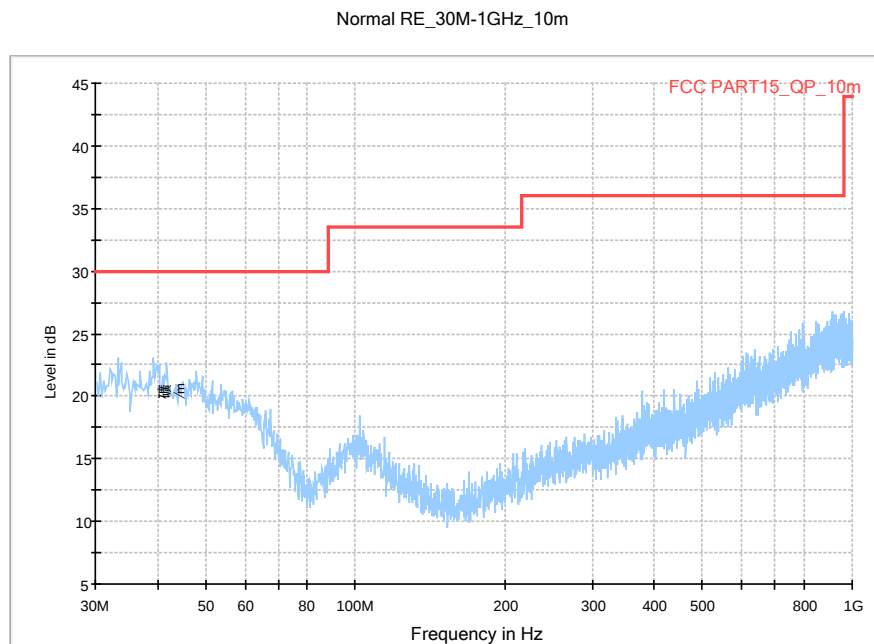


Fig.52. Radiated emission:  $\pi/4$  DQPSK, Channel 39, 30 MHz - 1 GHz

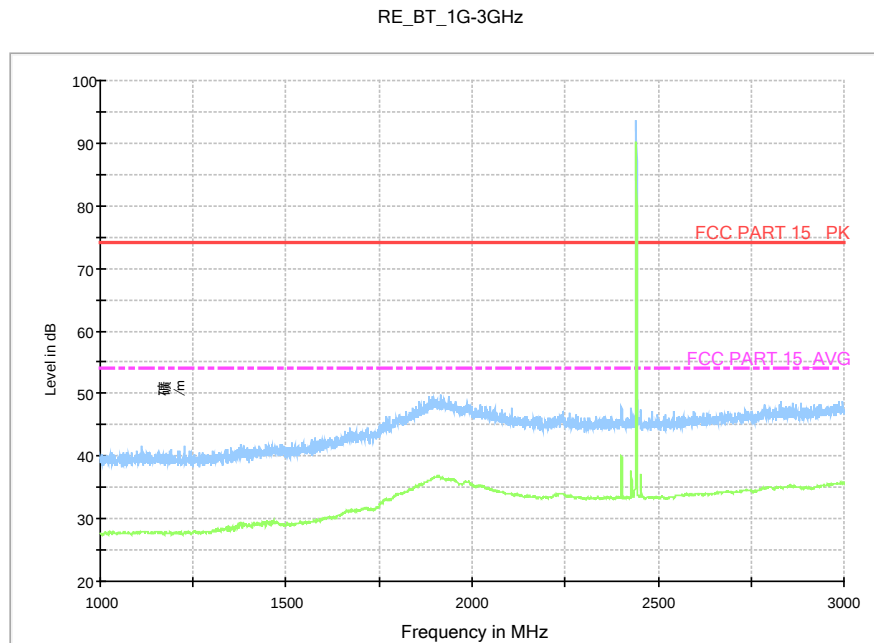


Fig.53. Radiated emission:  $\pi/4$  DQPSK, Channel 39, 1 GHz - 3 GHz

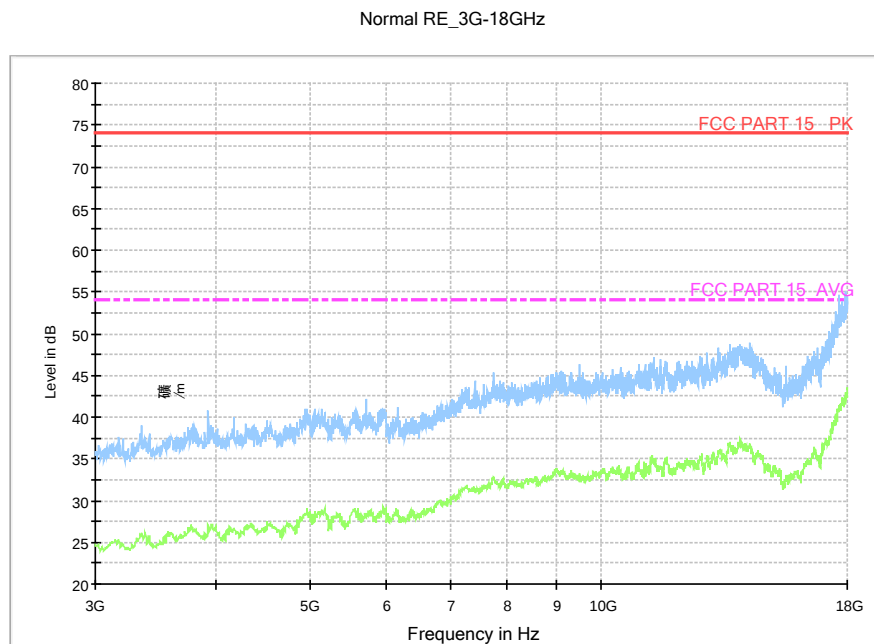


Fig.54. Radiated emission:  $\pi/4$  DQPSK, Channel 39, 3 GHz - 18 GHz

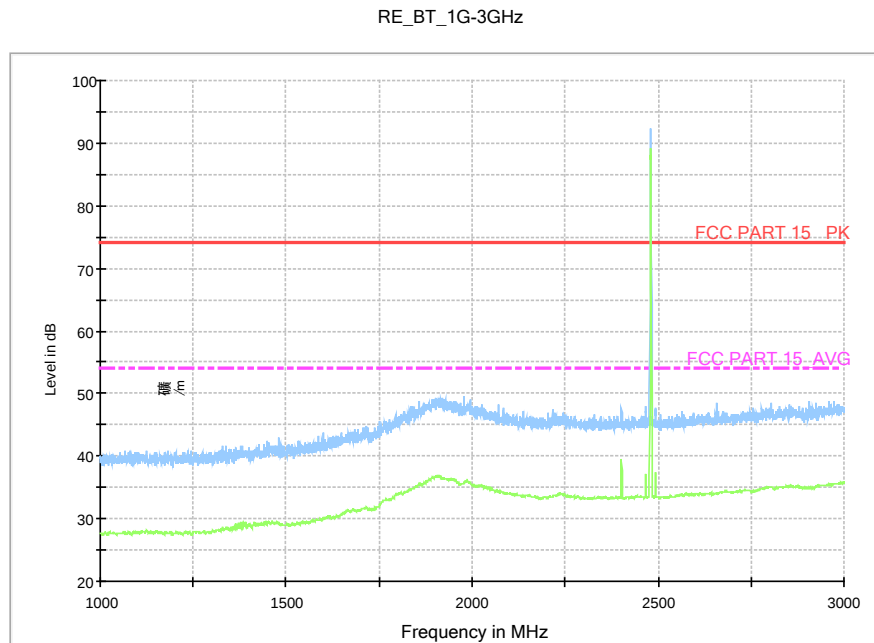


Fig.55. Radiated emission:  $\pi/4$  DQPSK, Channel 78, 1 GHz - 3 GHz

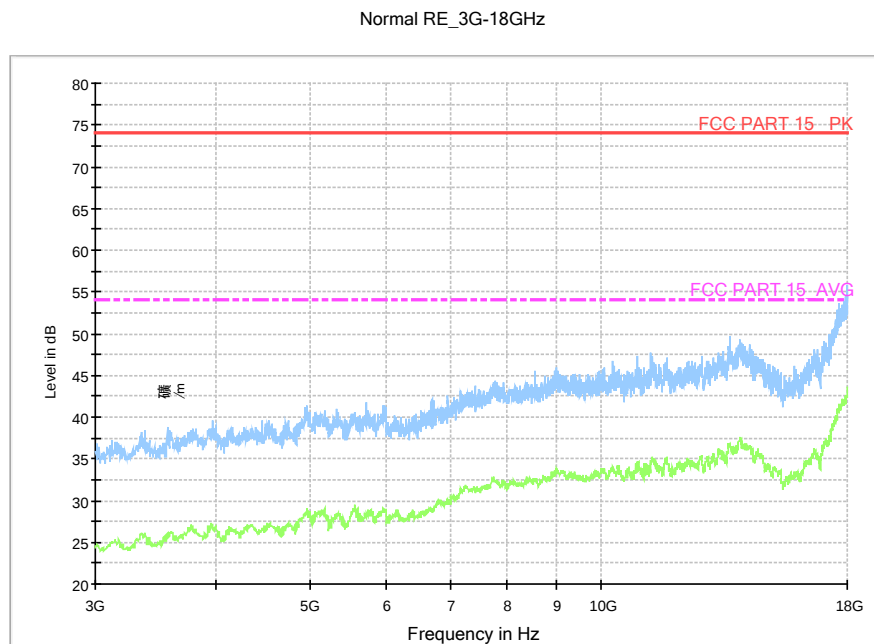


Fig.56. Radiated emission:  $\pi/4$  DQPSK, Channel 78, 3 GHz - 18 GHz

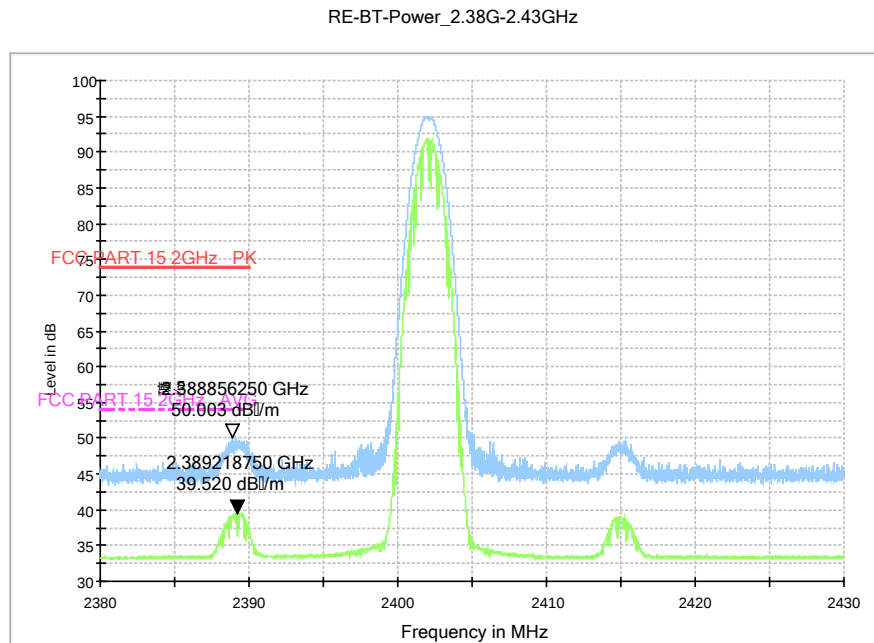


Fig.57. Radiated emission (Power):  $\pi/4$  DQPSK, low channel

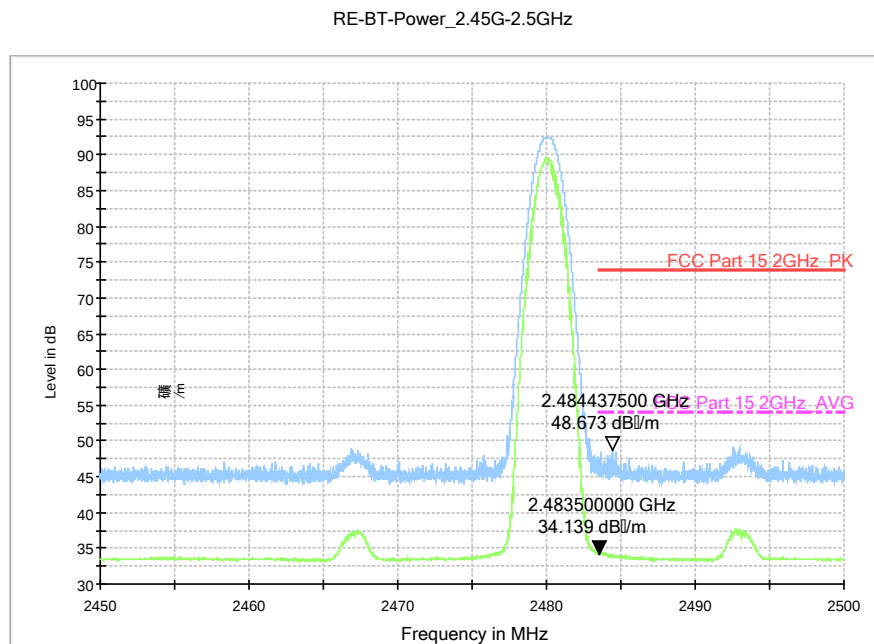


Fig.58. Radiated emission (Power):  $\pi/4$  DQPSK, high channel

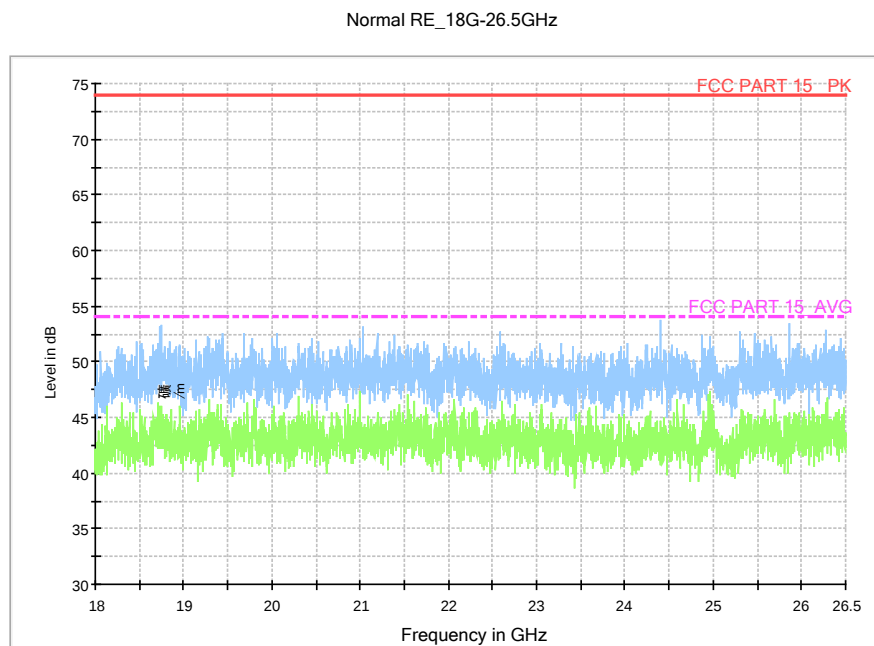


Fig.59. Radiated emission:  $\pi/4$  DQPSK, 18 GHz - 26 GHz

### A.6. Time of Occupancy (Dwell Time)

#### Measurement Limit:

| Standard                           | Limit (ms) |
|------------------------------------|------------|
| FCC 47 CFR Part 15.247(a) (1)(iii) | < 400      |

The measurement is made according to ANSI C63.10

#### Measurement Result:

##### For GFSK

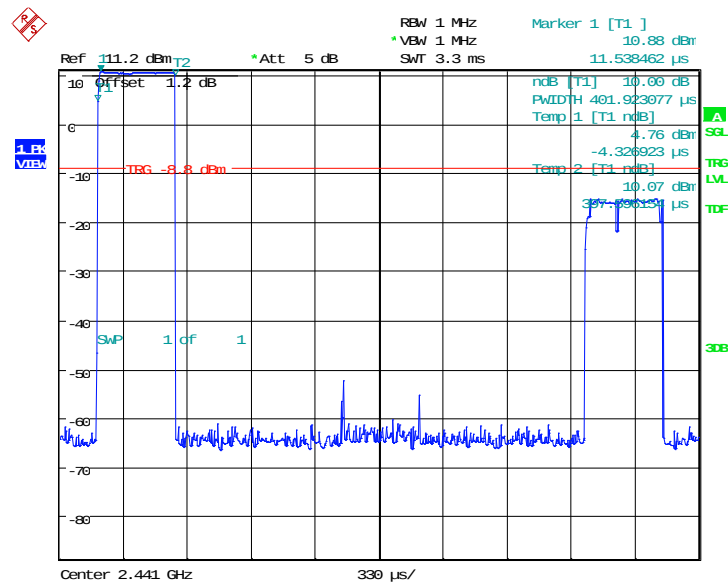
| Channel | Packet | Dwell Time (ms) |        | Conclusion |
|---------|--------|-----------------|--------|------------|
| 39      | DH1    | Fig.60          | 112.14 | P          |
|         |        | Fig.61          |        |            |
|         | DH3    | Fig.62          | 192.18 | P          |
|         |        | Fig.63          |        |            |
|         | DH5    | Fig.64          | 207.27 | P          |
|         |        | Fig.65          |        |            |

##### For $\pi/4$ DQPSK

| Channel | Packet | Dwell Time (ms) |        | Conclusion |
|---------|--------|-----------------|--------|------------|
| 39      | DH1    | Fig.66          | 112.94 | P          |
|         |        | Fig.67          |        |            |
|         | DH3    | Fig.68          | 184.91 | P          |
|         |        | Fig.69          |        |            |
|         | DH5    | Fig.70          | 181.32 | P          |
|         |        | Fig.71          |        |            |

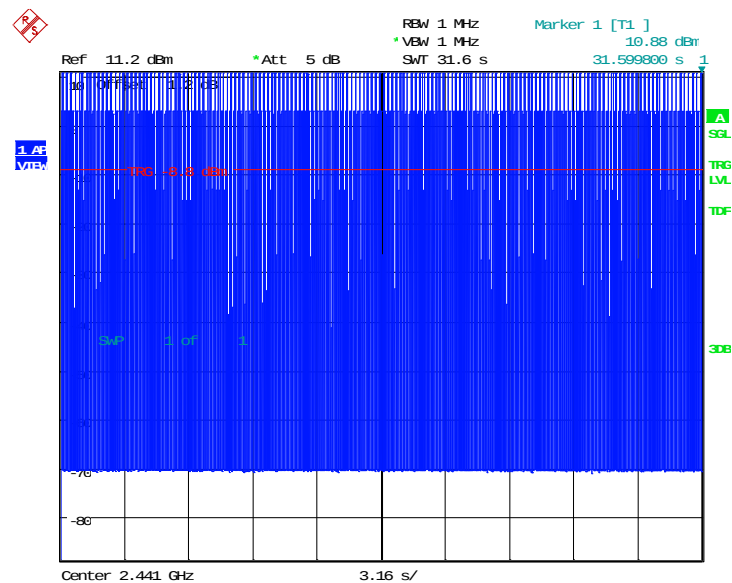
**Conclusion: PASS**

Test graphs as below:



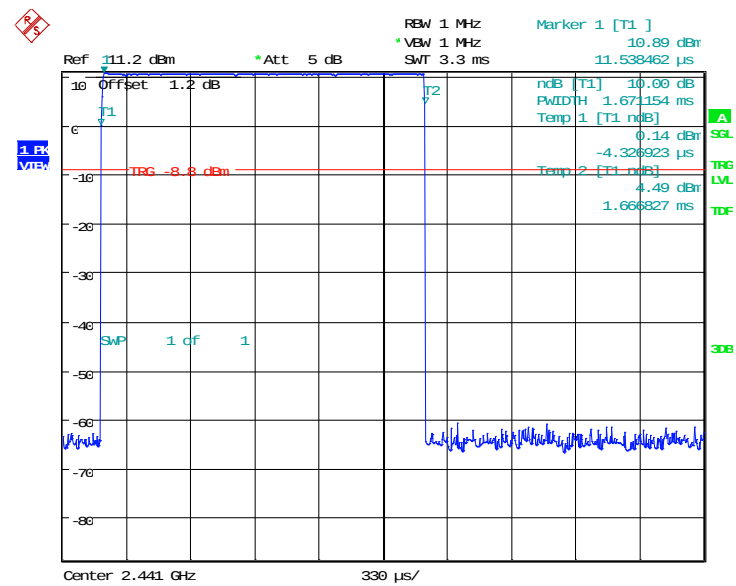
Date: 7.AUG.2014 17:18:08

Fig.60. Time of occupancy (Dwell Time): Channel 39, GFSK-DH1



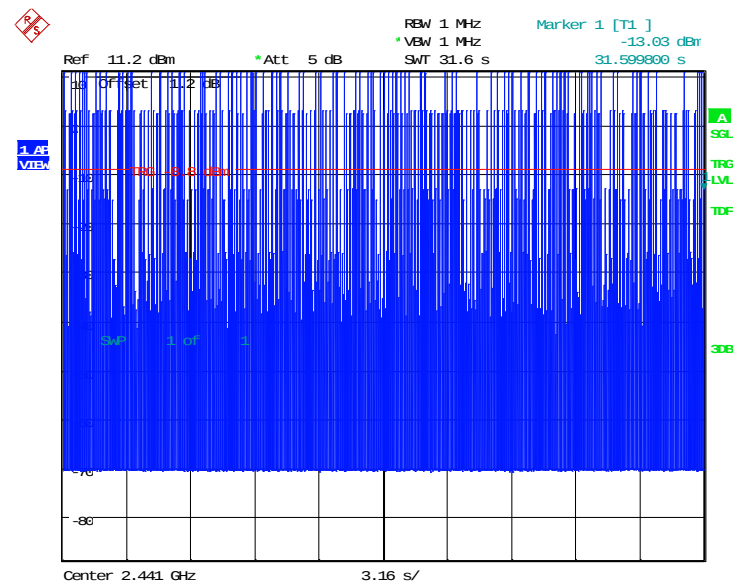
Date: 7.AUG.2014 17:17:56

Fig.61. Number of Transmissions Measurement: Channel 39, GFSK-DH1



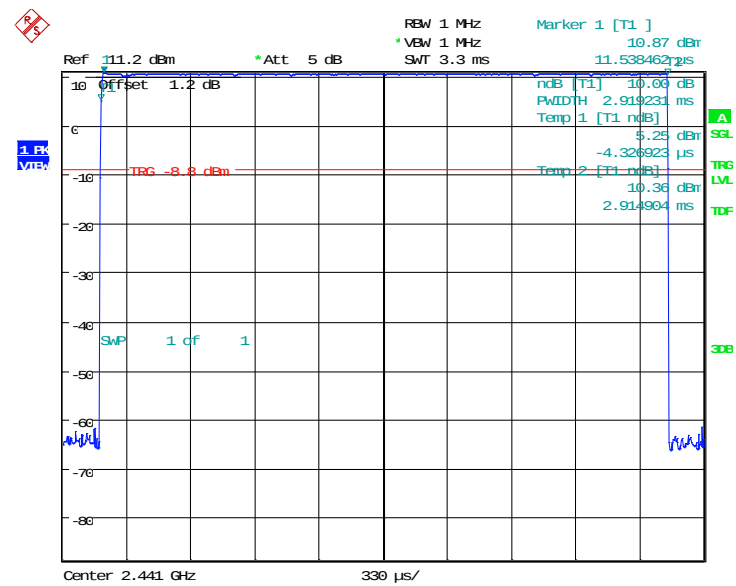
Date: 7.AUG.2014 17:19:26

Fig.62. Time of occupancy (Dwell Time): Channel 39, GFSK-DH3



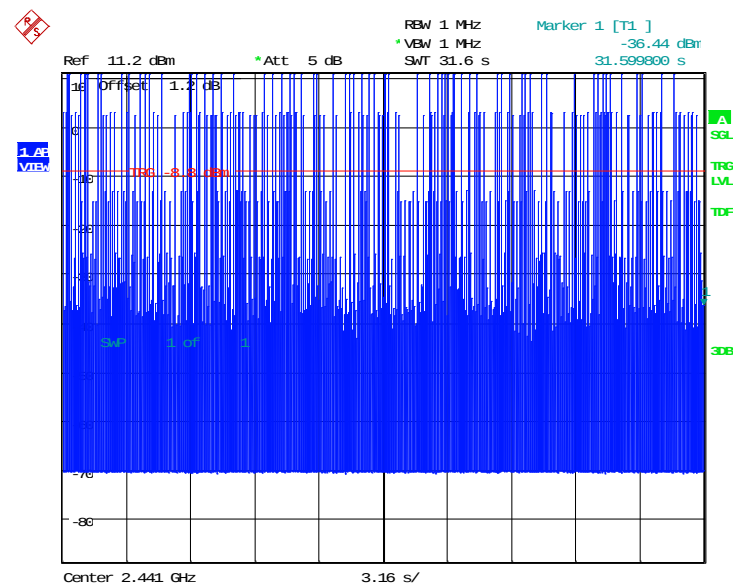
Date: 7.AUG.2014 17:19:14

Fig.63. Number of Transmissions Measurement: Channel 39, GFSK-DH3



Date: 7.AUG.2014 17:20:43

Fig.64. Time of occupancy (Dwell Time): Channel 39, GFSK-DH5



Date: 7.AUG.2014 17:20:31

Fig.65. Number of Transmissions Measurement: Channel 39, GFSK-DH5

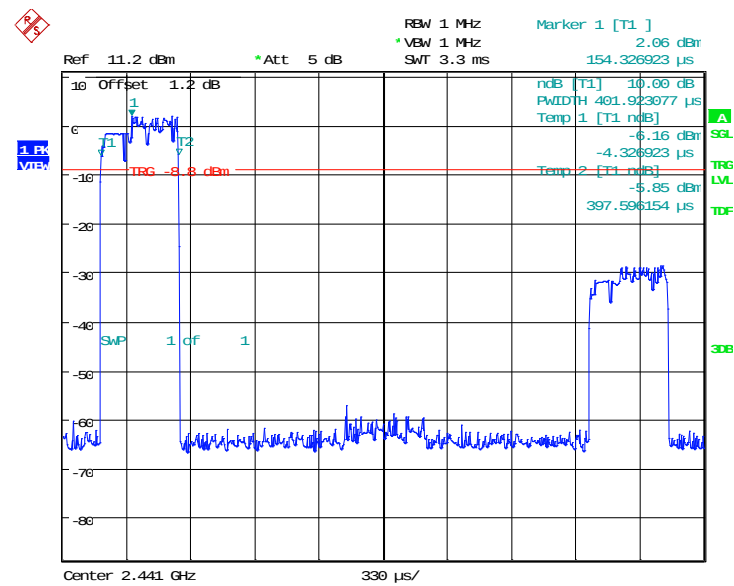


Fig.66. Time of occupancy (Dwell Time): Channel 39,  $\pi/4$  DQPSK -DH1

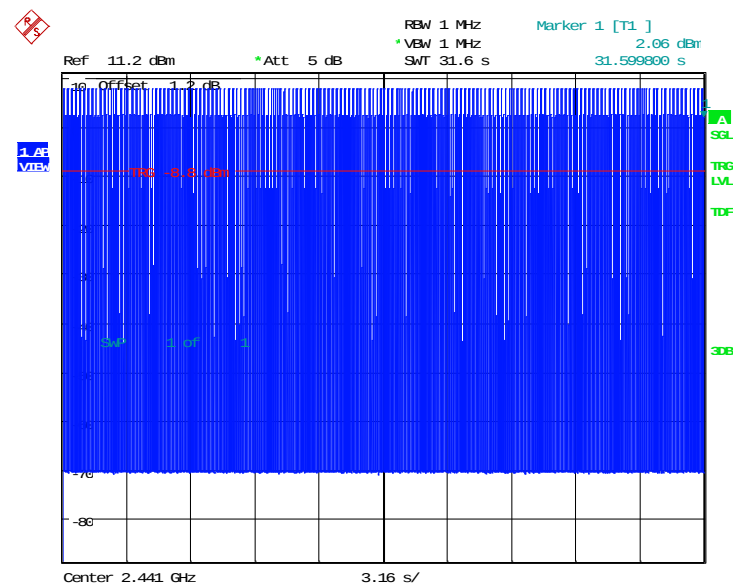
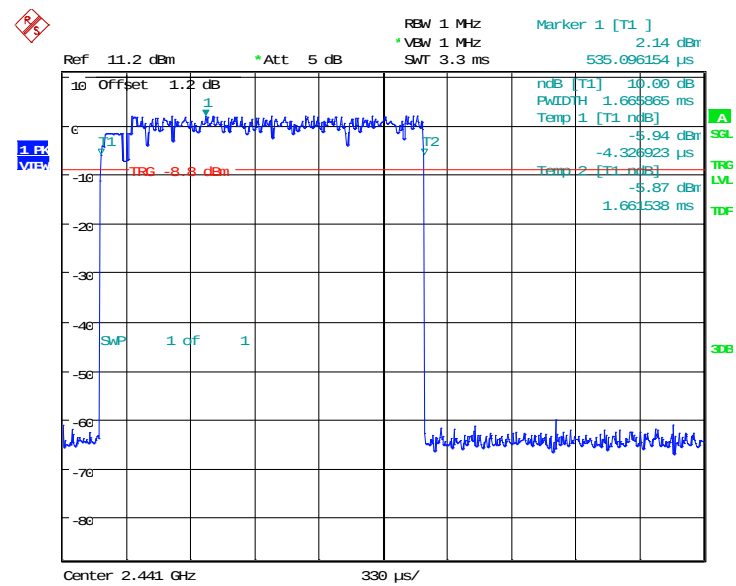
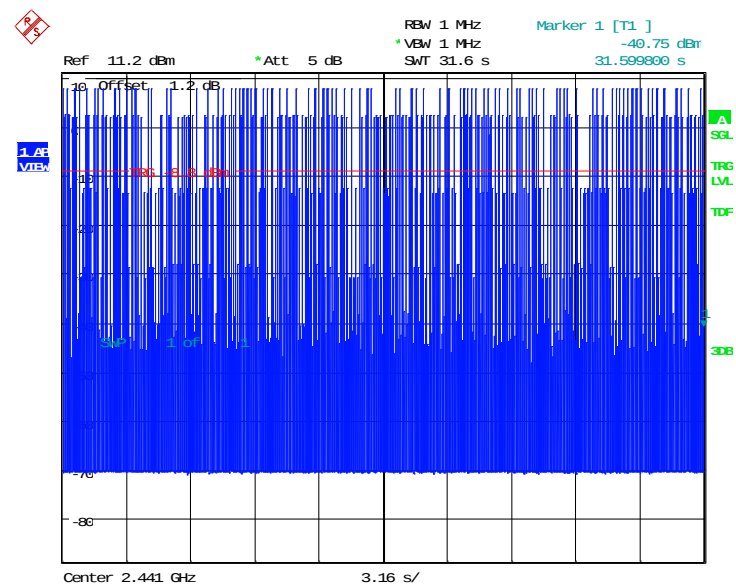


Fig.67. Number of Transmissions Measurement: Channel 39,  $\pi/4$  DQPSK -DH1



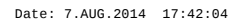
Date: 7.AUG.2014 17:40:49

Fig.68. Time of occupancy (Dwell Time): Channel 39,  $\pi/4$  DQPSK -DH3



Date: 7.AUG.2014 17:40:37

Fig.69. Number of Transmissions Measurement: Channel 39,  $\pi/4$  DQPSK -DH3



Ref 11.2 dBm      \*Att 5 dB      RBW 1 MHz      Marker 1 [T1]      -51.82 dBm  
 Offset 1.2 dB      SWT 31.6 s      31.599800 s

1.05 VdBx

10  
 0  
 -10  
 -20  
 -30  
 -40  
 -50  
 -60  
 -70  
 -80

Offset 1.2 dB

-51.82 dBm

2.439 2.441 2.443 GHz

Center 2.441 GHz      3.16 s/

1 A SGL  
 TR0  
 LVL  
 TDF  
 3DB

Date: 7.AUG.2014 17:41:52

### A.7. 20dB Bandwidth

#### Measurement Limit:

| Standard                     | Limit |
|------------------------------|-------|
| FCC 47 CFR Part 15.247(a)(1) | NA *  |

The measurement is made according to ANSI C63.10

\* Comment: This test case is not required according to the latest FCC 47 CFR Part 15.247. But the test results are necessary for “carrier frequency separation” test case, in Annex A.8.

#### Measurement Results:

##### For GFSK

| Channel | 20dB Bandwidth (kHz) |        | Conclusion |
|---------|----------------------|--------|------------|
| 0       | Fig.72               | 875.00 | NA         |
| 39      | Fig.73               | 870.19 | NA         |
| 78      | Fig.74               | 870.19 | NA         |

##### For $\pi/4$ DQPSK

| Channel | 20dB Bandwidth (kHz) |         | Conclusion |
|---------|----------------------|---------|------------|
| 0       | Fig.75               | 1293.27 | NA         |
| 39      | Fig.76               | 1293.27 | NA         |
| 78      | Fig.77               | 1302.88 | NA         |

**Conclusion: NA**

**Test graphs as below:**

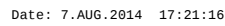


Fig.72. 20dB Bandwidth: GFSK, Channel 0

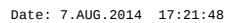
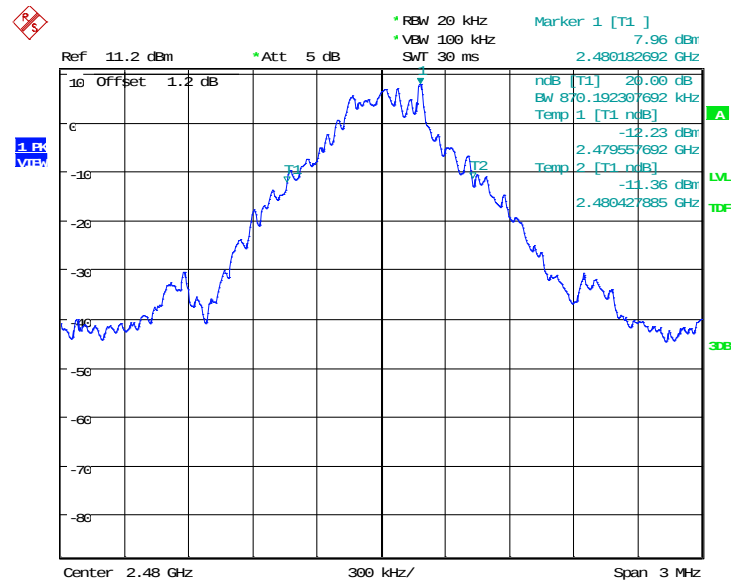
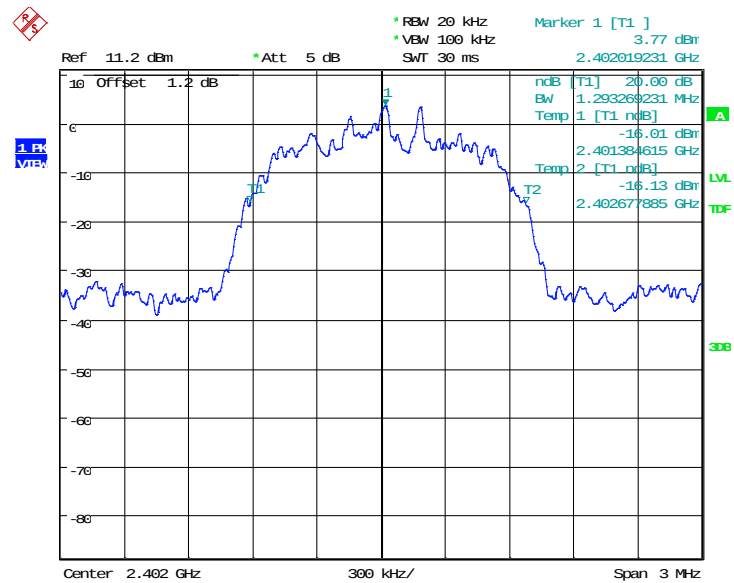


Fig.73. 20dB Bandwidth: GFSK, Channel 39



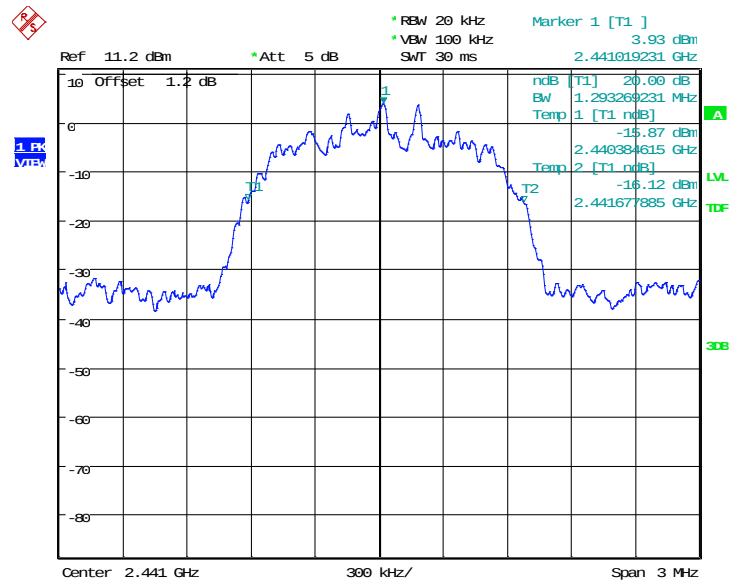
Date: 7.AUG.2014 17:22:20

Fig.74. 20dB Bandwidth: GFSK, Channel 78



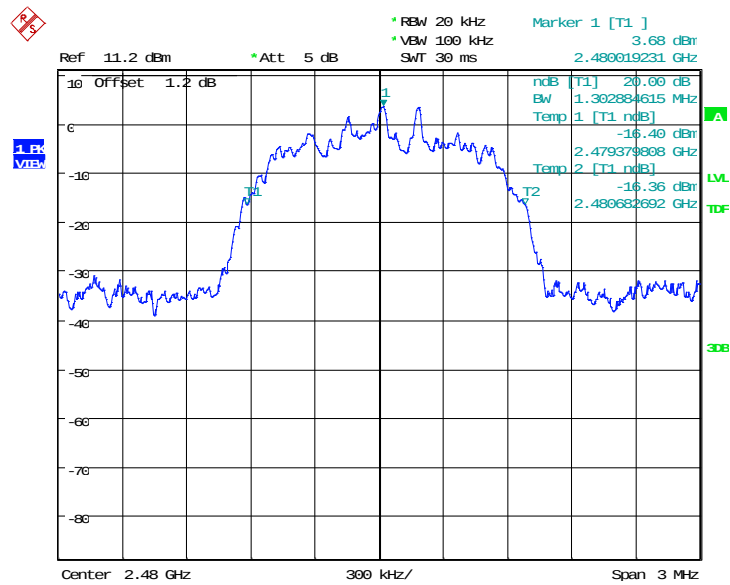
Date: 7.AUG.2014 17:42:38

Fig.75. 20dB Bandwidth:  $\pi/4$  DQPSK, Channel 0



Date: 7.AUG.2014 17:43:10

Fig.76. 20dB Bandwidth:  $\pi/4$  DQPSK, Channel 39



Date: 7.AUG.2014 17:43:42

Fig.77. 20dB Bandwidth:  $\pi/4$  DQPSK, Channel 78

## A.8. Carrier Frequency Separation

### Measurement Limit:

| Standard                     | Limit(kHz)                                     |
|------------------------------|------------------------------------------------|
| FCC 47 CFR Part 15.247(a)(1) | over 25 kHz or $(2/3) * 20\text{dB}$ bandwidth |

The measurement is made according to ANSI C63.10

\* Comment: This limit should be over 25 kHz or  $(2/3) * 20\text{dB}$  bandwidth, whichever is greater.

### Measurement Result:

#### For GFSK

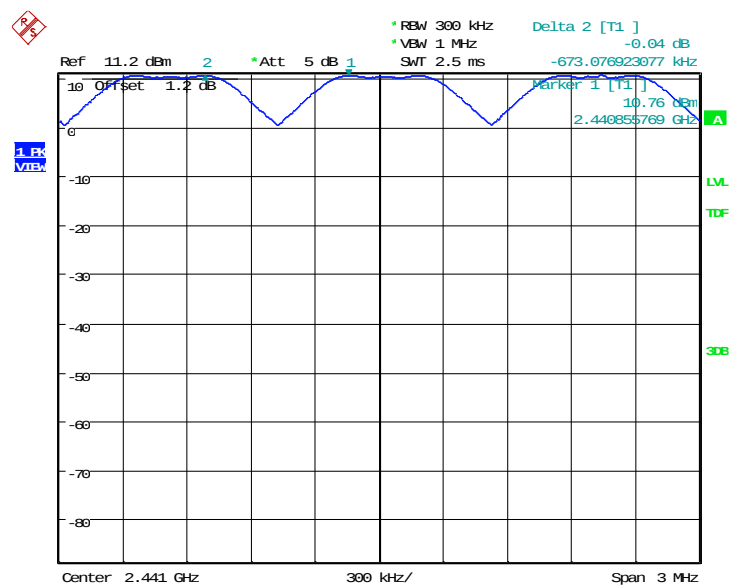
| Channel | Carrier frequency separation (kHz) | Conclusion |
|---------|------------------------------------|------------|
| 39      | Fig.78                             | P          |

#### For $\pi/4$ DQPSK

| Channel | Carrier frequency separation (kHz) | Conclusion |
|---------|------------------------------------|------------|
| 39      | Fig.79                             | P          |

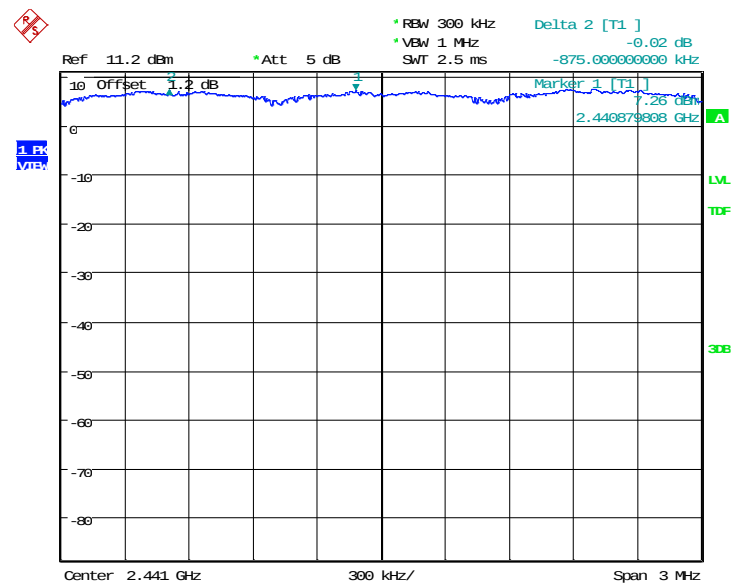
**Conclusion: PASS**

Test graphs as below:



Date: 7.AUG.2014 17:24:24

Fig.78. Carrier frequency separation measurement: GFSK, Channel 39



Date: 7.AUG.2014 17:45:46

Fig.79. Carrier frequency separation measurement:  $\pi/4$  DQPSK, Channel 39

## A.9. Number of Hopping Channels

### Measurement Limit:

| Standard                           | Limit                                |
|------------------------------------|--------------------------------------|
| FCC 47 CFR Part 15.247(a) (1)(iii) | At least 15 non-overlapping channels |

The measurement is made according to ANSI C63.10

### Measurement Result:

#### For GFSK

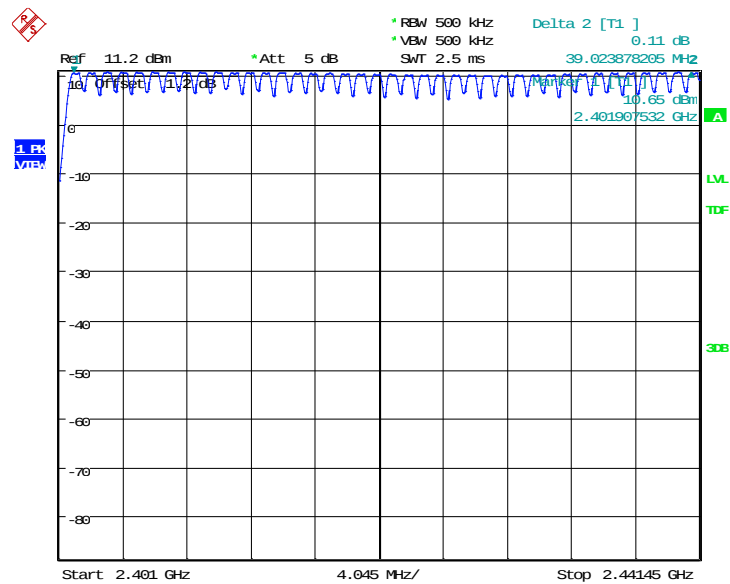
| Channel | Number of hopping channels |    | Conclusion |
|---------|----------------------------|----|------------|
| 0~39    | Fig.80                     | 79 | P          |
| 40~78   | Fig.81                     |    |            |

#### For $\pi/4$ DQPSK

| Channel | Number of hopping channels |    | Conclusion |
|---------|----------------------------|----|------------|
| 0~39    | Fig.82                     | 79 | P          |
| 40~78   | Fig.83                     |    |            |

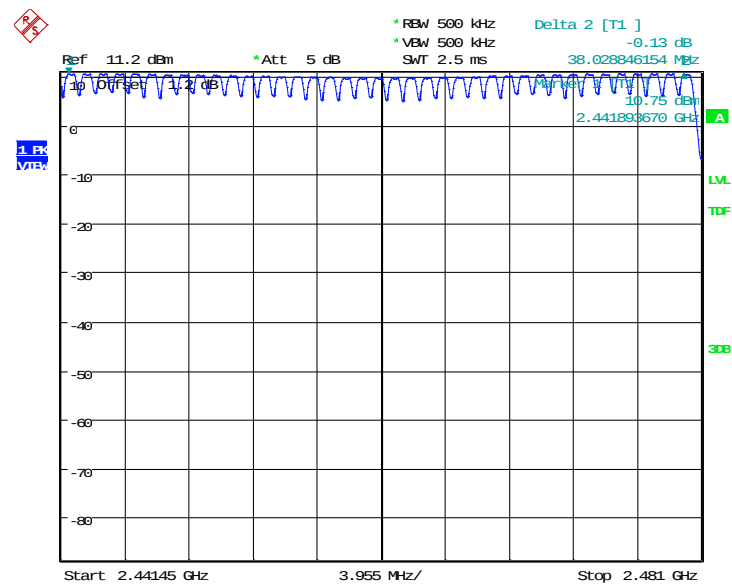
**Conclusion: PASS**

Test graphs as below:



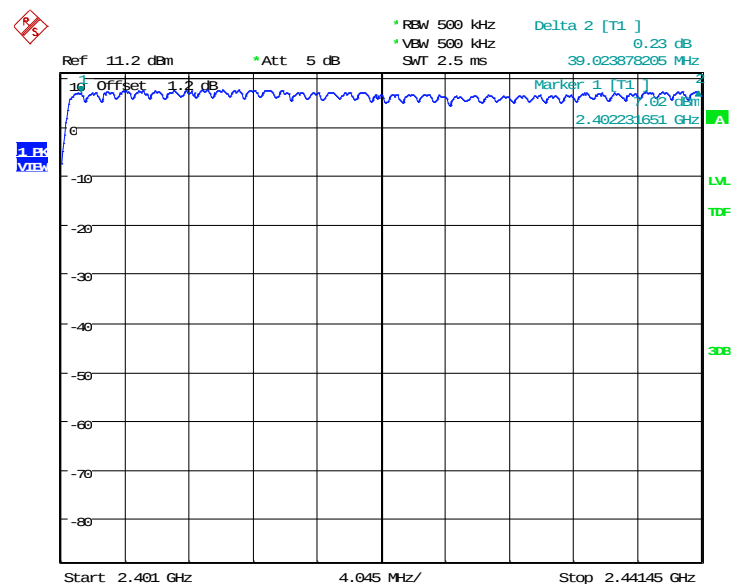
Date: 7.AUG.2014 17:26:28

Fig.80. Number of hopping frequencies: GFSK, Channel 0 - 39



Date: 7.AUG.2014 17:28:31

Fig.81. Number of hopping frequencies: GFSK, Channel 40 - 78



Date: 7.AUG.2014 17:47:50

Fig.82. Number of hopping frequencies:  $\pi/4$  DQPSK, Channel 0 - 39

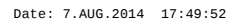


Fig.83. Number of hopping frequencies:  $\pi/4$  DQPSK, Channel 40 - 78

## A.10. AC Powerline Conducted Emission

### Test Condition

| Voltage (V) | Frequency (Hz) |
|-------------|----------------|
| 120         | 60             |

The measurement is made according to ANSI C63.10

### Measurement Method:

The EUT is connected to the travel adapter, and travel adapter is connected to the LISN directly. EUT is under test mode, and the modulation method is GFSK.

### Measurement Result and limit:

#### Bluetooth (Quasi-peak Limit)

| Frequency range (MHz) | Quasi-peak Limit (dBμV) | Conclusion |
|-----------------------|-------------------------|------------|
| 0.15 to 0.5           | 66 to 56                | P          |
| 0.5 to 5              | 56                      |            |
| 5 to 30               | 60                      |            |

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

#### Bluetooth (Average Limit)

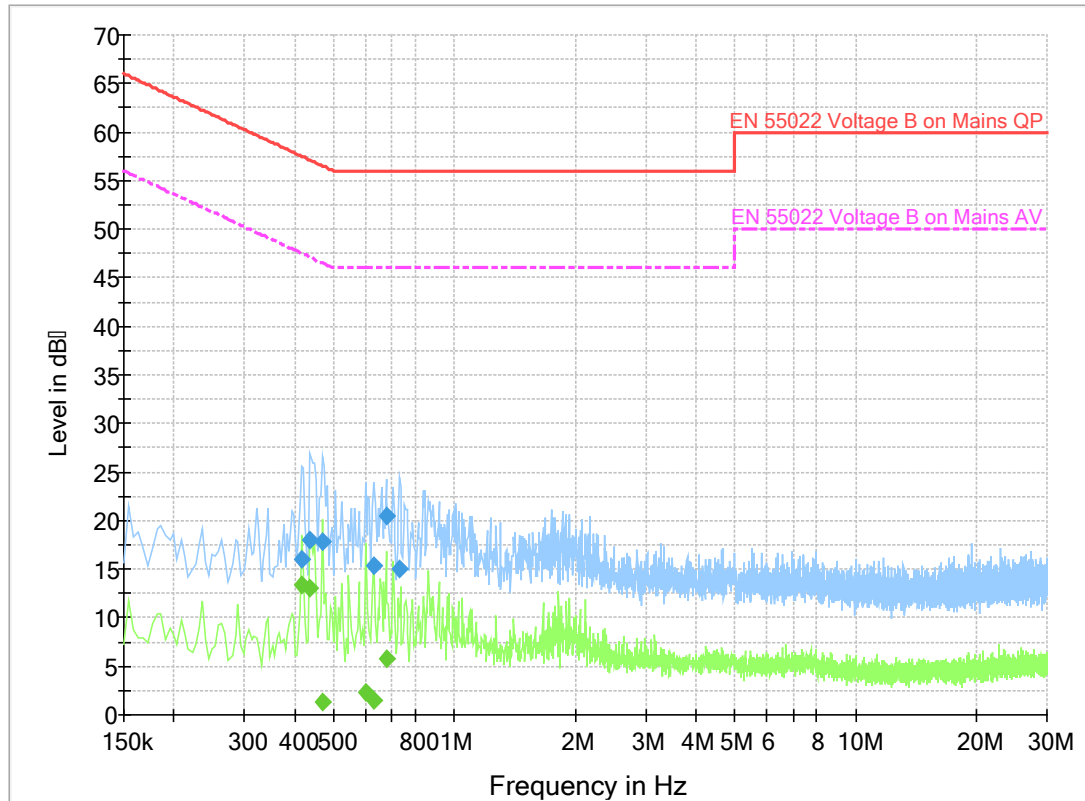
| Frequency range (MHz) | Quasi-peak Limit (dBμV) | Conclusion |
|-----------------------|-------------------------|------------|
| 0.15 to 0.5           | 56 to 46                | P          |
| 0.5 to 5              | 46                      |            |
| 5 to 30               | 50                      |            |

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

**Conclusion: PASS**

**Test graphs as below:**

## Traffic



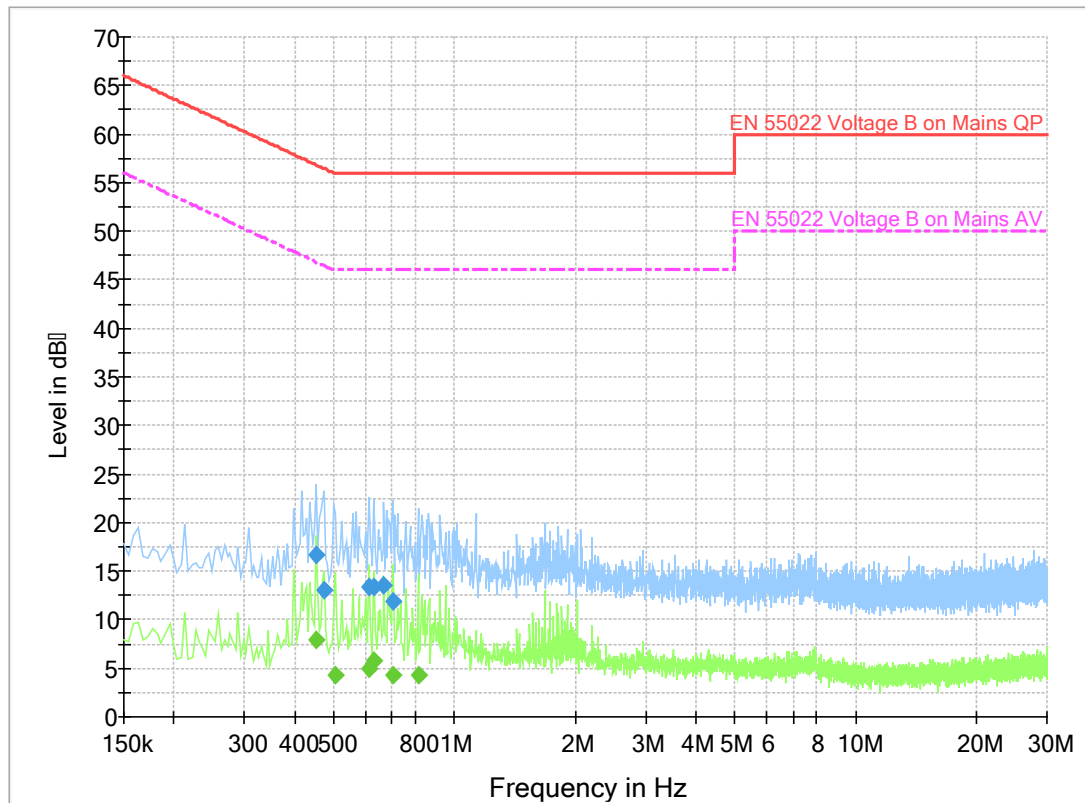
## Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|------------------|------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.415500        | 16.1             | 2000.0     | 9.000           | On     | L1   | 10.1       | 41.5        | 57.5         |         |
| 0.438000        | 18.0             | 2000.0     | 9.000           | On     | L1   | 10.1       | 39.1        | 57.1         |         |
| 0.469500        | 17.8             | 2000.0     | 9.000           | On     | L1   | 10.1       | 38.7        | 56.5         |         |
| 0.631500        | 15.3             | 2000.0     | 9.000           | On     | L1   | 10.1       | 40.7        | 56.0         |         |
| 0.676500        | 20.5             | 2000.0     | 9.000           | On     | L1   | 10.1       | 35.5        | 56.0         |         |
| 0.730500        | 15.0             | 2000.0     | 9.000           | On     | N    | 10.0       | 41.0        | 56.0         |         |

## Final Result 2

| Frequency (MHz) | Average (dBμV) | Meas. Time | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|----------------|------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.415500        | 13.4           | 2000.0     | 9.000           | On     | L1   | 10.1       | 34.2        | 47.5         |         |
| 0.438000        | 13.0           | 2000.0     | 9.000           | On     | L1   | 10.1       | 34.1        | 47.1         |         |
| 0.469500        | 1.2            | 2000.0     | 9.000           | On     | L1   | 10.1       | 45.3        | 46.5         |         |
| 0.600000        | 2.2            | 2000.0     | 9.000           | On     | L1   | 10.1       | 43.8        | 46.0         |         |
| 0.631500        | 1.4            | 2000.0     | 9.000           | On     | L1   | 10.1       | 44.6        | 46.0         |         |
| 0.676500        | 5.9            | 2000.0     | 9.000           | On     | L1   | 10.1       | 40.1        | 46.0         |         |

Idle:



## Final Result 1

| Frequency (MHz) | QuasiPeak (dBμV) | Meas. Time | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|------------------|------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.451500        | 16.7             | 2000.0     | 9.000           | On     | L1   | 10.1       | 40.2        | 56.8         |         |
| 0.474000        | 13.0             | 2000.0     | 9.000           | On     | L1   | 10.1       | 43.4        | 56.4         |         |
| 0.613500        | 13.5             | 2000.0     | 9.000           | On     | L1   | 10.1       | 42.5        | 56.0         |         |
| 0.631500        | 13.4             | 2000.0     | 9.000           | On     | L1   | 10.1       | 42.6        | 56.0         |         |
| 0.667500        | 13.6             | 2000.0     | 9.000           | On     | L1   | 10.1       | 42.4        | 56.0         |         |
| 0.703500        | 11.9             | 2000.0     | 9.000           | On     | L1   | 10.0       | 44.1        | 56.0         |         |

## Final Result 2

| Frequency (MHz) | Average (dBμV) | Meas. Time | Bandwidth (kHz) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBμV) | Comment |
|-----------------|----------------|------------|-----------------|--------|------|------------|-------------|--------------|---------|
| 0.451500        | 7.9            | 2000.0     | 9.000           | On     | L1   | 10.1       | 38.9        | 46.8         |         |
| 0.505500        | 4.4            | 2000.0     | 9.000           | On     | L1   | 10.1       | 41.6        | 46.0         |         |
| 0.613500        | 5.0            | 2000.0     | 9.000           | On     | L1   | 10.1       | 41.0        | 46.0         |         |
| 0.631500        | 5.9            | 2000.0     | 9.000           | On     | L1   | 10.1       | 40.1        | 46.0         |         |
| 0.703500        | 4.3            | 2000.0     | 9.000           | On     | L1   | 10.0       | 41.7        | 46.0         |         |
| 0.811500        | 4.4            | 2000.0     | 9.000           | On     | L1   | 10.0       | 41.6        | 46.0         |         |

## A.11 RECEIVER RADIATION EMISSION

### Reference

FCC: CFR Part 15.109, 2.1053

#### A.11.1 Method of Measurement

The measurement procedure in ANSI C63.10-2009 is used. The EUT is placed on a 80cm height non-conductive table locating on the center of turntable. From 30MHz-1GHz, the measurement distance is 10m. For frequency range above 1GHz, the measurement distance is 3m.

The EUT is measured with travel charger and the operating mode is idle without CMU200's signaling.

#### A.11.2 Method of Measurement

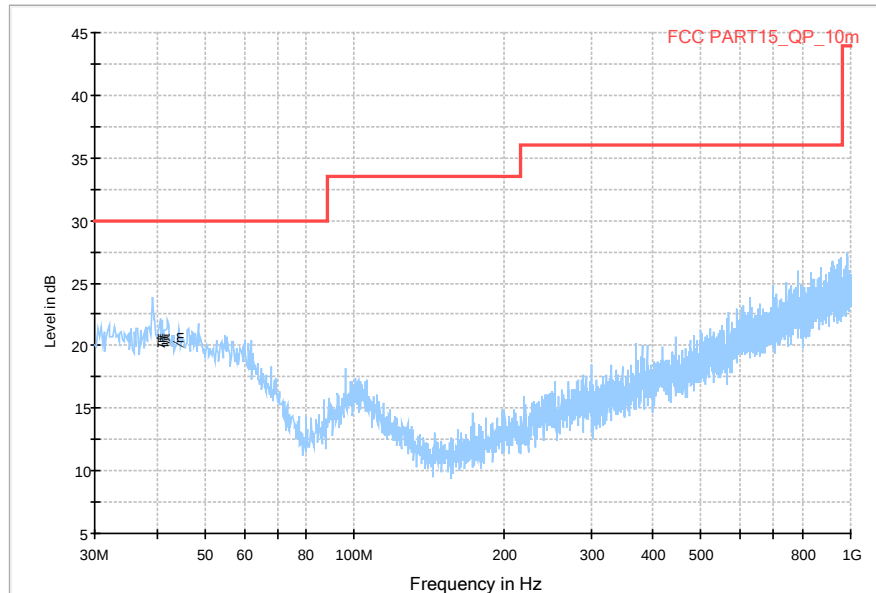
| Frequency of Emission (MHz) | Limit (dB $\mu$ V/m) | Measurement Distance (m) |
|-----------------------------|----------------------|--------------------------|
| 30-88                       | 30                   | 10                       |
| 88-216                      | 33.5                 | 10                       |
| 216-960                     | 36                   | 10                       |
| 960-1000                    | 44                   | 10                       |
| >1000                       | 54                   | 3                        |

### A. 11.3 Measurement results

IF bandwidth: 120 kHz

#### Idle Mode: 30MHz-1GHz

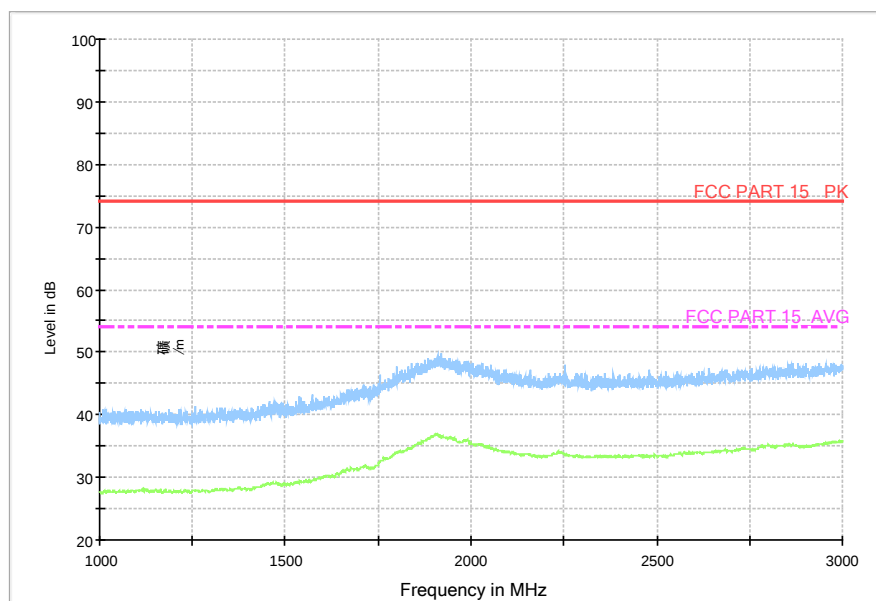
Normal RE\_30M-1GHz\_10m



RBW / VBW 1 MHz

#### Idle Mode: 1GHz-3GHz

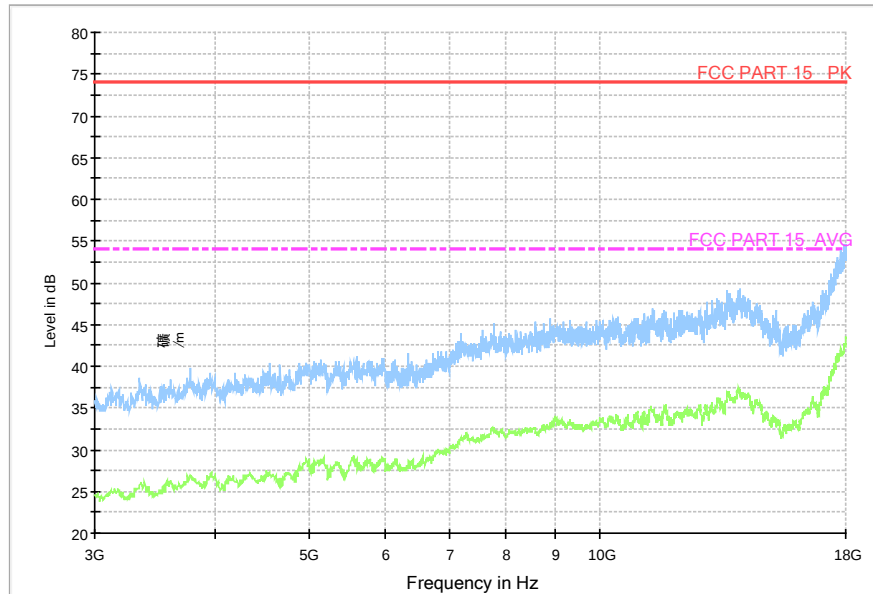
RE\_BT\_1G-3GHz



RBW / VBW 1 MHz

### Idle Mode: 3GHz-18GHz

Normal RE\_3G-18GHz



\*\*\* END OF REPORT BODY \*\*\*