



TEST REPORT

Report Reference No...... : **TRE1709025203** R/C.....: 48564

FCC ID..... : **WA6S5031**

Applicant's name..... : **Verykool USA Inc**

Address.....: 3636 Nobel Drive,Suite 325, San Diego,CA 92122 USA

Manufacturer.....: TEM MOBILE LIMITED

Address.....: Room 1102,11/F, Building B,TCL Plaza,GaoXin S. Rd. 1st, Hi-Tech industrial Park,Nanshan District,Shenzhen,China

Test item description : **3G Smart phone**

Trade Mark: Verykool

Model/Type reference.....: s5031

Listed Model(s): -

Standard : **FCC CFR Title 47 Part 15 Subpart C Section 15.247**

Date of receipt of test sample.....: Sep.29, 2017

Date of testing.....: Sep.30, 2017 - Oct.12, 2017

Date of issue.....: Oct.13, 2017

Result.....: **PASS**

Compiled by
(Position+Printed name+Signature): File administrators Candy Liu *Candy Liu*

Supervised by
(Position+Printed name+Signature): Project Engineer Edward Pan *Edward Pan*

Approved by
(Position+Printed name+Signature): RF Manager Hans Hu *Hans Hu*

Testing Laboratory Name : **Shenzhen Huatongwei International Inspection Co., Ltd.**

Address.....: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

Shenzhen Huatongwei International Inspection Co., Ltd. All rights reserved.

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen Huatongwei International Inspection Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen Huatongwei International Inspection Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

The test report merely correspond to the test sample.

Contents

| | | |
|-----------|---|-----------|
| 1. | <u>TEST STANDARDS AND REPORT VERSION</u> | 3 |
| 1.1. | Test Standards | 3 |
| 1.2. | Report version | 3 |
| 2. | <u>TEST DESCRIPTION</u> | 4 |
| 3. | <u>SUMMARY</u> | 5 |
| 3.1. | Client Information | 5 |
| 3.2. | Product Description | 5 |
| 3.3. | Operation state | 6 |
| 3.4. | EUT configuration | 6 |
| 3.5. | Modifications | 6 |
| 4. | <u>TEST ENVIRONMENT</u> | 7 |
| 4.1. | Address of the test laboratory | 7 |
| 4.2. | Test Facility | 7 |
| 4.3. | Environmental conditions | 8 |
| 4.4. | Statement of the measurement uncertainty | 8 |
| 4.5. | Equipments Used during the Test | 9 |
| 5. | <u>TEST CONDITIONS AND RESULTS</u> | 10 |
| 5.1. | Antenna requirement | 10 |
| 5.2. | Conducted Emissions (AC Main) | 11 |
| 5.3. | Conducted Peak Output Power | 14 |
| 5.4. | 20 dB Bandwidth | 18 |
| 5.5. | Carrier Frequencies Separation | 22 |
| 5.6. | Hopping Channel Number | 24 |
| 5.7. | Dwell Time | 26 |
| 5.8. | Pseudorandom Frequency Hopping Sequence | 30 |
| 5.9. | Restricted band (radiated) | 31 |
| 5.10. | Band edge and Spurious Emissions (conducted) | 33 |
| 5.11. | Spurious Emissions (radiated) | 54 |
| 6. | <u>TEST SETUP PHOTOS</u> | 58 |
| 7. | <u>EXTERNAL AND INTERNAL PHOTOS OF THE EUT</u> | 59 |

1. TEST STANDARDS AND REPORT VERSION

1.1. Test Standards

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

[ANSI C63.10-2013](#): American National Standard for Testing Unlicensed Wireless Devices

1.2. Report version

| Version No. | Date of issue | Description |
|-------------|---------------|-------------|
| 00 | Oct.13, 2017 | Original |
| | | |
| | | |
| | | |
| | | |

2. TEST DESCRIPTION

| Test Item | Section in CFR 47 | Result | Test Engineer |
|---|--------------------------|---------------|----------------------|
| Antenna Requirement | 15.203/15.247 (c) | Pass | William Wang |
| AC Power Line Conducted Emissions | 15.207 | Pass | William Wang |
| Conducted Peak Output Power | 15.247 (b)(1) | Pass | William Wang |
| 20 dB Bandwidth | 15.247 (a)(1) | Pass | William Wang |
| Carrier Frequencies Separation | 15.247 (a)(1) | Pass | William Wang |
| Hopping Channel Number | 15.247 (a)(1) | Pass | William Wang |
| Dwell Time | 15.247 (a)(1) | Pass | William Wang |
| Pseudorandom Frequency Hopping Sequence | 15.247(b)(4) | Pass | William Wang |
| Restricted band | 15.247(d)/15.205 | Pass | William Wang |
| Radiated Emissions | 15.247(d)/15.209 | Pass | William Wang |

Note: The measurement uncertainty is not included in the test result.

3. SUMMARY

3.1. Client Information

| | |
|---------------|---|
| Applicant: | Verykool USA Inc |
| Address: | 3636 Nobel Drive, Suite 325, San Diego, CA 92122 USA |
| Manufacturer: | TEM MOBILE LIMITED |
| Address: | Room 1102, 11/F, Building B, TCL Plaza, GaoXin S. Rd. 1st, Hi-Tech industrial Park, Nanshan District, Shenzhen, China |

3.2. Product Description

| | |
|----------------------|--|
| Name of EUT: | 3G Smart phone |
| Trade Mark: | Verykool |
| Model No.: | s5031 |
| Listed Model(s): | - |
| IMEI 1: | 358723070876417 |
| IMEI 2: | 358723070876425 |
| Power supply: | DC 3.7V From internal battery |
| Adapter information: | Input: 100-240Va.c., 50/60Hz, 0.2A Output: 5Vd.c., 1A |
| Hardware version: | ZH286-MB-V0.2A |
| Software version: | s5031_VK_Generic_Dual_SW_1.0 |
| Bluetooth | |
| Version: | Supported BT4.0+EDR |
| Modulation: | GFSK, $\pi/4$ DQPSK, 8DPSK |
| Operation frequency: | 2402MHz~2480MHz |
| Channel number: | 79 |
| Channel separation: | 1MHz |
| Antenna type: | PIFA Antenna |
| Antenna gain: | 0.5dBi |

3.3. Operation state

➤ **Test frequency list**

According to section 15.31(m), regards to the operating frequency range over 10 MHz, must select three channel which were tested. the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, please see the above gray bottom.

| Channel | Frequency (MHz) |
|---------|-----------------|
| 00 | 2402 |
| 01 | 2403 |
| ⋮ | ⋮ |
| 39 | 2441 |
| ⋮ | ⋮ |
| 77 | 2479 |
| 78 | 2480 |

➤ **TEST MODE**

| |
|---|
| For RF test items: |
| The engineering test program was provided and enabled to make EUT continuous transmit |
| For AC power line conducted emissions: |
| The EUT was set to connect with the Bluetooth instrument under large package sizes transmission. |
| For Radiated suprious emissions test item: |
| The EUT in each of three orthogonal axis emissions had been tested ,but only the worst case (X axis) data recorded in the report. |

3.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

| | | |
|---|---------------|---|
| / | Manufacturer: | / |
| | Model No.: | / |
| / | Manufacturer: | / |
| | Model No.: | / |

3.5. Modifications

No modifications were implemented to meet testing criteria.

4. TEST ENVIRONMENT

4.1. Address of the test laboratory

Laboratory: Shenzhen Huatongwei International Inspection Co., Ltd.

Address: 1/F, Bldg 3, Hongfa Hi-tech Industrial Park, Genyu Road, Tianliao, Gongming, Shenzhen, China

4.2. Test Facility

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 3902.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 762235

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files.

IC-Registration No.:5377B-1

Two 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No.: 5377B-1.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

4.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

| | |
|--------------------|-------------|
| Temperature: | 15~35°C |
| Relative Humidity: | 30~60 % |
| Air Pressure: | 950~1050mba |

4.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors in calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report according to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd. quality system according to ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Here after the best measurement capability for Shenzhen Huatongwei International Inspection Co., Ltd. is reported:

| Test Items | Measurement Uncertainty | Notes |
|---|-------------------------|-------|
| Transmitter power conducted | 0.57 dB | (1) |
| Transmitter power Radiated | 2.20 dB | (1) |
| Conducted spurious emissions 9kHz~40GHz | 1.60 dB | (1) |
| Radiated spurious emissions 9kHz~40GHz | 2.20 dB | (1) |
| Conducted Emissions 9kHz~30MHz | 3.39 dB | (1) |
| Radiated Emissions 30~1000MHz | 4.24 dB | (1) |
| Radiated Emissions 1~18GHz | 5.16 dB | (1) |
| Radiated Emissions 18~40GHz | 5.54 dB | (1) |
| Occupied Bandwidth | ----- | (1) |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

4.5. Equipments Used during the Test

| Conducted Emissions | | | | | |
|---------------------|-------------------|---------------|-------------|------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | Artificial Mains | Rohde&Schwarz | ESH2-Z5 | 100028 | 2016/11/13 |
| 2 | EMI Test Receiver | Rohde&Schwarz | ESCI3 | 100038 | 2016/11/13 |
| 3 | Pulse Limiter | Rohde&Schwarz | ESHSZ2 | 100044 | 2016/11/13 |
| 4 | EMI Test Software | Rohde&Schwarz | ES-K1 V1.71 | - | - |

| Radiated Emissions | | | | | |
|--------------------|-------------------------|------------------------------|--------------------|------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | EMI test receiver | Rohde&Schwarz | ESI 26 | 100009 | 2016/11/13 |
| 2 | Loop Antenna | Rohde&Schwarz | HFH2-Z2 | 100020 | 2016/11/13 |
| 3 | Ultra-Broadband Antenna | ShwarzBeck | VULB9163 | 538 | 2016/11/13 |
| 4 | Horn antenna | ShwarzBeck | 9120D | 1011 | 2016/11/13 |
| 5 | Horn Antenna | SCHWARZBECK | BBHA9170 | 25841 | 2016/11/13 |
| 6 | Amplifier | Sonoma | 310N | E009-13 | 2016/11/13 |
| 7 | JS Amplifier | Rohde&Schwarz | JS4-00101800-28-5A | F201504 | 2016/11/13 |
| 8 | Amplifier | Compliance Direction systems | PAP1-4060 | 120 | 2016/11/13 |
| 9 | High pass filter | Compliance Direction systems | BSU-6 | 34202 | 2016/11/13 |
| 10 | EMI test Software | Rohde&Schwarz | ESK1 | - | - |
| 11 | EMI test Software | Audix | E3 | - | - |
| 12 | TURNTABLE | MATURO | TT2.0 | - | - |
| 13 | ANTENNA MAST | MATURO | TAM-4.0-P | - | - |

| RF Conducted methods | | | | | |
|----------------------|---------------------|----------------------|-----------|--------------|------------|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Last Cal. |
| 1 | Spectrum Analyzer | Rohde&Schwarz | FSP | 1164.4391.40 | 2016/11/13 |
| 2 | MXA Signal Analyzer | Agilent Technologies | N9020A | MY5050187 | 2016/11/13 |

The Cal.Interval was one year.

5. TEST CONDITIONS AND RESULTS

5.1. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Test Result:

Passed **Not Applicable**

The directional gain of the antenna less than 6 dBi, please refer to the below antenna photo.



5.2. Conducted Emissions (AC Main)

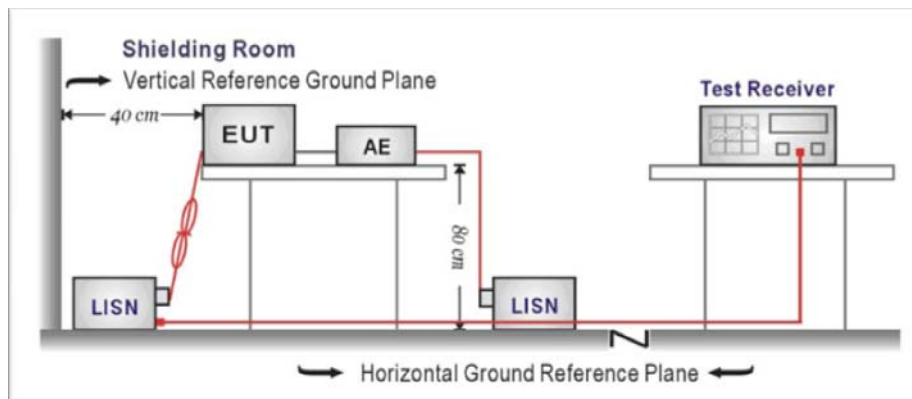
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.207

| Frequency range (MHz) | Limit (dBuV) | |
|-----------------------|--------------|-----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

* Decreases with the logarithm of the frequency.

TEST CONFIGURATION



TEST PROCEDURE

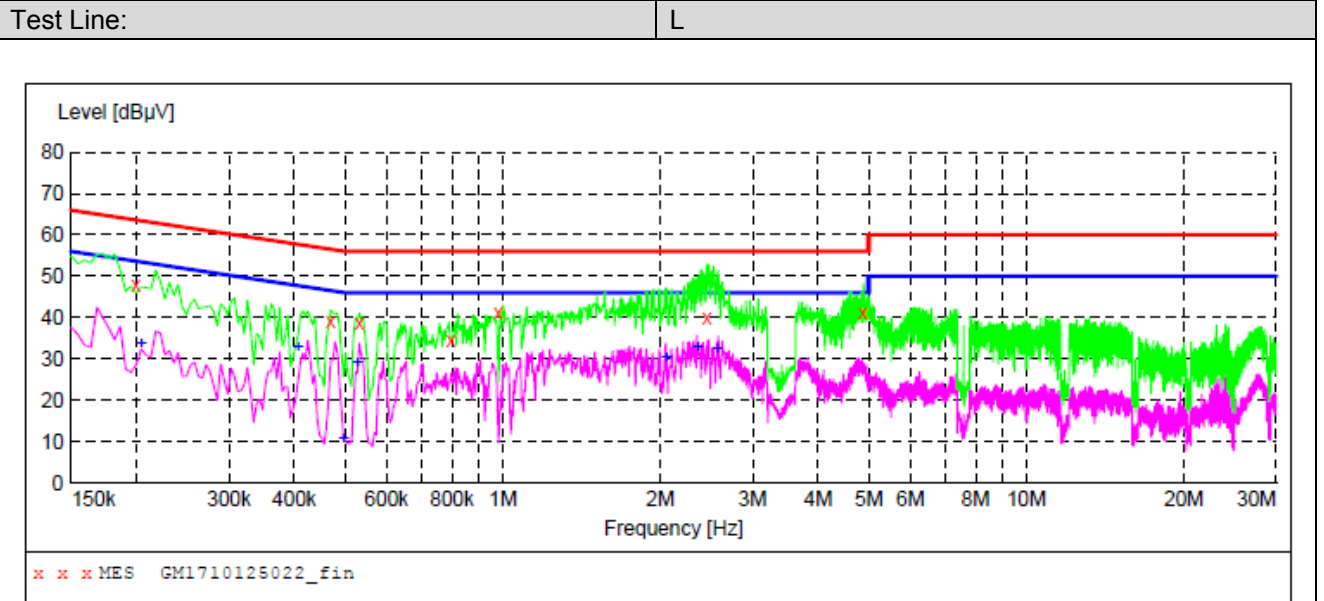
1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment.
4. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
5. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
6. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
7. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
8. During the above scans, the emissions were maximized by cable manipulation.

TEST RESULTS

Passed Not Applicable

Note:

- 1) Transd= Cable lose + Pulse Limiter Factor + Artificial Mains Factor
- 2) Margin= Limit - Level



MEASUREMENT RESULT: "GM1710125022_fin"

10/12/2017 11:35AM

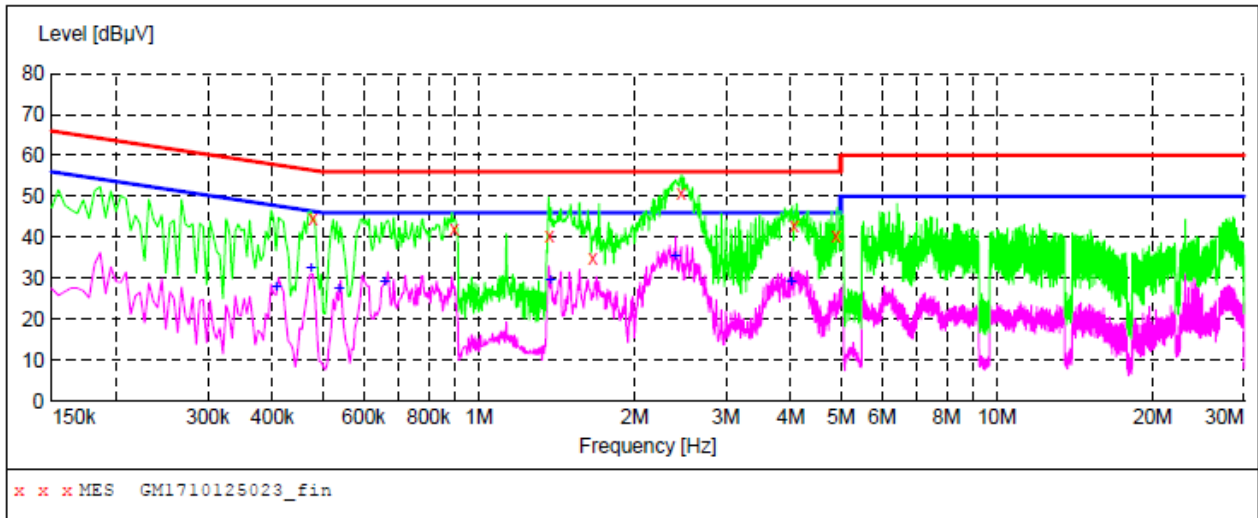
| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.199500 | 48.00 | 10.3 | 64 | 15.6 | QP | L1 | GND |
| 0.469500 | 39.10 | 10.2 | 57 | 17.4 | QP | L1 | GND |
| 0.532500 | 38.50 | 10.2 | 56 | 17.5 | QP | L1 | GND |
| 0.798000 | 34.70 | 10.2 | 56 | 21.3 | QP | L1 | GND |
| 0.982500 | 41.20 | 10.2 | 56 | 14.8 | QP | L1 | GND |
| 2.454000 | 40.10 | 10.2 | 56 | 15.9 | QP | L1 | GND |
| 4.879500 | 41.30 | 10.3 | 56 | 14.7 | QP | L1 | GND |

MEASUREMENT RESULT: "GM1710125022_fin2"

10/12/2017 11:35AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.204000 | 33.50 | 10.3 | 53 | 19.9 | AV | L1 | GND |
| 0.406500 | 32.90 | 10.2 | 48 | 14.8 | AV | L1 | GND |
| 0.496500 | 10.50 | 10.2 | 46 | 35.6 | AV | L1 | GND |
| 0.528000 | 29.20 | 10.2 | 46 | 16.8 | AV | L1 | GND |
| 2.053500 | 30.40 | 10.2 | 46 | 15.6 | AV | L1 | GND |
| 2.355000 | 32.90 | 10.2 | 46 | 13.1 | AV | L1 | GND |
| 2.562000 | 32.60 | 10.2 | 46 | 13.4 | AV | L1 | GND |

Test Line: N



MEASUREMENT RESULT: "GM1710125023_fin"

10/12/2017 11:37AM

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.478500 | 44.70 | 10.2 | 56 | 11.7 | QP | N | GND |
| 0.897000 | 42.20 | 10.1 | 56 | 13.8 | QP | N | GND |
| 1.369500 | 40.50 | 10.2 | 56 | 15.5 | QP | N | GND |
| 1.662000 | 34.90 | 10.2 | 56 | 21.1 | QP | N | GND |
| 2.458500 | 50.90 | 10.2 | 56 | 5.1 | QP | N | GND |
| 4.069500 | 43.00 | 10.3 | 56 | 13.0 | QP | N | GND |
| 4.897500 | 40.40 | 10.3 | 56 | 15.6 | QP | N | GND |

MEASUREMENT RESULT: "GM1710125023_fin2"

10/12/2017 11:37AM

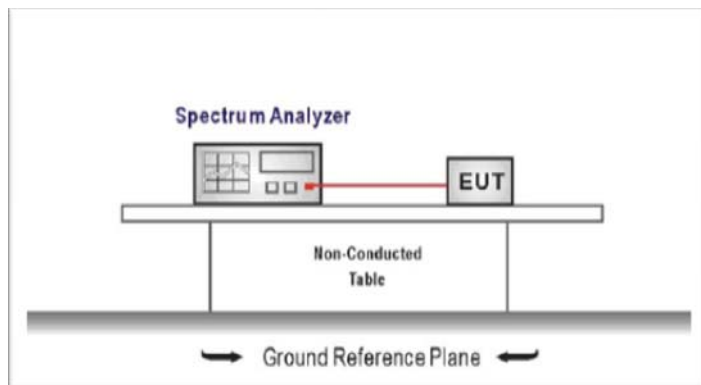
| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.406500 | 28.00 | 10.2 | 46 | 19.7 | AV | N | GND |
| 0.474000 | 32.30 | 10.2 | 46 | 14.1 | AV | N | GND |
| 0.537000 | 27.40 | 10.2 | 46 | 18.6 | AV | N | GND |
| 0.658500 | 29.20 | 10.2 | 46 | 16.8 | AV | N | GND |
| 1.374000 | 29.50 | 10.2 | 46 | 16.5 | AV | N | GND |
| 2.395500 | 35.50 | 10.2 | 46 | 10.5 | AV | N | GND |
| 4.011000 | 28.90 | 10.3 | 46 | 17.1 | AV | N | GND |

5.3. Conducted Peak Output Power

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

TEST CONFIGURATION



TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer through an attenuator, the pathloss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following spectrum analyzer settings:
Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
RBW \geq the 20 dB bandwidth of the emission being measured, VBW \geq RBW
Sweep = auto, Detector function = peak, Trace = max hold
4. Measure and record the results in the test report.

TEST MODE:

Please refer to the clause 3.3




TEST RESULTS

Passed Not Applicable

| Modulation type | Channel | Output power (dBm) | Limit (dBm) | Result |
|-----------------|---------|--------------------|--------------|--------|
| GFSK | 00 | 1.977 | ≤ 30.00 | Pass |
| | 39 | 0.299 | | |
| | 78 | 3.181 | | |
| $\pi/4$ DQPSK | 00 | 3.547 | ≤ 21.00 | Pass |
| | 39 | 1.199 | | |
| | 78 | 4.495 | | |
| 8DPSK | 00 | 3.878 | ≤ 21.00 | Pass |
| | 39 | 1.445 | | |
| | 78 | 4.784 | | |

| Modulation Type: | | GFSK |
|------------------|--|--|
| CH00 | | <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.402000000 GHz</p> <p>Ref Offset 1 dB Ref 20.50 dBm</p> <p>Mkr1 2.402165625 GHz 1.977 dBm</p> <p>Center Freq 2.402000000 GHz</p> <p>Start Freq 2.399500000 GHz</p> <p>Stop Freq 2.404500000 GHz</p> <p>CF Step 500.000 kHz Auto</p> <p>Freq Offset 0 Hz</p> <p>Center 2.402000 GHz</p> <p>#Res BW 1.0 MHz</p> <p>#VBW 3.0 MHz</p> <p>Span 5.000 MHz</p> <p>Sweep 1.067 ms (8001 pts)</p> |
| CH39 | | <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.441000000 GHz</p> <p>Ref Offset 1 dB Ref 20.50 dBm</p> <p>Mkr1 2.440836875 GHz 0.299 dBm</p> <p>Center Freq 2.441000000 GHz</p> <p>Start Freq 2.438500000 GHz</p> <p>Stop Freq 2.443500000 GHz</p> <p>CF Step 500.000 kHz Auto</p> <p>Freq Offset 0 Hz</p> <p>Center 2.441000 GHz</p> <p>#Res BW 1.0 MHz</p> <p>#VBW 3.0 MHz</p> <p>Span 5.000 MHz</p> <p>Sweep 1.067 ms (8001 pts)</p> |
| CH78 | | <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Center Freq 2.480000000 GHz</p> <p>Ref Offset 1 dB Ref 20.50 dBm</p> <p>Mkr1 2.479833750 GHz 3.181 dBm</p> <p>Center Freq 2.480000000 GHz</p> <p>Start Freq 2.477500000 GHz</p> <p>Stop Freq 2.482500000 GHz</p> <p>CF Step 500.000 kHz Auto</p> <p>Freq Offset 0 Hz</p> <p>Center 2.480000 GHz</p> <p>#Res BW 1.0 MHz</p> <p>#VBW 3.0 MHz</p> <p>Span 5.000 MHz</p> <p>Sweep 1.067 ms (8001 pts)</p> |

| Modulation Type: | | $\pi/4$ DQPSK |
|------------------|--|--|
| CH00 | | <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Center Freq 2.402000000 GHz</p> <p>Mkr1 2.402 209 375 GHz 3.547 dBm</p> <p>Center Freq 2.402000000 GHz</p> <p>Start Freq 2.399500000 GHz</p> <p>Stop Freq 2.404500000 GHz</p> <p>CF Step 500.000 kHz</p> <p>Freq Offset 0 Hz</p> <p>Center 2.402000 GHz</p> <p>#Res BW 2.0 MHz</p> <p>#VBW 6.0 MHz</p> <p>Span 5.000 MHz</p> <p>Sweep 1.067 ms (8001 pts)</p> |
| CH39 | | <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Center Freq 2.441000000 GHz</p> <p>Mkr1 2.441 161 975 GHz 1.199 dBm</p> <p>Center Freq 2.441000000 GHz</p> <p>Start Freq 2.438500000 GHz</p> <p>Stop Freq 2.443500000 GHz</p> <p>CF Step 500.000 kHz</p> <p>Freq Offset 0 Hz</p> <p>Center 2.441000 GHz</p> <p>#Res BW 2.0 MHz</p> <p>#VBW 6.0 MHz</p> <p>Span 5.000 MHz</p> <p>Sweep 1.067 ms (8001 pts)</p> |
| CH78 | | <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Center Freq 2.480000000 GHz</p> <p>Mkr1 2.479 717 500 GHz 4.495 dBm</p> <p>Center Freq 2.480000000 GHz</p> <p>Start Freq 2.477500000 GHz</p> <p>Stop Freq 2.482500000 GHz</p> <p>CF Step 500.000 kHz</p> <p>Freq Offset 0 Hz</p> <p>Center 2.480000 GHz</p> <p>#Res BW 2.0 MHz</p> <p>#VBW 6.0 MHz</p> <p>Span 5.000 MHz</p> <p>Sweep 1.067 ms (8001 pts)</p> |

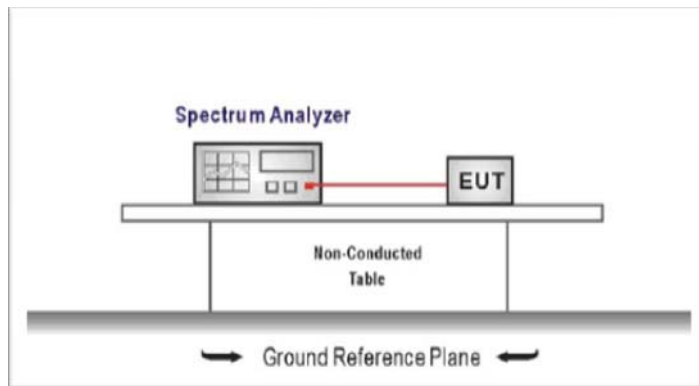
| Modulation Type: | | 8DPSK |
|------------------|--|-------|
| CH00 |  | |
| CH39 |  | |
| CH78 |  | |

5.4. 20 dB Bandwidth

LIMIT

N/A

TEST CONFIGURATION



TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following spectrum analyzer settings:
Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel
RBW \geq 1% of the 20 dB bandwidth, VBW \geq RBW
Sweep = auto, Detector function = peak, Trace = max hold
4. Measure and record the results in the test report.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

 Passed Not Applicable

| Modulation type | Channel | 20 dB Bandwidth (MHz) | Limit (MHz) | Result |
|-----------------|---------|-----------------------|-------------|--------|
| GFSK | 00 | 0.9231 | - | Pass |
| | 39 | 0.9294 | | |
| | 78 | 0.9184 | | |
| $\pi/4$ DQPSK | 00 | 1.341 | - | Pass |
| | 39 | 1.282 | | |
| | 78 | 1.353 | | |
| 8DPSK | 00 | 1.328 | - | Pass |
| | 39 | 1.328 | | |
| | 78 | 1.331 | | |

| Modulation Type: | | GFSK | |
|------------------|--|--|--|
| CH00 | | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.402000000 GHz</p> <p>Center Freq: 2.402000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 1 dB</p> <p>Ref 10.50 dBm</p> <p>10 dB/Div</p> <p>Center 2.402 GHz</p> <p>#Res BW 10 kHz</p> <p>#VBW 30 kHz</p> <p>Span 2 MHz</p> <p>Sweep 19.13 ms</p> <p>Occupied Bandwidth 837.42 kHz</p> <p>Total Power 8.55 dBm</p> <p>Transmit Freq Error 2.903 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 923.1 kHz</p> <p>x dB -20.00 dB</p> | <p>Frequency</p> <p>Center Freq 2.402000000 GHz</p> <p>CF Step 200.000 kHz</p> <p>Freq Offset 0 Hz</p> |
| CH39 | | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.441000000 GHz</p> <p>Center Freq: 2.441000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 1 dB</p> <p>Ref 10.50 dBm</p> <p>10 dB/Div</p> <p>Center 2.441 GHz</p> <p>#Res BW 10 kHz</p> <p>#VBW 30 kHz</p> <p>Span 2 MHz</p> <p>Sweep 19.13 ms</p> <p>Occupied Bandwidth 873.72 kHz</p> <p>Total Power 4.73 dBm</p> <p>Transmit Freq Error -4.535 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 929.4 kHz</p> <p>x dB -20.00 dB</p> | <p>Frequency</p> <p>Center Freq 2.441000000 GHz</p> <p>CF Step 200.000 kHz</p> <p>Freq Offset 0 Hz</p> |
| CH78 | | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.480000000 GHz</p> <p>Center Freq: 2.480000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 1 dB</p> <p>Ref 10.50 dBm</p> <p>10 dB/Div</p> <p>Center 2.48 GHz</p> <p>#Res BW 10 kHz</p> <p>#VBW 30 kHz</p> <p>Span 2 MHz</p> <p>Sweep 19.13 ms</p> <p>Occupied Bandwidth 873.63 kHz</p> <p>Total Power 7.46 dBm</p> <p>Transmit Freq Error -3.796 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 918.4 kHz</p> <p>x dB -20.00 dB</p> | <p>Frequency</p> <p>Center Freq 2.480000000 GHz</p> <p>CF Step 200.000 kHz</p> <p>Freq Offset 0 Hz</p> |

| Modulation Type: | | $\pi/4$ DQPSK |
|------------------|--|---------------|
| CH00 | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.402000000 GHz</p> <p>Center Freq 2.402000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 1 dB</p> <p>Ref 10.50 dBm</p> <p>Center 2.402 GHz</p> <p>#Res BW 30 kHz</p> <p>#VBW 100 kHz</p> <p>Span 2.5 MHz</p> <p>Sweep 2.667 ms</p> <p>Occupied Bandwidth 1.2441 MHz</p> <p>Total Power 5.09 dBm</p> <p>Transmit Freq Error 2.032 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 1.341 MHz</p> <p>x dB -20.00 dB</p> <p>Frequency 2.402000000 GHz</p> <p>CF Step 250.000 kHz</p> <p>Freq Offset 0 Hz</p> | |
| CH39 | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.441000000 GHz</p> <p>Center Freq 2.441000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 1 dB</p> <p>Ref 10.50 dBm</p> <p>Center 2.441 GHz</p> <p>#Res BW 30 kHz</p> <p>#VBW 100 kHz</p> <p>Span 2.5 MHz</p> <p>Sweep 2.667 ms</p> <p>Occupied Bandwidth 1.1986 MHz</p> <p>Total Power 2.93 dBm</p> <p>Transmit Freq Error -12.055 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 1.282 MHz</p> <p>x dB -20.00 dB</p> <p>Frequency 2.441000000 GHz</p> <p>CF Step 250.000 kHz</p> <p>Freq Offset 0 Hz</p> | |
| CH78 | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.480000000 GHz</p> <p>Center Freq 2.480000000 GHz</p> <p>Trig: Free Run</p> <p>Avg/Hold: 10/10</p> <p>Radio Std: None</p> <p>Radio Device: BTS</p> <p>Ref Offset 1 dB</p> <p>Ref 10.50 dBm</p> <p>Center 2.48 GHz</p> <p>#Res BW 30 kHz</p> <p>#VBW 100 kHz</p> <p>Span 2.5 MHz</p> <p>Sweep 2.667 ms</p> <p>Occupied Bandwidth 1.2271 MHz</p> <p>Total Power 6.55 dBm</p> <p>Transmit Freq Error 4.392 kHz</p> <p>OBW Power 99.00 %</p> <p>x dB Bandwidth 1.353 MHz</p> <p>x dB -20.00 dB</p> <p>Frequency 2.480000000 GHz</p> <p>CF Step 250.000 kHz</p> <p>Freq Offset 0 Hz</p> | |

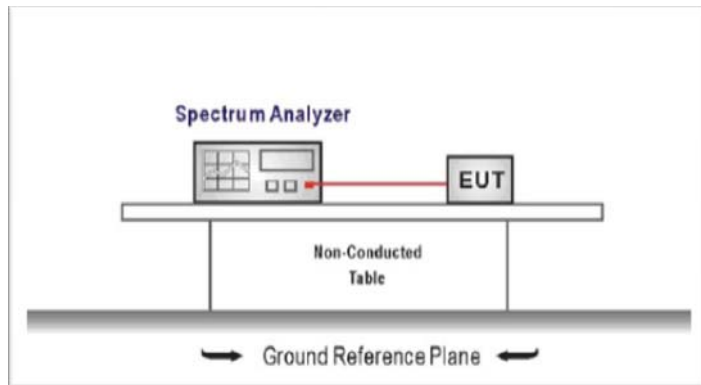
| Modulation Type: | | 8DPSK |
|------------------|---|--|
| CH00 | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.402000000 GHz</p> <p>Ref Offset 1 dB Ref 10.50 dBm</p> <p>Center 2.402 GHz #Res BW 30 kHz</p> <p>Occupied Bandwidth 1.1977 MHz</p> <p>Total Power 5.46 dBm</p> <p>Transmit Freq Error 885 Hz</p> <p>x dB Bandwidth 1.328 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -20.00 dB</p> | <p>Frequency</p> <p>Center Freq 2.402000000 GHz</p> <p>CF Step 250.000 kHz</p> <p>Freq Offset 0 Hz</p> |
| CH39 | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.441000000 GHz</p> <p>Ref Offset 1 dB Ref 10.50 dBm</p> <p>Center 2.441 GHz #Res BW 30 kHz</p> <p>Occupied Bandwidth 1.2176 MHz</p> <p>Total Power 3.61 dBm</p> <p>Transmit Freq Error -4.892 kHz</p> <p>x dB Bandwidth 1.328 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -20.00 dB</p> | <p>Frequency</p> <p>Center Freq 2.441000000 GHz</p> <p>CF Step 250.000 kHz</p> <p>Freq Offset 0 Hz</p> |
| CH78 | <p>Agilent Spectrum Analyzer - Occupied BW</p> <p>Center Freq 2.480000000 GHz</p> <p>Ref Offset 1 dB Ref 10.50 dBm</p> <p>Center 2.48 GHz #Res BW 30 kHz</p> <p>Occupied Bandwidth 1.2214 MHz</p> <p>Total Power 6.96 dBm</p> <p>Transmit Freq Error 238 Hz</p> <p>x dB Bandwidth 1.331 MHz</p> <p>OBW Power 99.00 %</p> <p>x dB -20.00 dB</p> | <p>Frequency</p> <p>Center Freq 2.480000000 GHz</p> <p>CF Step 250.000 kHz</p> <p>Freq Offset 0 Hz</p> |

5.5. Carrier Frequencies Separation

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(1):Frequency hopping systems shall have hopping channel carrier frequencies separated by minimum of 25 kHz or the 2/3*20 dB bandwidth of the hopping channel, whichever is greater.

TEST CONFIGURATION



TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following spectrum analyzer settings:
 Span = wide enough to capture the peaks of two adjacent channels
 RBW ≥ 1% of the span, VBW ≥ RBW
 Sweep = auto, Detector function = peak, Trace = max hold
4. Measure and record the results in the test report.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

Passed Not Applicable

| Modulation type | Channel | Carrier Frequencies Separation (MHz) | Limit (MHz) * | Result |
|-----------------|---------|--------------------------------------|---------------|--------|
| GFSK | 39 | 1.014 | ≥0.929 | Pass |
| π/4DQPSK | 39 | 1.054 | ≥0.907 | Pass |
| 8DPSK | 39 | 1.014 | ≥0.892 | Pass |

Note:

*: GFSK limit = The maximum 20 dB Bandwidth for GFSK modulation on the section 5.4.

π/4DQPSK limit = 2/3 * The maximum 20 dB Bandwidth for π/4DQPSK modulation on the section 5.4.

8DPSK limit = 2/3 * The maximum 20 dB Bandwidth for 8DPSK modulation on the section 5.4

| <p>GFSK</p> | <thead> <tr> <th>MKR MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Δ2</td> <td>f</td> <td>(Δ)</td> <td>1.013 75 MHz (Δ)</td> <td>-0.523 dB</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>F</td> <td>f</td> <td></td> <td>2.440 973 75 GHz</td> <td>-1.259 dBm</td> <td></td> <td></td> </tr> </tbody> | MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | Δ2 | f | (Δ) | 1.013 75 MHz (Δ) | -0.523 dB | | | 2 | F | f | | 2.440 973 75 GHz | -1.259 dBm | | |
|-------------|---|----------|-----|------------------|------------|----------------|----------------|----------------|----------------|---|----|---|-----|------------------|-----------|--|--|---|---|---|--|------------------|------------|--|--|
| MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | |
| 1 | Δ2 | f | (Δ) | 1.013 75 MHz (Δ) | -0.523 dB | | | | | | | | | | | | | | | | | | | | |
| 2 | F | f | | 2.440 973 75 GHz | -1.259 dBm | | | | | | | | | | | | | | | | | | | | |

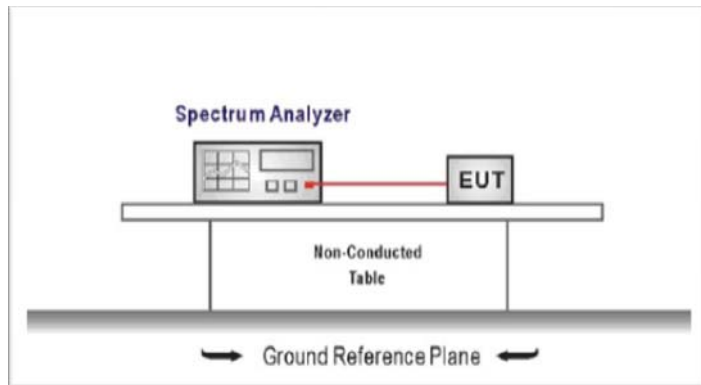
 Peak Search Next Peak Next Pk Right Next Pk Left Marker Delta Mkr--CF Mkr--Ref Lvl More 1 of 2 || $\pi/4$ DQPSK | | MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | --- | --- | --- | --- | --- | --- | --- | --- | | 1 | Δ2 | f | (Δ) | 1.054 50 MHz (Δ) | -2.089 dB | | | | 2 | F | f | | 2.440 929 00 GHz | -2.166 dBm | | | | Peak Search Next Peak Next Pk Right Next Pk Left Marker Delta Mkr--CF Mkr--Ref Lvl More 1 of 2 |
| 8DPSK | | MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | --- | --- | --- | --- | --- | --- | --- | --- | | 1 | Δ2 | f | (Δ) | 1.013 50 MHz (Δ) | 0.476 dB | | | | 2 | F | f | | 2.440 973 00 GHz | -2.325 dBm | | | | Peak Search Next Peak Next Pk Right Next Pk Left Marker Delta Mkr--CF Mkr--Ref Lvl More 1 of 2 |

5.6. Hopping Channel Number

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(1):Frequency hopping systems in the 2400–2483.5 MHz band shall use at least **15** channels.

TEST CONFIGURATION



TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following spectrum analyzer settings:
 Span = the frequency band of operation
 RBW \geq 1% of the span, VBW \geq RBW
 Sweep = auto, Detector function = peak, Trace = max hold
4. Measure and record the results in the test report.




TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

Passed Not Applicable

| Modulation type | Channel number | Limit | Result |
|-----------------|----------------|--------------|--------|
| GFSK | 79 | ≥ 15.00 | Pass |
| $\pi/4$ DQPSK | 79 | | |
| 8DPSK | 79 | | |

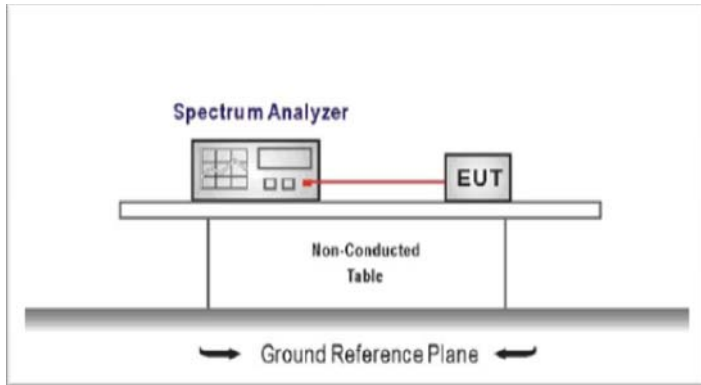
| <p>GFSK</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Marker 1 Δ 77.629296922 MHz #Avg Type: RMS #Att: 20 dB Ref Offset: 1 dB Ref: 16.50 dBm ΔMkr1 77.629 MHz 0.103 dB Start 2.40000 GHz Stop 2.48350 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 1.113 ms (8350 pts)</p> <table border="1"><thead><tr><th>MKR MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>Δ</td><td>f</td><td>(Δ)</td><td>77.629 MHz (Δ)</td><td>0.103 dB</td><td></td><td></td></tr><tr><td>2</td><td>F</td><td>f</td><td></td><td>2.402 250 GHz</td><td>2.641 dBm</td><td></td><td></td></tr></tbody></table> | MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | Δ | f | (Δ) | 77.629 MHz (Δ) | 0.103 dB | | | 2 | F | f | | 2.402 250 GHz | 2.641 dBm | | | <p>Peak Search</p> <p>Next Peak</p> <p>Next Pk Right</p> <p>Next Pk Left</p> <p>Marker Delta</p> <p>Mkr--CF</p> <p>Mkr--Ref Lvl</p> <p>More 1 of 2</p> |
|--------------------------------|--|----------|--------------|-------------------------|-----------|----------------|----------------|----------------|----------------|---|----------|---|--------------|-------------------------|-----------|--|--|---|---|---|--|---------------|-----------|--|--|--|
| MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | |
| 1 | Δ | f | (Δ) | 77.629 MHz (Δ) | 0.103 dB | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | f | | 2.402 250 GHz | 2.641 dBm | | | | | | | | | | | | | | | | | | | | | |
| <p>π/4DQPSK</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Marker 1 Δ 77.909330459 MHz #Avg Type: RMS #Att: 20 dB Ref Offset: 1 dB Ref: 16.50 dBm ΔMkr1 77.909 MHz -0.239 dB Start 2.40000 GHz Stop 2.48350 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 1.113 ms (8350 pts)</p> <table border="1"><thead><tr><th>MKR MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>Δ</td><td>f</td><td>(Δ)</td><td>77.909 MHz (Δ)</td><td>-0.239 dB</td><td></td><td></td></tr><tr><td>2</td><td>F</td><td>f</td><td></td><td>2.401 950 GHz</td><td>3.616 dBm</td><td></td><td></td></tr></tbody></table> | MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | Δ | f | (Δ) | 77.909 MHz (Δ) | -0.239 dB | | | 2 | F | f | | 2.401 950 GHz | 3.616 dBm | | | <p>Peak Search</p> <p>Next Peak</p> <p>Next Pk Right</p> <p>Next Pk Left</p> <p>Marker Delta</p> <p>Mkr--CF</p> <p>Mkr--Ref Lvl</p> <p>More 1 of 2</p> |
| MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | |
| 1 | Δ | f | (Δ) | 77.909 MHz (Δ) | -0.239 dB | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | f | | 2.401 950 GHz | 3.616 dBm | | | | | | | | | | | | | | | | | | | | | |
| <p>8DPSK</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Marker 1 Δ 78.019343634 MHz #Avg Type: RMS #Att: 20 dB Ref Offset: 1 dB Ref: 16.50 dBm ΔMkr1 78.019 MHz -0.143 dB Start 2.40000 GHz Stop 2.48350 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Sweep 1.113 ms (8350 pts)</p> <table border="1"><thead><tr><th>MKR MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>Δ</td><td>f</td><td>(Δ)</td><td>78.019 MHz (Δ)</td><td>-0.143 dB</td><td></td><td></td></tr><tr><td>2</td><td>F</td><td>f</td><td></td><td>2.401 950 GHz</td><td>3.956 dBm</td><td></td><td></td></tr></tbody></table> | MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | Δ | f | (Δ) | 78.019 MHz (Δ) | -0.143 dB | | | 2 | F | f | | 2.401 950 GHz | 3.956 dBm | | | <p>Peak Search</p> <p>Next Peak</p> <p>Next Pk Right</p> <p>Next Pk Left</p> <p>Marker Delta</p> <p>Mkr--CF</p> <p>Mkr--Ref Lvl</p> <p>More 1 of 2</p> |
| MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | |
| 1 | Δ | f | (Δ) | 78.019 MHz (Δ) | -0.143 dB | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | f | | 2.401 950 GHz | 3.956 dBm | | | | | | | | | | | | | | | | | | | | | |

5.7. Dwell Time

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(1):The average time of occupancy on any channel shall not be greater than 0.4 seconds within a pe-riod of 0.4 seconds multiplied by the number of hopping channels employed.

TEST CONFIGURATION



TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following spectrum analyzer settings:
 Span = zero span, centered on a hopping channel, RBW= 1 MHz, VBW ≥ RBW
 Sweep = as necessary to capture the entire dwell time per hopping channel,
 Detector function = peak, Trace = max hold
4. Measure and record the results in the test report.

TEST MODE:

Please refer to the clause 3.3

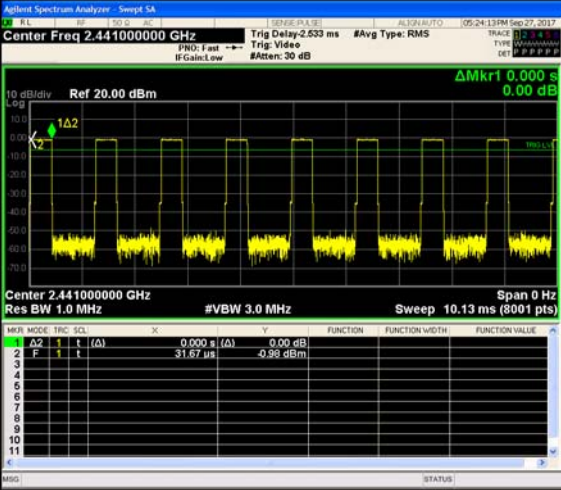
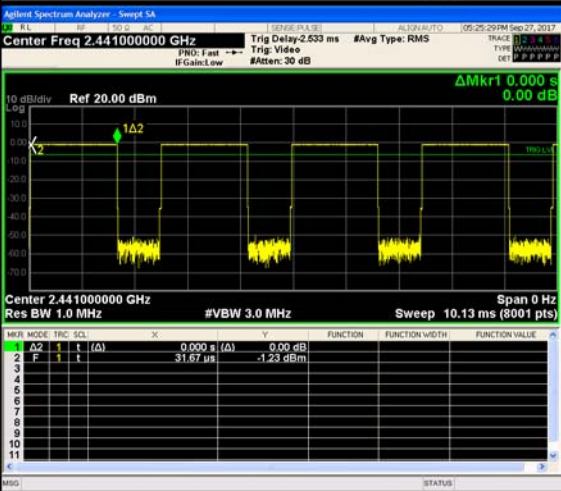
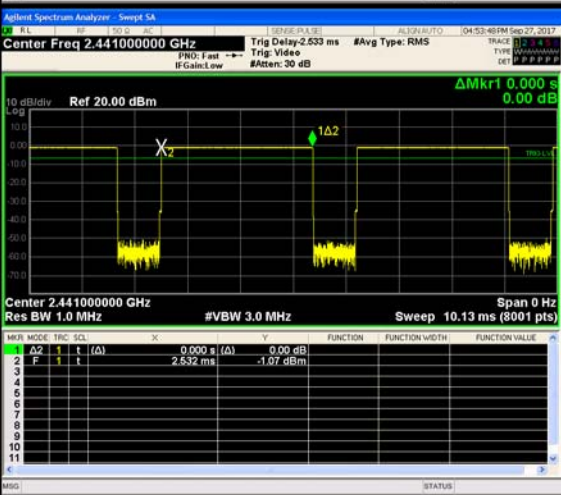
TEST RESULTS

Passed Not Applicable

| Modulation type | Channel | Dwell time (Second) | Limit (Second) | Result |
|-----------------|---------|---------------------|----------------|--------|
| GFSK | DH1 | 0.128 | ≤ 0.40 | Pass |
| | DH3 | 0.264 | | |
| | DH5 | 0.309 | | |
| π/4DQPSK | 2DH1 | 0.122 | ≤ 0.40 | Pass |
| | 2DH3 | 0.261 | | |
| | 2DH5 | 0.307 | | |
| 8DPSK | 3DH1 | 0.122 | ≤ 0.40 | Pass |
| | 3DH3 | 0.261 | | |
| | 3DH5 | 0.307 | | |

Note:

1. We have tested all mode at high,middle and low channel,and recoreded worst case at middle channel.
2. Dwell time=Pulse time (ms) × (1600 ÷ 2 ÷ 79) ×31.6 Second for DH1, 2DH1, 3DH1
 Dwell time=Pulse time (ms) × (1600 ÷ 4 ÷ 79) ×31.6 Second for DH3, 2DH3, 3DH3
 Dwell time=Pulse time (ms) × (1600 ÷ 6 ÷ 79) ×31.6 Second for DH5, 2DH5, 3DH5

| Modulation Type: | GFSK | |
|------------------|---|---|
| DH1 |  <p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz Ref 20.00 dBm Trig Delay 2.533 ms #Avg Type: RMS Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts) Marker 1: 0.000 s (-0.98 dBm)</p> | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.441000000 GHz</p> <p>Start Freq 2.441000000 GHz</p> <p>Stop Freq 2.441000000 GHz</p> <p>CF Step 1.000000 MHz</p> <p>Freq Offset 0 Hz</p> |
| DH3 |  <p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz Ref 20.00 dBm Trig Delay 2.533 ms #Avg Type: RMS Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts) Marker 1: 0.000 s (-1.23 dBm)</p> | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.441000000 GHz</p> <p>Start Freq 2.441000000 GHz</p> <p>Stop Freq 2.441000000 GHz</p> <p>CF Step 1.000000 MHz</p> <p>Freq Offset 0 Hz</p> |
| DH5 |  <p>Agilent Spectrum Analyzer - Swept SA Center Freq 2.441000000 GHz Ref 20.00 dBm Trig Delay 2.533 ms #Avg Type: RMS Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts) Marker 1: 2.532 ms (-1.07 dBm)</p> | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.441000000 GHz</p> <p>Start Freq 2.441000000 GHz</p> <p>Stop Freq 2.441000000 GHz</p> <p>CF Step 1.000000 MHz</p> <p>Freq Offset 0 Hz</p> |

| Modulation Type: | | $\pi/4$ DQPSK |
|------------------|--|---------------|
| 2DH1 | | |
| 2DH3 | | |
| 2DH5 | | |

| Modulation Type: | | 8DPSK | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------|--|-----|--------------|---------------|--------------|----------------|----------------|----------|----------------|----------------|---|----|---|---|--------------|---------|--------------|--|---------|---|---|---|---|--------------|---------------|--|--|-----------|
| 3DH1 | | <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Center Freq 2.441000000 GHz Trig Delay-2.533 ms #Avg Type: RMS</p> <p>Ref 20.00 dBm ΔMkr1 0.000 s 0.00 dB</p> <p>Center 2.441000000 GHz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>A2</td> <td>1</td> <td>t</td> <td>(Δ)</td> <td>0.000 s</td> <td>(Δ)</td> <td></td> <td>0.00 dB</td> </tr> <tr> <td>2</td> <td>F</td> <td>1</td> <td>t</td> <td>(Δ)</td> <td>31.67 μs</td> <td></td> <td></td> <td>-1.76 dBm</td> </tr> </tbody> </table> | MNR | MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | A2 | 1 | t | (Δ) | 0.000 s | (Δ) | | 0.00 dB | 2 | F | 1 | t | (Δ) | 31.67 μ s | | | -1.76 dBm |
| MNR | MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | |
| 1 | A2 | 1 | t | (Δ) | 0.000 s | (Δ) | | 0.00 dB | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | 1 | t | (Δ) | 31.67 μ s | | | -1.76 dBm | | | | | | | | | | | | | | | | | | | | | |
| 3DH3 | | <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Center Freq 2.441000000 GHz Trig Delay-2.533 ms #Avg Type: RMS</p> <p>Ref 20.00 dBm ΔMkr1 0.000 s 0.00 dB</p> <p>Center 2.441000000 GHz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>A2</td> <td>1</td> <td>t</td> <td>(Δ)</td> <td>0.000 s</td> <td>(Δ)</td> <td></td> <td>0.00 dB</td> </tr> <tr> <td>2</td> <td>F</td> <td>1</td> <td>t</td> <td>(Δ)</td> <td>1.411 ms</td> <td></td> <td></td> <td>-1.80 dBm</td> </tr> </tbody> </table> | MNR | MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | A2 | 1 | t | (Δ) | 0.000 s | (Δ) | | 0.00 dB | 2 | F | 1 | t | (Δ) | 1.411 ms | | | -1.80 dBm |
| MNR | MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | |
| 1 | A2 | 1 | t | (Δ) | 0.000 s | (Δ) | | 0.00 dB | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | 1 | t | (Δ) | 1.411 ms | | | -1.80 dBm | | | | | | | | | | | | | | | | | | | | | |
| 3DH5 | | <p>Agilent Spectrum Analyzer - Sweep SA</p> <p>Center Freq 2.441000000 GHz Trig Delay-2.533 ms #Avg Type: RMS</p> <p>Ref 20.00 dBm ΔMkr1 0.000 s 0.00 dB</p> <p>Center 2.441000000 GHz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.13 ms (8001 pts)</p> <table border="1"> <thead> <tr> <th>MNR</th> <th>MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>A2</td> <td>1</td> <td>t</td> <td>(Δ)</td> <td>0.000 s</td> <td>(Δ)</td> <td></td> <td>0.00 dB</td> </tr> <tr> <td>2</td> <td>F</td> <td>1</td> <td>t</td> <td>(Δ)</td> <td>1.609 ms</td> <td></td> <td></td> <td>-1.84 dBm</td> </tr> </tbody> </table> | MNR | MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | A2 | 1 | t | (Δ) | 0.000 s | (Δ) | | 0.00 dB | 2 | F | 1 | t | (Δ) | 1.609 ms | | | -1.84 dBm |
| MNR | MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | |
| 1 | A2 | 1 | t | (Δ) | 0.000 s | (Δ) | | 0.00 dB | | | | | | | | | | | | | | | | | | | | | |
| 2 | F | 1 | t | (Δ) | 1.609 ms | | | -1.84 dBm | | | | | | | | | | | | | | | | | | | | | |

5.8. Pseudorandom Frequency Hopping Sequence

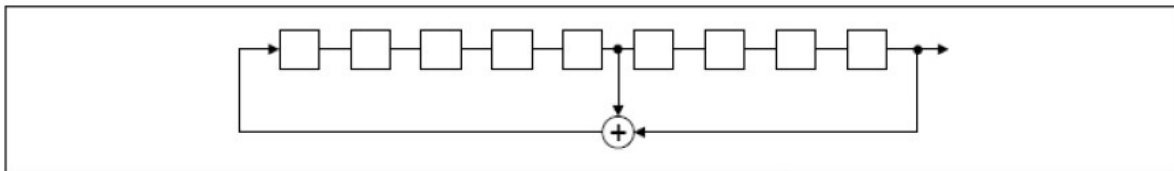
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(1):Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo-randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

TEST RESULTS

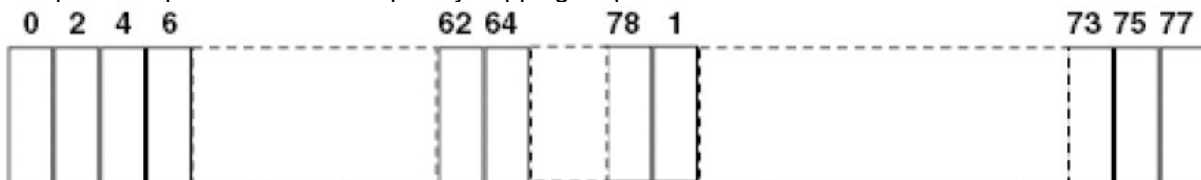
The pseudorandom frequency hopping sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first one of 9 consecutive ones, for example: the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence: $2^9 - 1 = 511$ bits
- Longest sequence of zeros: 8 (non-inverted signal)



Linear Feedback Shift Register for Generation of the PRBS sequence

An example of pseudorandom frequency hopping sequence as follows:



Each frequency used equally on the average by each transmitter. The system receiver has input bandwidths that match the hopping channel bandwidths of their corresponding transmitter and shift frequencies in synchronization with the transmitted signals.

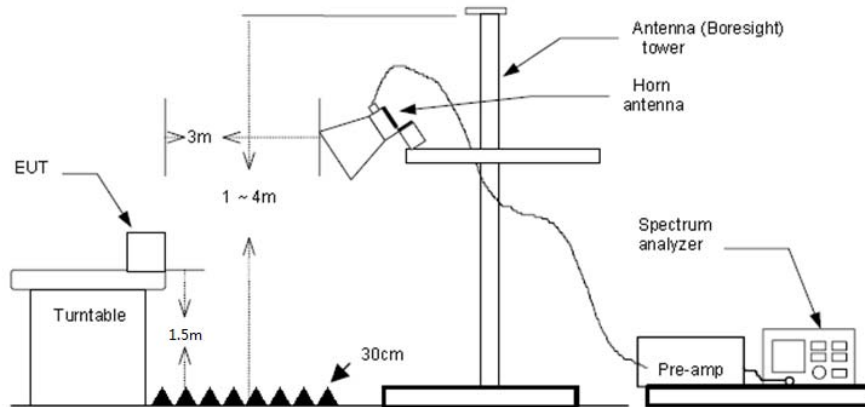
5.9. Restricted band (radiated)

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d):

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, Radiated Emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the Radiated Emissions limits specified in §15.209(a) (see §15.205(c)).

TEST CONFIGURATION



TEST PROCEDURE

1. The EUT was setup and tested according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.247 requirements.
2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
5. The receiver set as follow:
 RBW=1 MHz, VBW=3 MHz Peak detector for Peak value
 RBW=1 MHz, VBW=10 Hz Peak detector for Average value.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

Passed **Not Applicable**

Note:

- 1) Final level= Read level + Antenna Factor+ Cable Loss- Preamp Factor
- 2) Have pre-scan all modulation mode, found the GFSK modulation which it was worst case, so only the worst case's data on the test report.
- 3) The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.

| CH00 | | | | | | | | | |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|------------|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization | Test value |
| 2310.00 | 33.28 | 28.05 | 6.62 | 37.65 | 30.30 | 74.00 | -43.70 | Vertical | Peak |
| 2390.13 | 41.35 | 27.65 | 6.75 | 37.87 | 37.88 | 74.00 | -36.12 | Vertical | Peak |
| 2310.00 | 28.23 | 28.05 | 6.62 | 37.65 | 25.25 | 74.00 | -48.75 | Horizontal | Peak |
| 2390.03 | 28.77 | 27.65 | 6.75 | 37.87 | 25.30 | 74.00 | -48.70 | Horizontal | Peak |

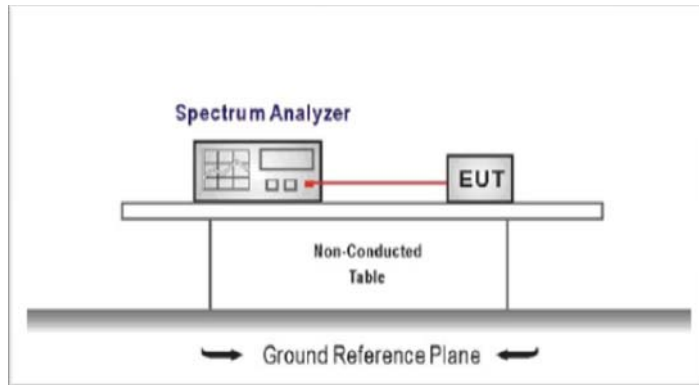
| CH78 | | | | | | | | | |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|------------|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization | Test value |
| 2483.50 | 44.89 | 27.26 | 6.83 | 37.87 | 41.11 | 74.00 | -32.89 | Vertical | Peak |
| 2500.00 | 35.59 | 27.20 | 6.84 | 37.87 | 31.76 | 74.00 | -42.24 | Vertical | Peak |
| 2483.50 | 47.43 | 27.26 | 6.83 | 37.87 | 43.65 | 74.00 | -30.35 | Horizontal | Peak |
| 2500.00 | 35.85 | 27.20 | 6.84 | 37.87 | 32.02 | 74.00 | -41.98 | Horizontal | Peak |

5.10. Band edge and Spurious Emissions (conducted)

LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

TEST CONFIGURATION



TEST PROCEDURE

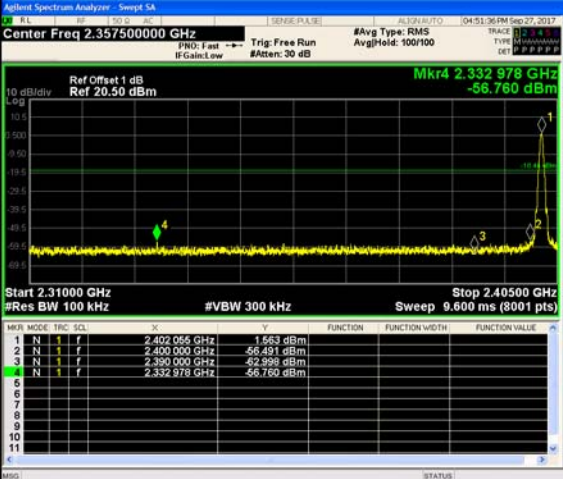
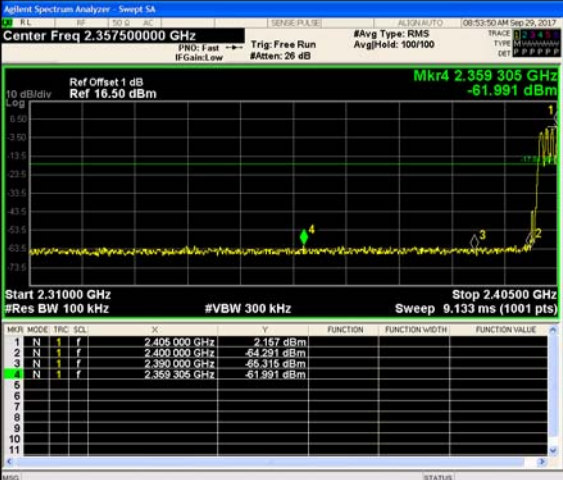
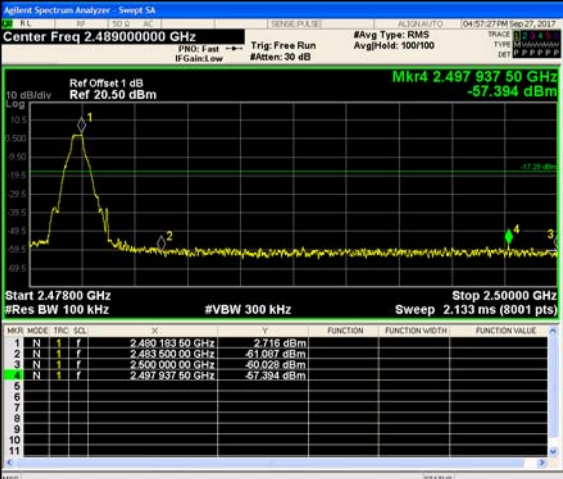
1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following spectrum analyzer settings:
RBW = 100 kHz, VBW \geq RBW
Sweep = auto, Detector function = peak, Trace = max hold
4. Measure and record the results in the test report.

TEST MODE:

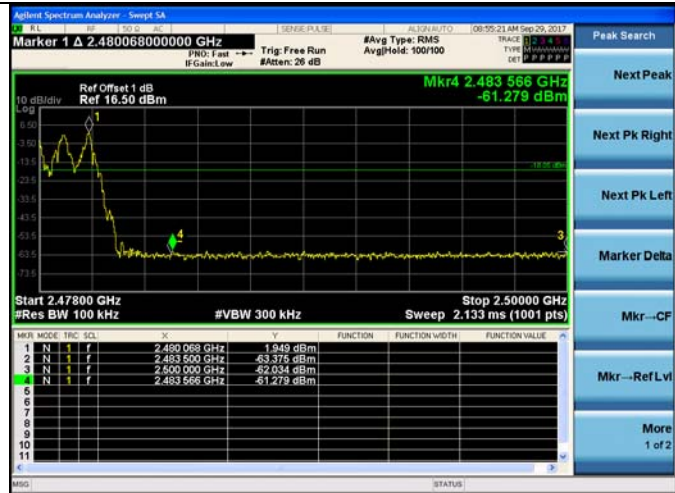
Please refer to the clause 3.3

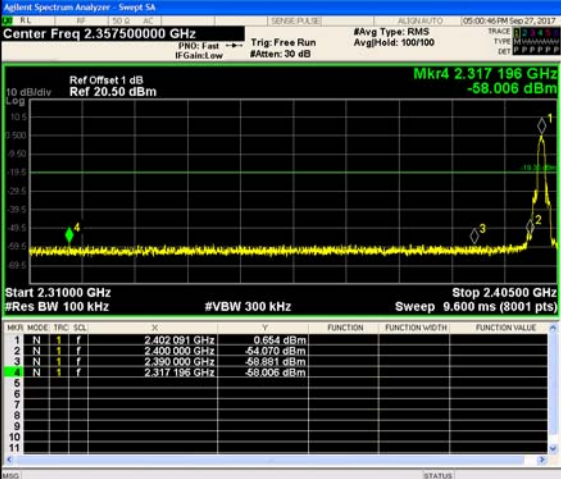
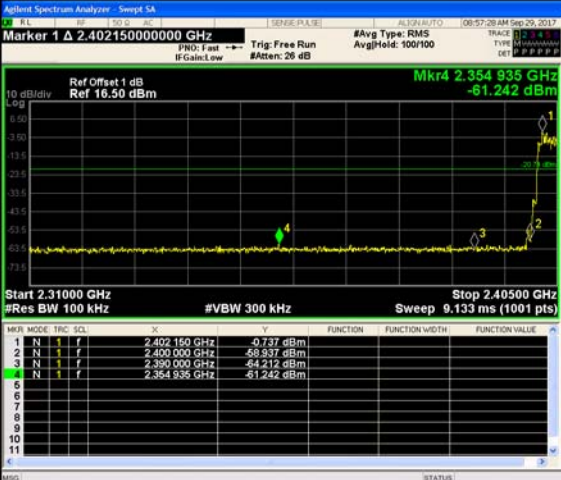
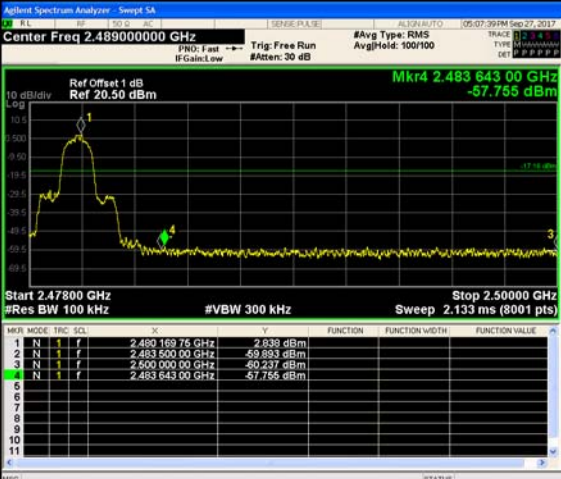
TEST RESULTS

Passed Not Applicable

| Test Item: | Band edge | Modulation type: | GFSK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|-----------|---|------------------|-------------|----------|----------------|----------------|----------|----------------|----------------|---|---|---|------------------|------------|--|--|--|---|---|---|------------------|-------------|--|--|--|---|---|---|------------------|-------------|--|--|--|---|---|---|------------------|-------------|--|--|--|---|
| <p>CH00 No hopping mode</p> | |  <table border="1" data-bbox="678 548 1243 707"> <thead> <tr> <th>MKR MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>f</td> <td>2.402 056 GHz</td> <td>-1.663 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>f</td> <td>2.400 000 GHz</td> <td>-56.491 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>N</td> <td>f</td> <td>2.390 000 GHz</td> <td>-62.899 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>N</td> <td>f</td> <td>2.332 978 GHz</td> <td>-56.760 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | f | 2.402 056 GHz | -1.663 dBm | | | | 2 | N | f | 2.400 000 GHz | -56.491 dBm | | | | 3 | N | f | 2.390 000 GHz | -62.899 dBm | | | | 4 | N | f | 2.332 978 GHz | -56.760 dBm | | | | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.357500000 GHz</p> <p>Start Freq 2.310000000 GHz</p> <p>Stop Freq 2.405000000 GHz</p> <p>CF Step 9.500000 MHz</p> <p>Freq Offset 0 Hz</p> |
| MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | N | f | 2.402 056 GHz | -1.663 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | N | f | 2.400 000 GHz | -56.491 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | N | f | 2.390 000 GHz | -62.899 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | N | f | 2.332 978 GHz | -56.760 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>CH00 Hopping mode</p> | |  <table border="1" data-bbox="678 1041 1243 1198"> <thead> <tr> <th>MKR MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>f</td> <td>2.405 000 GHz</td> <td>-2.157 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>f</td> <td>2.400 000 GHz</td> <td>-54.291 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>N</td> <td>f</td> <td>2.390 000 GHz</td> <td>-65.315 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>N</td> <td>f</td> <td>2.359 305 GHz</td> <td>-61.991 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | f | 2.405 000 GHz | -2.157 dBm | | | | 2 | N | f | 2.400 000 GHz | -54.291 dBm | | | | 3 | N | f | 2.390 000 GHz | -65.315 dBm | | | | 4 | N | f | 2.359 305 GHz | -61.991 dBm | | | | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.357500000 GHz</p> <p>Start Freq 2.310000000 GHz</p> <p>Stop Freq 2.405000000 GHz</p> <p>CF Step 9.500000 MHz</p> <p>Freq Offset 0 Hz</p> |
| MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | N | f | 2.405 000 GHz | -2.157 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | N | f | 2.400 000 GHz | -54.291 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | N | f | 2.390 000 GHz | -65.315 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | N | f | 2.359 305 GHz | -61.991 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>CH78 No hopping mode</p> | |  <table border="1" data-bbox="678 1534 1243 1688"> <thead> <tr> <th>MKR MODE</th> <th>TRC</th> <th>SCL</th> <th>X</th> <th>Y</th> <th>FUNCTION</th> <th>FUNCTION WIDTH</th> <th>FUNCTION VALUE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>f</td> <td>2.489 183 50 GHz</td> <td>-2.716 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>f</td> <td>2.483 500 00 GHz</td> <td>-61.087 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>N</td> <td>f</td> <td>2.500 000 00 GHz</td> <td>-60.028 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>N</td> <td>f</td> <td>2.497 937 50 GHz</td> <td>-57.394 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | f | 2.489 183 50 GHz | -2.716 dBm | | | | 2 | N | f | 2.483 500 00 GHz | -61.087 dBm | | | | 3 | N | f | 2.500 000 00 GHz | -60.028 dBm | | | | 4 | N | f | 2.497 937 50 GHz | -57.394 dBm | | | | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 2.489000000 GHz</p> <p>Start Freq 2.478000000 GHz</p> <p>Stop Freq 2.500000000 GHz</p> <p>CF Step 2.200000 MHz</p> <p>Freq Offset 0 Hz</p> |
| MKR MODE | TRC | SCL | X | Y | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | N | f | 2.489 183 50 GHz | -2.716 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | N | f | 2.483 500 00 GHz | -61.087 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | N | f | 2.500 000 00 GHz | -60.028 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | N | f | 2.497 937 50 GHz | -57.394 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

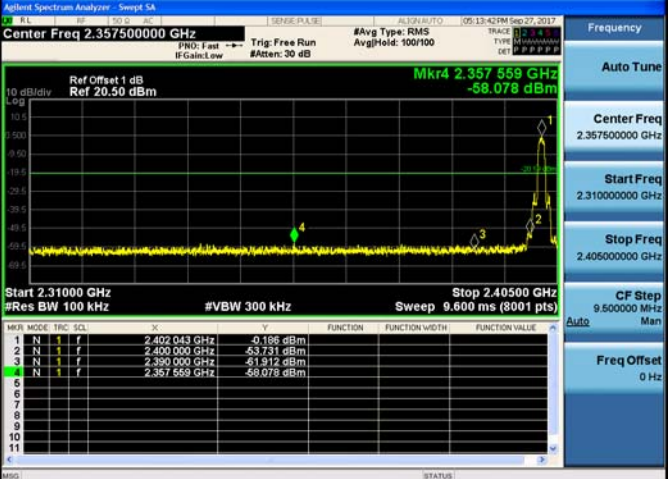
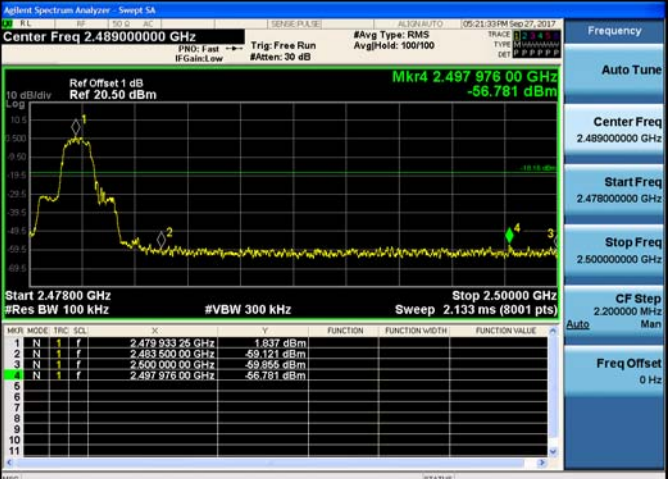
CH78
Hopping mode



| Test Item: | Band edge | Modulation type: | $\pi/4$ DQPSK |
|------------------------------------|--|---|--|
| <p>CH00</p> <p>No hopping mode</p> |  | <p>Center Freq 2.357500000 GHz</p> <p>Start Freq 2.310000000 GHz</p> <p>Stop Freq 2.405000000 GHz</p> <p>CF Step 9.500000 MHz</p> <p>Freq Offset 0 Hz</p> | <p>Frequency</p> <p>Auto Tune</p> |
| <p>CH00</p> <p>Hopping mode</p> |  | <p>Marker 1 Δ 2.402150000000 GHz</p> <p>Mkr4 2.354 935 GHz -61.242 dBm</p> <p>Start 2.310000 GHz</p> <p>Stop 2.405000 GHz</p> <p>CF Step 2.200000 MHz</p> <p>Mkr--CF</p> <p>Mkr--Ref Lvl</p> <p>More 1 of 2</p> | <p>Peak Search</p> <p>Next Peak</p> <p>Next Pk Right</p> <p>Next Pk Left</p> <p>Marker Delta</p> |
| <p>CH78</p> <p>No hopping mode</p> |  | <p>Center Freq 2.489000000 GHz</p> <p>Start Freq 2.478000000 GHz</p> <p>Stop Freq 2.500000000 GHz</p> <p>CF Step 2.200000 MHz</p> <p>Freq Offset 0 Hz</p> | <p>Frequency</p> <p>Auto Tune</p> |

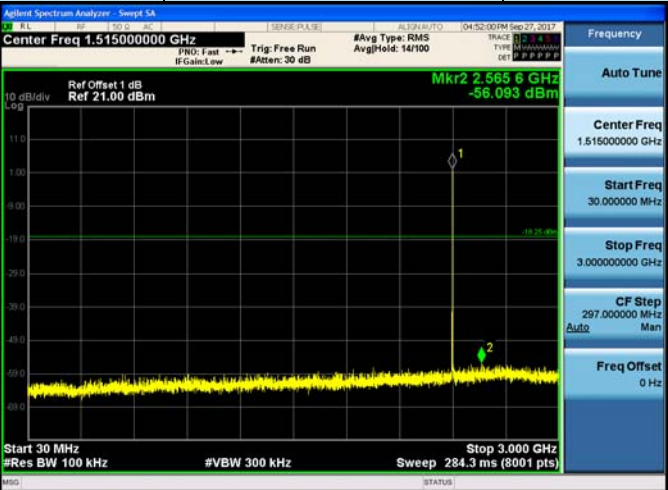
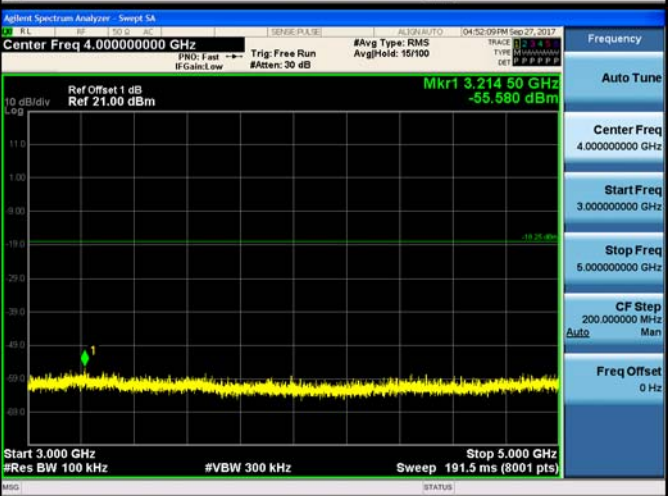
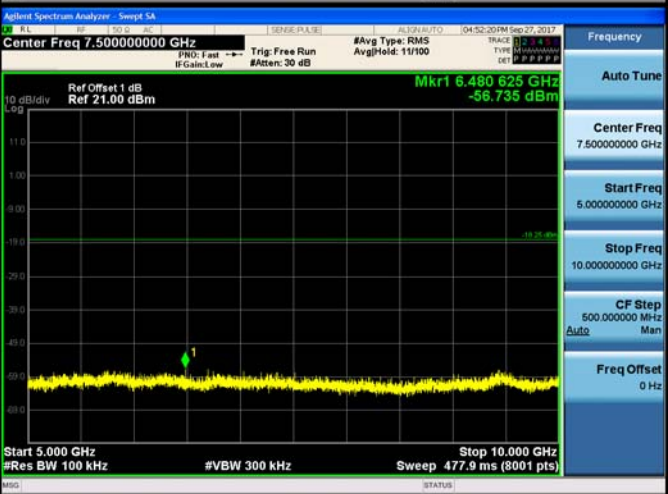
CH78
Hopping mode



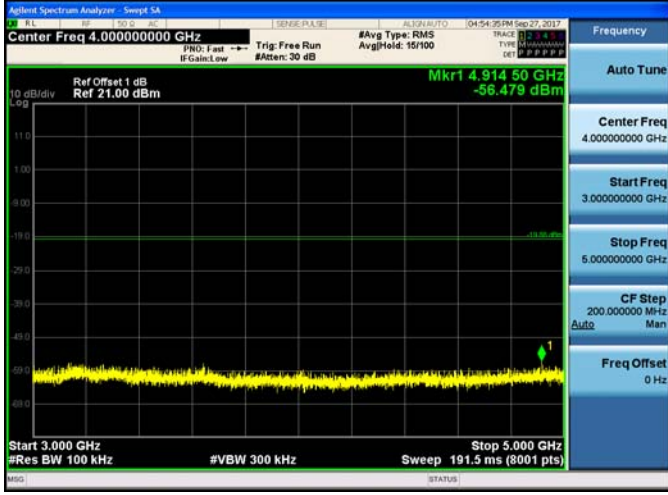

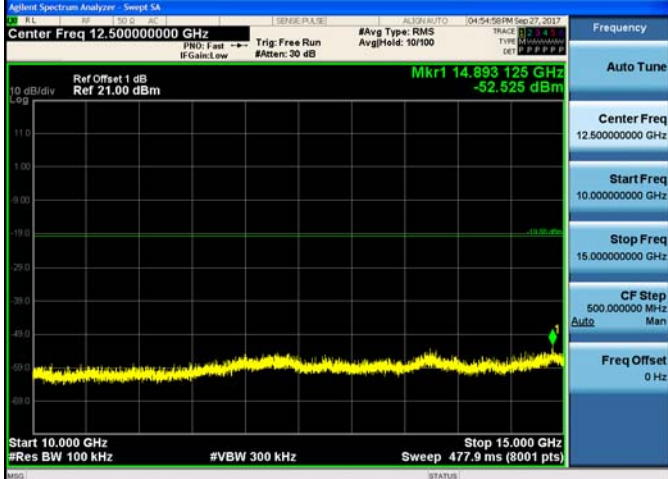
| Test Item: | Band edge | Modulation type: | 8DPSK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------------------------|---|------------------|------------------|-------------|----------|----------------|----------------|---|----------|----------------|----------------|---|---|---|------------------|------------|--|--|--|---|---|---|------------------|-------------|--|--|--|---|---|---|------------------|-------------|--|--|--|---|---|---|------------------|-------------|--|--|--|
| <p>CH00 No hopping mode</p> |  <table border="1" data-bbox="678 548 1236 694"> <thead> <tr> <th>Marker Mode</th> <th>Trc</th> <th>Scl</th> <th>X</th> <th>Y</th> <th>Function</th> <th>Function Width</th> <th>Function Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>f</td> <td>2.402 043 GHz</td> <td>-0.198 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>f</td> <td>2.400 000 GHz</td> <td>-63.731 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>N</td> <td>f</td> <td>2.390 000 GHz</td> <td>-61.912 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>N</td> <td>f</td> <td>2.357 559 GHz</td> <td>-58.078 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | | Marker Mode | Trc | Scl | X | Y | Function | Function Width | Function Value | 1 | N | f | 2.402 043 GHz | -0.198 dBm | | | | 2 | N | f | 2.400 000 GHz | -63.731 dBm | | | | 3 | N | f | 2.390 000 GHz | -61.912 dBm | | | | 4 | N | f | 2.357 559 GHz | -58.078 dBm | | | |
| Marker Mode | Trc | Scl | X | Y | Function | Function Width | Function Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | N | f | 2.402 043 GHz | -0.198 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | N | f | 2.400 000 GHz | -63.731 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | N | f | 2.390 000 GHz | -61.912 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | N | f | 2.357 559 GHz | -58.078 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>CH00 Hopping mode</p> |  <table border="1" data-bbox="678 1041 1236 1187"> <thead> <tr> <th>Marker Mode</th> <th>Trc</th> <th>Scl</th> <th>X</th> <th>Y</th> <th>Function</th> <th>Function Width</th> <th>Function Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>f</td> <td>2.405 000 GHz</td> <td>0.179 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>f</td> <td>2.400 000 GHz</td> <td>-56.014 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>N</td> <td>f</td> <td>2.390 000 GHz</td> <td>-63.002 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>N</td> <td>f</td> <td>2.316 840 GHz</td> <td>-61.287 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | | Marker Mode | Trc | Scl | X | Y | Function | Function Width | Function Value | 1 | N | f | 2.405 000 GHz | 0.179 dBm | | | | 2 | N | f | 2.400 000 GHz | -56.014 dBm | | | | 3 | N | f | 2.390 000 GHz | -63.002 dBm | | | | 4 | N | f | 2.316 840 GHz | -61.287 dBm | | | |
| Marker Mode | Trc | Scl | X | Y | Function | Function Width | Function Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | N | f | 2.405 000 GHz | 0.179 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | N | f | 2.400 000 GHz | -56.014 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | N | f | 2.390 000 GHz | -63.002 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | N | f | 2.316 840 GHz | -61.287 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>CH78 No hopping mode</p> |  <table border="1" data-bbox="678 1534 1236 1680"> <thead> <tr> <th>Marker Mode</th> <th>Trc</th> <th>Scl</th> <th>X</th> <th>Y</th> <th>Function</th> <th>Function Width</th> <th>Function Value</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>N</td> <td>f</td> <td>2.479 933 25 GHz</td> <td>1.937 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>N</td> <td>f</td> <td>2.483 500 00 GHz</td> <td>-69.121 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>3</td> <td>N</td> <td>f</td> <td>2.500 000 00 GHz</td> <td>-69.855 dBm</td> <td></td> <td></td> <td></td> </tr> <tr> <td>4</td> <td>N</td> <td>f</td> <td>2.497 976 00 GHz</td> <td>-56.781 dBm</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> | | | Marker Mode | Trc | Scl | X | Y | Function | Function Width | Function Value | 1 | N | f | 2.479 933 25 GHz | 1.937 dBm | | | | 2 | N | f | 2.483 500 00 GHz | -69.121 dBm | | | | 3 | N | f | 2.500 000 00 GHz | -69.855 dBm | | | | 4 | N | f | 2.497 976 00 GHz | -56.781 dBm | | | |
| Marker Mode | Trc | Scl | X | Y | Function | Function Width | Function Value | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | N | f | 2.479 933 25 GHz | 1.937 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | N | f | 2.483 500 00 GHz | -69.121 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | N | f | 2.500 000 00 GHz | -69.855 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | N | f | 2.497 976 00 GHz | -56.781 dBm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |


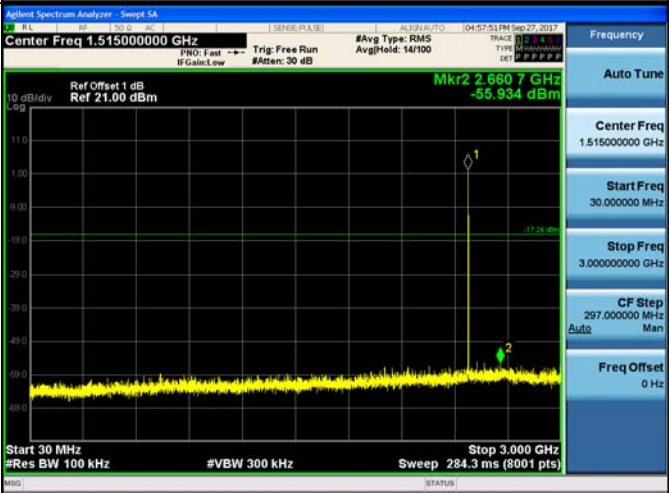
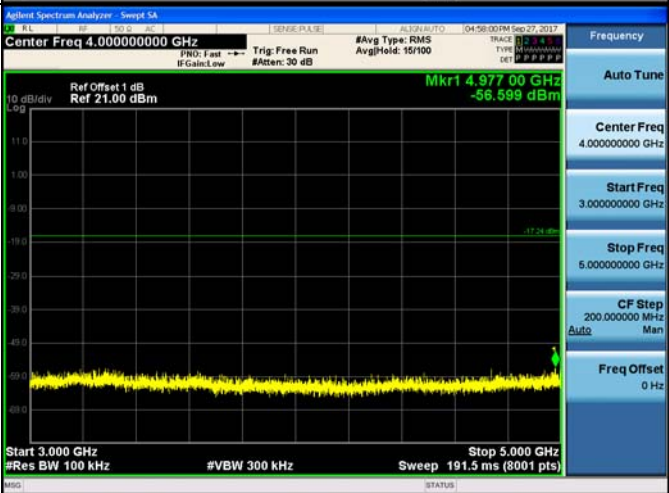
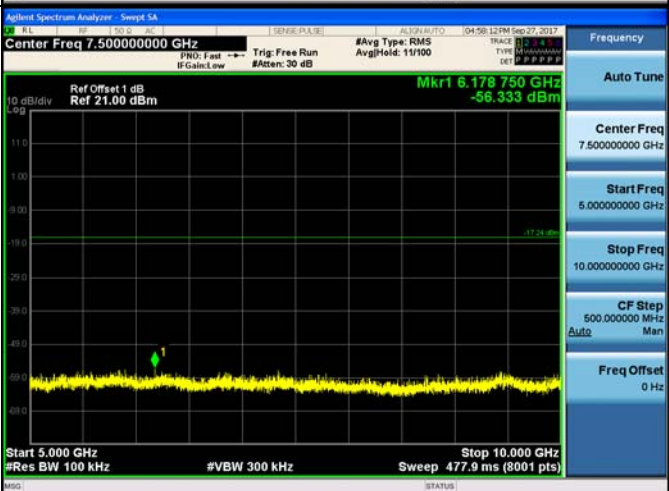
CH78
Hoppig mode

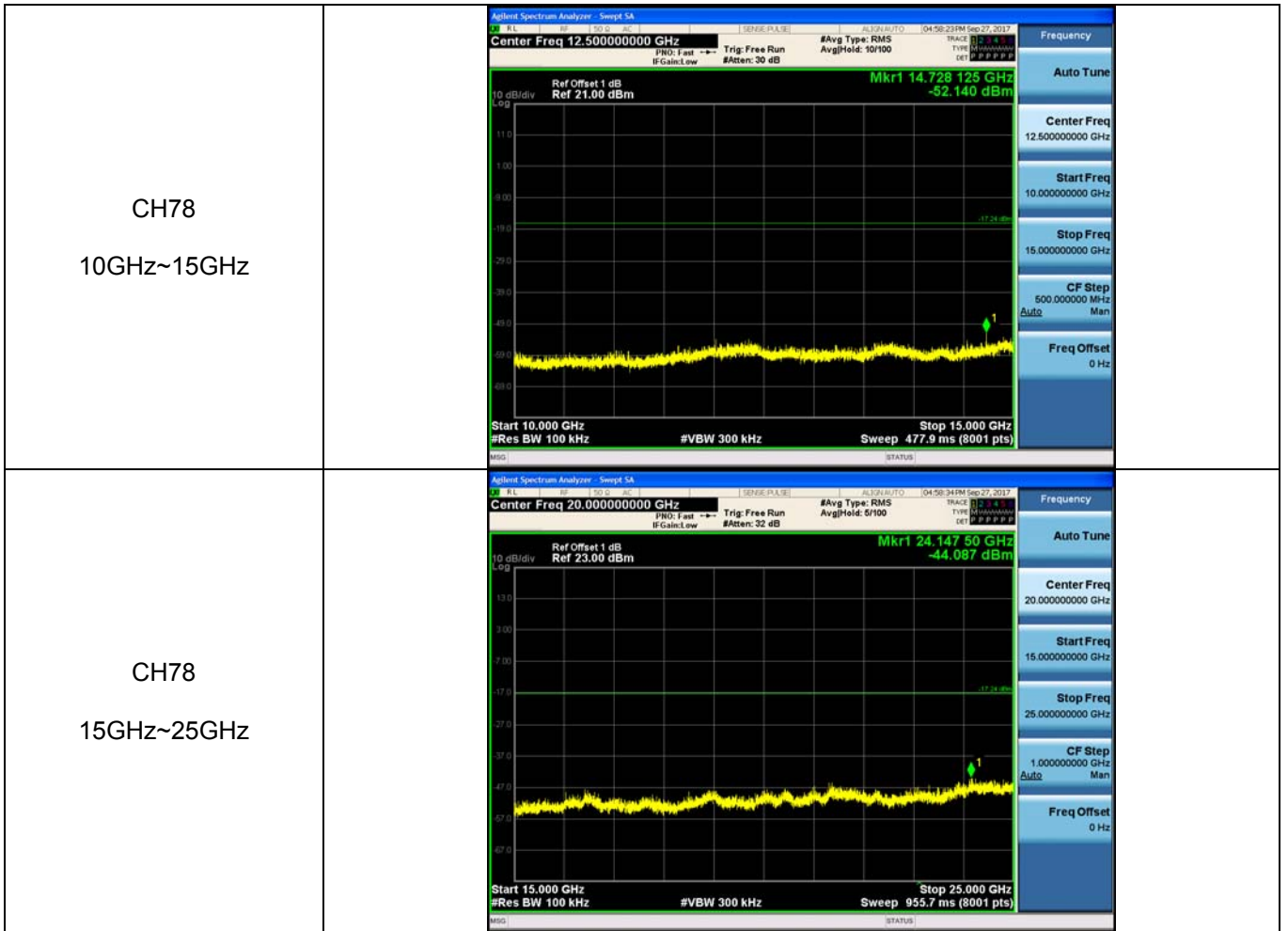


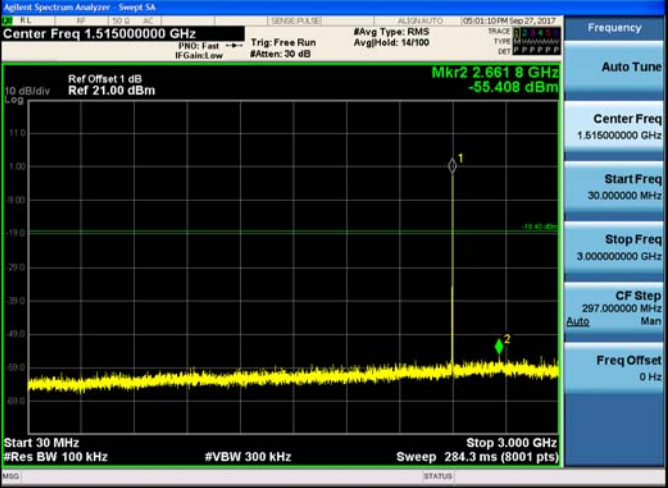
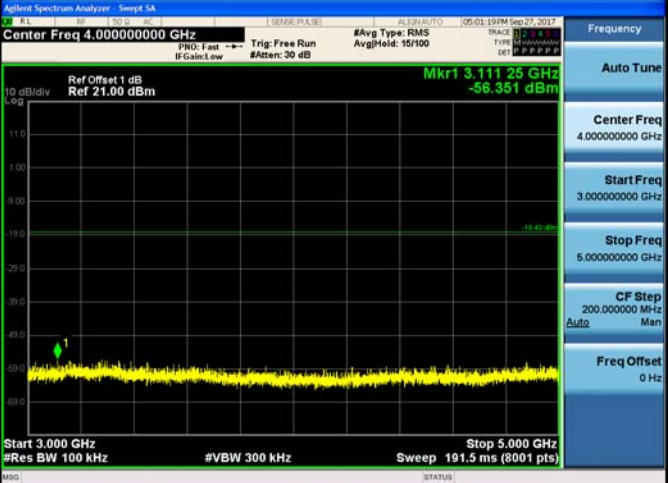
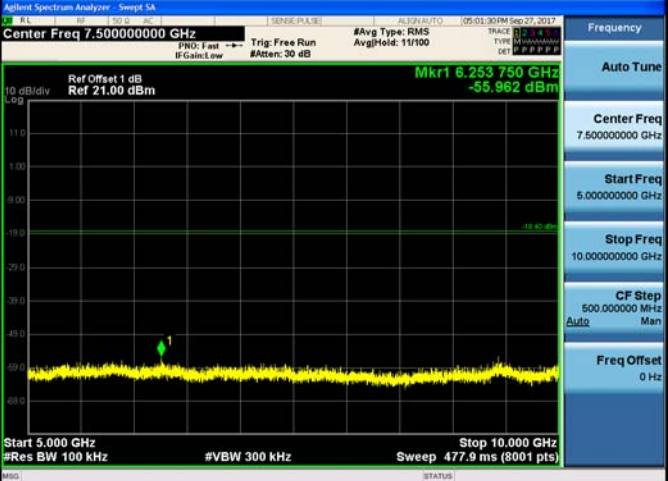
| Test Item: | SE | Modulation type: | GFSK |
|----------------------------|----|--|---|
| <p>CH00 30MHz~3GHz</p> | |  | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 1.515000000 GHz</p> <p>Start Freq 30.0000000 MHz</p> <p>Stop Freq 3.000000000 GHz</p> <p>CF Step 297.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |
| <p>CH00 3GHz~5GHz</p> | |  | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 4.000000000 GHz</p> <p>Start Freq 3.000000000 GHz</p> <p>Stop Freq 5.000000000 GHz</p> <p>CF Step 200.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |
| <p>CH00 5GHz~10GHz</p> | |  | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 7.500000000 GHz</p> <p>Start Freq 5.000000000 GHz</p> <p>Stop Freq 10.000000000 GHz</p> <p>CF Step 500.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |

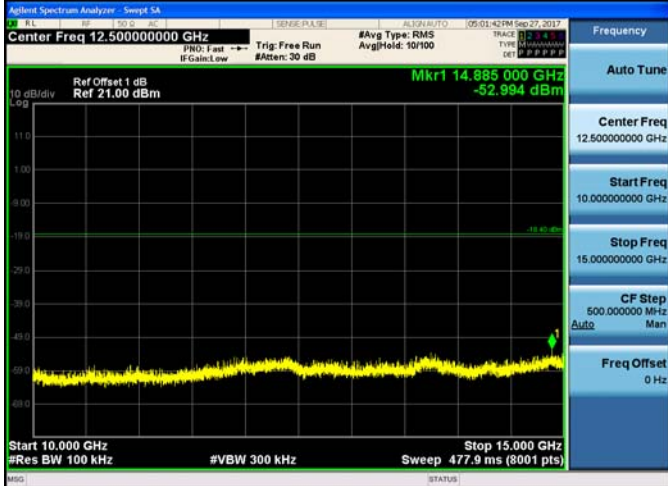

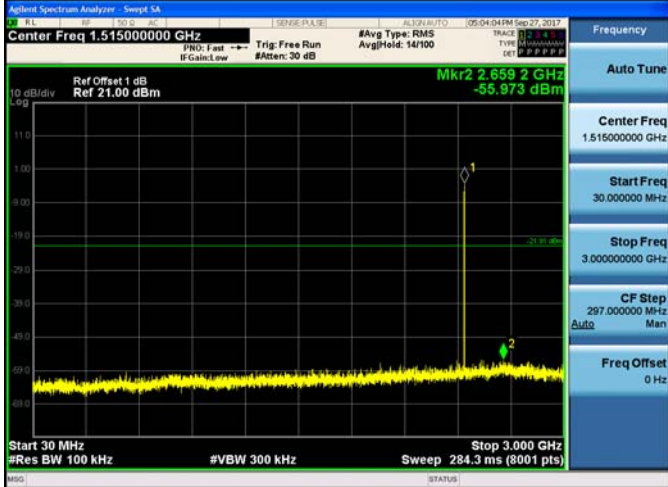
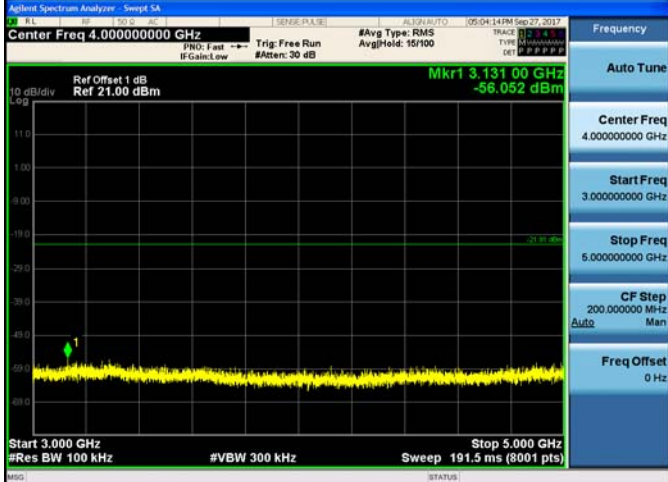
| | |
|-----------------------------|--|
| <p>CH00 10GHz~15GHz</p> | |
| <p>CH00 15GHz~25GHz</p> | |
| <p>CH39 30MHz~3GHz</p> | |

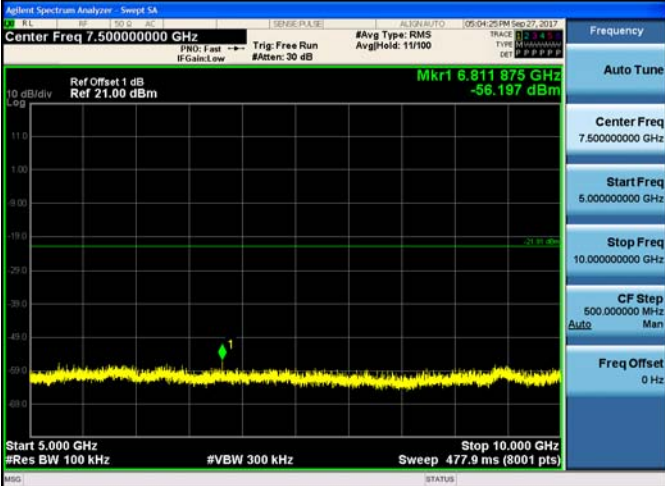
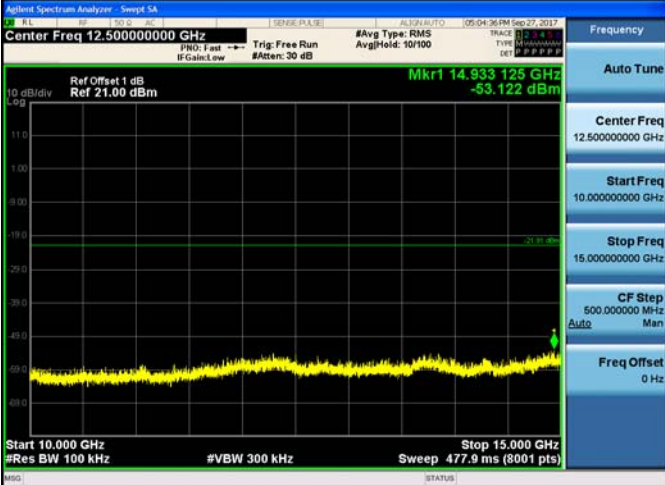

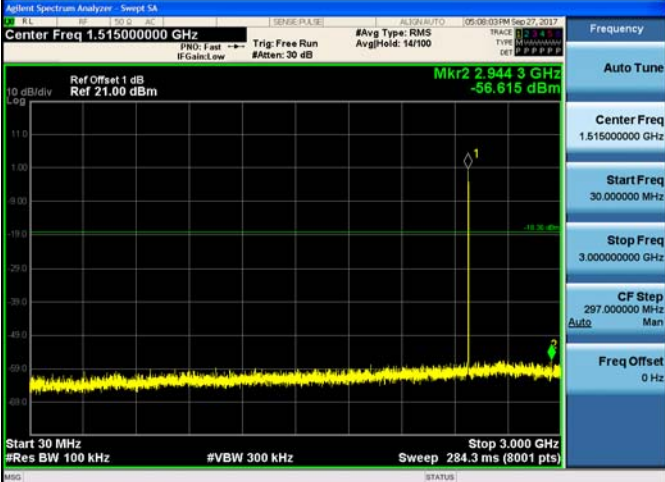
| | |
|-----------------------------|--|
| <p>CH39 3GHz~5GHz</p> |  |
| <p>CH39 5GHz~10GHz</p> |  |
| <p>CH39 10GHz~15GHz</p> |  |

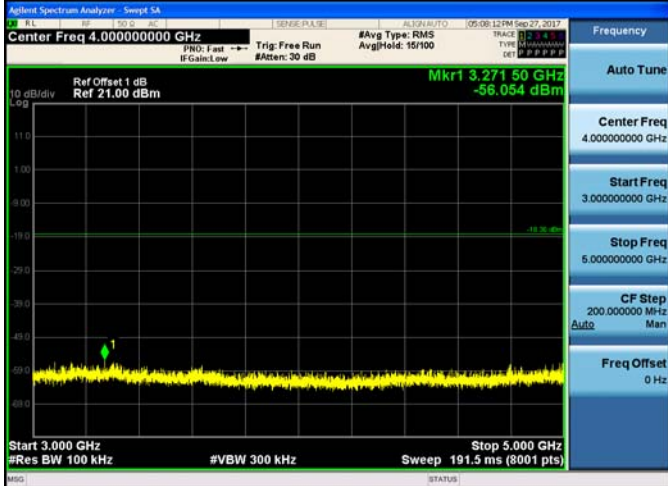
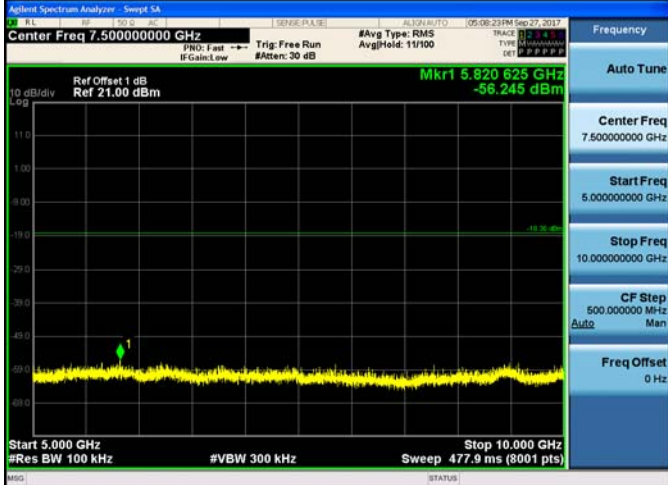
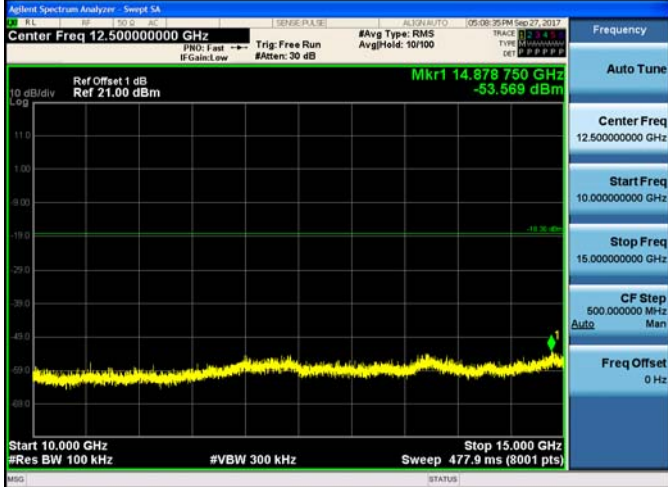
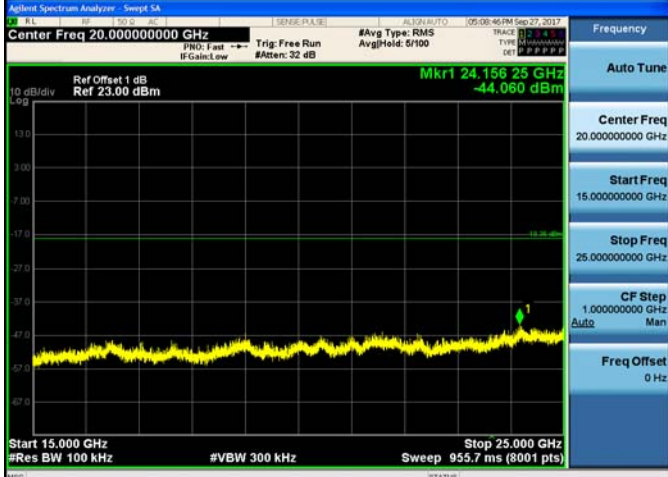
| | |
|-----------------------------|--|
| <p>CH39 15GHz~25GHz</p> |  |
| <p>CH78 30MHz~3GHz</p> |  |
| <p>CH78 3GHz~5GHz</p> |  |
| <p>CH78 5GHz~10GHz</p> |  |

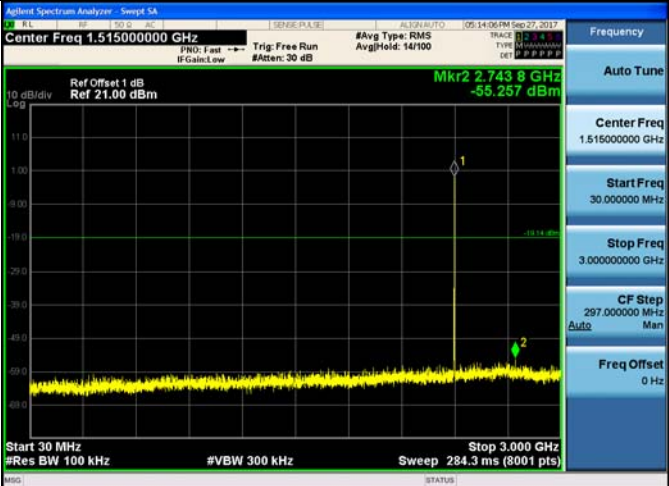
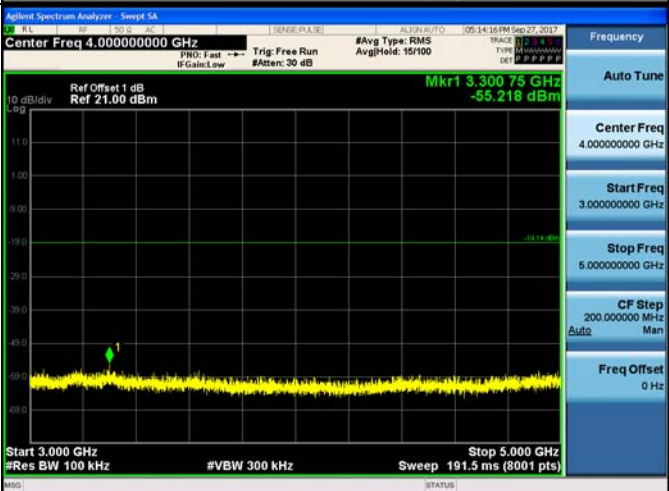
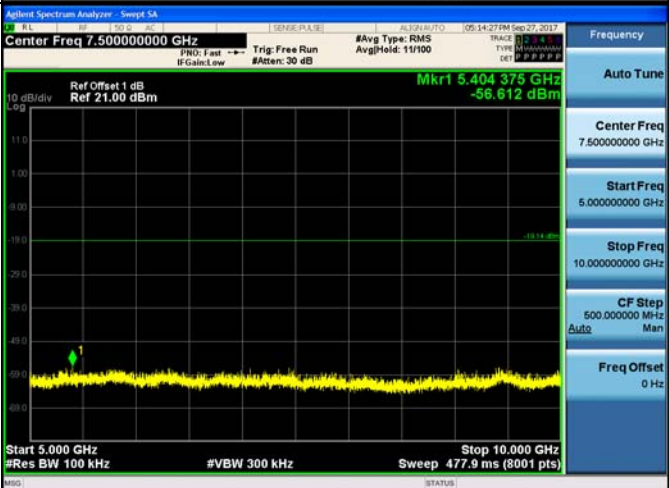


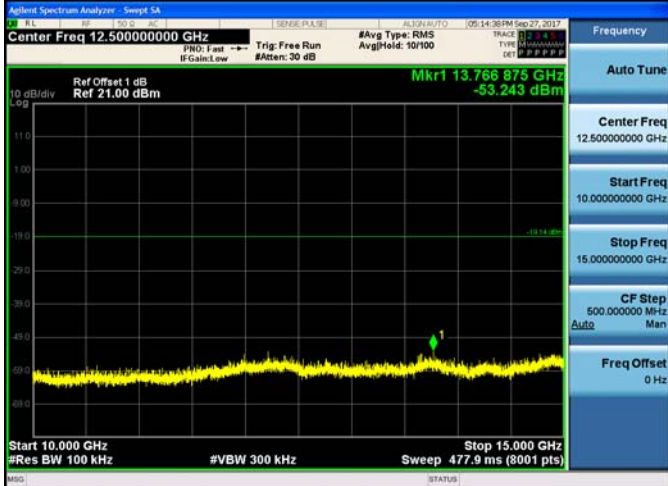

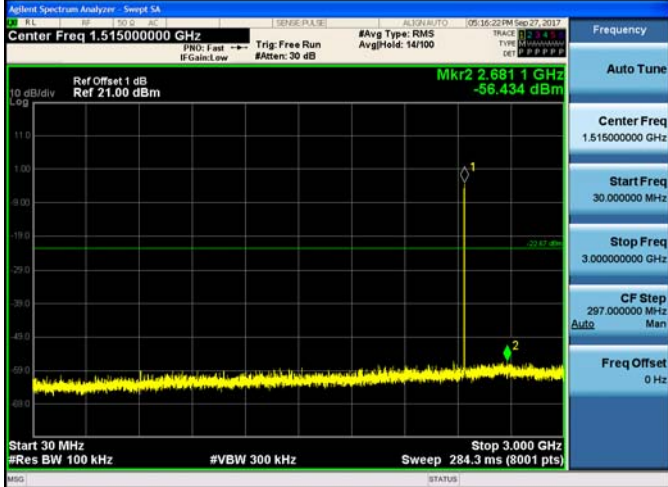
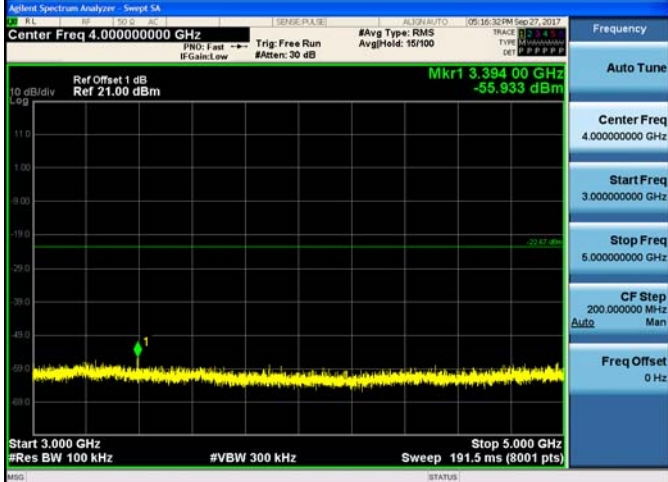
| Test Item: | SE | Modulation type: | $\pi/4$ DQPSK |
|----------------------------|----|--|---|
| <p>CH00 30MHz~3GHz</p> | |  | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 1.515000000 GHz</p> <p>Start Freq 30.0000000 MHz</p> <p>Stop Freq 3.000000000 GHz</p> <p>CF Step 297.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |
| <p>CH00 3GHz~5GHz</p> | |  | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 4.000000000 GHz</p> <p>Start Freq 3.000000000 GHz</p> <p>Stop Freq 5.000000000 GHz</p> <p>CF Step 200.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |
| <p>CH00 5GHz~10GHz</p> | |  | <p>Frequency</p> <p>Auto Tune</p> <p>Center Freq 7.500000000 GHz</p> <p>Start Freq 5.000000000 GHz</p> <p>Stop Freq 10.000000000 GHz</p> <p>CF Step 500.000000 MHz Auto Man</p> <p>Freq Offset 0 Hz</p> |

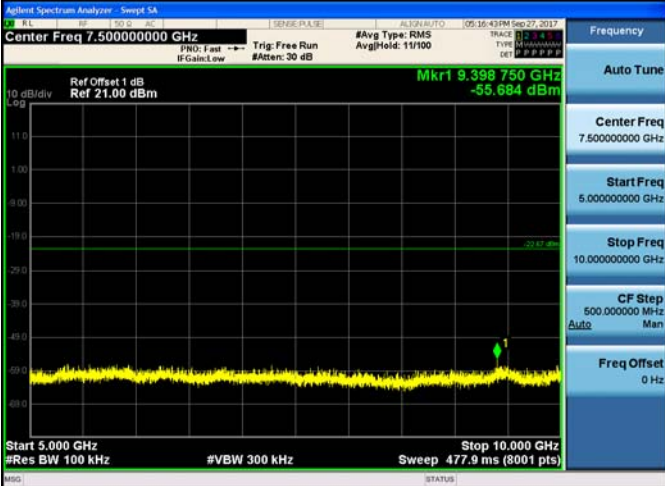
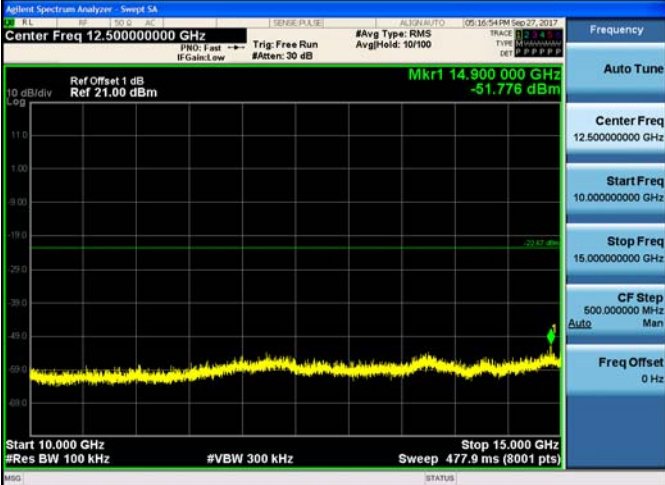

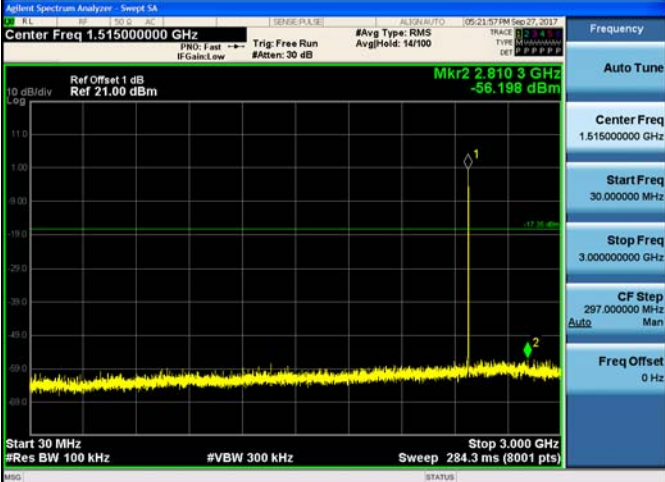
| | |
|-----------------------------|--|
| <p>CH00 10GHz~15GHz</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Center Freq 12.50000000 GHz Ref Offset 1 dB Ref 21.00 dBm Mkr1 14.885 000 GHz -52.994 dBm Start 10.000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 477.9 ms (8001 pts)</p> |
| <p>CH00 15GHz~25GHz</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Center Freq 20.00000000 GHz Ref Offset 1 dB Ref 23.00 dBm Mkr1 24.163 75 GHz -44.098 dBm Start 15.000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 955.7 ms (8001 pts)</p> |
| <p>CH39 30MHz~3GHz</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Center Freq 1.515000000 GHz Ref Offset 1 dB Ref 21.00 dBm Mkr2 2.659 2 GHz -55.973 dBm Start 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 284.3 ms (8001 pts)</p> |
| <p>CH39 3GHz~5GHz</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Center Freq 4.000000000 GHz Ref Offset 1 dB Ref 21.00 dBm Mkr1 3.131 00 GHz -56.052 dBm Start 3.000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 191.5 ms (8001 pts)</p> |

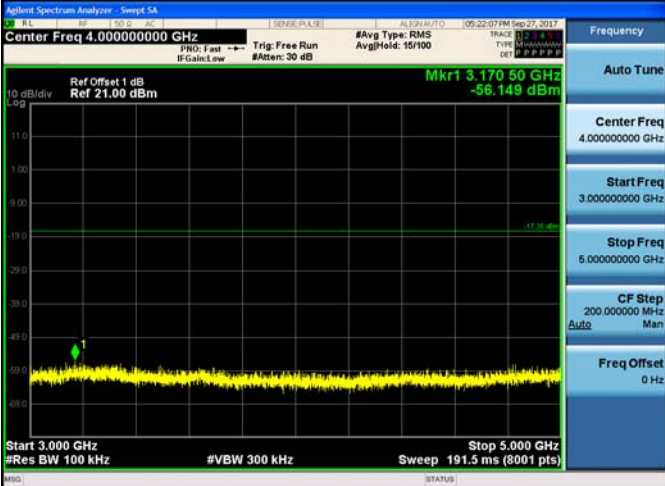
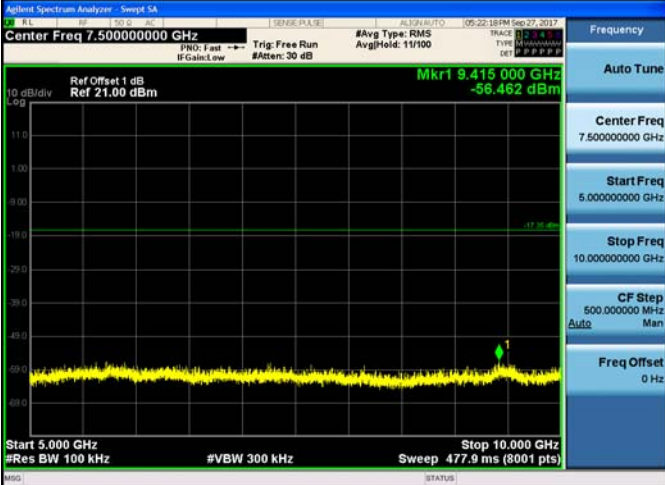
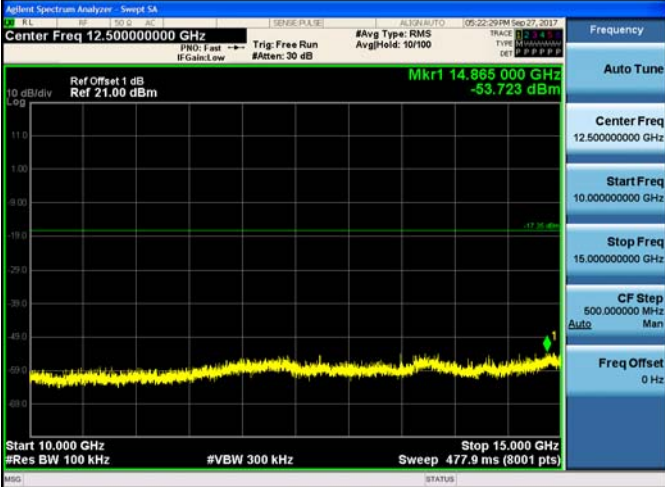

| | |
|-----------------------------|--|
| <p>CH39 5GHz~10GHz</p> |  |
| <p>CH39 10GHz~15GHz</p> |  |
| <p>CH39 15GHz~25GHz</p> |  |
| <p>CH78 30MHz~3GHz</p> |  |

| | |
|-----------------------------|---|
| <p>CH78 3GHz~5GHz</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Center Freq 4.00000000 GHz Ref Offset 1 dB Ref 21.00 dBm Mkr1 3.27150 GHz -56.054 dBm Start 3.000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 191.5 ms (8001 pts)</p> |
| <p>CH78 5GHz~10GHz</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Center Freq 7.50000000 GHz Ref Offset 1 dB Ref 21.00 dBm Mkr1 5.820625 GHz -56.245 dBm Start 5.000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 477.9 ms (8001 pts)</p> |
| <p>CH78 10GHz~15GHz</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Center Freq 12.50000000 GHz Ref Offset 1 dB Ref 21.00 dBm Mkr1 14.878750 GHz -53.569 dBm Start 10.000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 477.9 ms (8001 pts)</p> |
| <p>CH78 15GHz~25GHz</p> |  <p>Agilent Spectrum Analyzer - Sweep SA Center Freq 20.00000000 GHz Ref Offset 1 dB Ref 23.00 dBm Mkr1 24.15625 GHz -44.080 dBm Start 15.000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 955.7 ms (8001 pts)</p> |

| Test Item: | SE | Modulation type: | 8DPSK |
|----------------------------|----|--|-------|
| <p>CH00 30MHz~3GHz</p> | |  | |
| <p>CH00 3GHz~5GHz</p> | |  | |
| <p>CH00 5GHz~10GHz</p> | |  | |

| | |
|-----------------------------|--|
| <p>CH00 10GHz~15GHz</p> |  |
| <p>CH00 15GHz~25GHz</p> |  |
| <p>CH39 30MHz~3GHz</p> |  |
| <p>CH39 3GHz~5GHz</p> |  |

| | |
|-----------------------------|--|
| <p>CH39 5GHz~10GHz</p> |  |
| <p>CH39 10GHz~15GHz</p> |  |
| <p>CH39 15GHz~25GHz</p> |  |
| <p>CH78 30MHz~3GHz</p> |  |

| | |
|-----------------------------|--|
| <p>CH78 3GHz~5GHz</p> |  |
| <p>CH78 5GHz~10GHz</p> |  |
| <p>CH78 10GHz~15GHz</p> |  |
| <p>CH78 15GHz~25GHz</p> |  |

5.11. Spurious Emissions (radiated)

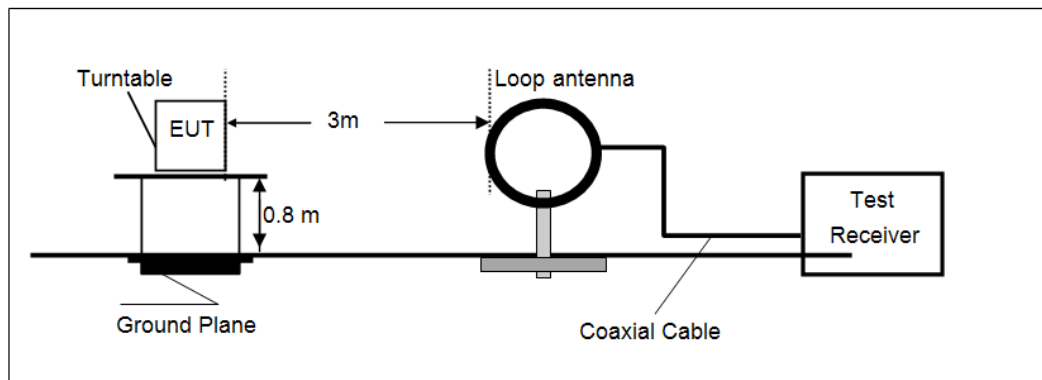
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209

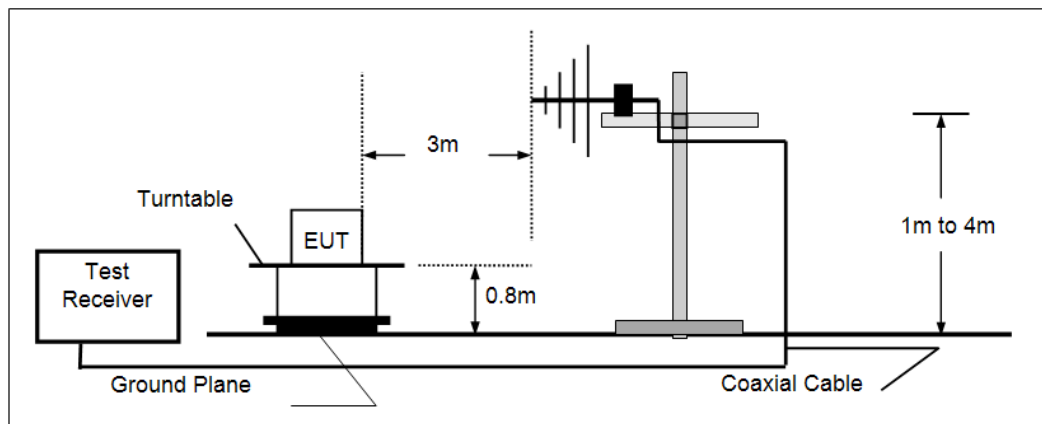
| Frequency | Limit (dBuV/m @3m) | Value |
|-------------------|--------------------|------------|
| 30 MHz ~ 88 MHz | 40.00 | Quasi-peak |
| 88 MHz ~ 216 MHz | 43.50 | Quasi-peak |
| 216 MHz ~ 960 MHz | 46.00 | Quasi-peak |
| 960 MHz ~ 1 GHz | 54.00 | Quasi-peak |
| Above 1 GHz | 54.00 | Average |
| | 74.00 | Peak |

TEST CONFIGURATION

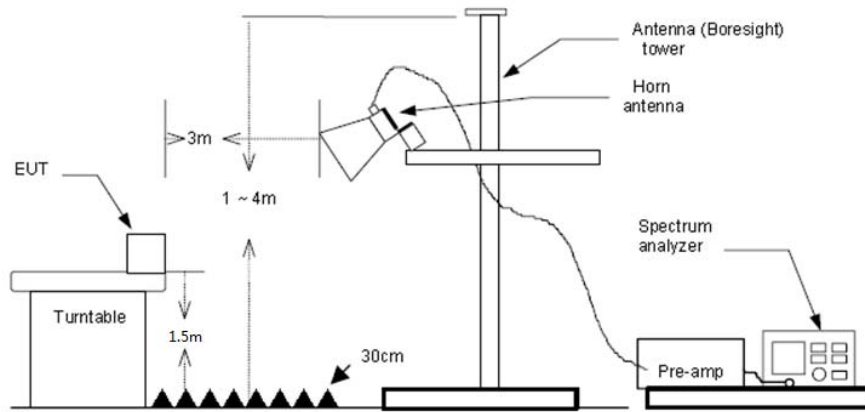
- Below 30 MHz



- 30 MHz ~1000 MHz



- Above 1 GHz



TEST PROCEDURE

1. The EUT was tested according to ANSI C63.10:2013.
2. The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna.
5. Use the following spectrum analyzer settings
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Below 1 GHz, RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold; If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
 - (3) Above 1 GHz, RBW=1 MHz, VBW=3 MHz Peak detector for Peak value
RBW=1 MHz, VBW=10 Hz Peak detector for Average value.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

Passed **Not Applicable**

Note:

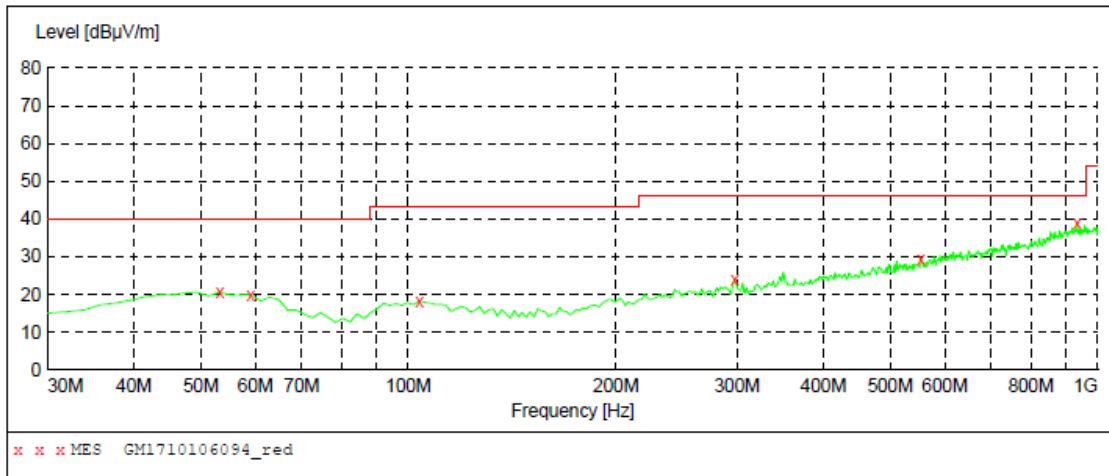
- 1) Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2) The emission levels of other frequencies are very lower than the limit and not show in test report.
- 3) Below 1 GHz, Have pre-scan all modulation mode, found the GFSK modulation High channel which it was worst case, so only the worst case's data on the test report.
- 4) Above 1 GHz, Have pre-scan all modulation mode, found the GFSK modulation which it was worst case, so only the worst case's data on the test report
- 5) The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.

➤ **9 kHz ~ 30 MHz**

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

➤ 30 MHz ~ 1 GHz

Polarization: Vertical

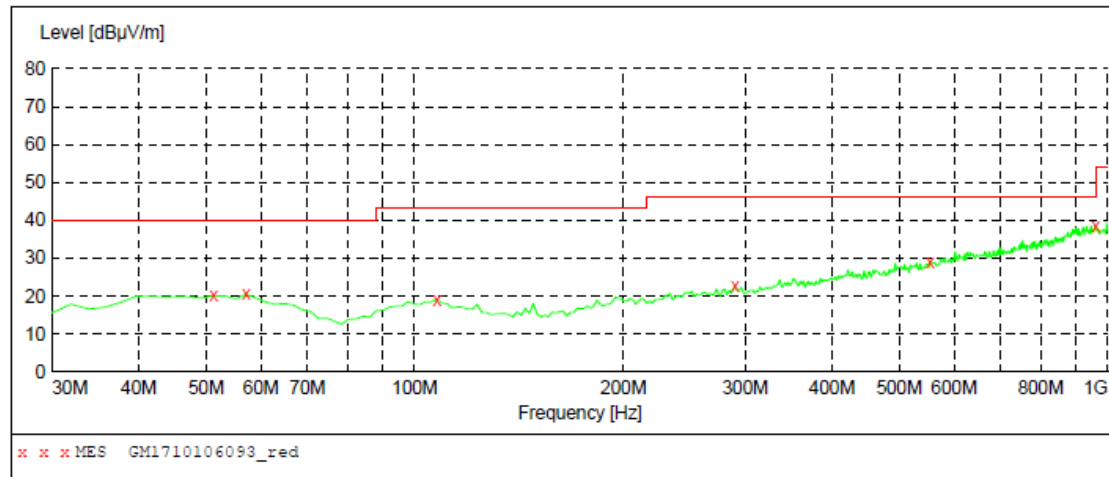


MEASUREMENT RESULT: "GM1710106094_red"

10/10/2017 9:23PM

| Frequency MHz | Level dBuV/m | Transd dB | Limit dBuV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|---------------|--------------|-----------|--------------|-----------|------|-----------|-------------|--------------|
| 53.280000 | 20.70 | -9.0 | 40.0 | 19.3 | QP | 100.0 | 238.00 | VERTICAL |
| 59.100000 | 20.00 | -9.8 | 40.0 | 20.0 | QP | 100.0 | 278.00 | VERTICAL |
| 103.720000 | 18.30 | -10.5 | 43.5 | 25.2 | QP | 100.0 | 250.00 | VERTICAL |
| 297.720000 | 24.10 | -7.3 | 46.0 | 21.9 | QP | 100.0 | 167.00 | VERTICAL |
| 553.800000 | 29.40 | -0.7 | 46.0 | 16.6 | QP | 100.0 | 167.00 | VERTICAL |
| 934.040000 | 39.10 | 7.1 | 46.0 | 6.9 | QP | 100.0 | 46.00 | VERTICAL |

Polarization: Horizontal



MEASUREMENT RESULT: "GM1710106093_red"

10/10/2017 9:21PM

| Frequency MHz | Level dBuV/m | Transd dB | Limit dBuV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|---------------|--------------|-----------|--------------|-----------|------|-----------|-------------|--------------|
| 51.340000 | 20.20 | -8.8 | 40.0 | 19.8 | QP | 300.0 | 76.00 | HORIZONTAL |
| 57.160000 | 20.60 | -9.4 | 40.0 | 19.4 | QP | 300.0 | 163.00 | HORIZONTAL |
| 107.600000 | 19.20 | -10.6 | 43.5 | 24.3 | QP | 100.0 | 217.00 | HORIZONTAL |
| 289.960000 | 22.70 | -7.4 | 46.0 | 23.3 | QP | 300.0 | 359.00 | HORIZONTAL |
| 553.800000 | 28.90 | -0.7 | 46.0 | 17.1 | QP | 100.0 | 193.00 | HORIZONTAL |
| 959.260000 | 38.50 | 7.3 | 46.0 | 7.5 | QP | 100.0 | 284.00 | HORIZONTAL |

➤ Above 1 GHz

| CH00 | | | | | | | | | |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|------------|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization | Test value |
| 1732.97 | 37.40 | 25.27 | 5.83 | 37.00 | 31.50 | 74.00 | -42.50 | Vertical | Peak |
| 3776.39 | 35.71 | 29.53 | 8.47 | 38.23 | 35.48 | 74.00 | -38.52 | Vertical | Peak |
| 4871.10 | 37.38 | 31.46 | 9.59 | 36.76 | 41.67 | 74.00 | -32.33 | Vertical | Peak |
| 7840.75 | 31.97 | 36.35 | 13.06 | 34.96 | 46.42 | 74.00 | -27.58 | Vertical | Peak |
| 1805.01 | 37.67 | 25.39 | 5.97 | 37.14 | 31.89 | 74.00 | -42.11 | Horizontal | Peak |
| 3049.39 | 37.02 | 28.70 | 7.54 | 38.22 | 35.04 | 74.00 | -38.96 | Horizontal | Peak |
| 5112.49 | 32.76 | 31.85 | 9.76 | 36.29 | 38.08 | 74.00 | -35.92 | Horizontal | Peak |
| 7527.83 | 32.35 | 36.13 | 12.49 | 34.92 | 46.05 | 74.00 | -27.95 | Horizontal | Peak |

| CH39 | | | | | | | | | |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|------------|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization | Test value |
| 1244.73 | 29.80 | 26.25 | 4.74 | 36.55 | 24.24 | 74.00 | -49.76 | Vertical | Peak |
| 3208.66 | 30.37 | 28.75 | 7.73 | 38.22 | 28.63 | 74.00 | -45.37 | Vertical | Peak |
| 4760.78 | 28.92 | 31.44 | 9.52 | 37.01 | 32.87 | 74.00 | -41.13 | Vertical | Peak |
| 7135.98 | 28.53 | 35.82 | 11.86 | 34.99 | 41.22 | 74.00 | -32.78 | Vertical | Peak |
| 1000.00 | 30.05 | 25.20 | 4.21 | 36.67 | 22.79 | 74.00 | -51.21 | Horizontal | Peak |
| 1185.96 | 31.25 | 26.19 | 4.63 | 36.58 | 25.49 | 74.00 | -48.51 | Horizontal | Peak |
| 4570.77 | 28.92 | 30.84 | 9.41 | 37.28 | 31.89 | 74.00 | -42.11 | Horizontal | Peak |
| 8187.50 | 29.17 | 36.74 | 12.74 | 34.55 | 44.10 | 74.00 | -29.90 | Horizontal | Peak |

| CH78 | | | | | | | | | |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|------------|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization | Test value |
| 1510.40 | 30.84 | 25.70 | 5.31 | 36.60 | 25.25 | 74.00 | -48.75 | Vertical | Peak |
| 3738.13 | 28.93 | 29.42 | 8.43 | 38.24 | 28.54 | 74.00 | -45.46 | Vertical | Peak |
| 5850.92 | 27.99 | 32.20 | 10.61 | 35.35 | 35.45 | 74.00 | -38.55 | Vertical | Peak |
| 7624.25 | 27.82 | 36.18 | 12.79 | 34.99 | 41.80 | 74.00 | -32.20 | Vertical | Peak |
| 1439.09 | 30.35 | 25.86 | 5.11 | 36.51 | 24.81 | 74.00 | -49.19 | Horizontal | Peak |
| 3893.52 | 29.81 | 29.69 | 8.63 | 38.17 | 29.96 | 74.00 | -44.04 | Horizontal | Peak |
| 6251.26 | 28.72 | 33.00 | 11.00 | 35.30 | 37.42 | 74.00 | -36.58 | Horizontal | Peak |
| 7451.57 | 28.95 | 36.20 | 12.24 | 34.86 | 42.53 | 74.00 | -31.47 | Horizontal | Peak |

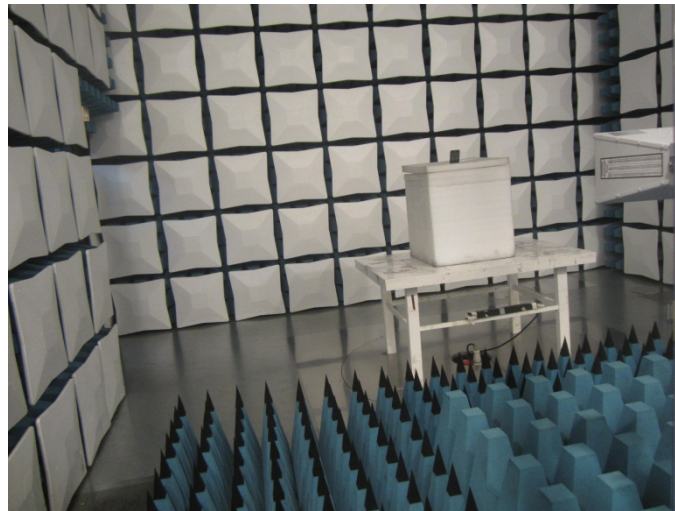
6. TEST SETUP PHOTOS

Conducted Emissions (AC Mains)



Radiated Emissions





7. External and Internal Photos of the EUT

Reference to Test Report TRE1709025201

.....End of Report.....