

# FCC Test Report

APPLICANT : CT Asia  
EQUIPMENT : GSM mobile phone  
BRAND NAME : BLU  
MODEL NAME : Swing  
FCC ID : YHLBLUSWING  
STANDARD : FCC 47 CFR FCC Part 15 Subpart B  
CLASSIFICATION : Certification

The product was received on Dec. 08, 2011 and completely tested on Dec. 11, 2011. We, SPORTON INTERNATIONAL (KUNSAHN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:



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Jones Tsai / Manager



**SPORTON INTERNATIONAL (KUNSHAN) INC.**  
**No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.**

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## REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE   |
|------------|---------|-------------------------|---------------|
| FD1D0807   | Rev. 01 | Initial issue of report | Dec. 15, 2011 |
|            |         |                         |               |
|            |         |                         |               |
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|            |         |                         |               |
|            |         |                         |               |

## SUMMARY OF TEST RESULT

| Report Section | FCC Rule | Description           | Limit           | Result | Remark                                  |
|----------------|----------|-----------------------|-----------------|--------|-----------------------------------------|
| 3.1            | 15.107   | AC Conducted Emission | < 15.107 limits | PASS   | Under limit<br>13.34 dB at<br>25.86 MHz |
| 3.2            | 15.109   | Radiated Emission     | < 15.109 limits | PASS   | Under limit<br>2.85 dB at<br>594.00 MHz |

# 1. General Description

## 1.1. Applicant

**CT Asia**

RMA2011, 20/F, GOLDEN CENTRAL TOWER , NO.3037# JINTIAN ROAD , FUTIAN DISTRICT

## 1.2. Manufacturer

**zechin communication co., Ltd**

Unit804, 8th Floor Desay Tech Building Gaoxin Road South, Nanshan District Shenzhen, China

## 1.3. Feature of Equipment Under Test

| Product Feature & Specification |                                                                                                                           |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Equipment                       | GSM mobile phone                                                                                                          |
| Brand Name                      | BLU                                                                                                                       |
| Model Name                      | Swing                                                                                                                     |
| FCC ID                          | YHLBLUSWING                                                                                                               |
| Tx Frequency Range              | GSM850 : 824 MHz ~ 849 MHz<br>GSM1900 : 1850 MHz ~ 1910 MHz<br>Bluetooth : 2402 MHz ~ 2480 MHz                            |
| Rx Frequency Range              | GSM850 : 869 MHz ~ 894 MHz<br>GSM1900 : 1930 MHz ~ 1990 MHz<br>Bluetooth : 2402 MHz ~ 2480 MHz                            |
| Antenna Type                    | WWAN : Fixed Internal Antenna<br>Bluetooth : PIFA Antenna                                                                 |
| HW Version                      | E200-MB-V03                                                                                                               |
| SW Version                      | E200_BLU_LEN_BT_FM_FL_SC_004_V017                                                                                         |
| Type of Modulation              | GSM / GPRS : GMSK<br>Bluetooth (1Mbps) : GFSK<br>Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK<br>Bluetooth EDR (3Mbps) : 8-DPSK |
| EUT Stage                       | Identical Prototype                                                                                                       |

### Remark:

- 1 The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
- 2 There are two different types of EUT. They are single SIM card mobile and dual SIM card mobile. The others are the same including circuit design, PCB board, structure and all components. It is special to declare. After pre-scan two types of EUT, we found test result of the sample that dual SIM was the worst, so we choose dual SIM card mobile to perform all test.

## 1.4. Test Site

|                           |                                                                                                                  |           |
|---------------------------|------------------------------------------------------------------------------------------------------------------|-----------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL (KUNSHAN) INC.                                                                             |           |
| <b>Test Site Location</b> | No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.<br>TEL: +86-0512-5790-0158<br>FAX: +86-0512-5790-0958 |           |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                          |           |
|                           | CO01-KS                                                                                                          | 03CH01-KS |

## 1.5. Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2003

### Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This report is intention of applying for FCC 15B certification only.

## 1.6. Ancillary Equipment List

| Item | Equipment          | Trade Name | Model Name     | FCC ID     | Data Cable                | Power Cord        |
|------|--------------------|------------|----------------|------------|---------------------------|-------------------|
| 1.   | System Simulator   | R&S        | CMU 200        | N/A        | N/A                       | Unshielded, 1.8 m |
| 2.   | PC                 | DELL       | MT320          | FCC DoC    | N/A                       | Unshielded, 1.8 m |
| 3.   | Monitor            | DELL       | ST2220Lb       | FCC DoC    | Shielded, 1.2 m           | Unshielded, 1.8 m |
| 4.   | Bluetooth Earphone | Nokia      | BH-102         | PYAHS-107W | N/A                       | N/A               |
| 5.   | (USB) Mouse        | DELL       | MO56UC         | FCC DoC    | Shielded, 1.8 m           | N/A               |
| 6.   | (USB) Keyboard     | DELL       | SK-8115        | FCC DoC    | Shielded, 1.8 m with Core | N/A               |
| 7.   | iPod               | Apple      | A1199          | FCC DoC    | Shielded, 1.2 m           | N/A               |
| 8.   | Printer            | HP         | Laser Jet 1018 | FCC DoC    | Shielded, 1.8 m           | Unshielded, 1.8 m |

## 2. Test Configuration of Equipment Under Test

### 2.1. Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following tables are showing the test modes as the worst cases and recorded in this report.

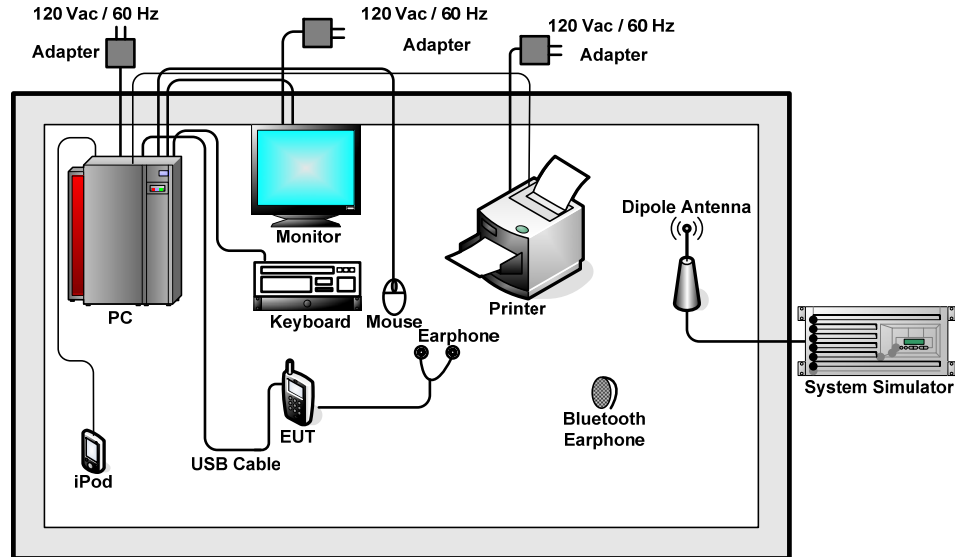
| Item | EUT Configuration                               | Test Condition |           |           |
|------|-------------------------------------------------|----------------|-----------|-----------|
|      |                                                 | EMI AC         | EMI RE<1G | EMI RE≥1G |
| 1.   | Data application transferred Mode (EUT with PC) | ☒              | ☒         | ☒         |

#### Abbreviations:

- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

| Test Items                                                                              | EUT Configure Mode | Function Type                                                          |
|-----------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------|
| AC Conducted Emission                                                                   | 1                  | Mode 1::GSM850 Idle + Bluetooth + USB Cable (Link with PC) + Earphone  |
| Radiated Emissions < 1GHz                                                               | 1                  | Mode 1: GSM1900 Idle + Bluetooth + USB Cable (Link with PC) + Earphone |
| Radiated Emissions ≥ 1GHz                                                               | 1                  | Mode 1: GSM1900 Idle + Bluetooth + USB Cable (Link with PC) + Earphone |
| <b>Remark:</b> Link with PC means data application transferred mode between DUT and PC. |                    |                                                                        |

## 2.2. Connection Diagram of Test System



## 2.3. Test Software

The EUT was in GSM idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone, and execute the program, "Winthrax", installed in PC for active sync files transfer with EUT via USB cable / iPod.

### 3. Test Result

#### 3.1. Test of AC Conducted Emission Measurement

##### 3.1.1 Limits of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency of emission<br>(MHz) | Conducted limit (dBuV) |           |
|--------------------------------|------------------------|-----------|
|                                | Quasi-peak             | Average   |
| 0.15-0.5                       | 66 to 56*              | 56 to 46* |
| 0.5-5                          | 56                     | 46        |
| 5-30                           | 60                     | 50        |

\*Decreases with the logarithm of the frequency.

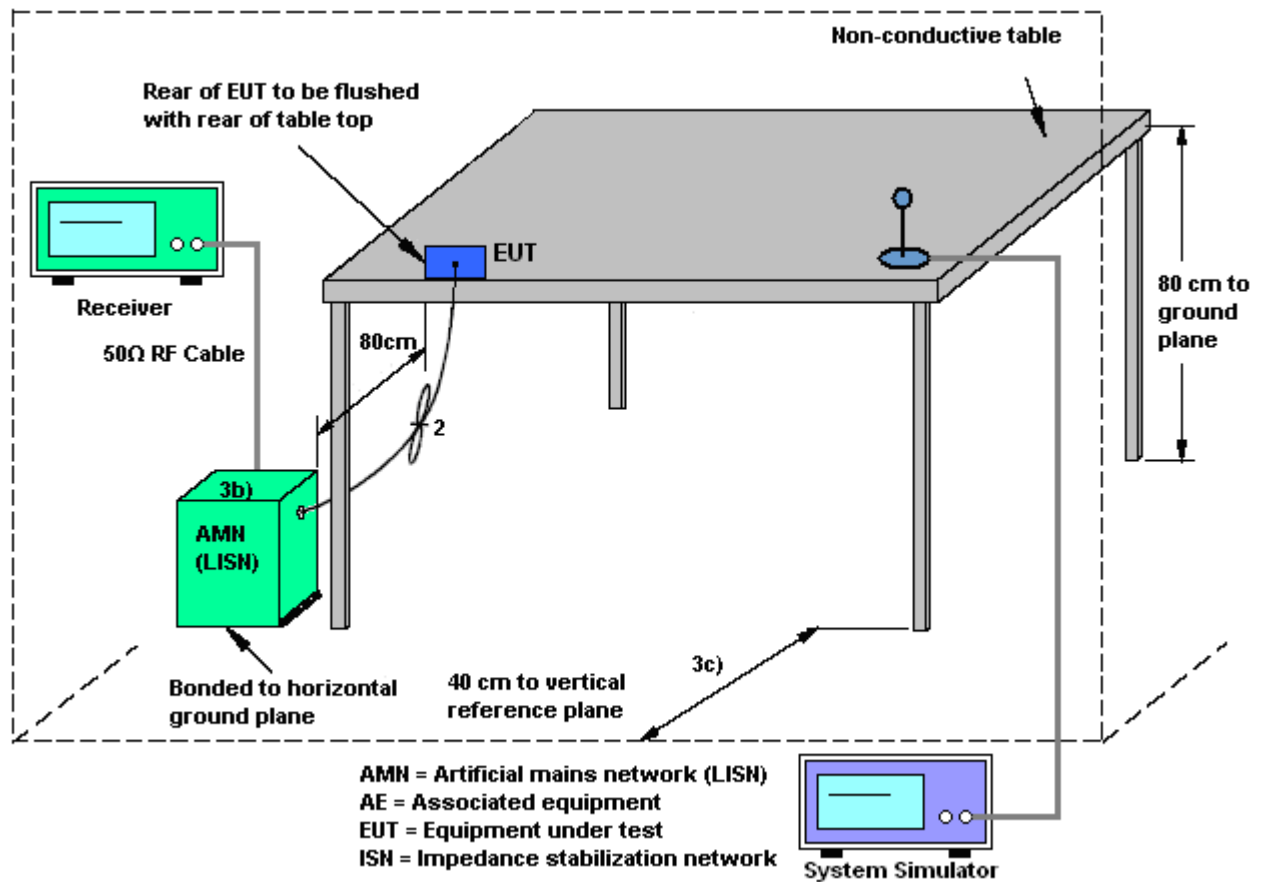
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedure

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. The EUT link with PC, connect PC to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

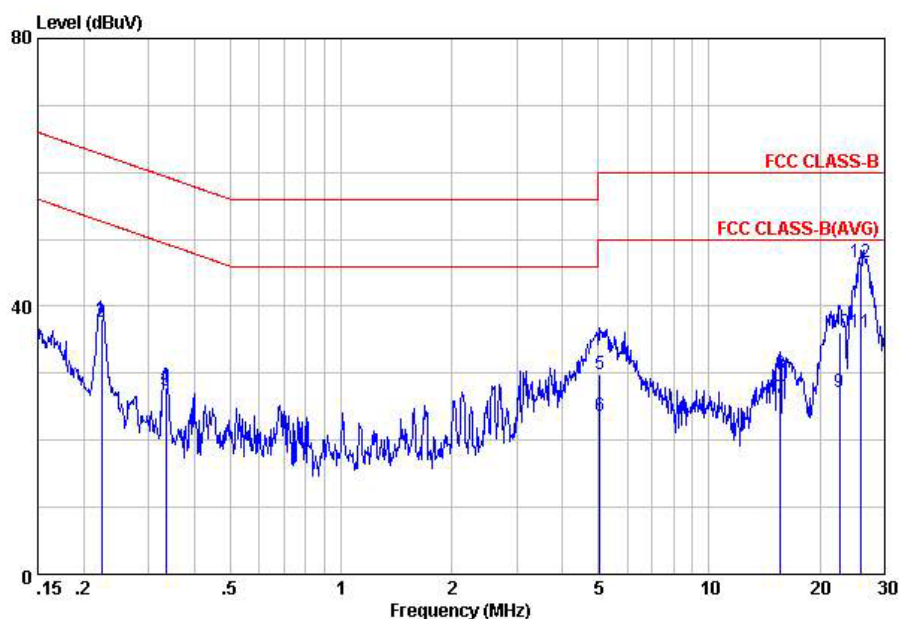
### 3.1.4 Test Setup





## 3.1.5 Test Result of AC Conducted Emission

|                 |                                                                                 |                     |        |
|-----------------|---------------------------------------------------------------------------------|---------------------|--------|
| Test Mode :     | Mode 1                                                                          | Temperature :       | 20~21℃ |
| Test Engineer : | Alva Guo                                                                        | Relative Humidity : | 40~42% |
| Test Voltage :  | 120Vac / 60Hz                                                                   | Phase :             | Line   |
| Function Type : | GSM850 Idle + Bluetooth + USB Cable (Link with PC) + Earphone                   |                     |        |
| Remark :        | All emissions not reported here are more than 10 dB below the prescribed limit. |                     |        |



Site : C001-KS  
Condition: FCC CLASS-B LISN-100807 LINE  
Project : (FD) 1D0807

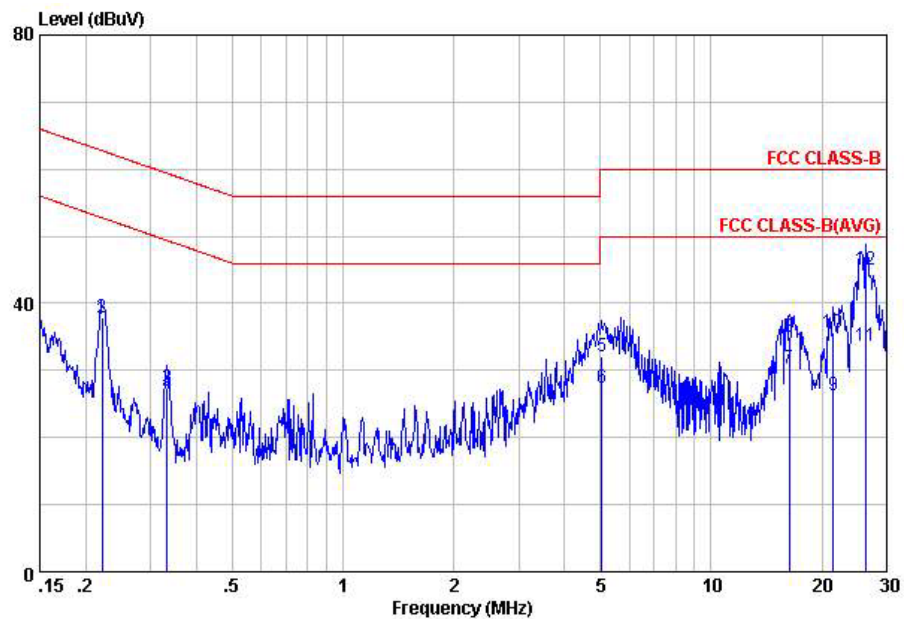
|    | Freq  | Level | Over   | Limit | Read  | LISN   | Cable |         |
|----|-------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz   | dBuV  | Limit  | Line  | Level | Factor | Loss  | Remark  |
|    |       |       |        |       |       |        |       |         |
| 1  | 0.22  | 38.08 | -24.62 | 62.70 | 28.00 | -0.07  | 10.15 | QP      |
| 2  | 0.22  | 37.68 | -15.02 | 52.70 | 27.60 | -0.07  | 10.15 | Average |
| 3  | 0.33  | 27.50 | -21.85 | 49.35 | 17.40 | -0.08  | 10.18 | Average |
| 4  | 0.33  | 27.90 | -31.45 | 59.35 | 17.80 | -0.08  | 10.18 | QP      |
| 5  | 5.06  | 29.77 | -30.23 | 60.00 | 19.50 | -0.13  | 10.40 | QP      |
| 6  | 5.06  | 23.67 | -26.33 | 50.00 | 13.40 | -0.13  | 10.40 | Average |
| 7  | 15.63 | 26.31 | -23.69 | 50.00 | 15.80 | -0.01  | 10.52 | Average |
| 8  | 15.63 | 29.81 | -30.19 | 60.00 | 19.30 | -0.01  | 10.52 | QP      |
| 9  | 22.66 | 27.10 | -22.90 | 50.00 | 16.40 | 0.09   | 10.61 | Average |
| 10 | 22.66 | 36.10 | -23.90 | 60.00 | 25.40 | 0.09   | 10.61 | QP      |
| 11 | 25.86 | 36.06 | -13.94 | 50.00 | 25.20 | 0.20   | 10.66 | Average |
| 12 | 25.86 | 46.66 | -13.34 | 60.00 | 35.80 | 0.20   | 10.66 | QP      |



## FCC Test Report

Report No. : FD1D0807

|                 |                                                                                 |                     |         |
|-----------------|---------------------------------------------------------------------------------|---------------------|---------|
| Test Mode :     | Mode 1                                                                          | Temperature :       | 20~21℃  |
| Test Engineer : | Alva Guo                                                                        | Relative Humidity : | 40~42%  |
| Test Voltage :  | 120Vac / 60Hz                                                                   | Phase :             | Neutral |
| Function Type : | GSM850 Idle + Bluetooth + USB Cable (Link with PC) + Earphone                   |                     |         |
| Remark :        | All emissions not reported here are more than 10 dB below the prescribed limit. |                     |         |



Site : C001-KS  
Condition: FCC CLASS-B LISN-100807 NEUTRAL  
Project : (FD) 1D0807

|    | Freq  | Level | Over   | Limit | Read  | LISN   | Cable |         |
|----|-------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz   | dBuV  | Limit  | Line  | Level | Factor | Loss  | Remark  |
|    |       |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1  | 0.22  | 37.68 | -15.06 | 52.74 | 27.60 | -0.07  | 10.15 | Average |
| 2  | 0.22  | 37.98 | -24.76 | 62.74 | 27.90 | -0.07  | 10.15 | QP      |
| 3  | 0.33  | 27.30 | -32.10 | 59.40 | 17.20 | -0.08  | 10.18 | QP      |
| 4  | 0.33  | 26.60 | -22.80 | 49.40 | 16.50 | -0.08  | 10.18 | Average |
| 5  | 5.06  | 32.17 | -27.83 | 60.00 | 21.90 | -0.13  | 10.40 | QP      |
| 6  | 5.06  | 27.37 | -22.63 | 50.00 | 17.10 | -0.13  | 10.40 | Average |
| 7  | 16.31 | 30.31 | -19.69 | 50.00 | 19.79 | -0.01  | 10.53 | Average |
| 8  | 16.31 | 35.01 | -24.99 | 60.00 | 24.49 | -0.01  | 10.53 | QP      |
| 9  | 21.49 | 26.35 | -23.65 | 50.00 | 15.70 | 0.06   | 10.59 | Average |
| 10 | 21.49 | 35.55 | -24.45 | 60.00 | 24.90 | 0.06   | 10.59 | QP      |
| 11 | 26.42 | 33.54 | -16.46 | 50.00 | 22.70 | 0.17   | 10.67 | Average |
| 12 | 26.42 | 45.04 | -14.96 | 60.00 | 34.20 | 0.17   | 10.67 | QP      |

## 3.2. Test of Radiated Emission Measurement

### 3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(meters) |
|--------------------|--------------------------------------|----------------------------------|
| 30 – 88            | 100                                  | 3                                |
| 88 – 216           | 150                                  | 3                                |
| 216 - 960          | 200                                  | 3                                |
| Above 960          | 500                                  | 3                                |

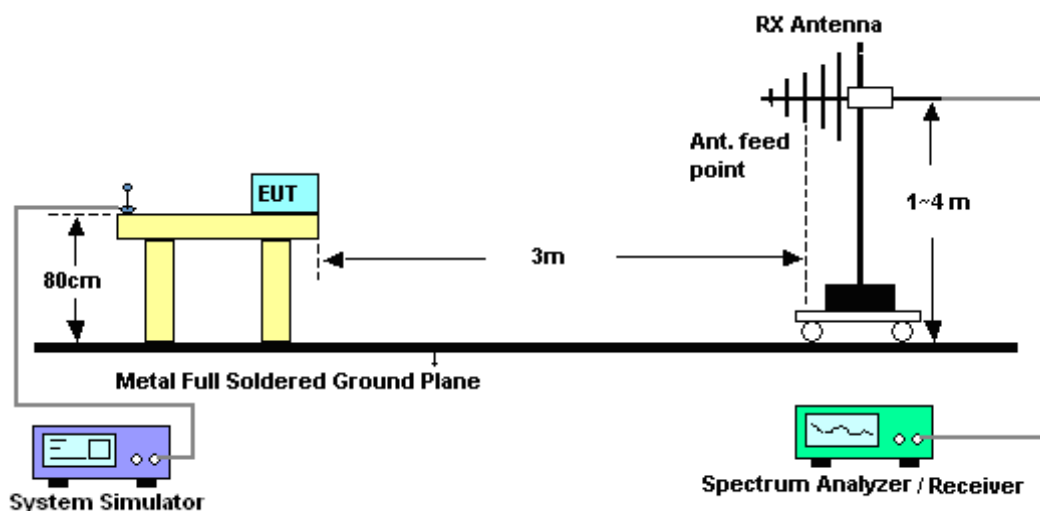
### 3.2.2. Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3. Test Procedures

1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the quasi-peak method and reported
8. Emission level (dBuV/m) = 20 log Emission level (uV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

### 3.2.4. Test Setup of Radiated Emission





## 3.2.5. Test Result of Radiated Emission

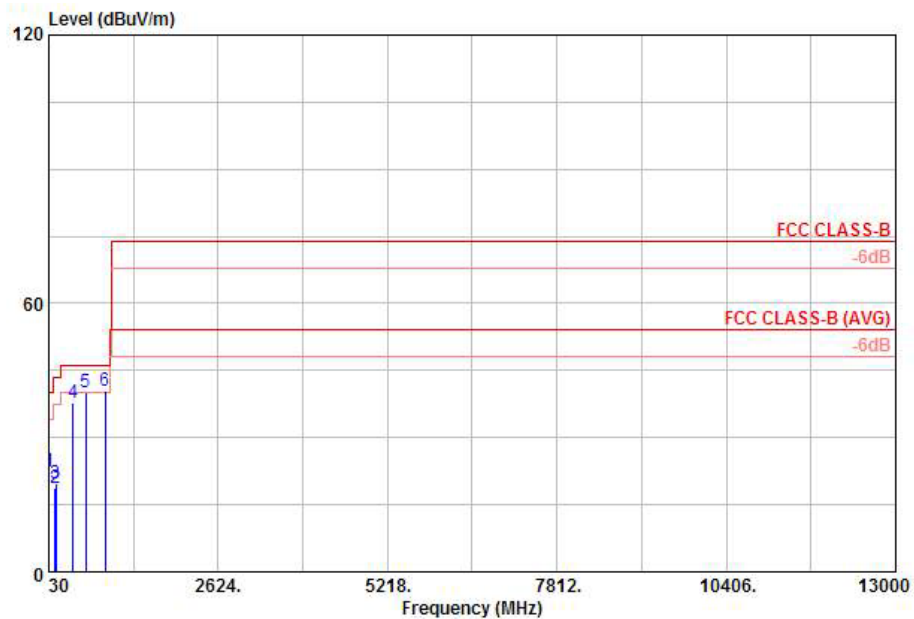




## FCC Test Report

Report No. : FD1D0807

|                 |                                                                |                     |          |
|-----------------|----------------------------------------------------------------|---------------------|----------|
| Test Mode :     | Mode 1                                                         | Temperature :       | 20~21°C  |
| Test Engineer : | Chenmy Cheng                                                   | Relative Humidity : | 40~41%   |
| Test Distance : | 3m                                                             | Polarization :      | Vertical |
| Function Type : | GSM1900 Idle + Bluetooth + USB Cable (Link with PC) + Earphone |                     |          |



Site : 03CH01-KS  
Condition: FCC CLASS-B 3m LF\_ANT\_100803 VERTICAL  
Project : (FD) 1D0807

|     | Freq   | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table   | Remark |
|-----|--------|--------|--------|--------|-------------|-------|--------|-------|---------|--------|
|     | MHz    | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | Pos   | Pos     |        |
|     |        |        | dB     | dBuV/m | dBuV        | dB    | dB     | cm    | deg     |        |
| 1   | 35.94  | 22.38  | -17.62 | 40.00  | 37.58       | 14.65 | 0.23   | 30.08 | ---     | Peak   |
| 2   | 121.80 | 18.66  | -24.84 | 43.50  | 36.40       | 11.78 | 0.45   | 29.97 | ---     | Peak   |
| 3   | 143.94 | 19.58  | -23.92 | 43.50  | 38.52       | 10.55 | 0.50   | 29.99 | ---     | Peak   |
| 4   | 398.70 | 37.89  | -8.11  | 46.00  | 50.90       | 15.98 | 0.84   | 29.83 | ---     | Peak   |
| 5 ! | 594.00 | 40.03  | -5.97  | 46.00  | 50.01       | 18.59 | 1.06   | 29.63 | ---     | Peak   |
| 6 ! | 897.10 | 40.52  | -5.48  | 46.00  | 48.26       | 20.45 | 1.30   | 29.49 | 100 226 | Peak   |

## 4. List of Measuring Equipment

| Instrument                | Manufacturer | Model No. | Serial No.   | Characteristics | Calibration Date | Test Date     | Due Date      | Remark                |
|---------------------------|--------------|-----------|--------------|-----------------|------------------|---------------|---------------|-----------------------|
| EMI Receiver              | R&S          | ESCI7     | 100768       | 9kHz~7GHz       | Jun. 02, 2011    | Dec. 10, 2011 | Jun. 01, 2012 | Conduction (CO01-KS)  |
| LISN                      | MessTec      | AN3016    | 60103        | 9kHz~30MHz      | Jan. 07, 2011    | Dec. 10, 2011 | Jan. 06, 2012 | Conduction (CO01-KS)  |
| LISN                      | MessTec      | AN3016    | 60105        | 9kHz~30MHz      | Jan. 07, 2011    | Dec. 10, 2011 | Jan. 06, 2012 | Conduction (CO01-KS)  |
| AC Power Source           | Chroma       | 61602     | ABP000000811 | N/A             | Nov. 16, 2011    | Dec. 10, 2011 | Nov. 15, 2012 | Conduction (CO01-KS)  |
| System Simulator          | R&S          | CMU200    | 837587/066   | Full-Band       | Jan. 07, 2011    | Dec. 10, 2011 | Jan. 06, 2012 | Conduction (CO01-KS)  |
| EMI Test Receiver         | R&S          | ESCI      | 100534       | 9kHz~3GHz       | Nov. 09, 2011    | Dec. 11, 2011 | Nov. 08, 2012 | Radiation (03CH01-KS) |
| Spectrum Analyzer         | R&S          | FSP40     | 100319       | 9kHz~40GHz      | Jan. 07, 2011    | Dec. 11, 2011 | Jan. 06, 2012 | Radiation (03CH01-KS) |
| Bilog Antenna             | SCHAFFNER    | CBL6112D  | 23182        | 25MHz~2GHz      | Dec. 08, 2011    | Dec. 11, 2011 | Dec. 07, 2012 | Radiation (03CH01-KS) |
| Loop Antenna              | R&S          | HFH2-Z2   | 860004/00    | 9KHz-30MHz      | Jul. 28, 2011    | Dec. 11, 2011 | Jul. 27, 2012 | Radiation (03CH01-KS) |
| Double Ridge Horn Antenna | EMCO         | 3117      | 00075959     | 1GHz~18GHz      | Jan. 07, 2011    | Dec. 11, 2011 | Jan. 06, 2012 | Radiation (03CH01-KS) |
| Amplifier                 | Wireless     | FPA-6592G | 060004       | 30MHz~2GHz      | Dec. 08, 2011    | Dec. 11, 2011 | Dec. 07, 2012 | Radiation (03CH01-KS) |
| Amplifier                 | Agilent      | 8449B     | 3008A02370   | 1GHz~26.5GHz    | Jan. 07, 2011    | Dec. 11, 2011 | Jan. 06, 2012 | Radiation (03CH01-KS) |
| Active Horn Antenna       | com-power    | AHA-118   | 701023       | 1GHz~18GHz      | Nov. 07, 2011    | Dec. 11, 2011 | Nov. 06, 2012 | Radiation (03CH01-KS) |
| SHE-EHF Horn              | Schwarzbeck  | BBHA9170  | BBHA170249   | 15GHz~40GHz     | Oct. 11, 2011    | Dec. 11, 2011 | Oct. 10, 2012 | Radiation (03CH01-KS) |
| System Simulator          | R&S          | CMU200    | 837587/066   | Full-Band       | Jan. 07, 2011    | Dec. 11, 2011 | Jan. 06, 2012 | -                     |

## 5. Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

| Contribution                                                                             | Uncertainty of $X_i$ |                          | $u(X_i)$ |
|------------------------------------------------------------------------------------------|----------------------|--------------------------|----------|
|                                                                                          | dB                   | Probability Distribution |          |
| Receiver Reading                                                                         | 0.10                 | Normal (k=2)             | 0.05     |
| Cable Loss                                                                               | 0.10                 | Normal (k=2)             | 0.05     |
| AMN Insertion Loss                                                                       | 2.50                 | Rectangular              | 0.63     |
| Receiver Specification                                                                   | 1.50                 | Rectangular              | 0.43     |
| Site Imperfection                                                                        | 1.39                 | Rectangular              | 0.80     |
| Mismatch                                                                                 | +0.34 / -0.35        | U-Shape                  | 0.24     |
| <b>Combined Standard Uncertainty <math>U_c(y)</math></b>                                 | <b>1.13</b>          |                          |          |
| <b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b> | <b>2.26</b>          |                          |          |

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

| Contribution                                                                             | Uncertainty of $X_i$ |                          | $u(X_i)$ |
|------------------------------------------------------------------------------------------|----------------------|--------------------------|----------|
|                                                                                          | dB                   | Probability Distribution |          |
| Receiver Reading                                                                         | 0.41                 | Normal (k=2)             | 0.21     |
| Antenna Factor Calibration                                                               | 0.83                 | Normal (k=2)             | 0.42     |
| Cable Loss Calibration                                                                   | 0.25                 | Normal (k=2)             | 0.13     |
| Pre-Amplifier Gain Calibration                                                           | 0.27                 | Normal (k=2)             | 0.14     |
| RCV/SPA Specification                                                                    | 2.50                 | Rectangular              | 0.72     |
| Antenna Factor Interpolation for Frequency                                               | 1.00                 | Rectangular              | 0.29     |
| Site Imperfection                                                                        | 1.43                 | Rectangular              | 0.83     |
| Mismatch                                                                                 | +0.39 / -0.41        | U-Shape                  | 0.28     |
| <b>Combined Standard Uncertainty <math>U_c(y)</math></b>                                 | <b>1.27</b>          |                          |          |
| <b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b> | <b>2.54</b>          |                          |          |

**Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)**

| Contribution                                                                                                                         | Uncertainty of $X_i$ |                          | $u(X_i)$ | $C_i$ | $C_i * u(X_i)$ |
|--------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------|----------|-------|----------------|
|                                                                                                                                      | dB                   | Probability Distribution |          |       |                |
| Receiver Reading                                                                                                                     | $\pm 0.10$           | Normal ( $k=2$ )         | 0.10     | 1     | 0.10           |
| Antenna Factor Calibration                                                                                                           | $\pm 1.70$           | Normal ( $k=2$ )         | 0.85     | 1     | 0.85           |
| Cable Loss Calibration                                                                                                               | $\pm 0.50$           | Normal ( $k=2$ )         | 0.25     | 1     | 0.25           |
| Receiver Correction                                                                                                                  | $\pm 2.00$           | Rectangular              | 1.15     | 1     | 1.15           |
| Antenna Factor Directional                                                                                                           | $\pm 1.50$           | Rectangular              | 0.87     | 1     | 0.87           |
| Site Imperfection                                                                                                                    | $\pm 2.80$           | Triangular               | 1.14     | 1     | 1.14           |
| Mismatch<br>Receiver VSWR $\Gamma_1 = 0.197$<br>Antenna VSWR $\Gamma_2 = 0.194$<br>Uncertainty = $20\text{Log}(1-\Gamma_1*\Gamma_2)$ | +0.34 / -0.35        | U-Shape                  | 0.244    | 1     | 0.244          |
| <b>Combined Standard Uncertainty<br/><math>U_c(y)</math></b>                                                                         | <b>2.36</b>          |                          |          |       |                |
| <b>Measuring Uncertainty for a<br/>Level of Confidence of 95%<br/>(<math>U = 2U_c(y)</math>)</b>                                     | <b>4.72</b>          |                          |          |       |                |



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP1D0807 as below.