

# FCC Test Report

**APPLICANT** : Communication PL Haier Group  
**EQUIPMENT** : PDA  
**BRAND NAME** : Haier  
**MODEL NAME** : HW-W300  
**FCC ID** : SG70619HW-W300  
**STANDARD** : FCC 47 CFR FCC Part 15 Subpart B  
**CLASSIFICATION** : Certification

The product was received on Jun. 04, 2012 and completely tested on Jul. 09, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) 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:



---

Jones Tsai / 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 .....                             | 11 |
| 3. TEST RESULT .....                                 | 12 |
| 3.1. Test of AC Conducted Emission Measurement ..... | 12 |
| 3.2. Test of Radiated Emission Measurement .....     | 20 |
| 4. LIST OF MEASURING EQUIPMENT .....                 | 24 |
| 5. UNCERTAINTY OF EVALUATION .....                   | 25 |
| APPENDIX A. PHOTOGRAPHS OF EUT                       |    |
| APPENDIX B. SETUP PHOTOGRAPHS                        |    |

## REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE   |
|------------|---------|-------------------------|---------------|
| FC260404   | Rev. 01 | Initial issue of report | Jul. 11, 2012 |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |
|            |         |                         |               |

## SUMMARY OF TEST RESULT

| Report Section | FCC Rule | IC Rule | Description           | Limit                                                         | Result | Remark                                   |
|----------------|----------|---------|-----------------------|---------------------------------------------------------------|--------|------------------------------------------|
| 3.1            | 15.107   | 7.2.4   | AC Conducted Emission | < 15.107 limits<br>< RSS-Gen table 2 limits                   | PASS   | Under limit<br>7.68 dB at<br>4.900 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>5.03 dB at<br>239.520 MHz |

# 1. General Description

## 1.1. Applicant

**Communication PL Haier Group**

No.1 Haier Road, Hi-tech Zone, Qingdao 266101, PR.China

## 1.2. Manufacturer

**Communication PL Haier Group**

No.1 Haier Road, Hi-tech Zone, Qingdao 266101, PR.China

## 1.3. Feature of Equipment Under Test

| Product Feature                 |                                |
|---------------------------------|--------------------------------|
| Equipment                       | PDA                            |
| Brand Name                      | Haier                          |
| Model Name                      | HW-W300                        |
| FCC ID                          | SG70619HW-W300                 |
| EUT supports Radios application | GSM/WCDMA/Bluetooth            |
| HW Version                      | Z90_MB_H301_PBF                |
| SW Version                      | HW-W300-H01-S017-TIGO-20120529 |
| EUT Stage                       | Identical Prototype            |

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

| Product Specification subjective to this standard |                                                                                                                                                                                                              |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tx Frequency                                      | GSM850: 824.2 MHz ~ 848.8 MHz<br>GSM1900: 1850.2 MHz ~ 1909.8MHz<br>WCDMA Band V: 826.4 MHz ~ 846.6 MHz<br>WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz                          |
| Rx Frequency Range                                | GSM850: 869.2 MHz ~ 893.8 MHz<br>GSM1900: 1930.2 MHz ~ 1989.8 MHz<br>WCDMA Band V: 871.4 MHz ~ 891.6 MHz<br>WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz<br>FM: 88 MHz ~ 108 MHz |
| Antenna Type                                      | WWAN : Fixed Internal Antenna<br>Bluetooth : Dipole Antenna                                                                                                                                                  |
| Type of Modulation                                | GSM: GMSK<br>GPRS: GMSK<br>WCDMA: QPSK (Uplink)<br>Bluetooth (1Mbps) : GFSK<br>Bluetooth 2.1 EDR (2Mbps) : $\pi/4$ -DQPSK<br>Bluetooth 2.1 EDR (3Mbps) : 8-DPSK<br>FM                                        |

## 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>                                                                                          |           | <b>FCC/IC Registration No.</b> |
|                           | CO01-KS                                                                                                          | 03CH01-KS | 149928/4086E-1                 |

## 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 3

**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.   | Signal Generator   | R&S        | SMR40          | FCC DoC    | Shielded, 1.6 m | Unshielded, 1.8 m |
| 3.   | Monitor            | Dell       | E1910Hc        | FCC DoC    | Shielded, 1.2 m | Unshielded, 1.8 m |
| 4.   | (USB) Mouse        | Dell       | N231           | FCC DoC    | Shielded, 1.8 m | N/A               |
| 5.   | (USB)Keyboard      | Dell       | SK-8115        | FCC DoC    | Shielded, 1.5 m | N/A               |
| 6.   | PC                 | Dell       | MT380          | FCC DoC    | N/A             | Unshielded, 1.8 m |
| 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 |
| 9.   | Bluetooth Earphone | Nokia      | BH-106         | QTLBH-106  | N/A             | N/A               |
| 10.  | Bluetooth Earphone | Nokia      | BH-102         | PYAHS-107W | N/A             | N/A               |

## 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.   | Data application transferred mode (EUT with PC) | ☒              | ☒         | ☒         |

**Abbreviations:**

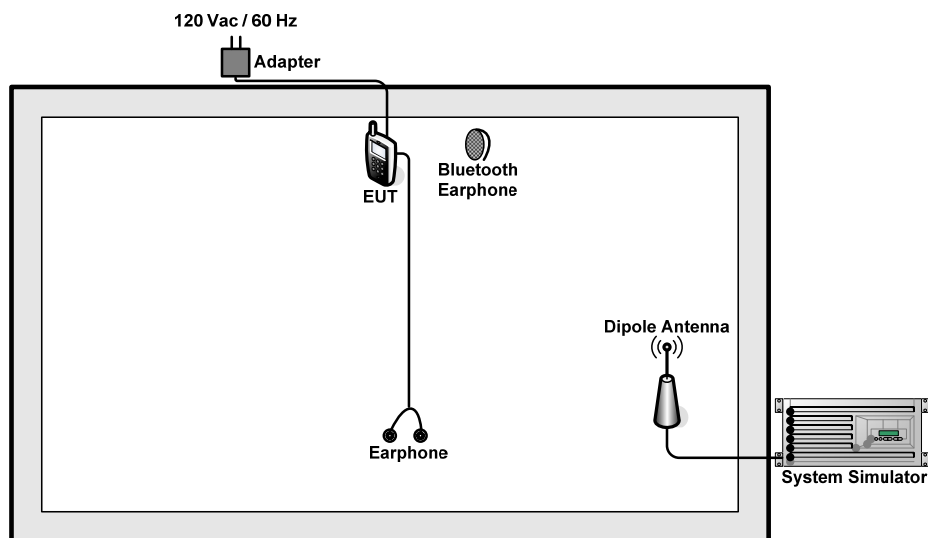
- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

**Note 1:** Testing for this mode is not required or not the worst case.

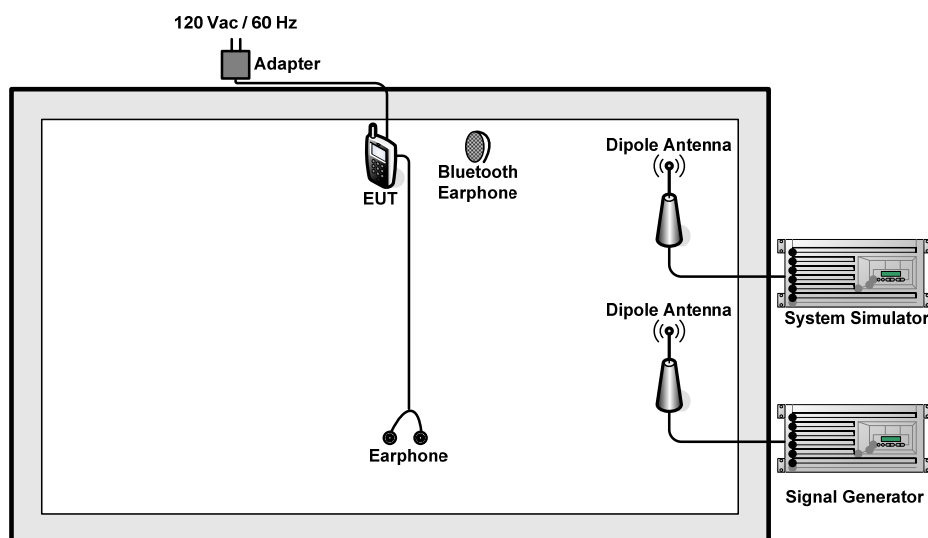
**Remark:** For signal above 1GHz, the worst case was test item 2.

| Test Items                                                                                                                                                                                                                                                                                                                                                                                                                                                      | EUT Configure Mode | Function Type                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC Conducted Emission                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1/2                | Mode 1: GSM850 Idle + Bluetooth Idle + USB Cable (Charging from Adapter) + Earphone + Camera <Fig. 1><br>Mode 2: GSM1900 Idle + Bluetooth Idle + USB Cable (Charging from Adapter) + Earphone + MP3 <Fig. 1><br>Mode 3: WCDMA Band V Idle + Bluetooth Idle + USB Cable (Charging from Adapter) + Earphone + FM Rx <Fig. 2><br>Mode 4: WCDMA Band II Idle + Bluetooth Idle + USB Cable (Data Link with PC) + Earphone <Fig. 3> |
| Radiated Emissions < 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1/2                | Mode 1: GSM850 Idle + Bluetooth Idle + USB Cable (Charging from Adapter) + Earphone + Camera <Fig. 1><br>Mode 2: GSM1900 Idle + Bluetooth Idle + USB Cable (Charging from Adapter) + Earphone + MP3 <Fig. 1><br>Mode 3: WCDMA Band V Idle + Bluetooth Idle + USB Cable (Charging from Adapter) + Earphone + FM Rx <Fig. 2><br>Mode 4: WCDMA Band II Idle + Bluetooth Idle + USB Cable (Data Link with PC) + Earphone <Fig. 3> |
| Radiated Emissions $\geq$ 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2                  | Mode 1: WCDMA Band II Idle + Bluetooth Idle + USB Cable (Data Link with PC) + Earphone <Fig. 3>                                                                                                                                                                                                                                                                                                                               |
| <b>Remark:</b> <ol style="list-style-type: none"> <li>The worst case of AC Conducted Emission is mode 1; only the test data of this mode was reported.</li> <li>The USB Link mode of AC Conducted Emission is mode 4; the test data of this mode was also reported.</li> <li>The worst case of RE &lt; 1G is mode 4; only the test data of this mode was reported.</li> <li>Link with PC means data application transferred mode between EUT and PC.</li> </ol> |                    |                                                                                                                                                                                                                                                                                                                                                                                                                               |

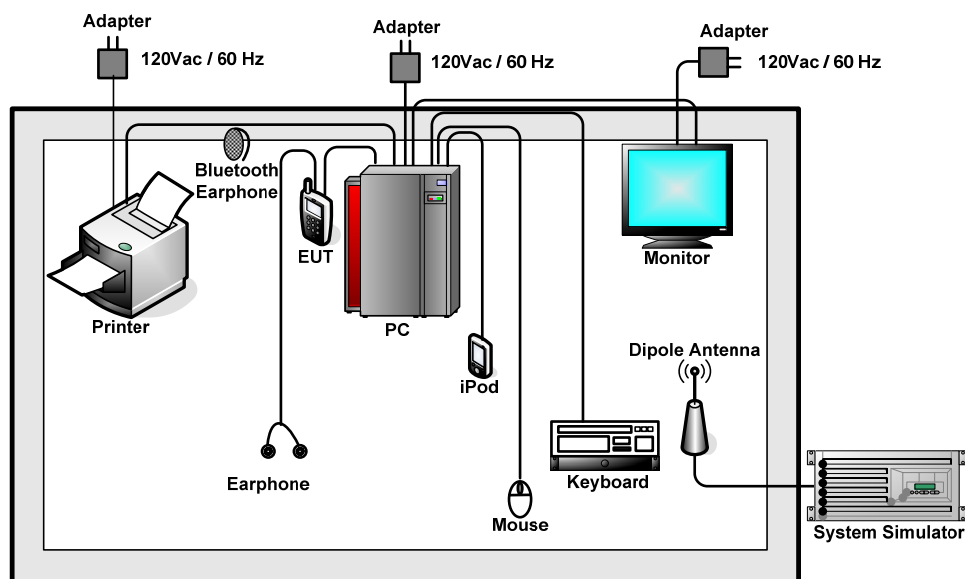
## 2.2. Connection Diagram of Test System



<Fig. 1>



<Fig. 2>



**<Fig. 3>**

## 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.

At the same time, the EUT was attached to the Bluetooth earphone, and the following programs installed in the EUT were programmed during the test.

1. Execute the program, "Winthrax" under WINXP installed in PC for files transfer with EUT via USB cable.
2. Data application is transferred between PC and EUT via USB cable.
3. Execute "Music Player" to play MP3 file.
4. Turn on camera to capture images.
5. Connect LCD Monitor via VGA Cable.
6. Turn on FM function to keep EUT receiving continuous signals from Signal Generator.

### 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.

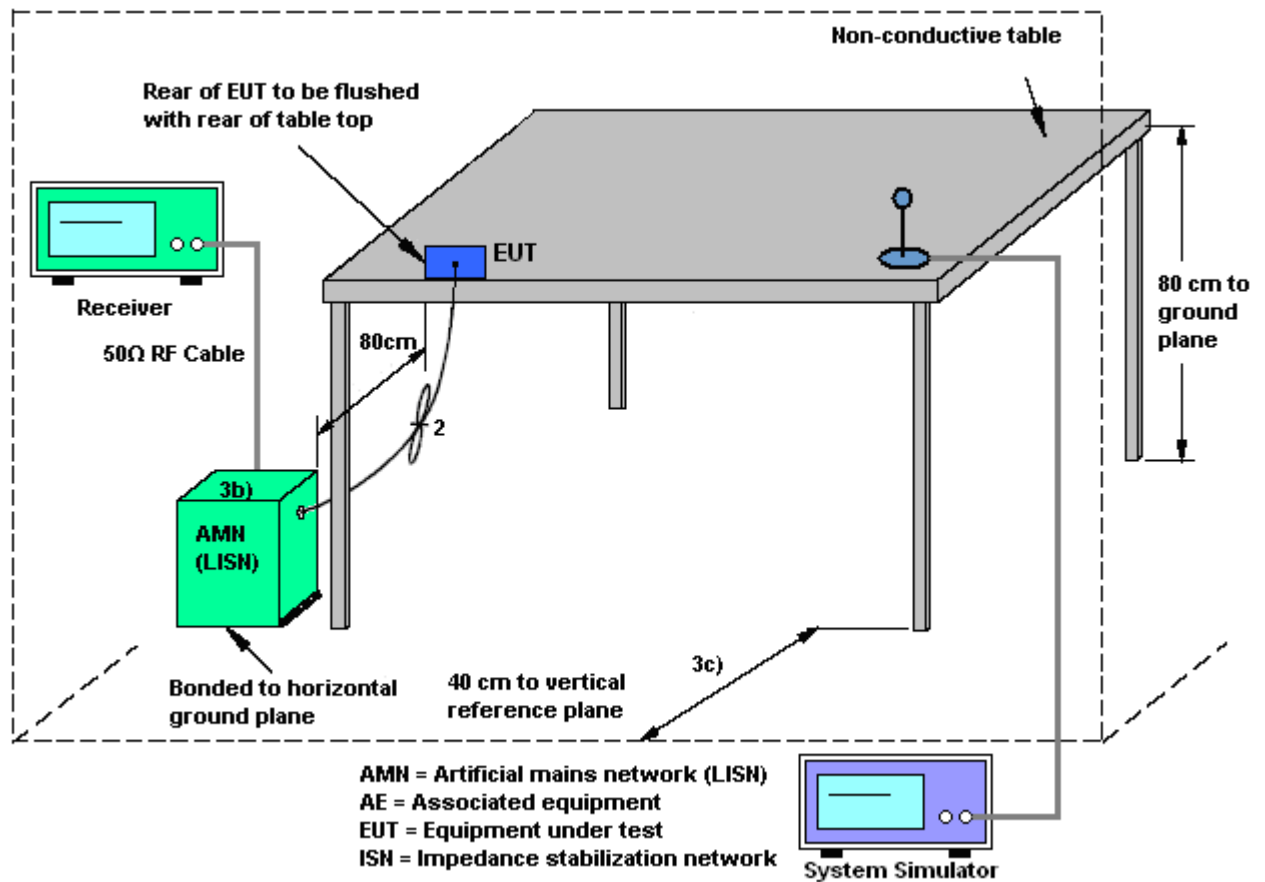
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedure

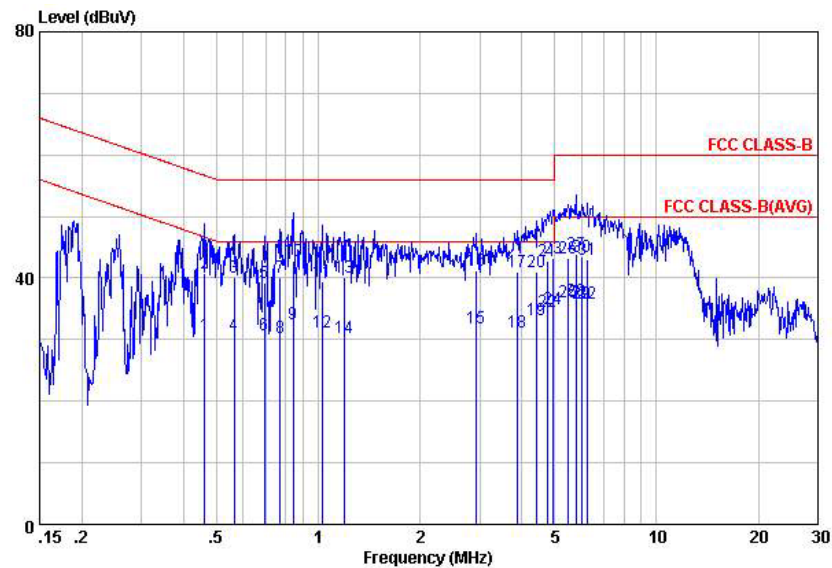
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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

|                        |                                                                                      |                            |        |
|------------------------|--------------------------------------------------------------------------------------|----------------------------|--------|
| <b>Test Mode :</b>     | Mode 1                                                                               | <b>Temperature :</b>       | 19~20℃ |
| <b>Test Engineer :</b> | Tom Wang                                                                             | <b>Relative Humidity :</b> | 39~40% |
| <b>Test Voltage :</b>  | 120Vac / 60Hz                                                                        | <b>Phase :</b>             | Line   |
| <b>Function Type :</b> | GSM850 Idle + Bluetooth Idle + USB Cable (Charging from Adapter) + Earphone + Camera |                            |        |
| <b>Remark :</b>        | All emissions not reported here are more than 10 dB below the prescribed limit.      |                            |        |



Site : C001-KS  
Condition: FCC CLASS-B LISN-111230 LINE

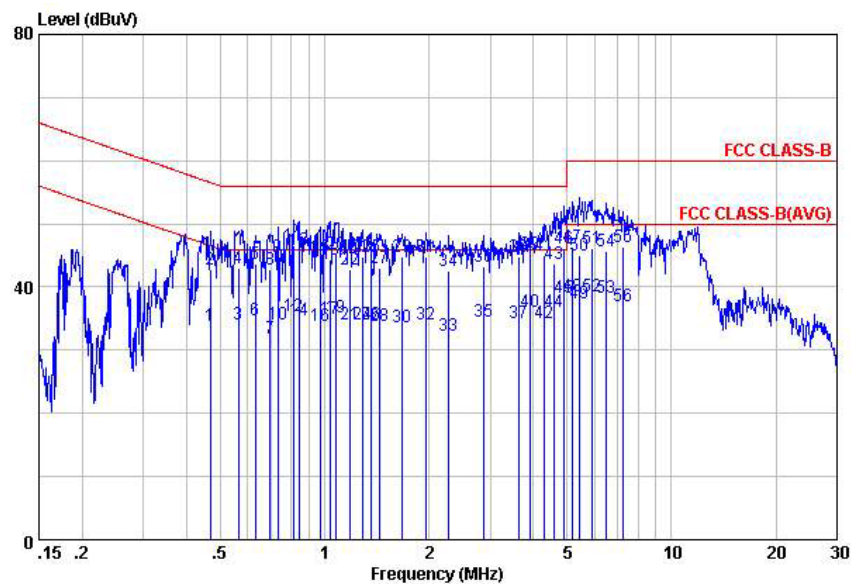
mode : Mode 1

|    | Freq | Level | Over   | Limit | Read  | LISN   | Cable | Remark  |
|----|------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz  | dBμV  | Limit  | Line  | Level | Factor | Loss  |         |
|    |      |       | dB     | dBμV  | dBμV  | dB     | dB    |         |
| 1  | 0.46 | 30.74 | -15.93 | 46.67 | 20.20 | -0.08  | 10.62 | Average |
| 2  | 0.46 | 40.74 | -15.93 | 56.67 | 30.20 | -0.08  | 10.62 | QP      |
| 3  | 0.56 | 40.11 | -15.89 | 56.00 | 29.56 | -0.08  | 10.63 | QP      |
| 4  | 0.56 | 30.85 | -15.15 | 46.00 | 20.30 | -0.08  | 10.63 | Average |
| 5  | 0.69 | 39.15 | -16.85 | 56.00 | 28.60 | -0.09  | 10.64 | QP      |
| 6  | 0.69 | 30.85 | -15.15 | 46.00 | 20.30 | -0.09  | 10.64 | Average |
| 7  | 0.77 | 40.11 | -15.89 | 56.00 | 29.56 | -0.09  | 10.64 | QP      |
| 8  | 0.77 | 30.40 | -15.60 | 46.00 | 19.85 | -0.09  | 10.64 | Average |
| 9  | 0.84 | 32.45 | -13.55 | 46.00 | 21.90 | -0.10  | 10.65 | Average |
| 10 | 0.84 | 42.85 | -13.15 | 56.00 | 32.30 | -0.10  | 10.65 | QP      |
| 11 | 1.03 | 39.45 | -16.55 | 56.00 | 28.90 | -0.10  | 10.65 | QP      |
| 12 | 1.03 | 31.15 | -14.85 | 46.00 | 20.60 | -0.10  | 10.65 | Average |
| 13 | 1.19 | 40.16 | -15.84 | 56.00 | 29.60 | -0.10  | 10.66 | QP      |
| 14 | 1.19 | 30.36 | -15.64 | 46.00 | 19.80 | -0.10  | 10.66 | Average |
| 15 | 2.93 | 31.96 | -14.04 | 46.00 | 21.30 | -0.12  | 10.78 | Average |
| 16 | 2.93 | 41.16 | -14.84 | 56.00 | 30.50 | -0.12  | 10.78 | QP      |
| 17 | 3.88 | 41.10 | -14.90 | 56.00 | 30.40 | -0.13  | 10.83 | QP      |
| 18 | 3.88 | 31.30 | -14.70 | 46.00 | 20.60 | -0.13  | 10.83 | Average |
| 19 | 4.43 | 33.11 | -12.89 | 46.00 | 22.40 | -0.13  | 10.84 | Average |
| 20 | 4.43 | 41.11 | -14.89 | 56.00 | 30.40 | -0.13  | 10.84 | QP      |
| 21 | 4.77 | 42.82 | -13.18 | 56.00 | 32.11 | -0.13  | 10.84 | QP      |
| 22 | 4.77 | 34.52 | -11.48 | 46.00 | 23.81 | -0.13  | 10.84 | Average |
| 23 | 4.93 | 43.22 | -12.78 | 56.00 | 32.50 | -0.13  | 10.85 | QP      |
| 24 | 4.93 | 35.02 | -10.98 | 46.00 | 24.30 | -0.13  | 10.85 | Average |
| 25 | 5.48 | 36.13 | -13.87 | 50.00 | 25.40 | -0.13  | 10.86 | Average |
| 26 | 5.48 | 43.23 | -16.77 | 60.00 | 32.50 | -0.13  | 10.86 | QP      |
| 27 | 5.77 | 43.94 | -16.06 | 60.00 | 33.20 | -0.13  | 10.87 | QP      |

|    | Freq | Level | Over<br>Limit | Limit<br>Line | Read<br>Level | LISN<br>Factor | Cable<br>Loss | Remark  |
|----|------|-------|---------------|---------------|---------------|----------------|---------------|---------|
|    | MHz  | dBuV  | dB            | dBuV          | dBuV          | dB             | dB            |         |
| 28 | 5.77 | 36.24 | -13.76        | 50.00         | 25.50         | -0.13          | 10.87         | Average |
| 29 | 5.99 | 35.95 | -14.05        | 50.00         | 25.20         | -0.13          | 10.88         | Average |
| 30 | 5.99 | 43.35 | -16.65        | 60.00         | 32.60         | -0.13          | 10.88         | QP      |
| 31 | 6.25 | 42.96 | -17.04        | 60.00         | 32.20         | -0.13          | 10.89         | QP      |
| 32 | 6.25 | 35.86 | -14.14        | 50.00         | 25.10         | -0.13          | 10.89         | Average |



|                 |                                                                                      |                     |         |
|-----------------|--------------------------------------------------------------------------------------|---------------------|---------|
| Test Mode :     | Mode 1                                                                               | Temperature :       | 19~20℃  |
| Test Engineer : | Tom Wang                                                                             | Relative Humidity : | 39~40%  |
| Test Voltage :  | 120Vac / 60Hz                                                                        | Phase :             | Neutral |
| Function Type : | GSM850 Idle + Bluetooth Idle + USB Cable (Charging from Adapter) + Earphone + Camera |                     |         |
| Remark :        | All emissions not reported here are more than 10 dB below the prescribed limit.      |                     |         |



Site : C001-KS  
Condition: FCC CLASS-B LISN-111230 NEUTRAL

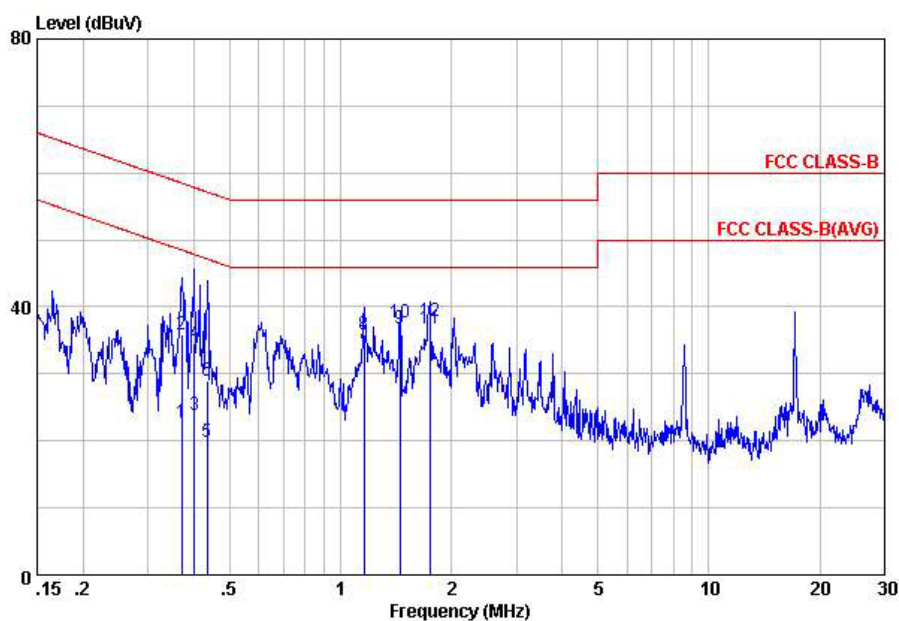
mode : Mode 1

|    | Freq | Level | Over   | Limit | Read  | LISN   | Cable | Remark  |
|----|------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz  | dBuV  | Limit  | Line  | Level | Factor | Loss  |         |
|    |      |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1  | 0.47 | 33.84 | -12.70 | 46.54 | 23.30 | -0.08  | 10.62 | Average |
| 2  | 0.47 | 42.84 | -13.70 | 56.54 | 32.30 | -0.08  | 10.62 | QP      |
| 3  | 0.56 | 34.15 | -11.85 | 46.00 | 23.60 | -0.08  | 10.63 | Average |
| 4  | 0.56 | 43.05 | -12.95 | 56.00 | 32.50 | -0.08  | 10.63 | QP      |
| 5  | 0.63 | 43.75 | -12.25 | 56.00 | 33.20 | -0.08  | 10.63 | QP      |
| 6  | 0.63 | 34.85 | -11.15 | 46.00 | 24.30 | -0.08  | 10.63 | Average |
| 7  | 0.70 | 31.86 | -14.14 | 46.00 | 21.30 | -0.08  | 10.64 | Average |
| 8  | 0.70 | 42.86 | -13.14 | 56.00 | 32.30 | -0.08  | 10.64 | QP      |
| 9  | 0.73 | 44.86 | -11.14 | 56.00 | 34.30 | -0.08  | 10.64 | QP      |
| 10 | 0.73 | 34.16 | -11.84 | 46.00 | 23.60 | -0.08  | 10.64 | Average |
| 11 | 0.81 | 46.66 | -9.34  | 56.00 | 36.09 | -0.08  | 10.65 | QP      |
| 12 | 0.81 | 35.46 | -10.54 | 46.00 | 24.89 | -0.08  | 10.65 | Average |
| 13 | 0.84 | 45.96 | -10.04 | 56.00 | 35.40 | -0.09  | 10.65 | QP      |
| 14 | 0.84 | 34.86 | -11.14 | 46.00 | 24.30 | -0.09  | 10.65 | Average |
| 15 | 0.97 | 44.86 | -11.14 | 56.00 | 34.30 | -0.09  | 10.65 | QP      |
| 16 | 0.97 | 33.96 | -12.04 | 46.00 | 23.40 | -0.09  | 10.65 | Average |
| 17 | 1.04 | 34.96 | -11.04 | 46.00 | 24.40 | -0.09  | 10.65 | Average |
| 18 | 1.04 | 44.36 | -11.64 | 56.00 | 33.80 | -0.09  | 10.65 | QP      |
| 19 | 1.08 | 35.16 | -10.84 | 46.00 | 24.60 | -0.09  | 10.65 | Average |
| 20 | 1.08 | 45.26 | -10.74 | 56.00 | 34.70 | -0.09  | 10.65 | QP      |
| 21 | 1.18 | 34.16 | -11.84 | 46.00 | 23.59 | -0.09  | 10.66 | Average |
| 22 | 1.18 | 42.86 | -13.14 | 56.00 | 32.29 | -0.09  | 10.66 | QP      |
| 23 | 1.29 | 44.87 | -11.13 | 56.00 | 34.31 | -0.10  | 10.66 | QP      |
| 24 | 1.29 | 34.17 | -11.83 | 46.00 | 23.61 | -0.10  | 10.66 | Average |
| 25 | 1.36 | 44.87 | -11.13 | 56.00 | 34.30 | -0.10  | 10.67 | QP      |
| 26 | 1.36 | 34.17 | -11.83 | 46.00 | 23.60 | -0.10  | 10.67 | Average |
| 27 | 1.43 | 43.08 | -12.92 | 56.00 | 32.50 | -0.10  | 10.68 | QP      |



|    | Freq | Level | Over<br>Limit | Limit<br>Line | Read<br>Level | LISN<br>Factor | Cable<br>Loss | Remark  |
|----|------|-------|---------------|---------------|---------------|----------------|---------------|---------|
|    | MHz  | dBuV  | dB            | dBuV          | dBuV          | dB             | dB            |         |
| 28 | 1.43 | 33.98 | -12.02        | 46.00         | 23.40         | -0.10          | 10.68         | Average |
| 29 | 1.67 | 44.79 | -11.21        | 56.00         | 34.21         | -0.11          | 10.69         | QP      |
| 30 | 1.67 | 33.69 | -12.31        | 46.00         | 23.11         | -0.11          | 10.69         | Average |
| 31 | 1.96 | 44.79 | -11.21        | 56.00         | 34.20         | -0.11          | 10.70         | QP      |
| 32 | 1.96 | 34.09 | -11.91        | 46.00         | 23.50         | -0.11          | 10.70         | Average |
| 33 | 2.28 | 32.20 | -13.80        | 46.00         | 21.59         | -0.11          | 10.72         | Average |
| 34 | 2.28 | 42.60 | -13.40        | 56.00         | 31.99         | -0.11          | 10.72         | QP      |
| 35 | 2.87 | 34.55 | -11.45        | 46.00         | 23.90         | -0.12          | 10.77         | Average |
| 36 | 2.87 | 43.15 | -12.85        | 56.00         | 32.50         | -0.12          | 10.77         | QP      |
| 37 | 3.62 | 34.29 | -11.71        | 46.00         | 23.59         | -0.12          | 10.82         | Average |
| 38 | 3.62 | 44.89 | -11.11        | 56.00         | 34.19         | -0.12          | 10.82         | QP      |
| 39 | 3.90 | 45.30 | -10.70        | 56.00         | 34.60         | -0.13          | 10.83         | QP      |
| 40 | 3.90 | 36.10 | -9.90         | 46.00         | 25.40         | -0.13          | 10.83         | Average |
| 41 | 4.31 | 45.01 | -10.99        | 56.00         | 34.30         | -0.13          | 10.84         | QP      |
| 42 | 4.31 | 34.31 | -11.69        | 46.00         | 23.60         | -0.13          | 10.84         | Average |
| 43 | 4.57 | 43.71 | -12.29        | 56.00         | 33.00         | -0.13          | 10.84         | QP      |
| 44 | 4.57 | 36.01 | -9.99         | 46.00         | 25.30         | -0.13          | 10.84         | Average |
| 45 | 4.90 | 38.32 | -7.68         | 46.00         | 27.60         | -0.13          | 10.85         | Average |
| 46 | 4.90 | 46.12 | -9.88         | 56.00         | 35.40         | -0.13          | 10.85         | QP      |
| 47 | 5.19 | 46.42 | -13.58        | 60.00         | 35.70         | -0.13          | 10.85         | QP      |
| 48 | 5.19 | 38.52 | -11.48        | 50.00         | 27.80         | -0.13          | 10.85         | Average |
| 49 | 5.42 | 37.53 | -12.47        | 50.00         | 26.80         | -0.13          | 10.86         | Average |
| 50 | 5.42 | 44.93 | -15.07        | 60.00         | 34.20         | -0.13          | 10.86         | QP      |
| 51 | 5.90 | 46.05 | -13.95        | 60.00         | 35.30         | -0.13          | 10.88         | QP      |
| 52 | 5.90 | 38.65 | -11.35        | 50.00         | 27.90         | -0.13          | 10.88         | Average |
| 53 | 6.49 | 38.27 | -11.73        | 50.00         | 27.50         | -0.13          | 10.90         | Average |
| 54 | 6.49 | 45.57 | -14.43        | 60.00         | 34.80         | -0.13          | 10.90         | QP      |
| 55 | 7.25 | 46.40 | -13.60        | 60.00         | 35.60         | -0.13          | 10.93         | QP      |
| 56 | 7.25 | 37.10 | -12.90        | 50.00         | 26.30         | -0.13          | 10.93         | Average |

|                        |                                                                                 |                            |         |
|------------------------|---------------------------------------------------------------------------------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 4                                                                          | <b>Temperature :</b>       | 19~20°C |
| <b>Test Engineer :</b> | Tom Wang                                                                        | <b>Relative Humidity :</b> | 39~40%  |
| <b>Test Voltage :</b>  | 120Vac / 60Hz                                                                   | <b>Phase :</b>             | Line    |
| <b>Function Type :</b> | WCDMA Band II Idle + Bluetooth Idle + USB Cable (Data Link with PC) + Earphone  |                            |         |
| <b>Remark :</b>        | All emissions not reported here are more than 10 dB below the prescribed limit. |                            |         |

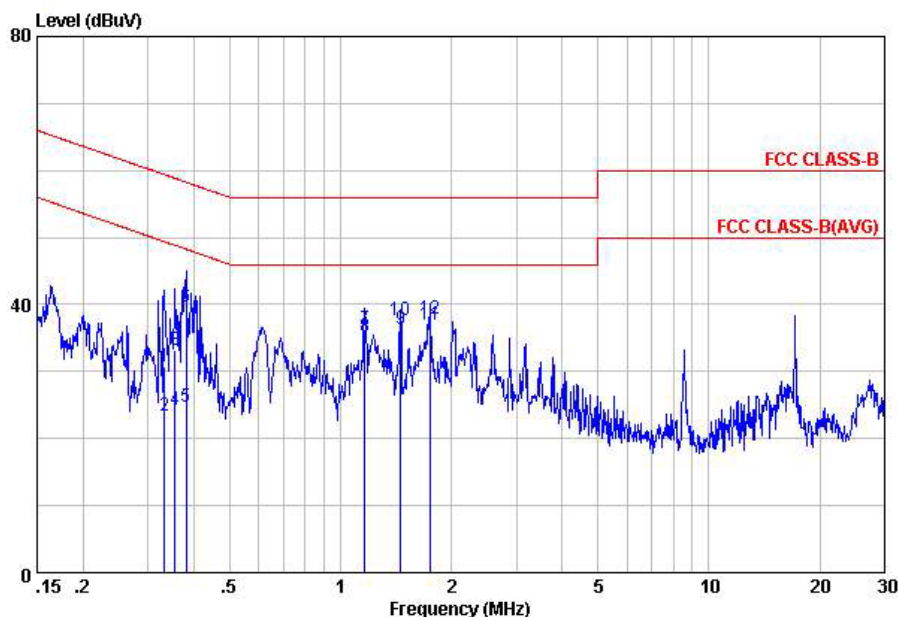


Site : C001-KS  
Condition: FCC CLASS-B LISN-111230 LINE

mode : Mode 4

|    | Freq | Level | Over   | Limit | Read  | LISN   | Cable |         |
|----|------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz  | dBuV  | Limit  | Line  | Level | Factor | Loss  | Remark  |
|    |      |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1  | 0.37 | 22.63 | -25.84 | 48.47 | 12.10 | -0.08  | 10.61 | Average |
| 2  | 0.37 | 35.93 | -22.54 | 58.47 | 25.40 | -0.08  | 10.61 | QP      |
| 3  | 0.40 | 23.94 | -23.87 | 47.81 | 13.40 | -0.08  | 10.62 | Average |
| 4  | 0.40 | 34.54 | -23.27 | 57.81 | 24.00 | -0.08  | 10.62 | QP      |
| 5  | 0.44 | 19.74 | -27.41 | 47.15 | 9.20  | -0.08  | 10.62 | Average |
| 6  | 0.44 | 29.04 | -28.11 | 57.15 | 18.50 | -0.08  | 10.62 | QP      |
| 7  | 1.16 | 34.56 | -11.44 | 46.00 | 24.00 | -0.10  | 10.66 | Average |
| 8  | 1.16 | 35.86 | -20.14 | 56.00 | 25.30 | -0.10  | 10.66 | QP      |
| 9  | 1.45 | 36.87 | -9.13  | 46.00 | 26.30 | -0.11  | 10.68 | Average |
| 10 | 1.45 | 37.67 | -18.33 | 56.00 | 27.10 | -0.11  | 10.68 | QP      |
| 11 | 1.74 | 36.79 | -9.21  | 46.00 | 26.21 | -0.11  | 10.69 | Average |
| 12 | 1.74 | 37.79 | -18.21 | 56.00 | 27.21 | -0.11  | 10.69 | QP      |

|                 |                                                                                 |                     |         |
|-----------------|---------------------------------------------------------------------------------|---------------------|---------|
| Test Mode :     | Mode 4                                                                          | Temperature :       | 19~20℃  |
| Test Engineer : | Tom Wang                                                                        | Relative Humidity : | 39~40%  |
| Test Voltage :  | 120Vac / 60Hz                                                                   | Phase :             | Neutral |
| Function Type : | WCDMA Band II Idle + Bluetooth Idle + USB Cable (Data 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-111230 NEUTRAL

mode : Mode 4

|    | Freq | Level | Over   | Limit | Read  | LISN   | Cable |         |
|----|------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz  | dBuV  | Limit  | Line  | Level | Factor | Loss  | Remark  |
|    |      |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1  | 0.33 | 30.72 | -28.68 | 59.40 | 20.20 | -0.08  | 10.60 | QP      |
| 2  | 0.33 | 23.42 | -25.98 | 49.40 | 12.90 | -0.08  | 10.60 | Average |
| 3  | 0.36 | 33.23 | -25.60 | 58.83 | 22.70 | -0.08  | 10.61 | QP      |
| 4  | 0.36 | 24.23 | -24.60 | 48.83 | 13.70 | -0.08  | 10.61 | Average |
| 5  | 0.38 | 24.84 | -23.41 | 48.25 | 14.30 | -0.08  | 10.62 | Average |
| 6  | 0.38 | 39.74 | -18.51 | 58.25 | 29.20 | -0.08  | 10.62 | QP      |
| 7  | 1.17 | 36.26 | -19.74 | 56.00 | 25.69 | -0.09  | 10.66 | QP      |
| 8  | 1.17 | 35.26 | -10.74 | 46.00 | 24.69 | -0.09  | 10.66 | Average |
| 9  | 1.46 | 36.37 | -9.63  | 46.00 | 25.79 | -0.10  | 10.68 | Average |
| 10 | 1.46 | 37.67 | -18.33 | 56.00 | 27.09 | -0.10  | 10.68 | QP      |
| 11 | 1.74 | 36.99 | -9.01  | 46.00 | 26.41 | -0.11  | 10.69 | Average |
| 12 | 1.74 | 37.79 | -18.21 | 56.00 | 27.21 | -0.11  | 10.69 | 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

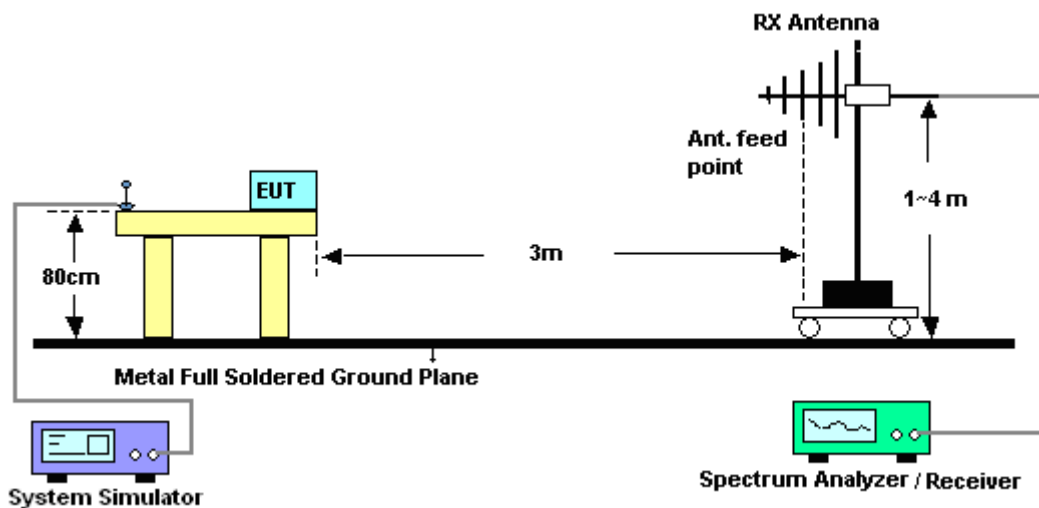
See list of measuring instruments of this test report.

### 3.2.3. Test Procedures

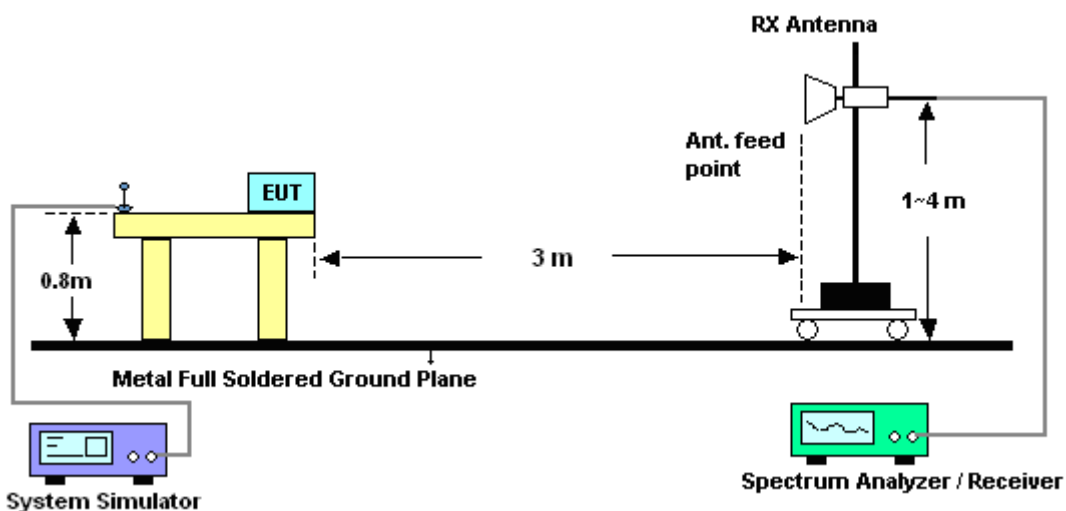
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to 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, peak values of EUT will be reported. Otherwise, the emission will be repeated by 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

For radiated emissions from 30MHz to 1GHz

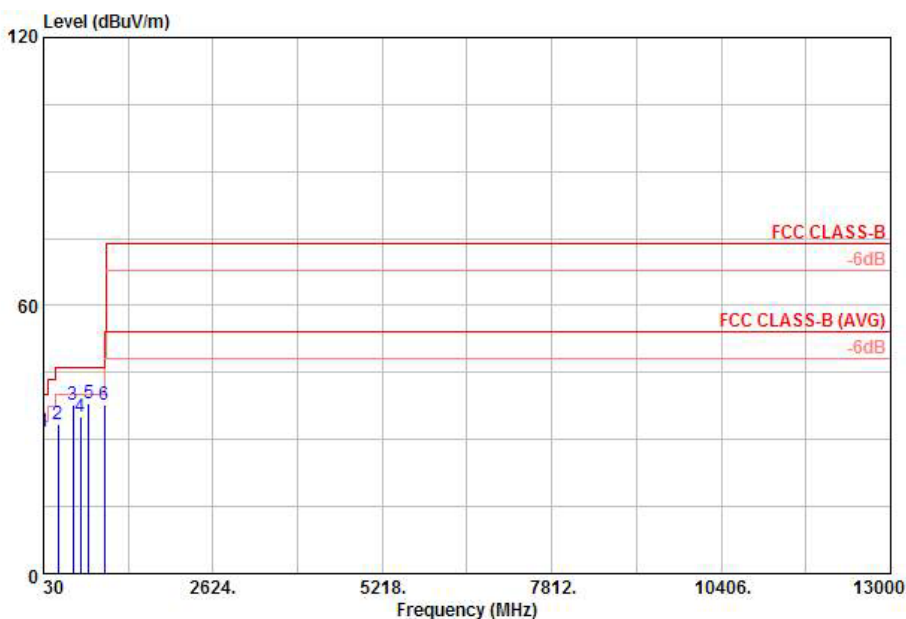


For radiated emissions above 1GHz



**3.2.5. Test Result of Radiated Emission**

|                        |                                                                                |                            |            |
|------------------------|--------------------------------------------------------------------------------|----------------------------|------------|
| <b>Test Mode :</b>     | Mode 4                                                                         | <b>Temperature :</b>       | 23~24°C    |
| <b>Test Engineer :</b> | Steven Hao                                                                     | <b>Relative Humidity :</b> | 43~45%     |
| <b>Test Distance :</b> | 3m                                                                             | <b>Polarization :</b>      | Horizontal |
| <b>Function Type :</b> | WCDMA Band II Idle + Bluetooth Idle + USB Cable (Data Link with PC) + Earphone |                            |            |

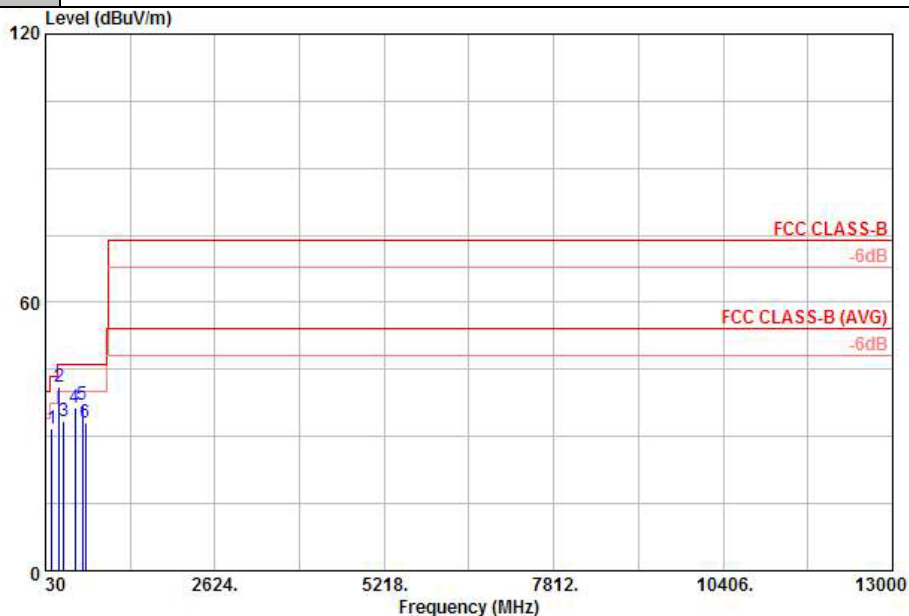


Site : 03CH01-KS  
Condition: FCC CLASS-B 3m LF\_ANT\_100803 HORIZONTAL

Mode : mode 4

|   | 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 | 33.88  | 31.86  | -8.14  | 40.00  | 46.16       | 15.56 | 0.23   | 30.09 | ---   | Peak   |
| 2 | 255.04 | 33.51  | -12.49 | 46.00  | 50.62       | 12.07 | 0.67   | 29.85 | ---   | Peak   |
| 3 | 480.08 | 37.84  | -8.16  | 46.00  | 49.78       | 16.87 | 0.94   | 29.75 | ---   | Peak   |
| 4 | 594.54 | 35.18  | -10.82 | 46.00  | 45.16       | 18.59 | 1.06   | 29.63 | ---   | Peak   |
| 5 | 720.64 | 38.03  | -7.97  | 46.00  | 47.01       | 19.53 | 1.15   | 29.66 | 200   | 0 Peak |
| 6 | 960.23 | 37.63  | -16.37 | 54.00  | 45.04       | 20.79 | 1.34   | 29.54 | ---   | Peak   |

|                        |                                                                                |                            |          |
|------------------------|--------------------------------------------------------------------------------|----------------------------|----------|
| <b>Test Mode :</b>     | Mode 4                                                                         | <b>Temperature :</b>       | 23~24°C  |
| <b>Test Engineer :</b> | Steven Hao                                                                     | <b>Relative Humidity :</b> | 43~45%   |
| <b>Test Distance :</b> | 3m                                                                             | <b>Polarization :</b>      | Vertical |
| <b>Function Type :</b> | WCDMA Band II Idle + Bluetooth Idle + USB Cable (Data Link with PC) + Earphone |                            |          |



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

Mode : mode 4

|   | Freq   | Level  | Over   | Limit  | ReadAntenna  | Cable       | Preamp | Ant   | Table |          |
|---|--------|--------|--------|--------|--------------|-------------|--------|-------|-------|----------|
|   | MHz    | dBuV/m | Limit  | Line   | Level Factor | Loss Factor | Factor | Pos   | Pos   | Remark   |
|   |        |        | dB     | dBuV/m | dBuV         | dB/m        | dB     | cm    | deg   |          |
| 1 | 127.97 | 31.80  | -11.70 | 43.50  | 49.59        | 11.72       | 0.47   | 29.98 | ---   | Peak     |
| 2 | 239.52 | 40.97  | -5.03  | 46.00  | 58.62        | 11.51       | 0.66   | 29.82 | 100   | 254 Peak |
| 3 | 314.21 | 33.35  | -12.65 | 46.00  | 49.20        | 13.36       | 0.74   | 29.95 | ---   | Peak     |
| 4 | 480.08 | 36.35  | -9.65  | 46.00  | 48.29        | 16.87       | 0.94   | 29.75 | ---   | Peak     |
| 5 | 594.54 | 37.01  | -8.99  | 46.00  | 46.99        | 18.59       | 1.06   | 29.63 | ---   | Peak     |
| 6 | 644.01 | 32.97  | -13.03 | 46.00  | 42.66        | 18.87       | 1.09   | 29.65 | ---   | 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. 01, 2012    | Jun. 15, 2012 | May 31, 2013  | Conduction (CO01-KS)  |
| LISN                      | MessTec      | AN3016    | 60103        | 9kHz~30MHz      | Dec. 30, 2011    | Jun. 15, 2012 | Dec. 29, 2012 | Conduction (CO01-KS)  |
| LISN                      | MessTec      | AN3016    | 60105        | 9kHz~30MHz      | Dec. 30, 2011    | Jun. 15, 2012 | Dec. 29, 2012 | Conduction (CO01-KS)  |
| AC Power Source           | Chroma       | 61602     | ABP000000811 | N/A             | Nov. 16, 2011    | Jun. 15, 2012 | Nov. 15, 2012 | Conduction (CO01-KS)  |
| System Simulator          | R&S          | CMU200    | 837587/066   | 2G Full-Band    | Dec. 30, 2011    | Jun. 15, 2012 | Dec. 29, 2012 | Conduction (CO01-KS)  |
| Signal Generator          | R&S          | SMR40     | 100455       | 10MHz~40GHz     | Dec. 30, 2011    | Jun. 15, 2012 | Dec. 29, 2012 | Conduction (CO01-KS)  |
| EMI Test Receiver         | R&S          | ESCI      | 100534       | 9kHz~3GHz       | Nov. 09, 2011    | Jul. 09, 2012 | Nov. 08, 2012 | Radiation (03CH01-KS) |
| Spectrum Analyzer         | R&S          | FSP40     | 100319       | 9kHz~40GHz      | Dec. 30, 2011    | Jul. 09, 2012 | Dec. 29, 2012 | Radiation (03CH01-KS) |
| Bilog Antenna             | SCHAFFNER    | CBL6112D  | 23182        | 25MHz~2GHz      | Dec. 08, 2011    | Jul. 09, 2012 | Dec. 07, 2012 | Radiation (03CH01-KS) |
| Double Ridge Horn Antenna | EMCO         | 3117      | 00075959     | 1GHz~18GHz      | Jan. 06, 2012    | Jul. 09, 2012 | Jan. 05, 2013 | Radiation (03CH01-KS) |
| Amplifier                 | Wireless     | FPA-6592G | 060007       | 30MHz~2GHz      | Dec. 30, 2011    | Jul. 09, 2012 | Dec. 29, 2012 | Radiation (03CH01-KS) |
| Amplifier                 | Agilent      | 8449B     | 3008A02370   | 1GHz~26.5GHz    | Dec. 30, 2011    | Jul. 09, 2012 | Dec. 29, 2012 | Radiation (03CH01-KS) |
| Signal Generator          | R&S          | SMR40     | 100455       | 10GHz~40GHz     | Dec. 30, 2011    | Jul. 09, 2012 | Dec. 29, 2012 | Radiation (03CH01-KS) |
| System Simulator          | R&S          | CMU200    | 837587/066   | 2G Full-Band    | Dec. 30, 2011    | Jul. 09, 2012 | Dec. 29, 2012 | Radiation (03CH01-KS) |

## 5. Uncertainty of Evaluation

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

|                                                                         |      |
|-------------------------------------------------------------------------|------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 2.26 |
|-------------------------------------------------------------------------|------|

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

|                                                                         |      |
|-------------------------------------------------------------------------|------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 2.54 |
|-------------------------------------------------------------------------|------|

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

|                                                                         |      |
|-------------------------------------------------------------------------|------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 4.72 |
|-------------------------------------------------------------------------|------|



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

Please refer to Sporton report number EP260404 as below.