# FCC Test Report

| | | |
|---|---|---|
| **APPLICANT** | : | **CT Asia** |
| **EQUIPMENT** | : | **Mobile phone** |
| **BRAND NAME** | : | **BLU** |
| **MODEL NAME** | : | **Studio Mini LTE** |
| **FCC ID** | : | **YHLBLUSTMINILTE** |
| **STANDARD** | : | **FCC 47 CFR FCC Part 15 Subpart B** |
| **CLASSIFICATION** | : | **Certification** |

**The product was received on Aug. 26, 2014 and testing was completed on Nov. 06, 2014. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2003 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.**

Louis Wu

**Reviewed by: Louis Wu / Manager**

Jones Tsai

**Approved by: Jones Tsai / Manager**

Testing Laboratory
2627

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

# TABLE OF CONTENTS

# REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| FC482608 | Rev. 01 | Initial issue of report | Nov. 25, 2014 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# 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 10.81 dB at 0.480 MHz |
| 3.2 | 15.109 | Radiated Emission | < 15.109 limits | PASS | Under limit 4.51 dB at 358.100 MHz |

# 1. General Description

## 1.1. Applicant

**CT Asia**
Unit 01, 15/F, Seaview Centre, 139-141 Hoi bun road, Kwun Tong, Kowloon, Hongkong

## 1.2. Manufacturer

**BEIJING BENYWAVE TECHNOLOGY CO., LTD.**
NO.55 Jiachang 2 road, OPTO-Mechatronics Industrial Park, Tongzhou district, Beijing 101111

## 1.3. Product Feature of Equipment Under Test

| Product Feature | |
|---|---|
| **Equipment** | Mobile phone |
| **Brand Name** | BLU |
| **Model Name** | Studio Mini LTE |
| **FCC ID** | YHLBLUSTMINILTE |
| **EUT supports Radios application** | GSM/GPRS/EGPRS/WCDMA/HSPA/LTE/<br>WLAN 2.4GHz 802.11b/g/n HT20/HT40/<br>Bluetooth v3.0 + EDR/Bluetooth v4.0 LE |
| **HW Version** | TBW5989_P2_001 |
| **SW Version** | BLU_X100Q_V04_GENERIC |
| **EUT Stage** | Production Unit |

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

## 1.4. Product Specification subjective to this standard

| 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 IV : 1712.4 MHz ~ 1752.6 MHz<br>WCDMA Band II : 1852.4 MHz ~ 1907.6 MHz<br>LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz<br>LTE Band 17 : 706.5 MHz ~ 713.5 MHz<br>802.11b/g/n: 2412 MHz ~ 2462 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz |
| **Rx Frequency** | 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>LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz<br>LTE Band 7 : 2622.5 MHz ~ 2687.5 MHz<br>LTE Band 17 : 736.5 MHz ~ 743.5 MHz<br>802.11b/g/n: 2412 MHz ~ 2462 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz<br>GPS : 1.57542 GHz |
| **Antenna Type** | WWAN : IFA Antenna<br>WLAN : PIFA Antenna<br>Bluetooth : PIFA Antenna<br>GPS: PIFA Antenna |
| **Type of Modulation** | 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>LTE: QPSK / 16QAM<br>802.11b : DSSS (DBPSK / DQPSK / CCK)<br>802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM )<br>Bluetooth v4.0 LE : GFSK<br>Bluetooth (1Mbps) : GFSK<br>Bluetooth (2Mbps) : $\pi$/4-DQPSK<br>Bluetooth (3Mbps) : 8-DPSK<br>GPS : BPSK |

## 1.5. Modification of EUT

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

## 1.6. Test Location

| | | |
|---|---|---|
| **Test Site** | SPORTON INTERNATIONAL (KUNSHAN) INC. | |
| **Test Site Location** | No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China<br>TEL: +86-0512-5790-0158<br>FAX: +86-0512-5790-0958 | |
| **Test Site No.** | **Sporton Site No.** | **FCC Registration No.** |
| | CO01-KS | 149928 |

| | | |
|---|---|---|
| **Test Site** | SPORTON INTERNATIONAL (SHENZHEN) INC. | |
| **Test Site Location** | 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 | |
| **Test Site No.** | **Sporton Site No.** | **FCC Registration No.** |
| | 03CH01-SZ | 831040 |

## 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 C63.4-2003

**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. | Charging Mode (EUT with adapter) | ☒ | ☒ | Note 1 |
| 2. | Data application transferred mode (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.

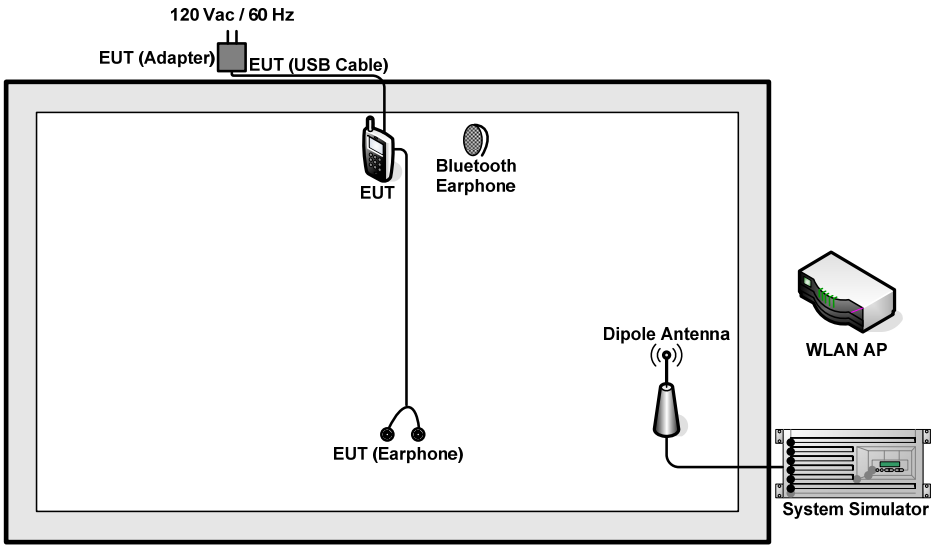
**Remark:** For signal above 1GHz, the worst case was test item 2.

| Test Items | EUT Configure Mode | Function Type |
|---|---|---|
| AC Conducted Emission | 1/2 | Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + Camera<Fig.1><br>Mode 2: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + MPEG4<Fig.1><br>Mode 3: LTE Band 7 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx<Fig.2> |
| Radiated Emissions < 1GHz | 1/2 | Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + Camera<Fig.1><br>Mode 2: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + MPEG4<Fig.1><br>Mode 3: LTE Band 7 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx<Fig.2> |
| Radiated Emissions ≥ 1GHz | 2 | Mode 1: LTE Band 7 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx <Fig.2> |

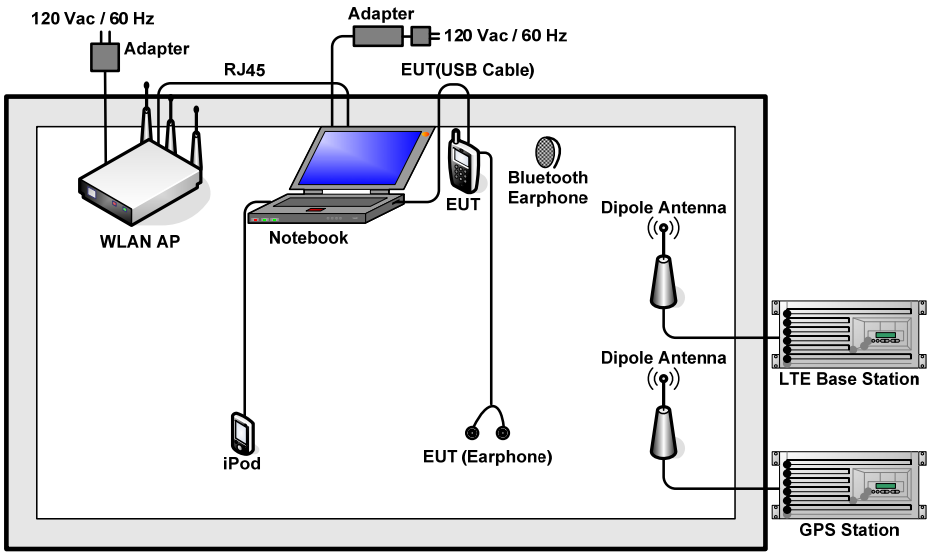
**Remark:**

1. The worst case of AC is mode 2, and the USB Link mode of AC is mode 3, the test data of these modes are reported.
2. The worst case of RE < 1G is mode 3; only the test data of this mode is reported.
3. Link with notebook means data application transferred mode between EUT and notebook.

## 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 | R&S | CMW 500 | N/A | N/A | Unshielded, 1.8 m |
| 2. | System Simulator | R&S | CMU 200 | N/A | N/A | Unshielded, 1.8 m |
| 3. | LTE Base Station | Anitsu | MT8820C | N/A | N/A | Unshielded, 1.8 m |
| 4. | GPS Station | ADIVIC | MP9000 | N/A | N/A | Unshielded, 1.8 m |
| 5. | Bluetooth Earphone | Nokia | BH-108 | PYAHS-107W | N/A | N/A |
| 6. | WLAN AP | D-link | DIR-615 | N/A | N/A | Unshielded,1.8m |
| 7. | WLAN AP | ASUSTek | RT-AC66U | MSQ-RTAC66U | N/A | Unshielded,2.7m |
| 8. | Bluetooth Earphone | Lenovo | LBH301 | N/A | N/A | N/A |
| 9. | Notebook | Lenovo | G480 | FCC DoC | N/A | AC I/P: Unshielded, 1.2m DC O/P: Shielded, 1.8 m |
| 10. | Notebook | Lenovo | E540 | FCC DoC | N/A | AC I/P: Unshielded, 1.2m DC O/P: Shielded, 1.8 m |
| 11. | iPod | Apple | MC525 ZP/A | FCC DoC | Shielded, 1.0 m | N/A |
| 12. | iPod nano 8GB | Apple | MC690 ZP/A | FCC DoC | Shielded, 1.2 m | N/A |

## 2.4. EUT Operation Test Setup

The EUT was in GSM or WCDMA or LTE 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 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. Execute "Windows Media Player" to play MPEG4 files.
4. 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 (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.

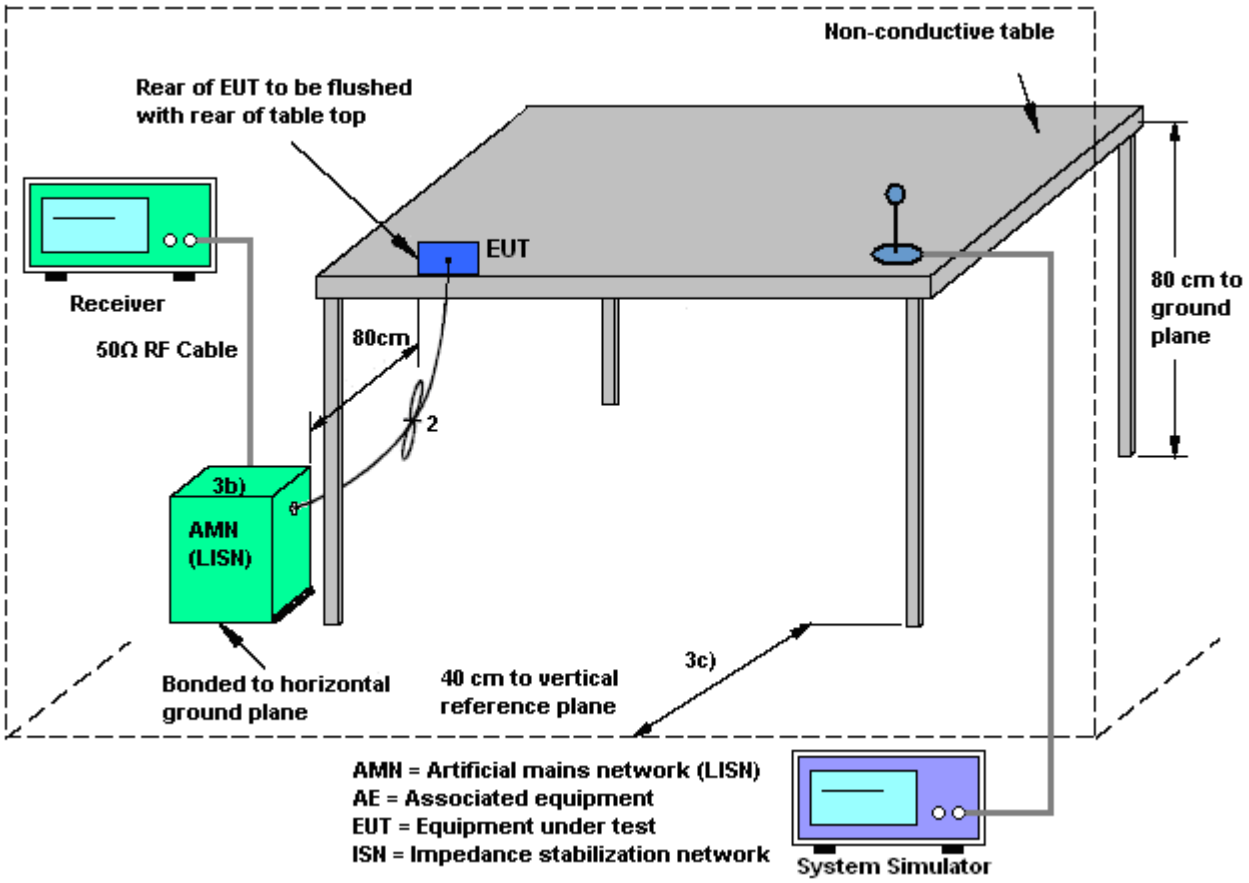
### 3.1.2 Measuring Instruments

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

### 3.1.3 Test Procedure

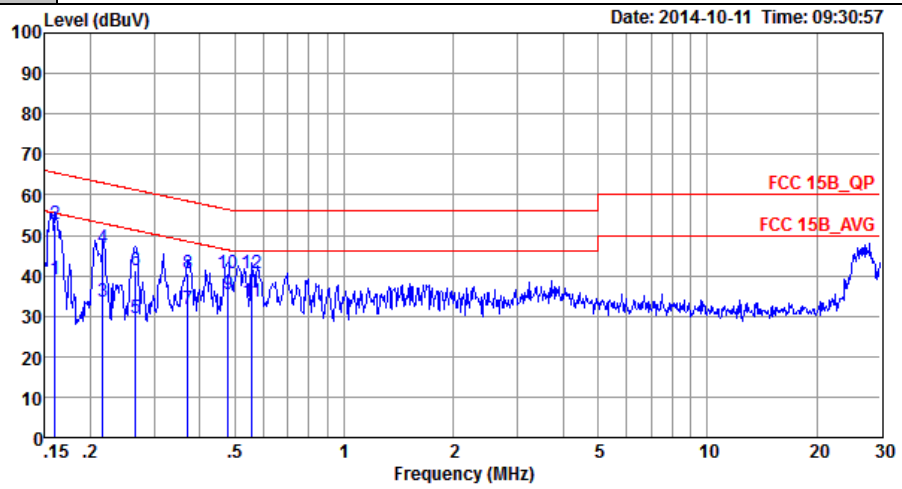
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

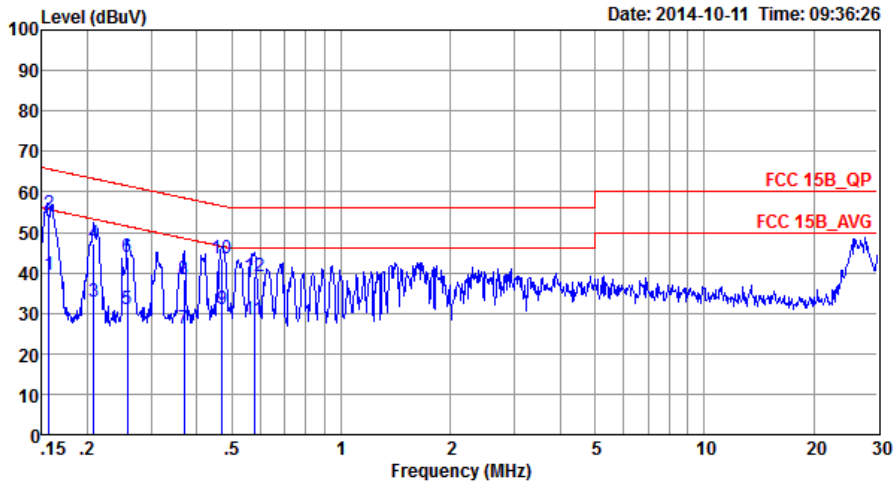
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 2 | **Temperature :** | 21~22℃ |
| **Test Engineer :** | Jack Tian | **Relative Humidity :** | 41~42% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Line |
| **Function Type :** | WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + MPEG4 | | |




Condition: FCC 15B_QP LISN_L_20140304 LINE
Project : (FC)482608
Mode : Mode 2

| | | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | | 0.16 | 39.27 | -16.20 | 55.47 | 28.70 | 0.22 | 10.35 | Average |
| 2 | | 0.16 | 52.77 | -12.70 | 65.47 | 42.20 | 0.22 | 10.35 | QP |
| 3 | | 0.22 | 33.40 | -19.56 | 52.96 | 22.89 | 0.23 | 10.28 | Average |
| 4 | | 0.22 | 46.90 | -16.06 | 62.96 | 36.39 | 0.23 | 10.28 | QP |
| 5 | | 0.27 | 29.47 | -21.78 | 51.25 | 19.00 | 0.24 | 10.23 | Average |
| 6 | | 0.27 | 41.37 | -19.88 | 61.25 | 30.90 | 0.24 | 10.23 | QP |
| 7 | | 0.37 | 31.65 | -16.82 | 48.47 | 21.20 | 0.27 | 10.18 | Average |
| 8 | | 0.37 | 40.45 | -18.02 | 58.47 | 30.00 | 0.27 | 10.18 | QP |
| 9 | * | 0.48 | 35.55 | -10.81 | 46.36 | 25.09 | 0.30 | 10.16 | Average |
| 10 | | 0.48 | 40.55 | -15.81 | 56.36 | 30.09 | 0.30 | 10.16 | QP |
| 11 | | 0.56 | 33.71 | -12.29 | 46.00 | 23.30 | 0.26 | 10.15 | Average |
| 12 | | 0.56 | 40.51 | -15.49 | 56.00 | 30.10 | 0.26 | 10.15 | QP |

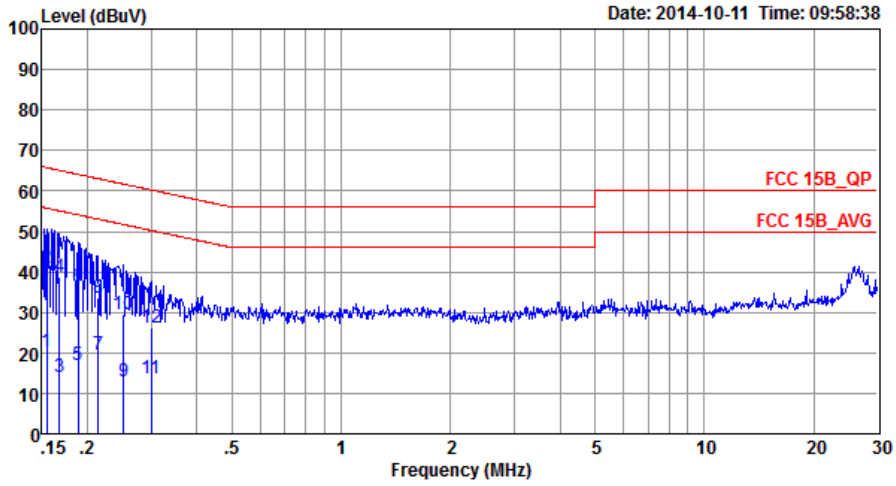
| Test Mode : | Mode 2 | Temperature : | 21~22℃ |
|---|---|---|---|
| Test Engineer : | Jack Tian | Relative Humidity : | 41~42% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Neutral |
| Function Type : | WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + USB Cable (Charging from Adapter) + Earphone + MPEG4 | | |




Condition: FCC 15B_QP LISN_N_20140304 NEUTRAL
Project : (FC)482608
Mode : Mode 2

| | | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | | 0.16 | 39.48 | -16.17 | 55.65 | 28.80 | 0.33 | 10.35 | Average |
| 2 | * | 0.16 | 54.68 | -10.97 | 65.65 | 44.00 | 0.33 | 10.35 | QP |
| 3 | | 0.21 | 32.81 | -20.46 | 53.27 | 22.21 | 0.32 | 10.28 | Average |
| 4 | | 0.21 | 47.31 | -15.96 | 63.27 | 36.71 | 0.32 | 10.28 | QP |
| 5 | | 0.26 | 30.98 | -20.53 | 51.51 | 20.40 | 0.34 | 10.24 | Average |
| 6 | | 0.26 | 43.88 | -17.63 | 61.51 | 33.30 | 0.34 | 10.24 | QP |
| 7 | | 0.37 | 26.16 | -22.36 | 48.52 | 15.60 | 0.38 | 10.18 | Average |
| 8 | | 0.37 | 38.56 | -19.96 | 58.52 | 28.00 | 0.38 | 10.18 | QP |
| 9 | | 0.47 | 31.16 | -15.33 | 46.49 | 20.60 | 0.40 | 10.16 | Average |
| 10 | | 0.47 | 43.66 | -12.83 | 56.49 | 33.10 | 0.40 | 10.16 | QP |
| 11 | | 0.58 | 28.49 | -17.51 | 46.00 | 18.00 | 0.34 | 10.15 | Average |
| 12 | | 0.58 | 39.29 | -16.71 | 56.00 | 28.80 | 0.34 | 10.15 | QP |

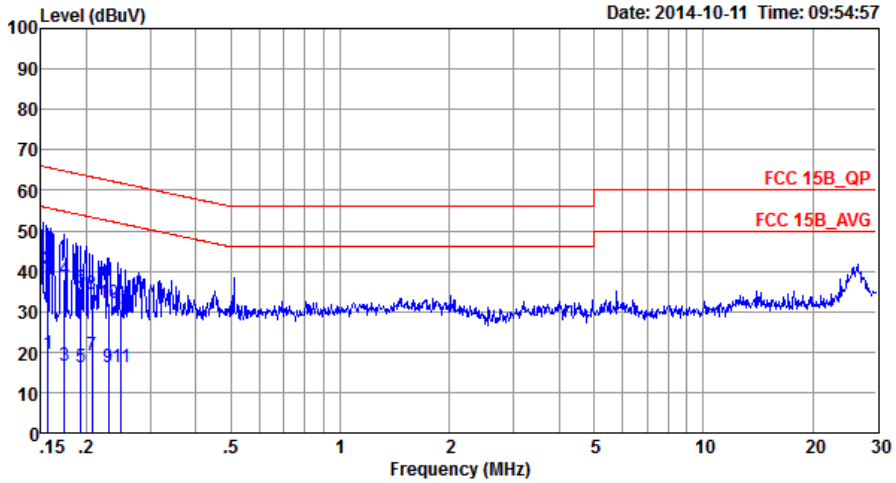
| Test Mode : | Mode 3 | Temperature : | 21~22℃ |
|---|---|---|---|
| Test Engineer : | Jack Tian | Relative Humidity : | 41~42% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Line |
| Function Type : | LTE Band 7 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx | | |




Condition: FCC 15B_QP LISN_L_20140304 LINE
Project : (FC)482608
Mode : Mode 3

| | | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | | 0.15 | 20.17 | -35.57 | 55.74 | 9.60 | 0.22 | 10.35 | Average |
| 2 | * | 0.15 | 40.87 | -24.87 | 65.74 | 30.30 | 0.22 | 10.35 | QP |
| 3 | | 0.17 | 13.95 | -41.13 | 55.08 | 3.40 | 0.22 | 10.33 | Average |
| 4 | | 0.17 | 38.85 | -26.23 | 65.08 | 28.30 | 0.22 | 10.33 | QP |
| 5 | | 0.19 | 17.03 | -37.08 | 54.11 | 6.50 | 0.22 | 10.31 | Average |
| 6 | | 0.19 | 36.33 | -27.78 | 64.11 | 25.80 | 0.22 | 10.31 | QP |
| 7 | | 0.21 | 19.70 | -33.35 | 53.05 | 9.19 | 0.23 | 10.28 | Average |
| 8 | | 0.21 | 33.70 | -29.35 | 63.05 | 23.19 | 0.23 | 10.28 | QP |
| 9 | | 0.25 | 13.08 | -38.61 | 51.69 | 2.60 | 0.24 | 10.24 | Average |
| 10 | | 0.25 | 29.68 | -32.01 | 61.69 | 19.20 | 0.24 | 10.24 | QP |
| 11 | | 0.30 | 13.66 | -36.58 | 50.24 | 3.20 | 0.26 | 10.20 | Average |
| 12 | | 0.30 | 26.06 | -34.18 | 60.24 | 15.60 | 0.26 | 10.20 | QP |

| Test Mode : | Mode 3 | Temperature : | 21~22℃ |
|---|---|---|---|
| Test Engineer : | Jack Tian | Relative Humidity : | 41~42% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Neutral |
| Function Type : | LTE Band 7 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx | | |




Condition: FCC 15B_QP LISN_N_20140304 NEUTRAL
Project : (FC)482608
Mode : Mode 3

| | | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | | 0.16 | 19.68 | -35.97 | 55.65 | 9.00 | 0.33 | 10.35 | Average |
| 2 | * | 0.16 | 40.58 | -25.07 | 65.65 | 29.90 | 0.33 | 10.35 | QP |
| 3 | | 0.17 | 16.65 | -38.12 | 54.77 | 6.00 | 0.32 | 10.33 | Average |
| 4 | | 0.17 | 38.05 | -26.72 | 64.77 | 27.40 | 0.32 | 10.33 | QP |
| 5 | | 0.19 | 16.12 | -37.77 | 53.89 | 5.50 | 0.32 | 10.30 | Average |
| 6 | | 0.19 | 35.72 | -28.17 | 63.89 | 25.10 | 0.32 | 10.30 | QP |
| 7 | | 0.21 | 19.11 | -34.21 | 53.32 | 8.50 | 0.32 | 10.29 | Average |
| 8 | | 0.21 | 34.41 | -28.91 | 63.32 | 23.80 | 0.32 | 10.29 | QP |
| 9 | | 0.23 | 16.30 | -36.14 | 52.44 | 5.71 | 0.33 | 10.26 | Average |
| 10 | | 0.23 | 32.10 | -30.34 | 62.44 | 21.51 | 0.33 | 10.26 | QP |
| 11 | | 0.25 | 16.29 | -35.49 | 51.78 | 5.71 | 0.34 | 10.24 | Average |
| 12 | | 0.25 | 30.59 | -31.19 | 61.78 | 20.01 | 0.34 | 10.24 | 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 (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|---|---|---|
| 30 – 88 | 100 | 3 |
| 88 – 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| Above 960 | 500 | 3 |

## 3.2.2. Measuring Instruments

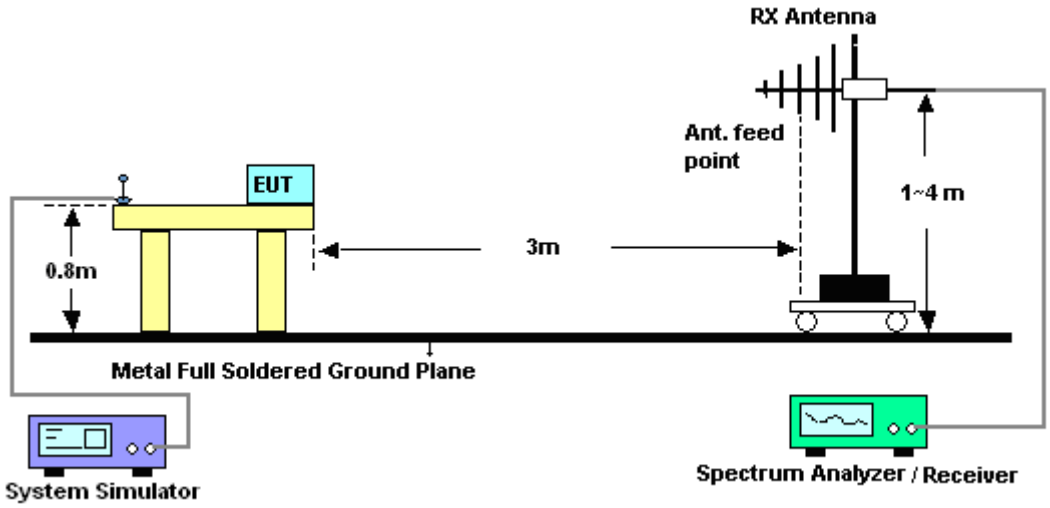
The measuring equipment is listed in the section 4 of this test report.

## 3.2.3. Test Procedures

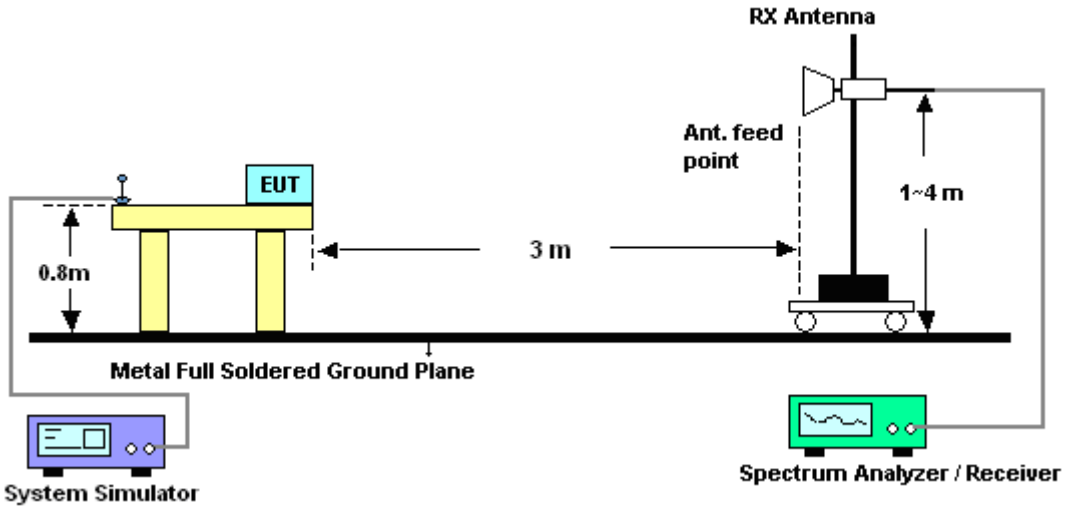
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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 (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**

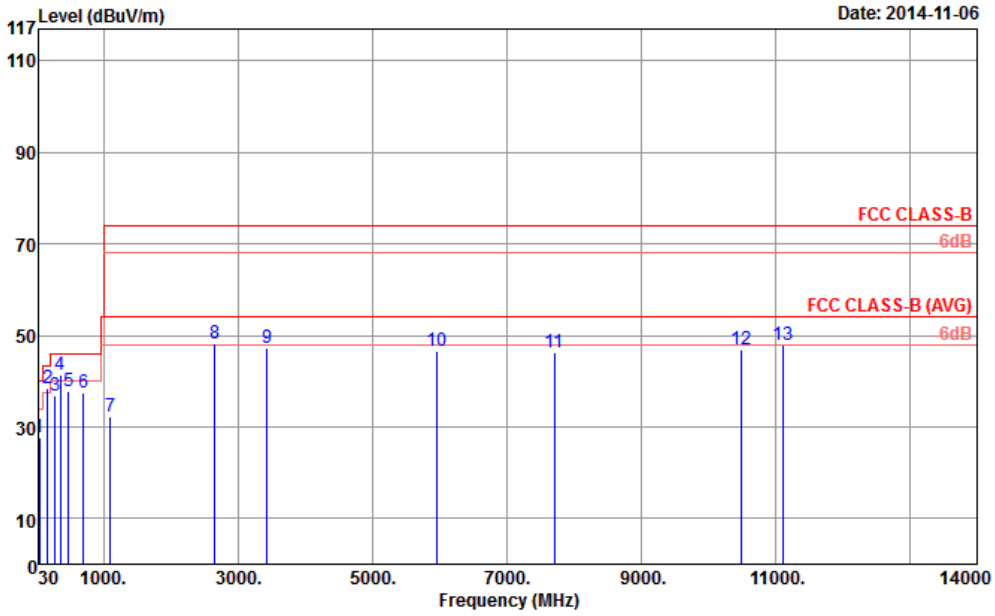



**For radiated emissions above 1GHz**



## 3.2.5. Test Result of Radiated Emission

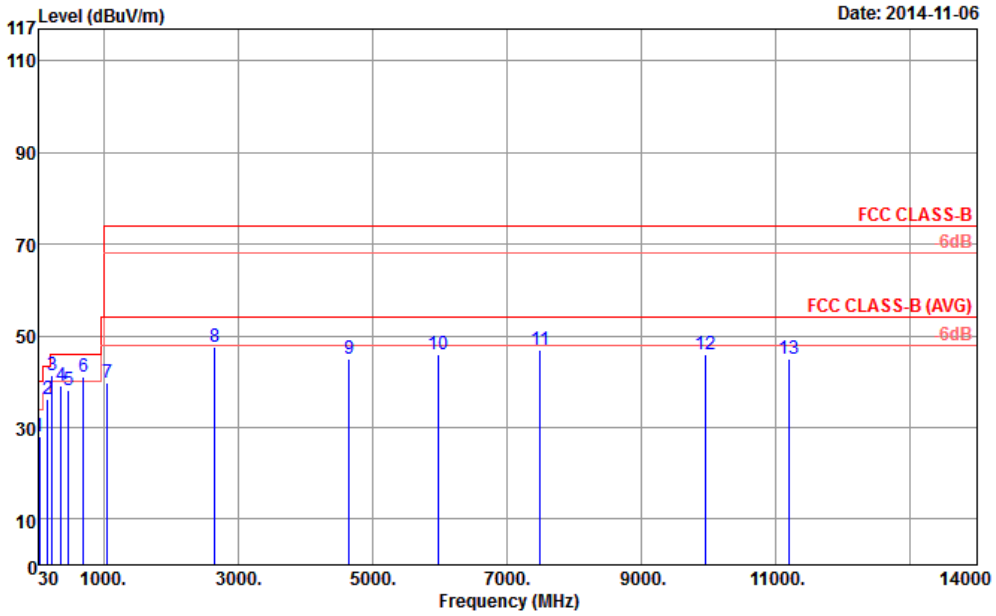
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 3 | **Temperature :** | 23~25℃ |
| **Test Engineer :** | Kaer Huang | **Relative Humidity :** | 48~52% |
| **Test Distance :** | 3m | **Polarization :** | Horizontal |
| **Function Type :** | LTE Band 7 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx | | |
| **Remark :** | #8 is system simulator signal which can be ignored. | | |




Site : 03CH01-SZ
Condition : FCC CLASS-B 3m LF_ANT_141015_02 HORIZONTAL
Project : (FC) 482608
Mode : Mode 3

| | | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | | 41.61 | 27.64 | -12.36 | 40.00 | 45.32 | 12.10 | 0.98 | 30.76 | --- | --- | Peak |
| 2 | ! | 165.81 | 38.43 | -5.07 | 43.50 | 55.34 | 11.80 | 2.00 | 30.71 | --- | --- | Peak |
| 3 | | 284.34 | 36.78 | -9.22 | 46.00 | 50.88 | 13.76 | 2.65 | 30.51 | --- | --- | Peak |
| 4 | ! | 358.10 | 41.49 | -4.51 | 46.00 | 53.82 | 15.08 | 3.00 | 30.41 | 150 | 65 | Peak |
| 5 | | 479.90 | 37.65 | -8.35 | 46.00 | 46.70 | 17.58 | 3.50 | 30.13 | --- | --- | Peak |
| 6 | | 699.70 | 37.62 | -8.38 | 46.00 | 42.97 | 19.89 | 4.27 | 29.51 | --- | --- | Peak |
| 7 | | 1100.00 | 32.30 | -41.70 | 74.00 | 44.80 | 28.31 | 5.54 | 46.35 | --- | --- | Peak |
| 8 | | 2660.00 | 48.12 | | | 52.37 | 32.83 | 9.19 | 46.27 | --- | --- | Peak |
| 9 | | 3436.00 | 47.17 | -26.83 | 74.00 | 49.84 | 33.36 | 10.74 | 46.77 | --- | --- | Peak |
| 10 | | 5970.00 | 46.62 | -27.38 | 74.00 | 41.32 | 35.75 | 13.76 | 44.21 | --- | --- | Peak |
| 11 | | 7708.00 | 46.23 | -27.77 | 74.00 | 41.73 | 36.39 | 15.46 | 47.35 | --- | --- | Peak |
| 12 | | 10488.00 | 46.81 | -27.19 | 74.00 | 38.48 | 38.49 | 17.32 | 47.48 | --- | --- | Peak |
| 13 | | 11108.00 | 47.85 | -26.15 | 74.00 | 38.98 | 38.89 | 18.14 | 48.16 | 120 | 85 | Peak |

| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 3 | **Temperature :** | 23~25°C |
| **Test Engineer :** | Kaer Huang | **Relative Humidity :** | 48~52% |
| **Test Distance :** | 3m | **Polarization :** | Vertical |
| **Function Type :** | LTE Band 7 Idle + Bluetooth Idle + WLAN Idle + USB Cable (Data Link with Notebook) + Earphone + GPS Rx | | |
| **Remark :** | #8 is system simulator signal which can be ignored. | | |




Site : 03CH01-SZ
Condition : FCC CLASS-B 3m LF_ANT_141015_02 VERTICAL
Project : (FC) 482608
Mode : Mode 3

| | | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | | 41.34 | 28.16 | -11.84 | 40.00 | 45.84 | 12.10 | 0.98 | 30.76 | --- | --- | Peak |
| 2 | | 165.81 | 36.32 | -7.18 | 43.50 | 53.23 | 11.80 | 2.00 | 30.71 | --- | --- | Peak |
| 3 | ! | 240.06 | 41.41 | -4.59 | 46.00 | 58.08 | 11.48 | 2.43 | 30.58 | 125 | 85 | Peak |
| 4 | | 365.10 | 39.04 | -6.96 | 46.00 | 51.17 | 15.25 | 3.03 | 30.41 | --- | --- | Peak |
| 5 | | 480.60 | 38.22 | -7.78 | 46.00 | 47.24 | 17.59 | 3.51 | 30.12 | --- | --- | Peak |
| 6 | ! | 699.70 | 41.04 | -4.96 | 46.00 | 46.39 | 19.89 | 4.27 | 29.51 | --- | --- | Peak |
| 7 | | 1058.00 | 39.66 | -34.34 | 74.00 | 52.29 | 28.41 | 5.31 | 46.35 | --- | --- | Peak |
| 8 | | 2660.00 | 47.71 | | | 51.96 | 32.83 | 9.19 | 46.27 | --- | --- | Peak |
| 9 | | 4658.00 | 44.89 | -29.11 | 74.00 | 44.56 | 34.29 | 12.76 | 46.72 | --- | --- | Peak |
| 10 | | 5978.00 | 45.94 | -28.06 | 74.00 | 40.56 | 35.78 | 13.74 | 44.14 | --- | --- | Peak |
| 11 | | 7498.00 | 46.78 | -27.22 | 74.00 | 43.18 | 36.30 | 14.80 | 47.50 | 125 | 62 | Peak |
| 12 | | 9966.00 | 45.86 | -28.14 | 74.00 | 36.52 | 38.06 | 18.14 | 46.86 | --- | --- | Peak |
| 13 | | 11192.00 | 45.01 | -28.99 | 74.00 | 35.94 | 38.96 | 18.34 | 48.23 | --- | --- | 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 04, 2014 | Oct. 11, 2014 | May 03, 2015 | Conduction (CO01-KS) |
| AC LISN | MessTec | AN3016 | 060103 | 9kHz~30MHz | Dec. 10, 2013 | Oct. 11, 2014 | Dec. 09, 2014 | Conduction (CO01-KS) |
| AC LISN (for auxiliary equipment) | MessTec | AN3016 | 060105 | 9kHz~30MHz | Dec. 10, 2013 | Oct. 11, 2014 | Dec. 09, 2014 | Conduction (CO01-KS) |
| AC Power Source | Chroma | 61602 | ABP000000811 | AC 0V~300V, 45Hz~1000Hz | Nov. 12, 2013 | Oct. 11, 2014 | Nov. 11, 2014 | Conduction (CO01-KS) |
| ESCIO TEST Receiver | R&S | ESCI | 100724 | 9kHz~3GHz | Feb. 21, 2014 | Nov. 06, 2014 | Feb. 20, 2015 | Radiation (03CH01-SZ) |
| Spectrum Analyzer | Agilent Technologies | N9038A | MY52260185 | 20Hz~26.5GHz | May 26, 2014 | Nov. 06, 2014 | May 25, 2015 | Radiation (03CH01-SZ) |
| Bilog Antenna | TESEQ | CBL 6112D | 37877 | 30MHz~2GHz | Oct. 15, 2014 | Nov. 06, 2014 | Oct. 14, 2015 | Radiation (03CH01-SZ) |
| Double Ridge Horn Antenna | ETS Lindgren | 3117 | 00119436 | 1GHz~18GHz | Oct. 15, 2014 | Nov. 06, 2014 | Oct. 14, 2015 | Radiation (03CH01-SZ) |
| Amplifier | ADVANTEST | BB525C | E9007003 | 9kHz~3000MHz | Feb. 21, 2014 | Nov. 06, 2014 | Feb. 20, 2015 | Radiation (03CH01-SZ) |
| Amplifier | Yiai | AV3860B | 04030 | 2GHz~26.5GHz | May 08, 2014 | Nov. 06, 2014 | May 07, 2015 | Radiation (03CH01-SZ) |
| AC Source(AVR) | Chroma | 61601 | 616010001985 | 100Vac~250Vac | Mar. 25, 2014 | Nov. 06, 2014 | Mar. 24, 2015 | Radiation (03CH01-SZ) |
| Turn Table | EM Electronics | EM 1000 | N/A | 0~360 degree | NCR | Nov. 06, 2014 | NCR | Radiation (03CH01-SZ) |
| Antenna Mast | EM Electronics | EM 1000 | N/A | 1 m~4 m | NCR | Nov. 06, 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 = 2Uc(y))** | **2.3** |

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

| | |
|---|---|
| **Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))** | **3.9** |