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# FCC Test Report

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Report No.: AGC07849161101FE03

**FCC ID** : 2AKARRU101R  
**APPLICATION PURPOSE** : Class II Permissive Change  
**PRODUCT DESIGNATION** : UHF Reader  
**BRAND NAME** : ZK RFID  
**MODEL NAME** : UHF1-5F, UHF2-5F, RU100R-W-F-V1.0  
**CLIENT** : Guangdong ZK Radio Electronic Tech Co., Ltd  
**DATE OF ISSUE** : Nov. 30, 2016  
**STANDARD(S)** : FCC Part 15 Rules  
**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           | /           | Nov. 30, 2016 | Valid         | Original Report |

Note: All the test items can refer to the report No. AGC078491002FE03 except the Radiated Emission.

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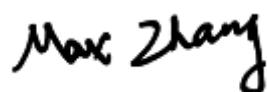
## 1. VERIFICATION OF CONFORMITY

|                                 |   |
|---------------------------------|---|
| <b>Applicant</b>                | Guangdong ZK Radio Electronic Tech Co., Ltd   |
| <b>Address</b>                  | 1004 Room, 3 block B, Tian-an-Yun-Gu, Ban Tian Longgang, Shenzhen, China                    |
| <b>Manufacturer</b>             | Guangdong ZK Radio Electronic Tech Co., Ltd   |
| <b>Address</b>                  | 1004 Room, 3 block B, Tian-an-Yun-Gu, Ban Tian Longgang, Shenzhen, China                    |
| <b>Product Designation</b>      | UHF Reader  |
| <b>Brand Name</b>               | ZK RFID   |
| <b>Test Model</b>               | UHF1-5F   |
| <b>Series Model</b>             | UHF2-5F, RU100R-W-F-V1.0  |
| <b>Model Difference</b>         | RU100R-W-E-V1.0 and UHF2-5F are same as UHF1-5F except the antenna and encryption software. |
| <b>Date of test</b>             | Nov. 29, 2016 to Nov. 30, 2016  |
| <b>Deviation</b>                | None  |
| <b>Condition of Test Sample</b> | Normal  |
| <b>Test Result</b>              | Pass  |
| <b>Report Template</b>          | AGCRT-US-BR/RF (2013-03-01)   |

We hereby certify that:

The above equipment was tested by Dongguan Precise Testing Service Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.247.

Tested by



Max Zhang(Zhang Yi)

Nov. 30, 2016

Reviewed by



Bart Xie(Xie Xiaobin)

Nov. 30, 2016

Approved by



Solger Zhang(Zhang Hongyi)

Nov. 30, 2016

Authorized Officer

## 2. GENERAL INFORMATION

### 2.1. PRODUCT DESCRIPTION

The EUT is "RFID" designed as a "Communication Device". It is designed by way of utilizing the FHSS technology to achieve the system operation.

A major technical description of EUT is described as following

|                            |                       |
|----------------------------|-----------------------|
| <b>Operation Frequency</b> | 902.5 MHz to 927.5MHz |
| <b>RF Output Power</b>     | 16.317dBm(Max)        |
| <b>Modulation</b>          | GFSK                  |
| <b>Number of channels</b>  | 51                    |
| <b>Hardware Version</b>    | MI610_V1.1            |
| <b>Software Version</b>    | UR011 20160820_V1.2   |
| <b>Antenna Designation</b> | Integrated Antenna    |
| <b>Antenna Gain</b>        | 8dBi                  |
| <b>Power Supply</b>        | DC 12V                |

Note: The USB port is only for updating the configuration file.

### 2.2. TABLE OF CARRIER FREQUENCYS

| Frequency Band | Channel Number | Frequency |
|----------------|----------------|-----------|
| 902~928MHZ     | 1              | 902.5 MHZ |
|                | 2              | 903.0 MHZ |
|                | :              | :         |
|                | 50             | 927.0 MHZ |
|                | 51             | 927.5 MHZ |

Note: The channel spacing is 0.5MHz.

### **2.3. RECEIVER INPUT BANDWIDTH**

The input bandwidth of the receiver is 200kHz.

### **2.4. EXAMPLE OF A HOPPING SEQUENCE IN DATA MODE**

Example of a 51 hopping sequence in data mode:

21,23,33,25,27,31,07,09,13,11,15,02,06,01,03,05,04,08,10,12,14,16,17,18,19,20,  
24,26,27,28,29,30,32,34,35,36,37,38,40,41,42,43,45,44,47,46,48,49,50,51

### **2.5. EQUALLY AVERAGE USE OF FREQUENCIES AND BEHAVIOUR**

The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter.

### **2.6. RELATED SUBMITTAL(S) / GRANT (S)**

This submittal(s) (test report) is intended for **FCC ID: 2AKARRU101R** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

### **2.7. TEST METHODOLOGY**

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013).

Radiated testing was performed at an antenna to EUT distance 3 meters.

### **2.8. SPECIAL ACCESSORIES**

Refer to section 5.2.

### **2.9. EQUIPMENT MODIFICATIONS**

Not available for this EUT intended for grant.

### 3. MEASUREMENT UNCERTAINTY

Conducted measurement: +/- 3.18dB

Radiated measurement: +/- 3.91dB

### 4. DESCRIPTION OF TEST MODES

| NO. | TEST MODE DESCRIPTION |
|-----|-----------------------|
| 1   | Low channel TX        |
| 2   | Middle channel TX     |
| 3   | High channel TX       |

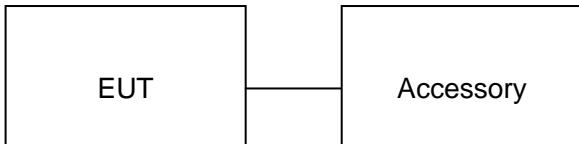
Note:

1. Only the result of the worst case was recorded in the report, if no other cases.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.

## 5. SYSTEM TEST CONFIGURATION

### 5.1. CONFIGURATION OF EUT SYSTEM

Configure 1:



### 5.2. EQUIPMENT USED IN EUT SYSTEM

| Item | Equipment  | Mfr/Brand | Model/Type No. | Remark |
|------|------------|-----------|----------------|--------|
| 1    | UHF READER | ZK RFID   | UHF1-5F        | EUT    |
| 2    | PC         | Sony      | E1412AYCW      | A.E    |

### 5.3. SUMMARY OF TEST RESULTS

| FCC RULES         | DESCRIPTION OF TEST | RESULT    |
|-------------------|---------------------|-----------|
| §15.209 & §15.247 | Radiated Emission   | Compliant |

## 6. TEST FACILITY

|                      |  |
|----------------------|--|
| Site                 | Dongguan Precise Testing Service Co., Ltd.   |
| Location             | Building D, Baoding Technology Park, Guangming Road 2, 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 C63.4:2014. |

## ALL TEST EQUIPMENT LIST

| Radiated Emission Test Site         |                 |              |               |                  |                 |
|-------------------------------------|-----------------|--------------|---------------|------------------|-----------------|
| Name of Equipment                   | Manufacturer    | Model Number | Serial Number | Last Calibration | Due Calibration |
| EMI Test Receiver                   | Rohde & Schwarz | ESCI         | 101417        | July 3, 2016     | July 2, 2017    |
| Trilog Broadband Antenna (25M-1GHz) | SCHWARZBECK     | VULB9160     | 9160-3355     | July 3, 2016     | July 2, 2017    |
| Signal Amplifier                    | SCHWARZBECK     | BBV 9475     | 9745-0013     | July 3, 2016     | July 2, 2017    |
| RF Cable                            | SCHWARZBECK     | AK9515E      | 96221         | July 3, 2016     | July 2, 2017    |
| 3m Anechoic Chamber                 | CHENGYU         | 966          | PTS-001       | June 3, 2016     | June 2, 2017    |
| MULTI-DEVICE Positioning Controller | Max-Full        | MF-7802      | MF780208339   | N/A              | N/A             |
| Active loop antenna (9K-30MHz)      | Schwarzbeck     | FMZB1519     | 1519-038      | June 3, 2016     | June 2, 2017    |
| Spectrum analyzer                   | Agilent         | E4407B       | MY46185649    | June 3, 2016     | June 2, 2017    |
| Power Sensor                        | Agilent         | U2021XA      | MY55050474    | June 3, 2016     | June 2, 2017    |
| Horn Antenna (1G-18GHz)             | SCHWARZBECK     | BBHA9120D    | 9120D-1246    | June 3, 2016     | June 2, 2017    |
| Horn Ant (18G-40GHz)                | Schwarzbeck     | BBHA 9170    | 9170-181      | June 3, 2016     | June 2, 2017    |

## 7. RADIATED EMISSION

### 7.1. MEASUREMENT PROCEDURE

1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

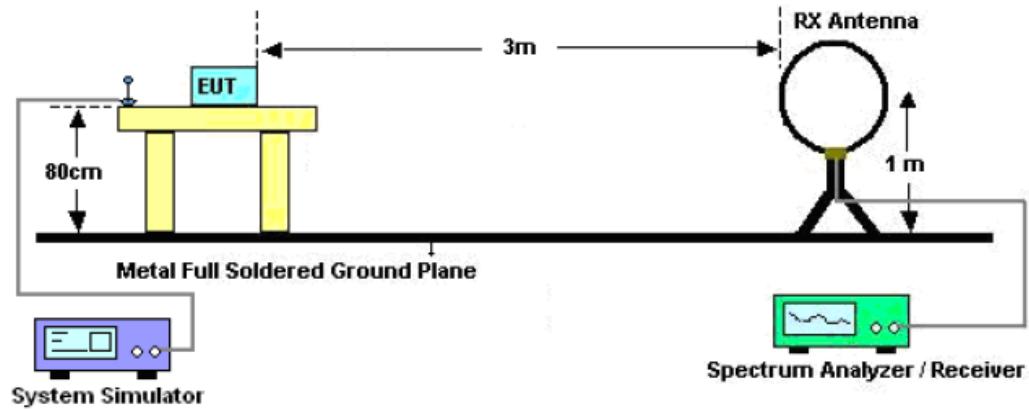
The following table is the setting of spectrum analyzer and receiver.

| <b>Spectrum Parameter</b> | <b>Setting</b>  |
|---------------------------|---|
| 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<br>1MHz/1MHz for Peak, 1MHz/10Hz for Average |

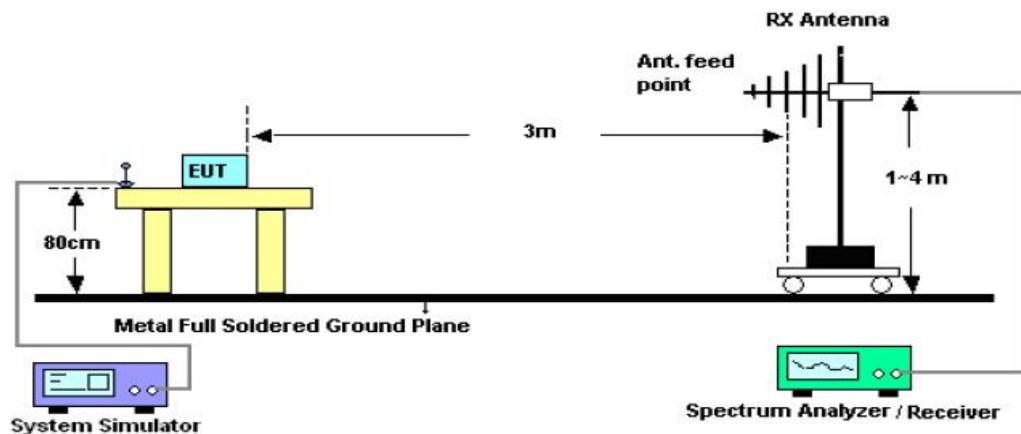
| <b>Receiver Parameter</b> | <b>Setting</b>                 |
|---------------------------|--------------------------------|
| Start ~Stop Frequency     | 9KHz~150KHz/RB 200Hz for QP    |
| Start ~Stop Frequency     | 150KHz~30MHz/RB 9KHz for QP    |
| Start ~Stop Frequency     | 30MHz~1000MHz/RB 120KHz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

## 7.2. TEST SETUP

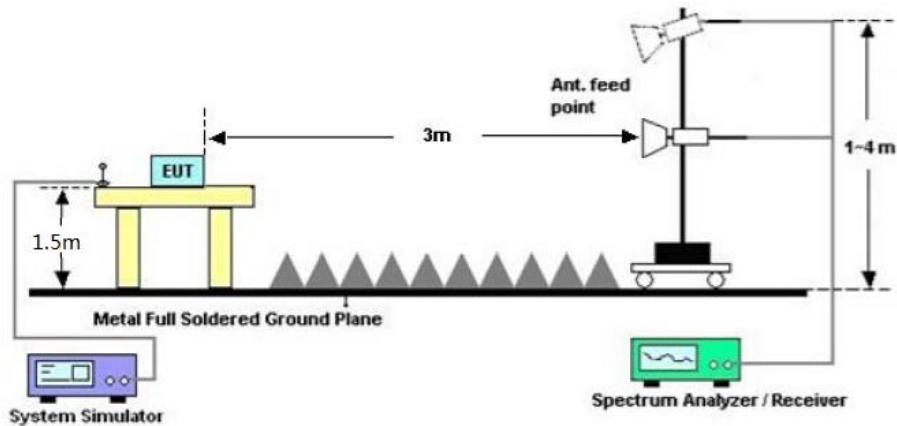
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



### 7.3. LIMITS AND MEASUREMENT RESULT

15.209(a) Limit in the below table has to be followed

| <b>Frequencies<br/>(MHz)</b> | <b>Field Strength<br/>(micorvolts/meter)</b> | <b>Measurement Distance<br/>(meters)</b> |
|------------------------------|--|--|
| 0.009~0.490                  | 2400/F(KHz)                                  | 300                                      |
| 0.490~1.705                  | 24000/F(KHz)                                 | 30                                       |
| 1.705~30.0                   | 30   | 30                                       |
| 30~88                        | 100  | 3  |
| 88~216                       | 150  | 3  |
| 216~960                      | 200  | 3  |
| Above 960                    | 500  | 3  |

Note: All modes were tested For restricted band radiated emission,  
the test records reported below are the worst result compared to other modes.

### 7.4. TEST RESULT

#### RADIATED EMISSION BELOW 30MHZ

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

RADIATED EMISSION BELOW 1GHZ

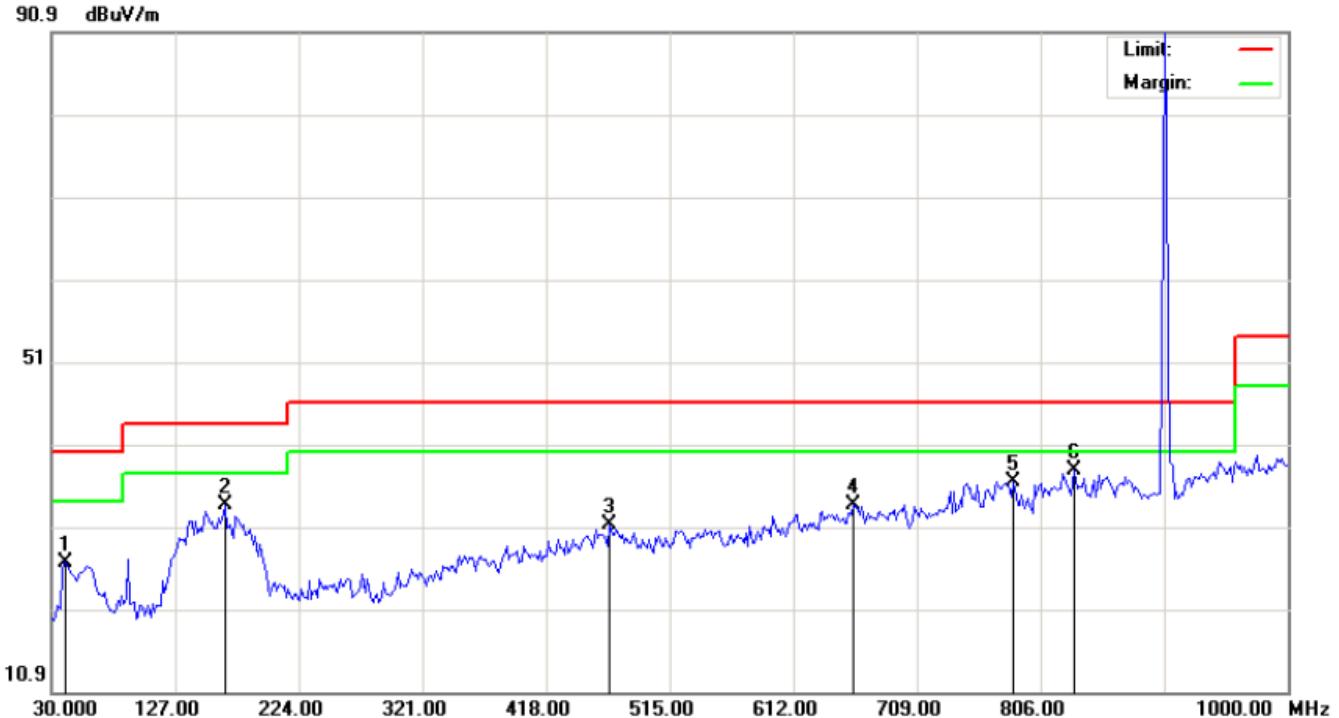
|                    |            |                          |                |
|--------------------|------------|--------------------------|----------------|
| <b>EUT</b>         | UHF READER | <b>Model Name</b>        | UHF1-5F        |
| <b>Temperature</b> | 25°C       | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa     | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | Mode 1     | <b>Antenna</b>           | Horizontal     |



| 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   | *  | 47.7832  | 18.96   | 11.39  | 30.35       | 40.00  | -9.65  | peak     |                |              |         |
| 2   |    | 372.7333 | 11.61   | 18.89  | 30.50       | 46.00  | -15.50 | peak     |                |              |         |
| 3   |    | 448.7167 | 10.50   | 20.55  | 31.05       | 46.00  | -14.95 | peak     |                |              |         |
| 4   |    | 587.7500 | 9.11    | 23.42  | 32.53       | 46.00  | -13.47 | peak     |                |              |         |
| 5   |    | 760.7333 | 9.27    | 26.78  | 36.05       | 46.00  | -9.95  | peak     |                |              |         |
| 6   |    | 799.5333 | 8.18    | 27.31  | 35.49       | 46.00  | -10.51 | peak     |                |              |         |

**RESULT: PASS**

|                    |            |                          |                |
|--------------------|------------|--------------------------|----------------|
| <b>EUT</b>         | UHF READER | <b>Model Name</b>        | UHF1-5F        |
| <b>Temperature</b> | 25°C       | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa     | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | Mode 1     | <b>Antenna</b>           | Vertical       |



| 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   |    | 41.3167  | 17.83   | 8.81   | 26.64       | 40.00  | -13.36 | peak     |                |              |         |
| 2   |    | 165.8000 | 18.57   | 14.96  | 33.53       | 43.50  | -9.97  | peak     |                |              |         |
| 3   |    | 468.1167 | 10.33   | 20.79  | 31.12       | 46.00  | -14.88 | peak     |                |              |         |
| 4   |    | 658.8832 | 9.54    | 24.09  | 33.63       | 46.00  | -12.37 | peak     |                |              |         |
| 5   |    | 784.9833 | 9.34    | 27.11  | 36.45       | 46.00  | -9.55  | peak     |                |              |         |
| 6   | *  | 831.8667 | 10.51   | 27.31  | 37.82       | 46.00  | -8.18  | 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.
3. All test modes had been pre-tested. The mode 1 is the worst case and recorded in the report.

**RADIATED EMISSION ABOVE 1GHZ**

|                    |            |                          |                |
|--------------------|------------|--------------------------|----------------|
| <b>EUT</b>         | UHF READER | <b>Model Name</b>        | UHF1-5F        |
| <b>Temperature</b> | 25°C       | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa     | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | Mode 1     | <b>Antenna</b>           | Horizontal     |

| Frequency<br>(MHz) | Meter Reading<br>(dB $\mu$ V) | Factor<br>(dB) | Emission Level<br>(dB $\mu$ V/m) | Limits<br>(dB $\mu$ V/m) | Margin<br>(dB) | Value Type |
|--------------------|-------------------------------|----------------|----------------------------------|--------------------------|----------------|------------|
| 1805.014           | 69.42                         | -12.18         | 57.24                            | 74                       | -16.76         | peak       |
| 1805.014           | 60.08                         | -12.18         | 47.9                             | 54                       | -6.1           | AVG        |
| 2707.021           | 58.15                         | -6.74          | 51.41                            | 74                       | -22.59         | peak       |
| 2707.021           | 49.12                         | -6.74          | 42.38                            | 54                       | -11.62         | AVG        |
|                    |                               |                |                                  |                          |                |            |
|                    |                               |                |                                  |                          |                |            |
|                    |                               |                |                                  |                          |                |            |

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

|                    |            |                          |                |
|--------------------|------------|--------------------------|----------------|
| <b>EUT</b>         | UHF READER | <b>Model Name</b>        | UHF1-5F        |
| <b>Temperature</b> | 25°C       | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa     | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | Mode 1     | <b>Antenna</b>           | Vertical       |

| Frequency<br>(MHz) | Meter Reading<br>(dB $\mu$ V) | Factor<br>(dB) | Emission Level<br>(dB $\mu$ V/m) | Limits<br>(dB $\mu$ V/m) | Margin<br>(dB) | Value Type |
|--------------------|-------------------------------|----------------|----------------------------------|--------------------------|----------------|------------|
| 1805.014           | 67.55                         | -12.18         | 55.37                            | 74                       | -18.63         | peak       |
| 1805.014           | 58.47                         | -12.18         | 46.29                            | 54                       | -7.71          | AVG        |
| 2707.021           | 57.12                         | -6.74          | 50.38                            | 74                       | -23.62         | peak       |
| 2707.021           | 48.65                         | -6.74          | 41.91                            | 54                       | -12.09         | AVG        |
|                    |                               |                |                                  |                          |                |            |
|                    |                               |                |                                  |                          |                |            |
|                    |                               |                |                                  |                          |                |            |

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

|                    |            |                          |                |
|--------------------|------------|--------------------------|----------------|
| <b>EUT</b>         | UHF READER | <b>Model Name</b>        | UHF1-5F        |
| <b>Temperature</b> | 25°C       | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa     | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | Mode 2     | <b>Antenna</b>           | Horizontal     |

| Frequency<br>(MHz) | Meter Reading<br>(dB $\mu$ V) | Factor<br>(dB) | Emission Level<br>(dB $\mu$ V/m) | Limits<br>(dB $\mu$ V/m) | Margin<br>(dB) | Value Type |
|--------------------|-------------------------------|----------------|----------------------------------|--------------------------|----------------|------------|
| 1830.013           | 68.24                         | -12.04         | 56.2                             | 74                       | -17.8          | peak       |
| 1830.013           | 59.33                         | -12.04         | 47.29                            | 54                       | -6.71          | AVG        |
| 2745.018           | 58.28                         | -6.72          | 51.56                            | 74                       | -22.44         | peak       |
| 2745.018           | 49.36                         | -6.72          | 42.64                            | 54                       | -11.36         | AVG        |
|                    |                               |                |                                  |                          |                |            |
|                    |                               |                |                                  |                          |                |            |
|                    |                               |                |                                  |                          |                |            |

|                    |            |                          |                |
|--------------------|------------|--------------------------|----------------|
| <b>EUT</b>         | UHF READER | <b>Model Name</b>        | UHF1-5F        |
| <b>Temperature</b> | 25°C       | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa     | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | Mode 2     | <b>Antenna</b>           | Vertical       |

| Frequency<br>(MHz) | Meter Reading<br>(dB $\mu$ V) | Factor<br>(dB) | Emission Level<br>(dB $\mu$ V/m) | Limits<br>(dB $\mu$ V/m) | Margin<br>(dB) | Value Type |
|--------------------|-------------------------------|----------------|----------------------------------|--------------------------|----------------|------------|
| 1830.013           | 67.33                         | -12.04         | 55.29                            | 74                       | -18.71         | peak       |
| 1830.013           | 58.29                         | -12.04         | 46.25                            | 54                       | -7.75          | AVG        |
| 2745.018           | 56.37                         | -6.72          | 49.65                            | 74                       | -24.35         | peak       |
| 2745.018           | 47.55                         | -6.72          | 40.83                            | 54                       | -13.17         | AVG        |
|                    |                               |                |                                  |                          |                |            |
|                    |                               |                |                                  |                          |                |            |

|                    |            |                          |                |
|--------------------|------------|--------------------------|----------------|
| <b>EUT</b>         | UHF READER | <b>Model Name</b>        | UHF1-5F        |
| <b>Temperature</b> | 25°C       | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa     | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | Mode 3     | <b>Antenna</b>           | Horizontal     |

| Frequency<br>(MHz)                                    | Meter Reading<br>(dB $\mu$ V) | Factor<br>(dB) | Emission Level<br>(dB $\mu$ V/m) | Limits<br>(dB $\mu$ V/m) | Margin<br>(dB) | Value Type |
|---|-------------------------------|----------------|----------------------------------|--------------------------|----------------|------------|
| 1855.012  | 69.85                         | -11.96         | 57.89                            | 74                       | -16.11         | peak       |
| 1855.012  | 60.35                         | -11.96         | 48.39                            | 54                       | -5.61          | AVG        |
| 2782.516  | 61.74                         | -6.68          | 55.06                            | 74                       | -18.94         | peak       |
| 2782.516  | 52.19                         | -6.68          | 45.51                            | 54                       | -8.49          | AVG        |
|   |                               |                |                                  |                          |                |            |
|   |                               |                |                                  |                          |                |            |
|   |                               |                |                                  |                          |                |            |
| <b>Remark:</b>  |                               |                |                                  |                          |                |            |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. |                               |                |                                  |                          |                |            |

|                    |            |                          |                |
|--------------------|------------|--------------------------|----------------|
| <b>EUT</b>         | UHF READER | <b>Model Name</b>        | UHF1-5F        |
| <b>Temperature</b> | 25°C       | <b>Relative Humidity</b> | 55.4%          |
| <b>Pressure</b>    | 960hPa     | <b>Test Voltage</b>      | Normal Voltage |
| <b>Test Mode</b>   | Mode 3     | <b>Antenna</b>           | Vertical       |

| Frequency<br>(MHz)                                    | Meter Reading<br>(dB $\mu$ V) | Factor<br>(dB) | Emission Level<br>(dB $\mu$ V/m) | Limits<br>(dB $\mu$ V/m) | Margin<br>(dB) | Value Type |
|---|-------------------------------|----------------|----------------------------------|--------------------------|----------------|------------|
| 1855.012  | 67.58                         | -11.96         | 55.62                            | 74                       | -18.38         | peak       |
| 1855.012  | 58.17                         | -11.96         | 46.21                            | 54                       | -7.79          | AVG        |
| 2782.516  | 59.42                         | -6.68          | 52.74                            | 74                       | -21.26         | peak       |
| 2782.516  | 50.07                         | -6.68          | 43.39                            | 54                       | -10.61         | AVG        |
|   |                               |                |                                  |                          |                |            |
|   |                               |                |                                  |                          |                |            |
|   |                               |                |                                  |                          |                |            |
| <b>Remark:</b>  |                               |                |                                  |                          |                |            |
| Factor = Antenna Factor + Cable Loss – Pre-amplifier. |                               |                |                                  |                          |                |            |

## RESULT: PASS

### Note:

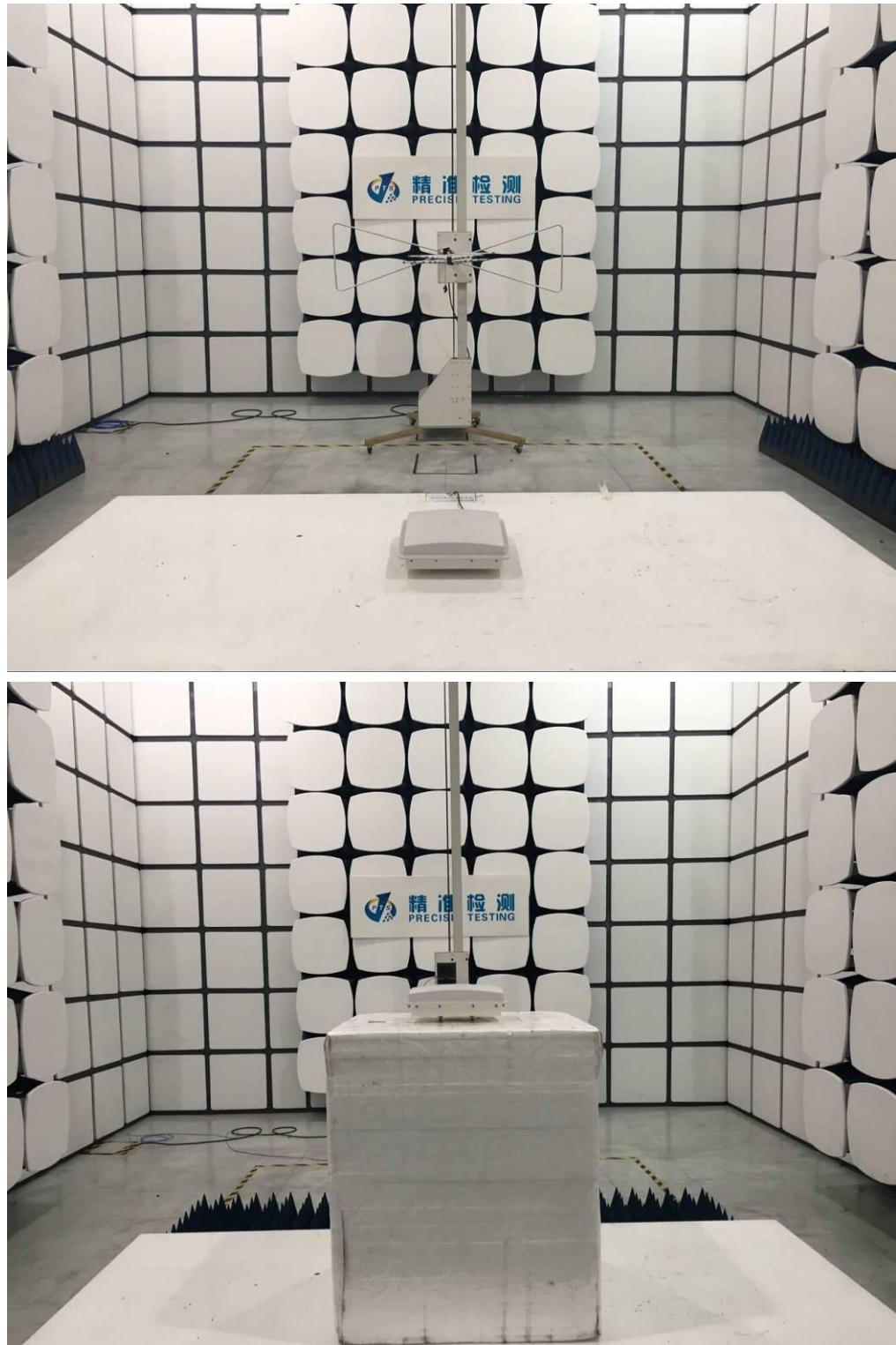
Other emissions from 3G to 10 GHz are considered as ambient noise. No recording in the test report.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

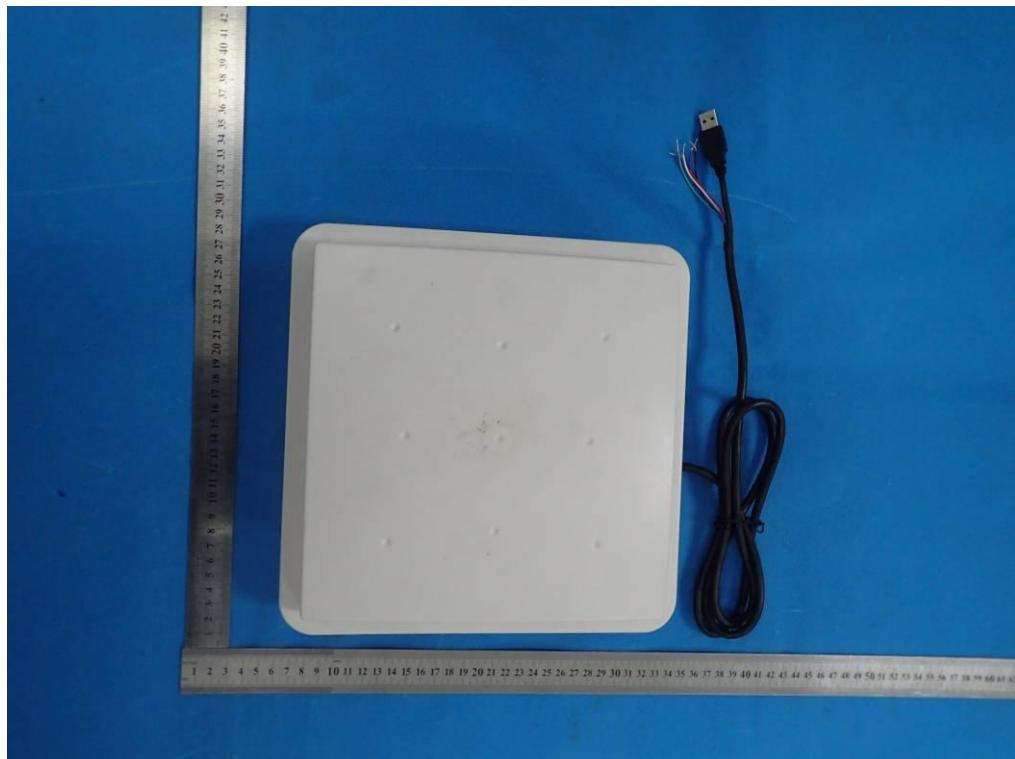
The “Factor” value can be calculated automatically by software of measurement system.

All test modes had been pre-tested. The GFSK modulation is the worst case and recorded in the report.

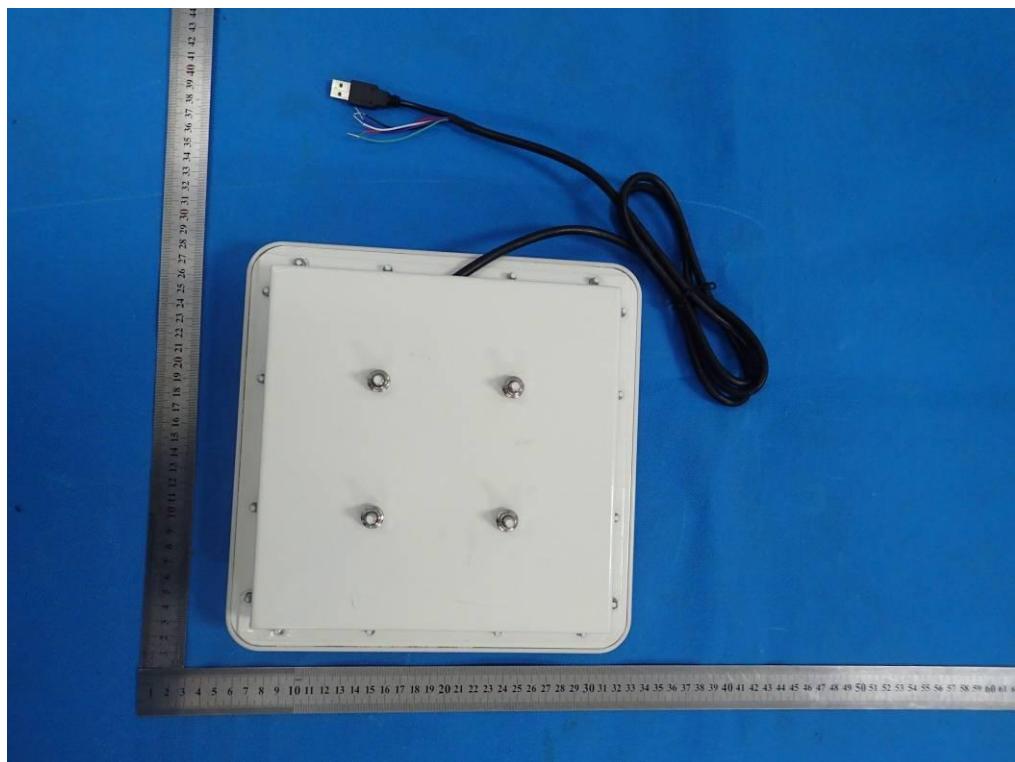
**APPENDIX A: PHOTOGRAPHS OF TEST SETUP**  
**FCC RADIATED EMISSION TEST SETUP**



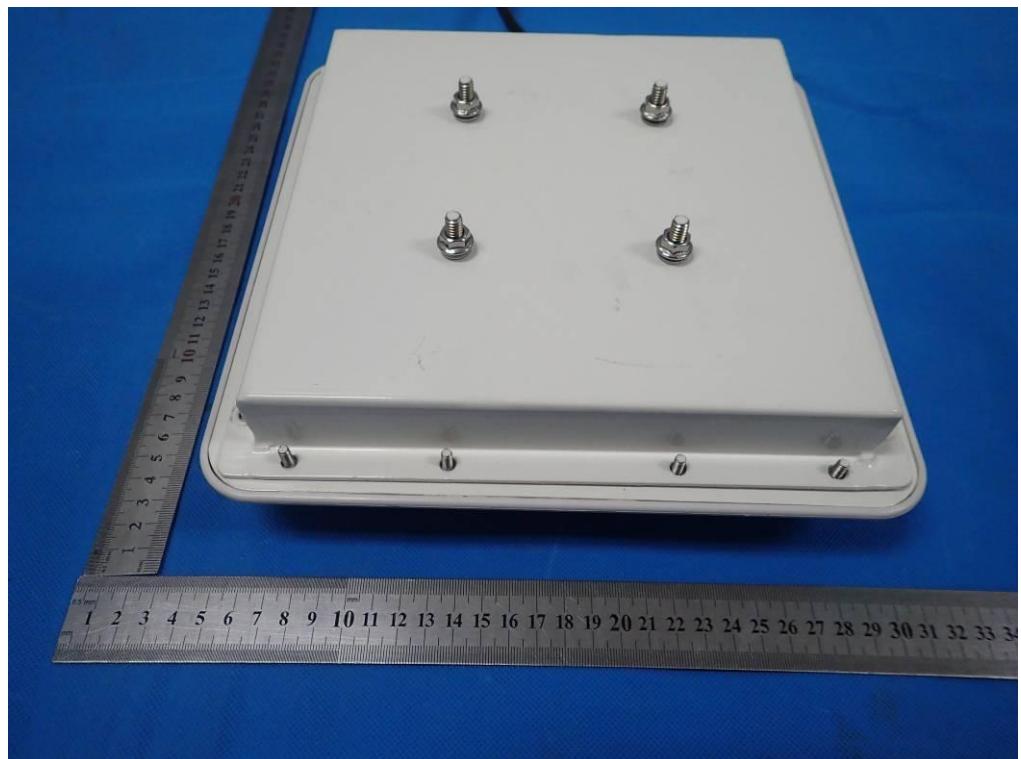
**APPENDIX B: PHOTOGRAPHS OF EUT**  
**TOP VIEW OF EUT**



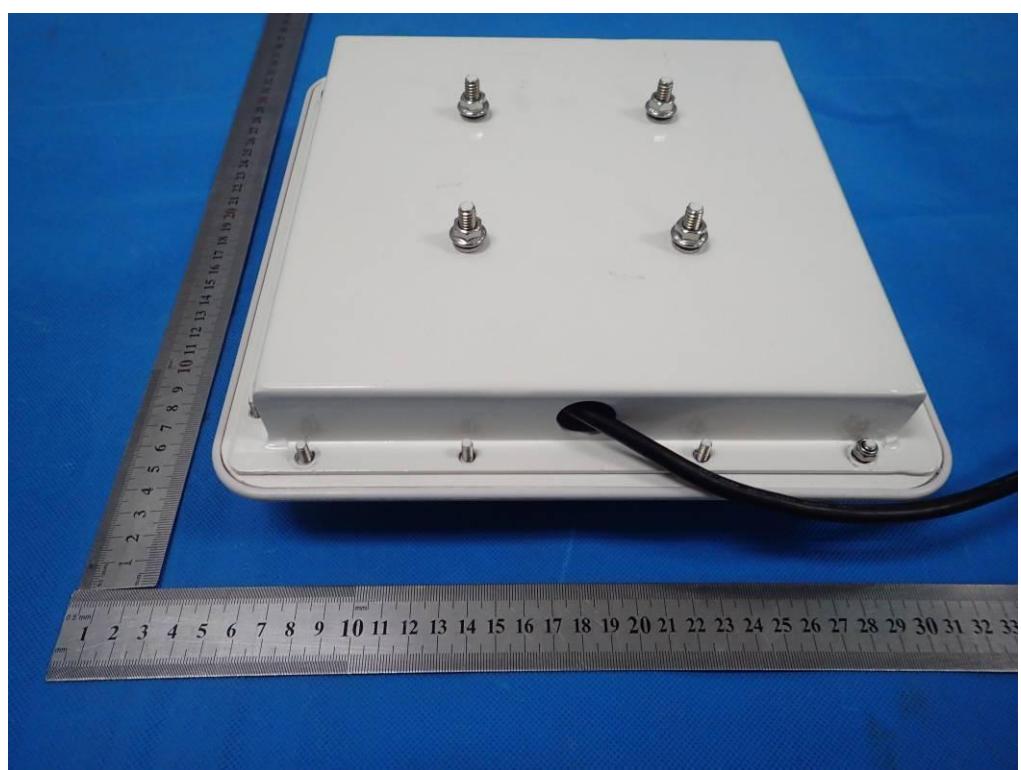
**BOTTOM VIEW OF EUT**



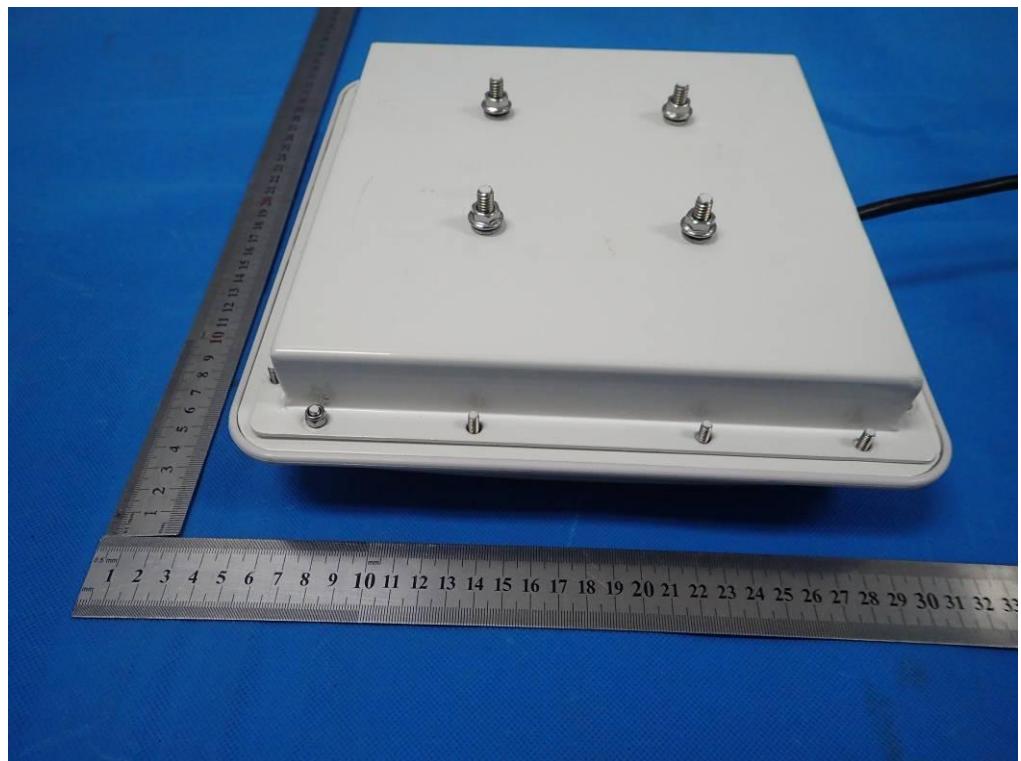
FRONT VIEW OF EUT



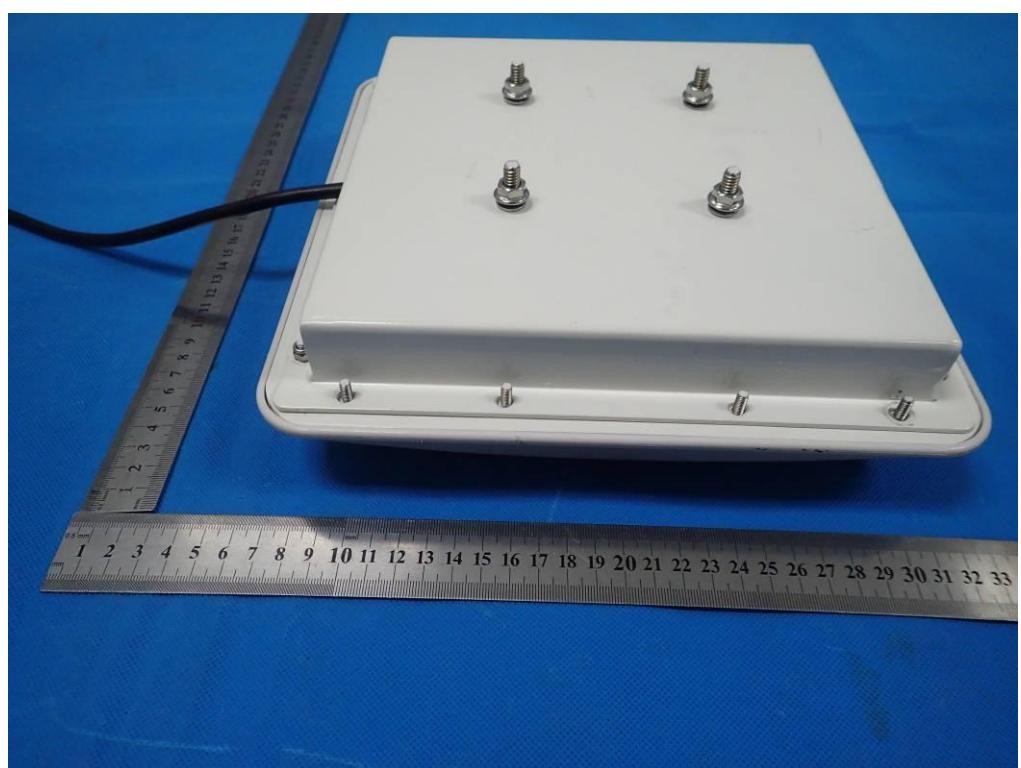
BACK VIEW OF EUT



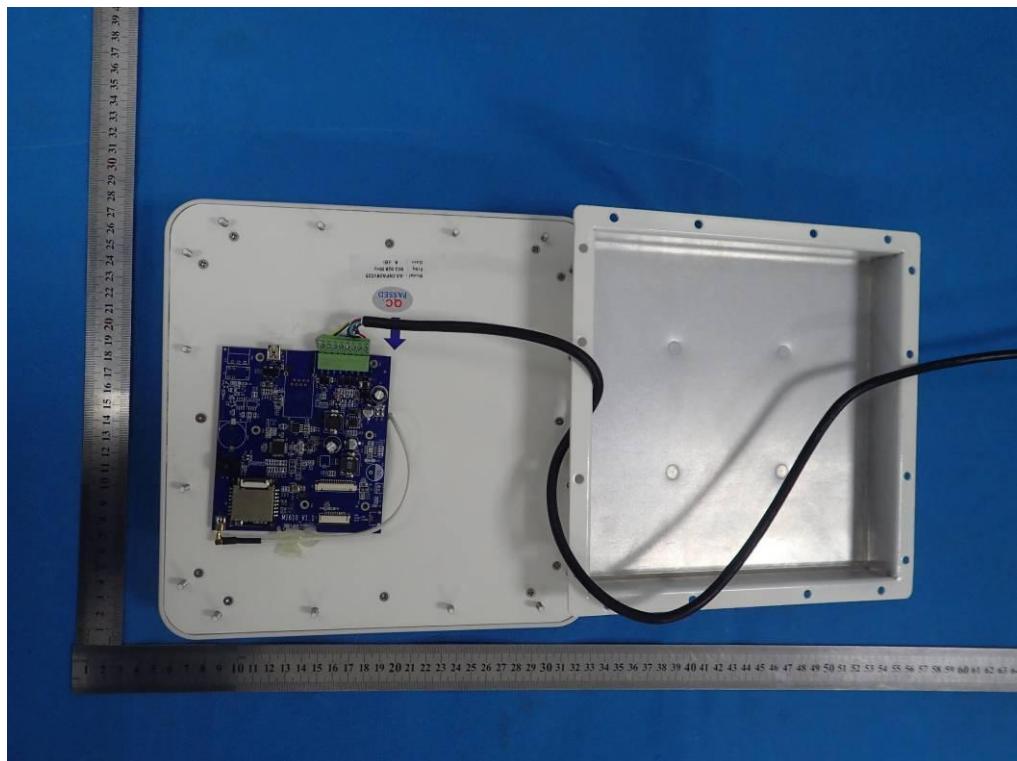
LEFT VIEW OF EUT



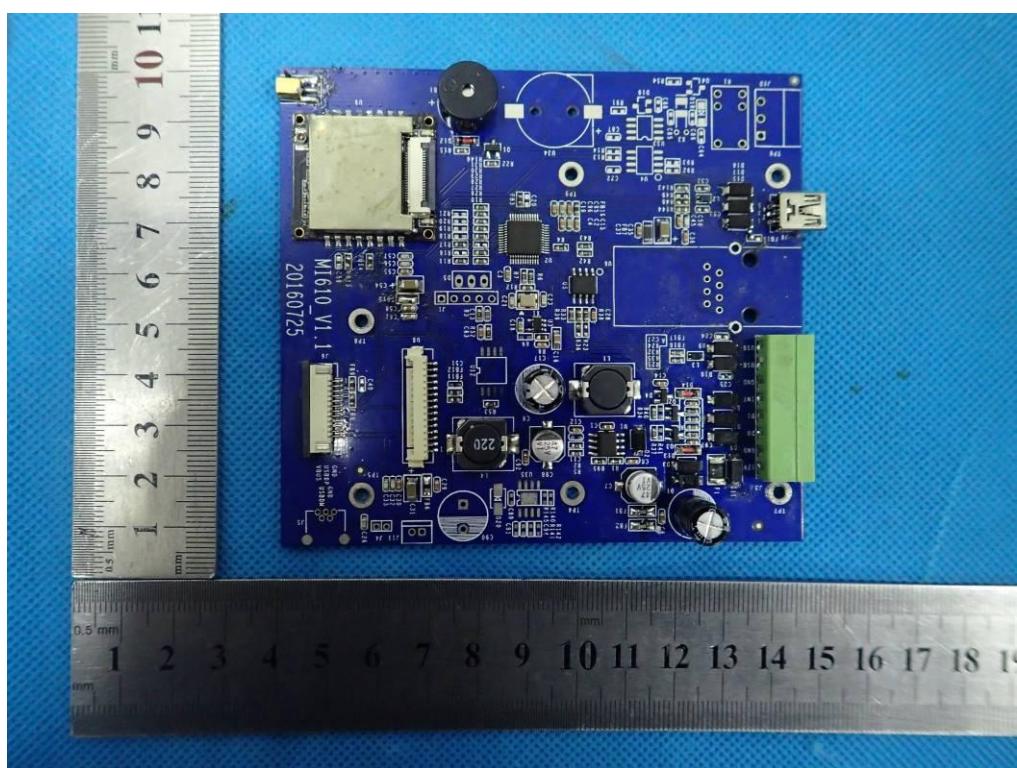
RIGHT VIEW OF EUT



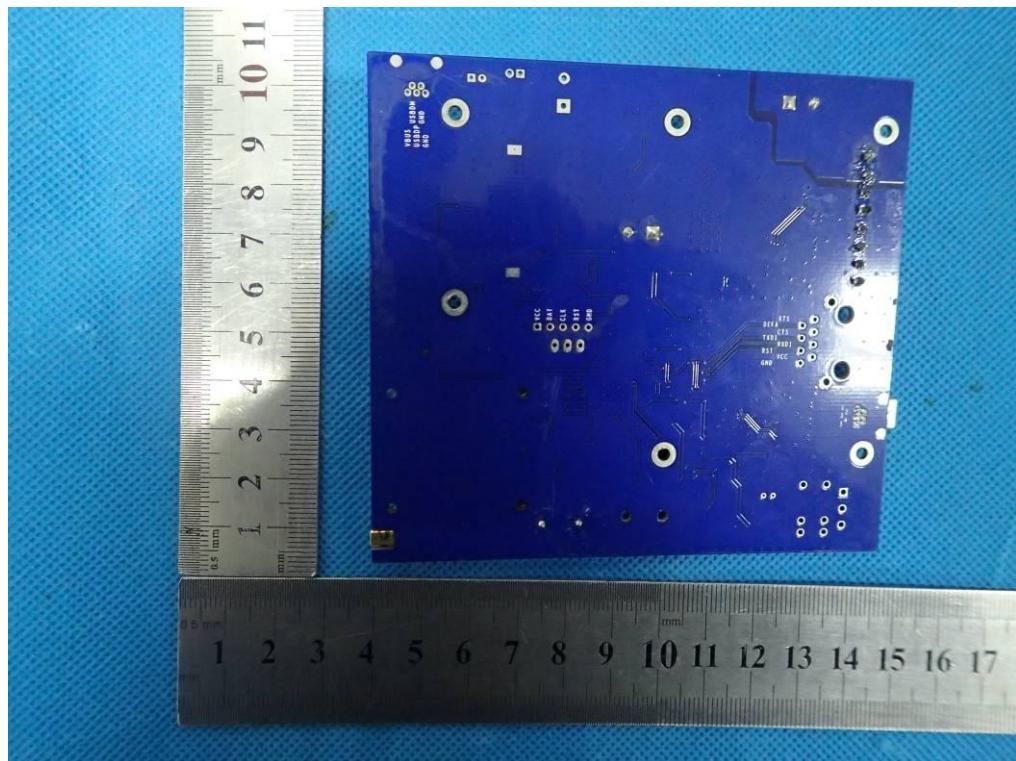
OPEN VIEW OF EUT



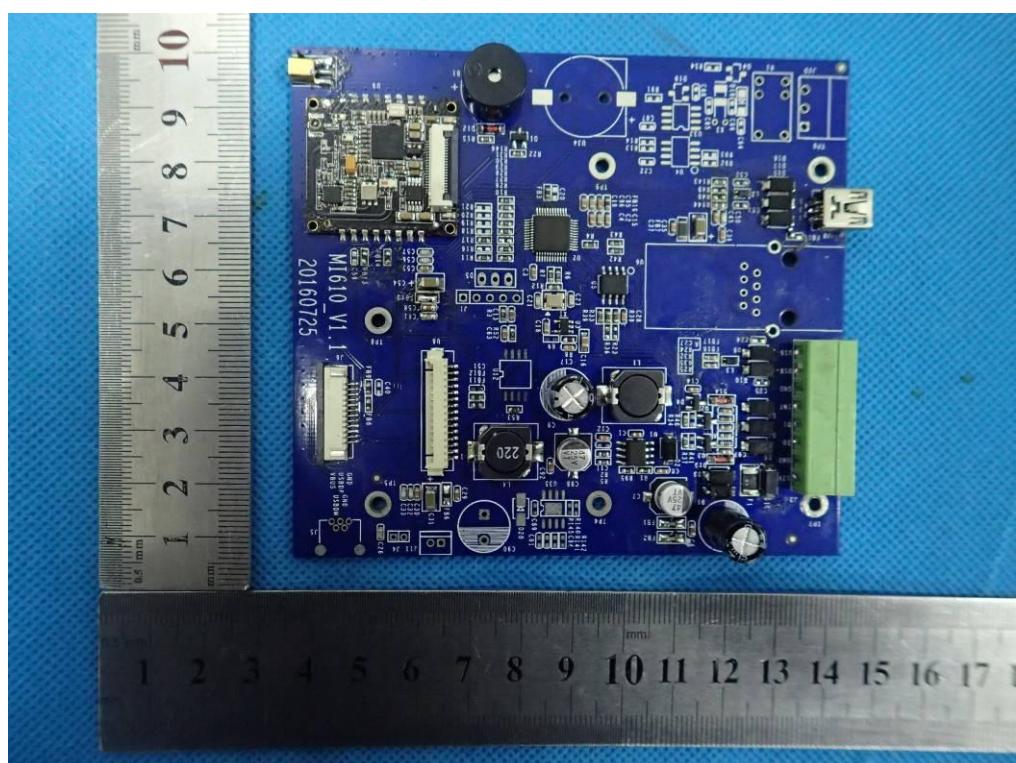
INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



----END OF REPORT----