



FCC TEST REPORT

Test report

On Behalf of

Shenzhen CAREUD Security Equipment Co., Ltd.

For

Bluetooth Helmet Headsets Intercom

Model No.: M5, M6, M7, M8, M9, K3, K5, K6, K7, K8, K9,
B630, B650, B670, B680, B690, V3, V5, V6,
V7, V8, V9, X3, X5, X6, X7, X8, X9, H30, H50,
H60, H70, H80, H90

FCC ID: 2AIGI-M6

Prepared for: Shenzhen CAREUD Security Equipment Co., Ltd.
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Date of Test: Jul. 03, 2019 ~ Jul. 10, 2019

Date of Report: Jul. 10, 2019

Report Number: HK1907081583-E1



TEST RESULT CERTIFICATION

Applicant's name : Shenzhen CAREUD Security Equipment Co., Ltd.
4th Floor, B Building No. LiJia Street, LongGang District,
Address : Shenzhen, Guangdong, China

Manufacture's Name..... : Shenzhen CAREUD Security Equipment Co., Ltd.
4th Floor, B Building No. LiJia Street, LongGang District,
Address : Shenzhen, Guangdong, China

Product description

Trade Mark: CAREUD
Product name : Bluetooth Helmet Headsets Intercom
M5, M6, M7, M8, M9, K3, K5, K6, K7, K8, K9, B630, B650, B670,
Model and/or type reference : B680, B690, V3, V5, V6, V7, V8, V9, X3, X5, X6, X7, X8, X9, H30,
H50, H60, H70, H80, H90
Standards : FCC Rules and Regulations Part 15 Subpart C Section 15.249
ANSI C63.10: 2013

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Date of Test :
Date (s) of performance of tests : Jul. 03, 2019 ~ Jul. 10, 2019
Date of Issue..... : Jul. 10, 2019
Test Result..... : **Pass**

Testing Engineer : Gary Qian
(Gary Qian)

Technical Manager : Eden Hu
(Eden Hu)

Authorized Signatory : Jason Zhou
(Jason Zhou)



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1. TEST SUMMARY

1.1 TEST PROCEDURES AND RESULTS

| DESCRIPTION OF TEST | | RESULT |
|---------------------|---|-----------|
| 15.207 | Conducted Emission | COMPLIANT |
| 15.249&15.209 | Fundamental & Radiated Spurious Emission Measuremen | COMPLIANT |
| 15.215 | Bandwidth | COMPLIANT |
| 15.205 | Band Edge Emission | COMPLIANT |
| 15.203 | Antenna Requirement | COMPLIANT |

1.2 TEST FACILITY

Test Firm : Shenzhen HUAKE Testing Technology Co., Ltd.

Address 1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China

1.3 MEASUREMENT UNCERTAINTY

Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty(9kHz-30MHz) = 3.08dB, k=2

Radiated emission expanded uncertainty(30MHz-1000MHz) = 4.42dB, k=2

Radiated emission expanded uncertainty(Above 1GHz) = 4.06dB, k=2



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

| | |
|------------------------|---|
| Equipment | Bluetooth Helmet Headsets Intercom |
| Model Name | M6 |
| Serial No. | M5, M7, M8, M9, K3, K5, K6, K7, K8, K9, B630, B650, B670, B680, B690, V3, V5, V6, V7, V8, V9, X3, X5, X6, X7, X8, X9, H30, H50, H60, H70, H80, H90 |
| Trade Mark | CAREUD |
| Model Difference | All model's the function, software and electric circuit are the same, only with a product color, shape and model named different. Test sample model: M6 |
| FCC ID | 2AIGI-M6 |
| Antenna Type | Internal Antenna |
| Antenna Gain | 1dBi |
| BT Operation frequency | 2402-2480MHz |
| Number of Channels | 40CH |
| Modulation Type | GFSK |
| Battery | 3.7V 500mAh |
| Power Source | 1. DC 3.7V from Battery 2. DC 5V from adapter with AC 120/240V 60Hz |
| Adapter Model | Model: HW-050500DFQ Input: 100-240V~, 50/60Hz, 0.5A Output: DC 5V |



2.2 Carrier Frequency of Channels

| Channel List | | | | | | | |
|--------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 0 | 2402 | 10 | 2422 | 20 | 2442 | 30 | 2462 |
| 1 | 2404 | 11 | 2424 | 21 | 2444 | 31 | 2464 |
| 2 | 2406 | 12 | 2426 | 22 | 2446 | 32 | 2466 |
| 3 | 2408 | 13 | 2428 | 23 | 2448 | 33 | 2468 |
| 4 | 2410 | 14 | 2430 | 24 | 2450 | 34 | 2470 |
| 5 | 2412 | 15 | 2432 | 25 | 2452 | 35 | 2472 |
| 6 | 2414 | 16 | 2434 | 26 | 2454 | 36 | 2474 |
| 7 | 2416 | 17 | 2436 | 27 | 2456 | 37 | 2476 |
| 8 | 2418 | 18 | 2438 | 28 | 2458 | 38 | 2478 |
| 9 | 2420 | 19 | 2440 | 29 | 2460 | 39 | 2480 |

2.3 Operation of EUT during testing

Operating Mode

The mode is used: **Transmitting mode**

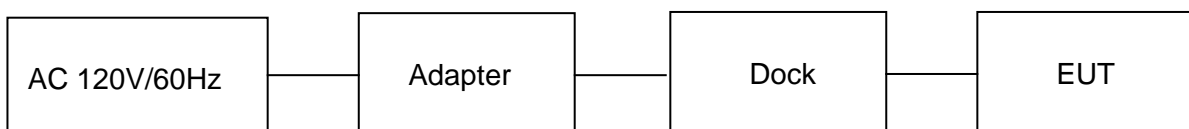
Low Channel: 2402MHz

Middle Channel: 2440MHz

High Channel: 2480MHz

2.4 DESCRIPTION OF TEST SETUP

Operation of EUT during Conducted testing:



Note: Dock is only a connector, there is no extra circuit.

Operation of EUT during Radiation and Above1GHz Radiation testing:





2.5 MEASUREMENT INSTRUMENTS LIST

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|---|-----------------|--------------------------------|------------|---------------|---------------|
| 1. | L.I.S.N. Artificial Mains Network | R&S | ENV216 | HKE-002 | Dec. 28, 2018 | 1 Year |
| 2. | Receiver | R&S | ESCI 7 | HKE-010 | Dec. 28, 2018 | 1 Year |
| 3. | RF automatic control unit | Tonscend | JS0806-2 | HKE-060 | Dec. 28, 2018 | 1 Year |
| 4. | Spectrum analyzer | R&S | FSP40 | HKE-025 | Dec. 28, 2018 | 1 Year |
| 5. | Spectrum analyzer | Agilent | N9020A | HKE-048 | Dec. 28, 2018 | 1 Year |
| 6. | Preamplifier | Schwarzbeck | BBV 9743 | HKE-006 | Dec. 28, 2018 | 1 Year |
| 7. | EMI Test Receiver | Rohde & Schwarz | ESCI 7 | HKE-010 | Dec. 28, 2018 | 1 Year |
| 8. | Bilog Broadband Antenna | Schwarzbeck | VULB9163 | HKE-012 | Dec. 28, 2018 | 1 Year |
| 9. | Loop Antenna | Schwarzbeck | FMZB 1519 B | HKE-014 | Dec. 28, 2018 | 1 Year |
| 10. | Horn Antenna | Schwarzbeck | 9120D | HKE-013 | Dec. 28, 2018 | 1 Year |
| 11. | Pre-amplifier | EMCI | EMC051845 SE | HKE-015 | Dec. 28, 2018 | 1 Year |
| 12. | Pre-amplifier | Agilent | 83051A | HKE-016 | Dec. 28, 2018 | 1 Year |
| 13. | EMI Test Software EZ-EMC | Tonscend | JZOZtheBO T120-B Version | HKE-083 | N/A | N/A |
| 14. | Power Sensor | Agilent | E9300A | HKE-086 | Dec. 28, 2018 | 1 Year |
| 15. | Spectrum analyzer | Agilent | N9020A | HKE-048 | Dec. 28, 2018 | 1 Year |
| 16. | Signal generator | Agilent | N5182A | HKE-029 | Dec. 28, 2018 | 1 Year |
| 17. | Signal Generator | Agilent | 83630A | HKE-028 | Dec. 28, 2018 | 1 Year |
| 18. | Shielded room | Shiel Hong | 4*3*3 | HKE-039 | Dec. 28, 2017 | 3 Year |
| 19 | Hf antenna | Schwarzbeck | LB-180400- KF | HKE-031 | Dec. 28, 2018 | 1 Year |



3. CONDUCTED EMISSIONS TEST

3.1 Conducted Power Line Emission Limit

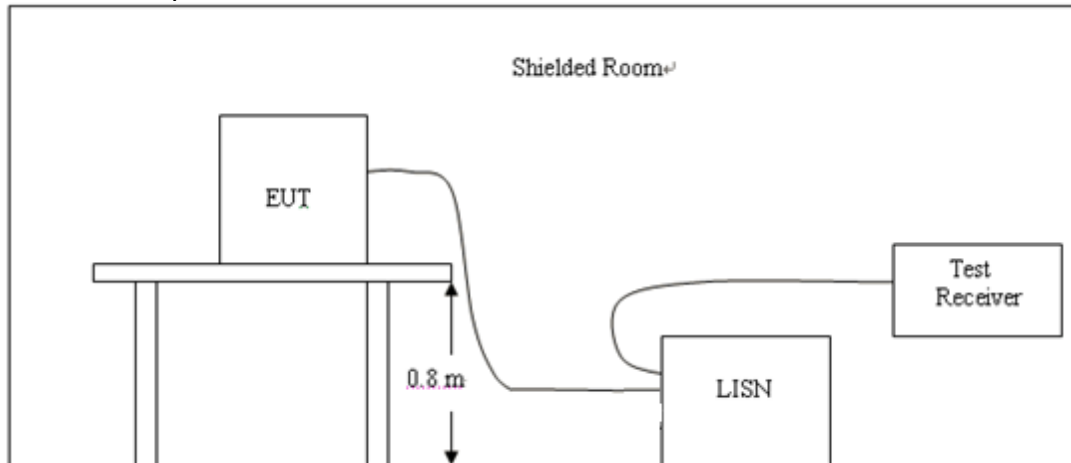
For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

| Frequency (MHz) | Maximum RF Line Voltage (dB μ V) | | | |
|-----------------|--------------------------------------|------|---------|--------|
| | CLASS A | | CLASS B | |
| | Q.P. | Ave. | Q.P. | Ave. |
| 0.15 - 0.50 | 79 | 66 | 66-56* | 56-46* |
| 0.50 - 5.00 | 73 | 60 | 56 | 46 |
| 5.00 - 30.0 | 73 | 60 | 60 | 50 |

* Decreasing linearly with the logarithm of the frequency

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

3.2 Test Setup



3.3 Test Procedure

- 1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2, Support equipment, if needed, was placed as per ANSI C63.10.
- 3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5, All support equipments received AC power from a second LISN, if any.
- 6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

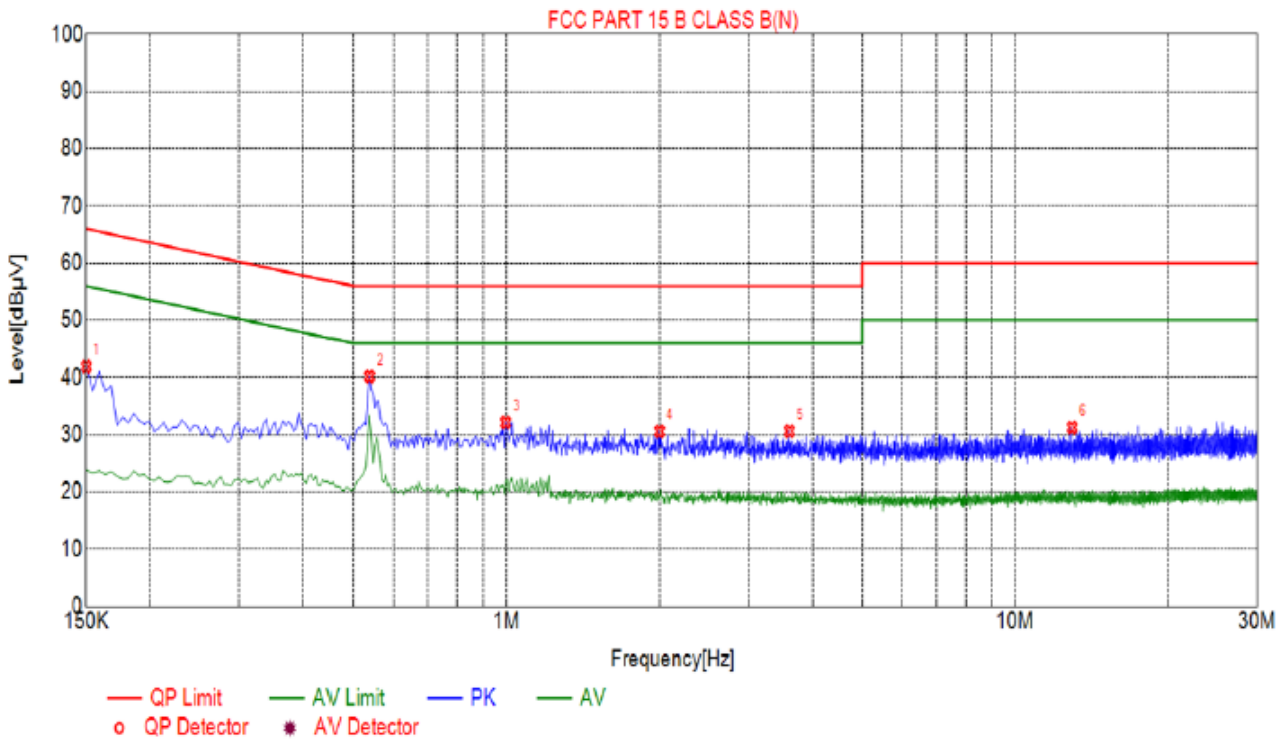
3.4 Test Result

PASS

1. All modes were tested at AC 120V and 240V, only the worst result of AC 120V 60Hz was reported.
2. All modes of Low, Middle, and High channel were tested, only the worst result of Low Channel was reported as below:



Test Specification: Neutral

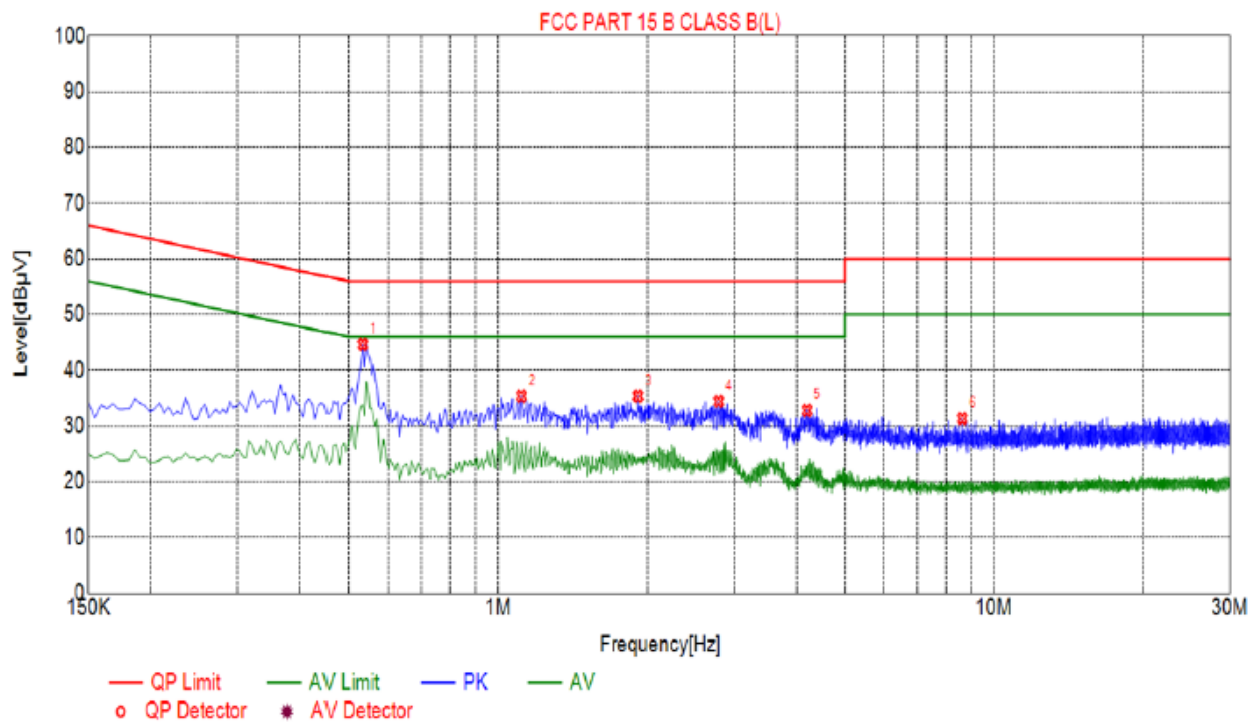


| Suspected List | | | | | | |
|----------------|-------------|--------------|-------------|--------------|-------------|----------|
| NO. | Freq. [MHz] | Level [dBµV] | Factor [dB] | Limit [dBµV] | Margin [dB] | Detector |
| 1 | 0.1500 | 41.92 | 10.03 | 66.00 | 24.08 | PK |
| 2 | 0.5370 | 40.18 | 10.05 | 66.00 | 15.82 | PK |
| 3 | 0.9960 | 32.16 | 10.06 | 66.00 | 23.84 | PK |
| 4 | 1.9995 | 30.61 | 10.14 | 66.00 | 25.39 | PK |
| 5 | 3.6015 | 30.65 | 10.25 | 66.00 | 25.35 | PK |
| 6 | 12.9480 | 31.28 | 9.97 | 60.00 | 28.72 | PK |

Remark: Factor = Cable loss + LISN factor ; Level= Receiver Reading +factor; Margin = Limit – Level



Test Specification: Line



| Suspected List | | | | | | |
|----------------|----------------|-----------------|----------------|-----------------|----------------|----------|
| NO. | Freq. [MHz] | Level [dBµV] | Factor [dB] | Limit [dBµV] | Margin [dB] | Detector |
| 1 | 0.5325 | 44.63 | 10.05 | 56.00 | 11.37 | PK |
| 2 | 1.1130 | 35.38 | 10.08 | 56.00 | 20.62 | PK |
| 3 | 1.9140 | 35.38 | 10.14 | 56.00 | 20.62 | PK |
| 4 | 2.7825 | 34.43 | 10.21 | 56.00 | 21.57 | PK |
| 5 | 4.1955 | 32.82 | 10.25 | 56.00 | 23.18 | PK |
| 6 | 8.6370 | 31.38 | 10.12 | 60.00 | 28.64 | PK |

Remark: Factor = Cable loss + LISN factor ; Level= Receiver Reading +factor; Margin = Limit – Level

4 RADIATED EMISSION TEST

4.1 Radiation Limit

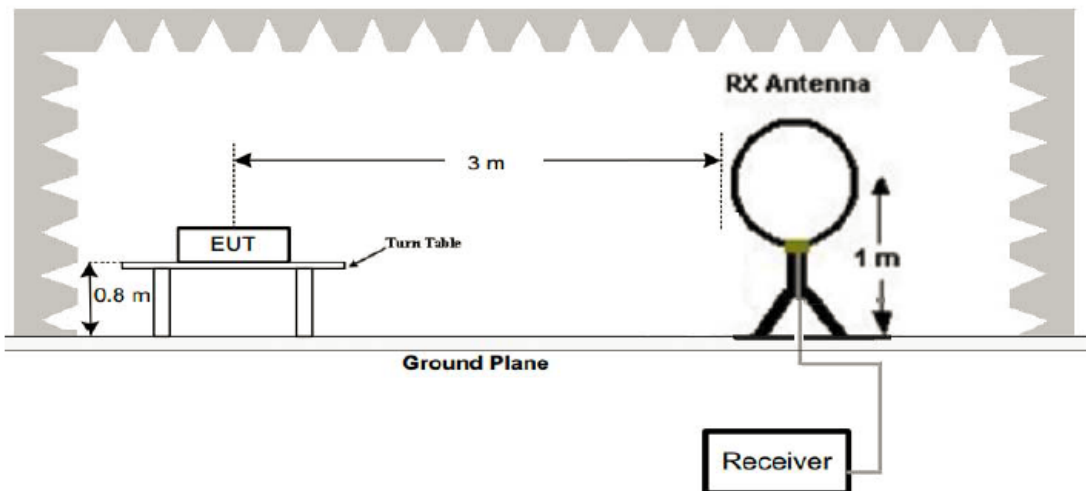
For unintentional device, according to 15.109(a), except for Class B digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values

| Frequency (MHz) | Distance (Meters) | Radiated (dB μ V/m) | Radiated (μ V/m) |
|-----------------|-------------------|-------------------------|-----------------------|
| 30-88 | 3 | 40 | 100 |
| 88-216 | 3 | 43.5 | 150 |
| 216-960 | 3 | 46 | 200 |
| Above 960 | 3 | 54 | 500 |

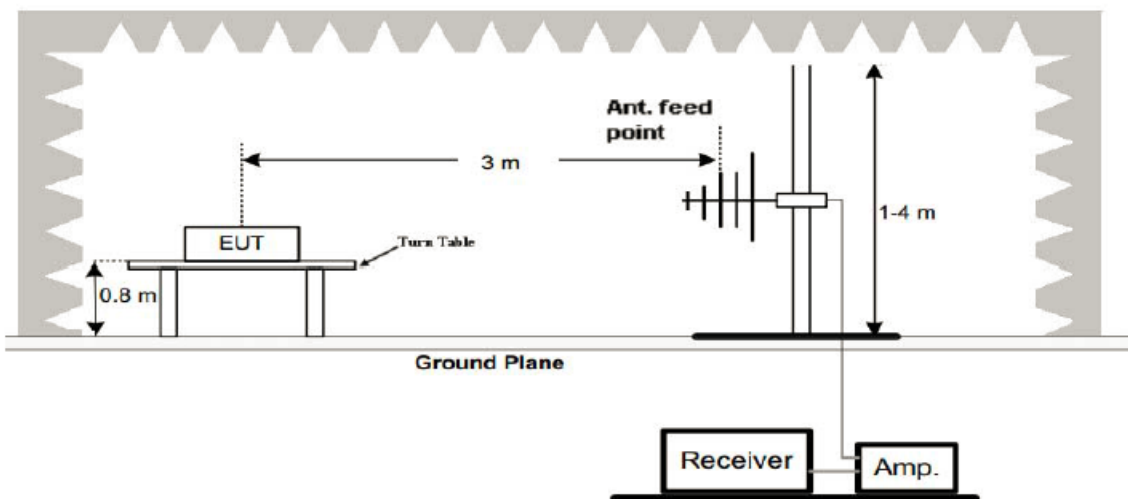
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

4.2 Test Setup

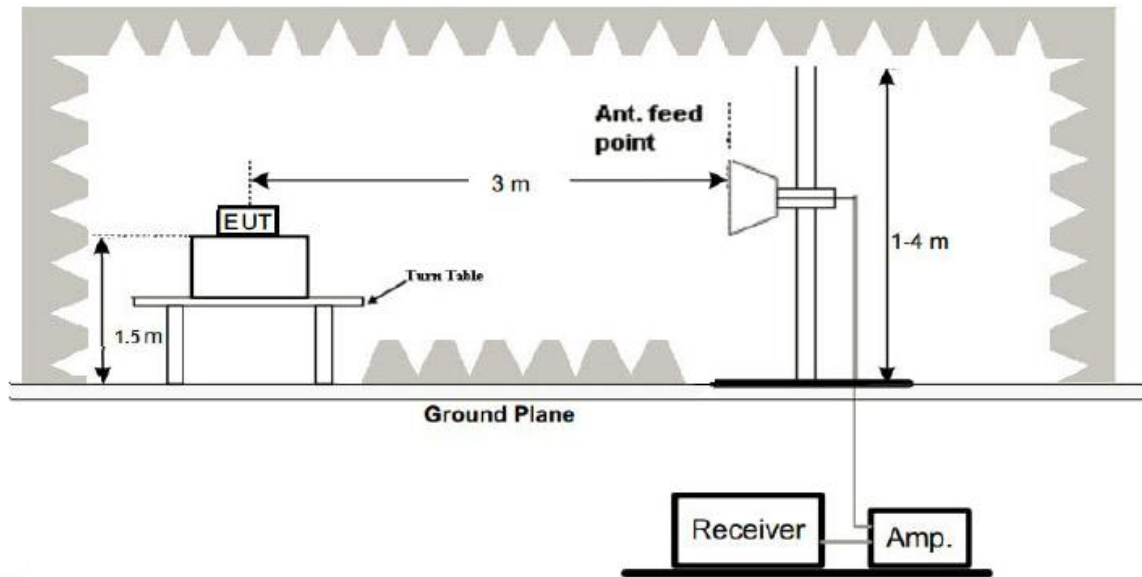
(1) Radiated Emission Test-Up Frequency Below 30MHz



(2) Radiated Emission Test-Up Frequency 30MHz~1GHz



(3) Radiated Emission Test-Up Frequency Above 1GHz



4.3 Test Procedure

1. Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The test frequency range from 9KHz to 25GHz per FCC PART 15.33(a).

Note:

For battery operated equipment, the equipment tests shall be performed using a new battery.

4.4 Test Result

PASS

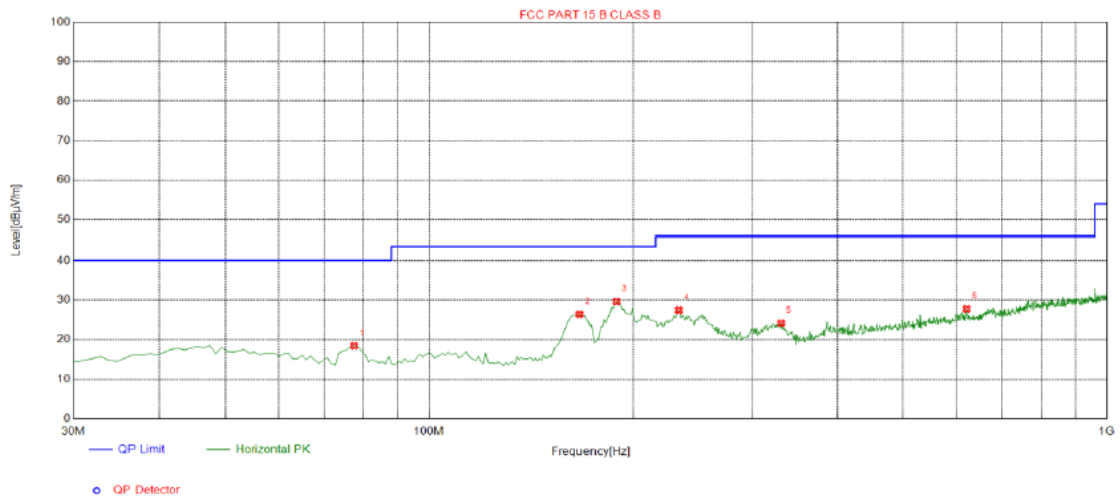
Remark:

1. All the test modes completed for test. The worst case of Radiated Emission is Low channel, the test data of this mode was reported.
2. By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "Z axis" position was the worst, and test data recorded in this report.
3. Radiated emission test from 9KHz to 10th harmonic of fundamental was verified, and no emission found except system noise floor in 9KHz to 30MHz and not recorded in this report.



Below 1GHz Test Results:

Antenna polarity: H



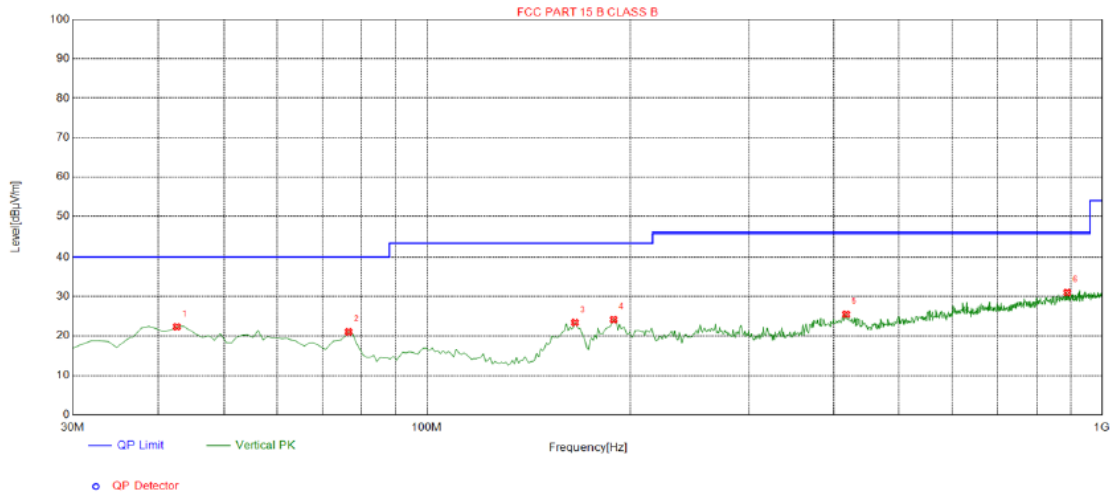
Suspected List

| Suspected List | | | | | | | | |
|----------------|-------------|----------------|-------------|----------------|-------------|-------------|-----------|------------|
| NO. | Freq. [MHz] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
| 1 | 77.5300 | 18.42 | -19.03 | 40.00 | 21.58 | 100 | 50 | Horizontal |
| 2 | 166.770 | 26.41 | -17.60 | 43.50 | 17.09 | 100 | 291 | Horizontal |
| 3 | 189.080 | 29.62 | -16.09 | 43.50 | 13.88 | 100 | 288 | Horizontal |
| 4 | 233.700 | 27.44 | -14.15 | 46.00 | 18.56 | 100 | 309 | Horizontal |
| 5 | 330.700 | 24.20 | -11.59 | 46.00 | 21.80 | 100 | 86 | Horizontal |
| 6 | 621.700 | 27.76 | -5.51 | 46.00 | 18.24 | 100 | 127 | Horizontal |

Remark: Factor = Cable loss + Antenna factor - Pre-amplifier; Margin = Limit – Level



Antenna polarity: V



Suspected List

| Suspected List | | | | | | | | |
|----------------|-------------|----------------|-------------|----------------|-------------|-------------|-----------|----------|
| NO. | Freq. [MHz] | Level [dBµV/m] | Factor [dB] | Limit [dBµV/m] | Margin [dB] | Height [cm] | Angle [°] | Polarity |
| 1 | 42.6100 | 22.34 | -14.08 | 40.00 | 17.66 | 100 | 141 | Vertical |
| 2 | 76.5600 | 21.06 | -18.85 | 40.00 | 18.94 | 100 | 133 | Vertical |
| 3 | 165.800 | 23.39 | -17.69 | 43.50 | 20.11 | 100 | 216 | Vertical |
| 4 | 189.080 | 24.20 | -16.09 | 43.50 | 19.30 | 100 | 207 | Vertical |
| 5 | 418.000 | 25.50 | -10.07 | 46.00 | 20.50 | 100 | 359 | Vertical |
| 6 | 888.450 | 30.98 | -1.91 | 46.00 | 15.02 | 100 | 313 | Vertical |

Remark: Factor = Cable loss + Antenna factor - Pre-amplifier; Margin = Limit – Level

Remark:

- (1) Measuring frequencies from 9 KHz to the 1 GHz, radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
- (2) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (3) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.



Above 1 GHz Test Results:
CH Low (2402MHz)

Horizontal:

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|-----------|---------------|--------|----------------|----------------|--------|---------------|
| (MHz) | (dB μ V) | (dB) | (dB μ V/m) | (dB μ V/m) | (dB) | |
| 2402 | 109.04 | -5.84 | 103.20 | 114 | -10.80 | peak |
| 2402 | 95.71 | -5.84 | 89.87 | 94 | -4.13 | AVG |
| 4804 | 56.46 | -3.64 | 52.82 | 74 | -21.18 | peak |
| 4804 | 47.65 | -3.64 | 44.01 | 54 | -9.99 | AVG |
| 7206 | 58.72 | -0.95 | 57.77 | 74 | -16.23 | peak |
| 7206 | 48.26 | -0.95 | 47.31 | 54 | -6.69 | AVG |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|-----------|---------------|--------|----------------|----------------|--------|---------------|
| (MHz) | (dB μ V) | (dB) | (dB μ V/m) | (dB μ V/m) | (dB) | |
| 2402 | 108.35 | -5.84 | 102.51 | 114 | -11.49 | peak |
| 2402 | 95.60 | -5.84 | 89.76 | 94 | -4.24 | AVG |
| 4804 | 56.35 | -3.64 | 52.71 | 74 | -21.29 | peak |
| 4804 | 47.08 | -3.64 | 43.44 | 54 | -10.56 | AVG |
| 7206 | 58.23 | -0.95 | 57.28 | 74 | -16.72 | peak |
| 7206 | 48.07 | -0.95 | 47.12 | 54 | -6.88 | AVG |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



CH Middle (2440MHz)

Horizontal:

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|-----------|---------------|--------|----------------|----------------|--------|---------------|
| (MHz) | (dB μ V) | (dB) | (dB μ V/m) | (dB μ V/m) | (dB) | |
| 2440 | 108.27 | -5.71 | 102.56 | 114 | -11.44 | peak |
| 2440 | 95.13 | -5.71 | 89.42 | 94 | -4.58 | AVG |
| 4880 | 55.97 | -3.51 | 52.46 | 74 | -21.54 | peak |
| 4880 | 46.92 | -3.51 | 43.41 | 54 | -10.59 | AVG |
| 7320 | 58.08 | -0.82 | 57.26 | 74 | -16.74 | peak |
| 7320 | 47.96 | -0.82 | 47.14 | 54 | -6.86 | AVG |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|-----------|---------------|--------|----------------|----------------|--------|---------------|
| (MHz) | (dB μ V) | (dB) | (dB μ V/m) | (dB μ V/m) | (dB) | |
| 2440 | 108.10 | -5.71 | 102.39 | 114 | -11.61 | peak |
| 2440 | 93.12 | -5.71 | 87.41 | 94 | -6.59 | AVG |
| 4880 | 56.03 | -3.51 | 52.52 | 74 | -21.48 | peak |
| 4880 | 46.87 | -3.51 | 43.36 | 54 | -10.64 | AVG |
| 7320 | 57.99 | -0.82 | 57.17 | 74 | -16.83 | peak |
| 7320 | 47.73 | -0.82 | 46.91 | 54 | -7.09 | AVG |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.



CH High (2480MHz)

Horizontal:

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|-----------|---------------|--------|----------------|----------------|--------|---------------|
| (MHz) | (dB μ V) | (dB) | (dB μ V/m) | (dB μ V/m) | (dB) | |
| 2480 | 108.22 | -5.65 | 102.57 | 114 | -11.43 | peak |
| 2480 | 93.22 | -5.65 | 87.57 | 94 | -6.43 | AVG |
| 4960 | 56.16 | -3.43 | 52.73 | 74 | -21.27 | peak |
| 4960 | 47.45 | -3.43 | 44.02 | 54 | -9.98 | AVG |
| 7440 | 57.25 | -0.75 | 56.50 | 74 | -17.50 | peak |
| 7440 | 47.60 | -0.75 | 46.85 | 54 | -7.15 | AVG |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

| Frequency | Meter Reading | Factor | Emission Level | Limits | Margin | Detector Type |
|-----------|---------------|--------|----------------|----------------|--------|---------------|
| (MHz) | (dB μ V) | (dB) | (dB μ V/m) | (dB μ V/m) | (dB) | |
| 2480 | 107.30 | -5.65 | 101.65 | 114 | -12.35 | peak |
| 2480 | 92.73 | -5.65 | 87.08 | 94 | -6.92 | AVG |
| 4960 | 56.02 | -3.43 | 52.59 | 74 | -21.41 | peak |
| 4960 | 47.50 | -3.43 | 44.07 | 54 | -9.93 | AVG |
| 7440 | 56.94 | -0.75 | 56.19 | 74 | -17.81 | peak |
| 7440 | 47.36 | -0.75 | 46.61 | 54 | -7.39 | AVG |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark :

- (1) Measuring frequencies from 1 GHz to the 25 GHz ◦
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) * denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.
- (7) All modes of operation were investigated and the worst-case emissions are reported.
- (8) RBW > 20dB BW , VBW>=3XRBW , PK detector for PK value , RMS detector for AV value .



5 BAND EDGE

5.1 Limits

FCC PART 15.249(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

5.2 Test Procedure

RBW 1MHz VBW 3MHz PK detector is for PK value , RBW 1MHz VBW 10Hz PK detector is for AV value .

5.3 Test Result

PASS

Radiated Band Edge Test:

Operation Mode: TX CH Low (2402MHz)

Horizontal (Worst case)

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|----------------------------|----------------|----------------------------|--------------------|----------------|------------------|
| 2310 | 55.62 | -5.81 | 49.81 | 74 | -24.19 | peak |
| 2310 | / | -5.81 | / | 54 | / | AVG |
| 2390 | 53.15 | -5.84 | 47.31 | 74 | -26.69 | peak |
| 2390 | / | -5.84 | / | 54 | / | AVG |
| 2400 | 52.68 | -5.84 | 46.84 | 74 | -27.16 | peak |
| 2400 | / | -5.84 | / | 54 | / | AVG |

Vertical:

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|----------------------------|----------------|----------------------------|--------------------|----------------|------------------|
| 2310 | 54.23 | -5.81 | 48.42 | 74 | -25.58 | peak |
| 2310 | / | -5.81 | / | 54 | / | AVG |
| 2390 | 52.96 | -5.84 | 47.12 | 74 | -26.88 | peak |
| 2390 | / | -5.84 | / | 54 | / | AVG |
| 2400 | 51.49 | -5.84 | 45.65 | 74 | -28.35 | peak |
| 2400 | / | -5.84 | / | 54 | / | AVG |



Operation Mode: TX CH High (2480MHz)

Horizontal (Worst case)

| Frequency | Reading Result | Factor | Emission Level | Limits | Margin | Detector Type |
|-----------|----------------|--------|----------------|----------------|--------|---------------|
| (MHz) | (dB μ V) | (dB) | (dB μ V/m) | (dB μ V/m) | (dB) | |
| 2483.50 | 56.99 | -5.65 | 51.34 | 74 | -22.66 | peak |
| 2483.50 | / | -5.65 | / | 54 | / | AVG |
| 2500.00 | 53.84 | -5.65 | 48.19 | 74 | -25.81 | peak |
| 2500.00 | / | -5.65 | / | 54 | / | AVG |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Vertical:

| Frequency | Reading Result | Factor | Emission Level | Limits | Margin | Detector Type |
|-----------|----------------|--------|----------------|----------------|--------|---------------|
| (MHz) | (dB μ V) | (dB) | (dB μ V/m) | (dB μ V/m) | (dB) | |
| 2483.50 | 54.12 | -5.65 | 48.47 | 74 | -25.53 | peak |
| 2483.50 | / | -5.65 | / | 54 | / | AVG |
| 2500.00 | 52.33 | -5.65 | 46.68 | 74 | -27.32 | peak |
| 2500.00 | / | -5.65 | / | 54 | / | AVG |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.



6 OCCUPIED BANDWIDTH MEASUREMENT

6.1 Test Setup

Same as Radiated Emission Measurement

6.2 Test Procedure

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Set EUT as normal operation.
3. Based on ANSI C63.10 section 6.9.2: RBW= 30KHz. VBW= 91 KHz, Span=2MHz.
4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

6.3 Measurement Equipment Used

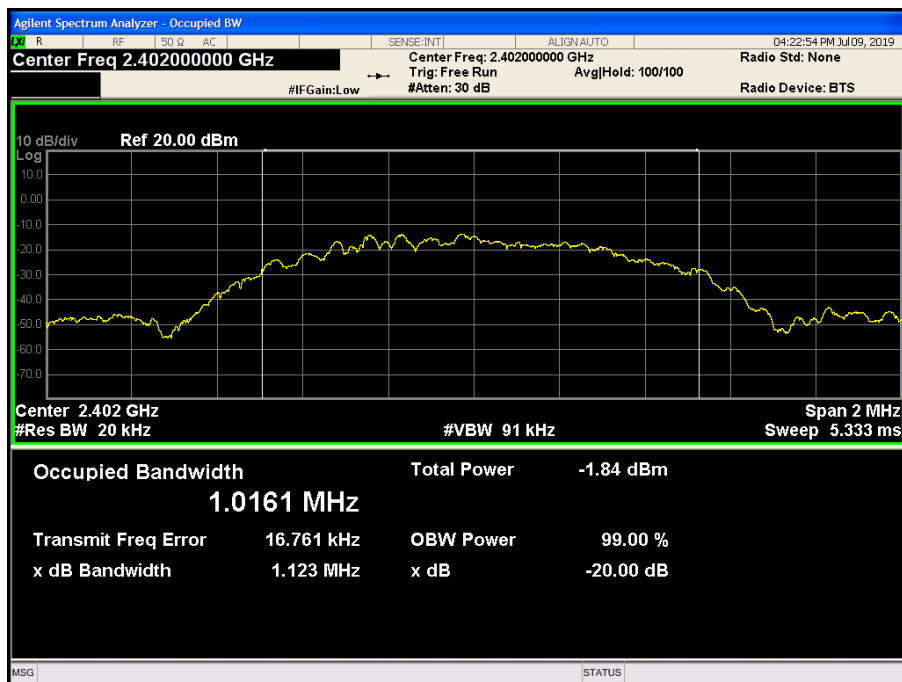
Same as Radiated Emission Measurement

6.4 Test Result

PASS

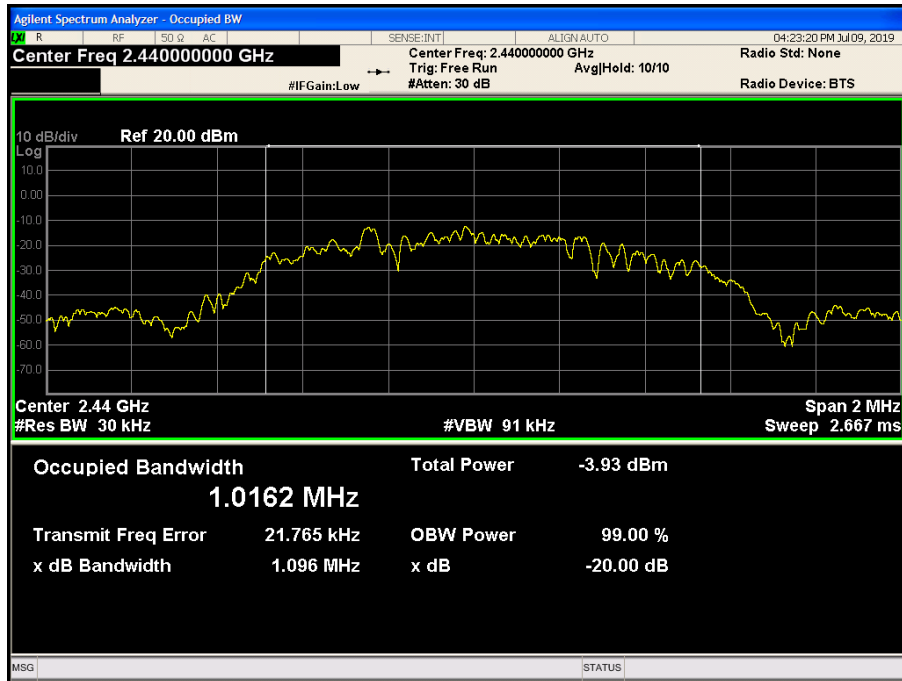
| Frequency | 20dB Bandwidth (MHz) | Result |
|-----------|----------------------|-------------|
| 2402 MHz | 1.1232 | PASS |
| 2440 MHz | 1.0965 | PASS |
| 2480 MHz | 1.0791 | PASS |

CH: 2402MHz

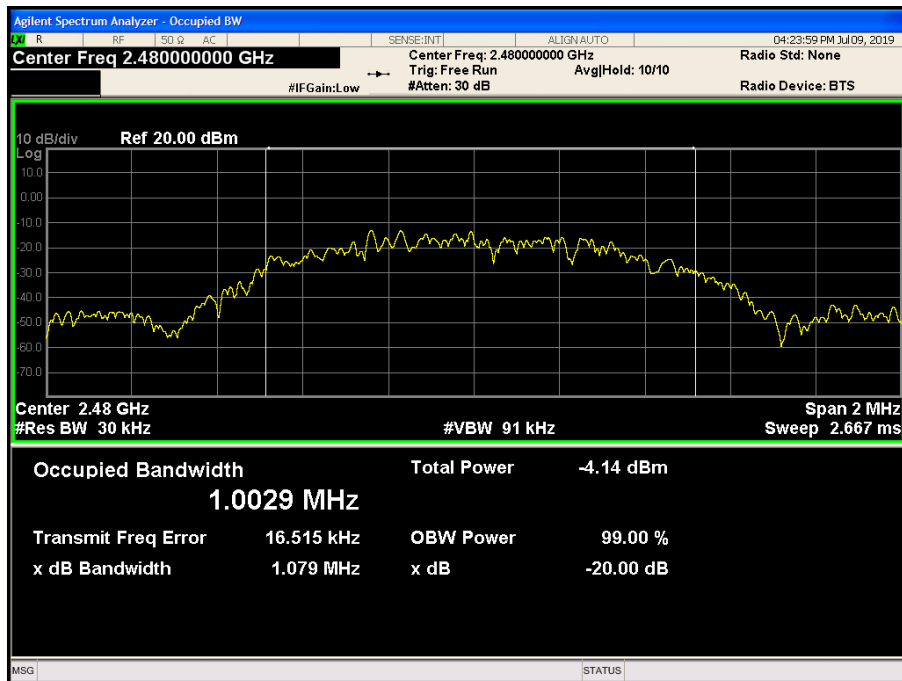




CH: 2440MHz



CH: 2480MHz



7 ANTENNA REQUIREMENT

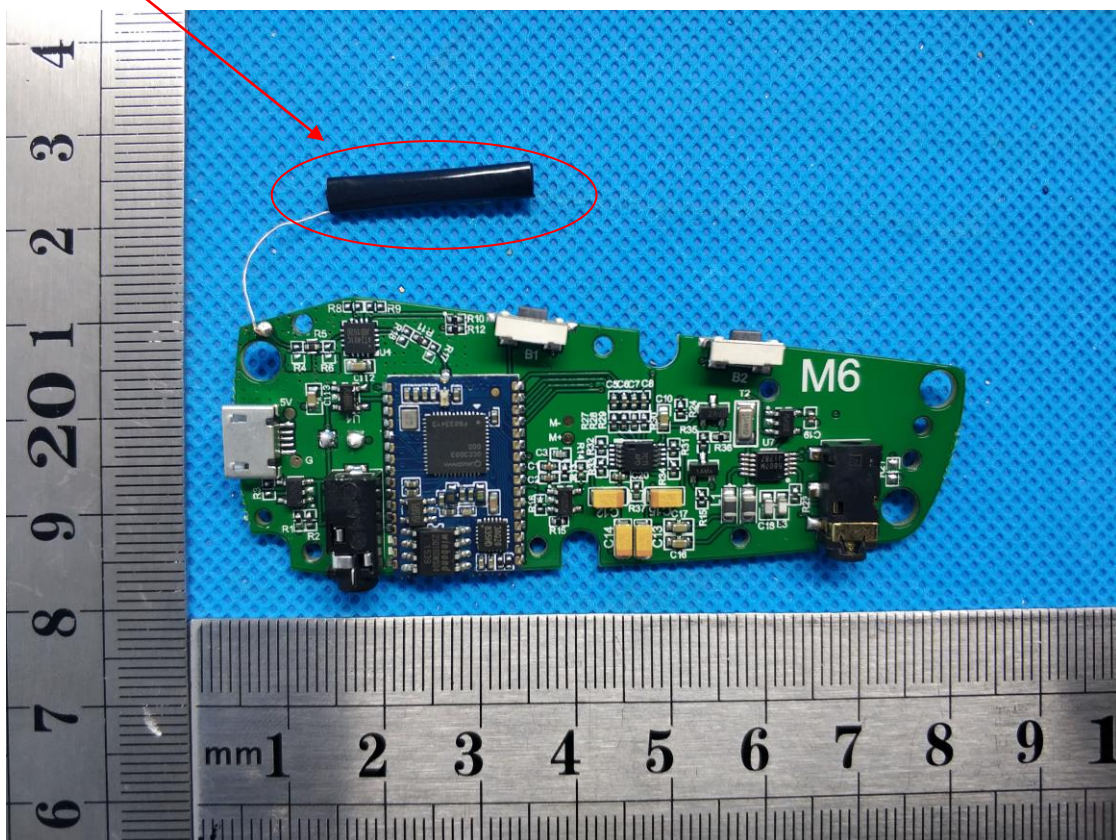
Standard Applicable

For intentional device, according to FCC 47 CFR 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. And according to FCC 47 CFR Section 15.249, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Antenna Connected Construction

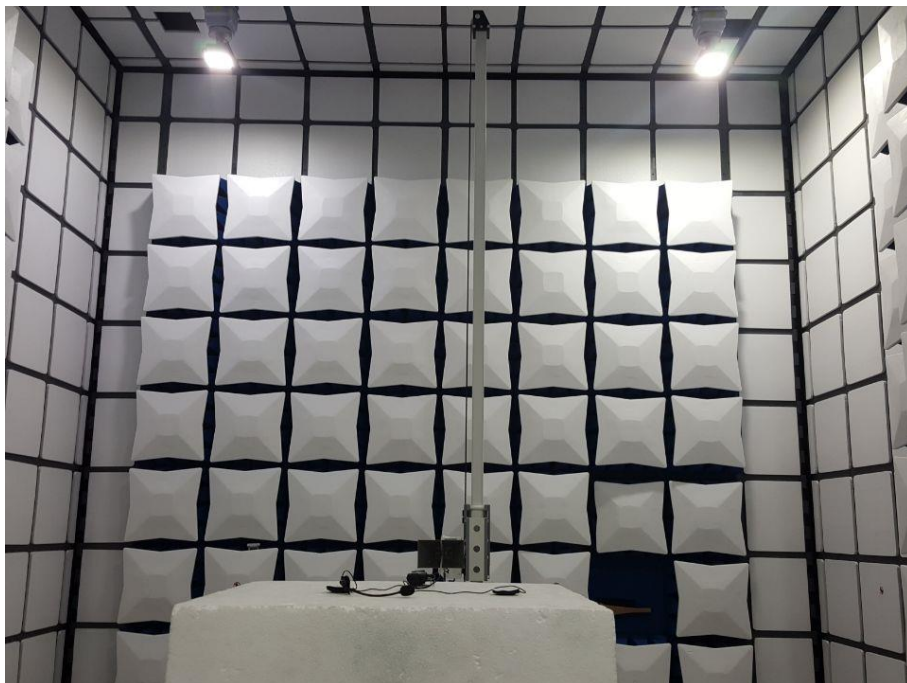
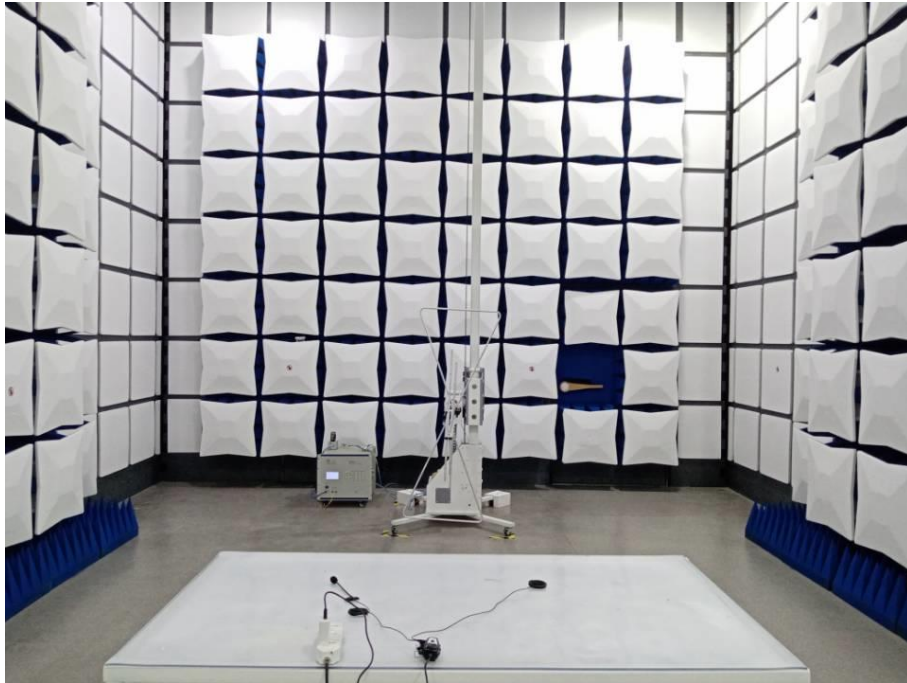
The antenna used in this product is Internal Antenna, the directional gains of antenna used for transmitting is 1dBi.

BT ANTENNA



8 PHOTOGRAPH OF TEST

Radiated Emission





Conducted Emission



End of Report