



# FCC Test Report

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

The product was received on Oct. 29, 2010 and completely tested on Nov. 15, 2010. We, SPORTON INTERNATIONAL 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:

*Anderson Chiu*

Anderson Chiu / Deputy Manager



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



# TABLE OF CONTENTS

**REVISION HISTORY..... 3**

**SUMMARY OF TEST RESULT ..... 4**

**1. GENERAL DESCRIPTION ..... 5**

    1.1. Applicant..... 5

    1.2. Manufacturer ..... 5

    1.3. Feature of Equipment Under Test..... 5

    1.4. Test Site ..... 6

    1.5. Applied Standards ..... 6

    1.6. Ancillary Equipment List..... 6

**2. TEST CONFIGURATION OF EQUIPMENT UNDER TEST ..... 7**

    2.1. Test Mode ..... 7

    2.2. Connection Diagram of Test System ..... 9

    2.3. Test Software ..... 10

**3. TEST RESULT ..... 11**

    3.1. Test of AC Conducted Emission Measurement ..... 11

    3.2. Test of Radiated Emission Measurement ..... 15

**4. LIST OF MEASURING EQUIPMENT ..... 19**

**5. UNCERTAINTY OF EVALUATION ..... 20**

**APPENDIX A. PHOTOGRAPHS OF EUT**

**APPENDIX B. SETUP PHOTOGRAPHS**





### SUMMARY OF TEST RESULT

| Report Section | FCC Rule | IC Rule | Description           | Limit   | Result | Remark                                  |
|----------------|----------|---------|-----------------------|---|--------|---|
| 3.1            | 15.107   | 7.2.2   | AC Conducted Emission | < 15.107 limits<br>< RSS-Gen table 2 limits                   | PASS   | Under limit<br>7.37 dB at<br>16.77 MHz  |
| 3.2            | 15.109   | 7.2.3.2 | Radiated Emission     | < 15.109 limits or<br>< RSS-Gen table 1 limits<br>(Section 6) | PASS   | Under limit<br>0.80 dB at<br>479.90 MHz |



## 1. General Description

### 1.1. Applicant

CT Asia

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

### 1.2. Manufacturer

CT Asia

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

### 1.3. Feature of Equipment Under Test

| Product Feature & Specification |   |
|---------------------------------|---|
| Equipment                       | mobile phone  |
| Brand Name                      | BLU   |
| Model Name                      | SPEED   |
| FCC ID                          | YHLBLUSPEED   |
| Tx Frequency Range              | GSM850 : 824 MHz ~ 849 MHz<br>GSM1900 : 1850 MHz ~ 1910 MHz<br>WCDMA Band V : 824 MHz ~ 849 MHz<br>Bluetooth : 2400 MHz ~ 2483.5 MHz<br>WLAN : 2400 MHz ~ 2483.5 MHz  |
| Rx Frequency Range              | GSM850 : 869 MHz ~ 894 MHz<br>GSM1900 : 1930 MHz ~ 1990 MHz<br>WCDMA Band V : 869 MHz ~ 894 MHz<br>Bluetooth : 2400 MHz ~ 2483.5 MHz<br>WLAN : 2400 MHz ~ 2483.5 MHz  |
| Antenna Type                    | Fixed Internal Antenna  |
| Antenna Connector Type          | N/A   |
| HW Version                      | V3.0  |
| SW Version                      | ZW91B_37A0_V_1_0_7  |
| Type of Modulation              | GSM / GPRS : GMSK<br>WCDMA : QPSK<br>Bluetooth (1Mbps) : GFSK<br>Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK<br>Bluetooth EDR (3Mbps) : 8-DPSK<br>802.11b : DSSS (BPSK / QPSK / CCK)<br>802.11g : OFDM (BPSK / QPSK / 16QAM / 64QAM) |
| EUT Stage                       | Production Unit   |

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 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
- IC RSS-Gen Issue 2

**Remark:** All test items were verified and recorded according to the standards and without any deviation during the test.

## 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.   | (USB)Mouse         | DELL       | N231           | FCC DoC     | Shielded, 1.8 m           | N/A               |
| 4.   | (USB)Keyboard      | DELL       | SK-8115        | FCC DoC     | Shielded, 1.8 m with core | N/A               |
| 5.   | Monitor            | DELL       | E1910Hc        | FCC DoC     | Shielded, 1.2 m           | Unshielded, 1.8 m |
| 6.   | Printer            | HP         | Laser Jet 1018 | FCC DoC     | Shielded, 1.8 m           | Unshielded, 1.8 m |
| 7.   | iPod               | Apple      | A1199          | FCC DoC     | Shielded, 1.2 m           | N/A               |
| 8.   | Bluetooth Earphone | Nokia      | HS-12W         | PYAHS-12W   | N/A                       | N/A               |
| 9.   | Router             | D-Link     | DIR-855        | KA2DIR855A2 | N/A                       | 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.   | Charging Mode (EUT with adapter) | ☒              | ☒         | Note 1    |
| 2.   | Charging Mode (EUT with PC)      | ☒              | ☒         | ☒         |

**Abbreviations:**

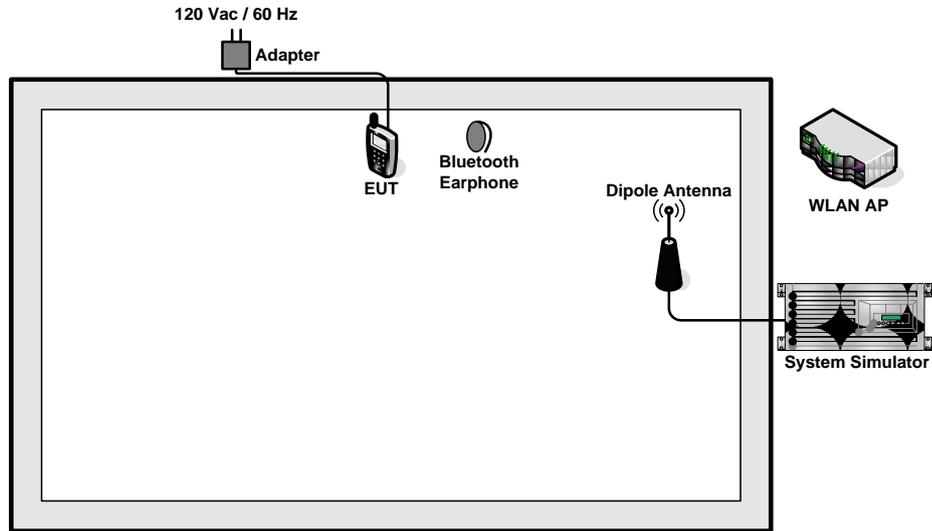
- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

**Note :** Testing for this mode is not required or not the worst case.

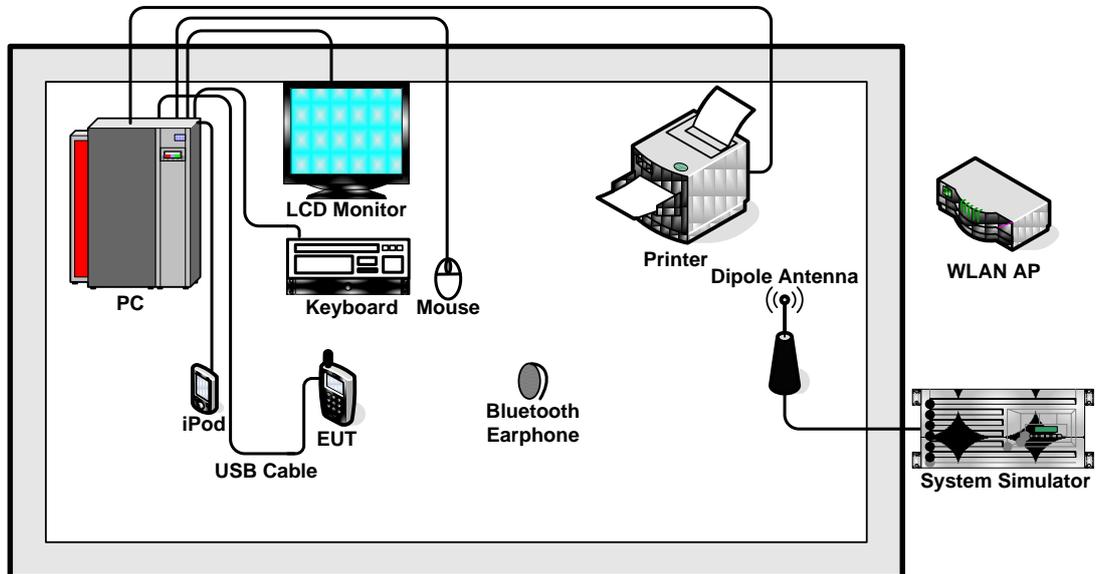
| Test Items  | EUT Configure Mode | Function Type  |
|---|--------------------|--|
| AC Conducted Emission   | 1/2                | Mode 1: GSM850 Idle + WLAN Idle + Bluetooth Idle + Adapter + Camera<br>Mode 2: WCDMA Band V Idle + WLAN Idle + Bluetooth Idle + Adapter + MPEG4<br>Mode 3: WCDMA Band V Idle + WLAN Idle + Bluetooth Idle + USB Cable (Link with PC) |
| Radiated Emissions < 1GHz   | 1/2                | Mode 1: GSM850 Idle + WLAN Idle + Bluetooth Idle + Adapter + Camera<br>Mode 2: GSM1900 Idle + WLAN Idle + Bluetooth Idle + Adapter + MPEG4<br>Mode 3: WCDMA Band V Idle + WLAN Idle + Bluetooth Idle + USB Cable (Link with PC)      |
| Radiated Emissions ≥ 1GHz   | 2                  | Mode 1: WCDMA Band V Idle + WLAN Idle + Bluetooth Idle + USB Cable (Link with PC)  |
| <b>Remark:</b> <ol style="list-style-type: none"> <li>1. The worst case of AC is mode 3; only the test data of this mode was reported.</li> <li>2. The worst case of RE &lt; 1G is mode 3; only the test data of this mode was reported.</li> </ol> |                    |  |

## 2.2. Connection Diagram of Test System

### <EUT with Adapter Mode>



### <EUT with USB Cable (Link with PC) Mode>





## **2.3. Test Software**

The EUT was in GSM or WCDMA 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.

The EUT was attached to the Bluetooth earphone and WLAN AP, and execute the program, "Winthrax", installed in PC for active sync files transfer with EUT via USB cable.

### 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.

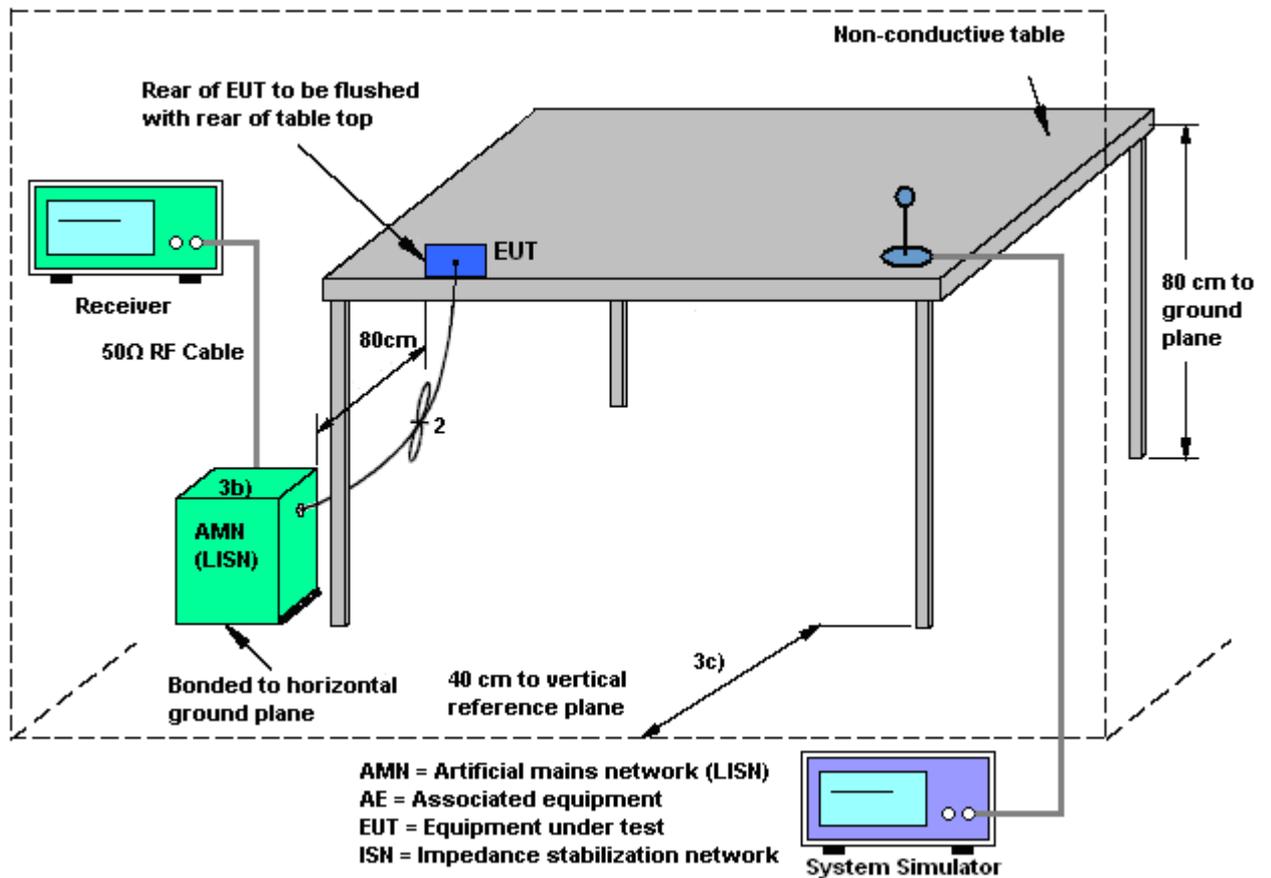
##### 3.1.2 Measuring Instruments

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. Connect EUT 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.

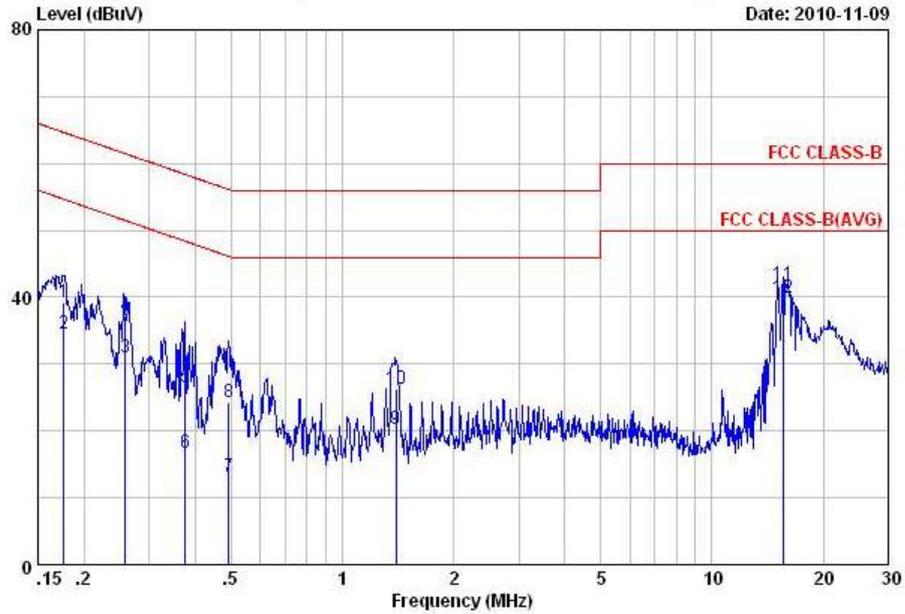
### 3.1.4 Test Setup





3.1.5 Test Result of AC Conducted Emission

|                 |   |                     |         |
|-----------------|---|---------------------|---------|
| Test Mode :     | Mode 3  | Temperature :       | 21~22°C |
| Test Engineer : | Lewis Lu  | Relative Humidity : | 42~43%  |
| Test Voltage :  | 120Vac / 60Hz   | Phase :             | Line    |
| Function Type : | WCDMA Band V Idle + WLAN Idle + Bluetooth Idle + USB Cable (Link with PC)       |                     |         |
| Remark :        | All emissions not reported here are more than 10 dB below the prescribed limit. |                     |         |



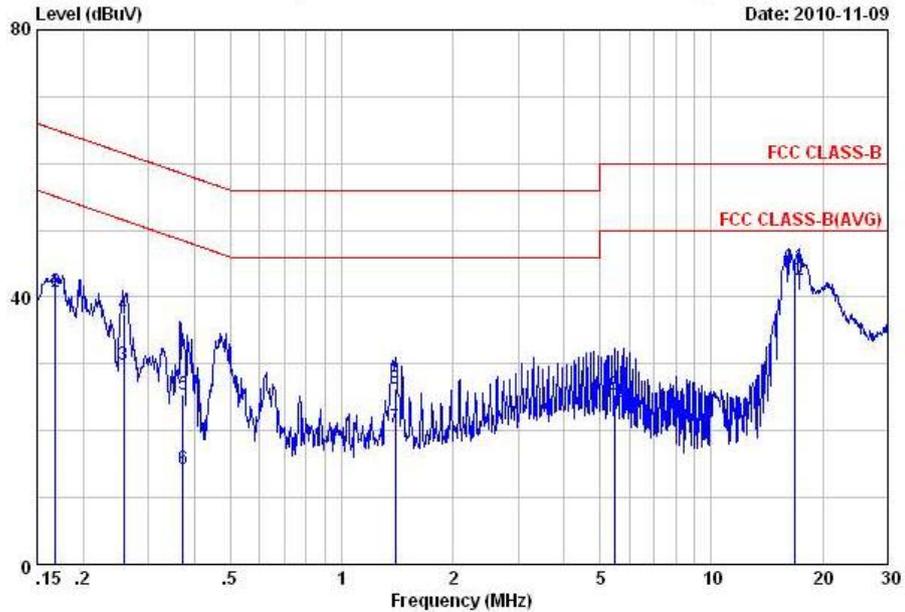
Site : C001-KS  
 Condition: FCC CLASS-B LISN-100807 LINE

mode : MODE3

|    | Freq  | Level | Over   | Limit | Read  | LISN   | Cable | Remark  |
|----|-------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz   | dBuV  | Limit  | Line  | Level | Factor | Loss  |         |
|    |       |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1  | 0.18  | 39.18 | -25.47 | 64.65 | 29.10 | -0.07  | 10.15 | QP      |
| 2  | 0.18  | 34.58 | -20.07 | 54.65 | 24.50 | -0.07  | 10.15 | Average |
| 3  | 0.26  | 30.99 | -20.49 | 51.48 | 20.90 | -0.07  | 10.16 | Average |
| 4  | 0.26  | 37.19 | -24.29 | 61.48 | 27.10 | -0.07  | 10.16 | QP      |
| 5  | 0.38  | 26.51 | -31.87 | 58.38 | 16.40 | -0.08  | 10.19 | QP      |
| 6  | 0.38  | 16.81 | -31.57 | 48.38 | 6.70  | -0.08  | 10.19 | Average |
| 7  | 0.49  | 13.23 | -32.89 | 46.12 | 3.10  | -0.08  | 10.21 | Average |
| 8  | 0.49  | 24.23 | -31.89 | 56.12 | 14.10 | -0.08  | 10.21 | QP      |
| 9  | 1.39  | 20.39 | -25.61 | 46.00 | 10.20 | -0.10  | 10.29 | Average |
| 10 | 1.39  | 26.29 | -29.71 | 56.00 | 16.10 | -0.10  | 10.29 | QP      |
| 11 | 15.55 | 41.80 | -18.20 | 60.00 | 31.30 | -0.02  | 10.52 | QP      |
| 12 | 15.55 | 39.90 | -10.10 | 50.00 | 29.40 | -0.02  | 10.52 | Average |



|                 |   |                     |         |
|-----------------|---|---------------------|---------|
| Test Mode :     | Mode 3  | Temperature :       | 21~22°C |
| Test Engineer : | Lewis Lu  | Relative Humidity : | 42~43%  |
| Test Voltage :  | 120Vac / 60Hz   | Phase :             | Neutral |
| Function Type : | WCDMA Band V Idle + WLAN Idle + Bluetooth Idle + USB Cable (Link with PC)       |                     |         |
| 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

mode : MODE3

|    | Freq  | Level | Over   | Limit | Read  | LISN   | Cable | Remark  |
|----|-------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz   | dBuV  | Limit  | Line  | Level | Factor | Loss  |         |
|    |       |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1  | 0.17  | 39.86 | -15.21 | 55.07 | 29.80 | -0.08  | 10.14 | Average |
| 2  | 0.17  | 40.86 | -24.21 | 65.07 | 30.80 | -0.08  | 10.14 | QP      |
| 3  | 0.26  | 29.79 | -21.73 | 51.52 | 19.70 | -0.07  | 10.16 | Average |
| 4  | 0.26  | 37.49 | -24.03 | 61.52 | 27.40 | -0.07  | 10.16 | QP      |
| 5  | 0.37  | 25.51 | -32.95 | 58.46 | 15.40 | -0.08  | 10.19 | QP      |
| 6  | 0.37  | 14.21 | -34.25 | 48.46 | 4.10  | -0.08  | 10.19 | Average |
| 7  | 1.40  | 20.39 | -25.61 | 46.00 | 10.20 | -0.10  | 10.29 | Average |
| 8  | 1.40  | 26.29 | -29.71 | 56.00 | 16.10 | -0.10  | 10.29 | QP      |
| 9  | 5.48  | 25.38 | -34.62 | 60.00 | 15.11 | -0.13  | 10.40 | QP      |
| 10 | 5.48  | 24.38 | -25.62 | 50.00 | 14.11 | -0.13  | 10.40 | Average |
| 11 | 16.77 | 44.63 | -15.37 | 60.00 | 34.11 | -0.01  | 10.53 | QP      |
| 12 | 16.77 | 42.63 | -7.37  | 50.00 | 32.11 | -0.01  | 10.53 | Average |

## 3.2. Test of Radiated Emission Measurement

### 3.2.1. Limit of Radiated Emission

The emissions from an intentional 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) |
|--------------------|--------------------------------------|----------------------------------|
| 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                                |

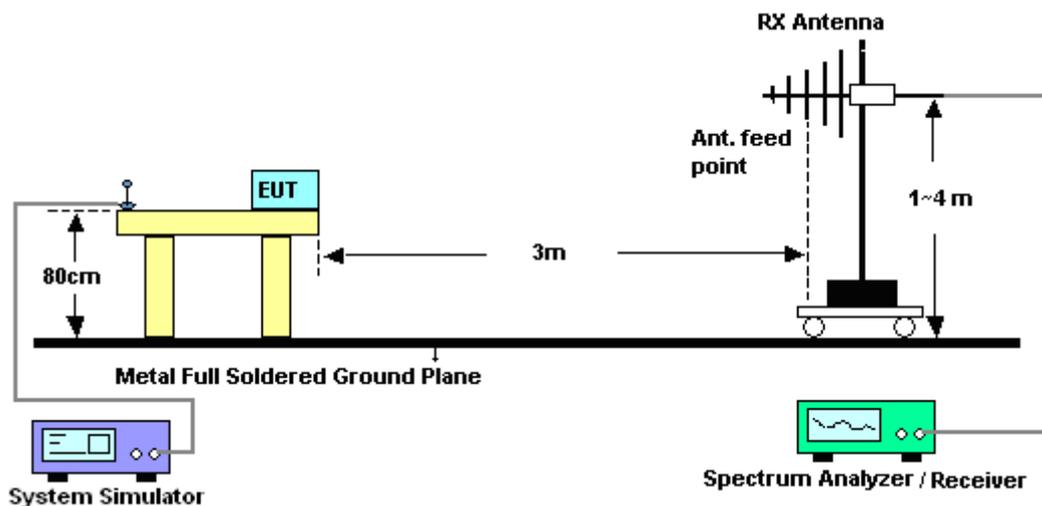
### 3.2.2. Measuring Instruments

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

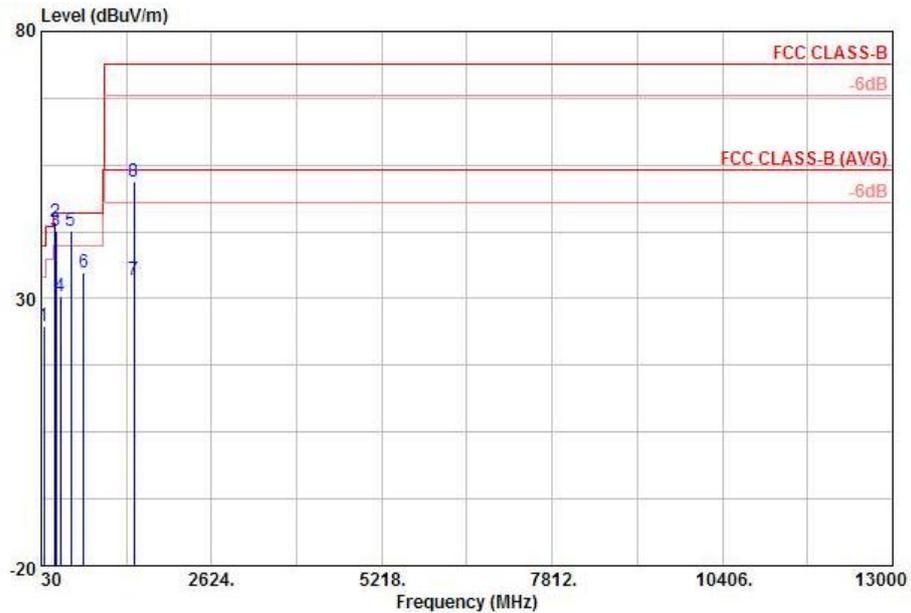
### 3.2.4. Test Setup of Radiated Emission





3.2.5. Test Result of Radiated Emission

|                 |   |                     |            |
|-----------------|---|---------------------|------------|
| Test Mode :     | Mode 3  | Temperature :       | 21~22°C    |
| Test Engineer : | Peng Xi   | Relative Humidity : | 42~43%     |
| Test Distance : | 3m  | Polarization :      | Horizontal |
| Function Type : | WCDMA Band V Idle + WLAN Idle + Bluetooth Idle + USB Cable (Link with PC) |                     |            |



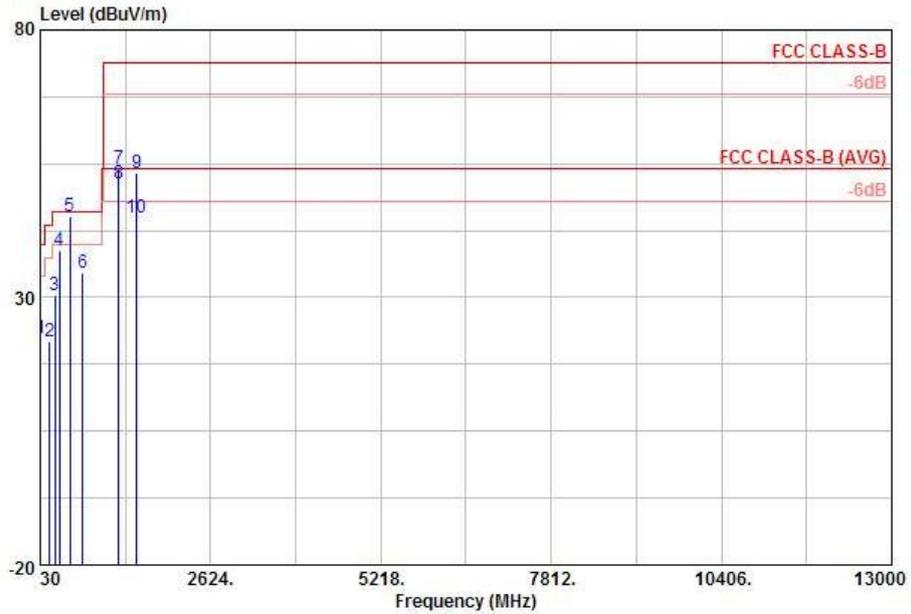
Site : 03CH01-KS  
 Condition: FCC CLASS-B 3m LF\_ANT\_100803 HORIZONTAL

Mode : mode 3

|     | Freq    | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | Ant   | Table |           |
|-----|---------|--------|--------|--------|-------------|-------|--------|-------|-------|-----------|
|     | MHz     | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | Pos   | Pos   | Remark    |
|     |         |        | dB     | dBuV/m | dBuV        | dB    | dB     | cm    | deg   |           |
| 1   | 71.58   | 24.86  | -15.14 | 40.00  | 49.72       | 5.46  | 0.37   | 30.69 | ---   | Peak      |
| 2 ! | 240.06  | 44.35  | -1.65  | 46.00  | 61.80       | 11.56 | 0.71   | 29.72 | 100   | 0 QP      |
| 3 ! | 247.62  | 42.74  | -3.26  | 46.00  | 59.82       | 11.88 | 0.73   | 29.69 | ---   | Peak      |
| 4   | 324.50  | 30.49  | -15.51 | 46.00  | 45.80       | 13.75 | 0.80   | 29.86 | 100   | 334 QP    |
| 5 ! | 479.90  | 42.74  | -3.26  | 46.00  | 56.14       | 16.87 | 0.97   | 31.24 | ---   | Peak      |
| 6   | 674.50  | 34.77  | -11.23 | 46.00  | 46.07       | 19.09 | 1.12   | 31.51 | ---   | Peak      |
| 7   | 1440.00 | 33.47  | -20.53 | 54.00  | 36.30       | 30.06 | 2.40   | 35.29 | 100   | 0 Average |
| 8   | 1440.00 | 51.84  | -22.16 | 74.00  | 54.67       | 30.06 | 2.40   | 35.29 | 100   | 0 Peak    |



|                 |   |                     |          |
|-----------------|---|---------------------|----------|
| Test Mode :     | Mode 3  | Temperature :       | 21~22°C  |
| Test Engineer : | Peng Xi   | Relative Humidity : | 42~43%   |
| Test Distance : | 3m  | Polarization :      | Vertical |
| Function Type : | WCDMA Band V Idle + WLAN Idle + Bluetooth Idle + USB Cable (Link with PC) |                     |          |



Site : 03CH01-KS  
 Condition: FCC CLASS-B 3m LF\_ANT\_100803 VERTICAL

Mode : mode 3

|    | Freq    | Level  | Over Limit | Limit Line | Readantenna Level | Cable Loss | Preamp Factor | Ant Pos | Table Pos | Remark      |
|----|---------|--------|------------|------------|-------------------|------------|---------------|---------|-----------|-------------|
|    | MHz     | dBuV/m | dB         | dBuV/m     | dBuV              | dB         | dB            | cm      | deg       |             |
| 1  | 32.43   | 22.20  | -17.80     | 40.00      | 36.80             | 16.04      | 0.27          | 30.91   | 100       | 23 QP       |
| 2  | 178.23  | 21.78  | -21.72     | 43.50      | 42.70             | 8.55       | 0.63          | 30.10   | ---       | Peak        |
| 3  | 250.32  | 30.34  | -15.66     | 46.00      | 47.29             | 12.00      | 0.73          | 29.68   | ---       | Peak        |
| 4  | 324.50  | 38.91  | -7.09      | 46.00      | 54.22             | 13.75      | 0.80          | 29.86   | ---       | Peak        |
| 5  | 479.90  | 45.20  | -0.80      | 46.00      | 58.60             | 16.87      | 0.97          | 31.24   | 100       | 347 QP      |
| 6  | 676.60  | 34.47  | -11.53     | 46.00      | 45.72             | 19.12      | 1.13          | 31.50   | ---       | Peak        |
| 7  | 1228.00 | 54.04  | -19.96     | 74.00      | 58.14             | 29.14      | 2.21          | 35.45   | 100       | 0 Peak      |
| 8  | 1228.00 | 51.41  | -2.59      | 54.00      | 55.51             | 29.14      | 2.21          | 35.45   | 100       | 0 Average   |
| 9  | 1500.00 | 53.35  | -20.65     | 74.00      | 55.70             | 30.35      | 2.46          | 35.16   | 100       | 191 Peak    |
| 10 | 1500.00 | 44.98  | -9.02      | 54.00      | 47.33             | 30.35      | 2.46          | 35.16   | 100       | 191 Average |

## 4. List of Measuring Equipment

| Instrument                | Manufacturer | Model No. | Serial No.       | Characteristics | Calibration Date | Due Date      | Remark                |
|---------------------------|--------------|-----------|------------------|-----------------|------------------|---------------|-----------------------|
| EMI Receiver              | R&S          | ESCI      | 100534           | 9kHz~3GHz       | Nov. 17, 2009    | Nov. 16, 2010 | Conduction (CO01-KS)  |
| LISN                      | MessTec      | AN3016    | 60103            | 9kHz~30MHz      | Jan. 18, 2010    | Jan. 17, 2011 | Conduction (CO01-KS)  |
| LISN                      | MessTec      | AN3016    | 60105            | 9kHz~30MHz      | Jan. 18, 2010    | Jan. 17, 2011 | Conduction (CO01-KS)  |
| AC Power Source           | Chroma       | 61602     | ABP0000008<br>11 | N/A             | Nov. 26, 2009    | Nov. 25, 2010 | Conduction (CO01-KS)  |
| EMI Test Receiver         | R&S          | ESCI      | 100724           | 9kHz – 2.75GHz  | Mar. 09, 2010    | Mar. 08, 2011 | Radiation (03CH01-KS) |
| Spectrum Analyzer         | R&S          | FSP40     | 100319           | 9kHz~40GHz      | Jan. 18, 2010    | Jan. 17, 2011 | Radiation (03CH01-KS) |
| Bilog Antenna             | SCHAFFNER    | CBL6112D  | 23182            | 25MHz~2GHz      | Jan. 18, 2010    | Jan. 17, 2011 | Radiation (03CH01-KS) |
| Double Ridge Horn Antenna | EMCO         | 3117      | 00075959         | 1GHz~18GHz      | Jan. 18, 2010    | Jan. 17, 2011 | Radiation (03CH01-KS) |
| Amplifier                 | Wireless     | FPA-6592G | 060004           | 30MHz~2GHz      | Feb. 02, 2010    | Feb. 01, 2011 | Radiation (03CH01-KS) |
| Amplifier                 | Agilent      | 8449B     | 3008A02370       | 1GHz~26.5GHz    | Jan. 18, 2010    | Jan. 17, 2011 | Radiation (03CH01-KS) |
| Active horn antenna       | com-power    | AHA-118   | 701023           | 1G-18GHz        | Nov. 09, 2010    | Nov. 08, 2011 | Radiation (03CH01-KS) |
| Signal Generator          | R&S          | SMR40     | 100455           | 10MHz~40GHz     | Jan. 18, 2010    | Jan. 17, 2011 | Radiation (03CH01-KS) |
| SHF-EHF Horn              | Schwarzbeck  | BBHA 9170 | BBHA170249       | 15-40GHz        | Oct. 15, 2010    | Oct. 14, 2011 | Radiation (03CH01-KS) |
| Loop Antenna              | R&S          | HFH2-Z2   | 860004/001       | 9 kHz~30 MHz    | Jul. 29, 2010    | Jul. 28, 2011 | Radiation (03CH01-KS) |
| System Simulator          | R&S          | CMU200    | 837587/066       | Full-Band       | Jan. 08, 2009    | Jan. 07, 2011 | -                     |

## 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>Uc(y)</math></b>                                 | <b>1.13</b>          |                          |          |
| <b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2Uc(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>Uc(y)</math></b>                                 | <b>1.27</b>          |                          |          |
| <b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2Uc(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 EP002916 as below.