

# FCC Test Report

APPLICANT : BLU Products, Inc.  
EQUIPMENT : Smart phone  
BRAND NAME : BLU  
MODEL NAME : NEO X MINI  
MARKETING NAME : NEO X MINI  
FCC ID : YHLBLUNEOXMINI  
STANDARD : FCC 47 CFR FCC Part 15 Subpart B  
CLASSIFICATION : Certification

The product was received on Mar. 25, 2016 and testing was completed on May 03, 2016. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2014 and has been in 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 (SHENZHEN) INC., the test report shall not be reproduced except in full.



Prepared by: Ken Chen / Manager



Approved by: Jones Tsai / Manager



**SPORTON INTERNATIONAL (SHENZHEN) INC.**

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## REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE  |
|------------|---------|-------------------------|--------------|
| FC632502   | Rev. 01 | Initial issue of report | May 11, 2016 |
|            |         |                         |              |
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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<br>< ICES003 6.1 limits | PASS   | Under limit<br>4.04 dB at<br>0.500 MHz                     |
| 3.2            | 15.109   | Radiated Emission     | < 15.109 limits<br>< ICES003 6.2 limits | PASS   | Under limit<br>1.15 dB at<br>240.060 MHz for<br>Quasi-Peak |



## 1. General Description

### 1.1. Applicant

**BLU Products, Inc.**  
10814 NW 33rd St # 100 Doral, FL 33172

### 1.2. Manufacturer

**BLU Products, Inc.**  
10814 NW 33rd St # 100 Doral, FL 33172

### 1.3. Product Feature of Equipment Under Test

| Product Feature                        |                                                                                                                                                   |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Equipment</b>                       | Smart phone                                                                                                                                       |
| <b>Brand Name</b>                      | BLU                                                                                                                                               |
| <b>Model Name</b>                      | NEO X MINI                                                                                                                                        |
| <b>Marketing Name</b>                  | NEO X MINI                                                                                                                                        |
| <b>FCC ID</b>                          | YHLBLUNEOXMINI                                                                                                                                    |
| <b>EUT supports Radios application</b> | GSM/GPRS/EGPRS/WCDMA/HSPA/<br>HSPA+(16QAM uplink is not supported)<br>WLAN 2.4GHz 802.11b/g/n HT20/HT40<br>Bluetooth v3.0 + EDR/Bluetooth v4.0 LE |
| <b>IMEI Code</b>                       | Conduction: 868373029988948/868373029988955<br>Radiation: 868373029988922/868373029988930                                                         |
| <b>HW Version</b>                      | A856-V0.3A                                                                                                                                        |
| <b>SW Version</b>                      | V01                                                                                                                                               |
| <b>EUT Stage</b>                       | Pre-Production                                                                                                                                    |

**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. Product Specification of Equipment Under Test

| Standards-related Product Specification |                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tx Frequency</b>                     | 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 IV : 1712.4 MHz ~ 1752.6 MHz<br>WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz<br>802.11b/g/n: 2412 MHz ~ 2462 MHz<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>WCDMA Band V: 871.4 MHz ~ 891.6 MHz<br>WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz<br>WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz<br>802.11b/g/n: 2412 MHz ~ 2462 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz<br>GPS : 1.57542 GHz<br>FM: 88 MHz ~ 108 MHz                                                                                                            |
| <b>Antenna Type</b>                     | WWAN : FPC Antenna<br>WLAN : FPC Antenna<br>Bluetooth : FPC Antenna<br>GPS : FPC Antenna                                                                                                                                                                                                                                                                                                                                    |
| <b>Type of Modulation</b>               | GSM: GMSK<br>GPRS: GMSK<br>EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK<br>WCDMA : QPSK (Uplink)<br>HSDPA : QPSK (Uplink)<br>HSUPA : QPSK (Uplink)<br>HSPA+ : 16QAM (uplink is not supported)<br>802.11b : DSSS (DBPSK / DQPSK / CCK)<br>802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)<br>Bluetooth LE : GFSK<br>Bluetooth (1Mbps) : GFSK<br>Bluetooth (2Mbps) : $\pi/4$ -DQPSK<br>Bluetooth (3Mbps) : 8-DPSK<br>GPS : BPSK<br>FM |

## 1.5. Modification of EUT

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

## 1.6. Test Location

|                           |                                                                                                                                                                                     |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL (SHENZHEN) INC.                                                                                                                                               |
| <b>Test Site Location</b> | 1F & 2F, Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China<br>TEL: +86-755-8637-9589<br>FAX: +86-755-8637-9595 |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                                                             |
|                           | CO01-SZ                                                                                                                                                                             |

|                           |                                                                                                                                                                 |                                |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <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. China<br>TEL: +86-755- 3320-2398 |                                |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                                         | <b>FCC/IC Registration No.</b> |
|                           | 03CH02-SZ                                                                                                                                                       | 566869/4086F                   |

**Note:** The test site complies with ANSI C63.4 2014 requirement.

## 1.7. Applicable 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 C63.4-2014

**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 C63.4-2014 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 notebook) | ☒              | ☒         | ☒         |

**Abbreviations:**

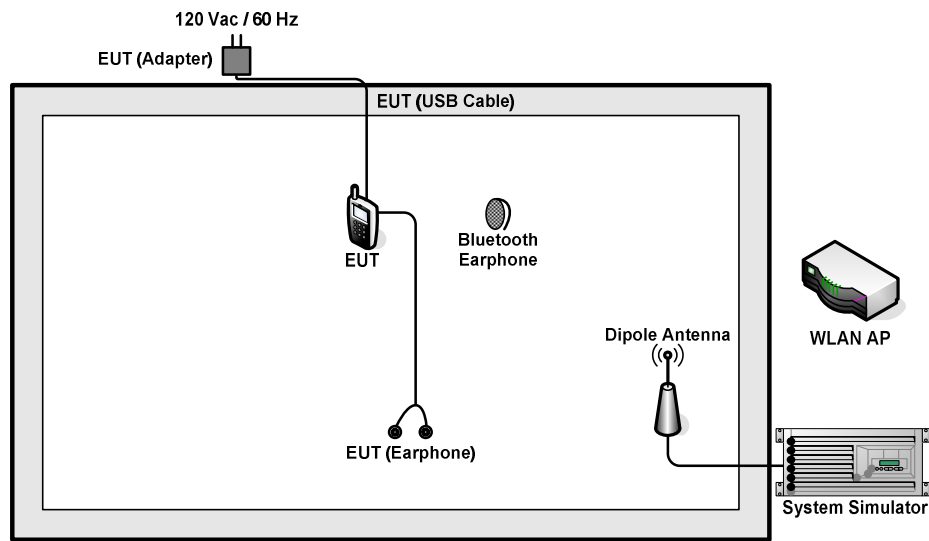
- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

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

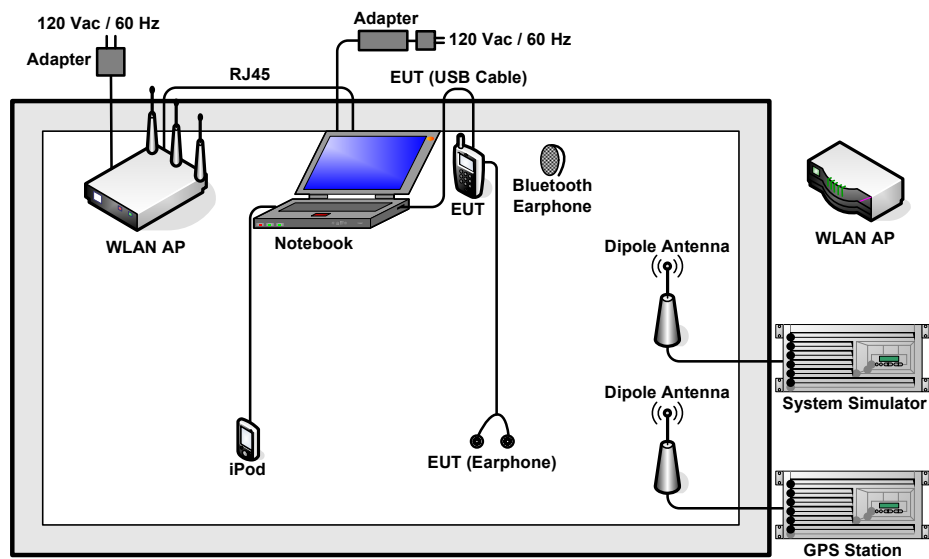
**Remark:** For signal above 1GHz, the worst case was test item 2.

| Test Items                                                                                                                                                                                                                                                                                                                                                                           | EUT Configure Mode | Function Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AC Conducted Emission                                                                                                                                                                                                                                                                                                                                                                | 1/2                | <p>Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + SD Card + Camera(Front) + SIM1 &lt;Fig.1&gt;</p> <p>Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + SD Card + Camera(Back) + SIM2 &lt;Fig.1&gt;</p> <p>Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + SD Card + MPEG4 + SIM1 &lt;Fig.1&gt;</p> <p>Mode 4: WCDMA Band IV Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + SD Card + GPS Rx + FM Rx + SIM2 &lt;Fig.2&gt;</p> |
| Radiated Emissions < 1GHz                                                                                                                                                                                                                                                                                                                                                            | 1/2                | <p>Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + SD Card + Camera(Front) + SIM1 &lt;Fig.1&gt;</p> <p>Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + SD Card + Camera(Back) + SIM2 &lt;Fig.1&gt;</p> <p>Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + SD Card + MPEG4 + SIM1 &lt;Fig.1&gt;</p> <p>Mode 4: WCDMA Band IV Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + SD Card + GPS Rx + FM Rx + SIM2 &lt;Fig.2&gt;</p> |
| Radiated Emissions ≥ 1GHz                                                                                                                                                                                                                                                                                                                                                            | 2                  | <p>Mode 1: WCDMA Band IV Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + SD Card + GPS Rx + FM Rx + SIM2 &lt;Fig.2&gt;</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Remark:</b> <ol style="list-style-type: none"> <li>The worst case of AC is mode 3; and the USB Link mode of AC is mode 4, the test data of these modes are reported.</li> <li>The worst case of RE &lt; 1G is mode 4; only the test data of this mode was reported.</li> <li>Data 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>

## 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   | Anritsu    | MT8820C    | N/A         | N/A             | Unshielded, 1.8 m                                          |
| 2.   | GPS Station        | ADIVIC     | MP9000     | N/A         | N/A             | Unshielded, 1.8 m                                          |
| 3.   | WLAN AP            | ASUSTek    | RT-AC66U   | MSQ-RTAC66U | N/A             | Unshielded, 2.7 m                                          |
| 4.   | Bluetooth Earphone | Nokia      | BH-108     | PYAHS-107W  | N/A             | N/A                                                        |
| 5.   | Bluetooth Earphone | Samsung    | HS3000     | A3LHS3000   | N/A             | N/A                                                        |
| 6.   | Notebook           | Lenovo     | E540       | FCC DoC     | N/A             | AC I/P:<br>Unshielded, 1.2 m<br>DC O/P:<br>Shielded, 1.8 m |
| 7.   | SD Card            | SanDisk    | 4G class 4 | FCC DoC     | N/A             | N/A                                                        |
| 8.   | iPod nano 8GB      | Apple      | MC690 ZP/A | FCC DoC     | Shielded, 1.2 m | N/A                                                        |
| 9.   | iPod               | Apple      | MC525 ZP/A | N/A         | Shielded, 1.0 m | N/A                                                        |



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

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 or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Data application is transferred between Notebook and EUT via USB cable.
2. Execute "GPS Test" to make the EUT receive continuous signals from GPS station.
3. Turn on FM function.
4. Execute "Video player" to play MPEG4 files.
5. 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.

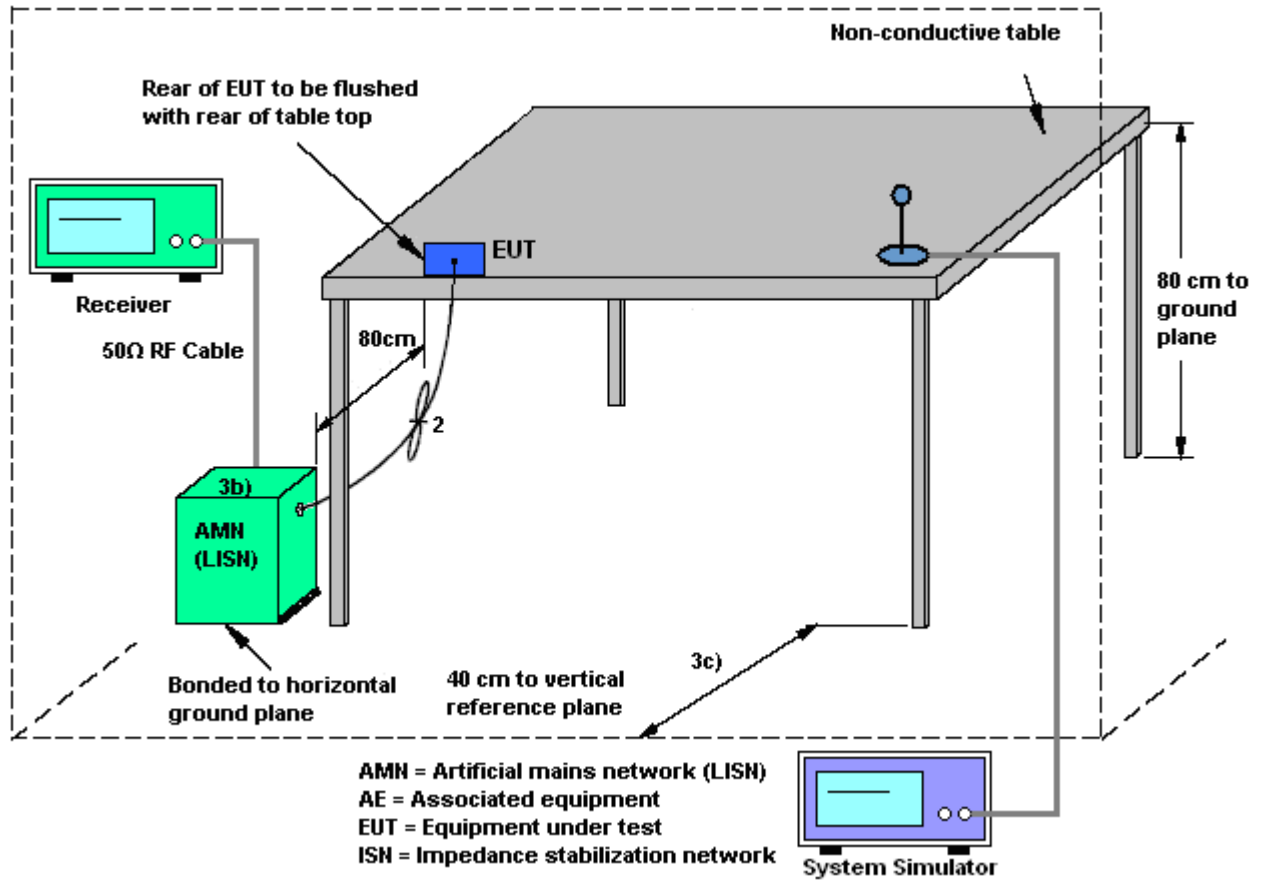
##### 3.1.2 Measuring Instruments

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 (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

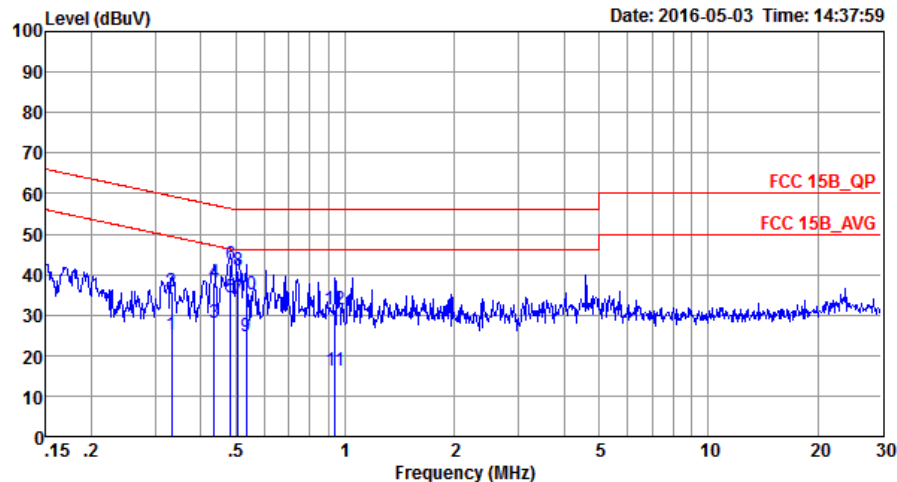
### 3.1.4 Test Setup





## 3.1.5 Test Result of AC Conducted Emission

|                 |                                                                                                                        |                     |        |
|-----------------|------------------------------------------------------------------------------------------------------------------------|---------------------|--------|
| Test Mode :     | Mode 3                                                                                                                 | Temperature :       | 21~23℃ |
| Test Engineer : | Tao Cheng                                                                                                              | Relative Humidity : | 41~43% |
| Test Voltage :  | 120Vac / 60Hz                                                                                                          | Phase :             | Line   |
| Function Type : | WCDMA Band V Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + SD Card + MPEG4 + SIM1 |                     |        |

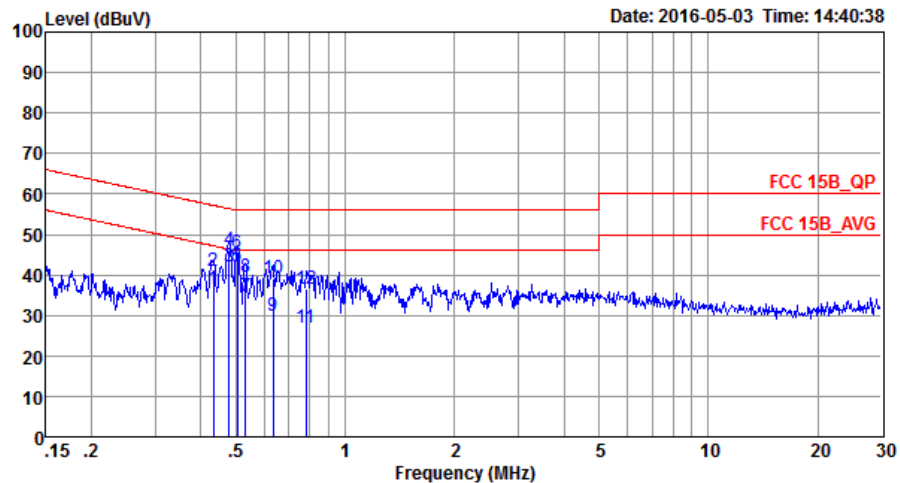


Site : C001-SZ  
Condition: FCC 15B\_QP LISN\_L\_20160415 LINE  
Project : (FC) 632502  
Mode : Mode 3  
IMEI : 868373029988948/868373029988955

|     | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark  |
|-----|------|-------|------------|------------|------------|-------------|------------|---------|
|     | MHz  | dBuV  | dB         | dBuV       | dBuV       | dB          | dB         |         |
| 1   | 0.33 | 25.05 | -24.35     | 49.40      | 14.30      | 0.56        | 10.19      | Average |
| 2   | 0.33 | 35.65 | -23.75     | 59.40      | 24.90      | 0.56        | 10.19      | QP      |
| 3   | 0.44 | 28.15 | -19.00     | 47.15      | 17.40      | 0.59        | 10.16      | Average |
| 4   | 0.44 | 37.85 | -19.30     | 57.15      | 27.10      | 0.59        | 10.16      | QP      |
| 5 * | 0.48 | 34.41 | -11.86     | 46.27      | 23.60      | 0.65        | 10.16      | Average |
| 6   | 0.48 | 42.51 | -13.76     | 56.27      | 31.70      | 0.65        | 10.16      | QP      |
| 7   | 0.51 | 33.92 | -12.08     | 46.00      | 23.10      | 0.66        | 10.16      | Average |
| 8   | 0.51 | 41.12 | -14.88     | 56.00      | 30.30      | 0.66        | 10.16      | QP      |
| 9   | 0.53 | 24.80 | -21.20     | 46.00      | 14.01      | 0.64        | 10.15      | Average |
| 10  | 0.53 | 35.10 | -20.90     | 56.00      | 24.31      | 0.64        | 10.15      | QP      |
| 11  | 0.94 | 16.07 | -29.93     | 46.00      | 5.40       | 0.52        | 10.15      | Average |
| 12  | 0.94 | 31.47 | -24.53     | 56.00      | 20.80      | 0.52        | 10.15      | QP      |



|                 |                                                                                                                        |                     |         |
|-----------------|------------------------------------------------------------------------------------------------------------------------|---------------------|---------|
| Test Mode :     | Mode 3                                                                                                                 | Temperature :       | 21~23℃  |
| Test Engineer : | Tao Cheng                                                                                                              | Relative Humidity : | 41~43%  |
| Test Voltage :  | 120Vac / 60Hz                                                                                                          | Phase :             | Neutral |
| Function Type : | WCDMA Band V Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + SD Card + MPEG4 + SIM1 |                     |         |

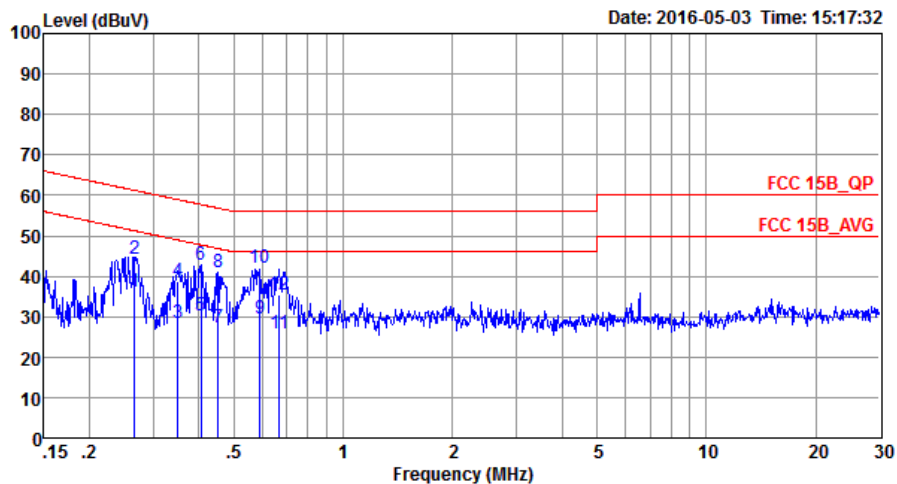


Site : C001-SZ  
Condition: FCC 15B\_QP LISN\_N\_20160415 NEUTRAL  
Project : (FC)632502  
Mode : Mode 3  
IMEI : 868373029988948/868373029988955

|     | Freq | Level | Over   | Limit | Read  | LISN   | Cable |         |
|-----|------|-------|--------|-------|-------|--------|-------|---------|
|     | MHz  | dBuV  | Limit  | Line  | Level | Factor | Loss  | Remark  |
|     |      |       | dB     | dBuV  | dBuV  | dB     | dB    |         |
| 1   | 0.43 | 36.53 | -10.67 | 47.20 | 25.80 | 0.57   | 10.16 | Average |
| 2   | 0.43 | 41.03 | -16.17 | 57.20 | 30.30 | 0.57   | 10.16 | QP      |
| 3   | 0.48 | 41.96 | -4.40  | 46.36 | 31.20 | 0.60   | 10.16 | Average |
| 4   | 0.48 | 46.06 | -10.30 | 56.36 | 35.30 | 0.60   | 10.16 | QP      |
| 5 * | 0.50 | 41.96 | -4.04  | 46.00 | 31.19 | 0.61   | 10.16 | Average |
| 6   | 0.50 | 45.36 | -10.64 | 56.00 | 34.59 | 0.61   | 10.16 | QP      |
| 7   | 0.53 | 34.75 | -11.25 | 46.00 | 24.00 | 0.60   | 10.15 | Average |
| 8   | 0.53 | 39.35 | -16.65 | 56.00 | 28.60 | 0.60   | 10.15 | QP      |
| 9   | 0.63 | 29.82 | -16.18 | 46.00 | 19.10 | 0.57   | 10.15 | Average |
| 10  | 0.63 | 39.12 | -16.88 | 56.00 | 28.40 | 0.57   | 10.15 | QP      |
| 11  | 0.78 | 26.90 | -19.10 | 46.00 | 16.20 | 0.55   | 10.15 | Average |
| 12  | 0.78 | 36.60 | -19.40 | 56.00 | 25.90 | 0.55   | 10.15 | QP      |



|                 |                                                                                                                                    |                     |        |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------|
| Test Mode :     | Mode 4                                                                                                                             | Temperature :       | 21~23℃ |
| Test Engineer : | Tao Cheng                                                                                                                          | Relative Humidity : | 41~43% |
| Test Voltage :  | 120Vac / 60Hz                                                                                                                      | Phase :             | Line   |
| Function Type : | WCDMA Band IV Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + SD Card + GPS Rx + FM Rx + SIM2 |                     |        |

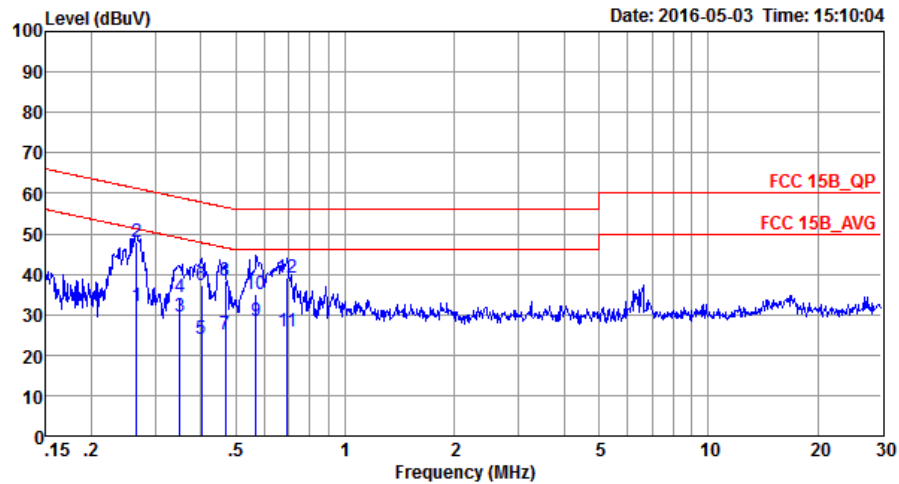


Site : C001-SZ  
Condition: FCC 15B\_QP LISN\_L\_20160415 LINE  
Project : (FC) 632502  
Mode : Mode 4  
IMEI : 868373029988948/868373029988955

|      | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark  |
|------|------|-------|------------|------------|------------|-------------|------------|---------|
|      | MHz  | dBuV  | dB         | dBuV       | dBuV       | dB          | dB         |         |
| 1    | 0.27 | 36.08 | -15.17     | 51.25      | 25.29      | 0.56        | 10.23      | Average |
| 2    | 0.27 | 44.38 | -16.87     | 61.25      | 33.59      | 0.56        | 10.23      | QP      |
| 3    | 0.35 | 28.34 | -20.62     | 48.96      | 17.61      | 0.55        | 10.18      | Average |
| 4    | 0.35 | 38.64 | -20.32     | 58.96      | 27.91      | 0.55        | 10.18      | QP      |
| 5    | 0.41 | 30.22 | -17.51     | 47.73      | 19.50      | 0.55        | 10.17      | Average |
| 6    | 0.41 | 42.82 | -14.91     | 57.73      | 32.10      | 0.55        | 10.17      | QP      |
| 7    | 0.45 | 27.47 | -19.38     | 46.85      | 16.70      | 0.61        | 10.16      | Average |
| 8    | 0.45 | 41.07 | -15.78     | 56.85      | 30.30      | 0.61        | 10.16      | QP      |
| 9    | 0.59 | 29.66 | -16.34     | 46.00      | 18.90      | 0.61        | 10.15      | Average |
| 10 * | 0.59 | 42.16 | -13.84     | 56.00      | 31.40      | 0.61        | 10.15      | QP      |
| 11   | 0.67 | 26.01 | -19.99     | 46.00      | 15.30      | 0.56        | 10.15      | Average |
| 12   | 0.67 | 35.31 | -20.69     | 56.00      | 24.60      | 0.56        | 10.15      | QP      |



|                 |                                                                                                                                    |                     |         |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------|
| Test Mode :     | Mode 4                                                                                                                             | Temperature :       | 21~23℃  |
| Test Engineer : | Tao Cheng                                                                                                                          | Relative Humidity : | 41~43%  |
| Test Voltage :  | 120Vac / 60Hz                                                                                                                      | Phase :             | Neutral |
| Function Type : | WCDMA Band IV Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + SD Card + GPS Rx + FM Rx + SIM2 |                     |         |



Site : CO01-SZ  
Condition: FCC 15B\_QP LISN\_N\_20160415 NEUTRAL  
Project : (FC)632502  
Mode : Mode 4  
IMEI : 868373029988948/868373029988955

|     | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark  |
|-----|------|-------|------------|------------|------------|-------------|------------|---------|
|     | MHz  | dBuV  | dB         | dBuV       | dBuV       | dB          | dB         |         |
| 1   | 0.27 | 32.19 | -19.06     | 51.25      | 21.39      | 0.57        | 10.23      | Average |
| 2 * | 0.27 | 47.99 | -13.26     | 61.25      | 37.19      | 0.57        | 10.23      | QP      |
| 3   | 0.35 | 29.55 | -19.41     | 48.96      | 18.80      | 0.57        | 10.18      | Average |
| 4   | 0.35 | 34.45 | -24.51     | 58.96      | 23.70      | 0.57        | 10.18      | QP      |
| 5   | 0.40 | 24.02 | -23.79     | 47.81      | 13.30      | 0.55        | 10.17      | Average |
| 6   | 0.40 | 37.22 | -20.59     | 57.81      | 26.50      | 0.55        | 10.17      | QP      |
| 7   | 0.47 | 25.15 | -21.39     | 46.54      | 14.40      | 0.59        | 10.16      | Average |
| 8   | 0.47 | 38.35 | -18.19     | 56.54      | 27.60      | 0.59        | 10.16      | QP      |
| 9   | 0.57 | 28.54 | -17.46     | 46.00      | 17.80      | 0.59        | 10.15      | Average |
| 10  | 0.57 | 35.24 | -20.76     | 56.00      | 24.50      | 0.59        | 10.15      | QP      |
| 11  | 0.69 | 25.90 | -20.10     | 46.00      | 15.20      | 0.55        | 10.15      | Average |
| 12  | 0.69 | 39.00 | -17.00     | 56.00      | 28.30      | 0.55        | 10.15      | 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:

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

### **3.2.2. Measuring Instruments**

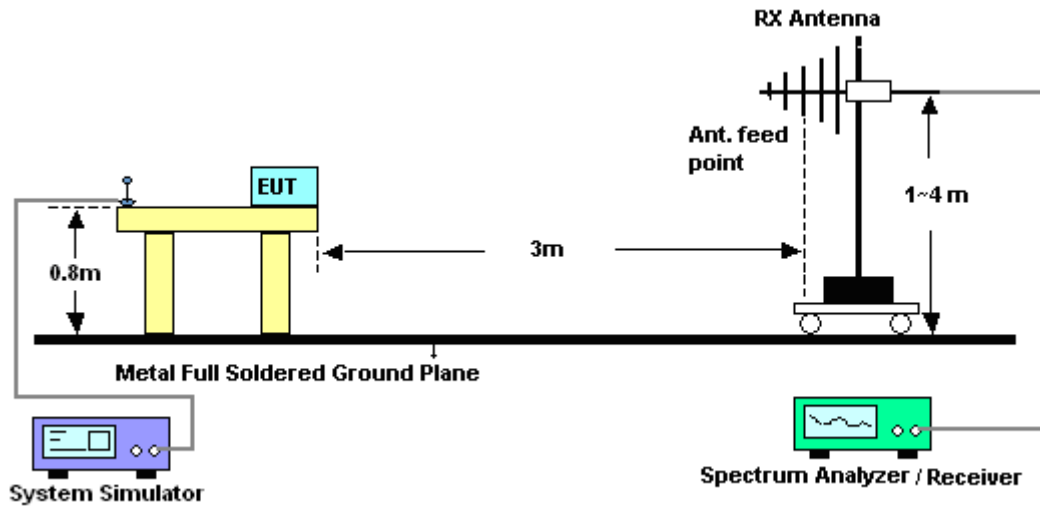
The measuring equipment is listed in the section 4 of this test report.

### **3.2.3. Test Procedures**

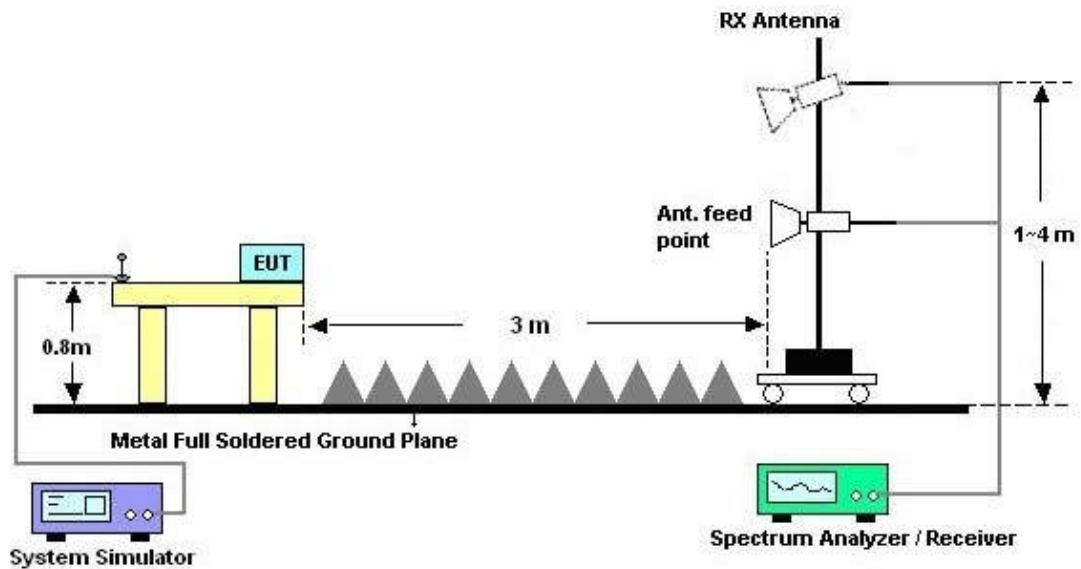
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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 (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
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 (dBμV/m) = 20 log Emission level (μV/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



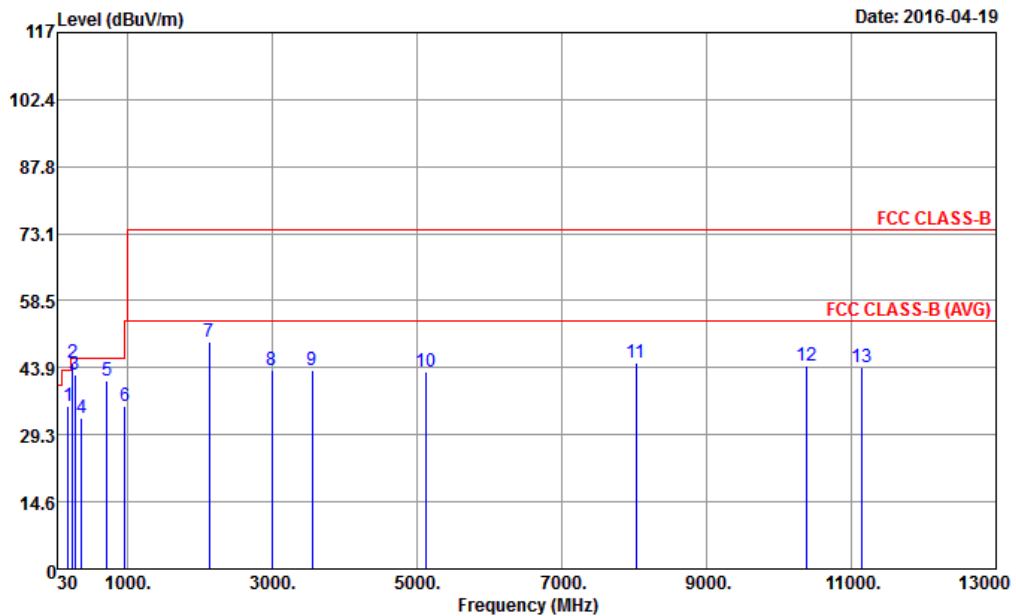
For radiated emissions above 1GHz





## 3.2.5. Test Result of Radiated Emission

|                 |                                                                                                                                    |                     |            |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------|
| Test Mode :     | Mode 4                                                                                                                             | Temperature :       | 23~25°C    |
| Test Engineer : | Jeff Yao                                                                                                                           | Relative Humidity : | 48~52%     |
| Test Distance : | 3m                                                                                                                                 | Polarization :      | Horizontal |
| Function Type : | WCDMA Band IV Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + SD Card + GPS Rx + FM Rx + SIM2 |                     |            |
| Remark :        | #7 is system simulator signal which can be ignored.                                                                                |                     |            |

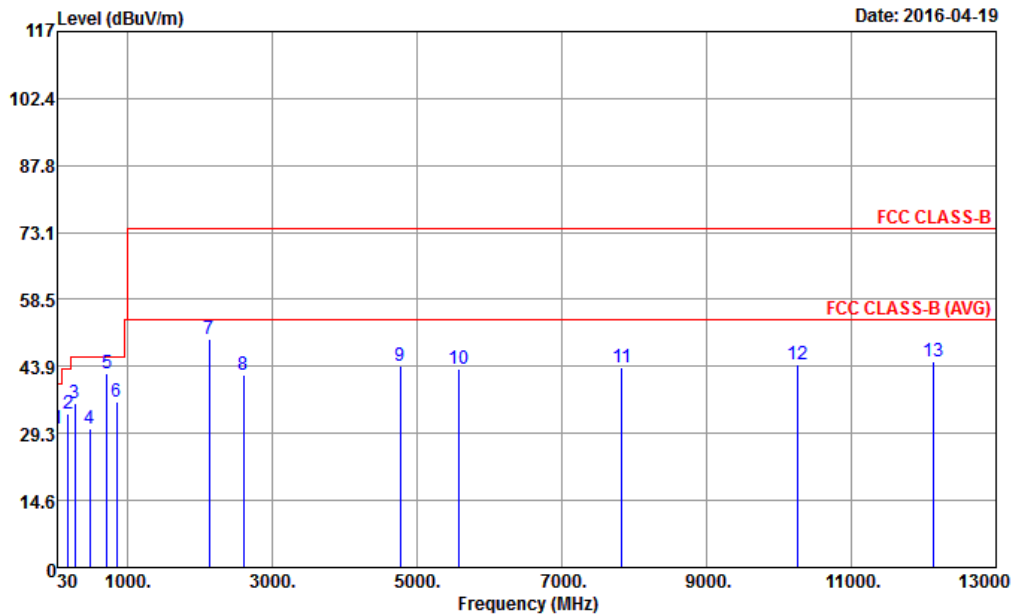


Condition : FCC CLASS-B 3m LF\_ANT(23188)6\_15101 HORIZONTAL  
 Project : (FC) 632502  
 Mode : Mode 4  
 IMEI : 86837029988922/868373029988930

|    | Freq     | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | A/Pos | T/Pos | Remark |
|----|----------|--------|--------|--------|-------------|-------|--------|-------|-------|--------|
|    | MHz      | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | cm    | deg   |        |
|    |          |        | dB     | dBuV/m | dBuV        | dB/m  | dB     | dB    |       |        |
| 1  | 181.74   | 35.39  | -8.11  | 43.50  | 43.08       | 16.16 | 1.50   | 25.35 | ---   | Peak   |
| 2  | 240.06   | 44.85  | -1.15  | 46.00  | 52.20       | 16.27 | 1.54   | 25.16 | 200   | 0 QP   |
| 3  | 268.95   | 42.36  | -3.64  | 46.00  | 48.65       | 17.25 | 1.57   | 25.11 | ---   | Peak   |
| 4  | 360.90   | 32.92  | -13.08 | 46.00  | 35.58       | 20.90 | 1.95   | 25.51 | ---   | Peak   |
| 5  | 720.00   | 40.95  | -5.05  | 46.00  | 37.93       | 26.70 | 2.65   | 26.33 | ---   | Peak   |
| 6  | 962.20   | 35.64  | -18.36 | 54.00  | 28.87       | 29.02 | 3.15   | 25.40 | ---   | Peak   |
| 7  | 2132.00  | 49.53  |        |        | 71.07       | 32.34 | 4.80   | 58.68 | ---   | Peak   |
| 8  | 2992.00  | 43.39  | -30.61 | 74.00  | 63.85       | 33.09 | 5.82   | 59.37 | ---   | Peak   |
| 9  | 3552.00  | 43.39  | -30.61 | 74.00  | 63.21       | 33.45 | 6.30   | 59.57 | ---   | Peak   |
| 10 | 5128.00  | 43.16  | -30.84 | 74.00  | 58.44       | 34.66 | 7.72   | 57.66 | ---   | Peak   |
| 11 | 8030.00  | 44.90  | -29.10 | 74.00  | 55.16       | 36.48 | 11.09  | 57.83 | 100   | 0 Peak |
| 12 | 10376.00 | 44.44  | -29.56 | 74.00  | 52.81       | 38.41 | 12.23  | 59.01 | ---   | Peak   |
| 13 | 11146.00 | 44.10  | -29.90 | 74.00  | 52.22       | 38.92 | 12.58  | 59.62 | ---   | Peak   |



|                 |                                                                                                                                    |                     |          |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------|
| Test Mode :     | Mode 4                                                                                                                             | Temperature :       | 23~25°C  |
| Test Engineer : | Jeff Yao                                                                                                                           | Relative Humidity : | 48~52%   |
| Test Distance : | 3m                                                                                                                                 | Polarization :      | Vertical |
| Function Type : | WCDMA Band IV Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + SD Card + GPS Rx + FM Rx + SIM2 |                     |          |
| Remark :        | #7 is system simulator signal which can be ignored.                                                                                |                     |          |



Condition : FCC CLASS-B 3m LF\_ANT(23188)6\_15101 VERTICAL  
 Project : (FC) 632502  
 Mode : Mode 4  
 IMEI : 86837029988922/868373029988930

|    | Freq     | Level  | Over   | Limit  | ReadAntenna | Cable | Preamp | A/Pos | T/Pos   | Remark |
|----|----------|--------|--------|--------|-------------|-------|--------|-------|---------|--------|
|    | MHz      | dBuV/m | Limit  | Line   | Level       | Loss  | Factor | cm    | deg     |        |
|    |          |        | dB     | dBuV/m | dBuV        | dB/m  | dB     | dB    |         |        |
| 1  | 30.27    | 30.20  | -9.80  | 40.00  | 28.92       | 26.60 | 0.75   | 26.07 | ---     | Peak   |
| 2  | 174.72   | 33.46  | -10.04 | 43.50  | 40.87       | 16.47 | 1.50   | 25.38 | ---     | Peak   |
| 3  | 268.95   | 35.74  | -10.26 | 46.00  | 42.03       | 17.25 | 1.57   | 25.11 | ---     | Peak   |
| 4  | 479.90   | 30.35  | -15.65 | 46.00  | 31.09       | 23.37 | 2.12   | 26.23 | ---     | Peak   |
| 5  | 720.00   | 42.27  | -3.73  | 46.00  | 39.25       | 26.70 | 2.65   | 26.33 | 100     | 0 QP   |
| 6  | 853.70   | 36.31  | -9.69  | 46.00  | 31.18       | 28.12 | 3.02   | 26.01 | ---     | Peak   |
| 7  | 2132.00  | 49.71  |        |        | 71.25       | 32.34 | 4.80   | 58.68 | ---     | Peak   |
| 8  | 2604.00  | 42.12  | -31.88 | 74.00  | 62.86       | 32.78 | 5.31   | 58.83 | ---     | Peak   |
| 9  | 4764.00  | 43.92  | -30.08 | 74.00  | 60.95       | 34.36 | 7.39   | 58.78 | ---     | Peak   |
| 10 | 5576.00  | 43.36  | -30.64 | 74.00  | 59.56       | 35.20 | 8.09   | 59.49 | ---     | Peak   |
| 11 | 7834.00  | 43.51  | -30.49 | 74.00  | 54.91       | 36.43 | 10.71  | 58.54 | ---     | Peak   |
| 12 | 10248.00 | 44.28  | -29.72 | 74.00  | 52.78       | 38.30 | 12.17  | 58.97 | ---     | Peak   |
| 13 | 12124.00 | 45.00  | -29.00 | 74.00  | 53.20       | 39.45 | 12.69  | 60.34 | 150 200 | Peak   |



## 4. List of Measuring Equipment

| Instrument                        | Manufacturer | Model No.                 | Serial No.   | Characteristics        | Calibration Date | Test Date     | Due Date      | Remark                |
|-----------------------------------|--------------|---------------------------|--------------|------------------------|------------------|---------------|---------------|-----------------------|
| EMI Test Receiver                 | R&S          | ESR7                      | 101404       | 9kHz~7GHz;Max 30dBm    | Oct. 20, 2015    | May 03, 2016  | Oct. 19, 2016 | Conduction (CO01-SZ)  |
| AC LISN                           | EMCO         | 3816/2SH                  | 00103892     | 9kHz~30MHz             | Jan. 12, 2016    | May 03, 2016  | Jan. 11, 2017 | Conduction (CO01-SZ)  |
| AC LISN (for auxiliary equipment) | MessTec      | 3816/2SH                  | 00103912     | 9kHz~30MHz             | Jan. 12, 2016    | May 03, 2016  | Jan. 11, 2017 | Conduction (CO01-SZ)  |
| AC Power Source                   | Chroma       | 61602                     | 616020000891 | 100Vac~250Vac          | Aug. 07, 2015    | May 03, 2016  | Aug. 06, 2016 | Conduction (CO01-SZ)  |
| Pulse Limiter                     | COM-POWER    | LIT-153 Transient Limiter | 53139        | 150kHz~30MHz           | Oct. 20, 2015    | May 03, 2016  | Oct. 19, 2016 | Conduction (CO01-SZ)  |
| EMI Test Receiver                 | R&S          | ESR7                      | 101404       | 9kHz~7GHz; Max 30dBm   | Oct. 20, 2015    | Apr. 19, 2016 | Oct. 19, 2016 | Radiation (03CH02-SZ) |
| Spectrum Analyzer                 | R&S          | FSV40                     | 101041       | 10kHz~40GHz; Max 30dBm | Oct. 20, 2015    | Apr. 19, 2016 | Oct. 19, 2016 | Radiation (03CH02-SZ) |
| Bilog Antenna                     | TeseQ        | CBL6112D                  | 35407        | 30MHz~2GHz             | May 06, 2015     | Apr. 19, 2016 | May 05, 2016  | Radiation (03CH02-SZ) |
| Double Ridge Horn Antenna         | SCHWARZBECK  | BBHA 9120D                | 9120D-1285   | 1GHz~18GHz             | Jan. 11, 2016    | Apr. 19, 2016 | Jan. 10, 2017 | Radiation (03CH02-SZ) |
| Amplifier                         | HP           | 8447F                     | 3113A04622   | 9kHz~1300MHz / 30 dB   | Aug. 07, 2015    | Apr. 19, 2016 | Aug. 06, 2016 | Radiation (03CH02-SZ) |
| Amplifier                         | Agilent      | 8449B                     | 3008A01023   | 1GHz~26.5GHz           | Oct. 20, 2015    | Apr. 19, 2016 | Oct. 19, 2016 | Radiation (03CH02-SZ) |
| AC Power Source                   | Chroma       | 61601                     | 616010002470 | N/A                    | NCR              | Apr. 19, 2016 | NCR           | Radiation (03CH02-SZ) |
| Turn Table                        | Chaintek     | T-200                     | N/A          | 0~360 degree           | NCR              | Apr. 19, 2016 | NCR           | Radiation (03CH02-SZ) |
| Antenna Mast                      | Chaintek     | MBS-400                   | N/A          | 1 m~4 m                | NCR              | Apr. 19, 2016 | NCR           | Radiation (03CH02-SZ) |

NCR: No Calibration Required



## 5. Uncertainty of Evaluation

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

|                                                                          |       |
|--------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2U_c(y)$ ) | 2.3dB |
|--------------------------------------------------------------------------|-------|

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

|                                                                          |       |
|--------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2U_c(y)$ ) | 5.0dB |
|--------------------------------------------------------------------------|-------|