China

# FCC/IC - TEST REPORT

| | | | | |
|---|---|---|---|---|
| Report Number | : | **68.760.14.226.01** | Date of Issue: | August 4, 2014 |

| | | |
|---|---|---|
| Model | : | WAG 126 & WAG 127 |
| Product Type | : | Wireless audiogateway with wireless PTT for communication radios |
| Applicant | : | Titan Communications systems Aps |
| Address | : | Skovlytoften 26B, st. DK - 2840 Holte |
| Manufacturer | : | Vintech Corporation |
| Address | : | 12B,Jinshun Building ,No.287, Ruyi Road ,Longgang District, Shenzhen. |
| Test Result | : | ■ **Positive** ☐ **Negative** |
| Total pages including Appendices | : | 37 |

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# 1 Table of Contents





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# 2 Details about the Test Laboratory

**Details about the Test Laboratory**
Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
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Test Site 2
Company name: Shenzhen SEM.Test Technology Co., Ltd.
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Shenzhen, P.R.C.

FCC Registration No.: 934118

Telephone: 86 755 3366 3308
Fax: 86 755 3366 3309

## 3 Description of the Equipment Under Test

| | |
|---|---|
| Product: | Wireless audiogateway with wireless PTT for communication radios |
| Model no.: | WAG 126 & WAG 127 |
| Series Models: | UNI/M3/M4/M5/M10/M12/M15/H6/I3/N3 |
| FCC ID: | 2ACD5AIRCRYPT-WAG1 |
| IC ID: | NIL |
| Brand Name: | PHILIPS |
| Options and accessories: | NIL |
| Rating: | DC5.0V supplied by Interphone |
| RF Transmission Frequency: | 2402-2480MHz |
| No. of Operated Channel: | 79 |
| Modulation: | GFSK, π/4-DQPSK, 8DPSK |
| Duty Cycle: | NIL |
| Antenna Type: | Integral Antenna |
| Antenna Gain: | 1.7dBi |
| Description of the EUT: | The Equipment Under Test (EUT) is a Wireless audiogateway with wireless PTT for communication radios with Bluetooth 3.0+EDR function operating at 2.4GHz |


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# 4 Summary of Test Standards

| Test Standards | |
|---|---|
| FCC Part 15 Subpart C 10-1-2013 Edition | PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators |
| RSS-Gen Issue 3 December 2010 | General Requirements and Information for the Certification of Radio Apparatus |
| RSS-210 Issue 8 December 2010 | RSS-210 — Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment |

All the test methods were according to Public Notice DA 00-705 -Frequency Hopper Spread Spectrum Test Procedure released by FCC on March 30, 2000 and C63.10 (2009).


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# 5 Summary of Test Results

| Technical Requirements | | | | | |
|---|---|---|---|---|---|
| **FCC Part 15 Subpart C, RSS-Gen, RSS-210** | | | | | |
| Test Condition | | | Pages | Test Site | Test Result |
| §15.207 | RSS-GEN A7.2.4 | Conducted emission AC power port | --- | --- | N/A |
| §15.247(b)(1) | RSS-210 A8.4 | Conducted peak output power | 10 | Site 2 | Pass |
| §15.247(a)(2) | RSS-210 A8.2(a) | 6dB bandwidth | --- | --- | N/A |
| §15.247(a)(1) | RSS-210 A8.1(a) & RSSGEN 4.6.2 | 20dB bandwidth and 99% Occupied Bandwidth | 12 | Site 2 | Pass |
| §15.247(a)(1) | RSS-210 A8.1(b) | Carrier frequency separation | 17 | Site 2 | Pass |
| §15.247(a)(1)(iii) | RSS-210 A8.1(d) | Number of hopping frequencies | 20 | Site 2 | Pass |
| §15.247(a)(1)(iii) | RSS-210 A8.1(c) | Dwell Time | 22 | Site 2 | Pass |
| §15.247(e) | RSS-210 A8.2(b) | Power spectral density* | --- | --- | N/A |
| §15.247(d) | RSS-210 A8.5 | Spurious RF conducted emissions | 25 | Site 2 | Pass |
| §15.247(d) | RSS-210 A8.5 | Band edge | 29 | Site 2 | Pass |
| §15.247(d) & §15.209 & | RSS-210 2.5 & RSSGEN 7.2.5 & RSSGEN 6.1 | Spurious radiated emissions for transmitter and receiver | 32 | Site 2 | Pass |
| §15.203 | RSSGEN 7.1.2 | Antenna requirement | See note 2 | | Pass |

Note 1: N/A=Not Applicable.
Note 2: The EUT uses a permanently ceramic antenna, which gain is 1.7dBi. In accordance to §15.203, It is considered sufficiently to comply with the provisions of this section.


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# 6 General Remarks

**Remarks**

This submittal(s) (test report) is intended for FCC ID: 2ACD5AIRCRYPT-WAG1, complies with Section 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C Rules and RSS-210.

The model WAG126 &WAG127 and other models have the same PCB Layout, circuit theory and construction, so all the EMC requirements were applied on test model and other models are deemed to fulfill the relevant EMC requirements without further testing.

**SUMMARY:**

All tests according to the regulations cited on page 5 were

■ - Performed

☐ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

☐ - **Does not** fulfill the general approval requirements.

Sample Received Date: May 21, 2014

Testing Start Date: May 26, 2014

Testing End Date: August 4, 2014

TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch

Reviewed by:

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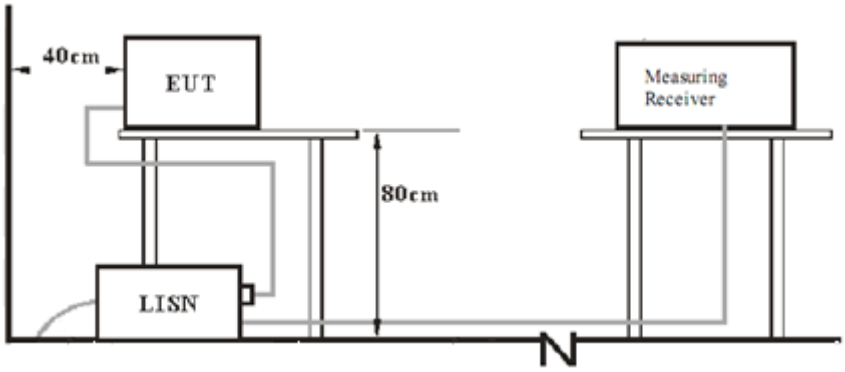
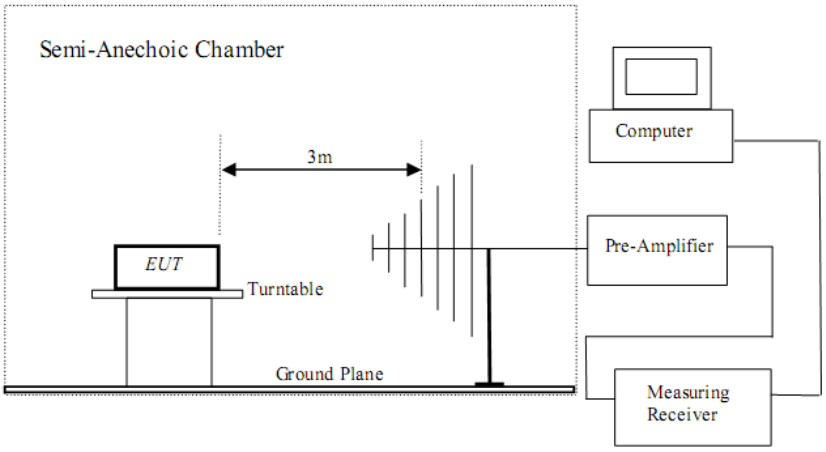
# 7 Test Setups

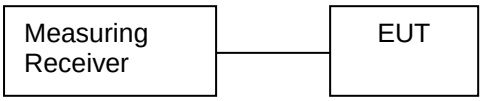
## 7.1 AC Power Line Conducted Emission test setups




## 7.2 Radiated test setups




## 7.3 Conducted RF test setups



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# 8 Systems test configuration

Auxiliary Equipment Used during Test:

| DESCRIPTION | MANUFACTURER | MODEL NO.(SHIELD) | S/N(LENGTH) |
|---|---|---|---|
| NoteBook | Lenovo | X200 | --- |

Test software: CSR_Blue Test3, which used to control the EUT in continues transmitting mode

The system was configured to hopping mode and non-hopping mode.

Hopping mode: typical working mode (normal hopping status)

Non-hopping mode: The system was configured to operate at a signal channel transmitting. The test software allows the configuration and operation at the worst-case duty and the highest transmit power


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# 9 Technical Requirement

## 9.1 Conducted peak output power

**Test Method**

1. Use the following spectrum analyzer settings:
   Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
   RBW > the 20 dB bandwidth of the emission being measured, VBW≥RBW,
   Sweep = auto, Detector function = peak, Trace = max hold
2. Add a correction factor to the display.
3. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power

**Limits**

According to §15.247 (b) (1) and RSS-210 A8.4, conducted peak output power limit as below:

| Frequency Range<br>MHz | Limit<br>W | Limit<br>dBm |
|---|---|---|
| 2400-2483.5 | ≤1 | ≤30 |


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## Conducted peak output power

Bluetooth Mode GFSK modulation Test Result

| Frequency MHz | Conducted Peak Output Power dBm | Result |
|---|---|---|
| Low channel 2402MHz | 2.807 | Pass |
| Middle channel 2441MHz | 3.253 | Pass |
| High channel 2480MHz | 3.747 | Pass |

Bluetooth Mode 8DPSK modulation Test Result

| Frequency MHz | Conducted Peak Output Power dBm | Result |
|---|---|---|
| Low channel 2402MHz | 1.908 | Pass |
| Middle channel 2441MHz | 2.361 | Pass |
| High channel 2480MHz | 2.637 | Pass |


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## 9.2 20 dB bandwidth and 99% Occupied Bandwidth

**Test Method**

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

**Limit**

| Limit [kHz] |
|---|
| N/A |


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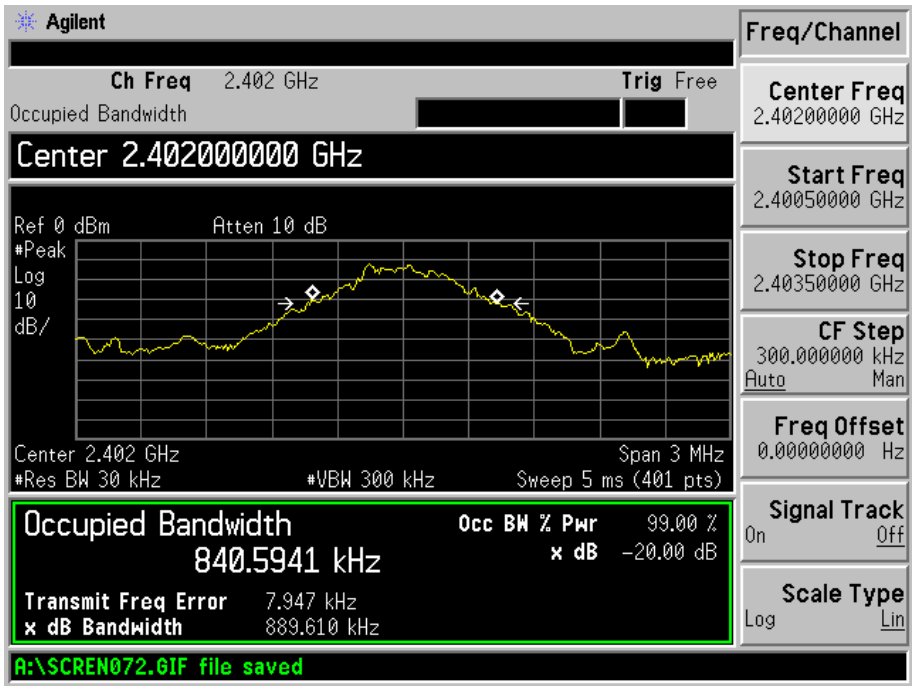
## 20 dB bandwidth and 99% Occupied Bandwidth

Bluetooth Mode GFSK Modulation test result

| Frequency MHz | 20 dB Bandwidth kHz | 99% Bandwidth kHz | Limit kHz | Result |
|---|---|---|---|---|
| 2402 | 889.610 | 840.5941 | -- | Pass |
| 2441 | 852.151 | 850.2774 | -- | Pass |
| 2480 | 875.492 | 828.0997 | -- | Pass |



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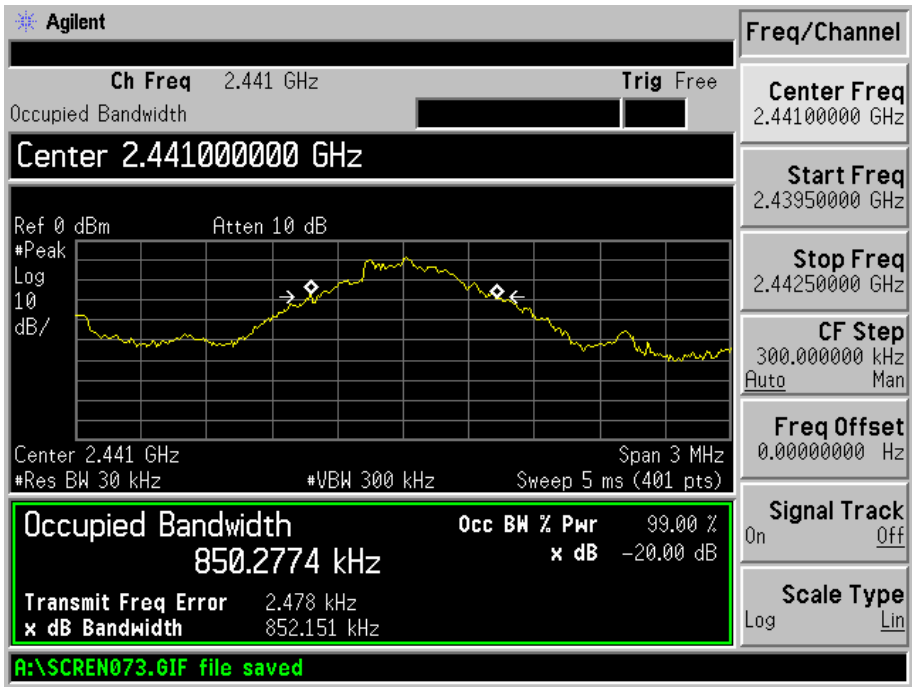
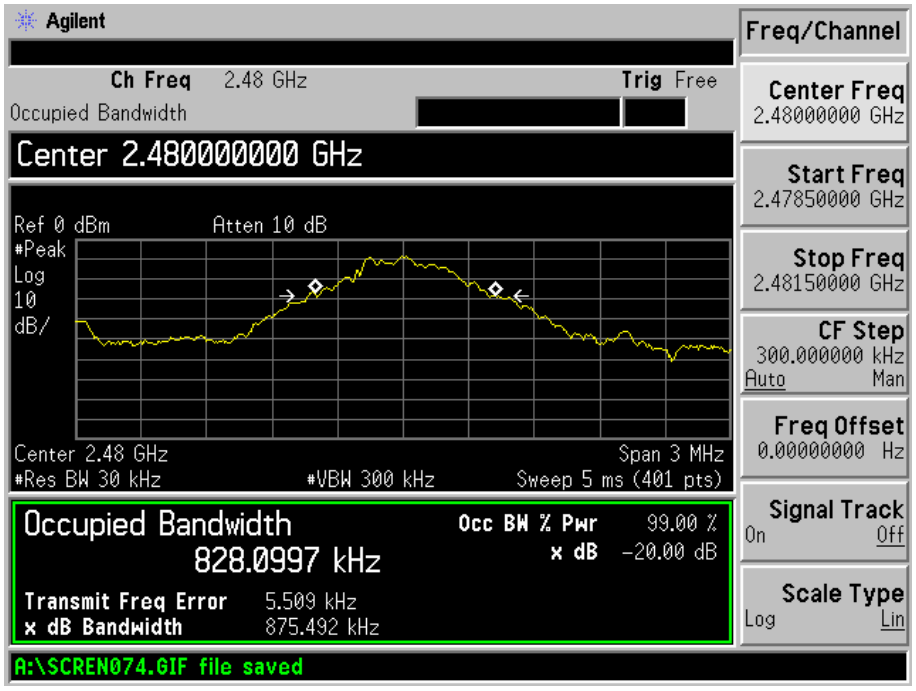
## 20 dB bandwidth and 99% Occupied Bandwidth



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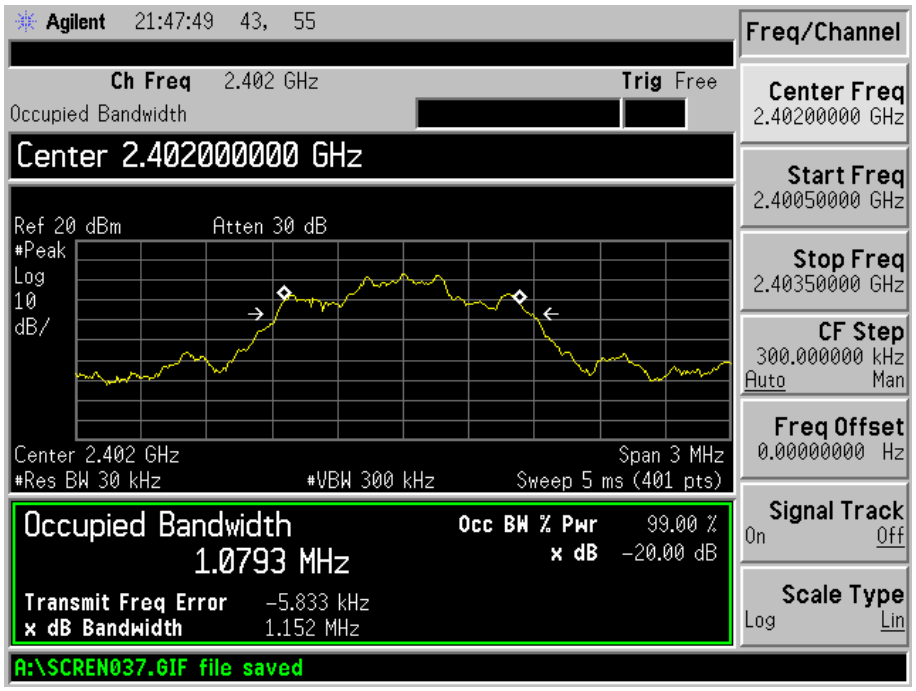
## 20 dB bandwidth and 99% Occupied Bandwidth

Bluetooth Mode 8DPSK Modulation test result

| Frequency MHz | 20 dB Bandwidth kHz | 99% Bandwidth kHz | Limit kHz | Result |
|---|---|---|---|---|
| 2402 | 1152 | 1079.3 | -- | Pass |
| 2441 | 1166 | 1078.6 | -- | Pass |
| 2480 | 1156 | 1072.5 | -- | Pass |



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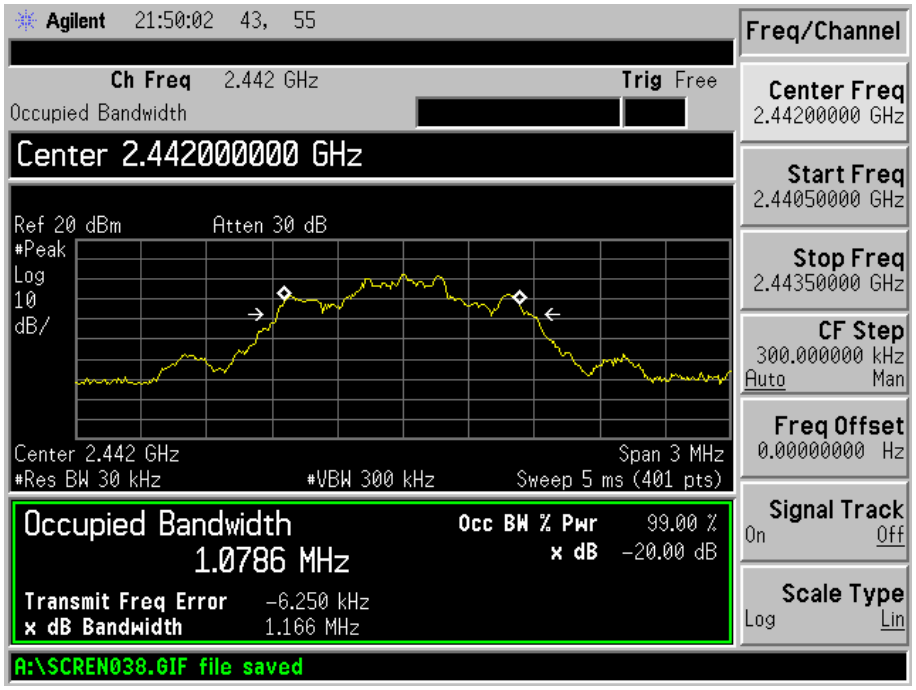


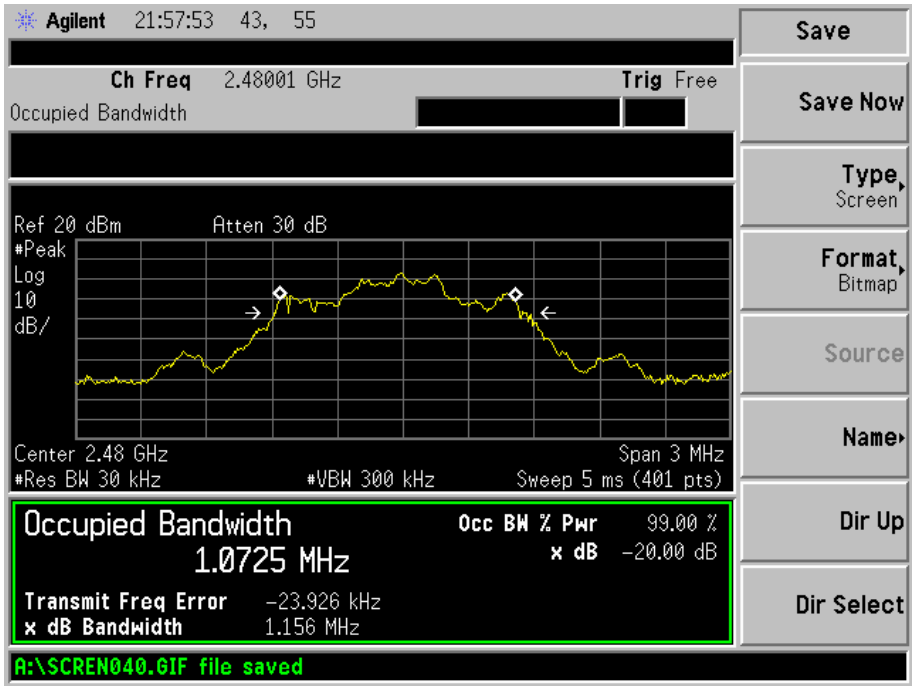




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## 9.3 Carrier Frequency Separation

**Test Method**

1. 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
2. By using the Max-Hold function record the separation of two adjacent channels.
3. Measure the frequency difference of these two adjacent channels by spectrum analyzer marker function.
4. Repeat above procedures until all frequencies measured were complete.

**Limit**

| Limit<br>kHz |
|---|
| ⩾25KHz or 2/3 of the 20 dB bandwidth which is greater |

GFSK Modulation Limit

| Frequency<br>MHz | 2/3 of 20 dB Bandwidth<br>kHz |
|---|---|
| 2402 | 593.07 |
| 2441 | 568.10 |
| 2480 | 583.66 |


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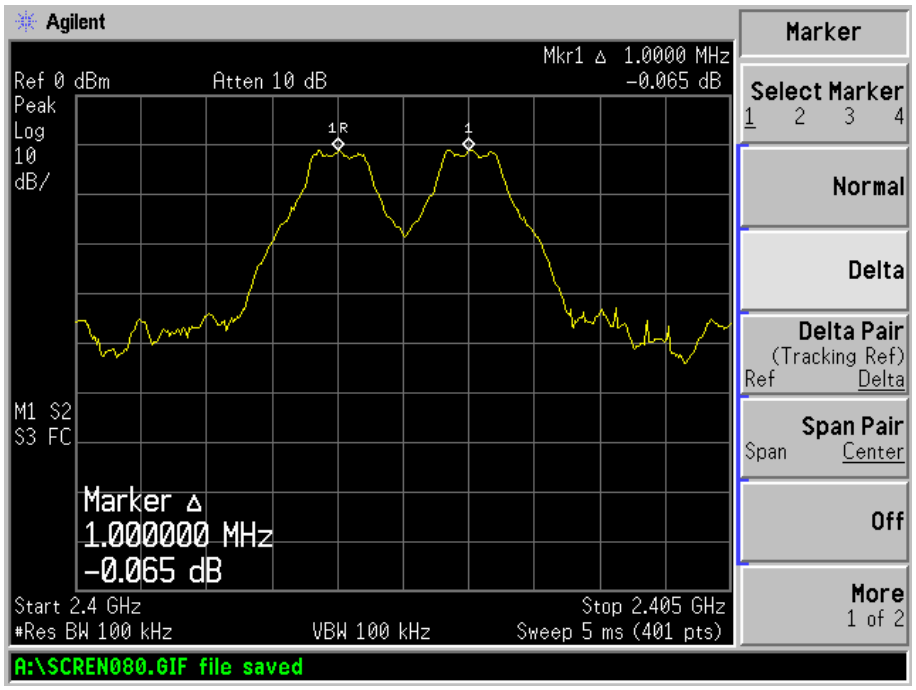
## Carrier Frequency Separation

Test result: The measurement was performed with the typical configuration (normal hopping status), here GFSK modulation mode was used to show compliance.

GFSK Modulation test result

| Frequency MHz | Carrier Frequency Separation kHz | Result |
|---|---|---|
| 2402 | 1000 | Pass |
| 2441 | 1000 | Pass |
| 2480 | 1000 | Pass |



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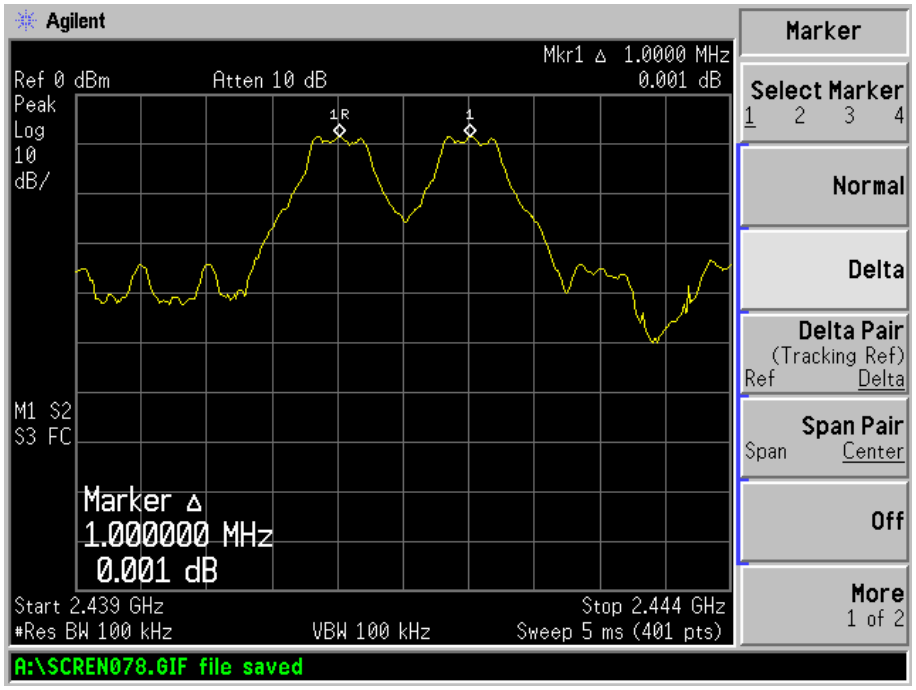


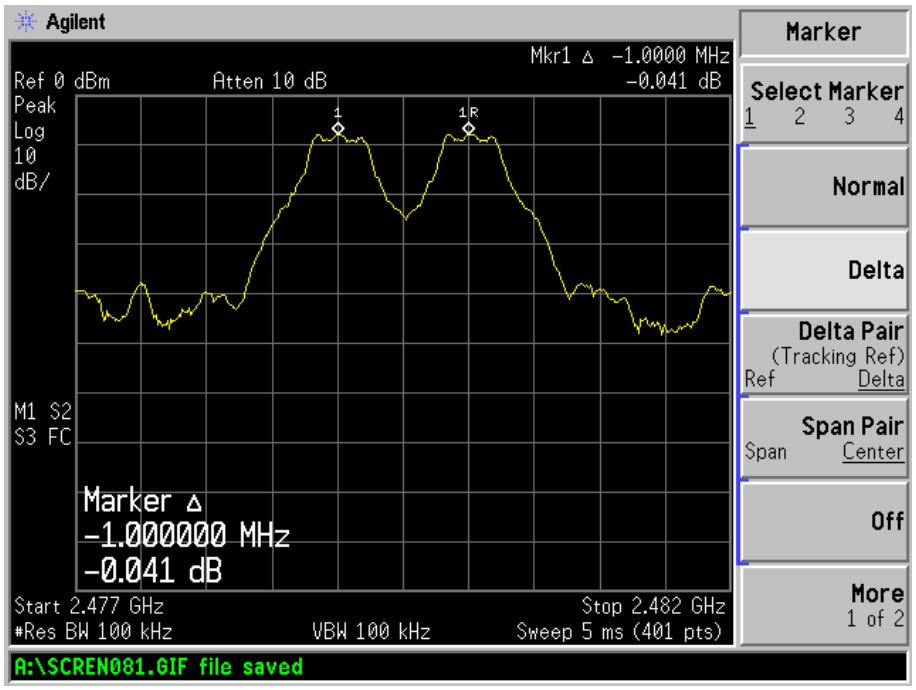




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## 9.4 Number of hopping frequencies

**Test Method**

1. 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
2. Set the spectrum analyzer on Max-Hold Mode, and then keep the EUT in hopping mode.
3. Record all the signals from each channel until each one has been recorded.
4. Repeat above procedures until all frequencies measured were complete.

**Limit**

| Limit number |
|---|
| ⩾ 15 |


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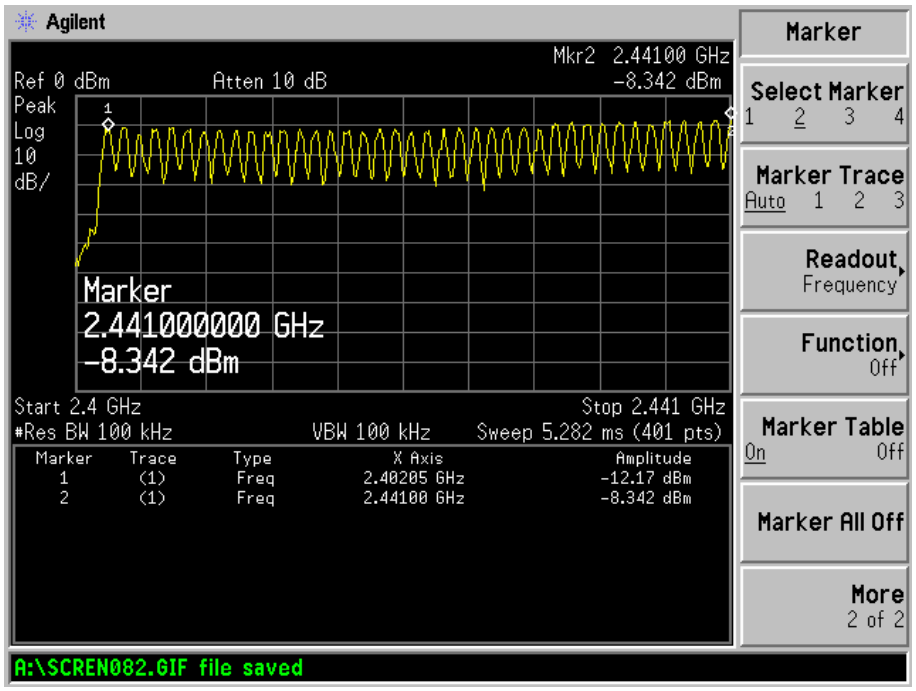
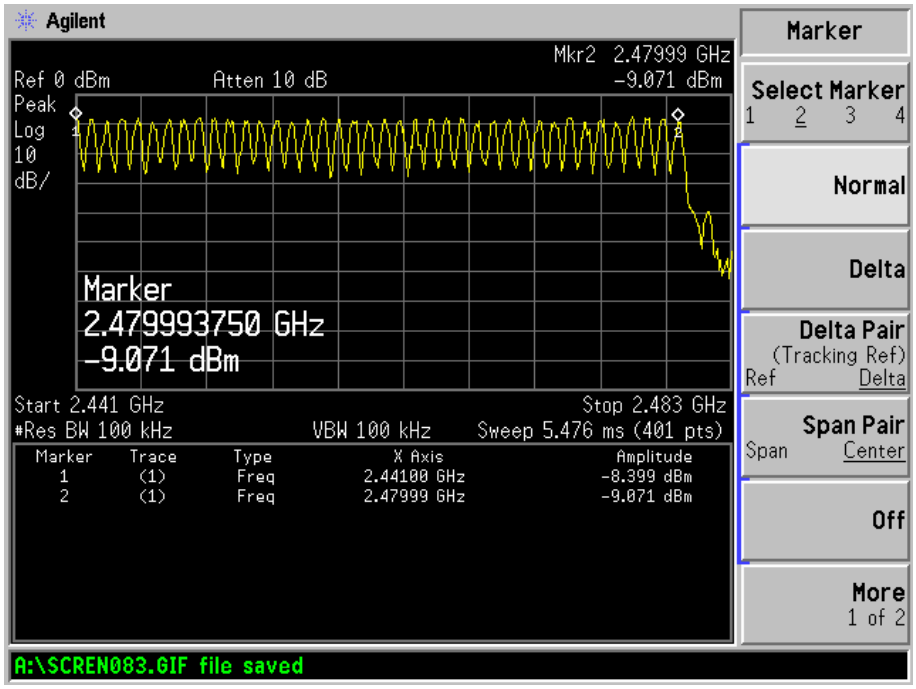
## Number of hopping frequencies

Test result: The measurement was performed with the typical configuration (normal hopping status), and the total hopping channels is constant for the all modulation mode according with the Bluetooth Core Specification. Here GFSK modulation mode was used to show compliance.

| Number of hopping frequencies | Result |
|---|---|
| 79 | Pass |





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## 9.5 Dwell Time

**Test Method**

1. Connect EUT antenna terminal to the spectrum analyzer with a low loss cable. Equipment mode: Spectrum analyzer
2. RBW: 1MHz; VBW: 1MHz; SPAN: Zero Span
3. Adjust the center frequency of spectrum analyzer on any frequency be measured.
4. Measure the Dwell Time by spectrum analyzer Marker function.
5. Repeat above procedures until all frequencies measured were complete.

**Limit**

According to §15.247(a)(1)(iii) & RSS-210 A8.1(c) The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.


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## Dwell Time

**Dwell time**

The maximum dwell time shall be 0,4 s.
According to the Bluetooth Core Specification, the worse result (DH5 mode) was reported to show compliance.

The Dwell Time = Burst Width * Total Hops. The detailed calculations are showed as follows:
The duration for dwell time calculation: 0.4 [s] * hopping number = 0.4 [s] * 79 [ch] = 31.6 [s*ch];

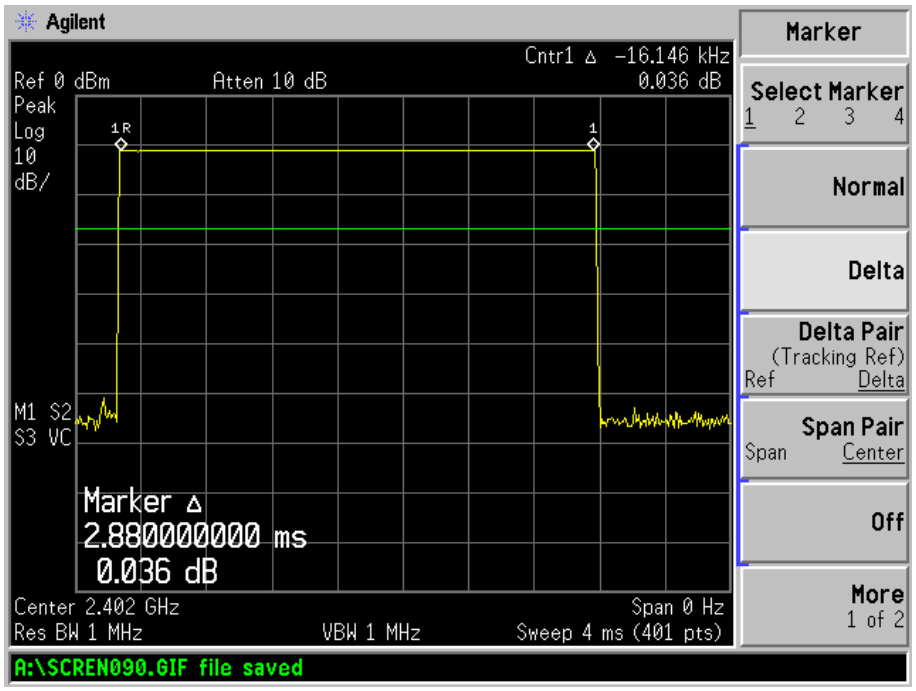
The burst width, which is directly measured, refers to the duration on one channel hop.

The maximum number of hopping channels in 31.6s for DH5=1600 / 6 / 79 *31.6=106.67

Test Result

| Modulation | Mode | Reading (µs) | Total Hops | Test Result (ms) | Limit (ms) | Result |
|---|---|---|---|---|---|---|
| GFSK | DH5 | 2880 | 106.67 | 307.2 | < 400 | Pass |
| π/4-DQPSK | 2DH5 | 2900 | 106.67 | 309.3 | < 400 | Pass |
| 8-DPSK | 3DH5 | 2880 | 106.67 | 307.2 | < 400 | Pass |

GFSK Modulation




DH5



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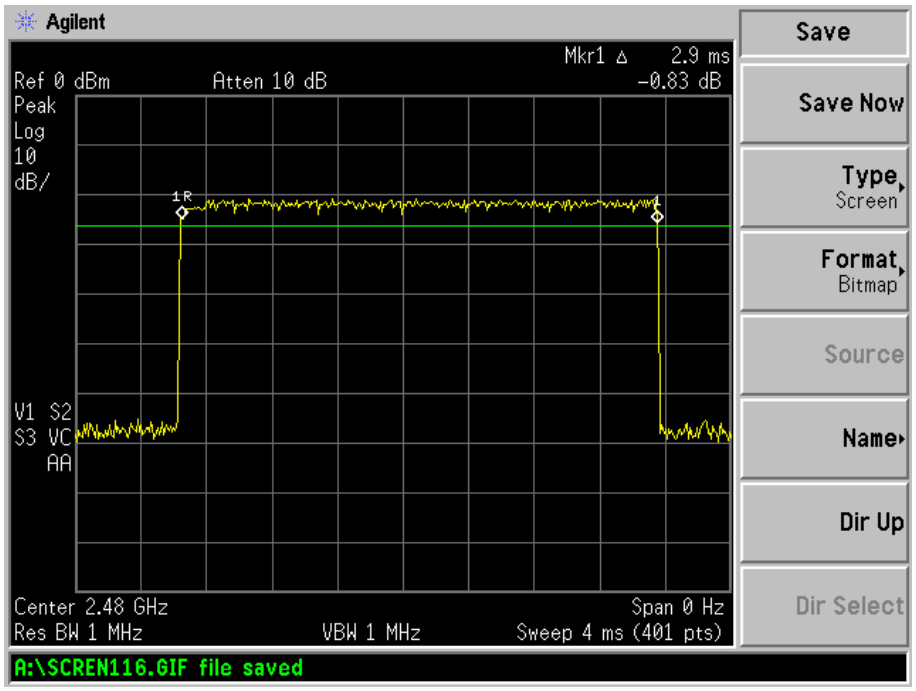
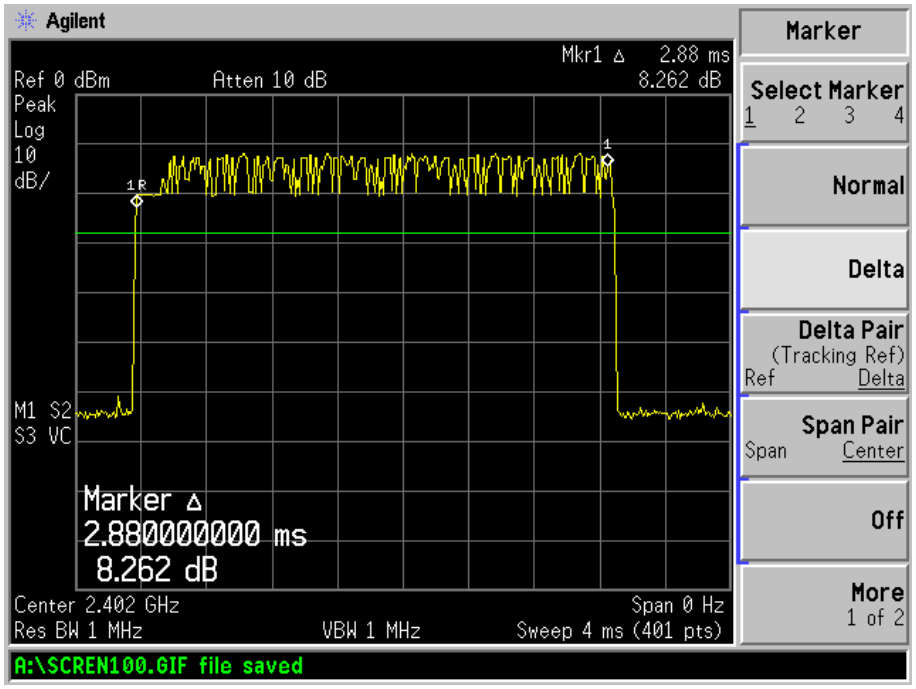
π/4-DQPSK Modulation




2DH5

8-DPSK Modulation




3DH5



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## 9.6 Spurious RF conducted emissions

**Test Method**

1. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10$^{th}$ harmonic. Typically, several plots are required to cover this entire span.
   RBW = 100 kHz, VBW≥RBW, Sweep = auto, Detector function = peak, Trace = max hold
2. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.
3. The level displayed must comply with the limit specified in this Section. Submit these plots.
4. Repeat above procedures until all frequencies measured were complete.

**Limit**

| Frequency Range MHz | Limit (dBc) |
|---|---|
| 30-25000 | -20 |


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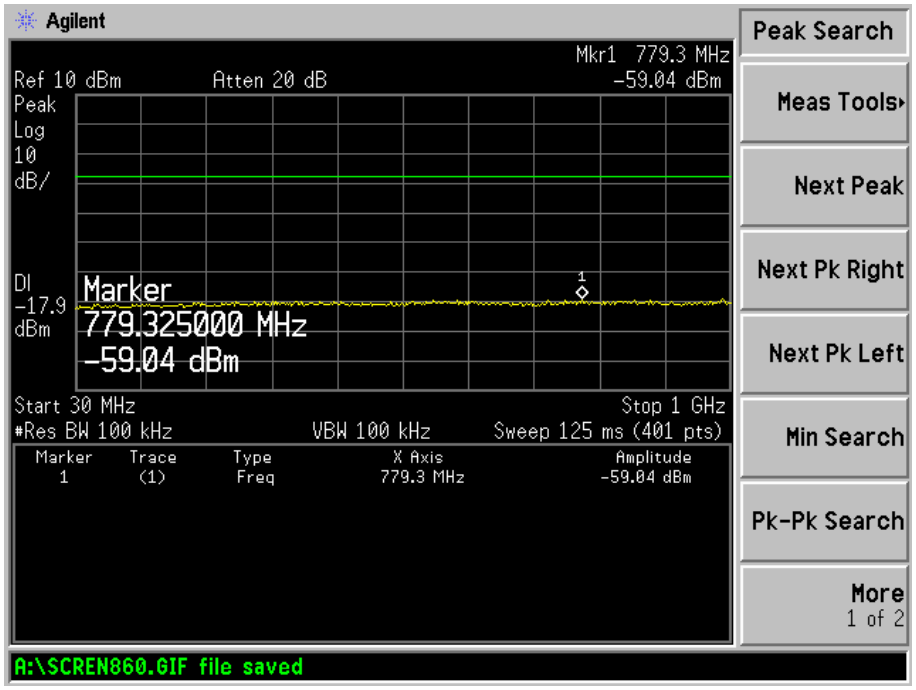
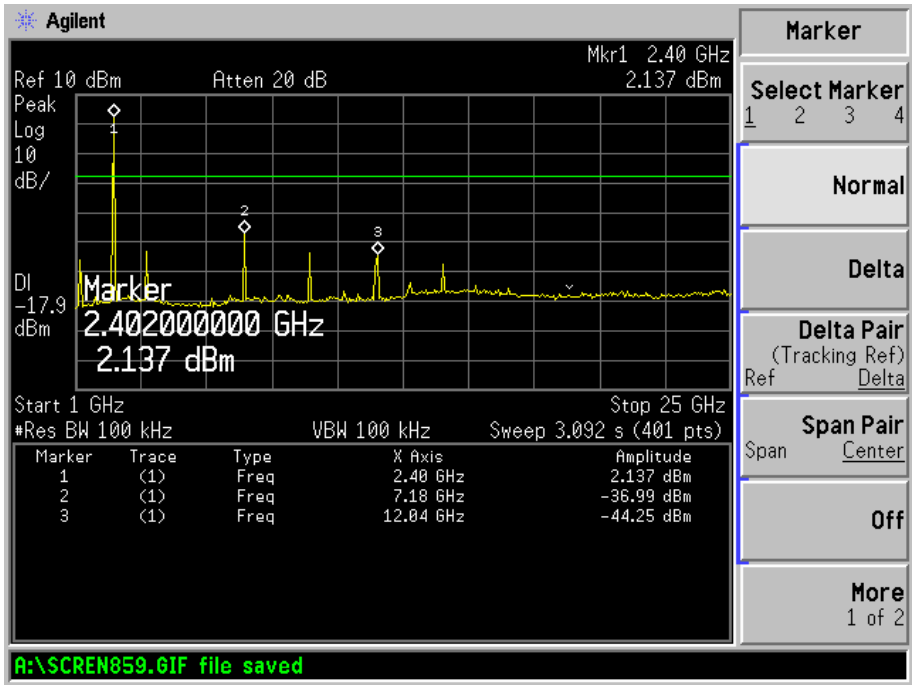
## Spurious RF conducted emissions

Only the worse case (which is subject to the maximum EIRP, GFSK mode) test result is listed in the report.

2402MHz



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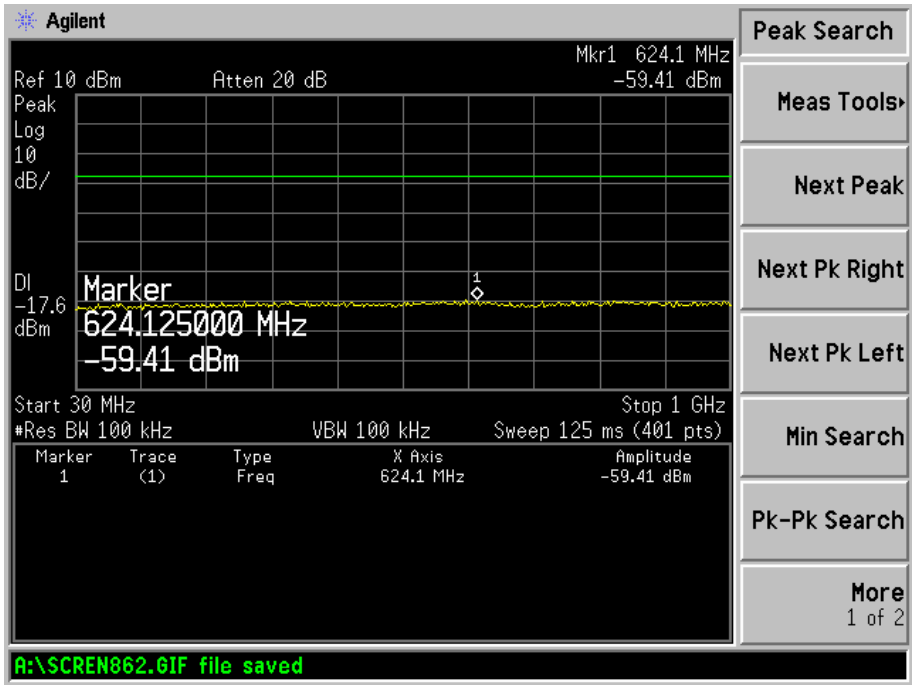
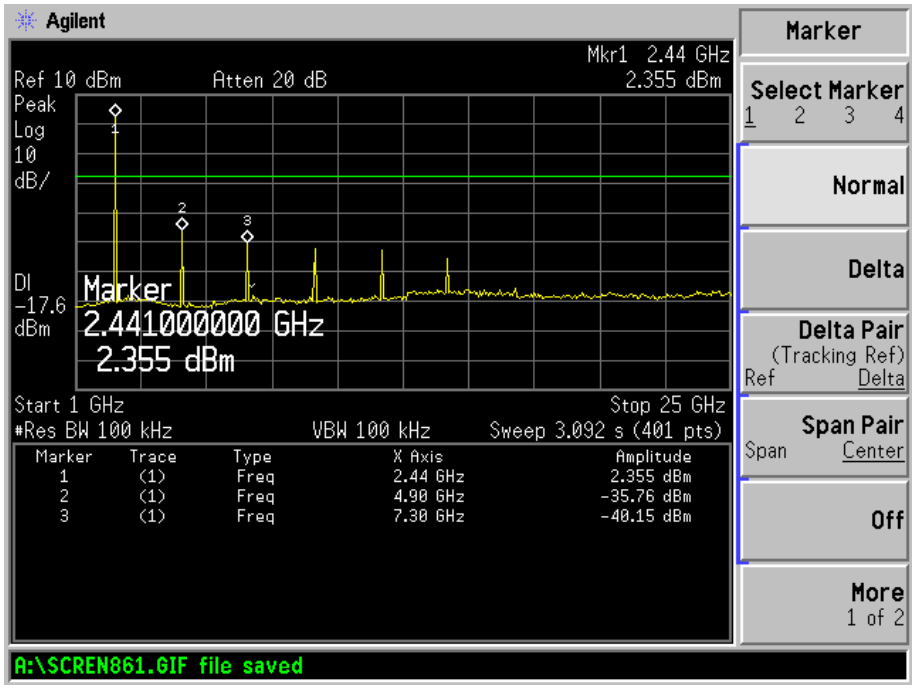
## Spurious RF conducted emissions

2441MHz



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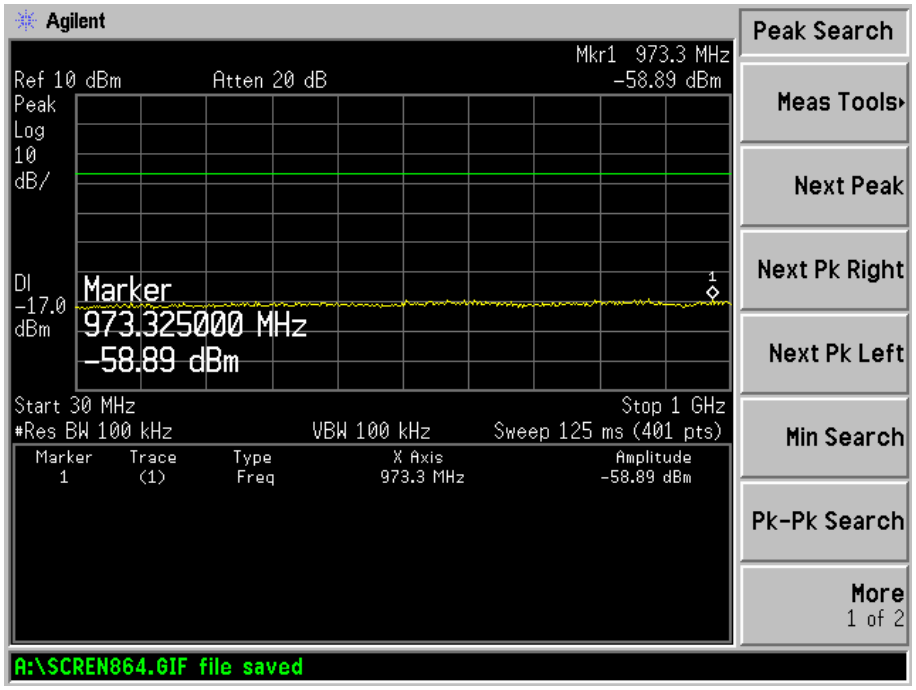
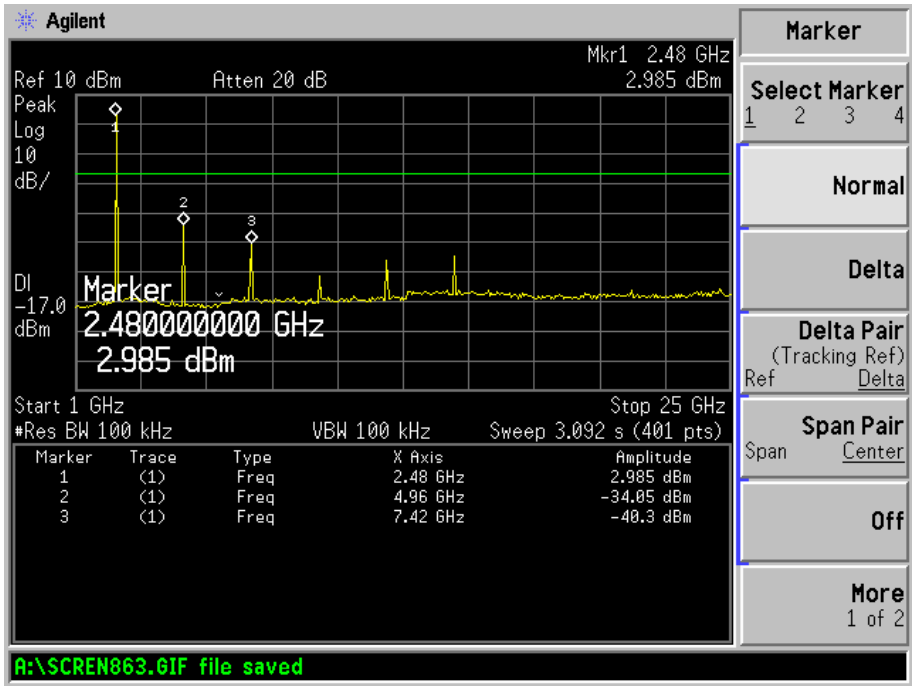
## Spurious RF conducted emissions

2480MHz



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## 9.7 Band edge testing

**Test Method**

1 Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious
RBW = 100 kHz, VBW≥RBW, Sweep = auto, Detector function = peak, Trace = max hold
2 Allow the trace to stabilize, use the peak and delta measurement to record the result.
3 The level displayed must comply with the limit specified in this Section. .
4 Repeat the test at the hopping off and hopping on mode, submit all the plots.

**Limit:**

According to §15.247(d) and RSS-210 A8.5, in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a) and RSS-Gen7.2.2, must also comply with the radiated emission limits specified in 15.209(a) (see Section 15.205(c)) and RSS-Gen.

Remark: Only the worse case (GFSK mode) test result is listed in the report.


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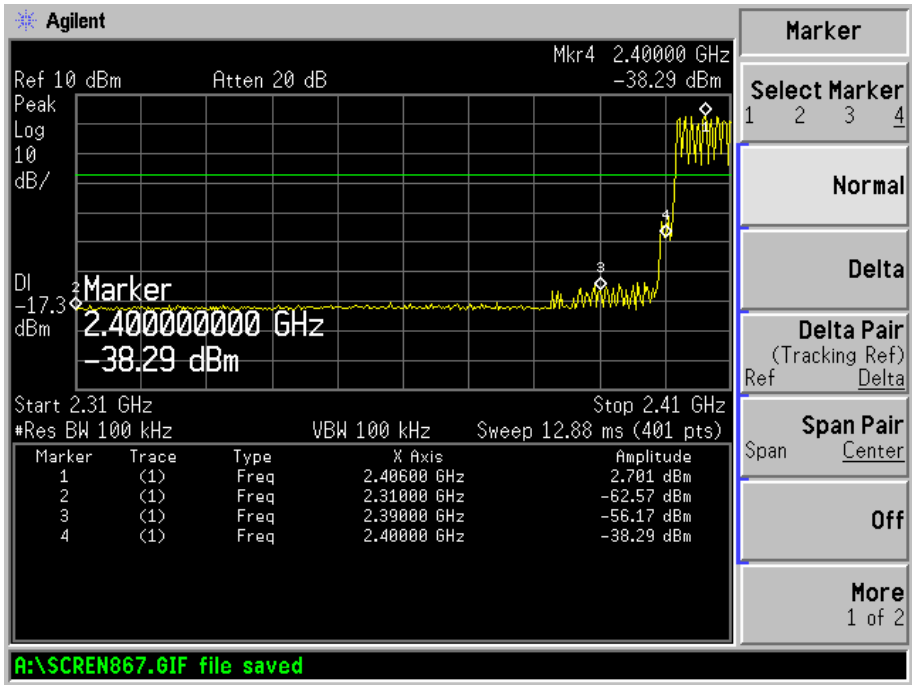
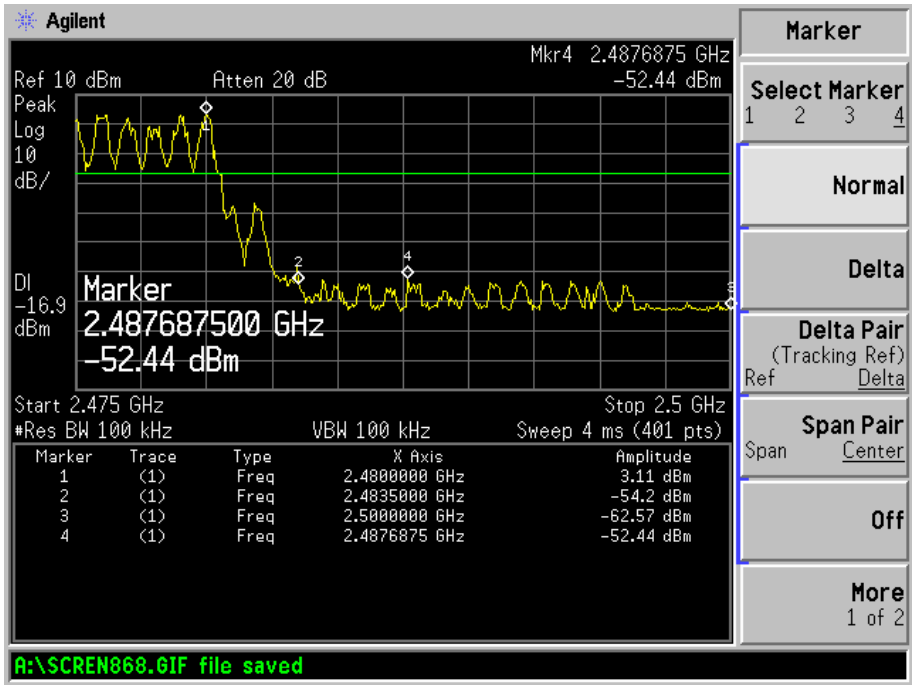
## Band edge testing

GFSK Modulation Test Result:
Hopping on mode:



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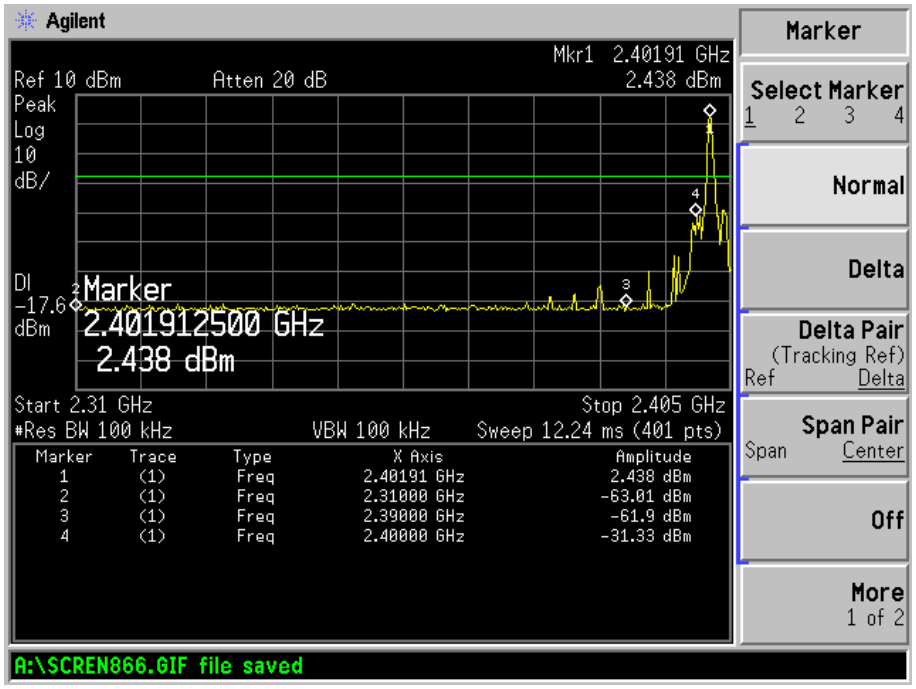
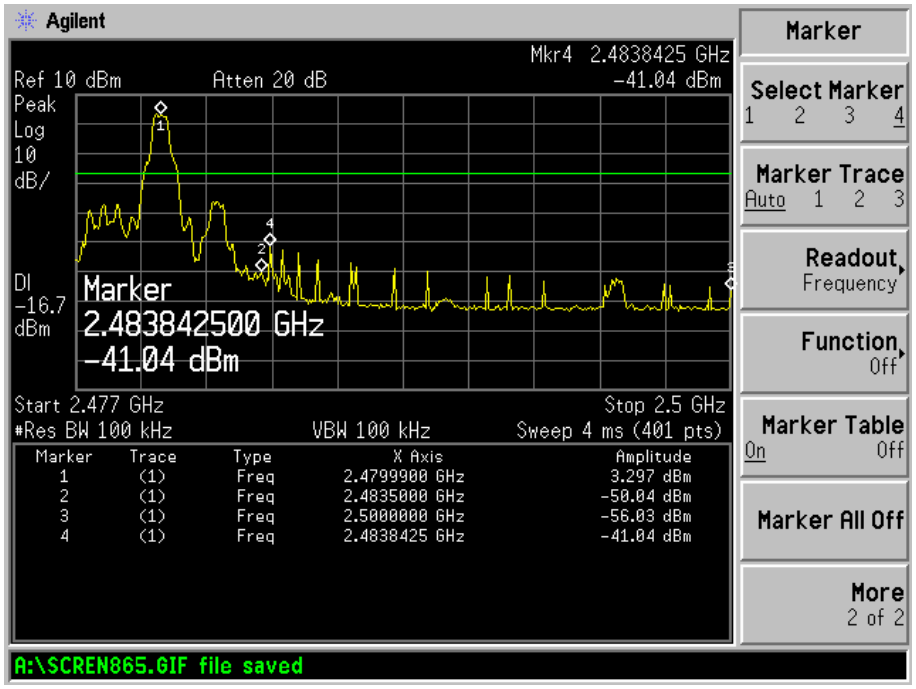
## Band edge testing

Hopping off mode:



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## 9.8 Spurious radiated emissions for transmitter and receiver

**Test Method**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
3. Use the following spectrum analyzer settings:
   Span = wide enough to fully capture the emission being measured, RBW = 1 MHz for f ≥ 1GHz, 100 kHz for f < 1 GHz, VBW ≥ RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Follow the guidelines in ANSI C63.4-1992 with respect to maximizing the emission by rotating the EUT, adjusting the measurement antenna height and polarization, etc.
   The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength,submit this data. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the duty cycle per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a “duty cycle correction factor”, derived from 20log(duty cycle/100 ms), in an effort to demonstrate compliance with the 15.209 limit. Submit this data.

**Limit**

According to part 15.247(d), the radio emission outside the operating frequency band 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. Radiated emissions which fall in the restricted bands, as defined in section15.205, must comply with the radiated emission limits specified in section 15.209.

| Frequency MHz | Field Strength uV/m | Field Strength dBµV/m | Detector |
|---|---|---|---|
| 30-88 | 100 | 40 | QP |
| 88-216 | 150 | 43.5 | QP |
| 216-960 | 200 | 46 | QP |
| 960-1000 | 500 | 54 | QP |
| Above 1000 | 500 | 54 | AV |
| Above 1000 | 5000 | 74 | PK |


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## Spurious radiated emissions for transmitter and receiver

According to C63.10, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement, so AV emission value did not show in below table if the peak value complies with average limit.

The only worse case (which is subject to the maximum EIRP, GFSK mode) test result is listed in the report.

**Transmitting spurious emission test result as below:**

Bluetooth Mode GFSK Modulation 2402MHz Test Result

| Frequency | Reading | Correct | Result | Polarization | Limit | Detector | Result |
|---|---|---|---|---|---|---|---|
| MHz | dBuV | dB/m | dBuV/m | | dBµV/m | | |
| 3604.604 | 48.84 | -1.42 | 47.42 | Horizontal | 74.00 | peak | Pass |
| 3604.604 | 36.51 | -1.42 | 35.09 | Horizontal | 54.00 | AVG | Pass |
| 4808.865 | 62.92 | 0.55 | 63.47 | Horizontal | 74.00 | peak | Pass |
| 4808.865 | 46.79 | 0.55 | 47.34 | Horizontal | 54.00 | AVG | Pass |
| 6014.075 | 49.30 | 2.43 | 51.73 | Horizontal | 74.00 | peak | Pass |
| 6014.075 | 35.23 | 2.43 | 37.66 | Horizontal | 54.00 | AVG | Pass |
| 3604.604 | 59.75 | -1.42 | 58.33 | Vertical | 74.00 | peak | Pass |
| 3604.604 | 45.22 | -1.42 | 43.80 | Vertical | 54.00 | AVG | Pass |
| 4808.865 | 66.77 | 0.55 | 67.32 | Vertical | 74.00 | peak | Pass |
| 4808.865 | 50.73 | 0.55 | 51.28 | Vertical | 54.00 | AVG | Pass |
| 6014.075 | 57.06 | 2.43 | 59.49 | Vertical | 74.00 | peak | Pass |
| 6014.075 | 40.04 | 2.43 | 42.47 | Vertical | 54.00 | AVG | Pass |

Bluetooth Mode GFSK Modulation 2441MHz Test Result

| Frequency | Reading | Correct | Result | Polarization | Limit | Detector | Result |
|---|---|---|---|---|---|---|---|
| MHz | dBuV | dB/m | dBuV/m | | dBµV/m | | |
| 4881.099 | 63.37 | 0.65 | 64.02 | Horizontal | 74.00 | peak | Pass |
| 4881.099 | 46.44 | 0.65 | 47.09 | Horizontal | 54.00 | AVG | Pass |
| 7336.744 | 39.61 | 3.77 | 43.38 | Horizontal | 74.00 | peak | Pass |
| 7336.744 | 27.48 | 3.77 | 31.25 | Horizontal | 54.00 | AVG | Pass |
| 4881.099 | 63.37 | 0.65 | 64.02 | Vertical | 74.00 | peak | Pass |
| 4881.099 | 46.44 | 0.65 | 47.09 | Vertical | 54.00 | AVG | Pass |
| 7336.744 | 39.61 | 3.77 | 43.38 | Vertical | 74.00 | peak | Pass |
| 7336.744 | 27.48 | 3.77 | 31.25 | Vertical | 54.00 | AVG | Pass |


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## Bluetooth Mode GFSK Modulation 2480MHz Test Result

| Frequency | Reading | Correct | Result | Polarization | Limit | Detector | Result |
|---|---|---|---|---|---|---|---|
| MHz | dBuV | dB/m | dBuV/m | | dBµV/m | | |
| 4966.745 | 63.07 | 0.78 | 63.85 | Horizontal | 74.00 | peak | Pass |
| 4966.745 | 46.39 | 0.78 | 47.17 | Horizontal | 54.00 | AVG | Pass |
| 7336.744 | 40.28 | 3.77 | 44.05 | Horizontal | 74.00 | peak | Pass |
| 7446.950 | 27.87 | 3.85 | 31.72 | Horizontal | 54.00 | AVG | Pass |
| 4966.745 | 65.29 | 0.78 | 66.07 | Vertical | 74.00 | peak | Pass |
| 4966.745 | 48.65 | 0.78 | 49.43 | Vertical | 54.00 | AVG | Pass |
| 7446.950 | 45.55 | 3.85 | 49.40 | Vertical | 74.00 | peak | Pass |
| 7446.950 | 30.31 | 3.85 | 34.16 | Vertical | 54.00 | AVG | Pass |

Remark:

(1) QP Emission Level= Antenna Factor +Cable Loss + Reading
PK Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
AV Emission Level= PK Emission Level+20log(dutycycle)

(2) Testing is carried out with frequency rang 9kHz to the 10th harmonics, which above 3th Harmonics are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured. The measurements greater than 20dB below the limit from 9kHz to 1GHz.


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## Receiving emission test result as below:

| Frequency MHz | Reading dBuV | Correct dB/m | Result dBuV/m | Polarization | Limit dBµV/m | Detector | Result |
|---|---|---|---|---|---|---|---|
| 146.4000 | 40.26 | -15.58 | 24.68 | Horizontal | 43.5 | QP | Pass |
| 356.8900 | 36.39 | -9.12 | 27.26 | Horizontal | 46 | QP | Pass |
| 170.6500 | 39.57 | -17.76 | 21.81 | Vertical | 43.5 | QP | Pass |
| 349.1298 | 34.91 | -11.13 | 23.78 | Vertical | 46 | QP | Pass |

Remark:

(1) QP Emission Level= Antenna Factor +Cable Loss + Reading
PK Emission Level= Antenna Factor +Cable Loss - Amp. factor + Reading
AV Emission Level= PK Emission Level+20log (dutycycle)

(2) Data of measurement within this frequency range shown "--" in the table above means the reading of emissions are the noise floor or attenuated more than 20db below the permissible limits or the field strength is too small to be measured.


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# 10 Test Equipment List

## List of Test Instruments

| | DESCRIPTION | MANUFACTURER | MODEL NO. | SERIAL NO. | CAL. DUE DATE | |
|---|---|---|---|---|---|---|
| CE | EMI Test Receiver | Rohde & Schwarz | ESPI | 101611 | 2015-05-06 | ☒ |
| | L.I.S.N | Schwarz beck | NSLK8126 | 8126-224 | 2015-05-06 | ☒ |
| | Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100911 | 2015-05-06 | ☒ |
| C | Spectrum Analyzer | Agilent | E4402B | US41192821 | 2015-05-06 | ☒ |
| | Attenuator | ATTEN | ATS100-4-20 | / | 2015-05-06 | ☒ |
| RE | Spectrum Analyzer | R&S | FSP | 836079/035 | 2015-05-06 | ☒ |
| | EMI Test Receiver | R&S | ESVB | 825471/005 | 2015-05-06 | ☒ |
| | Pre-amplifier | Agilent | 8447F | 3113A06717 | 2015-05-06 | ☒ |
| | Pre-amplifier | Compliance Direction | PAP-0118 | 24002 | 2015-05-06 | ☒ |
| | Trilog Broadband Antenna | SCHWARZBECK | VULB9163 | 9163-333 | 2015-04-19 | ☒ |
| | Horn Antenna | ETS | 3117 | 00086197 | 2015-04-19 | ☒ |
| | Horn Antenna | ETS | 3116B | 00088203 | 2015-04-19 | ☒ |
| | Loop Antenna | SCHWARZECK | HFRA 5165 | 9365 | 2015-04-19 | ☒ |

C - Conducted RF tests

- Conducted peak output power
- 6dB bandwidth
- 20dB bandwidth and 99% Occupied Bandwidth
- Carrier frequency separation
- Number of hopping frequencies
- Dwell Time
- Power spectral density*
- Spurious RF conducted emissions
- Band edge


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## 11 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

**System Measurement Uncertainty**

| Items | Extended Uncertainty |
|---|---|
| Radiated spurious emission | 5.10dB (30MHz-1GHz)<br>2.27dB (1GHz -25GHz) |
| Conducted spurious emission | 2.10dB(30MHz-25GHz) |
| Bandwidth test | $1*10^{-9}$ |
| Conducted emission | 2.88dB |


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