



*Full*

# TEST REPORT

**No. I17D00008-RFB**

*For*

**Client : Hisense International Co., Ltd**

**Production : Smartphone**

**Model Name : Hisense T963**

**FCC ID: 2ADOBT963**

**Hardware Version: V1.00**

**Software Version: L1348.6.01.01.MX06**

**Issued date: 2017-02-07**

**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 ECIT Shanghai.

**Test Laboratory:**

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**Revision Version**

| Report Number | Revision | Date       | Memo                            |
|---------------|----------|------------|---------------------------------|
| I17D00008-RFB | 00       | 2017-02-07 | Initial creation of test report |

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## 1. Test Laboratory

### 1.1. Testing Location

|               |                                                                                   |
|---------------|-----------------------------------------------------------------------------------|
| Company Name: | ECIT Shanghai, East China Institute of Telecommunications                         |
| Address:      | 7-8F, G Area, No. 668, Beijing East Road, Huangpu District, Shanghai, P. R. China |
| Postal Code:  | 200001                                                                            |
| Telephone:    | (+86)-021-63843300                                                                |
| Fax:          | (+86)-021-63843301                                                                |

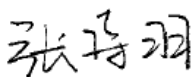
### 1.2. Testing Environment

|                      |          |
|----------------------|----------|
| Normal Temperature:  | 15-35℃   |
| Extreme Temperature: | -10/+55℃ |
| Relative Humidity:   | 20-75%   |

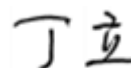
### 1.3. Project data

|                     |              |
|---------------------|--------------|
| Project Leader:     | Wang Yaqiong |
| Testing Start Date: | 2016-12-21   |
| Testing End Date:   | 2017-01-24   |

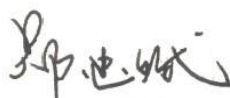
### 1.4. Signature



**Zhang Shiyu**  
(Prepared this test report)



**Ding Li**  
(Reviewed this test report)



**Zheng Zhongbin**  
Director of the laboratory  
(Approved this test report)

## 2. Client Information

### 2.1. Applicant Information

Company Name: Hisense International Co., Ltd  
Address: Floor 22, Hisense Tower, 17 Donghai Xi Road, Qingdao, 266071,  
China  
Postcode: 266010  
Email: zhangkelin@hisense.com

### 2.2. Manufacturer Information

Company Name: Hisense Communications Co., Ltd.  
Address: 218 Qianwangang Road, Economic & Technological Development  
Zone, Qingdao, Shandong Province, P.R. China  
Postcode: 266510  
Email: zhangmingyd@hisense.com

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

#### 3.1. About EUT

|                         |                                 |
|-------------------------|---------------------------------|
| EUT Description         | Smartphone                      |
| Model name              | Hisense T963                    |
| GSM Frequency Band      | GSM850/900/1800/1900            |
| WLAN Frequency          | 2412MHz-2472MHz                 |
| WLAN Channel            | Channel1-Channel13              |
| WLAN type of modulation | 802.11b:DSSS<br>802.11g/n: OFDM |
| Extreme Temperature     | -10/+55℃                        |
| Nominal Voltage         | 3.8V                            |
| Extreme High Voltage    | 4.3V                            |
| Extreme Low Voltage     | 3.6 V                           |

Note: Photographs of EUT are shown in ANNEX A of this test report.

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

| EUT ID* | SN or IMEI      | HW Version | SW Version         | Date of receipt |
|---------|-----------------|------------|--------------------|-----------------|
| N03     | 002101541395046 | V1.00      | L1348.6.01.01.MX06 | 2016-12-20      |

\*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  |
|--------|-------------|-----|
| AE1    | RF cable    | --- |
| AE2    | ---         | --- |

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

#### 3.4. Main Supply of EUT

| Part Name | Model Name       | Supplier   |
|-----------|------------------|------------|
| LCD       | TXDY500DFWPC-174 | TONGXINGDA |
| Flash     | KMFNX0012M-B214  | Samsung    |

#### 3.5. Secondary Supply of EUT

| AE ID* | Description        | SN       |
|--------|--------------------|----------|
| LCD    | KBF8630-5.0        | HOLITECH |
| Flash  | H9TQ64A8GTCCUR-KUM | SK Hynix |

## 4. Reference Documents

### 4.1. Reference Documents for testing

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

| Reference   | Title                                                                                                                                                                                                                | Version             |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| FCC Part15  | 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, 2400-2483.5MHz, and 5725-5850MHz. | Jun,2016<br>Edition |
| ANSI C63.10 | American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices                                                                                                                       | 2013                |

## 5. Summary of Test Results

A brief summary of the tests carried out is shown as following.

| Measurement Items                       | Sub-clause of Part15C | Sub-clause of IC | Verdict |
|-----------------------------------------|-----------------------|------------------|---------|
| Maximum Peak Output Power               | 15.247(b)             | /                | P       |
| Peak Power Spectral Density             | 15.247(d)             | /                | N/A     |
| 20dB Occupied Bandwidth                 | 15.247(a)             | /                | P       |
| Band Edges Compliance                   | 15.247(b)             | /                | P       |
| Transmitter Spurious Emission-Conducted | 15.247                | /                | P       |
| Transmitter Spurious Emission-Radiated  | 15.247,15.209,        | /                | P       |
| AC Powerline Conducted Emission         | 15.107,15.207         | /                | N/A     |

Please refer to part 5 for detail.

The measurements are according to and 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 ECIT.                               |
| NA | Not Applicable, the test was not applicable.                                   |
| F  | Fail, the EUT does not comply with the essential requirements in the standard. |

### Test Conditions

|      |                    |
|------|--------------------|
| Tnom | Normal Temperature |
| Tmin | Low Temperature    |
| Tmax | High Temperature   |
| Vnom | Normal Voltage     |
| Vmin | Low Voltage        |
| Vmax | High Voltage       |
| Hnom | Norm Humidity      |
| Anom | 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  | Tnom | 22°C    |
| Voltage      | Vnom | 3.7V    |
| Humidity     | Hnom | 32%     |
| Air Pressure | Anom | 1010hPa |

**Note:**

- All the test data for each data were verified, but only the worst case was reported.
- The GFSK,  $\pi/4$  DQPSK and 8DPSK were set in DH1 for GFSK, 2-DH1 for  $\pi/4$  DQPSK, 3-DH1 for 8DPSK.
- The DC and low frequency voltages' measurement uncertainty is  $\pm 2\%$ .

**5.1. Notes**

All reported tests were carried out on a sample equipment to demonstrate limited compliance with section 3.

The test results of this test report relate exclusively to the item(s) tested as specified in section 5.

The following deviation from, additions to, or exclusions from the test specifications have been made. See section 3.

**5.2. Statements**

The product name Hisense T963, supporting GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA/WLAN/BT/BLE, manufactured by Hisense International Co., Ltd. According to the variant description, there is no case to be retested except RSE. The other test results please refer to I16D00265-RFB.

ECIT has verified that the compliance of the tested device specified in section 5 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 5 of this test report.

## 6. Test result

### 6.1. Peak Output Power-Conducted

#### 6.1.1 Measurement Limit

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

#### 6.1.2 Test Condition:

|              |      |       |      |           |
|--------------|------|-------|------|-----------|
| Hopping Mode | RBW  | VBW   | Span | Sweeptime |
| Hopping OFF  | 3MHz | 10MHz | 9MHz | Auto      |

#### 6.1.3 Test procedure

The measurement is according to ANSI C63.10 clause 7.8.5.

1. The output power of EUT was connected to the spectrum analyzer and CBT32 by cable and divide. The path loss was compensated to the results for each measurement.
2. Enable EUT transmitter maximum power continuously.
3. Measure the conducted output power and record the results it.

#### 6.1.4 Measurement Results:

##### For GFSK

| Channel                           | Ch0 2402 MHz | Ch39 2441 MHz | CH78 2480 MHz | Conclusion |
|-----------------------------------|--------------|---------------|---------------|------------|
| Peak Conducted Output Power (dBm) | 6.037        | 7.479         | 8.486         | P          |
|                                   | Fig.1        | Fig.2         | Fig.3         |            |

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

| Channel                           | Ch0 2402 MHz | Ch39 2441 MHz | CH78 2480 MHz | Conclusion |
|-----------------------------------|--------------|---------------|---------------|------------|
| Peak Conducted Output Power (dBm) | 7.082        | 8.395         | 9.15          | P          |
|                                   | Fig.4        | Fig.5         | Fig.6         |            |

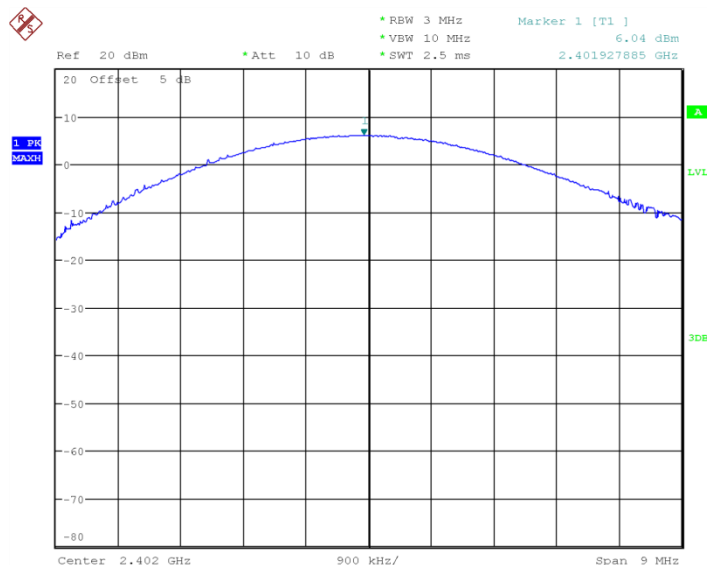
##### For 8DPSK

| Channel | Ch0 2402 MHz | Ch39 2441 MHz | CH78 2480 MHz | Conclusion |
|---------|--------------|---------------|---------------|------------|
|---------|--------------|---------------|---------------|------------|

|                                            |       |       |       |   |
|--------------------------------------------|-------|-------|-------|---|
| Peak<br>Conducted<br>Output Power<br>(dBm) | 7.227 | 8.486 | 9.249 | P |
|                                            | Fig.7 | Fig.8 | Fig.9 |   |

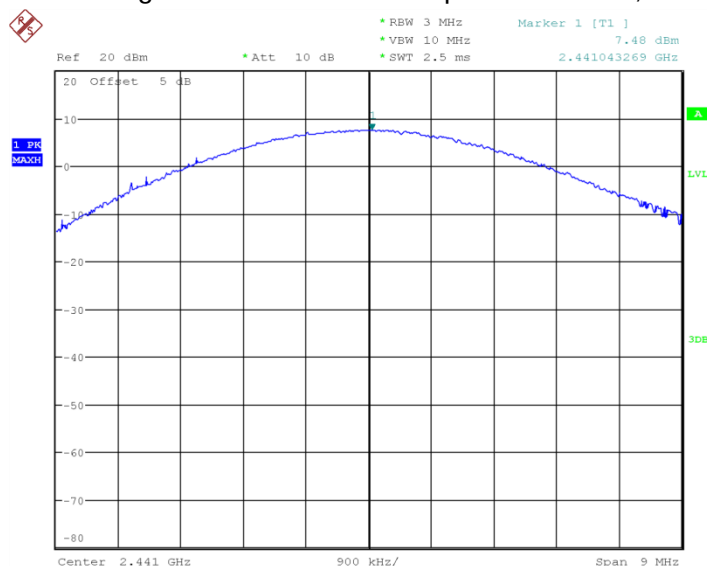
**Conclusion: PASS**

**Test graphs an below**



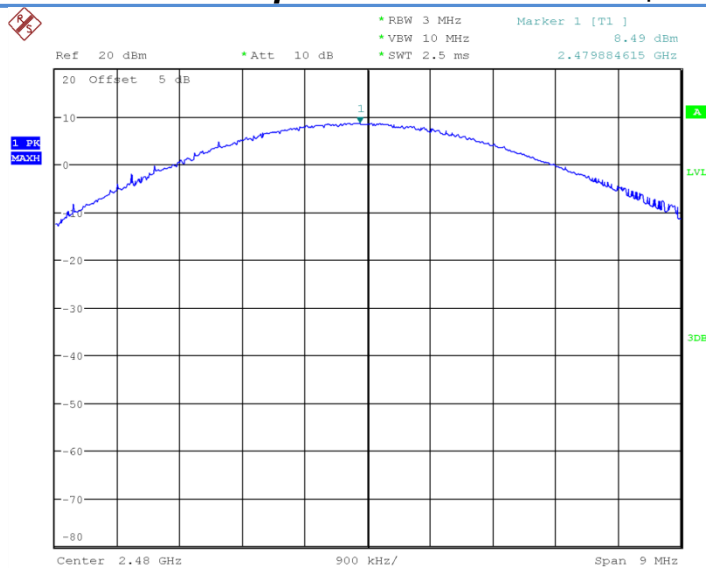
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**Fig.1 Peak Conducted Output Power CH0, DH1**



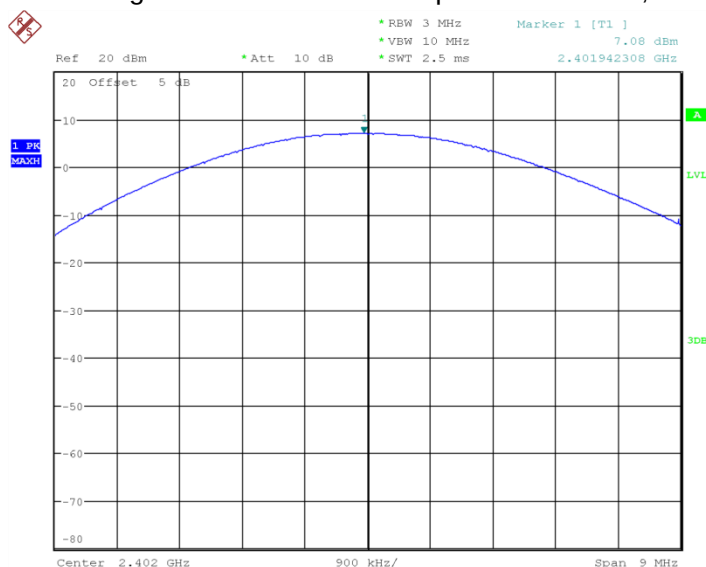
Date: 17.JAN.2017 13:35:14

**Fig.2 Peak Conducted Output Power CH39, DH1**



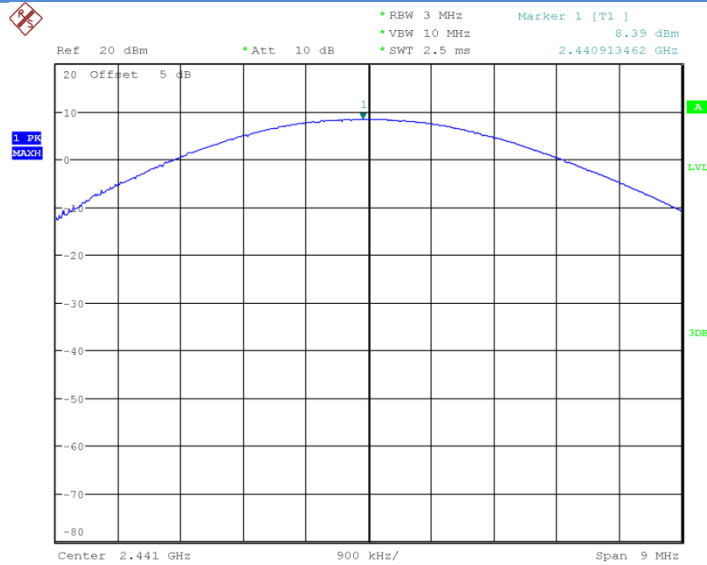
Date: 17.JAN.2017 13:35:29

Fig.3 Peak Conducted Output Power CH78, DH1



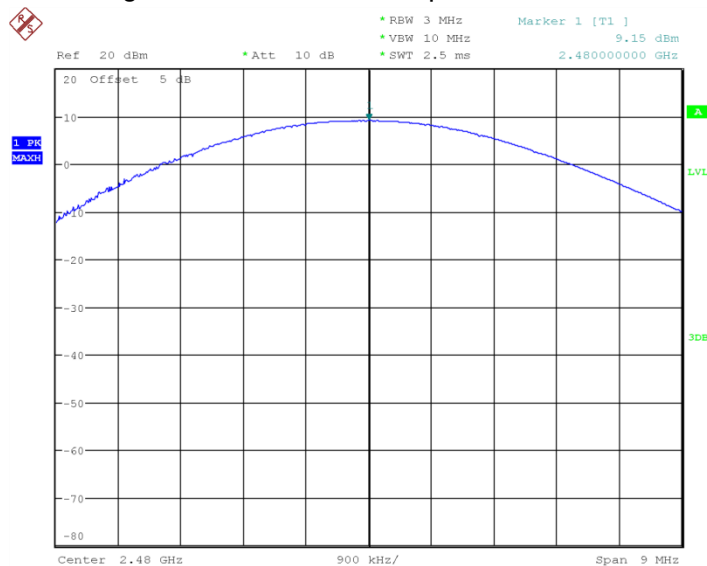
Date: 17.JAN.2017 13:35:43

Fig.4 Peak Conducted Output Power CH0, 2DH1



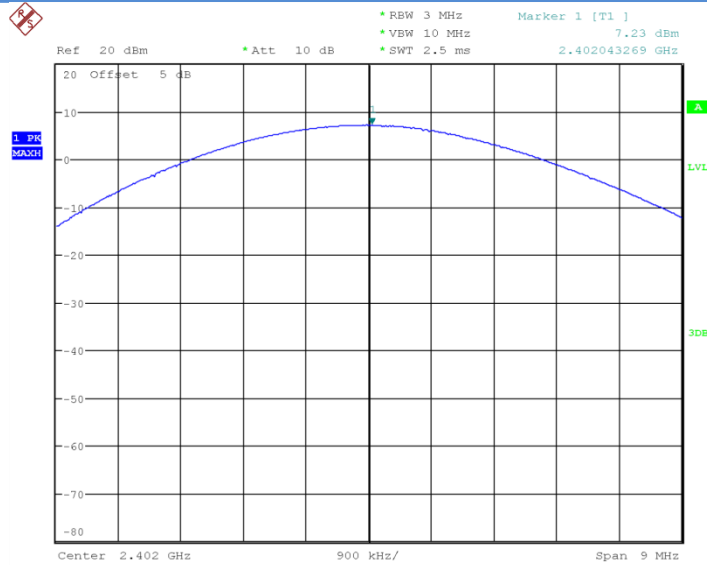
Date: 17.JAN.2017 13:35:58

Fig.5 Peak Conducted Output Power CH39, 2DH1



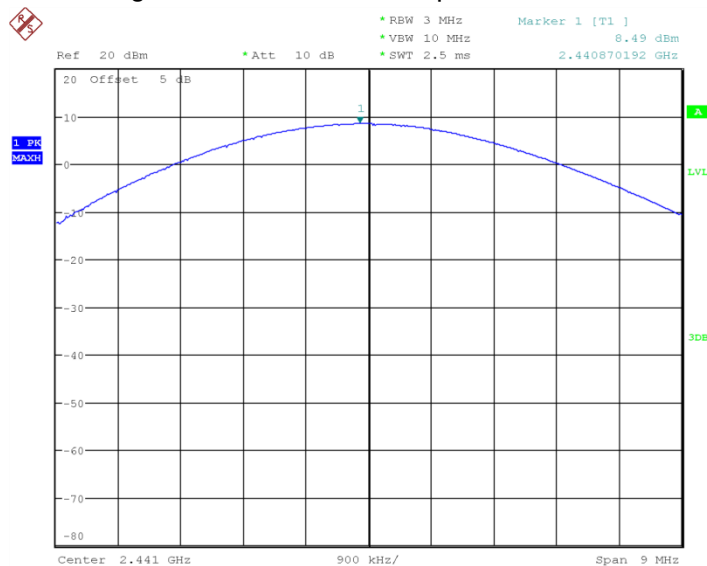
Date: 17.JAN.2017 13:36:13

Fig.6 Peak Conducted Output Power CH78, 2DH1



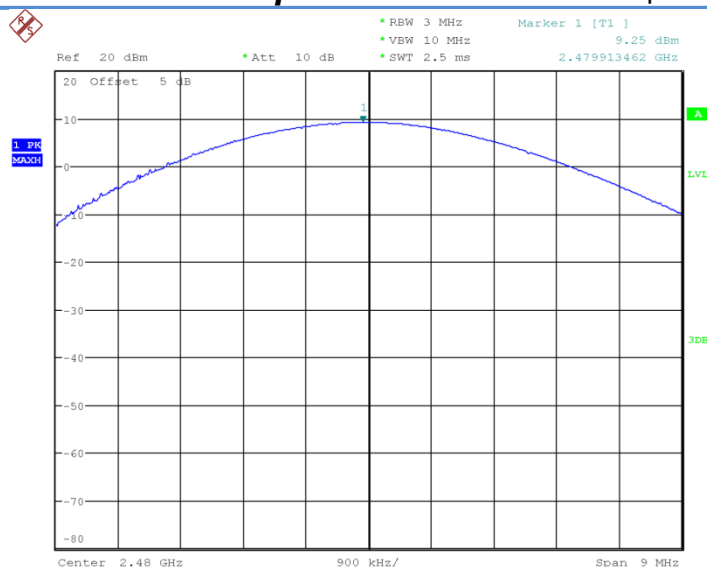
Date: 17.JAN.2017 13:36:28

Fig.7 Peak Conducted Output Power CH0, 3DH1



Date: 17.JAN.2017 13:36:43

Fig.8 Peak Conducted Output Power CH39, 3DH1



Date: 17.JAN.2017 13:36:58

Fig.9 Peak Conducted Output Power CH78, 3DH1

## 6.2. Frequency Band Edges-Conducted

### 6.2.1 Measurement Limit:

| Standard                  | Limited(dBc) |
|---------------------------|--------------|
| FCC 47 CFR Part 15.247(d) | >20          |

### 6.2.2 Test procedure

The measurement is according to ANSI C63.10 clause 7.8.6.

1. Connect the EUT to spectrum analyzer.
2. Set RBW=100KHz, VBW=300KHz, span more than 1.5 times channel bandwidth (2MHz).
3. Detector =peak, sweep time=auto couple, trace mode=max hold.
4. Allow sweep to continue until the trace stabilizes.

### 6.2.3 Measurement results

For GFSK

| Channel | Hopping     | Band Edge Power (dBc) | Conclusion |
|---------|-------------|-----------------------|------------|
| 0       | Hopping OFF | Fig.10                | P          |
|         | Hopping ON  | Fig.11                | P          |
| 78      | Hopping OFF | Fig.12                | P          |

|  |            |        |   |
|--|------------|--------|---|
|  | Hopping ON | Fig.13 | P |
|--|------------|--------|---|

## For $\pi/4$ DQPSK

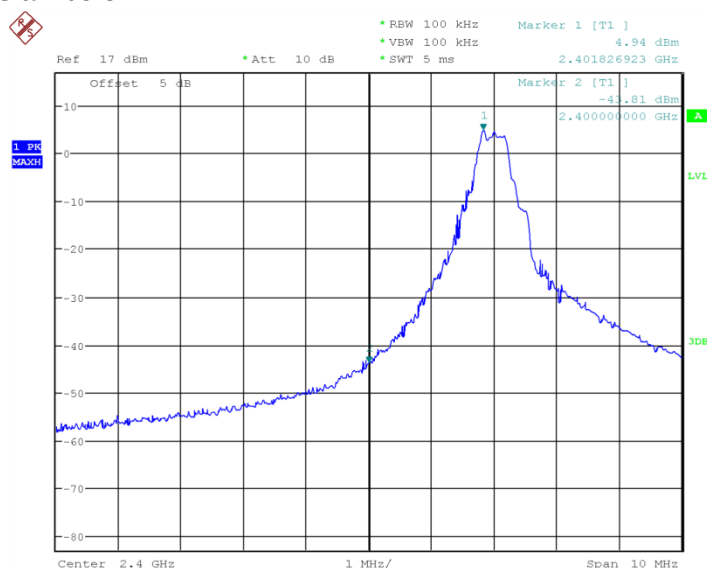
| Channel | Hopping     | Band Edge Power (dBc) | Conclusion |
|---------|-------------|-----------------------|------------|
| 0       | Hopping OFF | Fig.14                | P          |
|         | Hopping ON  | Fig.15                | P          |
| 78      | Hopping OFF | Fig.16                | P          |
|         | Hopping ON  | Fig.17                | P          |

## For 8DPSK

| Channel | Hopping     | Band Edge Power (dBc) | Conclusion |
|---------|-------------|-----------------------|------------|
| 0       | Hopping OFF | Fig.18                | P          |
|         | Hopping ON  | Fig.19                | P          |
| 78      | Hopping OFF | Fig.20                | P          |
|         | Hopping ON  | Fig.21                | P          |

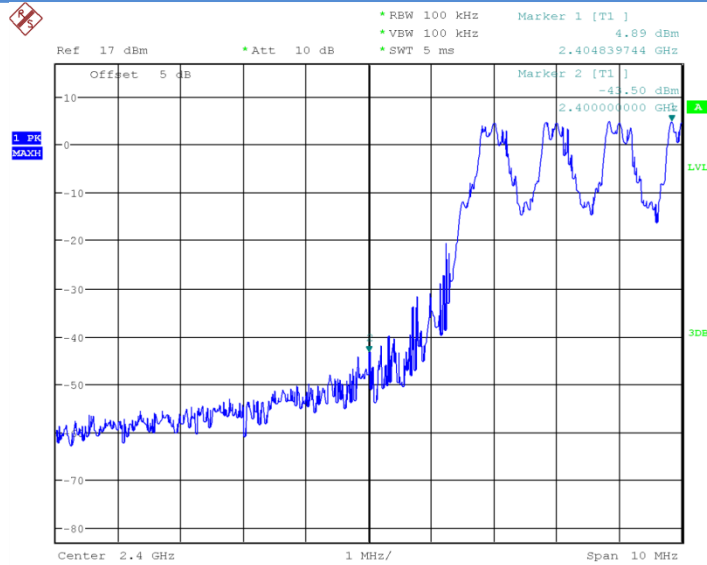
**Conclusion: PASS**

Test graphs an below



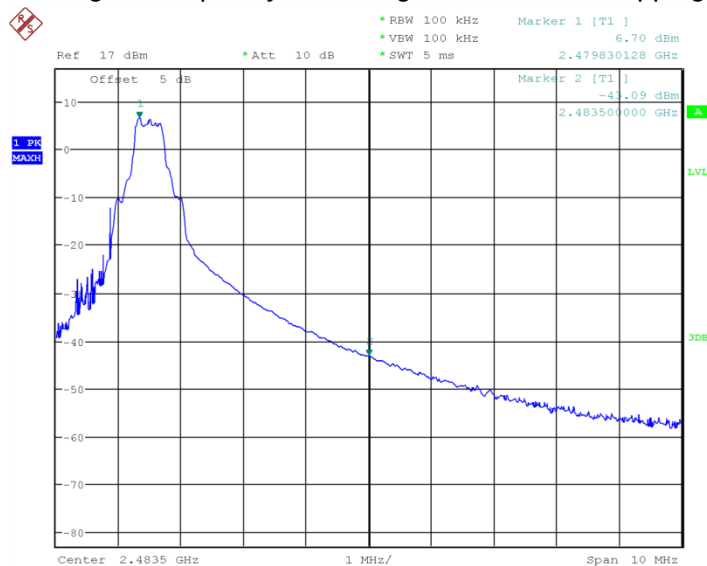
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Fig.10 Frequency Band Edge: GFSK, Ch0, Hopping OFF



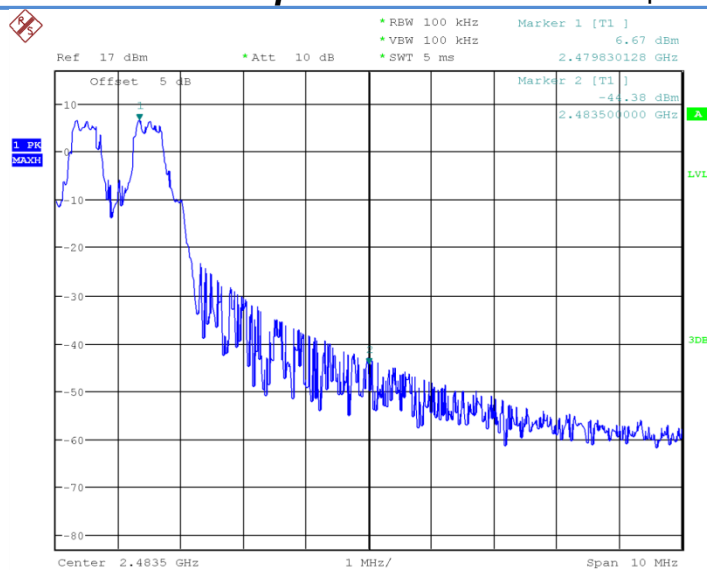
Date: 24.DEC.2016 10:12:02

Fig.11 Frequency Band Edge: GFSK, Ch0, Hopping ON



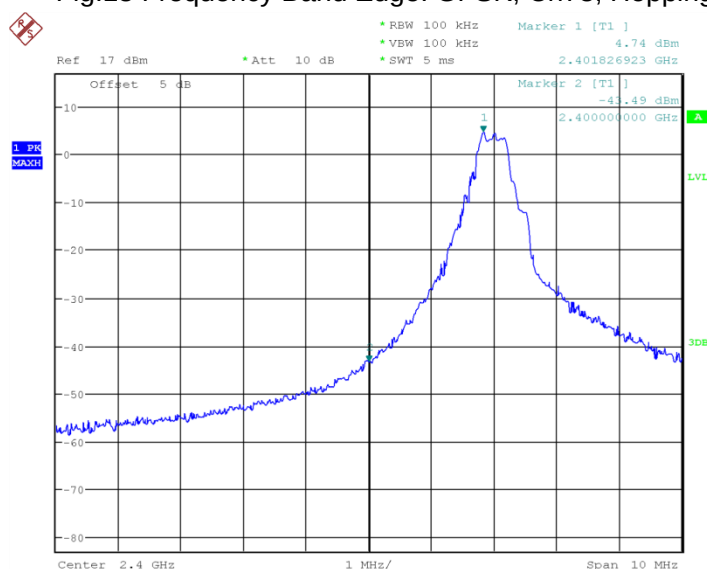
Date: 24.DEC.2016 10:18:11

Fig.12 Frequency Band Edge: GFSK, Ch78, Hopping OFF



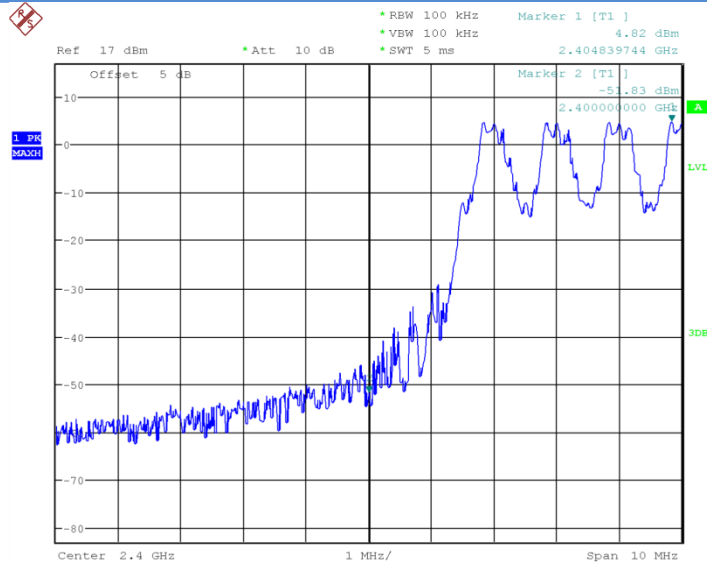
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Fig.13 Frequency Band Edge: GFSK, Ch78, Hopping ON



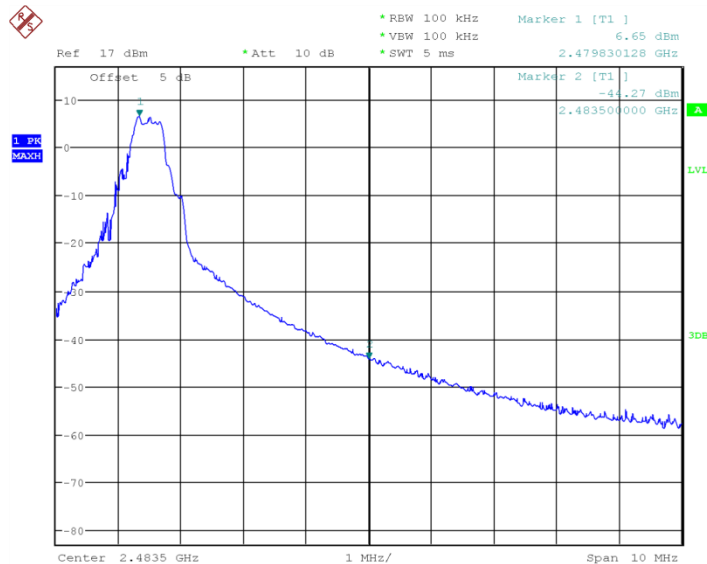
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Fig.14 Frequency Band Edge:  $\pi/4$  DQPSK, Ch0, Hopping OFF



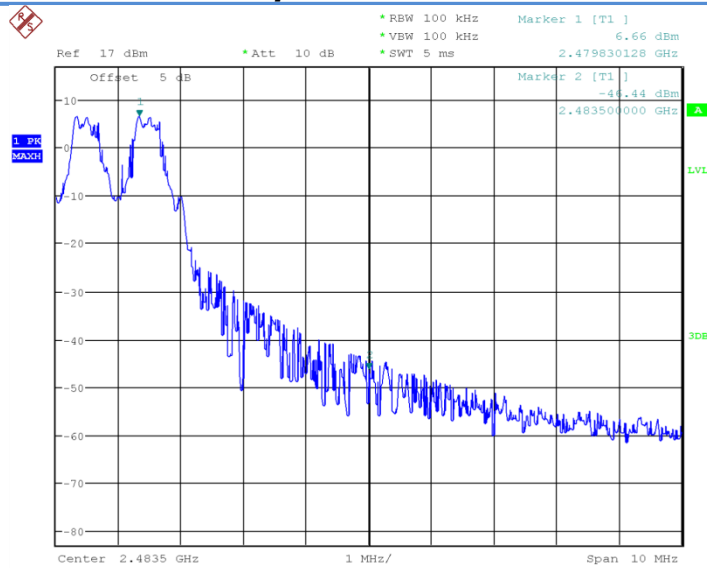
Date: 24.DEC.2016 10:14:47

Fig.15 Frequency Band Edge:  $\pi/4$  DQPSK, Ch0, Hopping ON



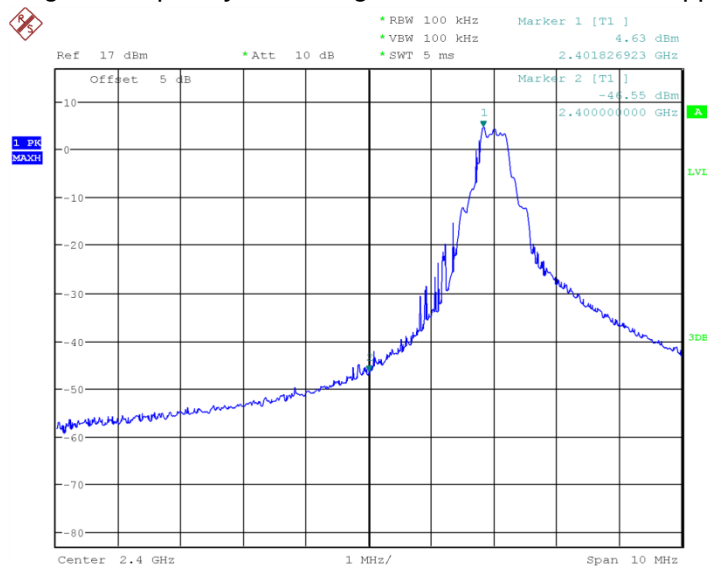
Date: 24.DEC.2016 10:20:56

Fig.16 Frequency Band Edge:  $\pi/4$  DQPSK, Ch78, Hopping OFF



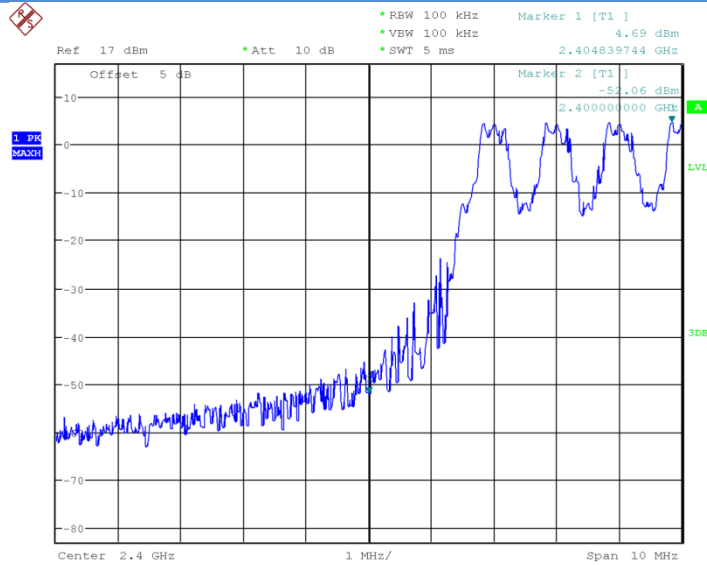
Date: 24.DEC.2016 10:23:03

Fig.17 Frequency Band Edge:  $\pi/4$  DQPSK, Ch78, Hopping ON



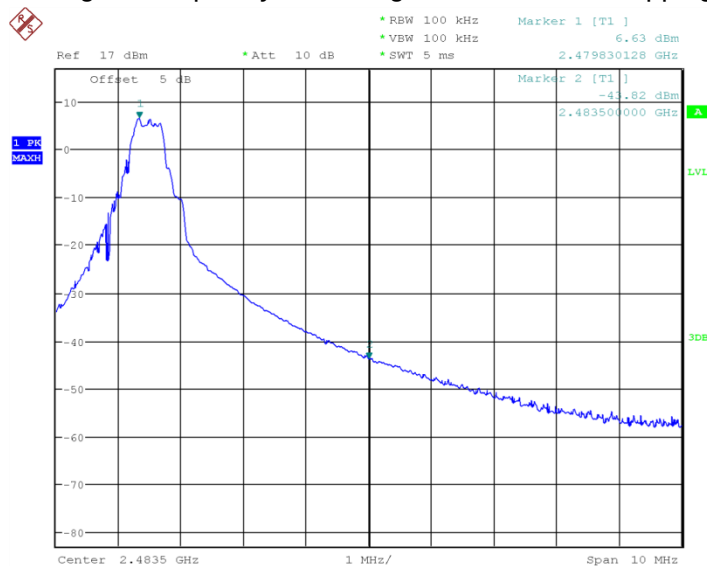
Date: 24.DEC.2016 10:15:25

Fig.18 Frequency Band Edge: 8DPSK, Ch0, Hopping OFF



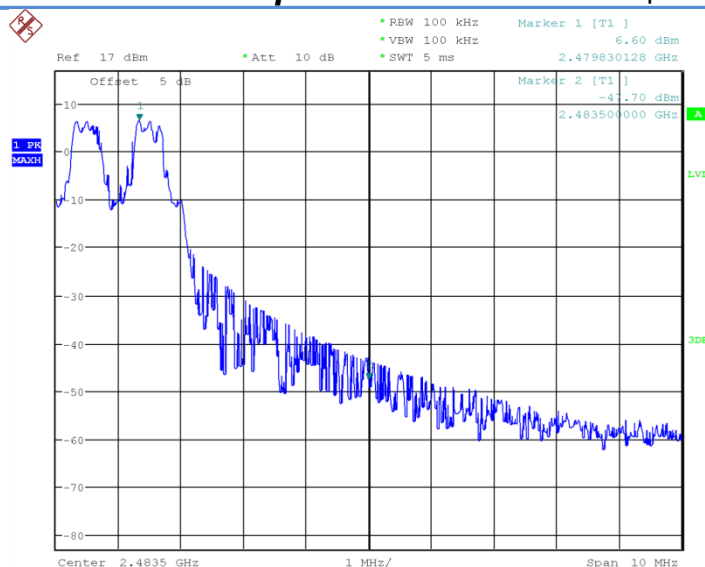
Date: 24.DEC.2016 10:17:32

Fig.19 Frequency Band Edge: 8DPSK, Ch0, Hopping ON



Date: 24.DEC.2016 10:23:41

Fig.20 Frequency Band Edge: 8DPSK, Ch78, Hopping OFF



Date: 24.DEC.2016 10:25:48

Fig.21 Frequency Band Edge: 8DPSK, Ch78, Hopping ON

### 6.3. Conducted Emission

### 6.3.1 Measurement Limit:

| Standard                  | Limit                                            |
|---------------------------|--------------------------------------------------|
| FCC 47 CFR Part15.247 (d) | 20dB below peak output power in 100KHz bandwidth |

### 6.3.2 Test procedures

The measurement is according to ANSI C63.10 clause 7.8.8.

1. Connect the EUT to spectrum analyzer.
2. Set RBW=100KHz, VBW=300KHz.
3. Detector =peak, sweep time=auto couple, trace mode=max hold.

### 6.3.3 Measurement Results:

**For GFSK**

| Channel      | Frequency Range | Test Results | Conclusion |
|--------------|-----------------|--------------|------------|
| Ch0 2402MHz  | Center Freq.    | Fig.22       | P          |
|              | 30MHz~26GHz     | Fig.23       | P          |
| Ch39 2441MHz | Center Freq.    | Fig.24       | P          |
|              | 30MHz~26GHz     | Fig.25       | P          |
| Ch78 2480MHz | Center Freq.    | Fig.26       | P          |

|  |             |        |   |
|--|-------------|--------|---|
|  | 30MHz~26GHz | Fig.27 | P |
|--|-------------|--------|---|

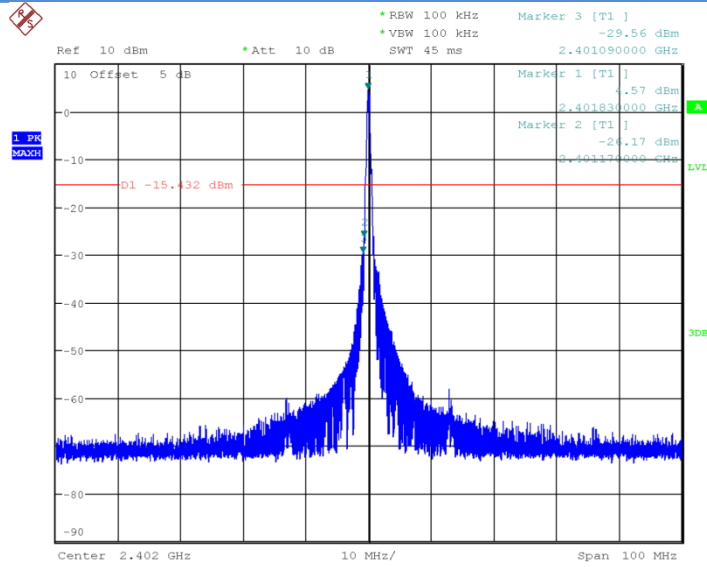
**For  $\pi/4$  DQPSK**

| Channel      | Frequency Range | Test Results | Conclusion |
|--------------|-----------------|--------------|------------|
| Ch0 2402MHz  | Center Freq.    | Fig.28       | P          |
|              | 30MHz~26GHz     | Fig.29       | P          |
| Ch39 2441MHz | Center Freq.    | Fig.30       | P          |
|              | 30MHz~26GHz     | Fig.31       | P          |
| Ch78 2480MHz | Center Freq.    | Fig.32       | P          |
|              | 30MHz~26GHz     | Fig.33       | P          |

**For 8DPSK**

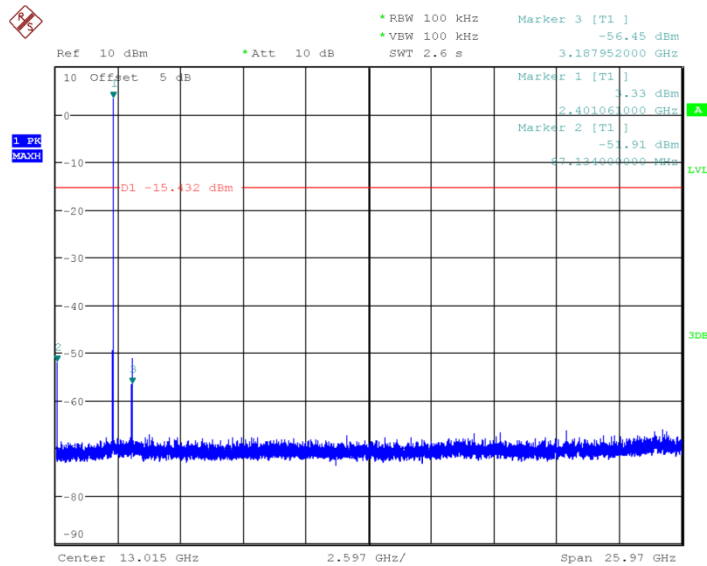
| Channel      | Frequency Range | Test Results | Conclusion |
|--------------|-----------------|--------------|------------|
| Ch0 2402MHz  | Center Freq.    | Fig.34       | P          |
|              | 30MHz~26GHz     | Fig.35       | P          |
| Ch39 2441MHz | Center Freq.    | Fig.36       | P          |
|              | 30MHz~26GHz     | Fig.37       | P          |
| Ch78 2480MHz | Center Freq.    | Fig.38       | P          |
|              | 30MHz~26GHz     | Fig.39       | P          |

**Conclusion: PASS**
**Test graphs as below**



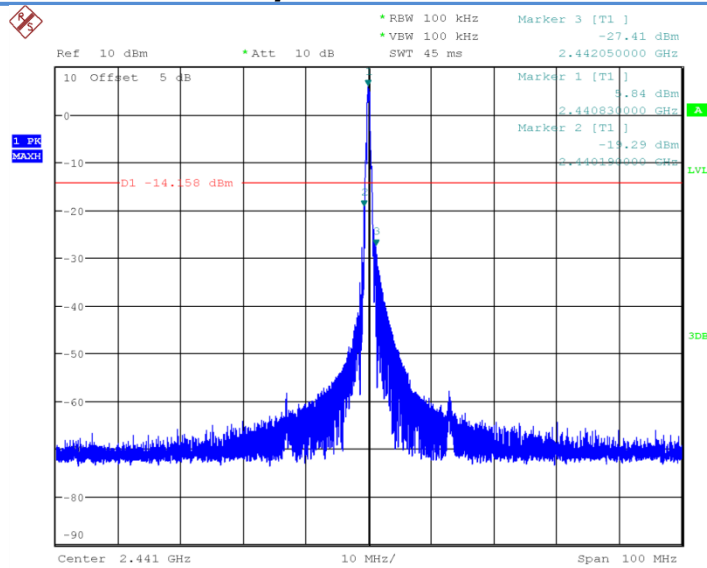
Date: 24.DEC.2016 10:26:48

Fig.22 Conducted spurious emission: GFSK, Ch0, 2402MHz



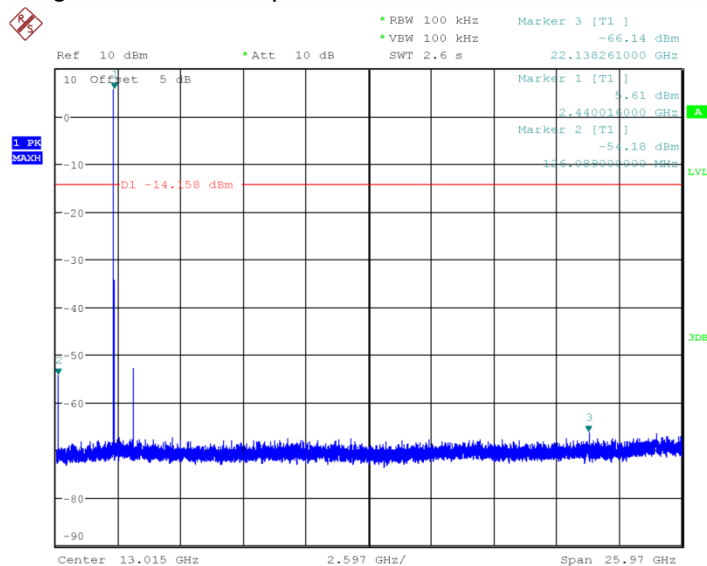
Date: 24.DEC.2016 10:27:14

Fig.23 Conducted spurious emission: GFSK, Ch0, 30MHz~26GHz



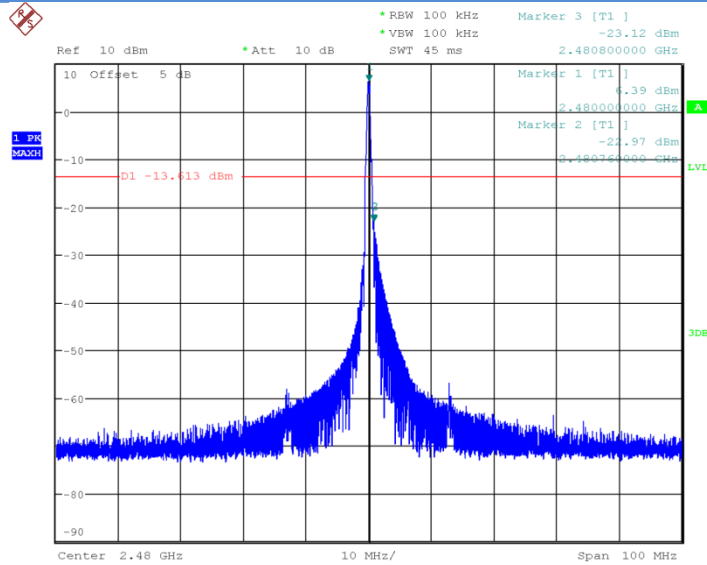
Date: 24.DEC.2016 10:27:41

Fig.24 Conducted spurious emission: GFSK, Ch39, 2441MHz



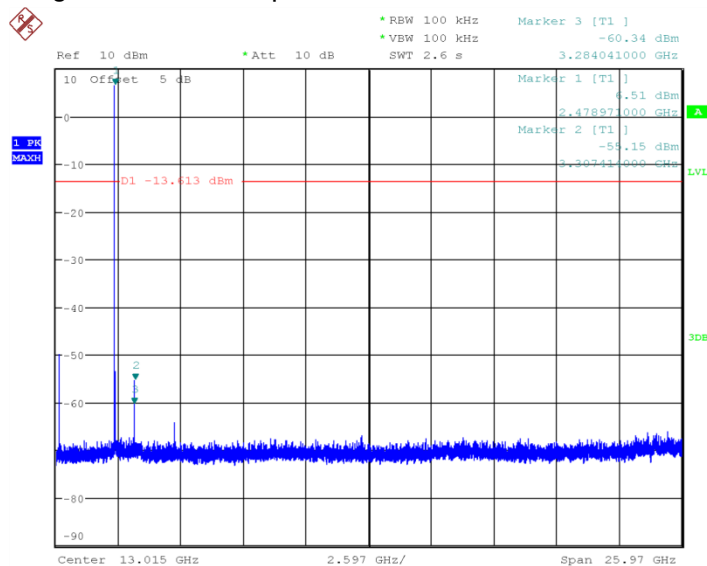
Date: 24.DEC.2016 10:28:07

Fig.25 Conducted spurious emission: GFSK, Ch39, 30MHz~26GHz



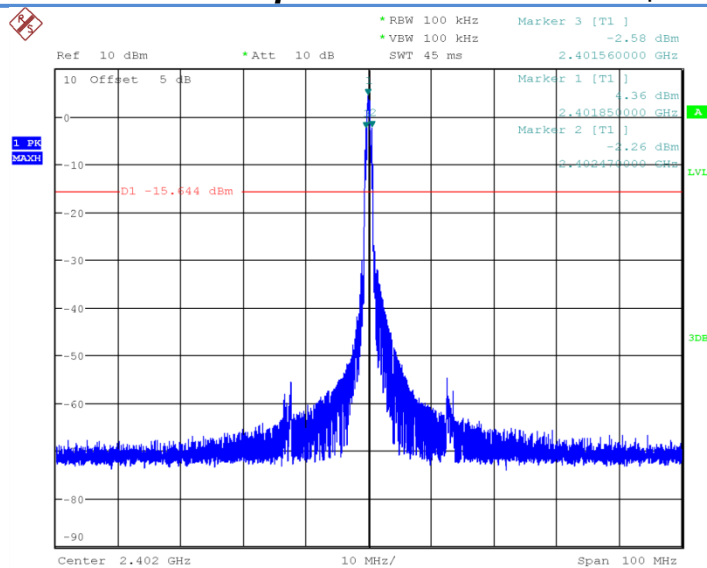
Date: 24.DEC.2016 10:28:34

Fig.26 Conducted spurious emission: GFSK, Ch78, 2480MHz



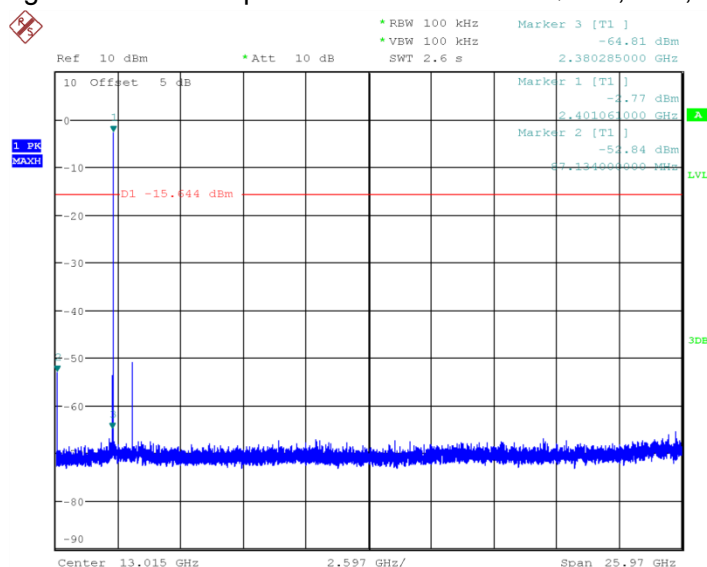
Date: 24.DEC.2016 10:28:59

Fig.27 Conducted spurious emission: GFSK, Ch78, 30MHz~26GHz



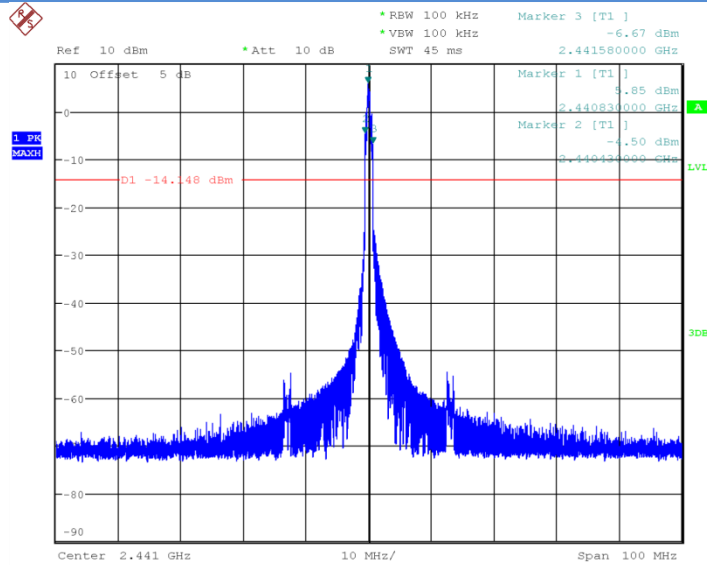
Date: 24.DEC.2016 10:29:27

Fig.28 Conducted spurious emission:  $\pi/4$  DQPSK, Ch0, 2402MHz



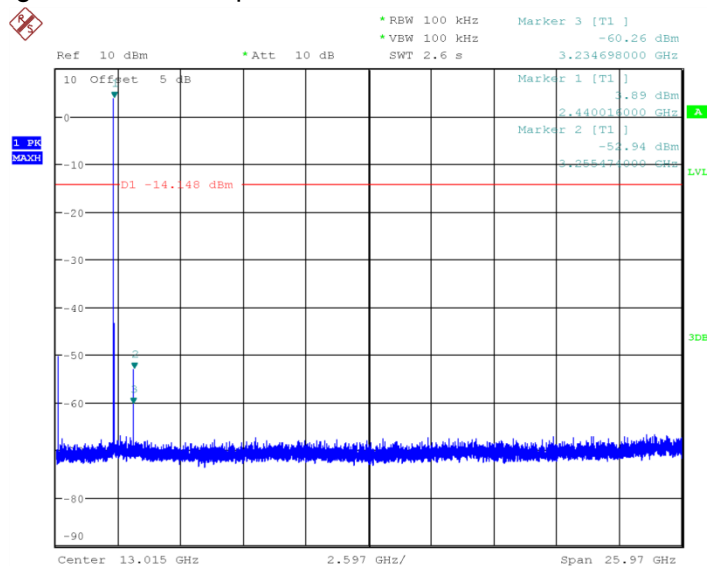
Date: 24.DEC.2016 10:29:53

Fig.29 Conducted spurious emission:  $\pi/4$  DQPSK, Ch0, 30MHz~26GHz



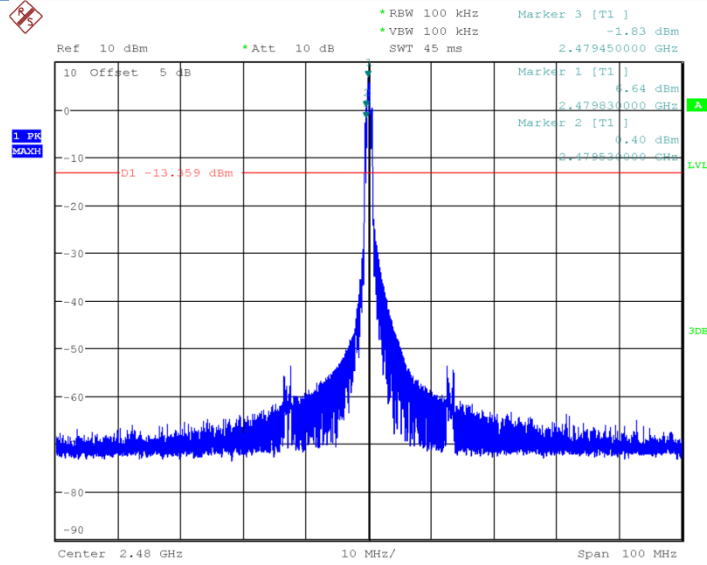
Date: 24.DEC.2016 10:30:20

Fig.30 Conducted spurious emission:  $\pi/4$  DQPSK, Ch39, 2441MHz



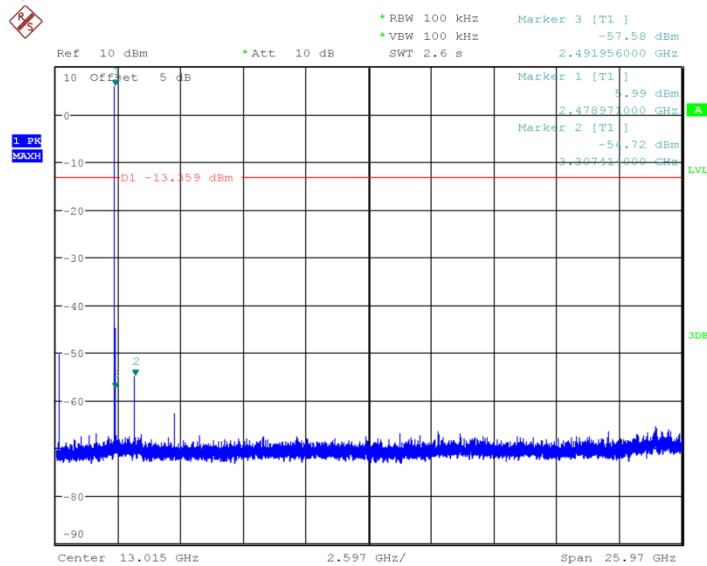
Date: 24.DEC.2016 10:30:46

Fig.31 Conducted spurious emission:  $\pi/4$  DQPSK, Ch39, 30MHz~26GHz



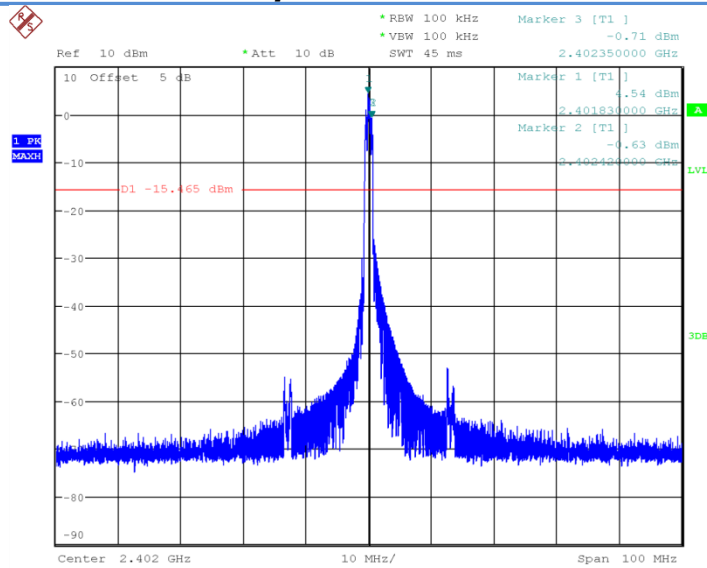
Date: 24.DEC.2016 10:31:13

Fig.32 Conducted spurious emission:  $\pi/4$  DQPSK, Ch78, 2480MHz



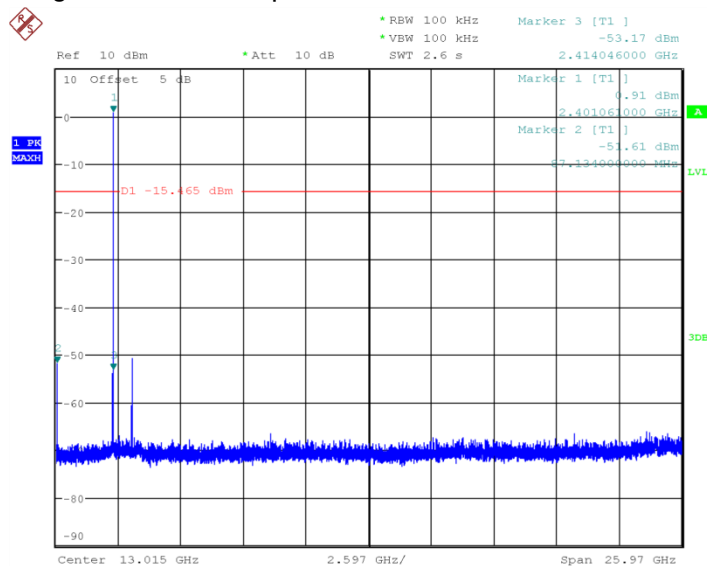
Date: 24.DEC.2016 10:31:38

Fig.33 Conducted spurious emission:  $\pi/4$  DQPSK, Ch78, 30MHz~26GHz



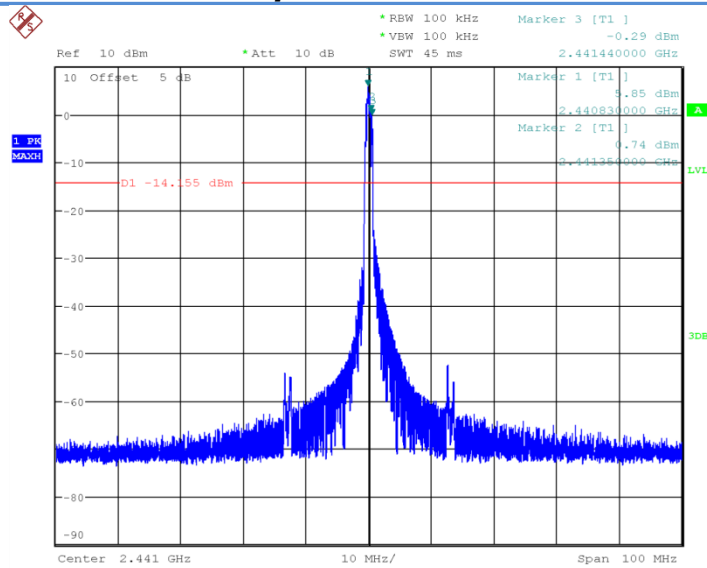
Date: 24.DEC.2016 10:32:06

Fig.34 Conducted spurious emission: 8DPSK, Ch0, 2402MHz



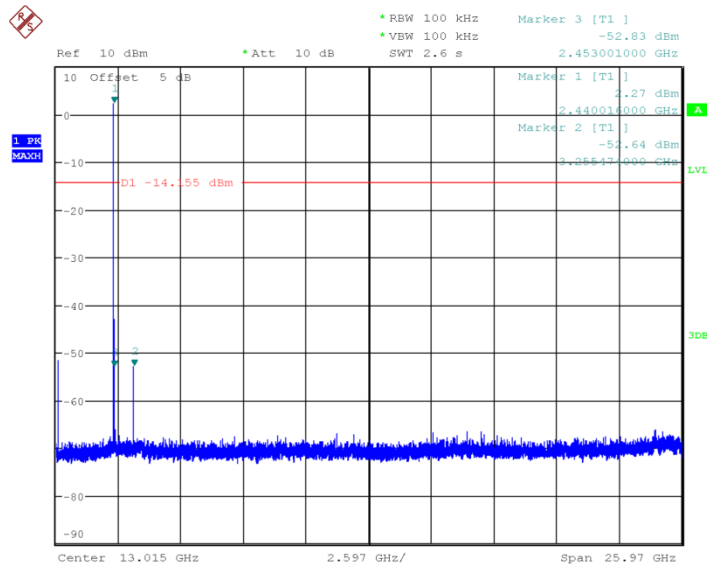
Date: 24.DEC.2016 10:32:32

Fig.35 Conducted spurious emission: 8DPSK, Ch0, 30MHz~26GHz



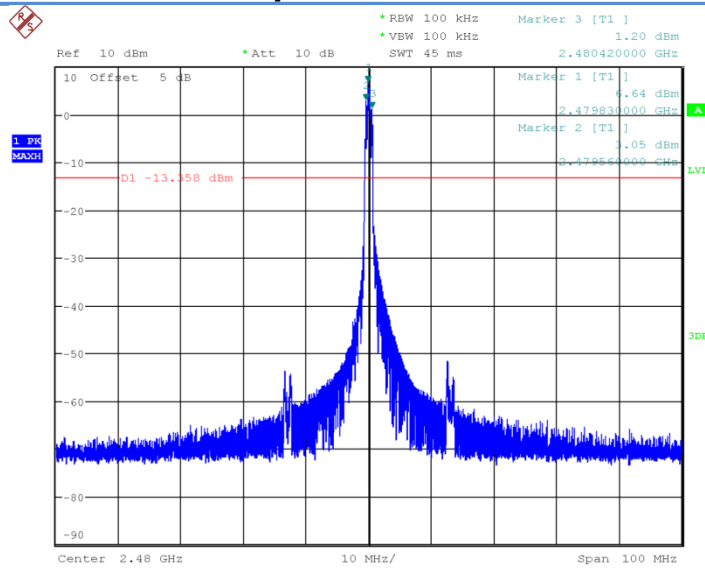
Date: 24.DEC.2016 10:32:59

Fig.36 Conducted spurious emission: 8DPSK, Ch39, 2441MHz



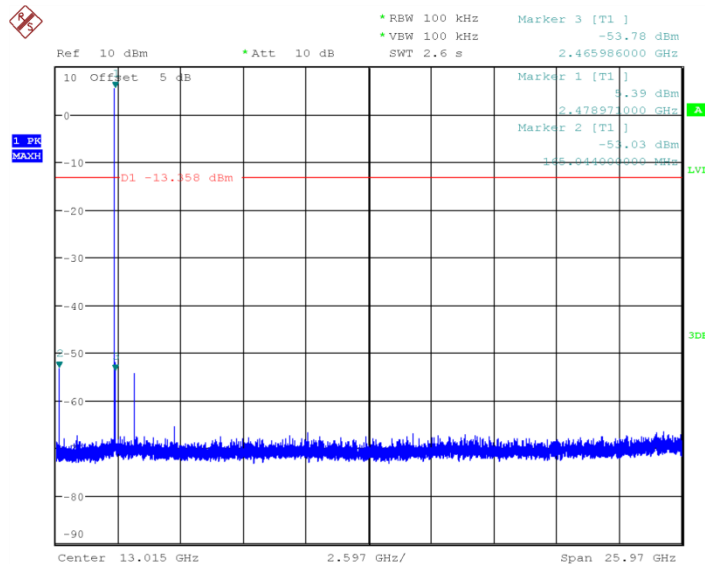
Date: 24.DEC.2016 10:33:25

Fig.37 Conducted spurious emission: 8DPSK, Ch39, 30MHz~26GHz



Date: 24.DEC.2016 10:33:53

Fig.38 Conducted spurious emission: 8DPSK, Ch78, 2480MHz



Date: 24.DEC.2016 10:34:18

Fig.39 Conducted spurious emission: 8DPSK, Ch78, 30MHz~26GHz

**6.4. Radiated Emission****6.4.1 Measurement Limit:**

| Standard                               | Limit                        |
|----------------------------------------|------------------------------|
| FCC 47 CFR Part 15.247, 15.205, 15.209 | 20dB below peak output power |

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)).

**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                      |

**6.4.2 Test Method**

Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a non-conducting platform, the top of which is 80 cm above the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, but it may be larger or smaller to accommodate various sized EUTs. For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see also ANSI C63.10-2009 section 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level.

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) |
|-----------------------------|---------------|----------------|
| 30~1000                     | 100KHz/300KHz | 5              |
| 1000~4000                   | 1MHz/1MHz     | 15             |
| 4000~18000                  | 1MHz/1MHz     | 40             |

|             |           |    |
|-------------|-----------|----|
| 18000~26500 | 1MHz/1MHz | 20 |
|-------------|-----------|----|

#### 6.4.3 Measurement Results:

A “reference path loss” is established and  $A_{Rpi}$  is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss.

The measurement results are obtained as described below:

$A_{Rpi} = \text{Cable loss} + \text{Antenna Gain} - \text{Preamplifier gain}$

Result =  $P_{Mea} + A_{Rpi}$

#### For GFSK

| Channel     | Frequency Range | Test Results | Conclusion |
|-------------|-----------------|--------------|------------|
| Ch0 2402MHz | 30MH~1GHz       | Fig.40       | P          |
|             | 1GHz~3GHz       | Fig.41       | P          |
|             | 3GHz~18GHz      | Fig.42       | P          |

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

| Channel     | Frequency Range | Test Results | Conclusion |
|-------------|-----------------|--------------|------------|
| Ch0 2402MHz | 30MH~1GHz       | Fig.43       | P          |
|             | 1GHz~3GHz       | Fig.44       | P          |
|             | 3GHz~18GHz      | Fig.45       | P          |

#### For 8DPSK

| Channel     | Frequency Range | Test Results | Conclusion |
|-------------|-----------------|--------------|------------|
| Ch0 2402MHz | 30MH~1GHz       | Fig.46       | P          |
|             | 1GHz~3GHz       | Fig.47       | P          |
|             | 3GHz~18GHz      | Fig.48       | P          |

#### First Supply

#### GFSK Ch78 30MHz-1GHz

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 33.987492      | 14.15          | -26.8     | 40.95        | V        |
| 116.874752     | 4.11           | -25.8     | 29.91        | V        |
| 220.936604     | 12.46          | -24.5     | 36.96        | V        |
| 357.404508     | 10.18          | -19.0     | 29.18        | V        |
| 606.352144     | 16.33          | -12.9     | 29.23        | H        |

|            |       |      |       |   |
|------------|-------|------|-------|---|
| 918.304960 | 21.28 | -7.8 | 29.08 | H |
|------------|-------|------|-------|---|

**GFSK Ch78 1GHz-3GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2642.640961    | 52.10          | 9.3       | 42.8         | H        |
| 2742.726346    | 52.22          | 9.4       | 42.82        | V        |
| 2829.184423    | 53.60          | 10.4      | 43.2         | V        |
| 2924.533270    | 53.39          | 10.7      | 42.69        | H        |
| 2953.846731    | 53.71          | 10.7      | 43.01        | V        |
| 2994.361346    | 54.72          | 11.3      | 43.42        | V        |

**GFSK Ch78 3GHz-18GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 13365.050133   | 54.21          | 17.5      | 36.71        | H        |
| 14846.434400   | 55.57          | 21.1      | 34.47        | H        |
| 15644.787867   | 57.21          | 23.3      | 33.91        | H        |
| 15933.601333   | 58.53          | 24.9      | 33.63        | H        |
| 16794.769733   | 59.84          | 27.3      | 32.54        | V        |
| 17654.408133   | 61.55          | 29.0      | 32.55        | V        |

 **$\pi/4$  DQPSK Ch78 30MHz-1GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 33.944372      | 17.17          | -26.8     | 43.97        | V        |
| 51.101116      | 3.72           | -25.9     | 29.62        | V        |
| 220.894656     | 13.51          | -24.5     | 38.01        | V        |
| 491.952348     | 13.62          | -15.6     | 29.22        | V        |
| 604.926948     | 16.26          | -12.9     | 29.16        | H        |
| 912.061236     | 20.98          | -7.9      | 28.88        | H        |

**$\pi/4$  DQPSK Ch78 1GHz-3GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2626.538654    | 52.58          | 9.1       | 43.48        | H        |
| 2666.929616    | 53.18          | 9.4       | 43.78        | H        |
| 2752.460192    | 53.29          | 9.4       | 43.89        | H        |
| 2842.763269    | 53.34          | 10.7      | 42.64        | H        |
| 2934.687308    | 54.69          | 10.7      | 43.99        | H        |
| 2998.429616    | 53.73          | 11.4      | 42.33        | V        |

 **$\pi/4$  DQPSK Ch78 3GHz-18GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 13364.833600   | 54.37          | 17.5      | 36.87        | H        |
| 14350.113667   | 54.05          | 20.2      | 33.85        | V        |
| 15803.920333   | 58.93          | 24.7      | 34.23        | H        |
| 16496.600800   | 59.14          | 26.9      | 32.24        | H        |
| 16970.935800   | 60.35          | 27.1      | 33.25        | H        |
| 17612.682467   | 62.06          | 29.4      | 32.66        | H        |

**8DPSK Ch78 30MHz-1GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 34.341668      | 14.34          | -26.8     | 41.14        | V        |
| 34.927564      | 13.32          | -26.8     | 40.12        | V        |
| 50.273848      | 5.63           | -25.8     | 31.43        | V        |
| 102.538832     | 6.2            | -24.9     | 31.1         | V        |
| 171.81762      | 4.55           | -26.6     | 31.15        | V        |
| 942.155392     | 21.15          | -7.8      | 28.95        | H        |

**8DPSK Ch78 1GHz-3GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2807.887692    | 53.27          | 9.9       | 43.37        | H        |
| 2839.057116    | 53.37          | 10.6      | 42.77        | H        |
| 2872.030193    | 55.09          | 10.8      | 44.29        | H        |
| 2903.576346    | 53.37          | 10.8      | 42.57        | V        |
| 2976.910962    | 53.63          | 11.1      | 42.53        | V        |
| 2987.260193    | 54.49          | 11.2      | 43.29        | H        |

**8DPSK Ch78 3GHz-18GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 15411.74267    | 56.44          | 23.2      | 33.24        | V        |
| 15809.75773    | 58.25          | 24.7      | 33.55        | H        |
| 16071.4372     | 59.17          | 24.9      | 34.27        | H        |
| 16527.1296     | 58.93          | 26.6      | 32.33        | V        |
| 17094.02093    | 60.42          | 27.1      | 33.32        | V        |
| 17601.752      | 63.1           | 29.5      | 33.6         | V        |

**Second Supply**
**8DPSK Ch78 30MHz-1GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 32.619096      | 8.78           | -26.9     | 35.68        | V        |
| 34.558868      | 14.28          | -26.8     | 41.08        | V        |
| 35.636172      | 11.7           | -26.7     | 38.4         | V        |
| 52.865796      | 7.06           | -25.9     | 32.96        | V        |
| 843.34796      | 19.49          | -9.6      | 29.09        | H        |
| 915.8194       | 21.14          | -7.9      | 29.04        | V        |

**8DPSK Ch78 1GHz-3GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 2793.228653    | 52.7           | 9.7       | 43           | H        |
| 2847.84173     | 53.4           | 10.8      | 42.6         | V        |
| 2879.737692    | 53.76          | 10.8      | 42.96        | V        |
| 2941.922116    | 53.67          | 10.7      | 42.97        | V        |
| 2952.14173     | 53.78          | 10.7      | 43.08        | H        |
| 2996.487307    | 54.09          | 11.4      | 42.69        | V        |

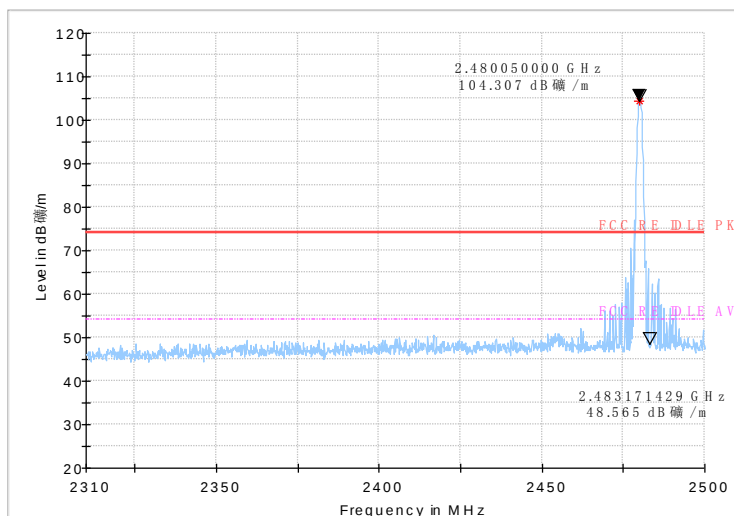
**8DPSK Ch78 3GHz-18GHz**

| Frequency(MHz) | Result(dBuV/m) | ARpl (dB) | PMea(dBuV/m) | Polarity |
|----------------|----------------|-----------|--------------|----------|
| 15904.15973    | 58.44          | 24.7      | 33.74        | V        |
| 16226.2262     | 59.43          | 25.6      | 33.83        | H        |
| 16796.628      | 59.62          | 27.3      | 32.32        | H        |
| 17303.9924     | 61.03          | 28.4      | 32.63        | V        |
| 17617.30773    | 61.9           | 29.4      | 32.5         | H        |
| 17952.43053    | 64.07          | 30        | 34.07        | H        |

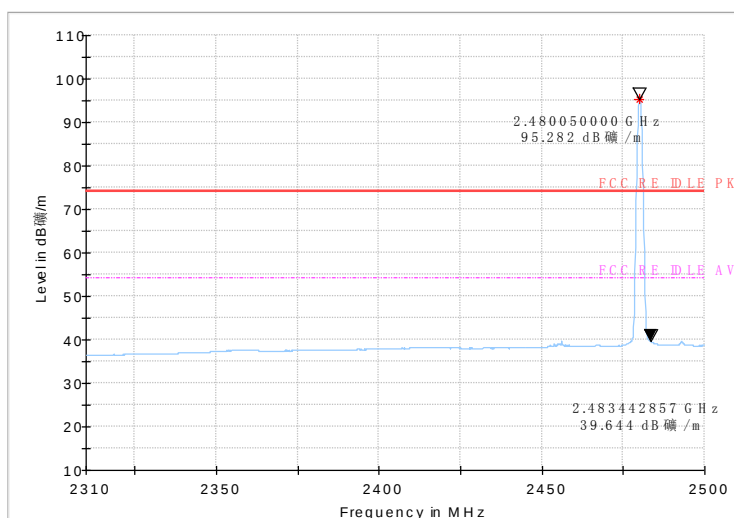
**Note:** all the test data shown was peak detected.

**Conclusion:** PASS

**Test graphs as below:**



BANDEDGE: GFSK, Ch78,PK



BANDEDGE: GFSK, Ch78,AVG

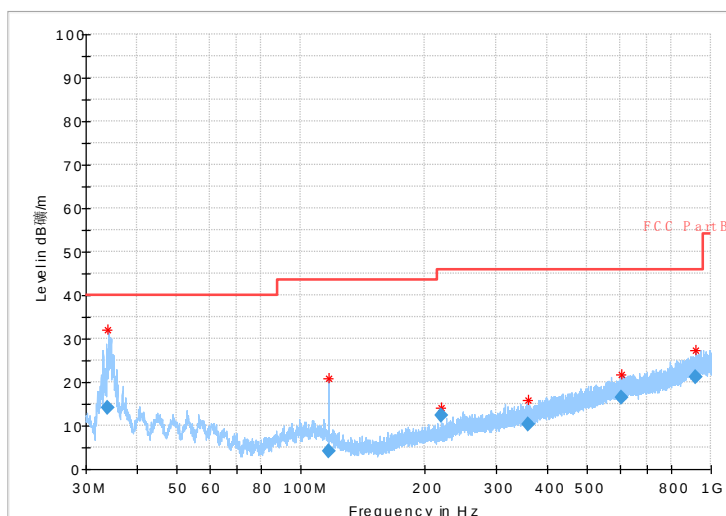


Fig.40 Radiated emission: GFSK, Ch78, 30MHz~1GHz

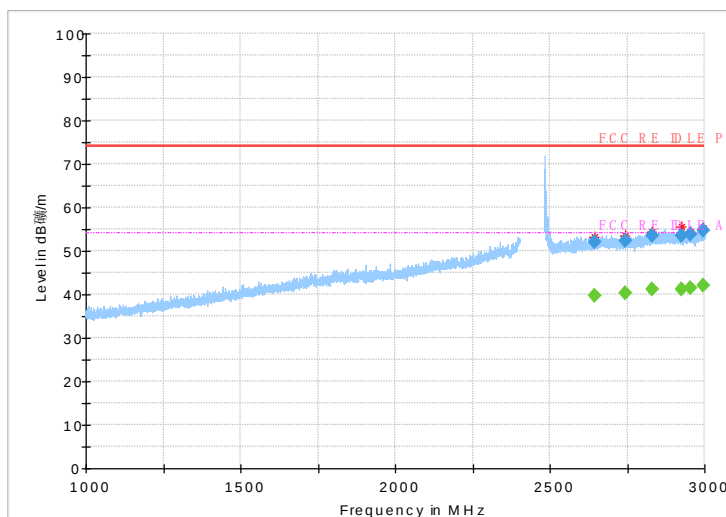


Fig.41 Radiated emission: GFSK, Ch78, 1GHz~3GHz

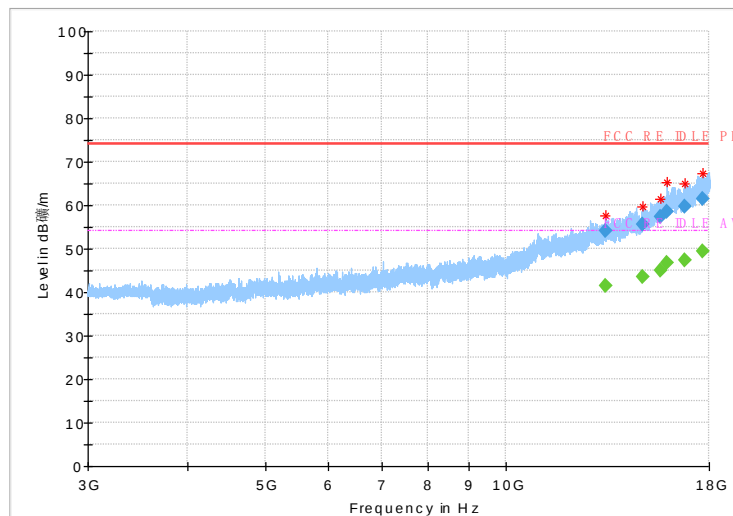
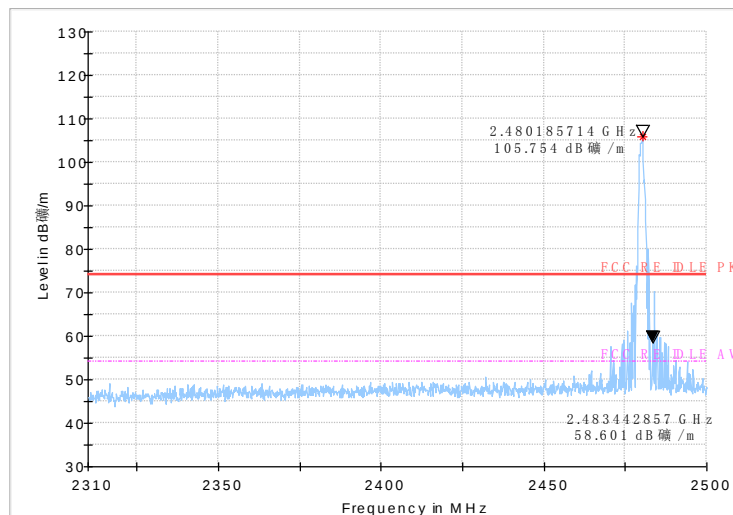
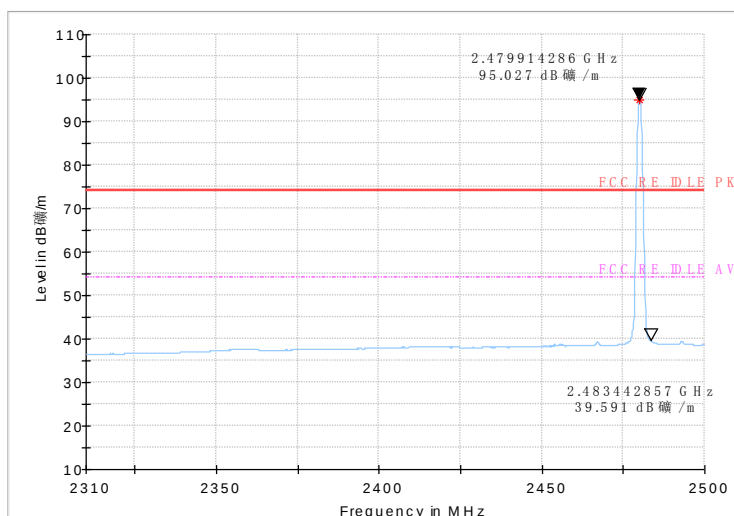


Fig.42 Radiated emission: GFSK, Ch78, 3GHz~18GHz



BANDEDGE:  $\pi/4$  DQPSK, Ch78,PK



BANDEDGE:  $\pi/4$  DQPSK, Ch78,AVG

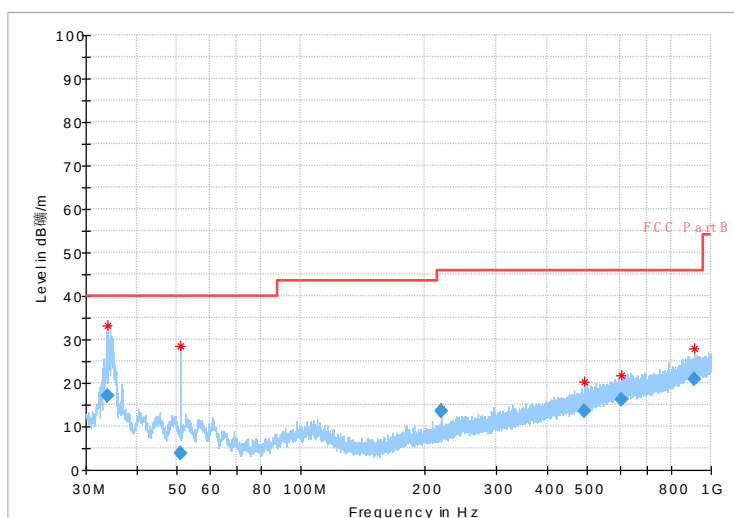


Fig.43 Radiated emission:  $\pi/4$  DQPSK, Ch78, 30MHz~1GHz

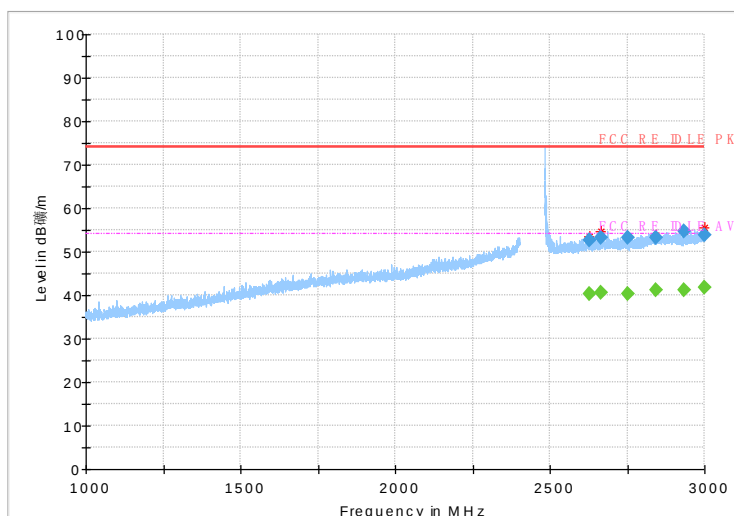


Fig.44 Radiated emission:  $\pi/4$  DQPSK, Ch78, 1GHz~3GHz

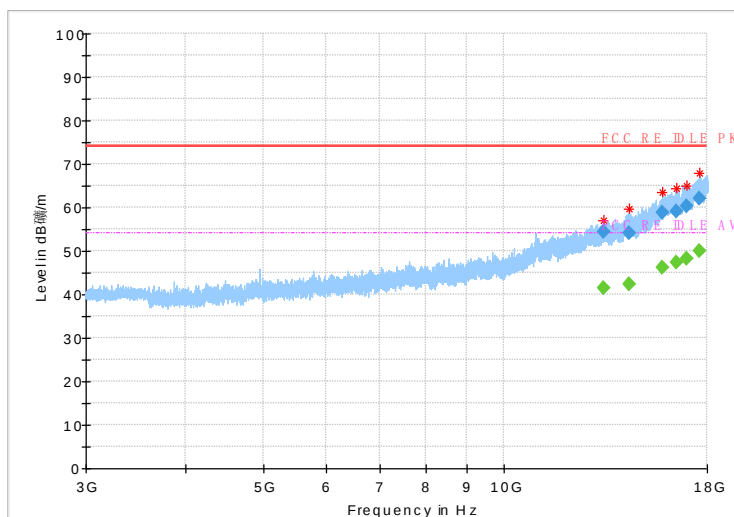
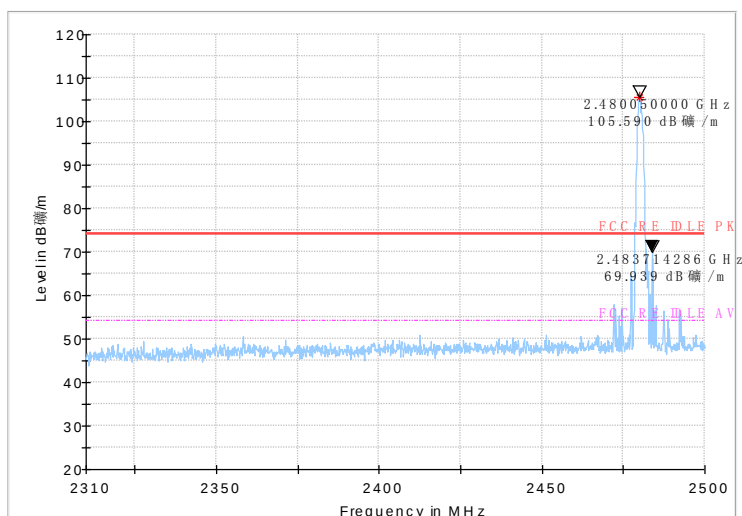
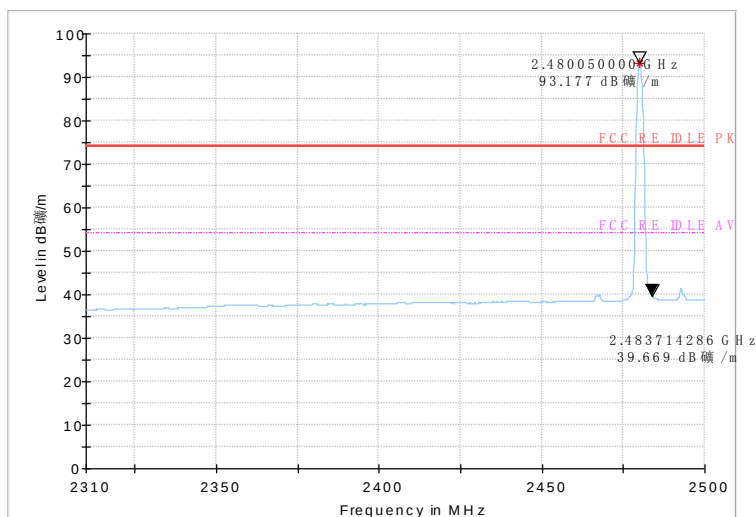


Fig.45 Radiated emission:  $\pi/4$  DQPSK, Ch0, 3GHz~18GHz



BANDEDGE: 8DPSK, Ch78,PK



BANDEDGE: 8DPSK, Ch78,AVG

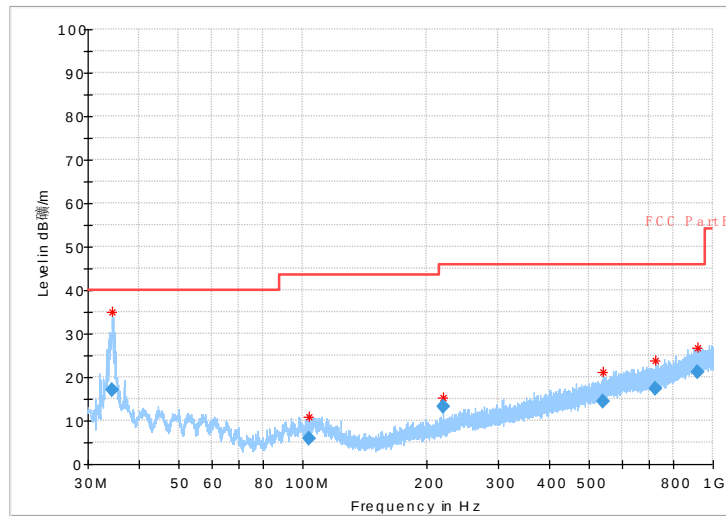


Fig.46 Radiated emission: 8DPSK, Ch78, 30MHz~1GHz

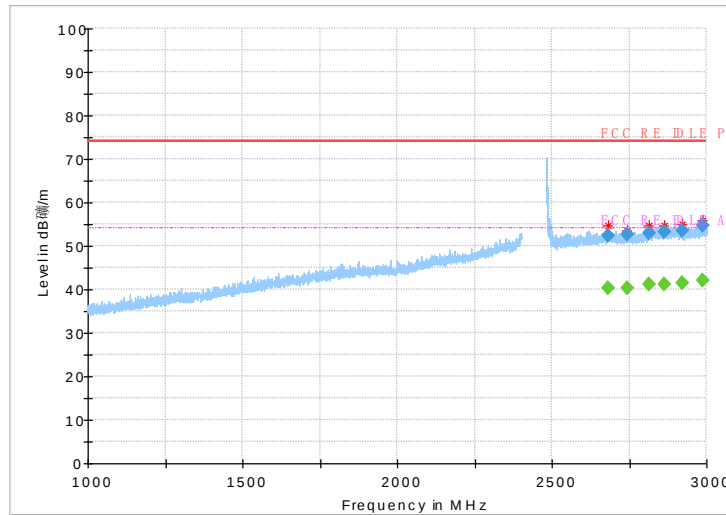


Fig.47 Radiated emission: 8DPSK, Ch78, 1GHz~3GHz

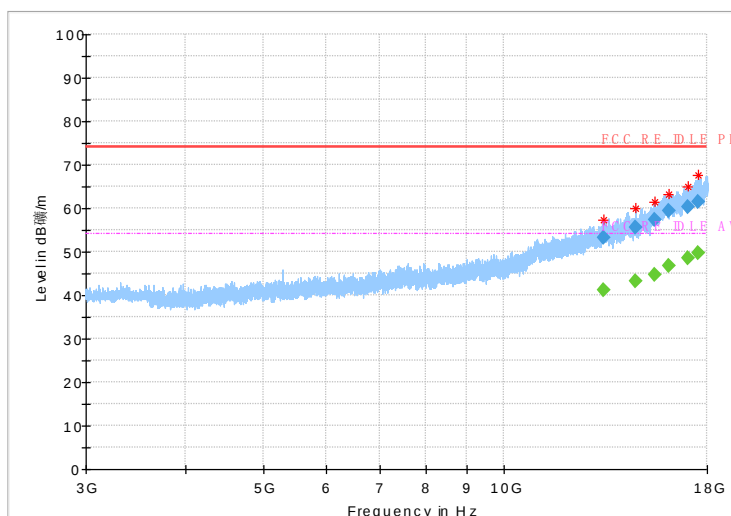
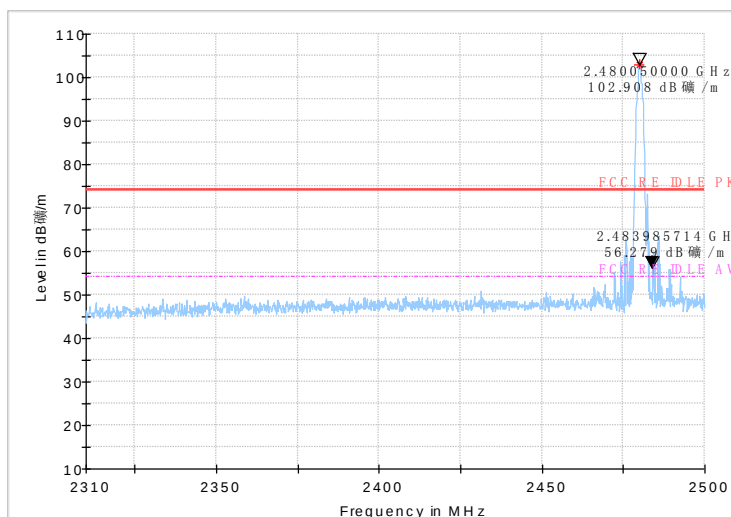
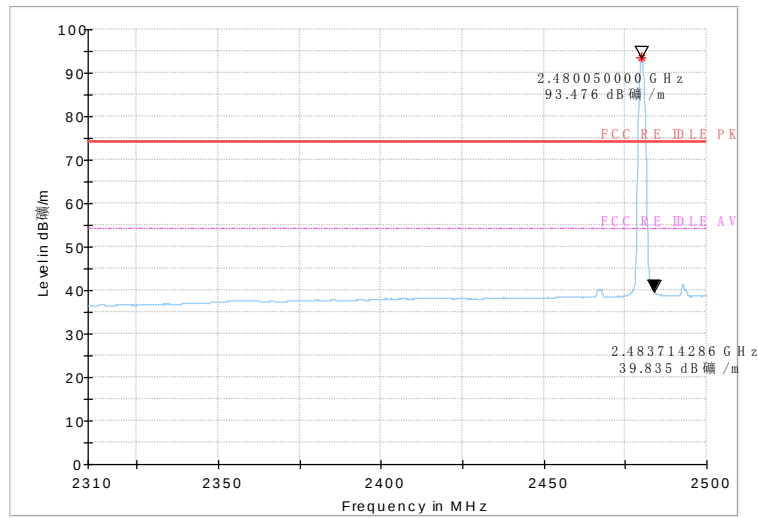


Fig.48 Radiated emission: 8DPSK, Ch78, 3GHz~18GHz

## Second Supply



BANDEDGE: 8DPSK, Ch78,PK



BANDEDGE: 8DPSK, Ch78,AVG

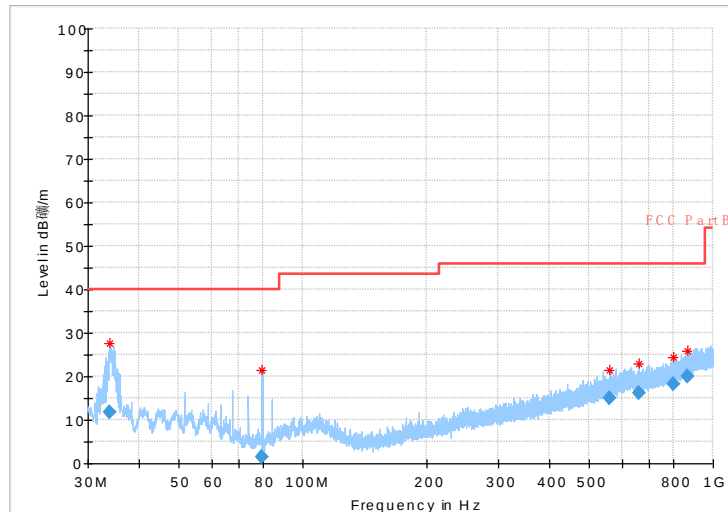


Fig.49 Radiated emission: 8DPSK, Ch78, 30MHz~1GHz

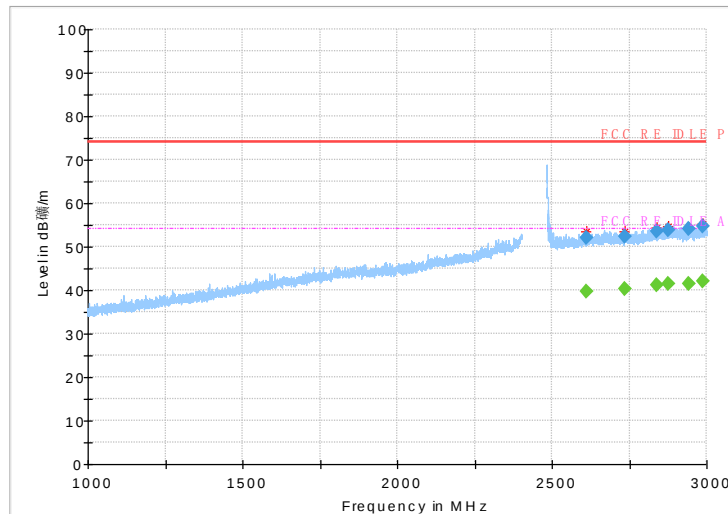


Fig.50 Radiated emission: 8DPSK, Ch78, 1GHz~3GHz

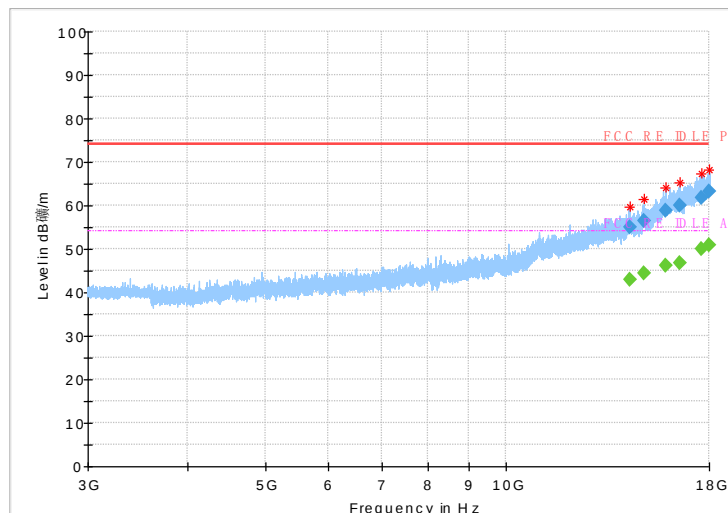


Fig.51 Radiated emission: 8DPSK, Ch78, 3GHz~18GHz

## 6.5. Time Of Occupancy (Dwell Time)

### 6.5.1 Measurement Limit:

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

### 6.5.2 Test procedures

The measurement is according to ANSI C63.10 clause 7.8.4

1. Connect the EUT through cable and divide with CBT32 and spectrum analyzer.
2. Enable the EUT transmit maximum power.
3. Set the spectrum analyzer as step 4 to step 8.

4. Span: Zero span, centered on a hopping channel.
5. RBW shall be  $\leq$  channel spacing and where possible RBW should be set  $\gg 1 / T$ , where T is the expected dwell time per channel.
6. Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel.
7. Detector function: Peak.
8. Trace: Max hold.
9. Use the marker-delta function, and record it.

### 6.5.3 Measurement Result

#### For GFSK

| Channel | Packet | Dwell Time (ms) |        | Conclusion |
|---------|--------|-----------------|--------|------------|
| 39      | DH1    | Fig.52          | 146.86 | P          |
|         |        | Fig.53          |        |            |
|         | DH3    | Fig.54          | 283.08 | P          |
|         |        | Fig.55          |        |            |
|         | DH5    | Fig.56          | 318.53 | P          |
|         |        | Fig.57          |        |            |

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

| Channel | Packet | Dwell Time (ms) |        | Conclusion |
|---------|--------|-----------------|--------|------------|
| 39      | 2DH1   | Fig.58          | 150.1  | P          |
|         |        | Fig.59          |        |            |
|         | 2DH3   | Fig.60          | 314.28 | P          |
|         |        | Fig.61          |        |            |
|         | 2DH5   | Fig.62          | 224.85 | P          |
|         |        | Fig.63          |        |            |

#### For 8DPSK

| Channel | Packet | Dwell Time (ms) |         | Conclusion |
|---------|--------|-----------------|---------|------------|
| 39      | 3DH1   | Fig.64          | 144.333 | P          |

|  |      |        |        |   |
|--|------|--------|--------|---|
|  | 3DH3 | Fig.65 | 270.93 | P |
|  |      | Fig.66 |        |   |
|  | 3DH5 | Fig.67 | 281.06 | P |
|  |      | Fig.68 |        |   |
|  |      | Fig.69 |        |   |

**Conclusion: PASS**

**Test graphs as below:**

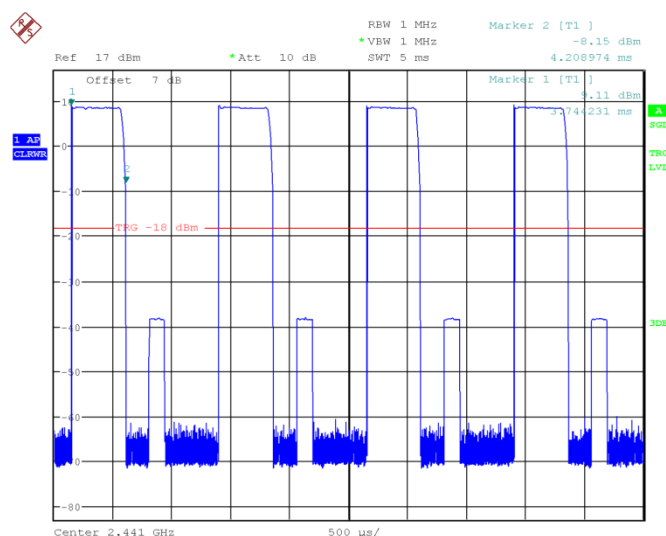
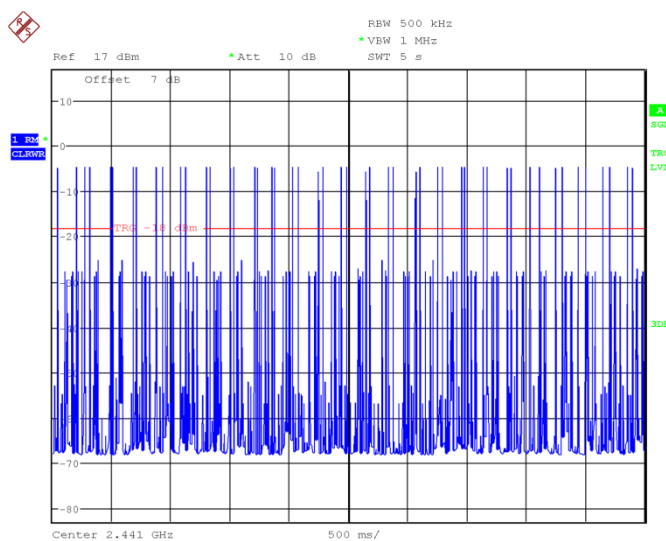


Fig.52 Time of occupancy (Dwell Time): Ch39, Packet DH1



1 RBW  
CLIMBER

Ref 17 dBm \* Att 10 dB RBW 1 MHz VBW 1 MHz SWT 5 ms

Offset 7 dB

Marker 2 [T1] -13.61 dBm 6.716987 ms

Marker 1 [T1] -1.65 dBm 4.99231 ms

TRG -16 dBm

Center 2.441 GHz 500 us/

RBW 500 kHz  
 \* VBW 1 MHz  
 SWT 5 s

Ref 17 dBm  
 \* Att 10 dB

Offset 7 dB

1 RB  
 CL RBW

TRG -18 dBm

Center 2.441 GHz  
 500 ms/

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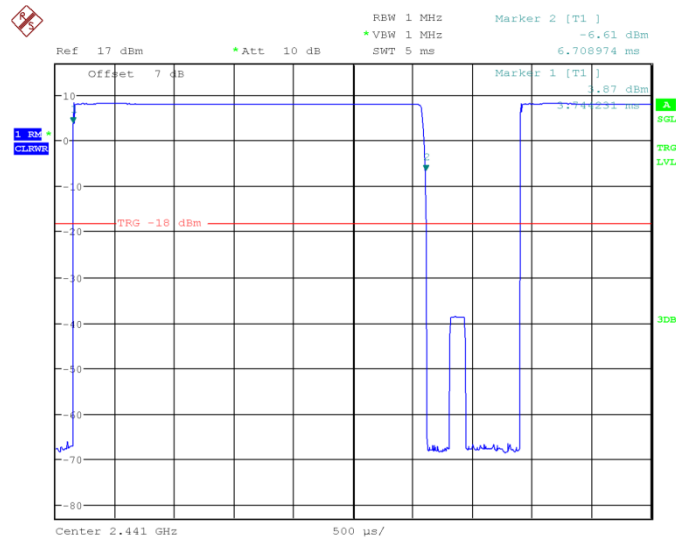


Fig.56 Time of occupancy (Dwell Time): Ch39,Packet DH5

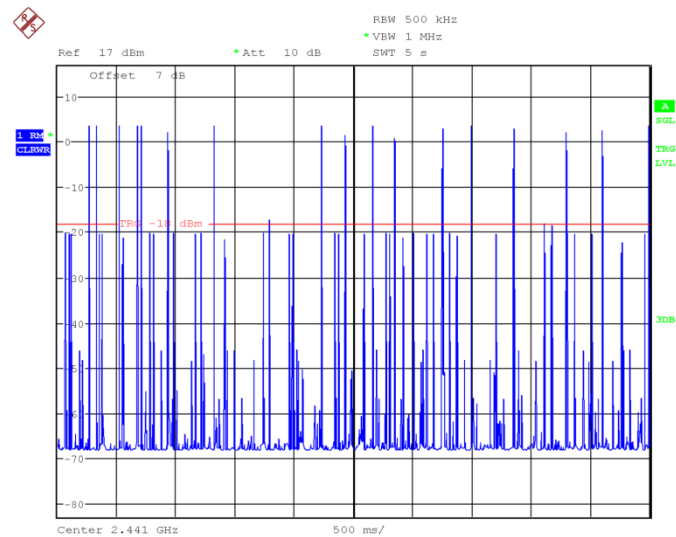


Fig.57 Number of Transmissions Measurement: Ch39, Packet DH5

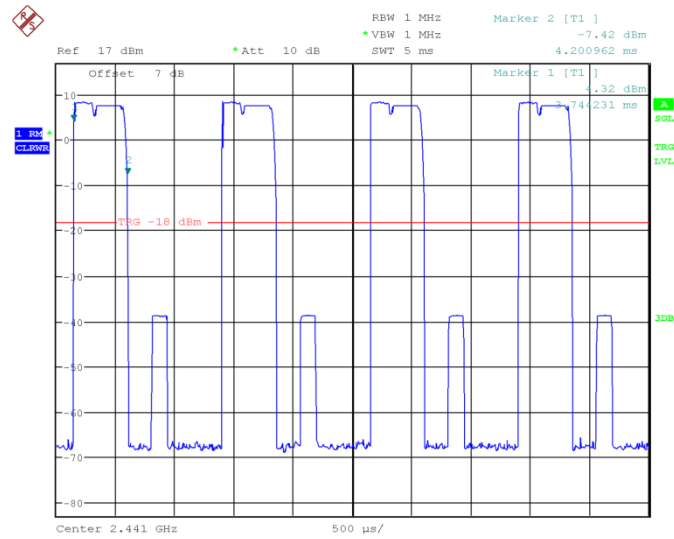


Fig.58 Time of occupancy (Dwell Time): Ch39, Packet 2-DH1

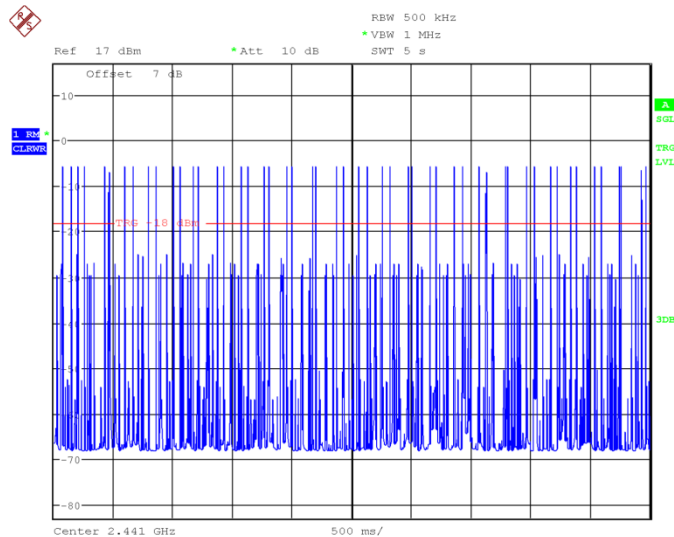


Fig.59 Number of Transmissions Measurement: Ch39, Packet 2-DH1

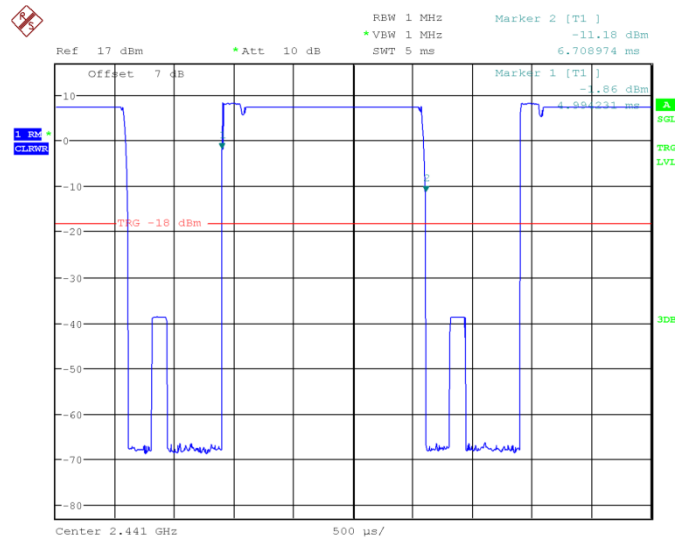


Fig.60 Time of occupancy (Dwell Time): Ch39,Packet 2-DH3

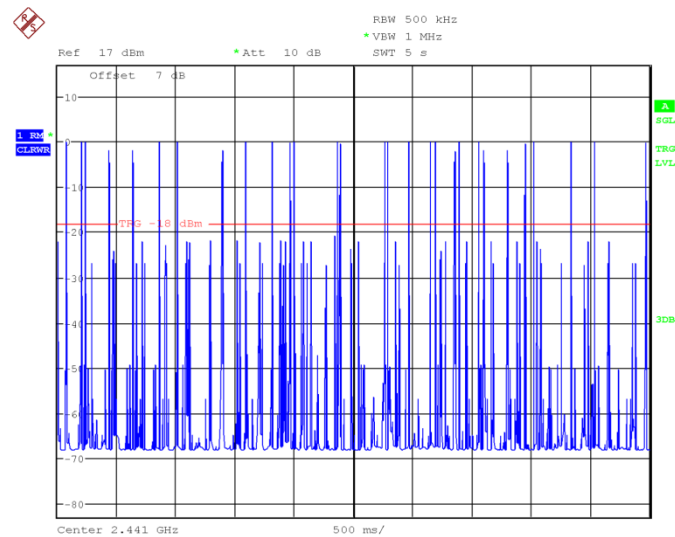


Fig.61 Number of Transmissions Measurement: Ch39, Packet 2-DH3

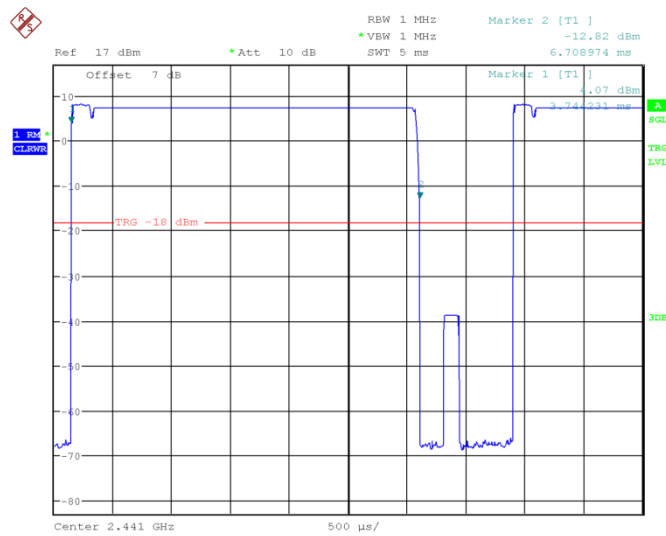


Fig.62 Time of occupancy (Dwell Time): Ch39, Packet 2-DH5

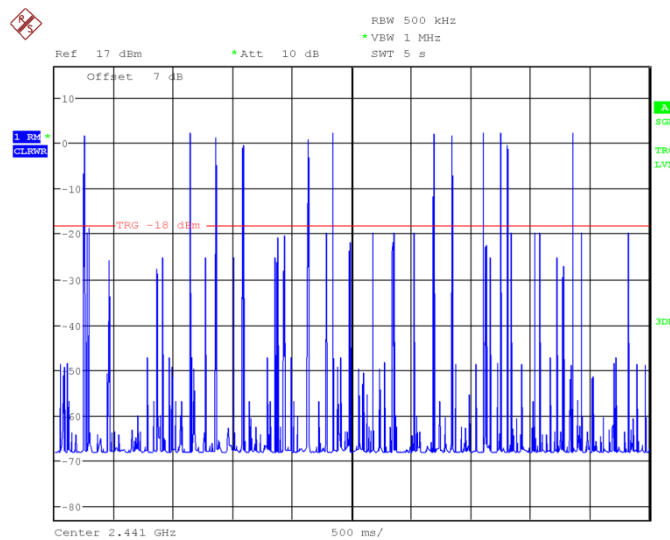


Fig.63 Number of Transmissions Measurement: Ch39, Packet 2-DH5

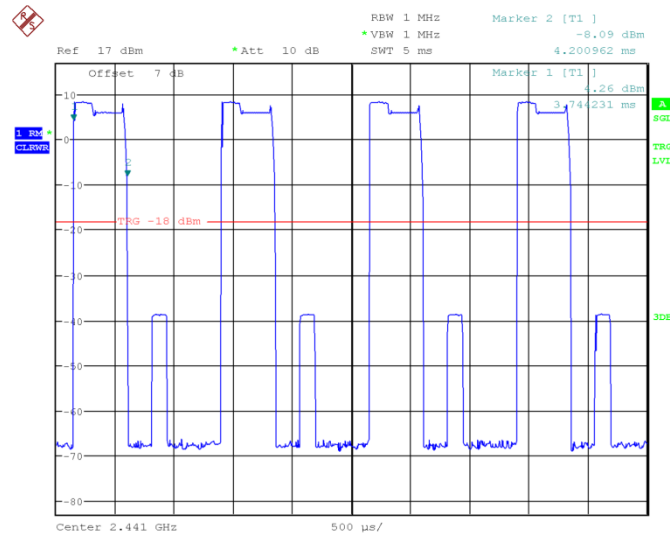


Fig.64 Time of occupancy (Dwell Time): Ch39,Packet 3-DH1

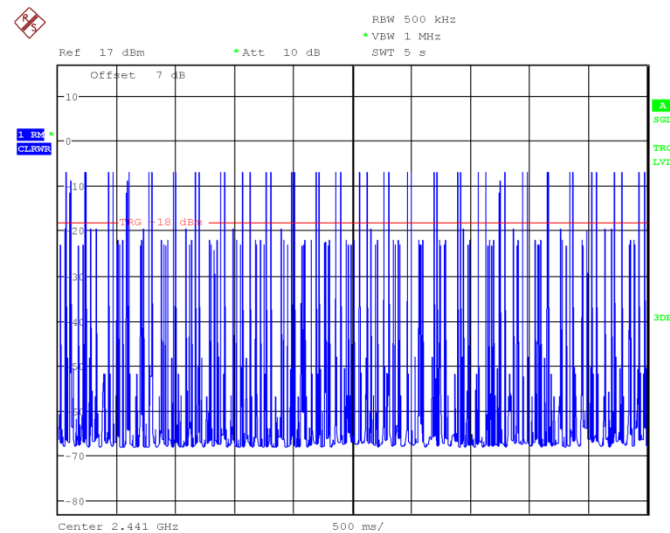


Fig.65 Number of Transmissions Measurement: Ch39, Packet 3-DH1

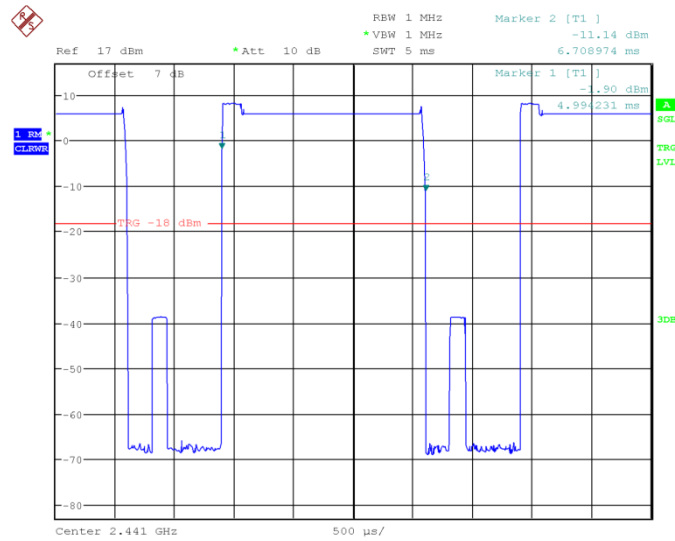


Fig.66 Time of occupancy (Dwell Time): Ch39,Packet 3-DH3

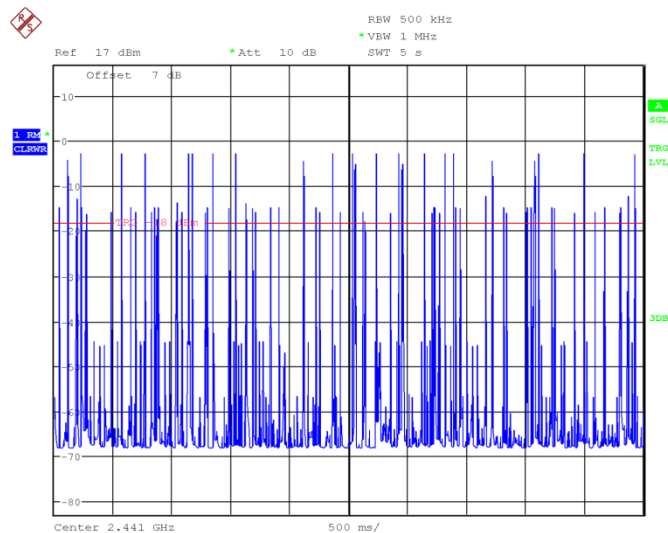


Fig.67 Number of Transmissions Measurement: Ch39, Packet 3-DH3

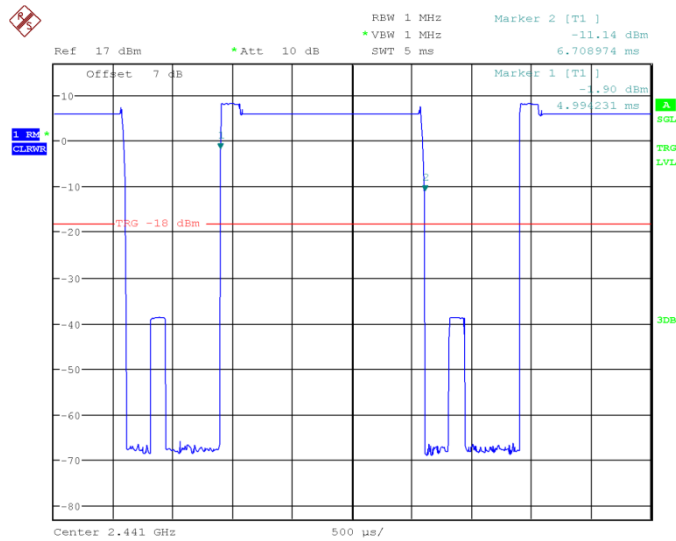


Fig.68 Time of occupancy (Dwell Time): Ch39,Packet 3-DH5

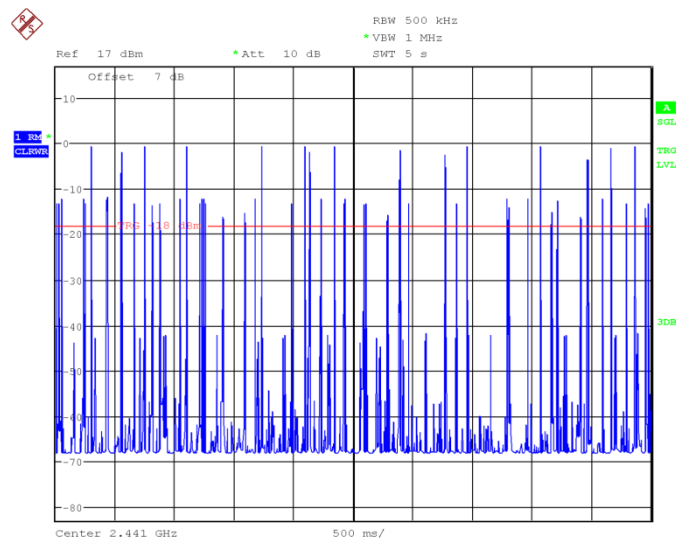


Fig.69 Number of Transmissions Measurement: Ch39, Packet 3-DH5

## 6.6. 20dB Bandwidth

### 6.6.1 Measurement Limit:

| Standard                       | Limit |
|--------------------------------|-------|
| FCC 47 CFR Part 15.247 (a) (1) | N/A   |

## 6.6.2 Test procedures

The measurement is according to ANSI C63.10 clause 7.8.7

1. Connect the EUT through cable and divide with CBT32 and spectrum analyzer.
2. Enable the EUT transmit maximum power.
3. Set the spectrum analyzer as step 4 to step 7.
4. Span: two or five times of OBW
5. RBW= 1% to 5% of the OBW; VBW $\geq$ 3RBW; Max Hold.
6. Select the max peak, and N DB DOWN=20dB.
7. Record the results.

### Measurement Result:

#### For GFSK

| Channel | 20dB Bandwidth (KHz) |       | Conclusion |
|---------|----------------------|-------|------------|
| 0       | Fig.70               | 1.029 | P          |
| 39      | Fig.71               | 1.029 | P          |
| 78      | Fig.72               | 1.029 | P          |

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

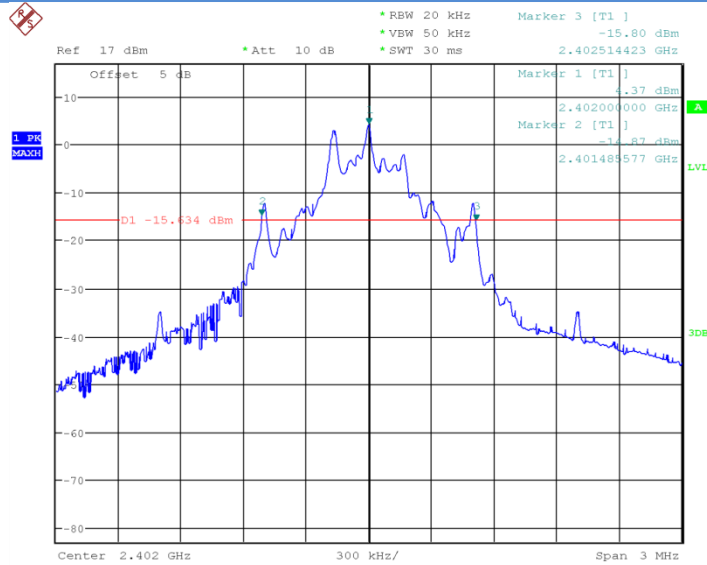
| Channel | 20dB Bandwidth (KHz) |       | Conclusion |
|---------|----------------------|-------|------------|
| 0       | Fig.73               | 1.091 | P          |
| 39      | Fig.74               | 1.096 | P          |
| 78      | Fig.75               | 1.091 | P          |

#### For 8DPSK

| Channel | 20dB Bandwidth (KHz) |       | Conclusion |
|---------|----------------------|-------|------------|
| 0       | Fig.76               | 1.178 | P          |
| 39      | Fig.77               | 1.173 | P          |
| 78      | Fig.78               | 1.173 | P          |

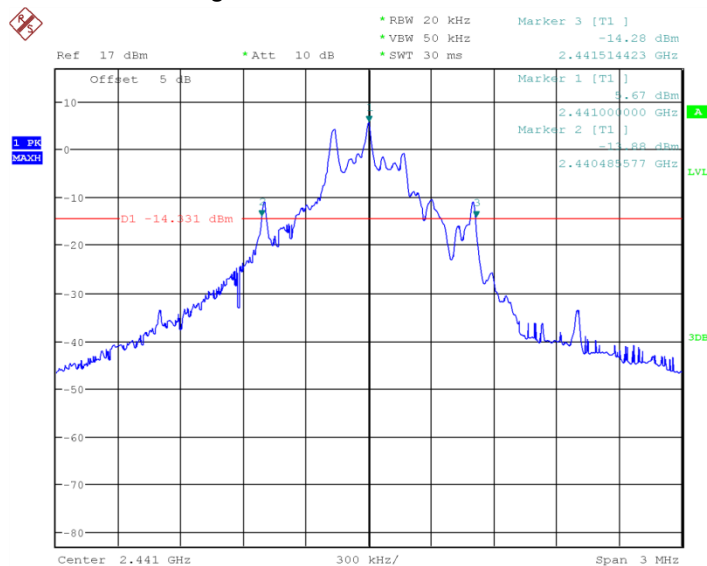
**Conclusion: PASS**

**Test graphs as below:**



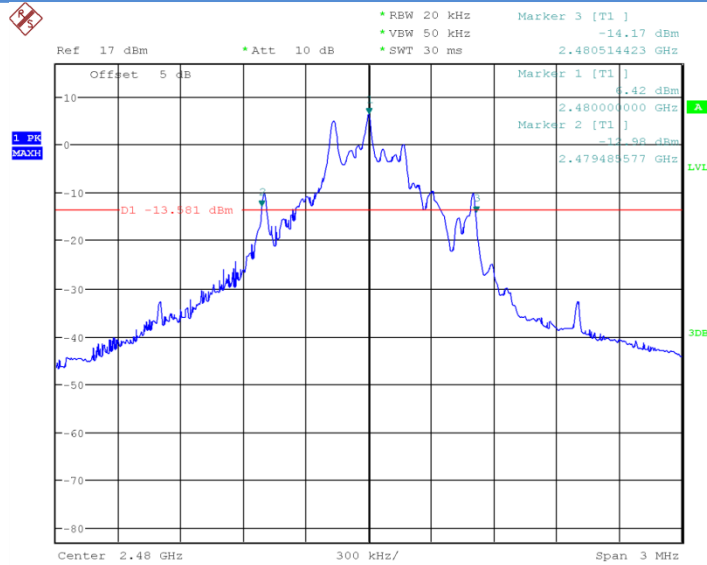
Date: 24.DEC.2016 13:37:30

Fig.70 20dB Bandwidth: GFSK, Ch0



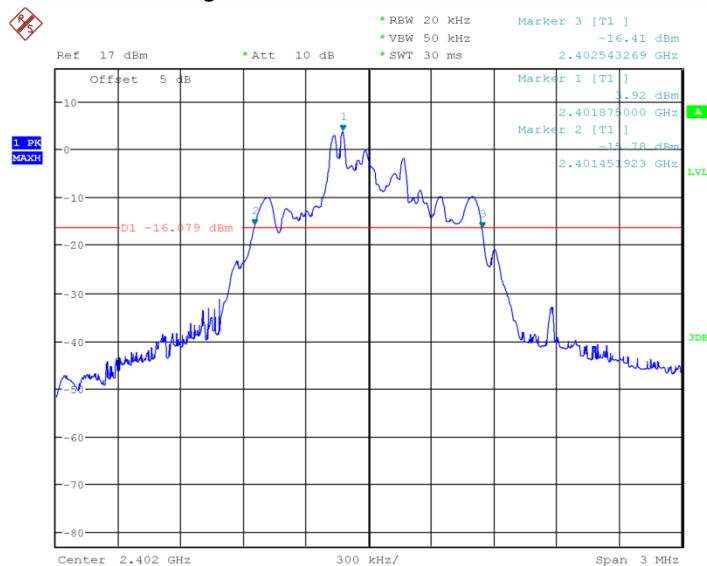
Date: 24.DEC.2016 13:37:47

Fig.71 20dB Bandwidth: GFSK, Ch39



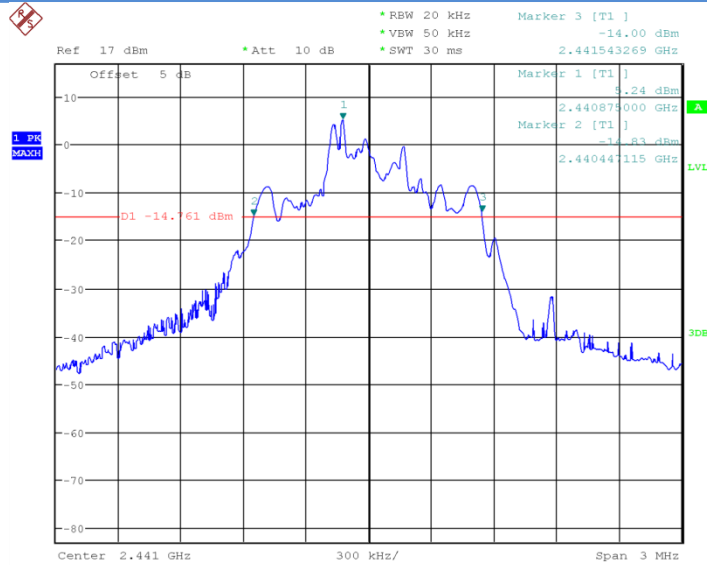
Date: 24.DEC.2016 13:38:04

Fig.72 20dB Bandwidth: GFSK, Ch78



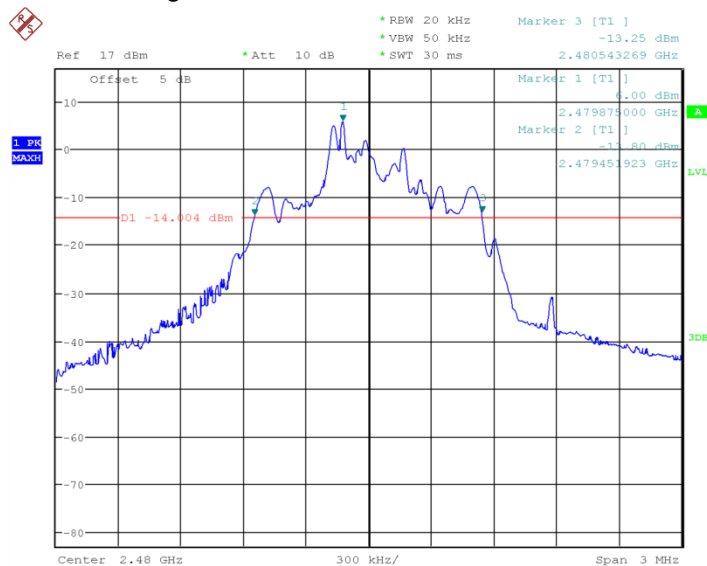
Date: 24.DEC.2016 13:38:21

Fig.73 20dB Bandwidth:  $\pi/4$  DQPSK, Ch0



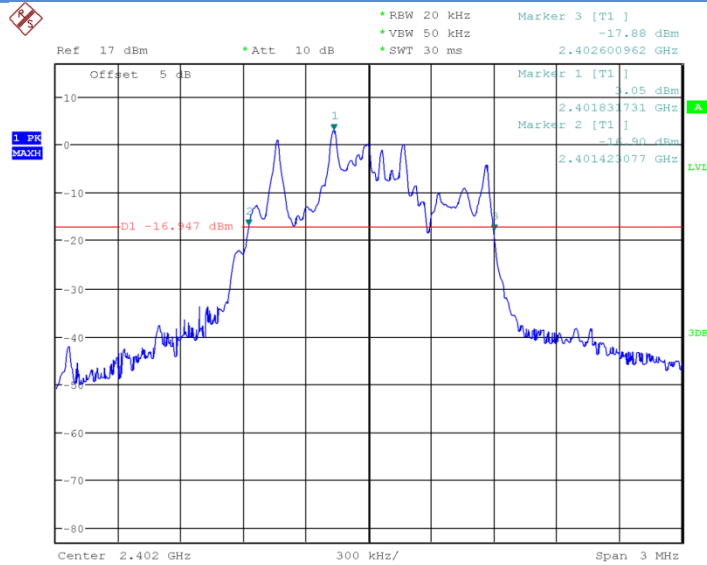
Date: 24.DEC.2016 13:38:37

Fig.74 20dB Bandwidth:  $\pi/4$  DQPSK, Ch39



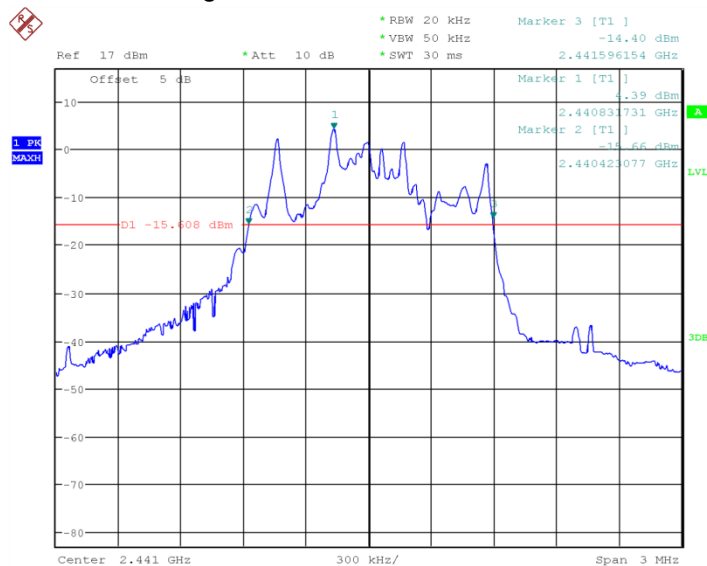
Date: 24.DEC.2016 13:38:54

Fig.75 20dB Bandwidth:  $\pi/4$  DQPSK, Ch78



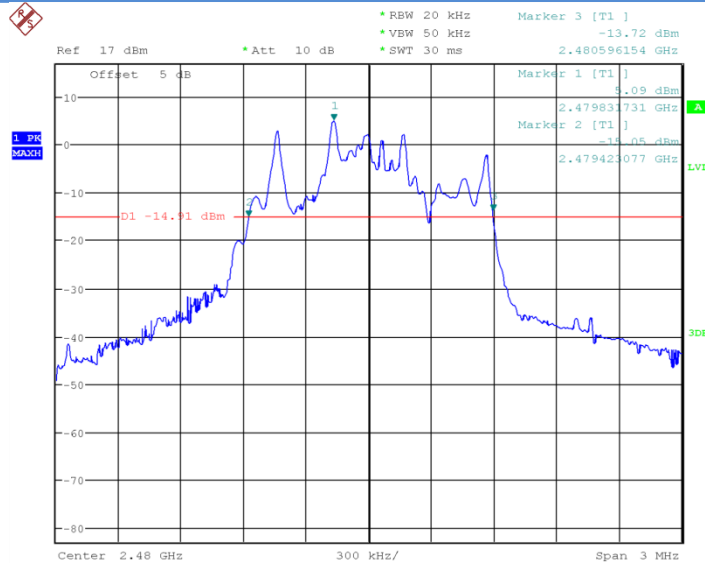
Date: 24.DEC.2016 13:39:11

Fig.76 20dB Bandwidth: 8DPSK, Ch0



Date: 24.DEC.2016 13:39:29

Fig.77 20dB Bandwidth: 8DPSK, Ch39



Date: 24.DEC.2016 13:39:45

Fig.78 20dB Bandwidth: 8DPSK, Ch78

## 6.7. Carrier Frequency Separation

### 6.7.1 Measurement Limit:

| Standard                       | Limit (KHz)                        |
|--------------------------------|------------------------------------|
| FCC 47 CFR Part 15.247 (a) (1) | Over 25KHz or (2/3)*20dB bandwidth |

### 6.7.2 Test procedures

The measurement is according to ANSI C63.10 clause 7.8.2.

1. Connect the EUT through cable and divide with CBT32 and spectrum analyzer.
2. Enable the EUT transmit in hopping mode.
3. Span: Wide enough to capture the peaks of two adjacent channels.
4. RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
5. Video (or average) bandwidth (VBW)  $\geq$  RBW.
6. Sweep: Auto.
7. Detector function: Peak.
8. Trace: Max hold.
9. Allow the trace to stabilize.

### 6.7.3 Measurement Result:

#### For GFSK

| Channel | Carrier separation (KHz) | Conclusion |
|---------|--------------------------|------------|
|---------|--------------------------|------------|

|    |        |         |   |
|----|--------|---------|---|
| 39 | Fig.79 | 990.384 | P |
|----|--------|---------|---|

## For $\pi/4$ DQPSK

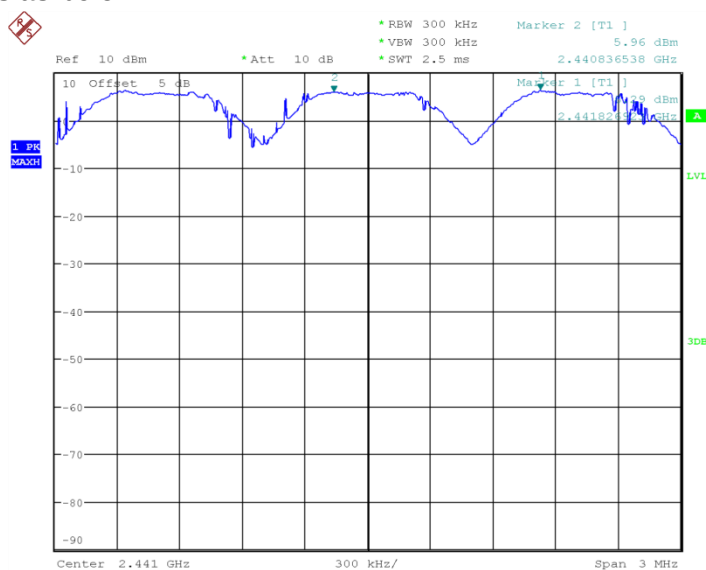
| Channel | Carrier separation (KHz) | Conclusion |
|---------|--------------------------|------------|
| 39      | Fig.80                   | P          |

## For 8DPSK

| Channel | Carrier separation (KHz) | Conclusion |
|---------|--------------------------|------------|
| 39      | Fig.81                   | P          |

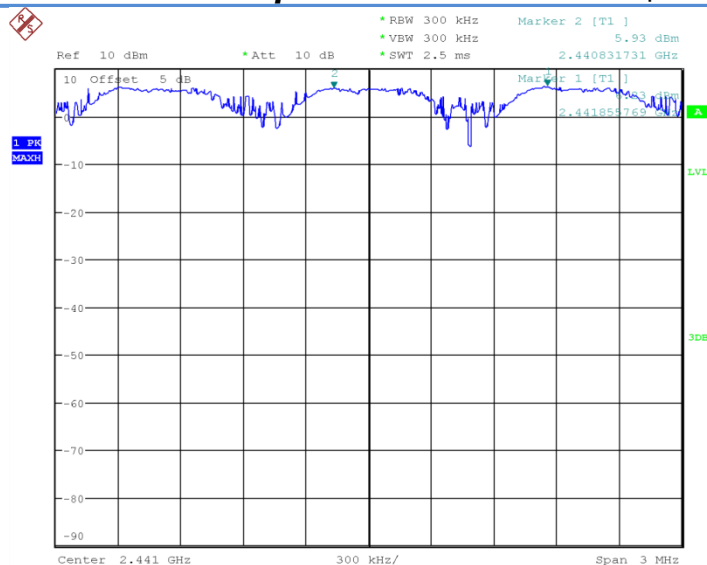
**Conclusion: PASS**

**Test graphs as below:**



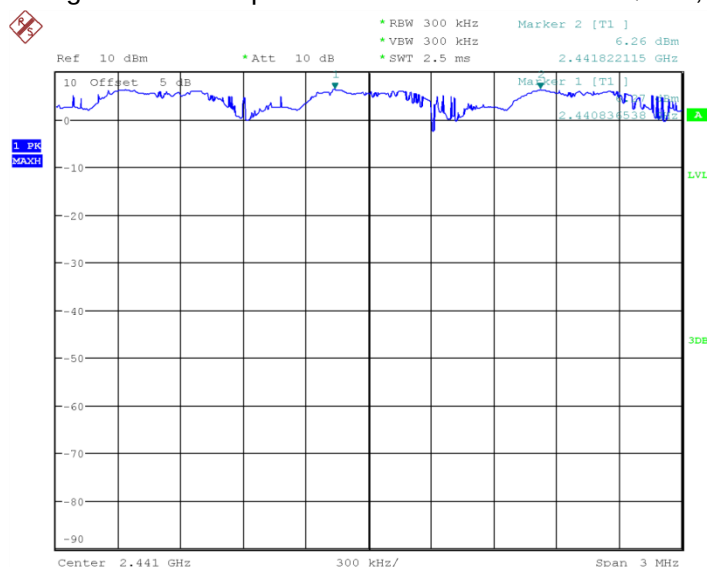
Date: 24.DEC.2016 13:45:52

**Fig.79 Carrier separation measurement: GFSK, Ch39**



Date: 24.DEC.2016 13:47:06

Fig.80 Carrier separation measurement:  $\pi/4$  DQPSK, Ch39



Date: 24.DEC.2016 13:48:20

Fig.81 Carrier separation measurement: 8DPSK, Ch39

## 6.8. Number Of Hopping Channels

### 6.8.1 Measurement Limit:

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

### 6.8.2 Test procedure

The measurement is according to ANSI C63.10 clause 7.8.3.

1. Connect the EUT through cable and divide with CBT32 and spectrum analyzer.
2. Enable the EUT transmit in hopping mode.
3. Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
4. RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
5. VBW  $\geq$  RBW.
6. Sweep: Auto.
7. Detector function: Peak.
8. Trace: Max hold.
9. Allow the trace to stabilize.
10. Record the test results.

### 6.8.3 Measurement Result:

For GFSK

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

For  $\pi/4$  DQPSK

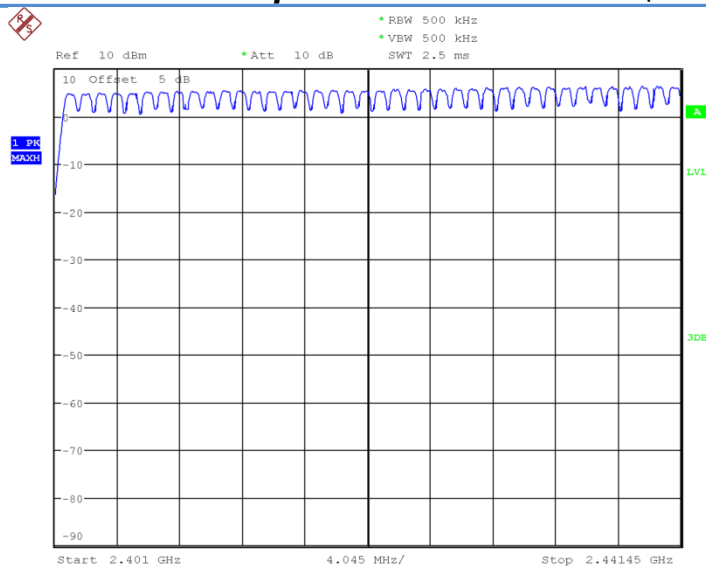
| Channel | Number of hopping channels |    | Conclusion |
|---------|----------------------------|----|------------|
| 0~39    | Fig.84                     | 79 | P          |
| 40~78   | Fig.85                     |    | P          |

For 8DPSK

| Channel | Number of hopping channels |    | Conclusion |
|---------|----------------------------|----|------------|
| 0~39    | Fig.86                     | 79 | P          |
| 40~78   | Fig.87                     |    | P          |

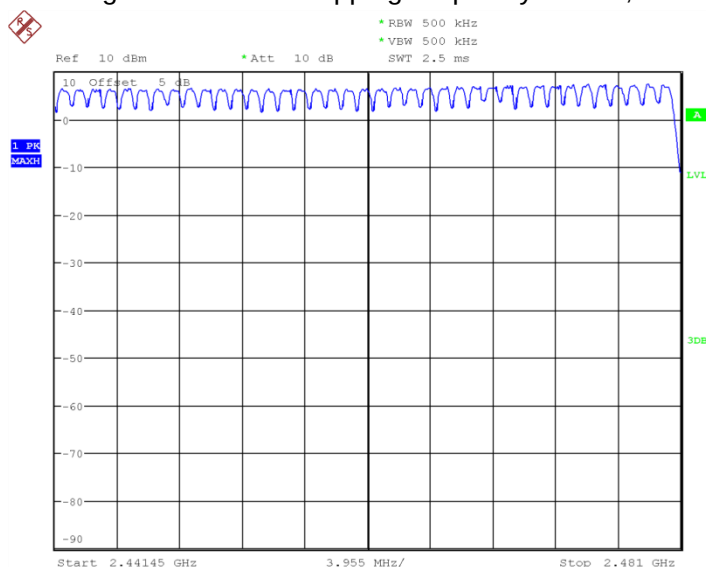
**Conclusion: PASS**

Test graphs as below:



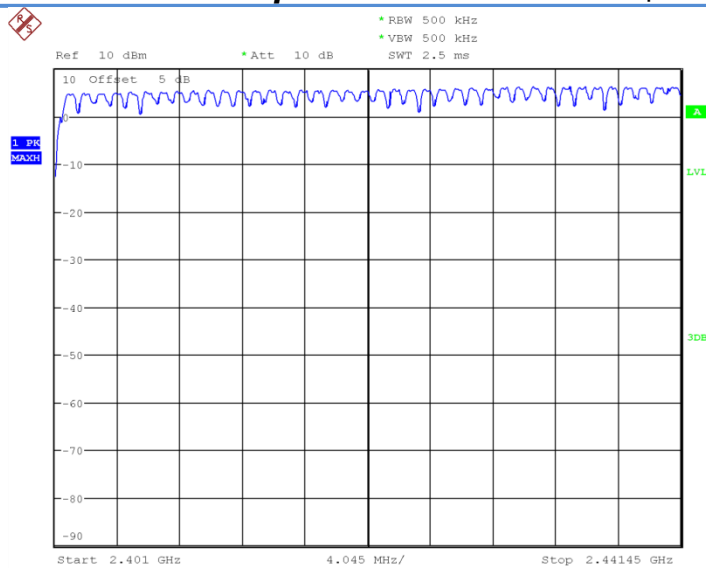
Date: 24.DEC.2016 13:50:57

Fig.82 Number of hopping frequency: GFSK, Ch0~39



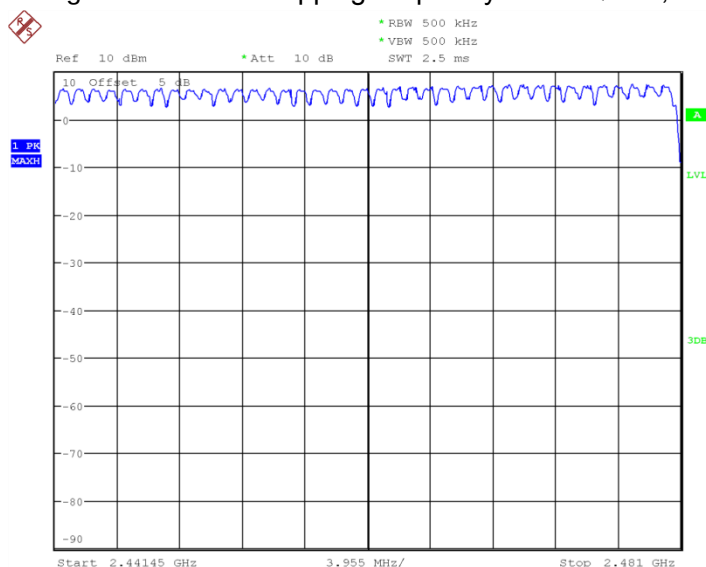
Date: 24.DEC.2016 13:53:02

Fig.83 Number of hopping frequency: GFSK, Ch40~78



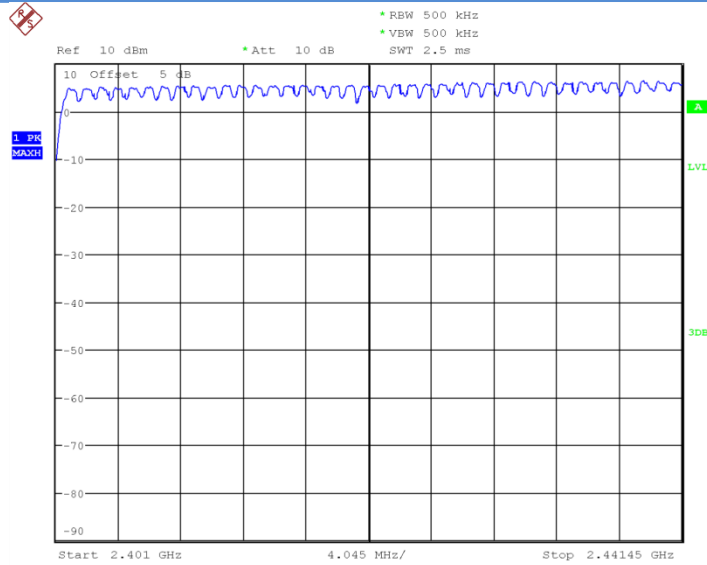
Date: 24.DEC.2016 13:55:07

Fig.84 Number of hopping frequency:  $\pi/4$  DQPSK, Ch0~39



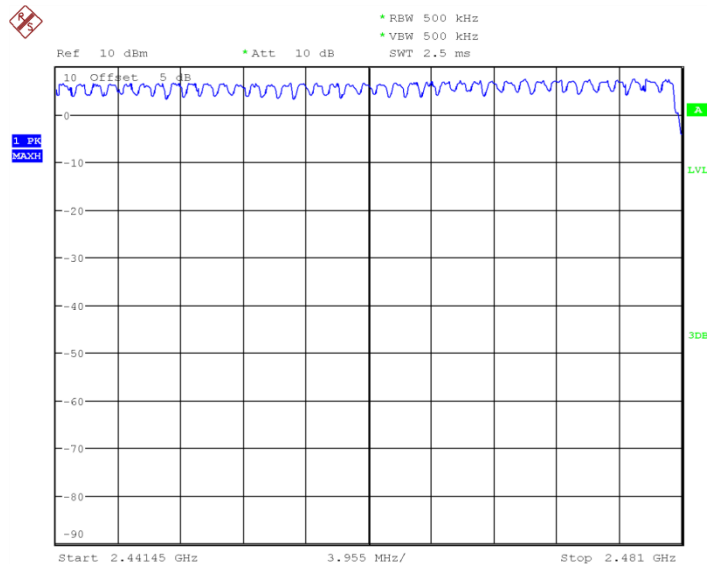
Date: 24.DEC.2016 13:57:13

Fig.85 Number of hopping frequency:  $\pi/4$  DQPSK, Ch40~78



Date: 24.DEC.2016 13:59:18

Fig.86 Number of hopping frequency: 8DPSK, Ch0~39



Date: 24.DEC.2016 14:01:22

Fig.87 Number of hopping frequency: 8DPSK, Ch40~78

## 7. Test Equipment and Ancillaries Used For Tests

The test equipment and ancillaries used are as follows.

### Conducted test system

| No. | Equipment              | Model    | Serial Number | Manufacturer  | Calibration Due date |
|-----|------------------------|----------|---------------|---------------|----------------------|
| 1   | Vector Signal Analyzer | FSQ26    | 101096        | Rohde&Schwarz | 2017-05-11           |
| 2   | DC Power Supply        | ZUP60-14 | LOC-220Z006   | TDL-Lambda    | 2017-05-11           |
| 3   | Bluetooth Tester       | CBT32    | 100785        | Rohde&Schwarz | 2017-05-11           |

### Radiated emission test system

| No. | Equipment                            | Model    | Serial Number | Manufacturer | Calibration Due date |
|-----|--------------------------------------|----------|---------------|--------------|----------------------|
| 1   | Universal Radio Communication Tester | CMU200   | 123101        | R&S          | 2017-05-11           |
| 3   | Test Receiver                        | ESU40    | 100307        | R&S          | 2017-05-11           |
| 4   | Trilog Antenna                       | VULB9163 | VULB9163-515  | Schwarzbeck  | 2017-11-04           |
| 5   | Double Ridged Guide Antenna          | ETS-3117 | 135885        | ETS          | 2017-05-05           |
| 8   | 2-Line V-Network                     | ENV216   | 101380        | R&S          | 2017-05-11           |

### Anechoic chamber

Fully anechoic chamber by Frankonia German.

## 8. Test Environment

**Shielding Room1** (6.0 meters×3.0 meters×2.7 meters) did not exceed following limits along the conducted RF performance testing:

|                          |                            |
|--------------------------|----------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C |
| Relative humidity        | Min. = 25 %, Max. = 75 %   |
| Shielding effectiveness  | > 110 dB                   |
| Ground system resistance | < 0.5 Ω                    |

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

|                          |                            |
|--------------------------|----------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C |
| Relative humidity        | Min. = 30 %, Max. = 60 %   |
| Shielding effectiveness  | > 110 dB                   |
| Electrical insulation    | > 10 kΩ                    |
| Ground system resistance | < 0.5 Ω                    |

**Fully-anechoic chamber1** (6.9 meters×10.9 meters×5.4 meters) did not exceed following limits along the EMC testing:

|                              |                                            |
|------------------------------|--------------------------------------------|
| Temperature                  | Min. = 15 °C, Max. = 35 °C                 |
| Relative humidity            | Min. = 25 %, Max. = 75 %                   |
| Shielding effectiveness      | > 100 dB                                   |
| Electrical insulation        | > 10 kΩ                                    |
| Ground system resistance     | < 0.5 Ω                                    |
| VSWR                         | Between 0 and 6 dB, from 1GHz to 18GHz     |
| Site Attenuation Deviation   | Between -4 and 4 dB, 30MHz to 1GHz         |
| Uniformity of field strength | Between 0 and 6 dB, from 80MHz to 3000 MHz |

**ANNEX A. Deviations from Prescribed Test Methods**

No deviation from Prescribed Test Methods.

**ANNEX B. Accreditation Certificate****Accredited Laboratory**

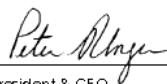
A2LA has accredited

**EAST CHINA INSTITUTE OF TELECOMMUNICATIONS***Shanghai, People's Republic of China*

for technical competence in the field of

**Electrical Testing**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of any additional program requirements in the field of Electrical. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

Presented this 10<sup>th</sup> day of December 2014.

President & CEO  
For the Accreditation Council  
Certificate Number 3682.01  
Valid to February 28, 2017

*For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.*

**\*\*\*\*\*End The Report\*\*\*\*\***