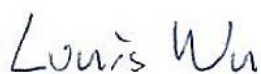


# FCC Test Report

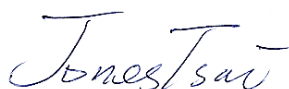
APPLICANT : Brightstar Corporation  
EQUIPMENT : Mobile Phone  
BRAND NAME : Avvio  
MODEL NAME : Avvio 295S/Avvio 295  
MARKETING NAME : Avvio 295S/Avvio 295  
FCC ID : WVBA295X  
STANDARD : FCC 47 CFR FCC Part 15 Subpart B  
CLASSIFICATION : Certification

The product was received on Feb. 14, 2014 and testing was completed on Mar. 04, 2014. We, SPORTON INTERNATIONAL (SHENZHEN) 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 to be compliant with the applicable technical standards.

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



Reviewed by: Louis Wu / Manager



Approved by: Jones Tsai / Manager



**SPORTON INTERNATIONAL (SHENZHEN) INC.**

No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C.

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## REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE   |
|------------|---------|-------------------------|---------------|
| FC421401   | Rev. 01 | Initial issue of report | Mar. 05, 2014 |
|            |         |                         |               |
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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>6.41 dB at<br>0.440 MHz   |
| 3.2            | 15.109   | Radiated Emission     | < 15.109 limits | PASS   | Under limit<br>3.29 dB at<br>408.300 MHz |

## 1. General Description

### 1.1. Applicant

**Brightstar Corporation**

9725 NW 117th Ave., Miami, Florida, FL 33178, United States

### 1.2. Manufacturer

**KCMobile Co., Ltd.**

#502, Ace techno tower 8th, 191-7 Guro-dong, Guro-Gu, Seoul, South Korea

### 1.3. Feature of Equipment Under Test

| Product Feature                 |                                       |
|---------------------------------|---------------------------------------|
| Equipment                       | Mobile Phone                          |
| Brand Name                      | Avvio                                 |
| Model Name                      | Avvio 295S/Avvio 295                  |
| Marketing Name                  | Avvio 295S/Avvio 295                  |
| FCC ID                          | WVBA295X                              |
| EUT supports Radios application | GSM/GPRS/Bluetooth v2.1 + EDR         |
| HW Version                      | V1.01                                 |
| SW Version                      | 6531D_C121I_KCM_K1_QQVGA_32X32_M1_V10 |
| EUT Stage                       | Production Unit                       |

**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 (Model Name: Avvio 295) and dual SIM card mobile (Model Name: Avvio 295S). 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 (Model Name: Avvio 295S) was the worst, so we choose dual SIM card mobile to perform all test.

## 1.4. Product Specification of Equipment Under Test

| Product Specification subjective to this standard |                                                                                                                                                   |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tx Frequency</b>                               | GSM850 : 824.2 MHz ~ 848.8 MHz<br>GSM1900 : 1850.2 MHz ~ 1909.8MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz                                              |
| <b>Rx Frequency</b>                               | GSM850 : 869.2 MHz ~ 893.8 MHz<br>GSM1900 : 1930.2 MHz ~ 1989.8 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz                                             |
| <b>Antenna Type</b>                               | WWAN : PIFA Antenna<br>Bluetooth : Monopole Antenna                                                                                               |
| <b>Type of Modulation</b>                         | GSM: GMSK<br>GPRS: GMSK<br>Bluetooth v2.1 BR (1Mbps) : GFSK<br>Bluetooth v2.1 EDR (2Mbps) : $\pi/4$ -DQPSK<br>Bluetooth v2.1 EDR (3Mbps) : 8-DPSK |

## 1.5. Modification of EUT

No modifications are made to the EUT during all test items.

## 1.6. 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 Registration No.</b> |
|                           | CO01-KS                                                                                                          | 149928                      |

|                           |                                                                                                                                                            |                             |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL (SHENZHEN) INC.                                                                                                                      |                             |
| <b>Test Site Location</b> | No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C.<br>TEL: +86-755- 3320-2398 |                             |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                                    | <b>FCC Registration No.</b> |
|                           | 03CH01-SZ                                                                                                                                                  | 831040                      |

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

## 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.   | Operating Mode (EUT with earphone)                                 | Note 1         | ☒         | Note 1    |
| 2.   | Charging Mode (EUT with adapter)                                   | ☒              | ☒         | Note 1    |
| 3.   | Data application transferred mode<br>(EUT connected with notebook) | ☒              | ☒         | ☒         |

#### Abbreviations:

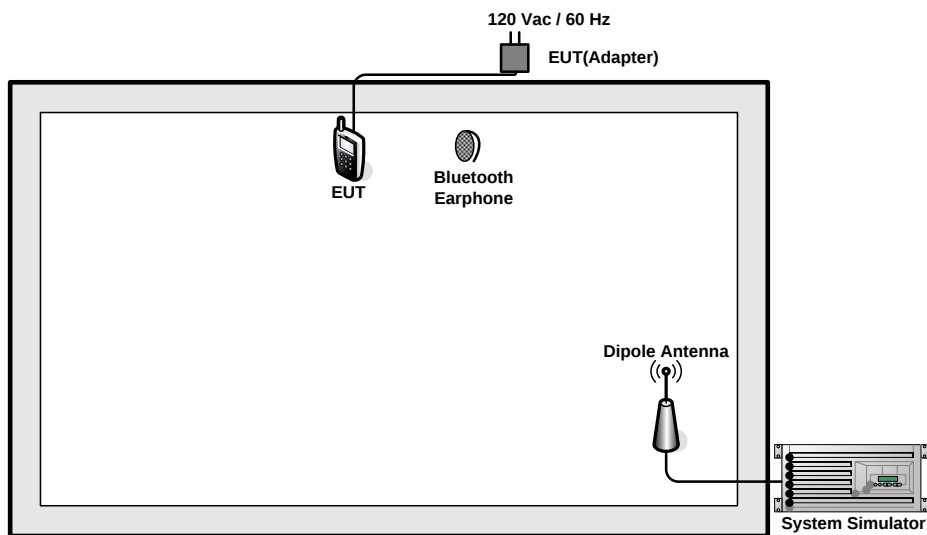
- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

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

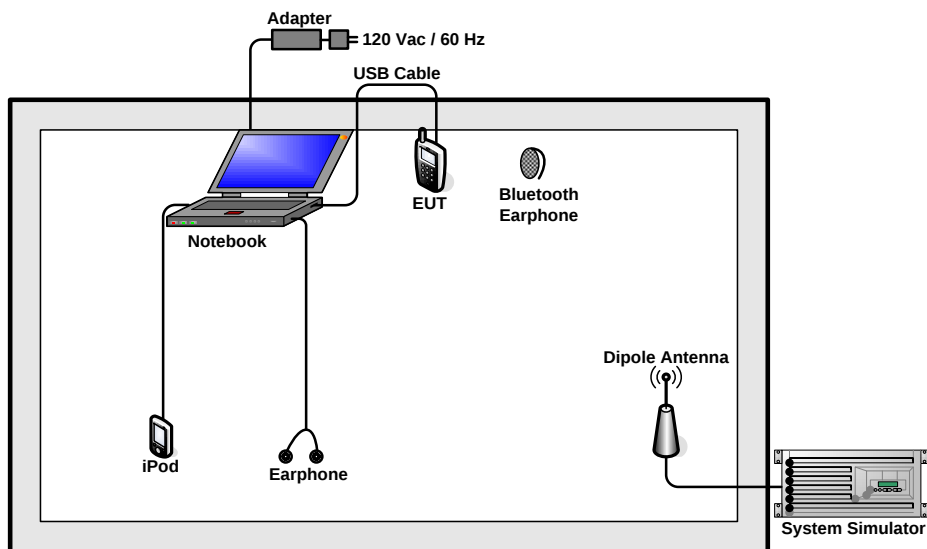
**Remark:** For signal above 1GHz, the worst case was test item 3.

| Test Items                                                                                                                                                                                                                                                                                                                                                                      | EUT Configure Mode | Function Type                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC Conducted Emission                                                                                                                                                                                                                                                                                                                                                           | 2/3                | Mode 1: GSM850 Idle + Adapter + Bluetooth Idle + Camera for SIM1 <Fig.1><br>Mode 2: GSM1900 Idle + Adapter + Bluetooth Idle + MPEG4 for SIM1 <Fig.1><br>Mode 3: GSM850 Idle + USB Cable (Data Link with Notebook) + Bluetooth Idle for SIM1 <Fig.2>  |
| Radiated Emissions < 1GHz                                                                                                                                                                                                                                                                                                                                                       | 1/2/3              | Mode 1: GSM850 Idle + Adapter + Bluetooth Idle + Camera for SIM1 <Fig.1><br>Mode 2: GSM1900 Idle + Earphone + Bluetooth Idle + MPEG4 for SIM1 <Fig.3><br>Mode 3: GSM850 Idle + USB Cable (Data Link with Notebook) + Bluetooth Idle for SIM1 <Fig.2> |
| Radiated Emissions $\geq$ 1GHz                                                                                                                                                                                                                                                                                                                                                  | 3                  | Mode 1: GSM850 Idle + USB Cable (Data Link with Notebook) + Bluetooth Idle for SIM1 <Fig.2>                                                                                                                                                          |
| <b>Remark:</b> <ol style="list-style-type: none"> <li>The worst case of AC is mode 2, and the USB Link Mode of RE is mode 3, the test data of these modes are reported.</li> <li>The worst case of RE &lt; 1G is mode 3; only the test data of this mode was reported.</li> <li>Link with Notebook means data application transferred mode between EUT and Notebook.</li> </ol> |                    |                                                                                                                                                                                                                                                      |

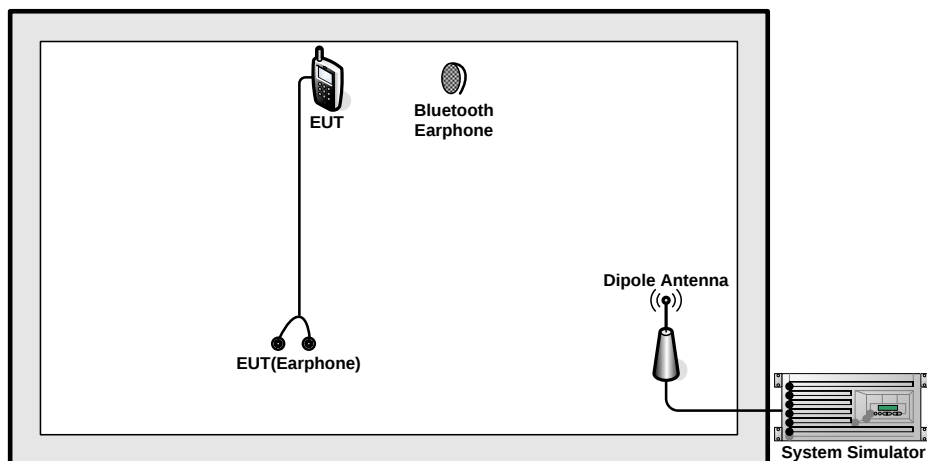
## 2.2. Connection Diagram of Test System



<Fig.1>



<Fig.2>



**<Fig.3>**

### 2.3. Support Unit used in test configuration and system

| 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.   | System Simulator   | R&S        | CMW 500    | N/A        | N/A               | Unshielded, 1.8 m                                          |
| 3.   | Bluetooth Earphone | Nokia      | BH-106     | QTLBH-106  | N/A               | N/A                                                        |
| 4.   | Bluetooth Earphone | Nokia      | BH-108     | PYAHS-107W | N/A               | N/A                                                        |
| 5.   | Notebook           | Lenovo     | G480       | N/A        | N/A               | AC I/P:<br>Unshielded, 0.9 m<br>DC O/P:<br>Shielded, 1.8 m |
| 6.   | iPod               | Apple      | A1199      | FCC DoC    | Shielded, 1.2 m   | N/A                                                        |
| 7.   | Earphone           | Lenovo     | SH100      | N/A        | Unshielded, 1.2 m | N/A                                                        |
| 8.   | USB Cable          | N/A        | N/A        | N/A        | N/A               | N/A                                                        |

## **2.4. EUT Operation Test Setup**

The EUT was in GSM idle mode during the testing. The EUT was synchronized to the BCCH, and was 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 WIN7 installed in notebook for files transfer with EUT via USB cable.
2. Execute "Windows Media Player" to play MPEG4 files.
3. Turn on camera to capture images.

### 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.

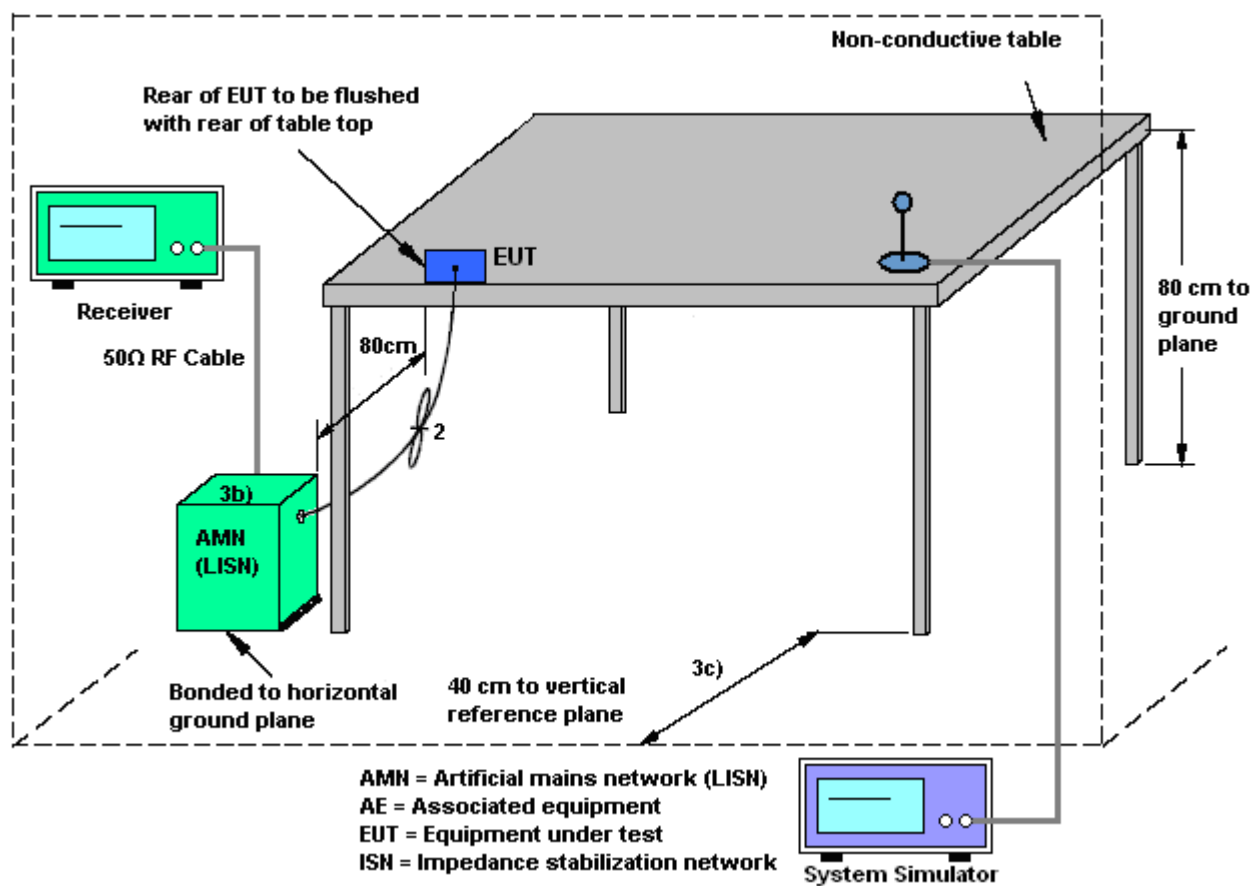
##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

##### 3.1.3 Test Procedure

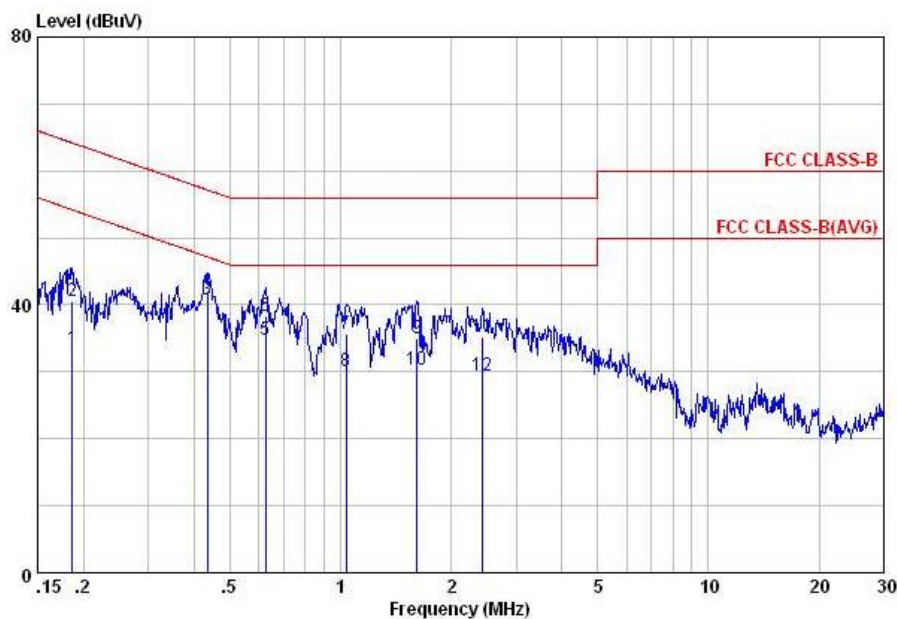
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

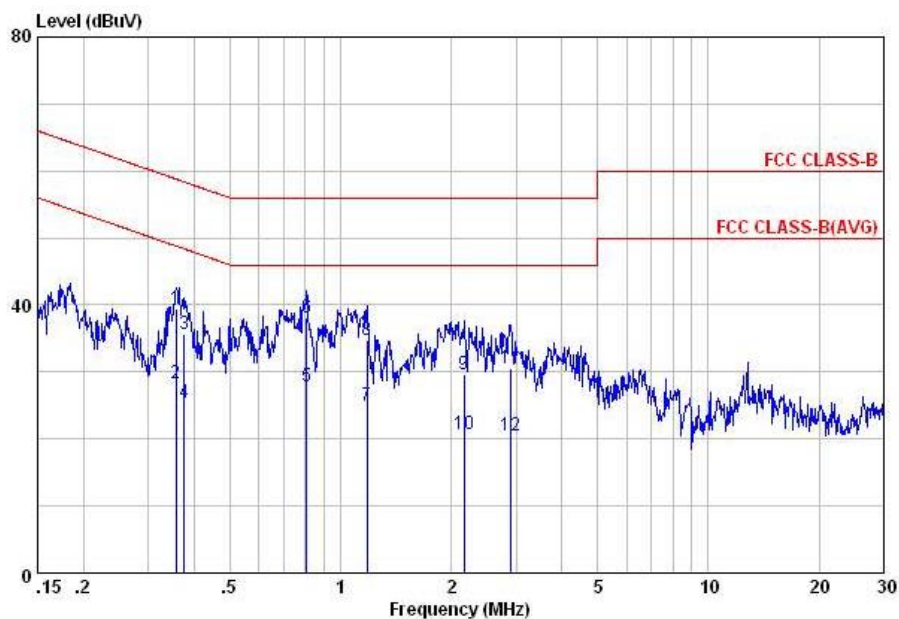
|                        |                                                          |                            |        |
|------------------------|----------------------------------------------------------|----------------------------|--------|
| <b>Test Mode :</b>     | Mode 2                                                   | <b>Temperature :</b>       | 20~22℃ |
| <b>Test Engineer :</b> | Morris Li                                                | <b>Relative Humidity :</b> | 38~40% |
| <b>Test Voltage :</b>  | 120Vac / 60Hz                                            | <b>Phase :</b>             | Line   |
| <b>Function Type :</b> | GSM1900 Idle + Adapter + Bluetooth Idle + MPEG4 for SIM1 |                            |        |



Site : C001-KS  
Condition: FCC CLASS-B LISN-L20130306 LINE  
Project : (FC) 421401  
mode : Mode 2

|    | Freq | Level | Over   | Limit | Read  | LISN   | Cable |         |
|----|------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz  | dBμV  | Limit  | Line  | Level | Factor | Loss  | Remark  |
|    |      |       | dB     | dBμV  | dBμV  | dB     | dB    |         |
| 1  | 0.19 | 33.38 | -20.82 | 54.20 | 21.60 | 1.18   | 10.60 | Average |
| 2  | 0.19 | 40.48 | -23.72 | 64.20 | 28.70 | 1.18   | 10.60 | QP      |
| 3  | 0.44 | 40.74 | -6.41  | 47.15 | 30.20 | 0.27   | 10.27 | Average |
| 4  | 0.44 | 42.14 | -15.01 | 57.15 | 31.60 | 0.27   | 10.27 | QP      |
| 5  | 0.62 | 34.83 | -11.17 | 46.00 | 24.40 | 0.20   | 10.23 | Average |
| 6  | 0.62 | 38.33 | -17.67 | 56.00 | 27.90 | 0.20   | 10.23 | QP      |
| 7  | 1.04 | 35.68 | -20.32 | 56.00 | 25.40 | 0.10   | 10.18 | QP      |
| 8  | 1.04 | 29.98 | -16.02 | 46.00 | 19.70 | 0.10   | 10.18 | Average |
| 9  | 1.61 | 35.09 | -20.91 | 56.00 | 24.80 | 0.10   | 10.19 | QP      |
| 10 | 1.61 | 30.39 | -15.61 | 46.00 | 20.10 | 0.10   | 10.19 | Average |
| 11 | 2.43 | 35.21 | -20.79 | 56.00 | 24.90 | 0.11   | 10.20 | QP      |
| 12 | 2.43 | 29.51 | -16.49 | 46.00 | 19.20 | 0.11   | 10.20 | Average |

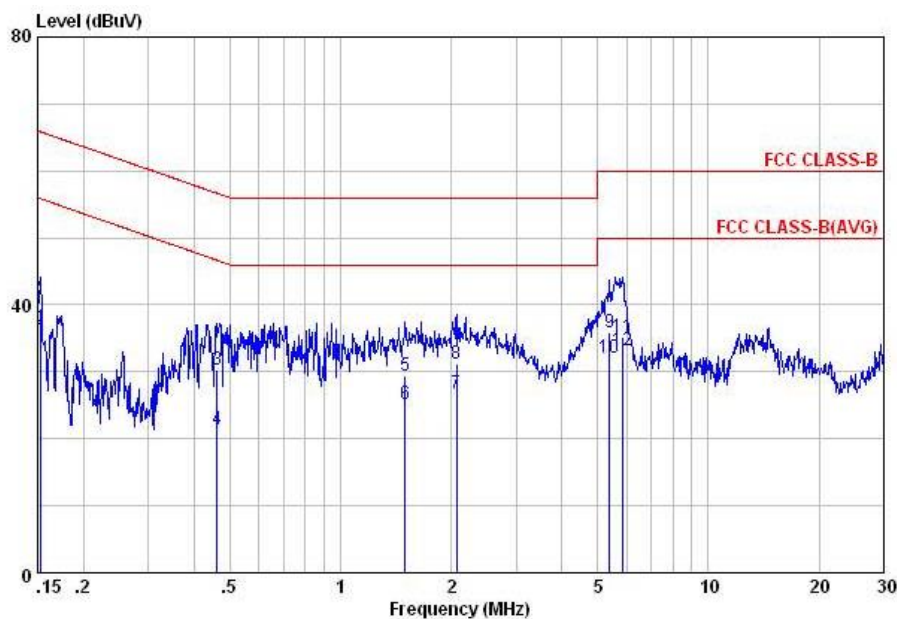
|                        |                                                          |                            |         |
|------------------------|----------------------------------------------------------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 2                                                   | <b>Temperature :</b>       | 20~22°C |
| <b>Test Engineer :</b> | Morris Li                                                | <b>Relative Humidity :</b> | 38~40%  |
| <b>Test Voltage :</b>  | 120Vac / 60Hz                                            | <b>Phase :</b>             | Neutral |
| <b>Function Type :</b> | GSM1900 Idle + Adapter + Bluetooth Idle + MPEG4 for SIM1 |                            |         |



Site : C001-KS  
 Condition: FCC CLASS-B LISN-N20130306 NEUTRAL  
 Project : (FC) 421401  
 mode : Mode 2

|    | Freq | Level | Over   | Limit | Read  | LISN   | Cable | Remark  |
|----|------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz  | dBuV  | Limit  | Line  | Level | Factor | Loss  |         |
|    |      |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1  | 0.36 | 39.40 | -19.38 | 58.78 | 28.60 | 0.49   | 10.31 | QP      |
| 2  | 0.36 | 28.20 | -20.58 | 48.78 | 17.40 | 0.49   | 10.31 | Average |
| 3  | 0.38 | 35.54 | -22.85 | 58.39 | 24.79 | 0.45   | 10.30 | QP      |
| 4  | 0.38 | 25.34 | -23.05 | 48.39 | 14.59 | 0.45   | 10.30 | Average |
| 5  | 0.81 | 27.80 | -28.20 | 56.00 | 17.44 | 0.16   | 10.20 | QP      |
| 6  | 0.81 | 38.16 | -7.84  | 46.00 | 27.80 | 0.16   | 10.20 | Average |
| 7  | 1.18 | 24.98 | -21.02 | 46.00 | 14.70 | 0.10   | 10.18 | Average |
| 8  | 1.18 | 34.78 | -21.22 | 56.00 | 24.50 | 0.10   | 10.18 | QP      |
| 9  | 2.17 | 29.70 | -26.30 | 56.00 | 19.41 | 0.10   | 10.19 | QP      |
| 10 | 2.17 | 20.80 | -25.20 | 46.00 | 10.51 | 0.10   | 10.19 | Average |
| 11 | 2.90 | 30.45 | -25.55 | 56.00 | 20.10 | 0.13   | 10.22 | QP      |
| 12 | 2.90 | 20.55 | -25.45 | 46.00 | 10.20 | 0.13   | 10.22 | Average |

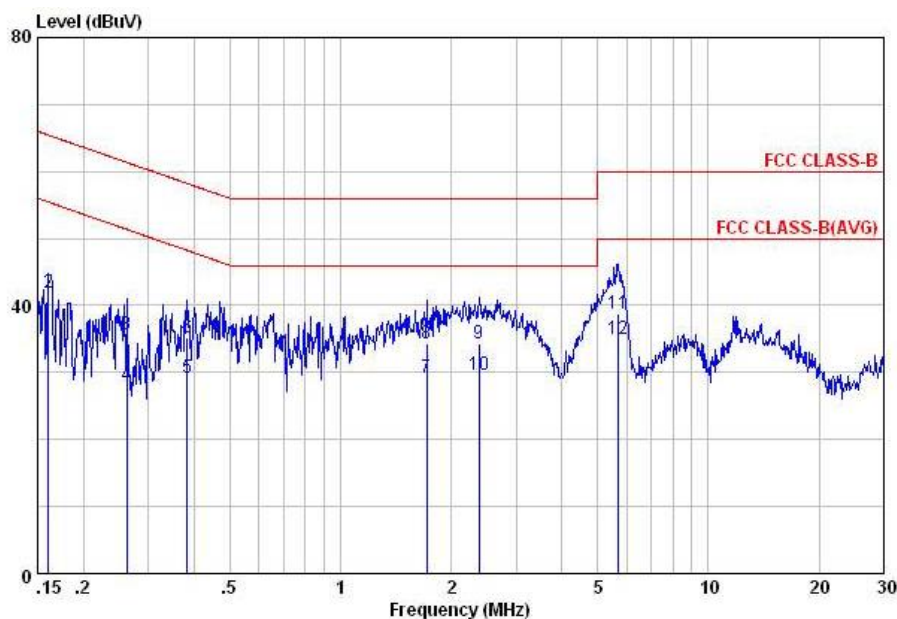
|                        |                                                                             |                            |         |
|------------------------|-----------------------------------------------------------------------------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 3                                                                      | <b>Temperature :</b>       | 20~22°C |
| <b>Test Engineer :</b> | Morris Li                                                                   | <b>Relative Humidity :</b> | 38~40%  |
| <b>Test Voltage :</b>  | 120Vac / 60Hz                                                               | <b>Phase :</b>             | Line    |
| <b>Function Type :</b> | GSM850 Idle + USB Cable (Data Link with Notebook) + Bluetooth Idle for SIM1 |                            |         |



Site : C001-KS  
 Condition: FCC CLASS-B LISN-L20130306 LINE  
 Project : (FC) 421401  
 mode : Mode 3

|    | Freq | Level | Over   | Limit | Read  | LISN   | Cable | Remark  |
|----|------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz  | dBuV  | Limit  | Line  | Level | Factor | Loss  |         |
|    |      |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1  | 0.15 | 39.42 | -26.45 | 65.87 | 26.81 | 1.91   | 10.70 | QP      |
| 2  | 0.15 | 36.32 | -19.55 | 55.87 | 23.71 | 1.91   | 10.70 | Average |
| 3  | 0.46 | 30.41 | -26.26 | 56.67 | 19.90 | 0.24   | 10.27 | QP      |
| 4  | 0.46 | 21.31 | -25.36 | 46.67 | 10.80 | 0.24   | 10.27 | Average |
| 5  | 1.50 | 29.49 | -26.51 | 56.00 | 19.20 | 0.10   | 10.19 | QP      |
| 6  | 1.50 | 25.09 | -20.91 | 46.00 | 14.80 | 0.10   | 10.19 | Average |
| 7  | 2.07 | 26.79 | -19.21 | 46.00 | 16.50 | 0.10   | 10.19 | Average |
| 8  | 2.07 | 31.09 | -24.91 | 56.00 | 20.80 | 0.10   | 10.19 | QP      |
| 9  | 5.39 | 35.87 | -24.13 | 60.00 | 25.40 | 0.20   | 10.27 | QP      |
| 10 | 5.39 | 32.07 | -17.93 | 50.00 | 21.60 | 0.20   | 10.27 | Average |
| 11 | 5.87 | 35.28 | -24.72 | 60.00 | 24.80 | 0.20   | 10.28 | QP      |
| 12 | 5.87 | 33.28 | -16.72 | 50.00 | 22.80 | 0.20   | 10.28 | Average |

|                        |                                                                             |                            |         |
|------------------------|-----------------------------------------------------------------------------|----------------------------|---------|
| <b>Test Mode :</b>     | Mode 3                                                                      | <b>Temperature :</b>       | 20~22°C |
| <b>Test Engineer :</b> | Morris Li                                                                   | <b>Relative Humidity :</b> | 38~40%  |
| <b>Test Voltage :</b>  | 120Vac / 60Hz                                                               | <b>Phase :</b>             | Neutral |
| <b>Function Type :</b> | GSM850 Idle + USB Cable (Data Link with Notebook) + Bluetooth Idle for SIM1 |                            |         |



Site : C001-KS  
 Condition: FCC CLASS-B LISN-N20130306 NEUTRAL  
 Project : (FC) 421401  
 mode : Mode 3

|    | Freq | Level | Over   | Limit | Read  | LISN   | Cable | Remark  |
|----|------|-------|--------|-------|-------|--------|-------|---------|
|    | MHz  | dBuV  | Limit  | Line  | Level | Factor | Loss  |         |
|    |      |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1  | 0.16 | 36.60 | -18.83 | 55.43 | 24.20 | 1.73   | 10.67 | Average |
| 2  | 0.16 | 41.80 | -23.63 | 65.43 | 29.40 | 1.73   | 10.67 | QP      |
| 3  | 0.26 | 35.75 | -25.63 | 61.38 | 24.41 | 0.86   | 10.48 | QP      |
| 4  | 0.26 | 28.15 | -23.23 | 51.38 | 16.81 | 0.86   | 10.48 | Average |
| 5  | 0.38 | 29.12 | -19.09 | 48.21 | 18.40 | 0.43   | 10.29 | Average |
| 6  | 0.38 | 35.12 | -23.09 | 58.21 | 24.40 | 0.43   | 10.29 | QP      |
| 7  | 1.72 | 29.19 | -16.81 | 46.00 | 18.90 | 0.10   | 10.19 | Average |
| 8  | 1.72 | 34.39 | -21.61 | 56.00 | 24.10 | 0.10   | 10.19 | QP      |
| 9  | 2.38 | 34.21 | -21.79 | 56.00 | 23.90 | 0.11   | 10.20 | QP      |
| 10 | 2.38 | 29.71 | -16.29 | 46.00 | 19.40 | 0.11   | 10.20 | Average |
| 11 | 5.68 | 38.68 | -21.32 | 60.00 | 28.20 | 0.20   | 10.28 | QP      |
| 12 | 5.68 | 35.08 | -14.92 | 50.00 | 24.60 | 0.20   | 10.28 | Average |

## 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

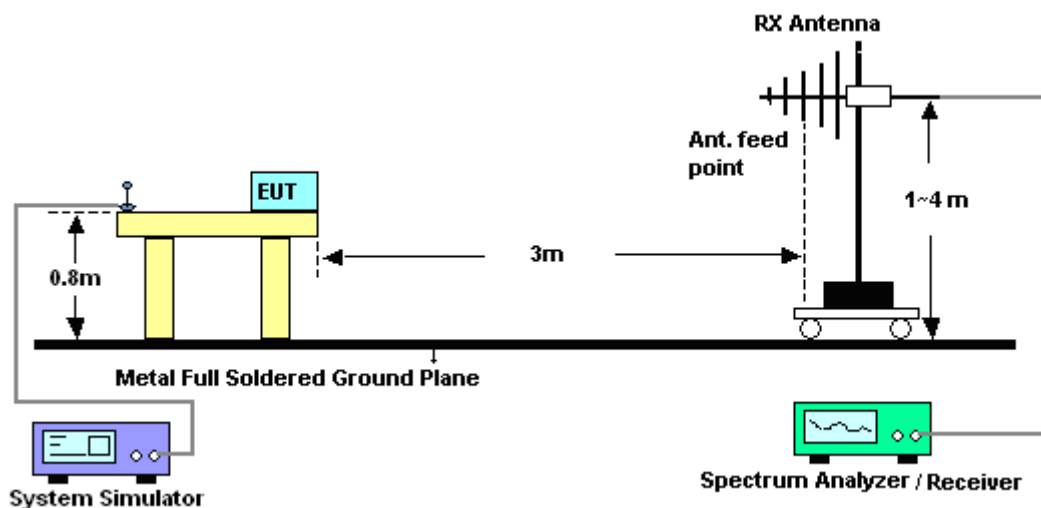
The measuring equipment is listed in the section 4 of this test report.

### 3.2.3. Test Procedures

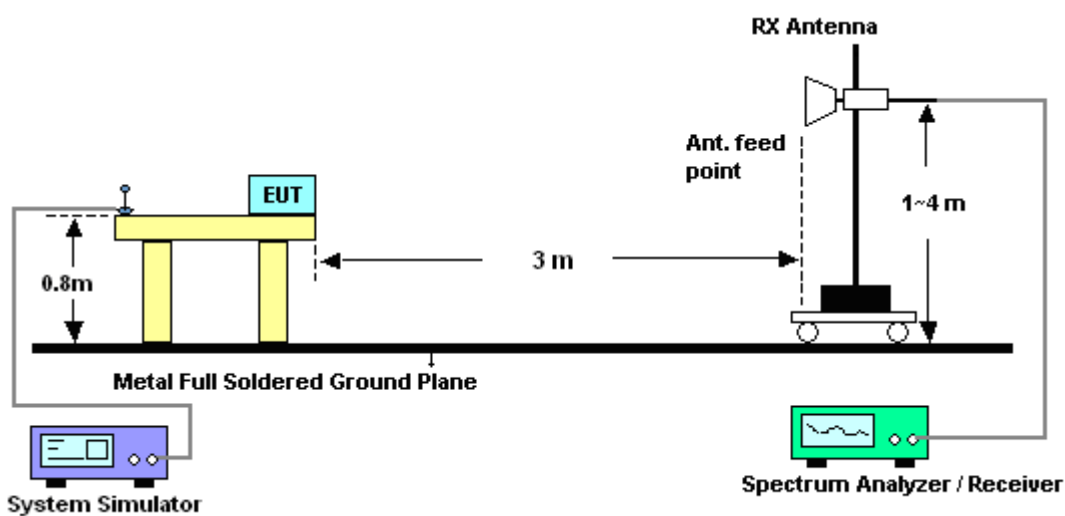
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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 (dB $\mu$ V/m) = 20 log Emission level ( $\mu$ V/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

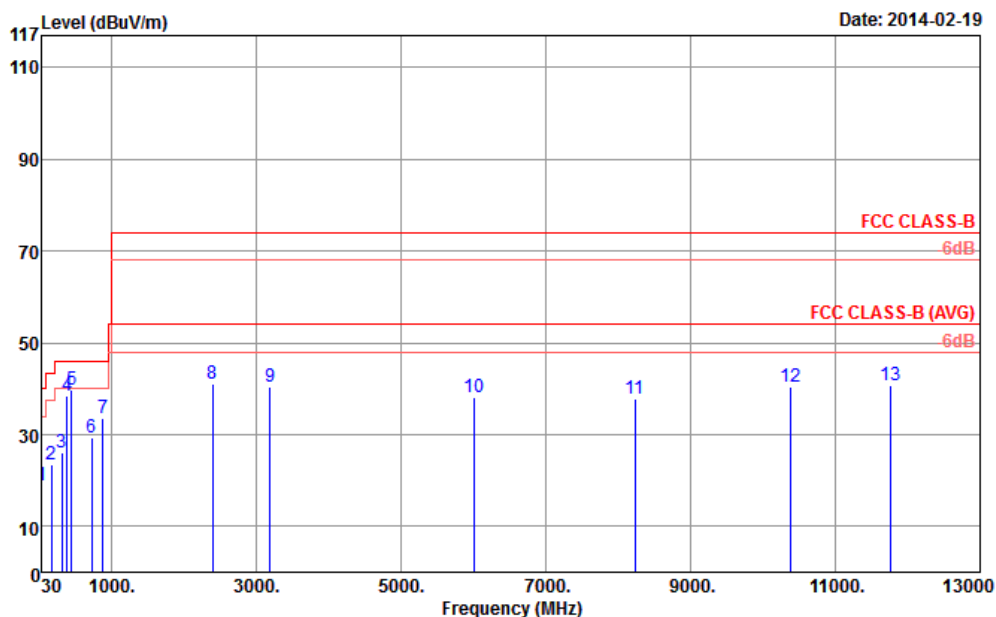


For radiated emissions above 1GHz



### 3.2.5. Test Result of Radiated Emission

|                 |                                                                             |                     |            |
|-----------------|-----------------------------------------------------------------------------|---------------------|------------|
| Test Mode :     | Mode 3                                                                      | Temperature :       | 24~25°C    |
| Test Engineer : | Robin Luo                                                                   | Relative Humidity : | 48~49%     |
| Test Distance : | 3m                                                                          | Polarization :      | Horizontal |
| Function Type : | GSM850 Idle + USB Cable (Data Link with Notebook) + Bluetooth Idle for SIM1 |                     |            |
| Remark :        | #7 is system simulator signal which can be ignored.                         |                     |            |

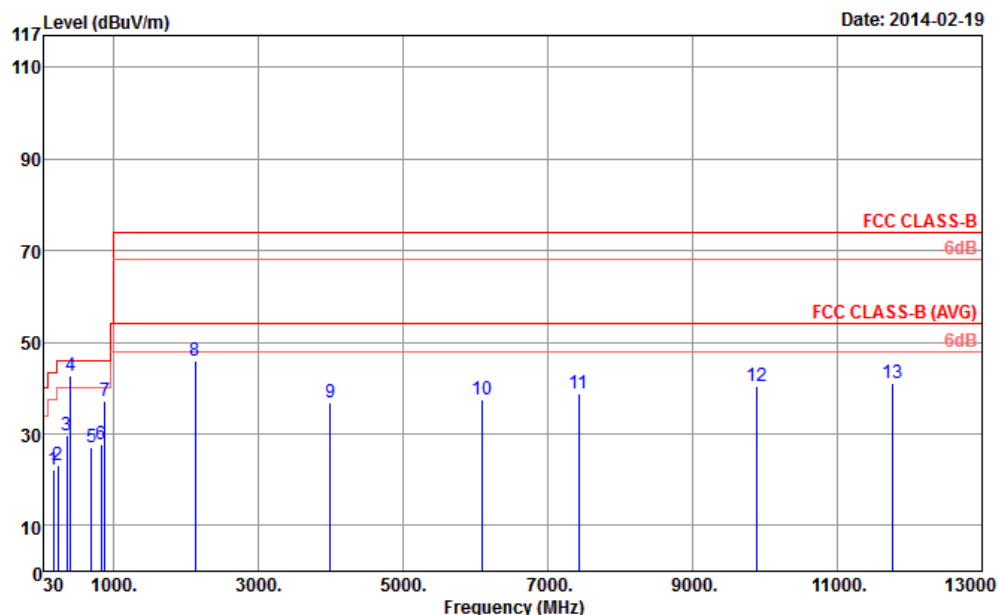


Site : 03CH01-SZ  
 Condition : FCC CLASS-B 3m LF\_ANT\_140102 HORIZONTAL  
 Project : (FC)421401  
 Mode : Mode 3

|     | Freq     | Level  | Over Limit | Limit Line | ReadAntenna Level | Cable Factor | Preamp Loss | A/Pos | T/Pos | Remark |      |
|-----|----------|--------|------------|------------|-------------------|--------------|-------------|-------|-------|--------|------|
|     | MHz      | dBuV/m | dB         | dBuV/m     | dBuV              | dB/m         | dB          | dB    | cm    | deg    |      |
| 1   | 39.70    | 18.86  | -21.14     | 40.00      | 37.23             | 12.10        | 0.85        | 31.32 | ---   | ---    | Peak |
| 2   | 167.74   | 23.33  | -20.17     | 43.50      | 42.00             | 10.79        | 1.57        | 31.03 | ---   | ---    | Peak |
| 3   | 312.27   | 25.92  | -20.08     | 46.00      | 40.07             | 14.46        | 2.05        | 30.66 | ---   | ---    | Peak |
| 4   | 384.05   | 38.56  | -7.44      | 46.00      | 51.28             | 15.42        | 2.25        | 30.39 | ---   | ---    | Peak |
| 5 P | 450.01   | 39.65  | -6.35      | 46.00      | 51.29             | 16.10        | 2.41        | 30.15 | 100   | 0      | Peak |
| 6   | 728.40   | 29.46  | -16.54     | 46.00      | 35.72             | 19.84        | 3.02        | 29.12 | ---   | ---    | Peak |
| 7   | 881.66   | 33.50  |            |            | 38.00             | 20.76        | 3.29        | 28.55 | ---   | ---    | Peak |
| 8   | 2398.00  | 41.01  | -32.99     | 74.00      | 60.16             | 31.98        | 5.62        | 56.75 | 195   | 236    | Peak |
| 9   | 3190.00  | 40.32  | -33.68     | 74.00      | 58.00             | 33.04        | 6.57        | 57.29 | ---   | ---    | Peak |
| 10  | 6020.00  | 38.06  | -35.94     | 74.00      | 50.64             | 34.00        | 9.28        | 55.86 | ---   | ---    | Peak |
| 11  | 8232.00  | 37.96  | -36.04     | 74.00      | 47.82             | 35.30        | 10.87       | 56.03 | ---   | ---    | Peak |
| 12  | 10380.00 | 40.41  | -33.59     | 74.00      | 47.68             | 36.77        | 12.86       | 56.90 | ---   | ---    | Peak |
| 13  | 11760.00 | 40.77  | -33.23     | 74.00      | 45.55             | 38.01        | 13.44       | 56.23 | ---   | ---    | Peak |



|                 |                                                                             |                     |          |
|-----------------|-----------------------------------------------------------------------------|---------------------|----------|
| Test Mode :     | Mode 3                                                                      | Temperature :       | 24~25°C  |
| Test Engineer : | Robin Luo                                                                   | Relative Humidity : | 48~49%   |
| Test Distance : | 3m                                                                          | Polarization :      | Vertical |
| Function Type : | GSM850 Idle + USB Cable (Data Link with Notebook) + Bluetooth Idle for SIM1 |                     |          |
| Remark :        | #7 is system simulator signal which can be ignored.                         |                     |          |



Site : 03CH01-SZ  
Condition : FCC CLASS-B 3m LF\_ANT\_140102 VERTICAL  
Project : (FC)421401  
Mode : Mode 3

|     | Freq     | Level  | Over   | Limit  | ReadAntenna | Cable  | Preamp | A/Pos  | T/Pos | Remark |
|-----|----------|--------|--------|--------|-------------|--------|--------|--------|-------|--------|
|     | MHz      | dBuV/m | Limit  | Line   | Level       | Factor | Loss   | Factor | cm    | deg    |
|     |          |        | dB     | dBuV/m | dBuV        | dB/m   | dB     | dB     |       |        |
| 1   | 167.74   | 22.16  | -21.34 | 43.50  | 40.83       | 10.79  | 1.57   | 31.03  | ---   | Peak   |
| 2   | 233.70   | 23.14  | -22.86 | 46.00  | 40.30       | 11.90  | 1.81   | 30.87  | ---   | Peak   |
| 3   | 359.80   | 29.59  | -16.41 | 46.00  | 43.30       | 14.60  | 2.17   | 30.48  | ---   | Peak   |
| 4 P | 408.30   | 42.71  | -3.29  | 46.00  | 54.30       | 16.39  | 2.32   | 30.30  | 100   | Peak   |
| 5   | 696.39   | 27.04  | -18.96 | 46.00  | 34.38       | 18.94  | 2.96   | 29.24  | ---   | Peak   |
| 6   | 832.19   | 27.80  | -18.20 | 46.00  | 32.75       | 20.50  | 3.28   | 28.73  | ---   | Peak   |
| 7   | 881.66   | 37.22  |        |        | 41.72       | 20.76  | 3.29   | 28.55  | ---   | Peak   |
| 8   | 2132.00  | 45.81  | -28.19 | 74.00  | 66.50       | 30.69  | 5.29   | 56.67  | 132   | Peak   |
| 9   | 3998.00  | 36.69  | -37.31 | 74.00  | 54.67       | 33.10  | 7.66   | 58.74  | ---   | Peak   |
| 10  | 6098.00  | 37.49  | -36.51 | 74.00  | 50.12       | 34.00  | 9.37   | 56.00  | ---   | Peak   |
| 11  | 7424.00  | 38.77  | -35.23 | 74.00  | 51.79       | 33.96  | 10.03  | 57.01  | ---   | Peak   |
| 12  | 9888.00  | 40.42  | -33.58 | 74.00  | 47.88       | 36.86  | 12.49  | 56.81  | ---   | Peak   |
| 13  | 11770.00 | 41.03  | -32.97 | 74.00  | 45.79       | 38.02  | 13.44  | 56.22  | ---   | 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                  | May 23, 2013     | Mar. 04, 2014 | May 22, 2014  | Conduction (CO01-KS)  |
| AC LISN                              | MessTec              | AN3016    | 060103           | 9kHz~30MHz                 | Dec. 10, 2013    | Mar. 04, 2014 | Dec. 09, 2014 | Conduction (CO01-KS)  |
| AC LISN<br>(for auxiliary equipment) | MessTec              | AN3016    | 060105           | 9kHz~30MHz                 | Dec. 10, 2013    | Mar. 04, 2014 | Dec. 09, 2014 | Conduction (CO01-KS)  |
| AC Power Source                      | Chroma               | 61602     | ABP0000008<br>11 | AC 0V~300V,<br>45Hz~1000Hz | May 25, 2013     | Mar. 04, 2014 | May 24, 2014  | Conduction (CO01-KS)  |
| Spectrum Analyzer                    | Agilent Technologies | N9038A    | MY52260185       | 20Hz~26.5GHz               | Apr. 04, 2013    | Feb. 19, 2014 | Apr. 03, 2014 | Radiation (03CH01-SZ) |
| Double Ridge Horn Antenna            | ETS Lindgren         | 3117      | 00119436         | 1GHz~18GHz                 | Oct. 26, 2013    | Feb. 19, 2014 | Oct. 25, 2014 | Radiation (03CH01-SZ) |
| Bilog Antenna                        | SCHAFFNER            | CBL6112B  | 2614             | 30MHz~2GHz                 | Dec. 23, 2013    | Feb. 19, 2014 | Dec. 22, 2014 | Radiation (03CH01-SZ) |
| Amplifier                            | ADVANTEST            | BB525C    | E9007003         | 9kHz~3000MHz               | Mar. 29, 2013    | Feb. 19, 2014 | Mar. 28, 2014 | Radiation (03CH01-SZ) |
| Amplifier                            | Yiai                 | AV3860B   | 04030            | 2GHz~26.5GHz               | Mar. 29, 2013    | Feb. 19, 2014 | Mar. 28, 2014 | Radiation (03CH01-SZ) |
| Turn Table                           | EM Electronics       | EM 1000   | N/A              | 0~360 degree               | NCR              | Feb. 19, 2014 | NCR           | Radiation (03CH01-SZ) |
| Antenna Mast                         | EM Electronics       | EM 1000   | N/A              | 1 m~4 m                    | NCR              | Feb. 19, 2014 | NCR           | Radiation (03CH01-SZ) |

## 5. Uncertainty of Evaluation

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

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

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

|                                                                          |      |
|--------------------------------------------------------------------------|------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2U_c(y)$ ) | 3.90 |
|--------------------------------------------------------------------------|------|