# FCC Report (Bluetooth)

| | |
|---|---|
| **Applicant:** | Shenzhen Hangshi Technology Co.,Ltd. |
| **Address of Applicant:** | Hangshi Technology Park,Democracy West Industry Area,Shajing Town,Bao'an District,Shenzhen,China. |
| **Manufacturer/Factory:** | Shenzhen Hangshi Technology Co.,Ltd. |
| **Address of Manufacturer/Factory:** | Hangshi Technology Park,Democracy West Industry Area,Shajing Town,Bao'an District,Shenzhen,China. |

**Equipment Under Test (EUT)**

| | |
|---|---|
| Product Name: | Bluetooth Keyboard with Backlight |
| Model No.: | HB115B |
| Trade Mark; | N/A |
| **FCC ID:** | 2AKHJHB115B |
| **Applicable standards:** | FCC CFR Title 47 Part 15 Subpart C Section 15.247 |
| **Date of sample receipt:** | June 11, 2018 |
| **Date of Test:** | June 12, 2018~ June 14, 2018 |
| **Date of report issued:** | June 14, 2018 |
| **Test Result :** | PASS * |

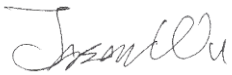
* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

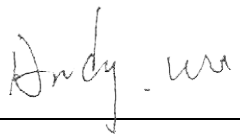
**Robinson Lo**
**Laboratory Manager**

## 2 Version

| Version No. | Date | Description |
|---|---|---|
| *00* | *June 14, 2018* | *Original* |
| | | |
| | | |
| | | |
| | | |

***Prepared By:***  ***Date:*** *June 14, 2018*

***Project Engineer***

***Check By:***  ***Date:*** *June 14, 2018*

***Reviewer***

# 3 Contents

Page

# 4 Test Summary

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

*Pass: The EUT complies with the essential requirements in the standard.*

*Remark: Test according to ANSI C63.4:2014 and ANSI C63.10:2013*

**Measurement Uncertainty**

| Test Item | Frequency Range | Measurement Uncertainty | Notes |
|---|---|---|---|
| Radiated Emission | 9kHz ~ 30MHz | ± 4.34dB | (1) |
| Radiated Emission | 30MHz ~ 1000MHz | ± 4.24dB | (1) |
| Radiated Emission | 1GHz ~ 26.5GHz | ± 4.68dB | (1) |
| AC Power Line Conducted Emission | 0.15MHz ~ 30MHz | ± 3.45dB | (1) |
| Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%. | | | |

# 5 General Information

## 5.1 General Description of EUT

| | |
|---|---|
| Product Name: | Bluetooth Keyboard with Backlight |
| Model No.: | HB115B |
| Serial No.: | HSHB115B00022 |
| Test sample(s) ID: | GTS201806000129-1 |
| Sample(s) Status | Engineer sample |
| Hardware: | V1.0 |
| Software: | V1.0 |
| Operation Frequency: | 2402MHz~2480MHz |
| Channel numbers: | 79 |
| Channel separation: | 1MHz |
| Modulation type: | GFSK |
| Antenna Type: | PCB Antenna |
| Antenna gain: | 1.87dBi |
| Power supply: | DC 3.7V by Li-ON battery |

| Operation Frequency each of channel | | | | | | | |
|---|---|---|---|---|---|---|---|
| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1 | 2402MHz | 21 | 2422MHz | 41 | 2442MHz | 61 | 2462MHz |
| 2 | 2403MHz | 22 | 2423MHz | 42 | 2443MHz | 62 | 2463MHz |
| 3 | 2404MHz | 23 | 2424MHz | 43 | 2444MHz | 63 | 2464MHz |
| 4 | 2405MHz | 24 | 2425MHz | 44 | 2445MHz | 64 | 2465MHz |
| 5 | 2406MHz | 25 | 2426MHz | 45 | 2446MHz | 65 | 2466MHz |
| 6 | 2407MHz | 26 | 2427MHz | 46 | 2447MHz | 66 | 2467MHz |
| 7 | 2408MHz | 27 | 2428MHz | 47 | 2448MHz | 67 | 2468MHz |
| 8 | 2409MHz | 28 | 2429MHz | 48 | 2449MHz | 68 | 2469MHz |
| 9 | 2410MHz | 29 | 2430MHz | 49 | 2450MHz | 69 | 2470MHz |
| 10 | 2411MHz | 30 | 2431MHz | 50 | 2451MHz | 70 | 2471MHz |
| 11 | 2412MHz | 31 | 2432MHz | 51 | 2452MHz | 71 | 2472MHz |
| 12 | 2413MHz | 32 | 2433MHz | 52 | 2453MHz | 72 | 2473MHz |
| 13 | 2414MHz | 33 | 2434MHz | 53 | 2454MHz | 73 | 2474MHz |
| 14 | 2415MHz | 34 | 2435MHz | 54 | 2455MHz | 74 | 2475MHz |
| 15 | 2416MHz | 35 | 2436MHz | 55 | 2456MHz | 75 | 2476MHz |
| 16 | 2417MHz | 36 | 2437MHz | 56 | 2457MHz | 76 | 2477MHz |
| 17 | 2418MHz | 37 | 2438MHz | 57 | 2458MHz | 77 | 2478MHz |
| 18 | 2419MHz | 38 | 2439MHz | 58 | 2459MHz | 78 | 2479MHz |
| 19 | 2420MHz | 39 | 2440MHz | 59 | 2460MHz | 79 | 2480MHz |
| 20 | 2421MHz | 40 | 2441MHz | 60 | 2461MHz | | |

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Channel | Frequency |
|---|---|
| The lowest channel | 2402MHz |
| The middle channel | 2441MHz |
| The Highest channel | 2480MHz |

## 5.2 Test mode

| | |
|---|---|
| Transmitting mode | Keep the EUT in continuously transmitting mode。 |
| *Remark: During the test,the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.* | |

## 5.3 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. Registration 381383, January 08, 2018.

● **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016.

## 5.4 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102
Tel: 0755-27798480
Fax: 0755-27798960

## 5.5 Other Information Requested by the Customer

None.

## 5.6 Description of Support Units

None.

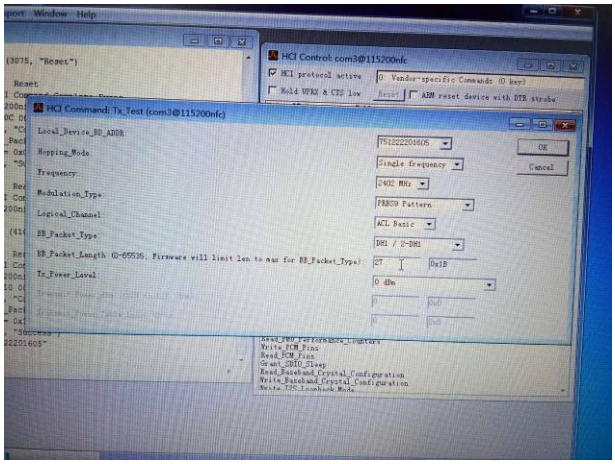
## 5.7 Additional Instructions

EUT Software Settings:

| | |
|---|---|
| Mode | Special software is used.<br>The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually. |

| Power level setup in software | | | |
|---|---|---|---|
| Test Software Name | Broadcom BlueTool | | |
| Mode | Channel | Frequency (MHz) | Soft Set |
| GFSK | CH00 | 2402 | TX level : 0dBm |
| | CH39 | 2441 | |
| | CH78 | 2480 | |

Run Software



# 6 Test Instruments list

| Radiated Emission: | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| 1 | 3m Semi- Anechoic Chamber | ZhongYu Electron | 9.0(L)*6.0(W)* 6.0(H) | GTS250 | July. 03 2015 | July 02 2020 |
| 2 | Control Room | ZhongYu Electron | 6.2(L)*2.5(W)* 2.4(H) | GTS251 | N/A | N/A |
| 3 | ESU EMI Test Receiver | R&S | ESU26 | GTS203 | June 28 2017 | June 27 2018 |
| 4 | Loop Antenna | Zhinan | ZN30900A | GTS534 | June 28 2017 | June 27 2018 |
| 5 | BiConiLog Antenna | SCHWARZBECK | VULB9163 | GTS214 | June 28 2017 | June 27 2018 |
| 6 | Double-ridged horn antenna | SCHWARZBECK | 9120D | GTS208 | June 28 2017 | June 27 2018 |
| 7 | Horn Antenna | ETS-LINDGREN | 3160-09 | GTS218 | June 28 2017 | June 27 2018 |
| 8 | RF Amplifier | HP | 8347A | GTS204 | June 28 2017 | June 27 2018 |
| 9 | RF Amplifier | HP | 8349B | GTS206 | June 28 2017 | June 27 2018 |
| 10 | Broadband Preamplifier | SCHWARZBECK | BBV9718 | GTS535 | June 28 2017 | June 27 2018 |
| 11 | Spectrum Analyzer | Keysight | N9010A | GTS536 | March 02 2018 | March 01 2019 |
| 12 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| 13 | Coaxial Cable | GTS | N/A | GTS210 | June 28 2017 | June 27 2018 |
| 14 | Coaxial Cable | GTS | N/A | GTS211 | June 28 2017 | June 27 2018 |
| 15 | Coaxial Cable | GTS | N/A | GTS210 | June 28 2017 | June 27 2018 |
| 16 | Coaxial Cable | GTS | N/A | GTS212 | June 28 2017 | June 27 2018 |
| 17 | Thermo meter | N/A | N/A | GTS256 | June 28 2017 | June 27 2018 |
| 18 | D.C. Power Supply | Instek | PS-3030 | GTS232 | June 28 2017 | June 27 2018 |
| 19 | Loop Antenna | ZHINAN | ZN30900A | GTS534 | June 28 2017 | June 27 2018 |

| Conducted Emission | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| 1 | Shielding Room | ZhongYu Electron | 7.3(L)x3.1(W)x2.9(H) | GTS252 | May.16 2014 | May 15 2019 |
| 2 | EMI Test Receiver | R&S | ESCI 7 | GTS552 | June 28 2017 | June 27 2018 |
| 3 | Coaxial Switch | ANRITSU CORP | MP59B | GTS225 | June 28 2017 | June 27 2018 |
| 4 | Artificial Mains Network | SCHWARZBECK MESS | NSLK8127 | GTS226 | June 28 2017 | June 27 2018 |
| 5 | High voltage probe | SCHWARZBECK | TK9420 | GTS537 | June 28 2017 | June 27 2018 |
| 6 | ISN | SCHWARZBECK | NTFM 8158 | GTS565 | June 28 2017 | June 27 2018 |
| 7 | Coaxial Cable | GTS | N/A | GTS227 | June 28 2017 | June 27 2018 |
| 8 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| 9 | Thermo meter | KTJ | TA328 | GTS233 | June 28 2017 | June 27 2018 |
| 10 | 10dB Pulse Limiter | Rohde & Schwarz | N/A | GTS224 | June 28 2017 | June 27 2018 |

| General used equipment: | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| 1 | Barometer | ChangChun | DYM3 | GTS257 | June 28 2017 | June 27 2018 |

# 7 Test results and Measurement Data

## 7.1 Antenna requirement

| Standard requirement: | FCC Part15 C Section 15.203 /247(c) |
|---|---|

**15.203 requirement:**

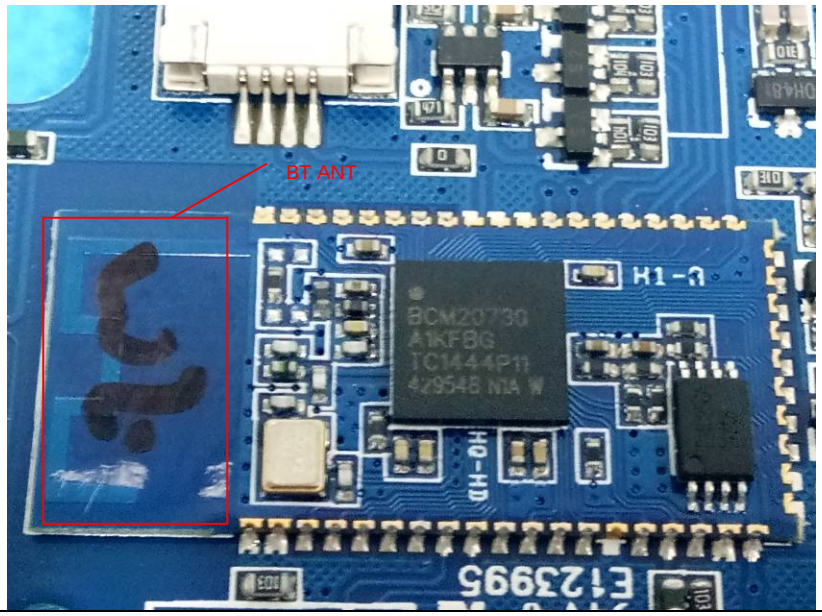
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit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

**15.247(c) (1)(i) requirement:**

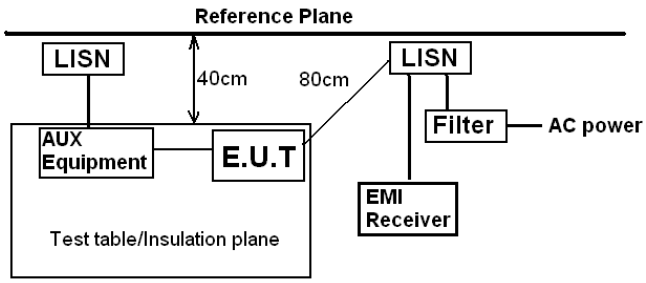
(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional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

**E.U.T Antenna:**

*The antenna is PCB antenna, the best case gain of the antenna is 1.87dBi*

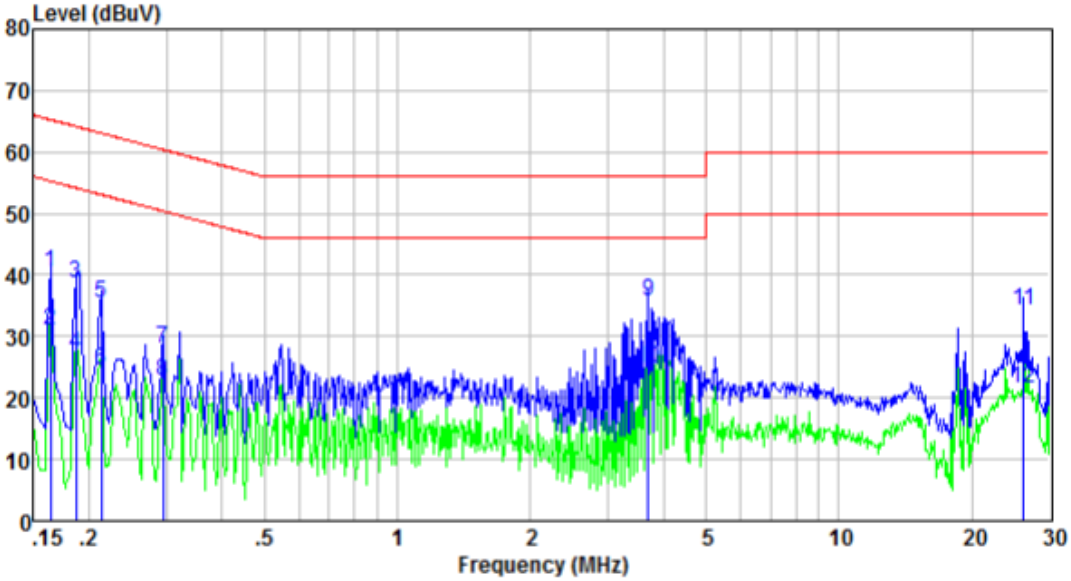


## 7.2 Conducted Emissions

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.207 |
| Test Method: | ANSI C63.10:2013 |
| Test Frequency Range: | 150KHz to 30MHz |
| Class / Severity: | Class B |
| Receiver setup: | RBW=9KHz, VBW=30KHz, Sweep time=auto |
| Limit: | Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average<br>0.15-0.5: 66 to 56* / 56 to 46*<br>0.5-5: 56 / 46<br>5-30: 60 / 50<br>* Decreases with the logarithm of the frequency. |
| Test setup: |  <br>*Remark:*<br>*E.U.T: Equipment Under Test*<br>*LISN: Line Impedence Stabilization Network*<br>*Test table height=0.8m* |
| Test procedure: | 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.<br>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).<br>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement. |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

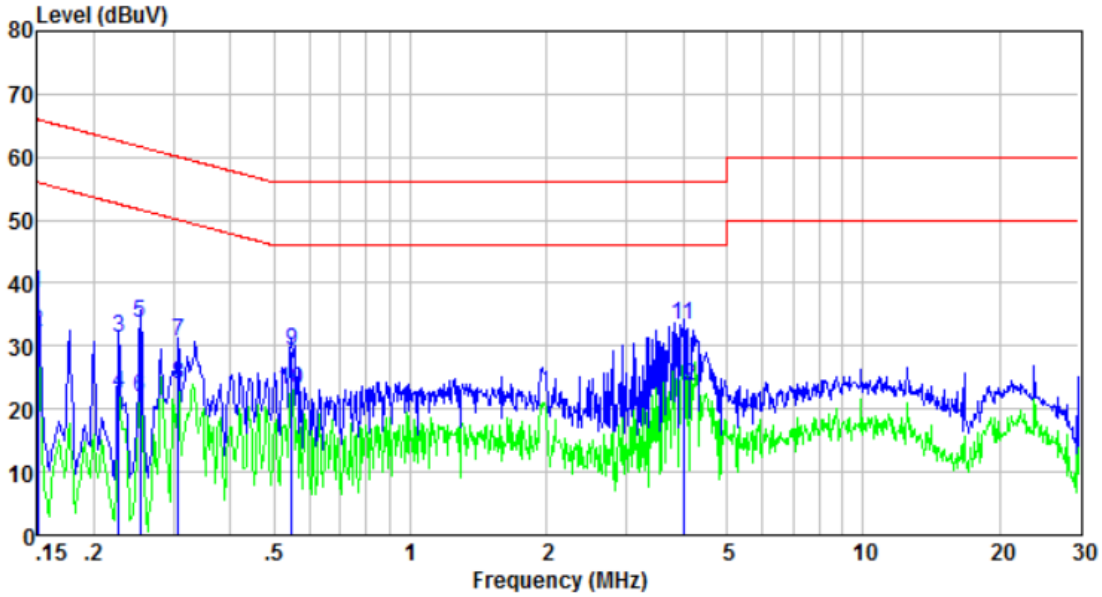
**Measurement data:**

**Line:**




| Freq | Reading level | LISN/ISN factor | Cable loss | level | Limit level | Over limit | Remark |
|---|---|---|---|---|---|---|---|
| MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 0.163 | 30.90 | 9.55 | 0.05 | 40.50 | 65.30 | -24.80 | QP |
| 0.163 | 21.50 | 9.55 | 0.05 | 31.10 | 55.30 | -24.20 | Average |
| 0.186 | 29.02 | 9.56 | 0.02 | 38.60 | 64.20 | -25.60 | QP |
| 0.186 | 17.52 | 9.56 | 0.02 | 27.10 | 54.20 | -27.10 | Average |
| 0.213 | 25.83 | 9.56 | 0.01 | 35.40 | 63.10 | -27.70 | QP |
| 0.213 | 15.03 | 9.56 | 0.01 | 24.60 | 53.10 | -28.50 | Average |
| 0.294 | 18.32 | 9.57 | 0.01 | 27.90 | 60.41 | -32.51 | QP |
| 0.294 | 13.02 | 9.57 | 0.01 | 22.60 | 50.41 | -27.81 | Average |
| 3.700 | 25.94 | 9.63 | 0.03 | 35.60 | 56.00 | -20.40 | QP |
| 3.700 | 15.14 | 9.63 | 0.03 | 24.80 | 46.00 | -21.20 | Average |
| 26.278 | 24.32 | 9.85 | 0.03 | 34.20 | 60.00 | -25.80 | QP |
| 26.278 | 11.72 | 9.85 | 0.03 | 21.60 | 50.00 | -28.40 | Average |

**Neutral:**

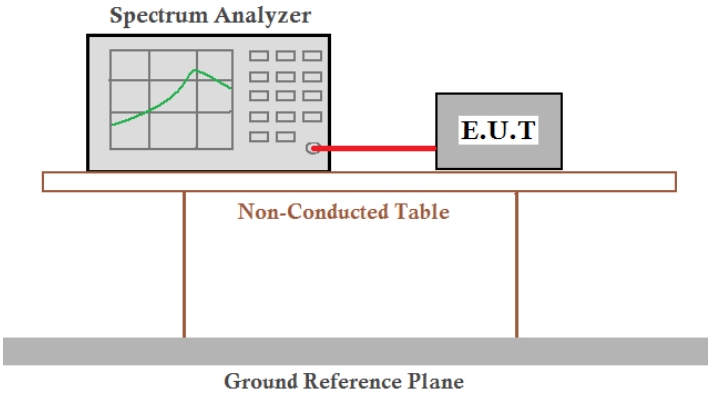



| Freq | Reading level | LISN/ISN factor | Cable loss | level | Limit level | Over limit | Remark |
|---|---|---|---|---|---|---|---|
| MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 0.150 | 28.89 | 9.54 | 0.07 | 38.50 | 66.00 | -27.50 | QP |
| 0.150 | 22.49 | 9.54 | 0.07 | 32.10 | 56.00 | -23.90 | Average |
| 0.227 | 21.81 | 9.58 | 0.01 | 31.40 | 62.57 | -31.17 | QP |
| 0.227 | 12.81 | 9.58 | 0.01 | 22.40 | 52.57 | -30.17 | Average |
| 0.253 | 24.20 | 9.59 | 0.01 | 33.80 | 61.64 | -27.84 | QP |
| 0.253 | 12.30 | 9.59 | 0.01 | 21.90 | 51.64 | -29.74 | Average |
| 0.307 | 21.08 | 9.61 | 0.01 | 30.70 | 60.06 | -29.36 | QP |
| 0.307 | 14.28 | 9.61 | 0.01 | 23.90 | 50.06 | -26.16 | Average |
| 0.546 | 19.45 | 9.63 | 0.02 | 29.10 | 56.00 | -26.90 | QP |
| 0.546 | 13.45 | 9.63 | 0.02 | 23.10 | 46.00 | -22.90 | Average |
| 4.006 | 23.59 | 9.68 | 0.03 | 33.30 | 56.00 | -22.70 | QP |
| 4.006 | 13.89 | 9.68 | 0.03 | 23.60 | 46.00 | -22.40 | Average |

*Notes:*

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss

## 7.3 Conducted Peak Output Power

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (b)(3) |
| Test Method: | ANSI C63.10:2013 |
| Limit: | 30dBm(for GFSK),20.97dBm(for EDR) |
| Test setup: |  |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

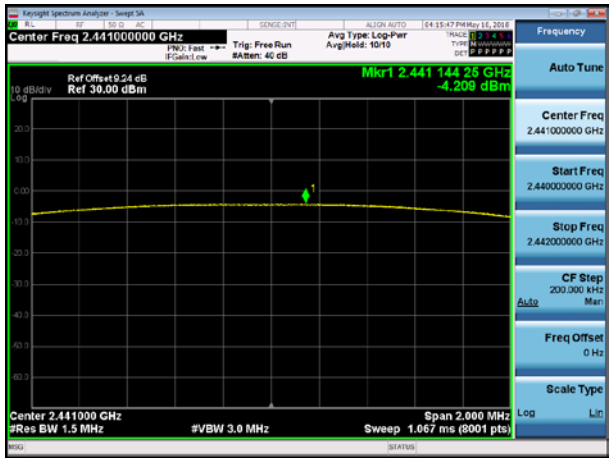
**Measurement Data**

| Mode | Test channel | Peak Output Power (dBm) | Limit (dBm) | Result |
|---|---|---|---|---|
| GFSK | Lowest | -3.107 | 30 | Pass |
| | Middle | -4.209 | | |
| | Highest | -1.094 | | |

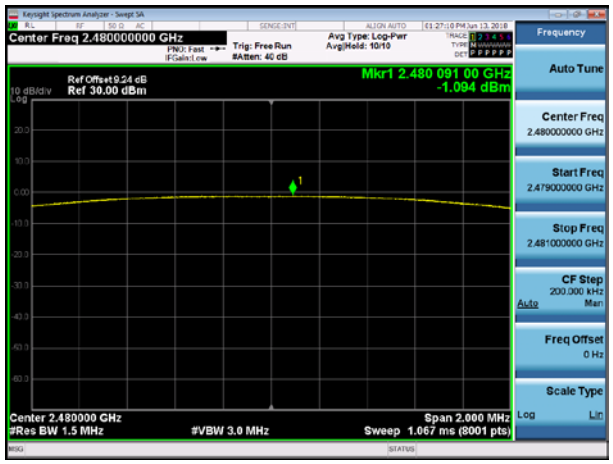
**Test plot as follows:**

| Test mode: | GFSK mode |
|---|---|


Lowest channel

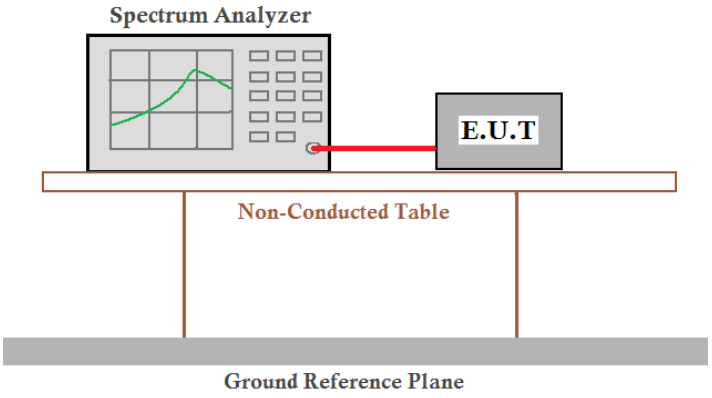



Middle channel




Highest channel

## 7.4 20dB Emission Bandwidth

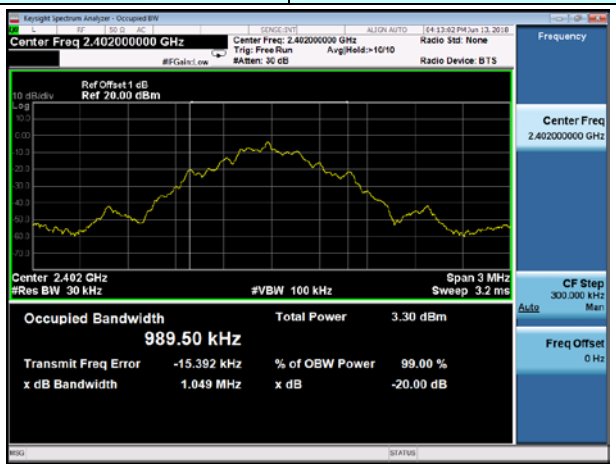
| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(2) |
| Test Method: | ANSI C63.10:2013 |
| Limit: | N/A |
| Test setup: |  |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

**Measurement Data**

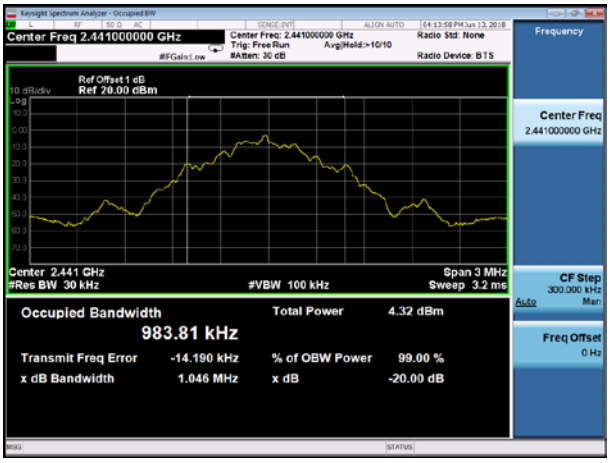
| Mode | Test channel | 20dB Emission Bandwidth (MHz) | Result |
|---|---|---|---|
| GFSK | Lowest | 1.049 | Pass |
| | Middle | 1.046 | |
| | Highest | 1.043 | |

**Test plot as follows:**

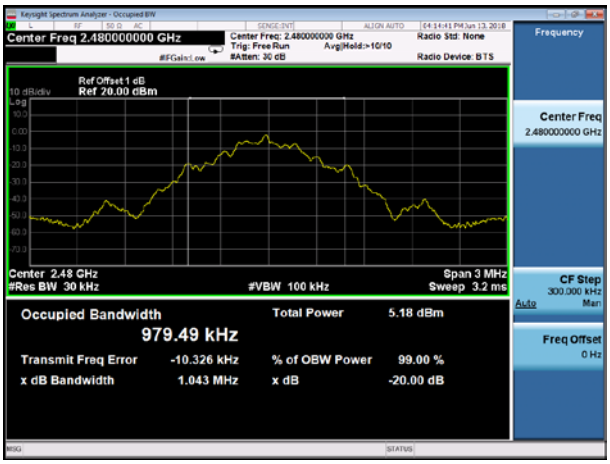
| Test mode: | GFSK mode |
|---|---|




Lowest channel

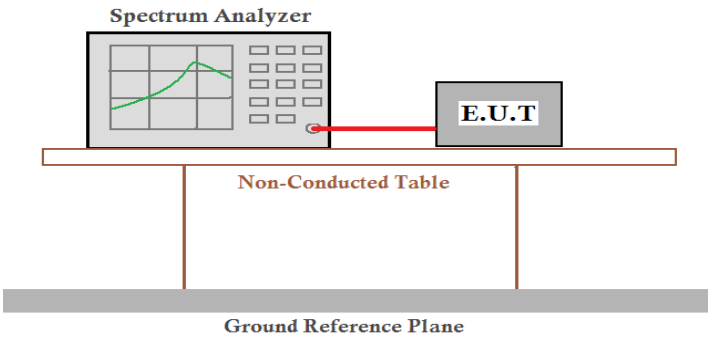



Middle channel




Highest channel

## 7.5 Carrier Frequencies Separation

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(1) |
| Test Method: | ANSI C63.10:2013 |
| Receiver setup: | RBW=100KHz, VBW=300KHz, detector=Peak |
| Limit: | 0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater) |
| Test setup: |  |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

**Measurement Data**

| Mode | Test channel | Carrier Frequencies Separation (kHz) | Limit (kHz) | Result |
|---|---|---|---|---|
| GFSK | Lowest | 999 | 699 | Pass |
| | Middle | 1011 | 699 | Pass |
| | Highest | 1008 | 699 | Pass |

*Note: According to section 7.4*

| Mode | 20dB bandwidth (kHz) (worse case) | Limit (kHz) (Carrier Frequencies Separation) |
|---|---|---|
| GFSK | 1049 | 699 |

**Test plot as follows:**

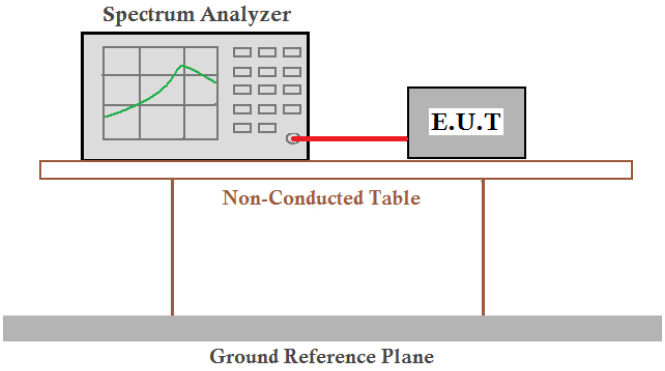
| Modulation mode: | GFSK |
|---|---|


Lowest channel


Middle channel

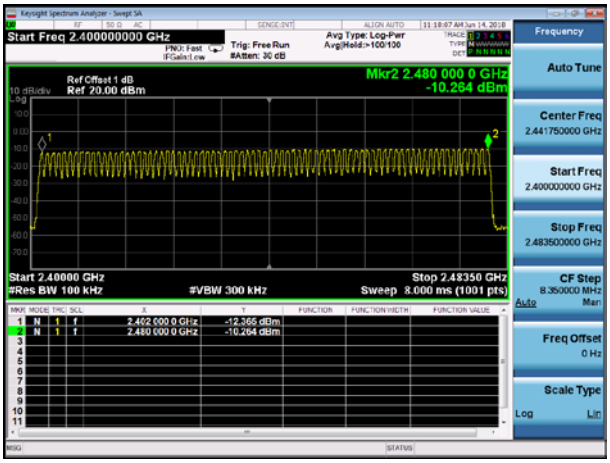

Highest channel

## 7.6 Hopping Channel Number

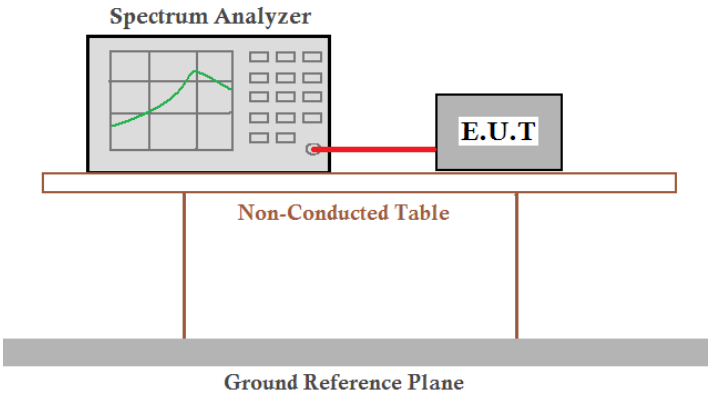
| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(1) |
| Test Method: | ANSI C63.10:2013 |
| Receiver setup: | RBW=100kHz, VBW=300kHz, Frequency range=2400MHz-2483.5MHz, Detector=Peak |
| Limit: | 15 channels |
| Test setup: |  |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

**Measurement Data:**

| Mode | Hopping channel numbers | Limit | Result |
|---|---|---|---|
| GFSK | 79 | 15 | Pass |



## 7.7 Dwell Time

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (a)(1) |
| Test Method: | ANSI C63.10:2013 |
| Receiver setup: | RBW=1MHz, VBW=1MHz, Span=0Hz, Detector=Peak |
| Limit: | 0.4 Second |
| Test setup: |  |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

**Measurement Data**

| Frequency | Packet | Dwell time(ms) | Limit(ms) | Result |
|---|---|---|---|---|
| 2441MHz | DH1 | 139.74 | 400 | Pass |
| 2441MHz | DH3 | 270.72 | 400 | Pass |
| 2441MHz | DH5 | 313.71 | 400 | Pass |

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s

Test channel: 2441MHz as below

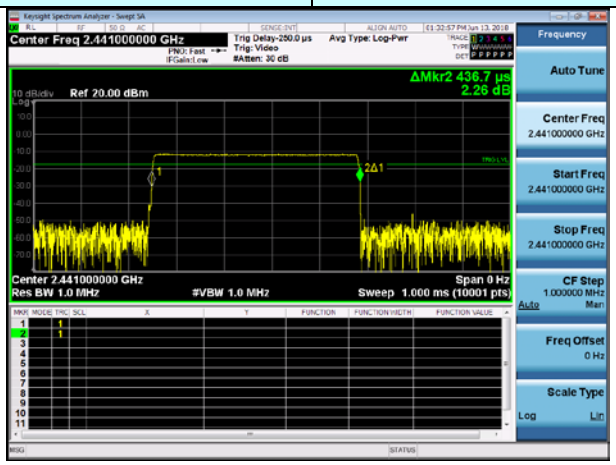
DH1 time slot=0.4367(ms)*(1600/ (2*79))*31.6=139.74ms

DH3 time slot=1.692(ms)*(1600/ (4*79))*31.6=270.72ms

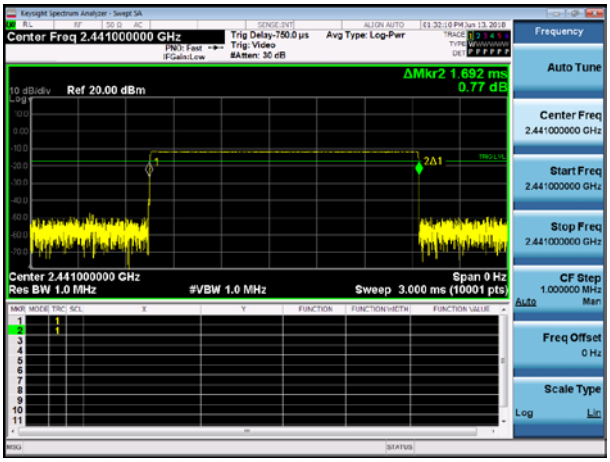
DH5 time slot=2.941(ms)*(1600/ (6*79))*31.6=313.71ms

**Test plot as follows:**

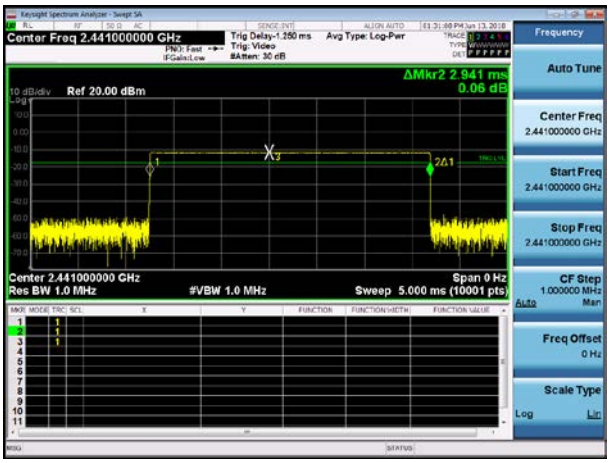
| Test channel: | 2441MHz |
|---|---|




DH1




DH3




DH5

## 7.8 Pseudorandom Frequency Hopping Sequence

| Test Requirement: | FCC Part15 C Section 15.247 (a)(1) requirement: |
|---|---|

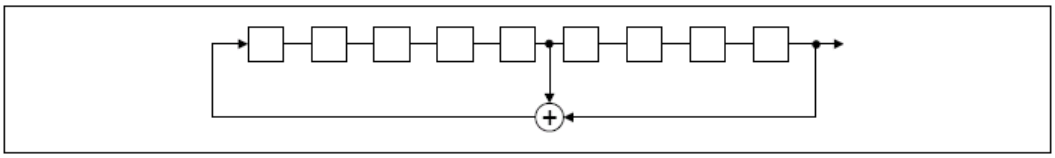
*Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.*

*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 Pseudorandom 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.*

**EUT Pseudorandom Frequency Hopping Sequence**

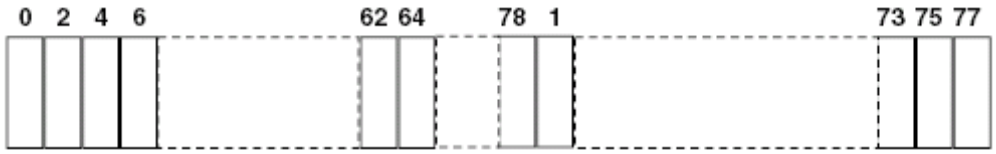
*The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized 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 follow:*

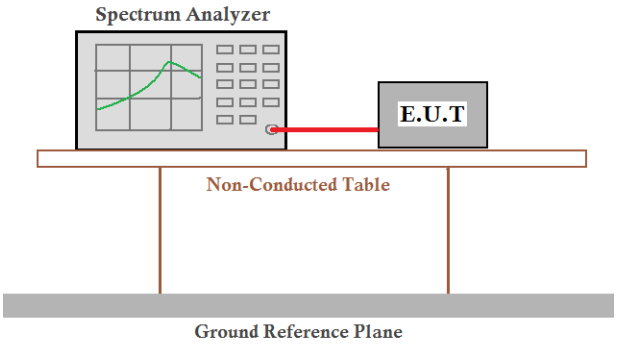



*Each frequency used equally on the average by each transmitter.*

*The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.*

## 7.9 Band Edge

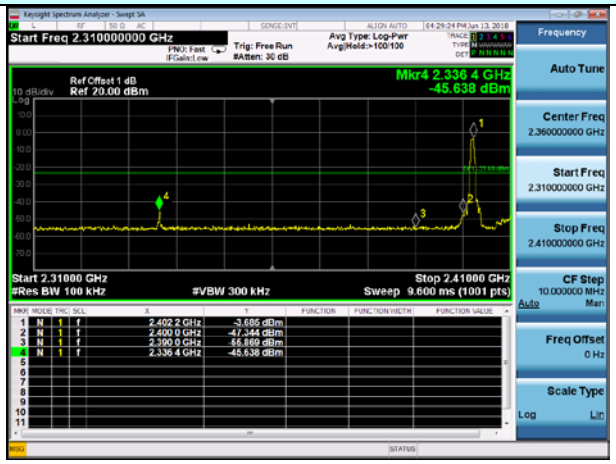
### 7.9.1 Conducted Emission Method

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (d) |
| Test Method: | ANSI C63.10:2013 |
| Receiver setup: | RBW=100kHz, VBW=300kHz, Detector=Peak |
| Limit: | 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 setup: |  |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

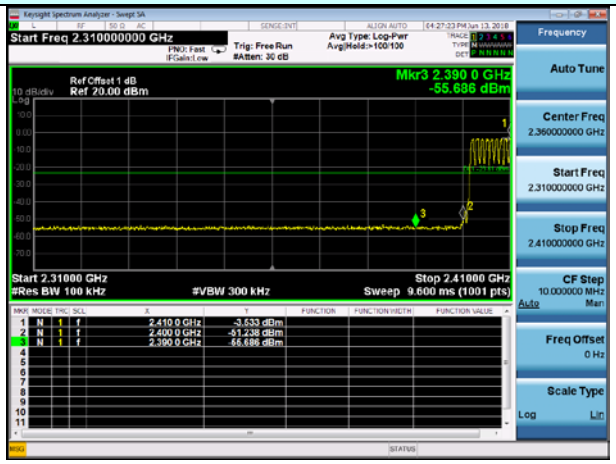
**Test plot as follows:**

**GFSK Mode:**

| Test channel: | Lowest channel |
|---|---|

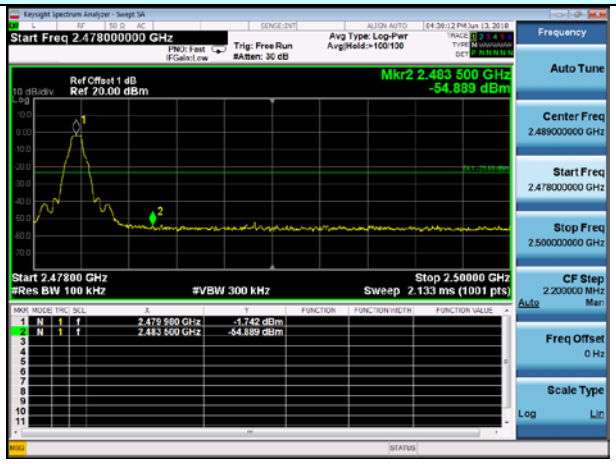



No-hopping mode

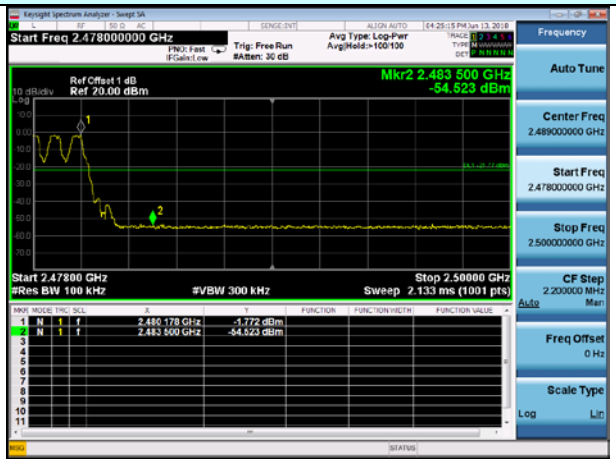



Hopping mode

| Test channel: | Highest channel |
|---|---|




No-hopping mode




Hopping mode

### 7.9.2 Radiated Emission Method

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.209 and 15.205 |
| Test Method: | ANSI C63.10:2013 |
| Test Frequency Range: | All restriction band have been tested, and 2.3GHz to 2.5GHz band is the worse case |
| Test site: | Measurement Distance: 3m |

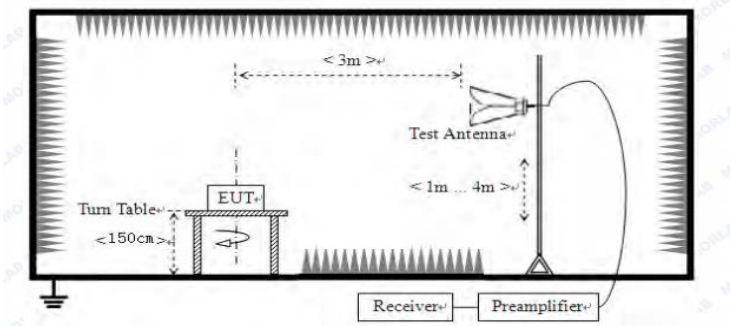
Receiver setup:

| Frequency | Detector | RBW | VBW | Remark |
|---|---|---|---|---|
| Above 1GHz | Peak | 1MHz | 3MHz | Peak Value |
| | Peak | 1MHz | 10Hz | Average Value |

Limit:

| Frequency | Limit (dBuV/m @3m) | Remark |
|---|---|---|
| Above 1GHz | 54.00 | Average Value |
| | 74.00 | Peak Value |

Test setup:




Test Procedure:

1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

| | |
|---|---|
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

| Test channel: | Lowest |
|---|---|

**Peak value:**

| 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 |
|---|---|---|---|---|---|---|---|---|
| 2390.00 | 44.35 | 27.11 | 3.64 | 36.08 | 39.02 | 74.00 | -34.98 | Horizontal |
| 2400.00 | 59.58 | 27.14 | 3.65 | 36.11 | 54.26 | 74.00 | -19.74 | Horizontal |
| 2390.00 | 41.87 | 27.11 | 3.64 | 36.08 | 36.54 | 74.00 | -37.46 | Vertical |
| 2400.00 | 49.20 | 27.14 | 3.65 | 36.11 | 43.88 | 74.00 | -30.12 | Vertical |

**Average value:**

| 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 |
|---|---|---|---|---|---|---|---|---|
| 2390.00 | 28.55 | 27.11 | 3.64 | 36.08 | 23.22 | 54.00 | -30.78 | Horizontal |
| 2400.00 | 31.21 | 27.14 | 3.65 | 36.11 | 25.89 | 54.00 | -28.11 | Horizontal |
| 2390.00 | 28.50 | 27.11 | 3.64 | 36.08 | 23.17 | 54.00 | -30.83 | Vertical |
| 2400.00 | 29.16 | 27.14 | 3.65 | 36.11 | 23.84 | 54.00 | -30.16 | Vertical |

| Test channel: | Highest |
|---|---|

**Peak value:**

| 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 |
|---|---|---|---|---|---|---|---|---|
| 2483.50 | 57.57 | 27.36 | 3.68 | 36.33 | 52.28 | 74.00 | -21.72 | Horizontal |
| 2500.00 | 42.67 | 27.40 | 3.68 | 36.37 | 37.38 | 74.00 | -36.62 | Horizontal |
| 2483.50 | 45.11 | 27.36 | 3.68 | 36.33 | 39.82 | 74.00 | -34.18 | Vertical |
| 2500.00 | 43.28 | 27.40 | 3.68 | 36.37 | 37.99 | 74.00 | -36.01 | Vertical |

**Average value:**

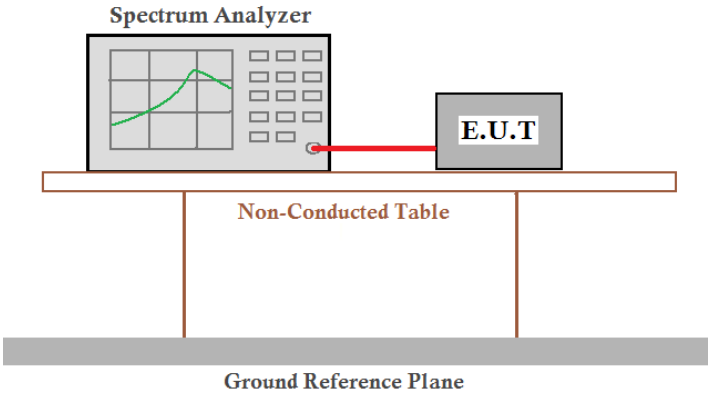
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 2483.50 | 29.75 | 27.36 | 3.68 | 36.33 | 24.46 | 54.00 | -29.54 | Horizontal |
| 2500.00 | 29.43 | 27.40 | 3.68 | 36.37 | 24.14 | 54.00 | -29.86 | Horizontal |
| 2483.50 | 29.09 | 27.36 | 3.68 | 36.33 | 23.80 | 54.00 | -30.2 | Vertical |
| 2500.00 | 29.29 | 27.40 | 3.68 | 36.37 | 24.00 | 54.00 | -30 | Vertical |

*Remark:*

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.*

## 7.10 Spurious Emission

### 7.10.1 Conducted Emission Method

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.247 (d) |
| Test Method: | ANSI C63.10:2013 |
| Limit: | 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 setup: |  |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

| Test channel: | Lowest channel |
|---|---|


30MHz~25GHz

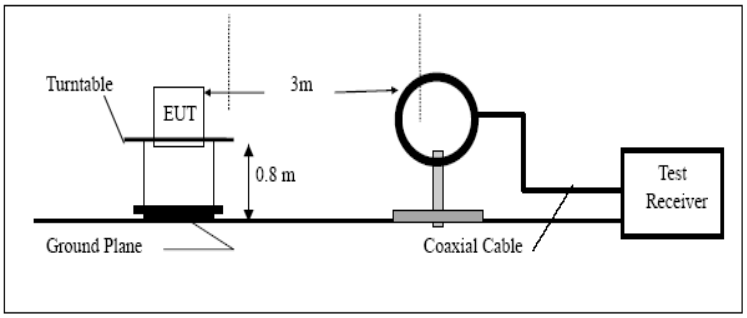
| Test channel: | Middle channel |
|---|---|


30MHz~25GHz

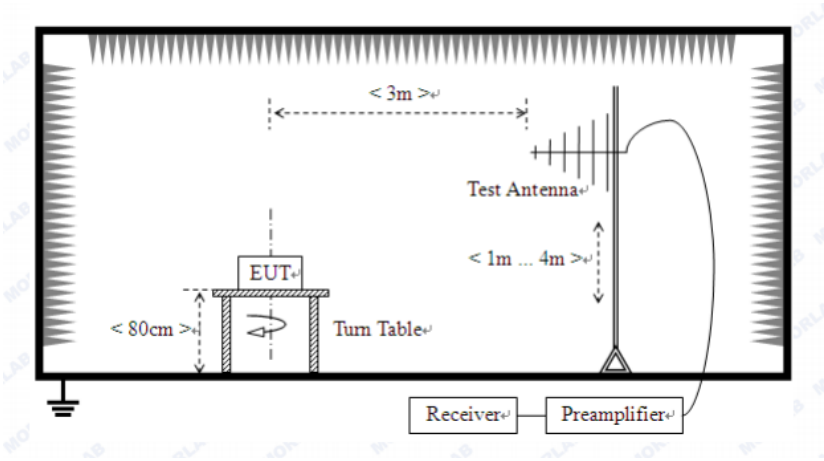
| Test channel: | Highest channel |
|---|---|

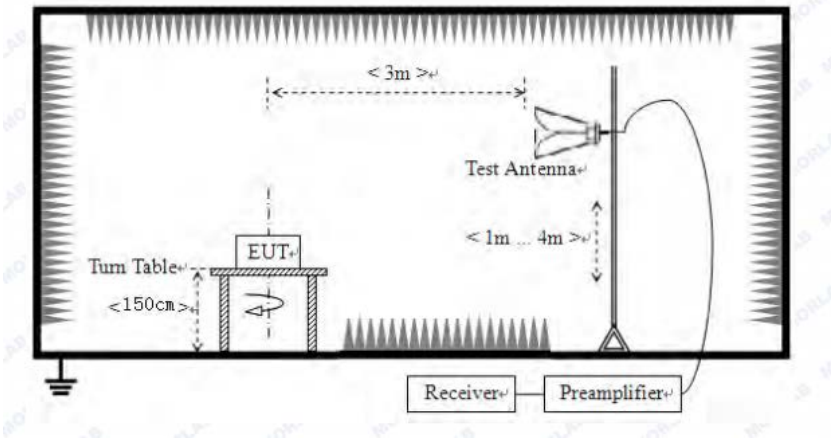

30MHz~25GHz

### 7.10.2 Radiated Emission Method

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>9kHz to 25GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Value</th></tr>
<tr><td>9KHz-150KHz</td><td>Quasi-peak</td><td>200Hz</td><td>600Hz</td><td>Quasi-peak</td></tr>
<tr><td>150KHz-30MHz</td><td>Quasi-peak</td><td>9KHz</td><td>30KHz</td><td>Quasi-peak</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average</td></tr>
</table>
</td></tr>
<tr><td>Limit:<br>(Spurious Emissions)</td><td>
<table>
<tr><th>Frequency</th><th>Limit (uV/m)</th><th>Value</th><th>Measurement Distance</th></tr>
<tr><td>0.009MHz-0.490MHz</td><td>2400/F(KHz)</td><td>QP</td><td>300m</td></tr>
<tr><td>0.490MHz-1.705MHz</td><td>24000/F(KHz)</td><td>QP</td><td>300m</td></tr>
<tr><td>1.705MHz-30MHz</td><td>30</td><td>QP</td><td>30m</td></tr>
<tr><td>30MHz-88MHz</td><td>100</td><td>QP</td><td rowspan="6">3m</td></tr>
<tr><td>88MHz-216MHz</td><td>150</td><td>QP</td></tr>
<tr><td>216MHz-960MHz</td><td>200</td><td>QP</td></tr>
<tr><td>960MHz-1GHz</td><td>500</td><td>QP</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>500</td><td>Average</td></tr>
<tr><td>5000</td><td>Peak</td></tr>
</table>
</td></tr>
<tr><td>Test setup:</td><td>Below 30MHz<br> 

<br>Below 1GHz</td></tr>
</table>

<table>
<tr>
<td></td>
<td>


<br>Above 1GHz<br>


</td>
</tr>
<tr>
<td>Test Procedure:</td>
<td>
1. The EUT was placed on the top of a rotating table(0.8 meters below 1G and 1.5 meters above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.<br>
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.<br>
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
</td>
</tr>
</table>

| | |
|---|---|
| | 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. |
| Test Instruments: | Refer to section 6.0 for details |
| Test mode: | Refer to section 5.2 for details |
| Test results: | Pass |

*Remark:*

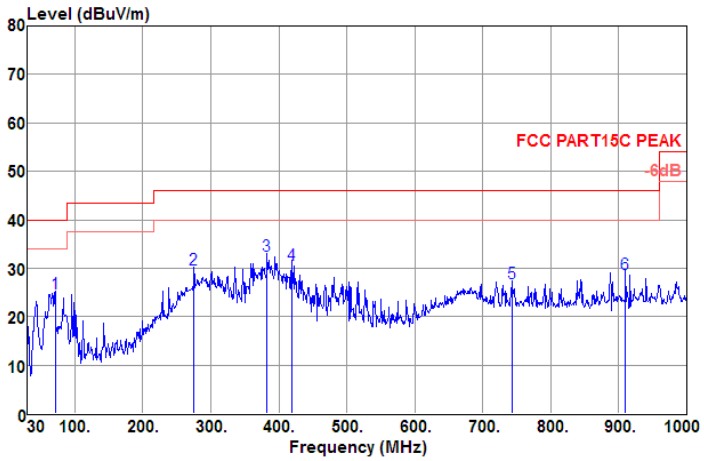
**Measurement data:**

■ **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.

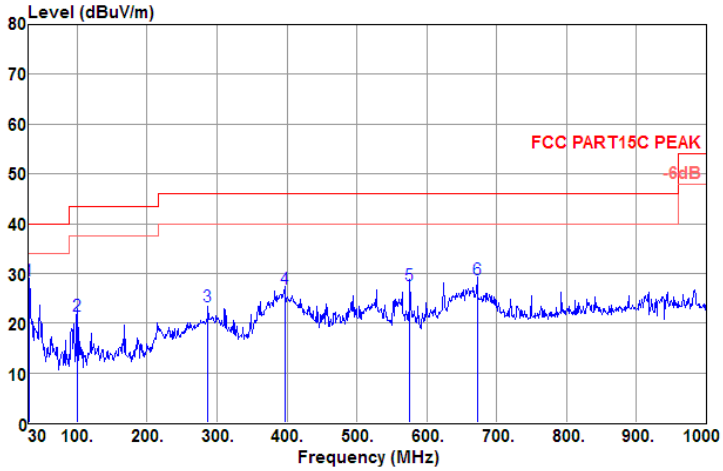
■ **Below 1GHz**

**Horizontal:**




| Freq | Reading level | Antenna factor | Cable loss | Preamp factor | level | Limit level | Over limit | Remark |
|---|---|---|---|---|---|---|---|---|
| MHz | dBuV | dB/m | dB | dB | dBuV | dBuV/m | dB | |
| 71.710 | 45.16 | 10.54 | 1.71 | 32.51 | 24.90 | 40.00 | -15.10 | QP |
| 275.410 | 46.89 | 12.16 | 3.28 | 32.53 | 29.80 | 46.00 | -16.20 | QP |
| 383.080 | 46.68 | 14.48 | 3.92 | 32.48 | 32.60 | 46.00 | -13.40 | QP |
| 418.970 | 43.96 | 15.12 | 4.11 | 32.49 | 30.70 | 46.00 | -15.30 | QP |
| 742.950 | 33.77 | 20.17 | 5.58 | 32.72 | 26.80 | 46.00 | -19.20 | QP |
| 909.790 | 32.67 | 21.76 | 6.45 | 32.08 | 28.80 | 46.00 | -17.20 | QP |

**Vertical:**




| Freq | Reading level | Antenna factor | Cable loss | Preamp factor | level | Limit level | Over limit | Remark |
|---|---|---|---|---|---|---|---|---|
| MHz | dBuV | dB/m | dB | dB | dBuV | dBuV/m | dB | |
| 31.940 | 46.85 | 13.28 | 1.00 | 32.53 | 28.60 | 40.00 | -11.40 | QP |
| 99.840 | 41.90 | 10.19 | 1.95 | 32.44 | 21.60 | 43.50 | -21.90 | QP |
| 287.050 | 40.04 | 12.51 | 3.37 | 32.52 | 23.40 | 46.00 | -22.60 | QP |
| 396.660 | 40.65 | 14.74 | 3.98 | 32.47 | 26.90 | 46.00 | -19.10 | QP |
| 576.110 | 37.45 | 17.95 | 4.96 | 32.66 | 27.70 | 46.00 | -18.30 | QP |
| 672.140 | 36.86 | 19.34 | 5.36 | 32.76 | 28.80 | 46.00 | -17.20 | QP |

■ **Above 1GHz**

| Test channel: | Lowest |
|---|---|

**Peak value:**

| 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 |
|---|---|---|---|---|---|---|---|---|
| 4804.00 | 41.75 | 31.23 | 5.45 | 36.27 | 42.16 | 74.00 | -31.84 | Vertical |
| 7206.00 | 39.58 | 35.87 | 6.94 | 34.25 | 48.14 | 74.00 | -25.86 | Vertical |
| 9608.00 | 41.25 | 37.79 | 7.77 | 34.13 | 52.68 | 74.00 | -21.32 | Vertical |
| 12010.00 | * | | | | | 74.00 | | Vertical |
| 14412.00 | * | | | | | 74.00 | | Vertical |
| 4804.00 | 42.20 | 31.23 | 5.45 | 36.27 | 42.61 | 74.00 | -31.39 | Horizontal |
| 7206.00 | 38.57 | 35.87 | 6.94 | 34.25 | 47.13 | 74.00 | -26.87 | Horizontal |
| 9608.00 | 38.90 | 37.79 | 7.77 | 34.13 | 50.33 | 74.00 | -23.67 | Horizontal |
| 12010.00 | * | | | | | 74.00 | | Horizontal |
| 14412.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| 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 |
|---|---|---|---|---|---|---|---|---|
| 4804.00 | 31.72 | 31.23 | 5.45 | 36.27 | 32.13 | 54.00 | -21.87 | Vertical |
| 7206.00 | 29.69 | 35.87 | 6.94 | 34.25 | 38.25 | 54.00 | -15.75 | Vertical |
| 9608.00 | 30.09 | 37.79 | 7.77 | 34.13 | 41.52 | 54.00 | -12.48 | Vertical |
| 12010.00 | * | | | | | 54.00 | | Vertical |
| 14412.00 | * | | | | | 54.00 | | Vertical |
| 4804.00 | 30.99 | 31.23 | 5.45 | 36.27 | 31.40 | 54.00 | -22.60 | Horizontal |
| 7206.00 | 26.44 | 35.87 | 6.94 | 34.25 | 35.00 | 54.00 | -19.00 | Horizontal |
| 9608.00 | 27.36 | 37.79 | 7.77 | 34.13 | 38.79 | 54.00 | -15.21 | Horizontal |
| 12010.00 | * | | | | | 54.00 | | Horizontal |
| 14412.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Test channel: | Middle |
|---|---|

**Peak value:**

| 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 |
|---|---|---|---|---|---|---|---|---|
| 4882.00 | 44.73 | 31.42 | 5.41 | 36.24 | 45.31 | 74.00 | -28.69 | Vertical |
| 7323.00 | 40.46 | 36.14 | 7.28 | 34.36 | 49.52 | 74.00 | -24.48 | Vertical |
| 9764.00 | 42.75 | 38.08 | 7.98 | 34.20 | 54.61 | 74.00 | -19.39 | Vertical |
| 12205.00 | * | | | | | 74.00 | | Vertical |
| 14646.00 | * | | | | | 74.00 | | Vertical |
| 4882.00 | 44.57 | 31.42 | 5.41 | 36.24 | 45.15 | 74.00 | -28.85 | Horizontal |
| 7323.00 | 41.65 | 36.14 | 7.28 | 34.36 | 50.71 | 74.00 | -23.29 | Horizontal |
| 9764.00 | 41.32 | 38.08 | 7.98 | 34.20 | 53.18 | 74.00 | -20.82 | Horizontal |
| 12205.00 | * | | | | | 74.00 | | Horizontal |
| 14646.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| 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 |
|---|---|---|---|---|---|---|---|---|
| 4882.00 | 32.20 | 31.42 | 5.41 | 36.24 | 32.78 | 54.00 | -21.22 | Vertical |
| 7323.00 | 28.91 | 36.14 | 7.28 | 34.36 | 37.97 | 54.00 | -16.03 | Vertical |
| 9764.00 | 30.04 | 38.08 | 7.98 | 34.20 | 41.90 | 54.00 | -12.10 | Vertical |
| 12205.00 | * | | | | | 54.00 | | Vertical |
| 14646.00 | * | | | | | 54.00 | | Vertical |
| 4882.00 | 32.60 | 31.42 | 5.41 | 36.24 | 33.18 | 54.00 | -20.82 | Horizontal |
| 7323.00 | 28.16 | 36.14 | 7.28 | 34.36 | 37.22 | 54.00 | -16.78 | Horizontal |
| 9764.00 | 28.80 | 38.08 | 7.98 | 34.20 | 40.66 | 54.00 | -13.34 | Horizontal |
| 12205.00 | * | | | | | 54.00 | | Horizontal |
| 14646.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Test channel: | Highest |
|---|---|

**Peak value:**

| 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 |
|---|---|---|---|---|---|---|---|---|
| 4960.00 | 44.20 | 31.60 | 5.36 | 36.21 | 44.95 | 74.00 | -29.05 | Vertical |
| 7440.00 | 41.89 | 36.41 | 7.44 | 34.47 | 51.27 | 74.00 | -22.73 | Vertical |
| 9920.00 | 42.08 | 38.36 | 8.05 | 34.27 | 54.23 | 74.00 | -19.77 | Vertical |
| 12400.00 | * | | | | | 74.00 | | Vertical |
| 14880.00 | * | | | | | 74.00 | | Vertical |
| 4960.00 | 46.36 | 31.60 | 5.36 | 36.21 | 47.11 | 74.00 | -26.89 | Horizontal |
| 7440.00 | 40.77 | 36.41 | 7.44 | 34.47 | 50.15 | 74.00 | -23.85 | Horizontal |
| 9920.00 | 41.72 | 38.36 | 8.05 | 34.27 | 53.87 | 74.00 | -20.13 | Horizontal |
| 12400.00 | * | | | | | 74.00 | | Horizontal |
| 14880.00 | * | | | | | 74.00 | | Horizontal |

**Average value:**

| 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 |
|---|---|---|---|---|---|---|---|---|
| 4960.00 | 33.08 | 31.60 | 5.36 | 36.21 | 33.83 | 54.00 | -20.17 | Vertical |
| 7440.00 | 28.45 | 36.41 | 7.44 | 34.47 | 37.83 | 54.00 | -16.17 | Vertical |
| 9920.00 | 30.94 | 38.36 | 8.05 | 34.27 | 43.09 | 54.00 | -10.91 | Vertical |
| 12400.00 | * | | | | | 54.00 | | Vertical |
| 14880.00 | * | | | | | 54.00 | | Vertical |
| 4960.00 | 33.68 | 31.60 | 5.36 | 36.21 | 34.43 | 54.00 | -19.57 | Horizontal |
| 7440.00 | 28.17 | 36.41 | 7.44 | 34.47 | 37.55 | 54.00 | -16.45 | Horizontal |
| 9920.00 | 29.30 | 38.36 | 8.05 | 34.27 | 41.45 | 54.00 | -12.55 | Horizontal |
| 12400.00 | * | | | | | 54.00 | | Horizontal |
| 14880.00 | * | | | | | 54.00 | | Horizontal |

*Remark:*

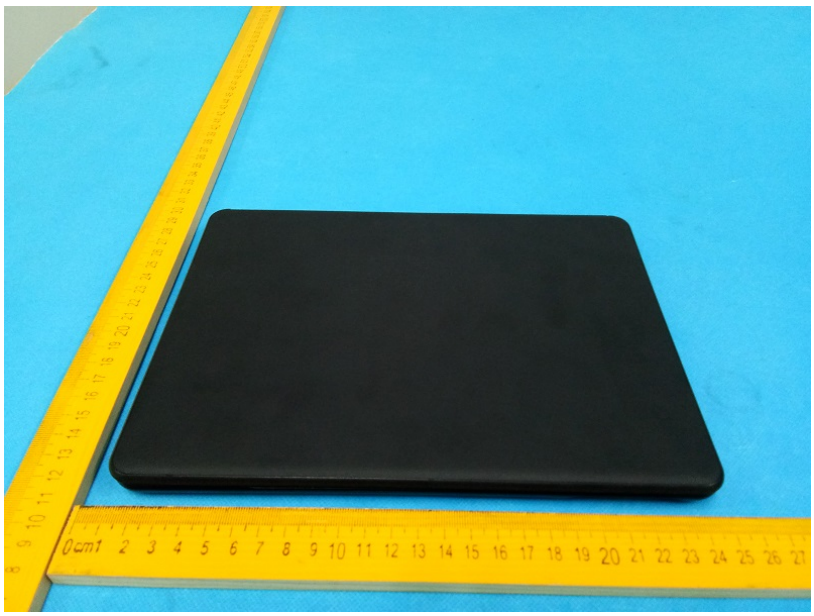
1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *"*", means this data is the too weak instrument of signal is unable to test.*
3. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

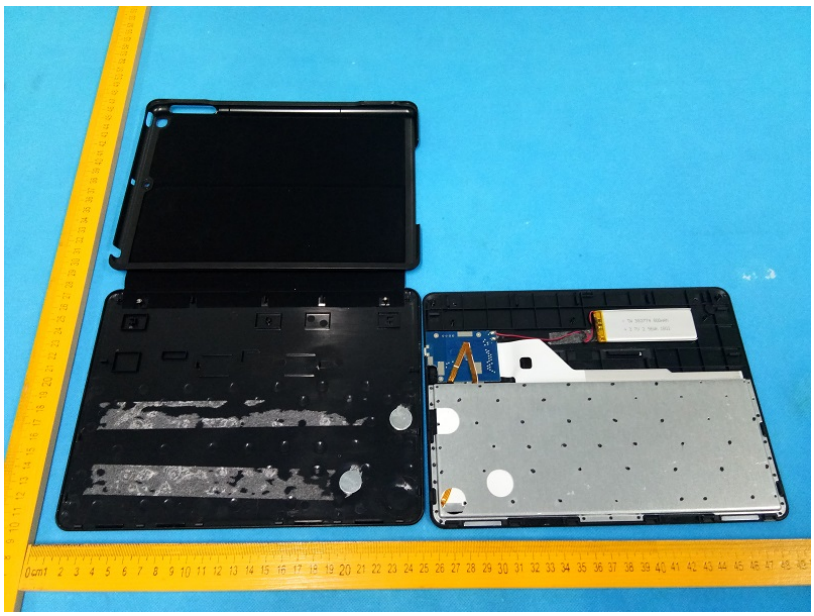
# 8 Test Setup Photo

Radiated Emission

Conducted Emission

# 9 EUT Constructional Details



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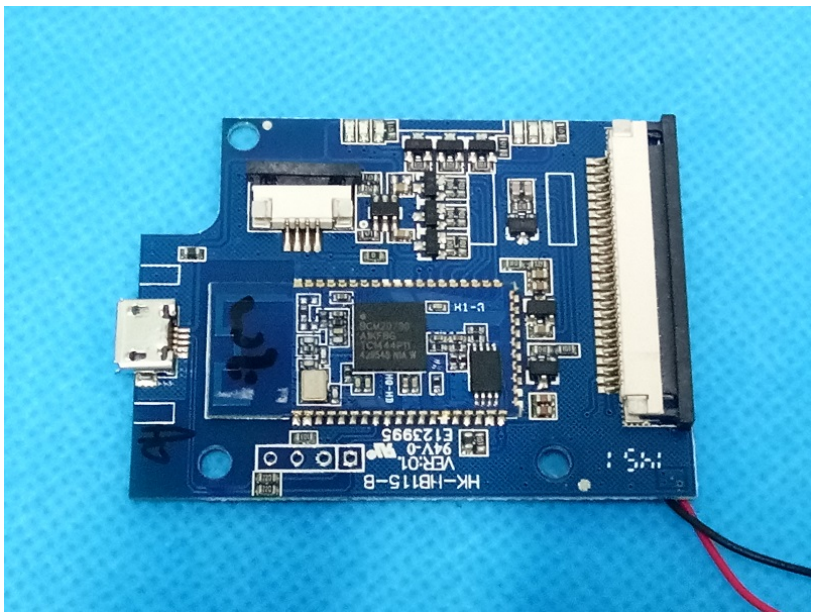
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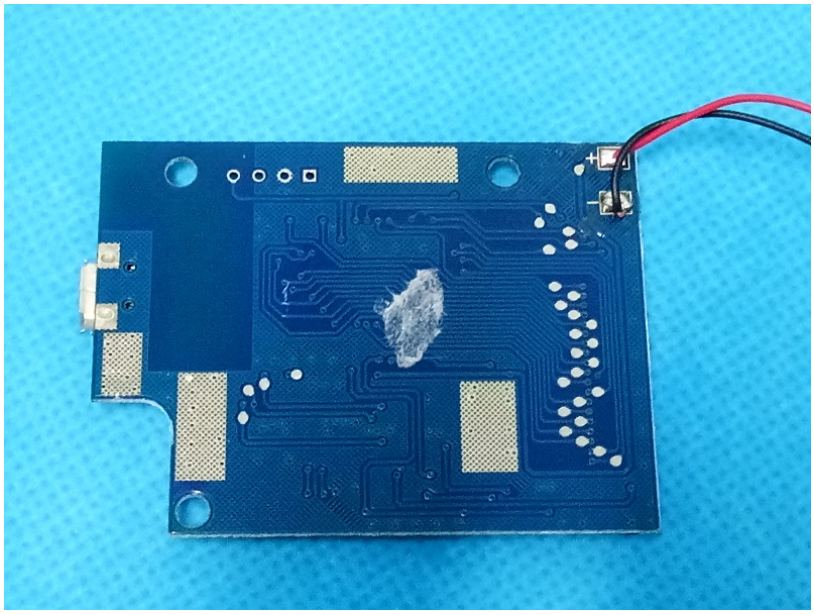

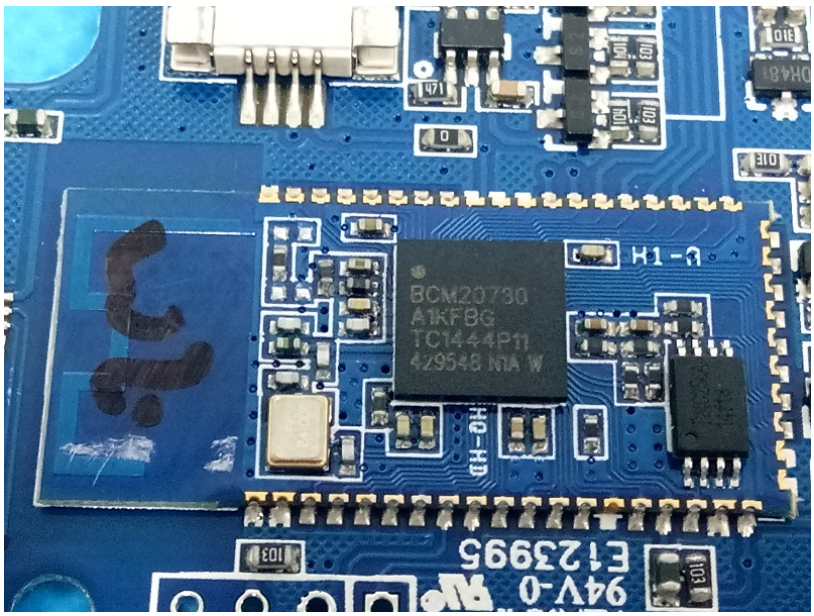


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