
FCC Test Report

Report No.: AGC00127160502FE03

FCC ID : 2AG94F-6688

APPLICATION PURPOSE : Class II Permissive Change

PRODUCT DESIGNATION : Bluetooth Module

BRAND NAME : XINZHONGXIN

MODEL NAME : F-6688, F-6288

CLIENT : SHENZHEN SHI XINZHONGXIN TECHNOLOGY CO.,LTD.

DATE OF ISSUE : May 25, 2016

STANDARD(S) : FCC Part 15 Rules

TEST PROCEDURE(S)

REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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Report Revise Record

| Report Version | Revise Time | Issued Date | Valid Version | Notes |
|----------------|-------------|-------------|---------------|-----------------|
| V1.0 | / | May 25,2016 | Valid | Original Report |

Note: The original report can be referred to report NO. AGC00127160301FE03.

This module is identical with the AGC00127160301FE03's module except for adding the shielding.

So we only report the data for radiated emission below 1G.

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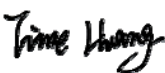
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1. VERIFICATION OF CONFORMITY

| | |
|---------------------------------|---|
| Applicant | SHENZHEN SHI XINZHONGXIN TECHNOLOGY CO.,LTD. |
| Address | Block A3, Dong Huan Industrial Zone, Nanpu Road, Shajin Street, Baoan District, Shenzhen, China |
| Manufacturer | SHENZHEN SHI XINZHONGXIN TECHNOLOGY CO.,LTD. |
| Address | Block A3, Dong Huan Industrial Zone, Nanpu Road, Shajin Street, Baoan District, Shenzhen, China |
| Product Designation | Bluetooth Module |
| Brand Name | XINZHONGXIN |
| Test Model | F-6688 |
| Series Model | F-6288 |
| Model difference | All the same except for the model name. |
| Date of test | May.24, 2016 to May.25, 2016 |
| Deviation | None |
| Condition of Test Sample | Normal |
| Report Template | AGCRT-US-BR/RF |

We hereby certify that:

The above equipment was tested by Dongguan Precise Testing Service Co., Ltd. The test data, the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.249.

Tested By 
Time Huang(Huang Nanhui) May 25, 2016

Reviewed By 
Forrest Lei(Lei Yonggang) May 25, 2016

Approved By 
Solger Zhang(Zhang Hongyi)
Authorized Officer May 25, 2016

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

| | |
|----------------------------|--|
| Operation Frequency | 2.402 GHz to 2.480GHz |
| RF Output Power | 1.8dBm(Max) |
| Bluetooth Version | V2.1+EDR |
| Modulation | GFSK, $\pi/4$ -DQPSK, 8DPSK |
| Number of channels | 79 |
| Hardware Version | V1.0 |
| Software Version | V1.0 |
| Antenna Designation | PCB Antenna (Met 15.203 Antenna requirement) |
| Antenna Gain | 0dBi |
| Power Supply | DC3.3V-4.2V |

2.2. TABLE OF CARRIER FREQUENCIES

| Frequency Band | Channel Number | Frequency |
|----------------|----------------|-----------|
| 2400~2483.5MHZ | 0 | 2402MHZ |
| | 1 | 2403MHZ |
| | : | : |
| | 38 | 2440 MHZ |
| | 39 | 2441 MHZ |
| | 40 | 2442 MHZ |
| | : | : |
| | 77 | 2479 MHZ |
| | 78 | 2480 MHZ |

3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

| No. | Item | Uncertainty |
|-----|-------------------------|-------------------------|
| 1 | Conducted Emission Test | $\pm 3.18\text{dB}$ |
| 2 | All emissions, radiated | $\pm 3.91\text{dB}$ |
| 3 | Temperature | $\pm 0.5^\circ\text{C}$ |
| 4 | Humidity | $\pm 2\%$ |

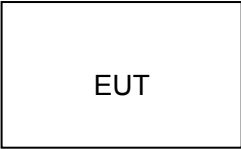
4. DESCRIPTION OF TEST MODES

| NO. | TEST MODE DESCRIPTION |
|-----|-----------------------|
| 1 | BT Link |

5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure 1: (Normal hopping)



5.2. EQUIPMENT USED IN EUT SYSTEM

| Item | Equipment | Model No. | ID or Specification | Remark |
|------|-----------|-----------|---------------------|--------|
| 1 | PC | SONY | E1412AYCW | A.E |

5.3. SUMMARY OF TEST RESULTS

| FCC RULES | DESCRIPTION OF TEST | RESULT |
|-----------|---------------------|-----------|
| §15.249 | Radiated Emission | Compliant |

6. TEST FACILITY

| | |
|-----------------------------|---|
| Site | Dongguan Precise Testing Service Co., Ltd. |
| Location | Building D,Baoding Technology Park,Guangming Road2,Dongcheng District, Dongguan, Guangdong, China, |
| FCC Registration No. | 371540 |
| Description | The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.10:2013. |

7 TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2013.

8. ALL TEST EQUIPMENT LIST

FOR RADIATED EMISSION TEST (BELOW 1GHZ)

| Radiated Emission Test Site | | | | | |
|-------------------------------------|-----------------|--------------|---------------|------------------|-----------------|
| Name of Equipment | Manufacturer | Model Number | Serial Number | Last Calibration | Due Calibration |
| EMI Test Receiver | Rohde & Schwarz | ESCI | 101417 | July 4, 2015 | July 3, 2016 |
| Trilog Broadband Antenna (25M-1GHz) | SCHWARZBECK | VULB9160 | 9160-3355 | July 4, 2015 | July 3, 2016 |
| Signal Amplifier | SCHWARZBECK | BBV 9475 | 9745-0013 | July 4, 2015 | July 3, 2016 |
| RF Cable | SCHWARZBECK | AK9515E | 96221 | July 4, 2015 | July 3, 2016 |
| 3m Anechoic Chamber | CHENGYU | 966 | PTS-001 | June 6, 2015 | June 5, 2016 |
| Multi-Device Positioning Controller | Max-Full | MF-7802 | MF780208339 | N/A | N/A |
| Active loop antenna (9K-30MHz) | Schwarzbeck | FMZB1519 | 1519-038 | June 6, 2015 | June 5, 2016 |
| Spectrum Analyzer | Agilent | E4407B | MY46185649 | June 6, 2015 | June 5, 2016 |
| Radiation Cable 1 | MXT | RS1 | R005 | June 6, 2015 | June 5, 2016 |
| Radiation Cable 2 | MXT | RS1 | R006 | June 6, 2015 | June 5, 2016 |

9. RADIATED EMISSION

9.1 TEST LIMIT

Standard FCC15.249

| Fundamental Frequency | Field Strength of Fundamental (millivolts/meter) | Field Strength of Harmonics (microvolts/meter) |
|-----------------------|---|---|
| 900-928MHz | 50 | 500 |
| 2400-2483.5MHz | 50 | 500 |
| 5725-5875MHz | 50 | 500 |
| 24.0-24.25GHz | 250 | 2500 |

Standard FCC 15.209

| Frequency (MHz) | Distance Meters | Field Strengths Limit | |
|--------------------|--------------------|--|----------------|
| | | μ V/m | dB(μ V)/m |
| 0.009 ~ 0.490 | 300 | 2400/F(kHz) | --- |
| 0.490 ~ 1.705 | 30 | 24000/F(kHz) | --- |
| 1.705 ~ 30 | 30 | 30 | --- |
| 30 ~ 88 | 3 | 100 | 40.0 |
| 88 ~ 216 | 3 | 150 | 43.5 |
| 216 ~ 960 | 3 | 200 | 46.0 |
| 960 ~ 1000 | 3 | 500 | 54.0 |
| Above 1000 | 3 | Other:74.0 dB(μ V)/m (Peak) 54.0 dB(μ V)/m (Average) | |

Remark: (1) Emission level dB μ V = 20 log Emission level μ V/m
 (2) The smaller limit shall apply at the cross point between two frequency bands.
 (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

9.2. MEASUREMENT PROCEDURE

1. The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(below 1GHz)
2. The measuring distance of 3m shall used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(above 1GHz)
3. The height of the test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization Of the antenna are set to make the measurement.
4. The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
5. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform(Below 1GHz)
6. All readings are Peak mode value unless otherwise stated AVG in column of Note. If the Peak mode measured value compliance with the Peak limits and lower than AVG Limits, the EUT shall be deemed to meet Peak&AVG limits and then only Peak mode was measured, but AVG mode didn't perform.(above 1GHz)

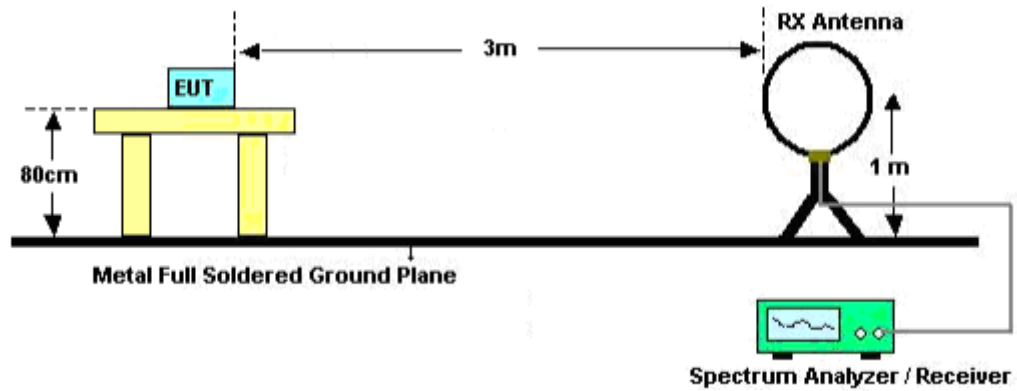
The following table is the setting of spectrum analyzer and receiver.

| Spectrum Parameter | Setting |
|-----------------------|---|
| Start ~Stop Frequency | 9KHz~150KHz/RB 200Hz for QP |
| Start ~Stop Frequency | 150KHz~30MHz/RB 9KHz for QP |
| Start ~Stop Frequency | 30MHz~1000MHz/RB 120KHz for QP |
| Start ~Stop Frequency | 1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/10Hz for Average |

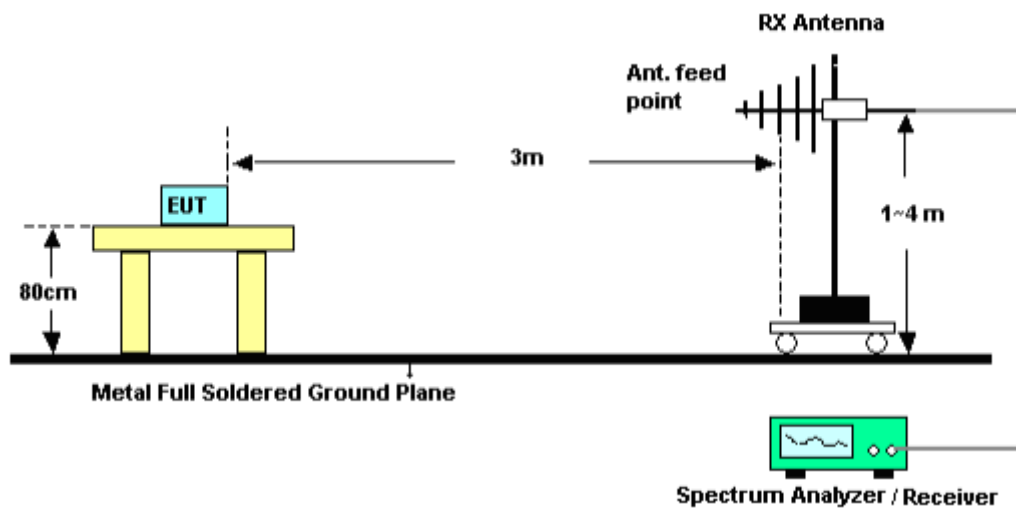
| Receiver Parameter | Setting |
|-----------------------|--------------------------------|
| Start ~Stop Frequency | 9KHz~150KHz/RB 200Hz for QP |
| Start ~Stop Frequency | 150KHz~30MHz/RB 9KHz for QP |
| Start ~Stop Frequency | 30MHz~1000MHz/RB 120KHz for QP |

9.3. TEST SETUP

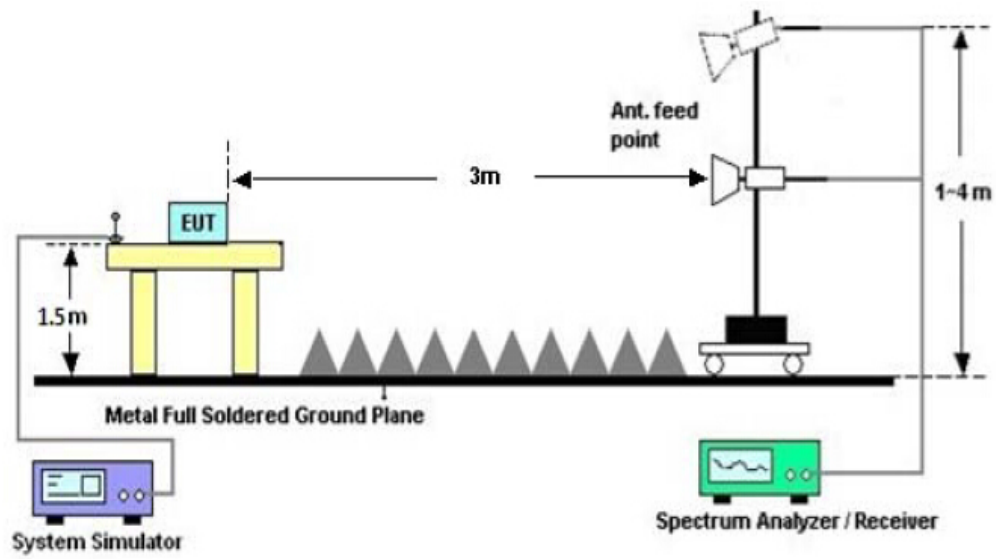
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



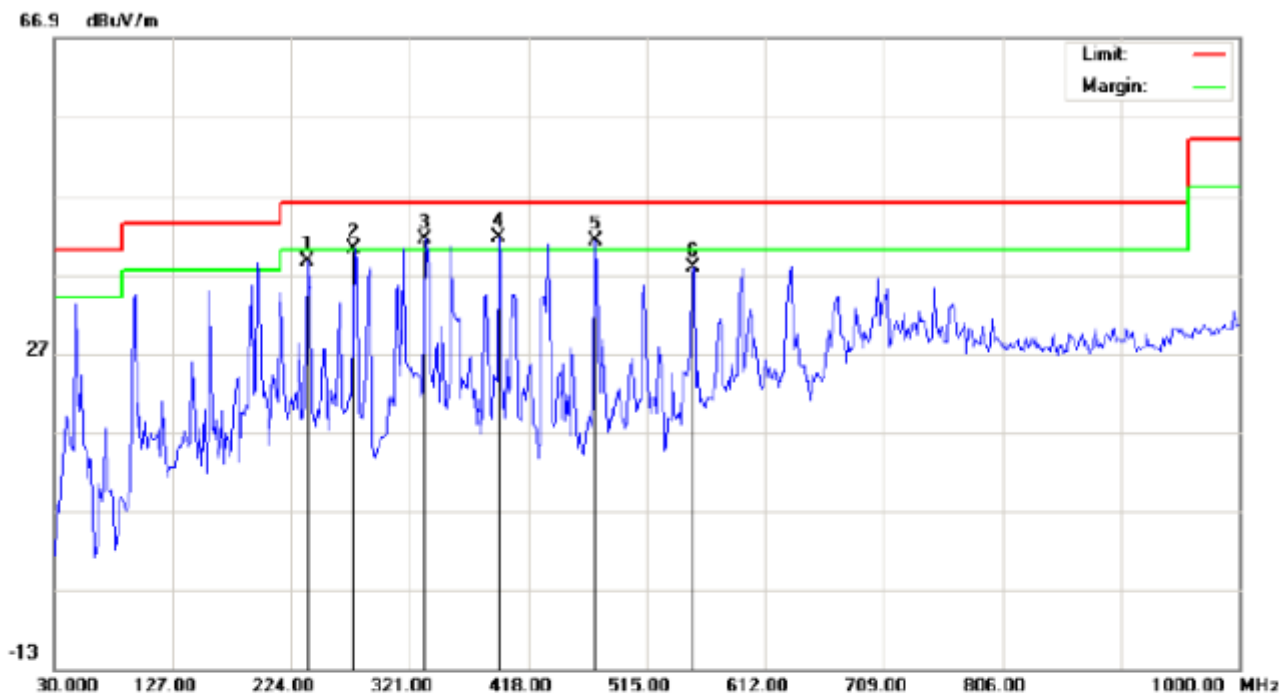
9.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHZ

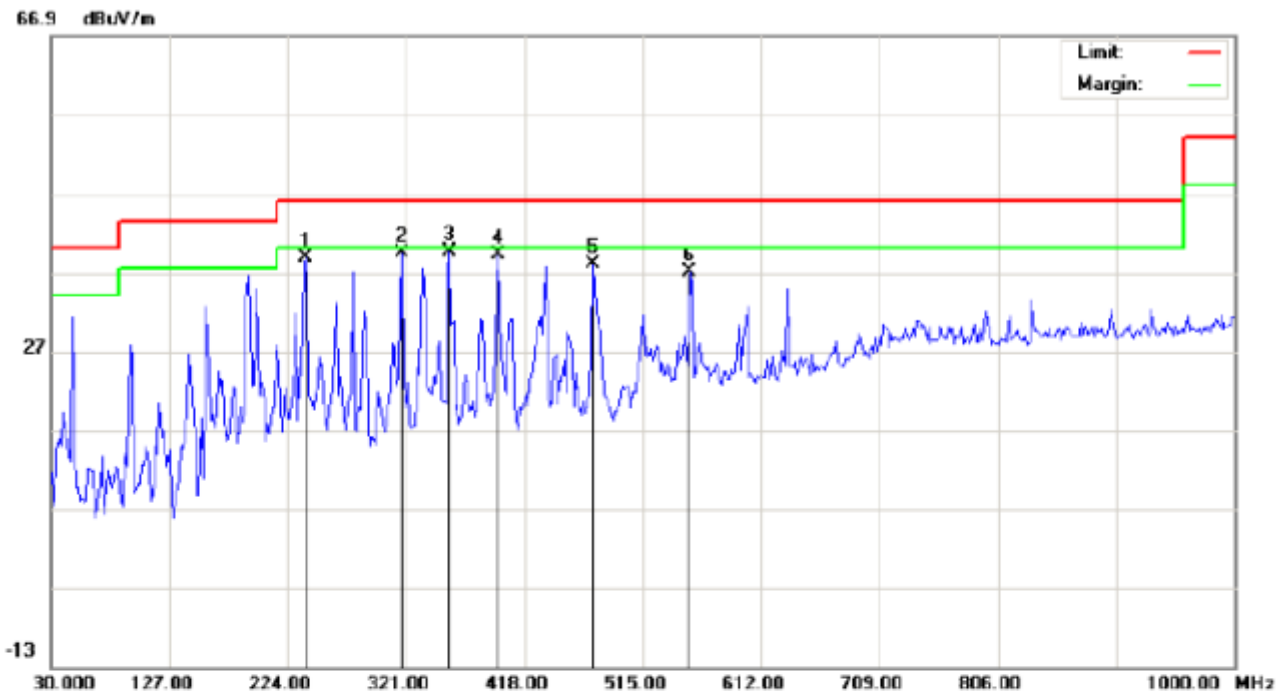
RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL-HORIZONTAL



| | | |
|---------------------------------|---------------------------------|-------------------|
| Site: site #1 | Polarization: <i>Horizontal</i> | Temperature: 22.5 |
| Limit: FCC Class B 3M Radiation | Power: | Humidity: 55.4 % |
| EUT: Bluetooth Module | Distance: | |
| M/N: F-6688 | | |
| Mode: BT Link | | |
| Note: | | |

| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|-------|----------|----------------|--------------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | | 236.9333 | 30.30 | 8.23 | 38.53 | 46.00 | -7.47 | peak | | | |
| 2 | ! | 275.7332 | 28.88 | 11.28 | 40.16 | 46.00 | -5.84 | peak | | | |
| 3 | ! | 333.9331 | 23.83 | 17.67 | 41.50 | 46.00 | -4.50 | peak | | | |
| 4 | * | 393.7500 | 22.52 | 19.03 | 41.55 | 46.00 | -4.45 | peak | | | |
| 5 | ! | 472.9667 | 20.28 | 20.84 | 41.12 | 46.00 | -4.88 | peak | | | |
| 6 | | 553.7998 | 15.25 | 22.57 | 37.82 | 46.00 | -8.18 | peak | | | |

RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL -VERTICAL



Site: site #1

Polarization: **Vertical**

Temperature: 22.5

Limit: FCC Class B 3M Radiation

Power:

Humidity: 55.4 %

EUT: Bluetooth Module

Distance:

M/N: F-6688

Mode: BT Link

Note:

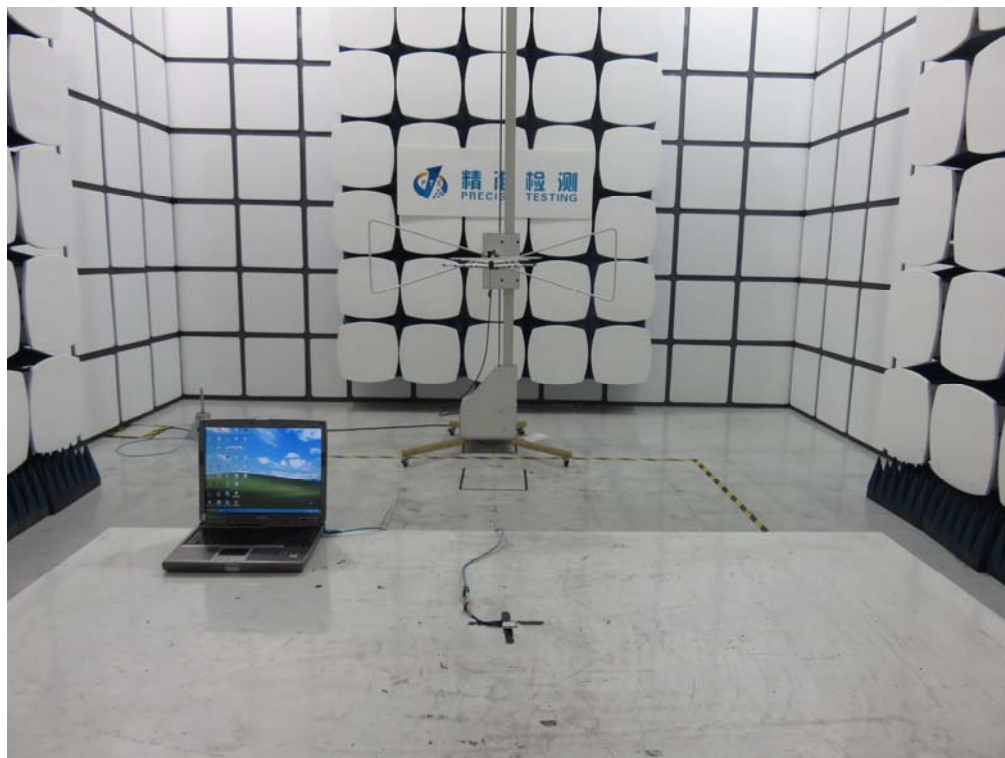
| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|-------|----------|----------------|--------------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | | 238.5500 | 25.99 | 12.78 | 38.77 | 46.00 | -7.23 | peak | | | |
| 2 | | 317.7667 | 22.77 | 16.59 | 39.36 | 46.00 | -6.64 | peak | | | |
| 3 | * | 356.5667 | 20.74 | 18.78 | 39.52 | 46.00 | -6.48 | peak | | | |
| 4 | | 396.9832 | 20.19 | 19.05 | 39.24 | 46.00 | -6.76 | peak | | | |
| 5 | | 474.5833 | 17.10 | 20.86 | 37.96 | 46.00 | -8.04 | peak | | | |
| 6 | | 553.7998 | 14.43 | 22.50 | 36.93 | 46.00 | -9.07 | peak | | | |

RESULT: PASS**Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

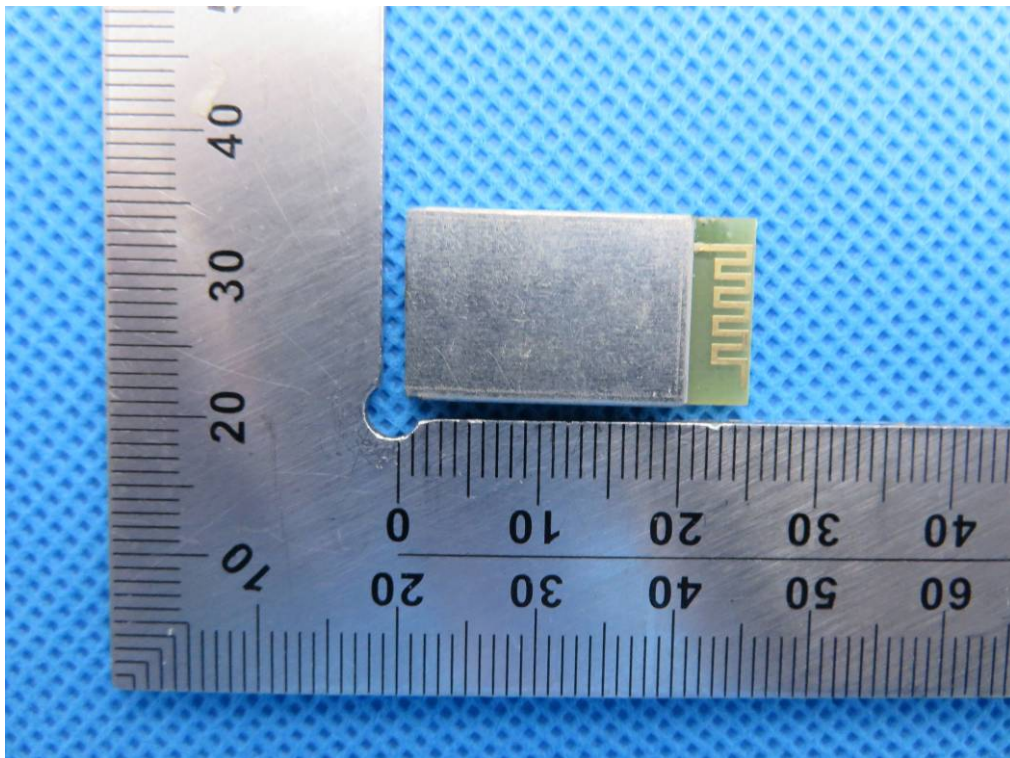
APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC RADIATED EMISSION TEST SETUP

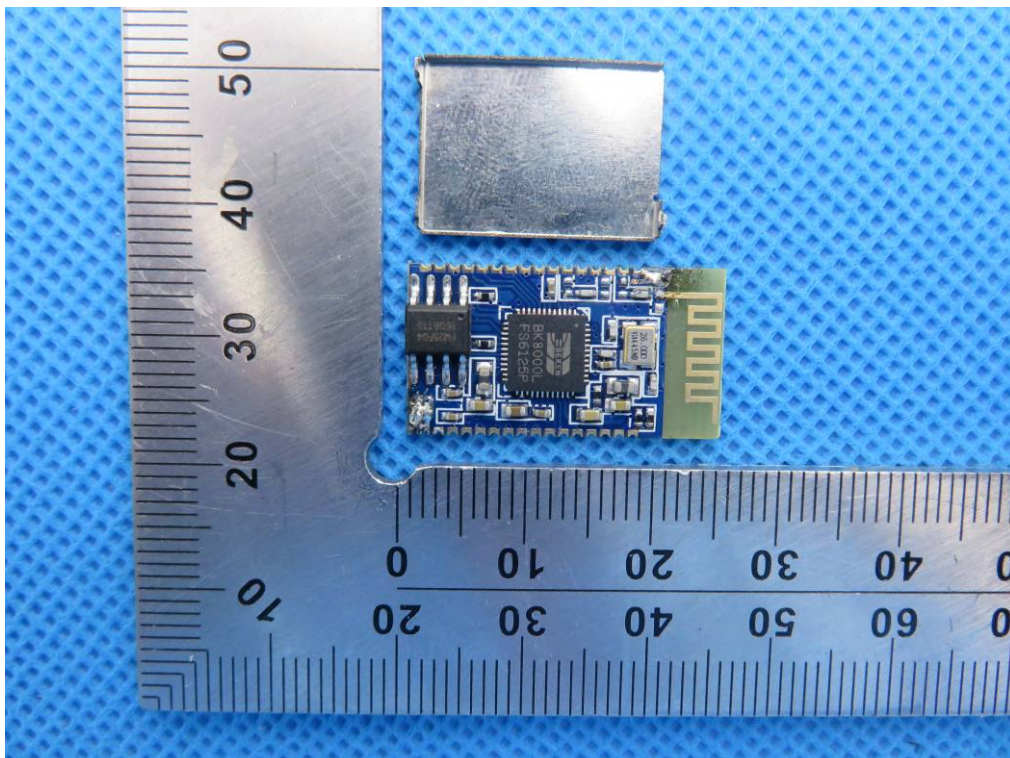


APPENDIX B: PHOTOGRAPHS OF EUT

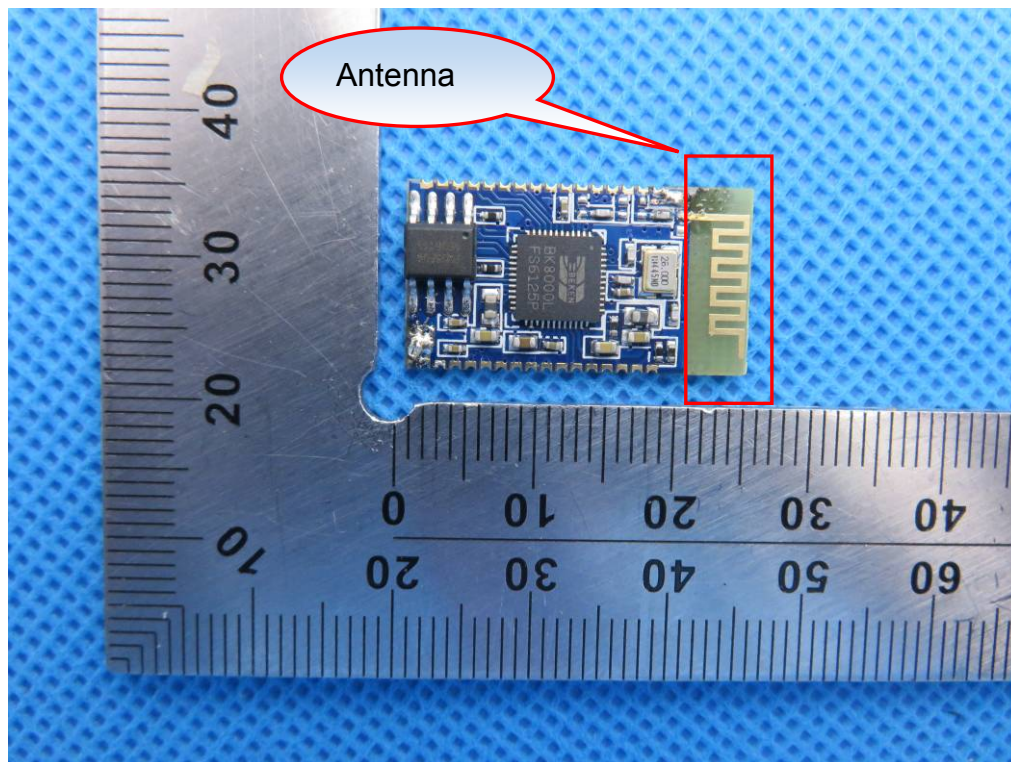
TOTAL VIEW OF EUT



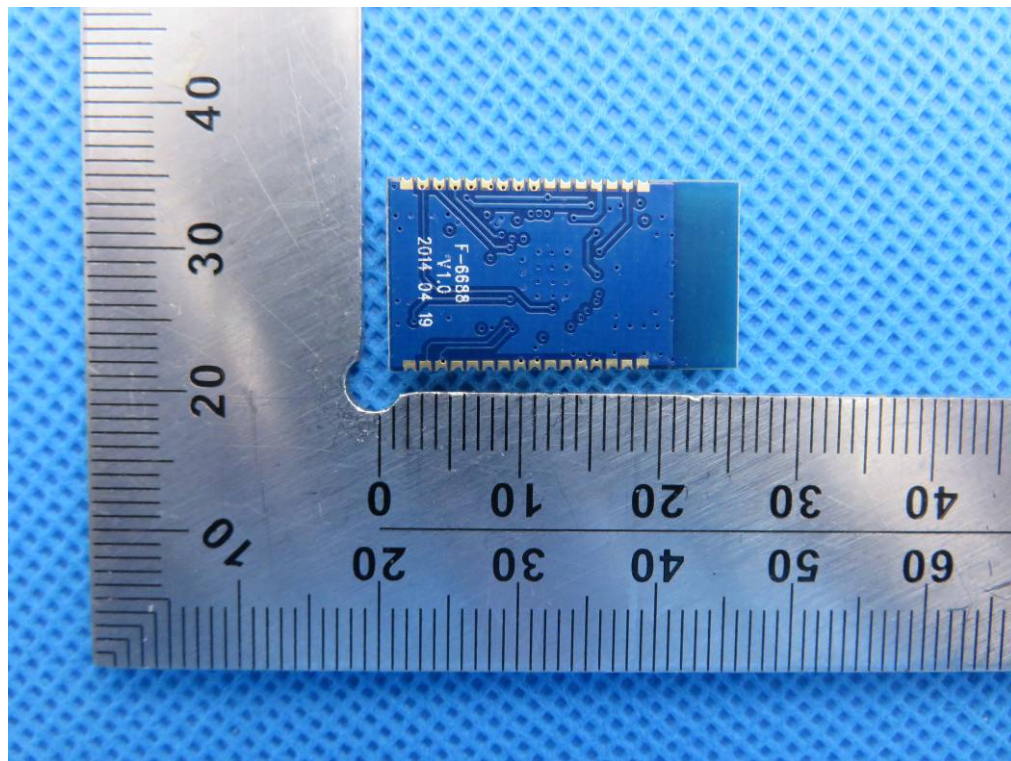
VIEW OF EUT (OPEN)



TOP VIEW OF EUT



BOTTOM VIEW OF EUT



-----END OF REPORT-----