# FCC Test Report

| | | |
|---|---|---|
| APPLICANT | : | TCL Communication Ltd |
| EQUIPMENT | : | GSM Quad-band / UMTS Quad-band LTE 6 band mobile phone |
| BRAND NAME | : | ALCATEL ONETOUCH |
| MODEL NAME | : | 6045I |
| MARKETING NAME | : | ALCATEL ONETOUCH IDOL 3 (5.5) |
| FCC ID | : | 2ACCJN002 |
| STANDARD | : | FCC 47 CFR FCC Part 15 Subpart B |
| CLASSIFICATION | : | Certification |

The product testing was completed on Mar. 02, 2016. 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 C63.4-2009 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.

James Huang

Prepared by: James Huang / 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*

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# REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|---|---|---|---|
| FC511301-30 | Rev. 01 | This is a variant product of 6045I. Added a new battery, and only the worst cases of conducted emission and radiated emission from original test report (Sporton Report Number FC511301-03) were verified for the difference and the original test data were remain representative. | Mar. 07, 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 | PASS | Under limit 5.57 dB at 0.520 MHz |
| 3.2 | 15.109 | Radiated Emission | < 15.109 limits | PASS | Under limit 1.89 dB at 237.580 MHz for Quasi-Peak |

# 1. General Description

## 1.1. Applicant

**TCL Communication Ltd**
FLAT/RM 1910-12A BLOCK 3 19/F CHINA HONG KONG CITY 33 CANTON ROAD TSIMSHATSUI KL

## 1.2. Manufacturer

**TCL Communication Ltd**
FLAT/RM 1910-12A BLOCK 3 19/F CHINA HONG KONG CITY 33 CANTON ROAD TSIMSHATSUI KL

## 1.3. Product Feature of Equipment Under Test

| Product Feature | |
|---|---|
| **Equipment** | GSM Quad-band / UMTS Quad-band / LTE 6 band mobile PHONE |
| **Brand Name** | ALCATEL ONETOUCH |
| **Model Name** | 6045I |
| **Marketing Name** | ALCATEL ONETOUCH IDOL 3 (5.5) |
| **FCC ID** | 2ACCJN002 |
| **EUT supports Radios application** | GSM/GPRS/EGPRS/WCDMA/HSPA/<br>HSPA+(16QAM uplink is not supported)/DC-HSDPA/LTE/NFC/<br>WLAN2.4GHz 802.11b/g/n HT20/<br>WLAN 5GHz 802.11a/n HT20/HT40/<br>Bluetooth v3.0+EDR/Bluetooth v4.1 LE |
| **HW Version** | PIO |
| **SW Version** | 7S25 |
| **EUT Stage** | Identical Prototype |

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

## 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 2 : 1850.7 MHz ~ 1909.3 MHz<br>LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz<br>LTE Band 5 : 824.7 MHz ~ 848.3 MHz<br>LTE Band 7: 2502.5 MHz ~ 2567.5 MHz<br>LTE Band 12: 699.7 MHz ~ 715.3 MHz<br>LTE Band 17: 706.5 MHz~713.5 MHz<br>802.11b/g/n: 2412 MHz ~ 2462 MHz<br>802.11a/n: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5825 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz<br>NFC : 13.56 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 2 : 1930.7 MHz ~ 1989.3 MHz<br>LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz<br>LTE Band 5 : 869.7 MHz ~ 893.3 MHz<br>LTE Band 7 : 2622.5 MHz~ 2687.5 MHz<br>LTE Band 12 : 729.7 MHz ~ 745.3 MHz<br>LTE Band 17 : 736.5 MHz~743.5 MHz<br>802.11b/g/n: 2412 MHz ~ 2462 MHz<br>802.11a/n: 5180 MHz ~ 5240 MHz; 5745 MHz ~ 5825 MHz<br>Bluetooth: 2402 MHz ~ 2480 MHz<br>GPS : 1.57542 GHz<br>Glonass : 1602 MHz + n× 0.5625MHz *(n=−7,−6,−5,...0,...,6)*<br>NFC : 13.56 MHz |

| Product Specification subjective to this standard | |
|---|---|
| **Antenna Type** | WWAN : PIFA Antenna<br>WLAN : PIFA Antenna<br>Bluetooth : PIFA Antenna<br>GPS/Glonass: IFA Antenna<br>NFC : Loop 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 / DC-HSDAP: QPSK (Uplink)<br>HSUPA: QPSK (Uplink)<br>HSPA+: 16QAM (uplink is not supported)<br>DC-HSDAP: 64QAM<br>LTE: QPSK / 16QAM<br>802.11b : DSSS (DBPSK / DQPSK / CCK)<br>802.11a/g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)<br>Bluetooth v4.1 LE : GFSK<br>Bluetooth (1Mbps) : GFSK<br>Bluetooth (2Mbps) : $\pi$/4-DQPSK<br>Bluetooth (3Mbps) : 8-DPSK<br>GPS / Glonass : BPSK<br>NFC: ASK |

## 1.5. Accessories and Support Equipment

| Specification of Accessory | | | | |
|---|---|---|---|---|
| **AC Adapter** | **Brand Name** | ALCATEL ONETOUCH | **Model Name** | UC13US |
| | **Power Rating** | I/P: 100-240Vac, 500mA, O/P: 5Vdc, 2000mA | | |
| | **P/N** | CBA0059AG0C1 | | |
| **Original Battery** | **Brand Name** | ALCATEL ONETOUCH | **Model Name** | TLp029A2-S |
| | **Power Rating** | 3.8Vdc, 2910mAh | | |
| | **S/N** | C2910002C2Y0042G | | |
| **Added Battery** | **Brand Name** | ALCATEL ONETOUCH | **Model Name** | TLp029AJ |
| | **Power Rating** | 3.8Vdc, 2910mAh | | |
| | **S/N** | C2910003CJY9411D | | |
| **USB Cable** | **Brand Name** | ALCATEL ONETOUCH | **Model Name** | CDA0000043C2 |
| | **Signal Line Type** | 1.10m shielded without core | | |
| **Earphone 1** | **Brand Name** | ALCATEL ONETOUCH | **Model Name** | CCA0001A10C9 |
| | **Signal Line Type** | 1.16m non-shielded without core | | |
| **Earphone 2** | **Brand Name** | JBL | **Model Name** | CCB0029A10CC |
| | **Signal Line Type** | 1.38m non-shielded without core | | |

## 1.6. Modification of EUT

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

## 1.7. 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 | 03CH02-KS | 149928 |

## 1.8. 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 C63.4-2009

**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 C63.4-2009 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(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone 1 + Camera<Fig.1><br>Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Battery + Earphone 2 + MPEG4<Fig.1><br>Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone 1 + NFC On<Fig.1><br>Mode 4: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Battery + Earphone 1 + Glonass Rx<Fig.2><br>Mode 5: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 1 + GPS Rx<Fig.3> |
| Radiated Emissions < 1GHz | 1/2 | Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone 1 + Camera<Fig.1><br>Mode 2: GSM1900 Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Battery + Earphone 2 + MPEG4<Fig.1><br>Mode 3: WCDMA Band V Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone 2 + NFC On<Fig.1><br>Mode 4: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle(5G) + USB Cable (Charging from Adapter) + Battery + Earphone 2 + Glonass Rx<Fig.2><br>Mode 5: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 2 + GPS Rx<Fig.3> |
| Radiated Emissions ≥ 1GHz | 2 | Mode 1: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 2 + GPS Rx<Fig.3> |

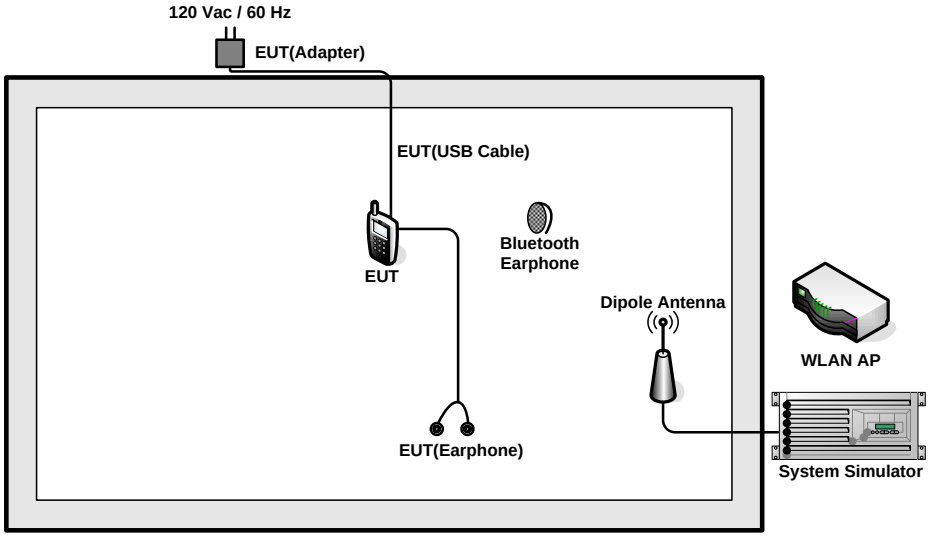
**Remark:**

1. The worst case of AC is mode 1; and the USB Link mode of AC is mode 5, the test data of these modes were reported.
2. The worst case of RE < 1G is mode 5; only the test data of this mode was reported.
3. Link with notebook means data application transferred mode between EUT and notebook.

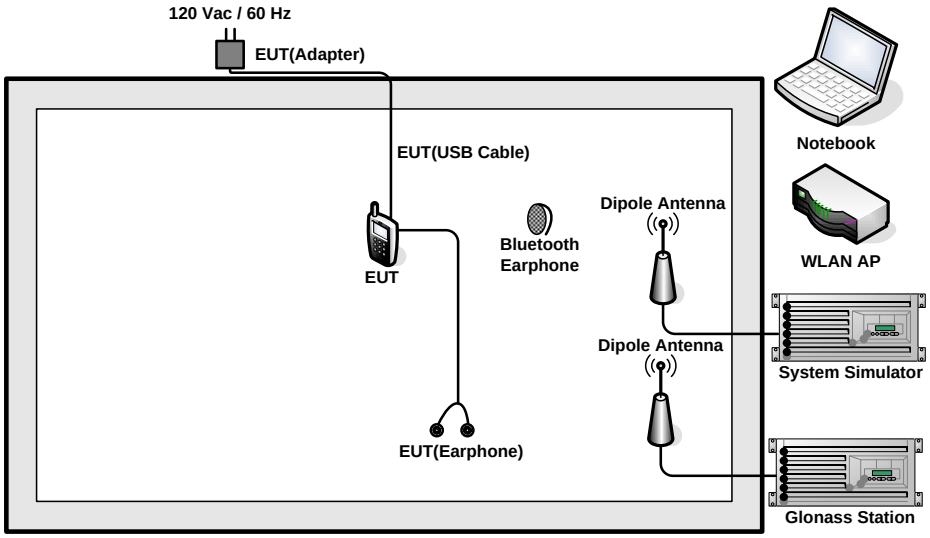
## Test Mode for Spot Check

| Test Items | EUT Configure Mode | Function Type |
|---|---|---|
| AC Conducted Emission | 1/2 | Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone 2 + Camera<Fig.1><br>Mode 2: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 2 + GPS Rx<Fig.3> |
| Radiated Emissions | 2 | Mode 1: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 2 + GPS Rx<Fig.3> |

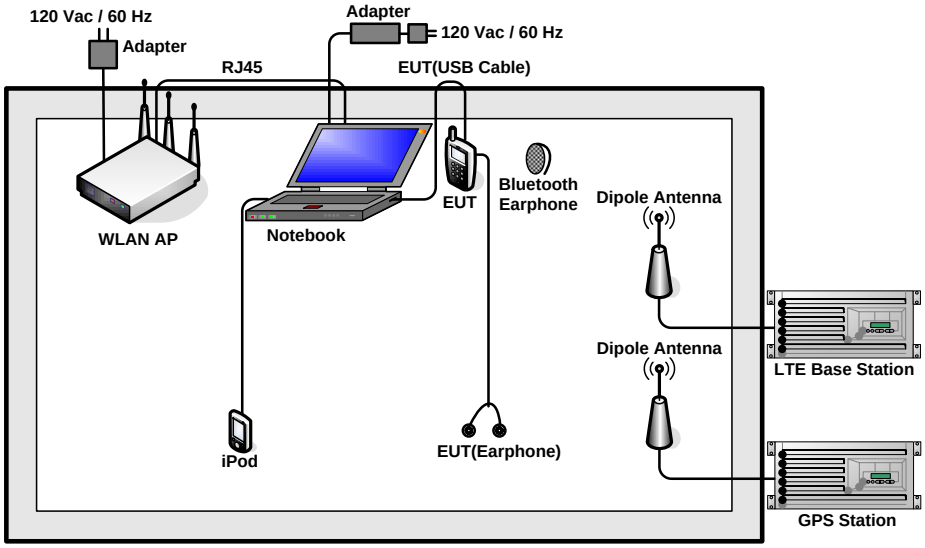
## 2.2. Connection Diagram of Test System




**<Fig.1>**




**<Fig.2>**


120 Vac / 60 Hz
Adapter
Adapter
120 Vac / 60 Hz
RJ45
EUT(USB Cable)
WLAN AP
Notebook
EUT
Bluetooth
Earphone
Dipole Antenna
Dipole Antenna
LTE Base Station
iPod
EUT(Earphone)
GPS Station

**<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. | LTE Base Station | Anritsu | MT8820C | N/A | N/A | Unshielded, 1.8 m |
| 2. | System Simulator | R&S | CMU200 | N/A | N/A | Unshielded, 1.8 m |
| 3. | Glonass Station | RACELOGIC | RLLS03-2RP | N/A | N/A | Unshielded, 1.8 m |
| 4. | GPS Station | ADIVIC | MP9000 | N/A | N/A | Unshielded, 1.8 m |
| 5. | WLAN AP | D-Link | DIR-855 | KA2DIR855A2 | N/A | Unshielded, 1.8 m |
| 6. | WLAN AP | LINKSYS | WRT600N | Q87-WRT600NV11 | N/A | Unshielded, 1.8 m |
| 7. | Bluetooth Earphone | Nokia | BH-106 | QTLBH-106 | N/A | N/A |
| 8. | Bluetooth Earphone | Nokia | BH-102 | PYAHS-107W | N/A | N/A |
| 9. | Notebook | Lenovo | G480 | N/A | N/A | AC I/P: Unshielded, 1.2 m<br>DC O/P: Shielded, 1.8 m |
| 10. | iPod | Apple | A1199 | FCC DoC | Unshielded, 1.2 m | N/A |
| 11. | SD Card | Kingston | 4GB | N/A | N/A | 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 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 "Video Player" to play MPEG4 files.
3. Turn on GPS/Glonass function to make the EUT receive continuous signals from GPS/Glonass station.
4. Turn on camera to capture images.
5. Turn on NFC function

# 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.

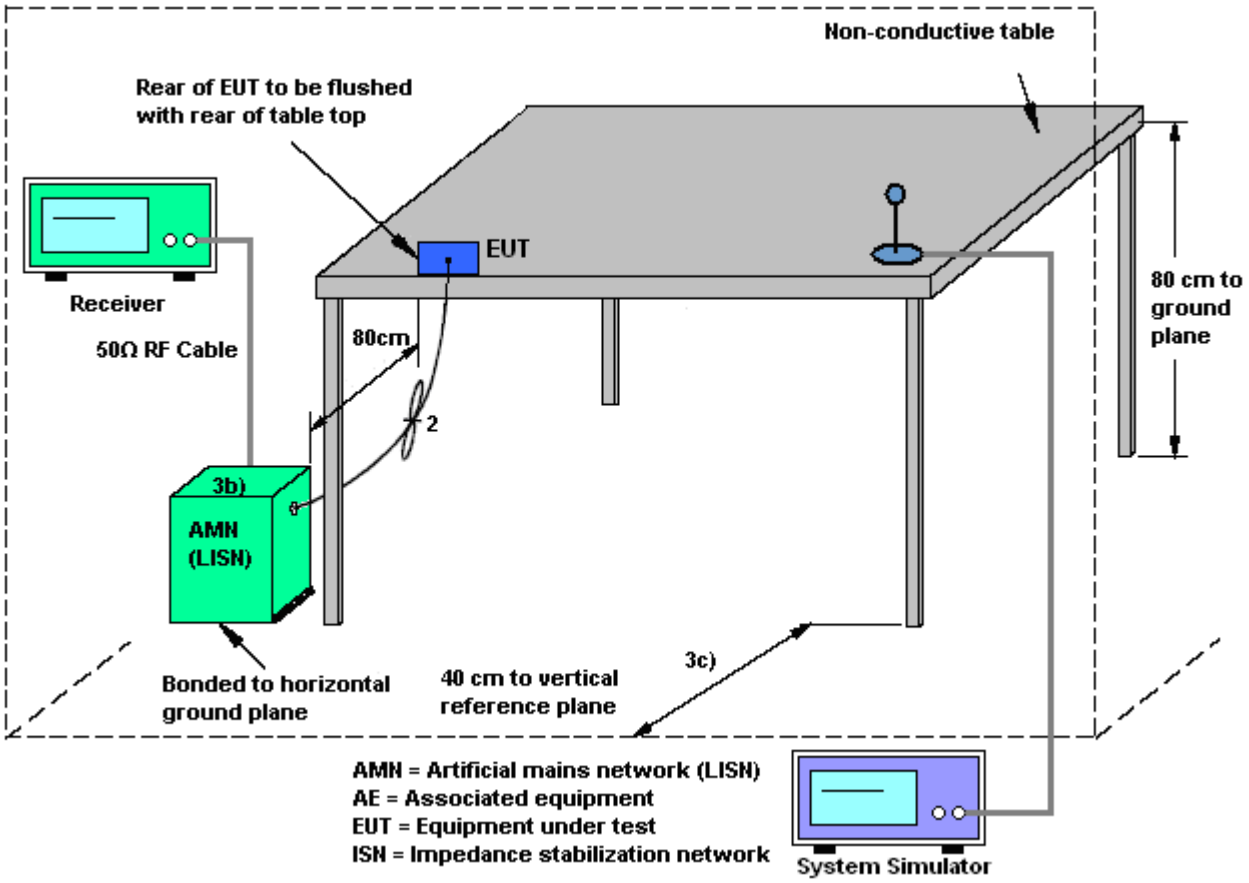
### 3.1.2 Measuring Instruments

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

### 3.1.3 Test Procedure

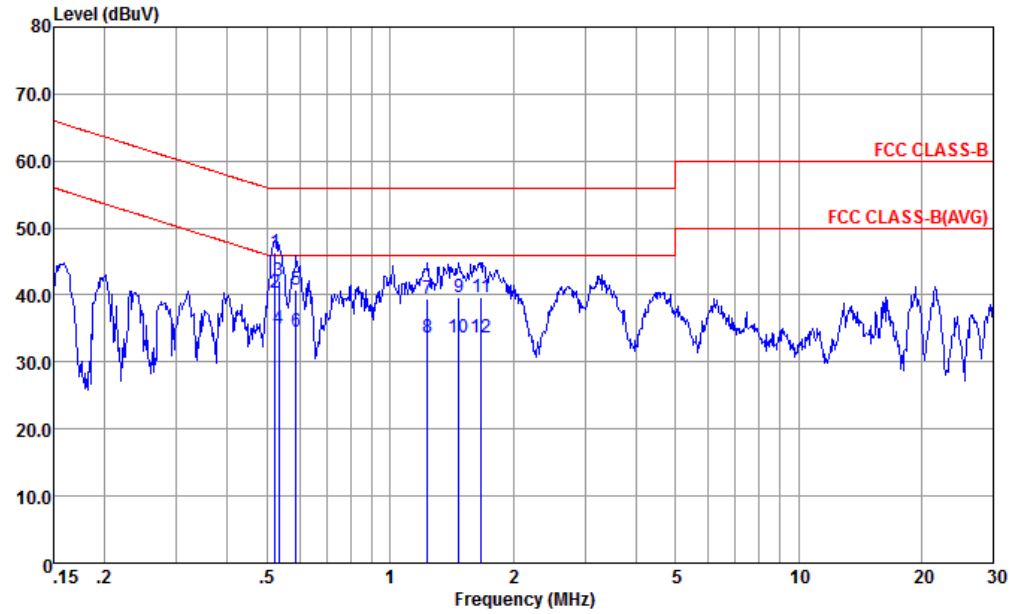
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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 1 | **Temperature :** | 22~24℃ |
| **Test Engineer :** | Eko Guan | **Relative Humidity :** | 30~33% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Line |
| **Function Type :** | GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone 1 + Camera | | |

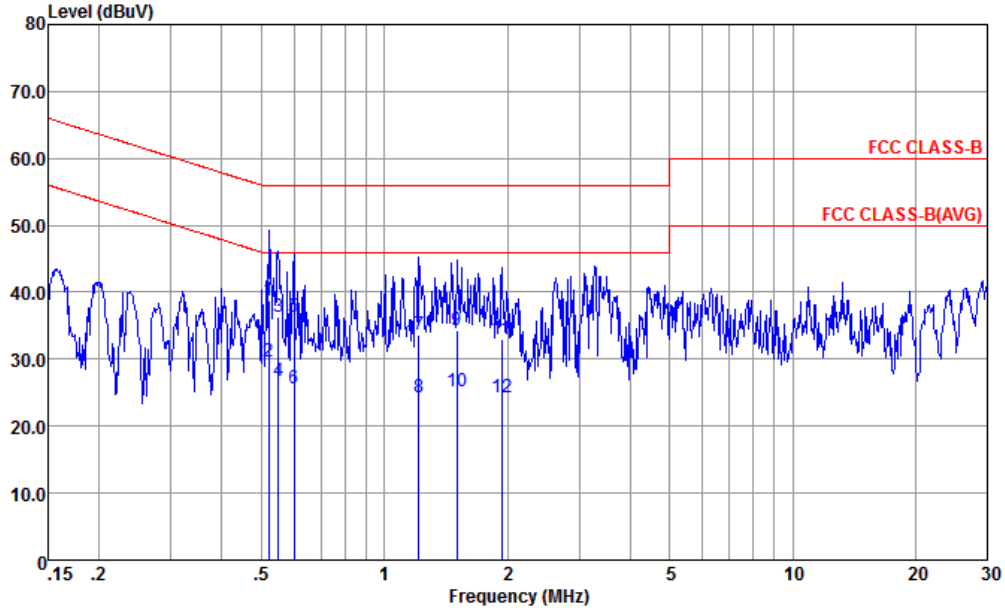



Site : CO01-KS
Condition : FCC CLASS-B LISN-L20140306 LINE

mode : Mode 1

| | | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | | 0.52 | 46.33 | -9.67 | 56.00 | 35.50 | 0.20 | 10.63 | QP |
| 2 | * | 0.52 | 40.43 | -5.57 | 46.00 | 29.60 | 0.20 | 10.63 | Average |
| 3 | | 0.53 | 42.03 | -13.97 | 56.00 | 31.20 | 0.20 | 10.63 | QP |
| 4 | | 0.53 | 35.03 | -10.97 | 46.00 | 24.20 | 0.20 | 10.63 | Average |
| 5 | | 0.59 | 40.73 | -15.27 | 56.00 | 29.90 | 0.20 | 10.63 | QP |
| 6 | | 0.59 | 34.43 | -11.57 | 46.00 | 23.60 | 0.20 | 10.63 | Average |
| 7 | | 1.24 | 39.36 | -16.64 | 56.00 | 28.60 | 0.10 | 10.66 | QP |
| 8 | | 1.24 | 33.56 | -12.44 | 46.00 | 22.80 | 0.10 | 10.66 | Average |
| 9 | | 1.47 | 39.68 | -16.32 | 56.00 | 28.90 | 0.10 | 10.68 | QP |
| 10 | | 1.47 | 33.68 | -12.32 | 46.00 | 22.90 | 0.10 | 10.68 | Average |
| 11 | | 1.67 | 39.59 | -16.41 | 56.00 | 28.80 | 0.10 | 10.69 | QP |
| 12 | | 1.67 | 33.69 | -12.31 | 46.00 | 22.90 | 0.10 | 10.69 | Average |

| Test Mode : | Mode 1 | Temperature : | 22~24℃ |
|---|---|---|---|
| Test Engineer : | Eko Guan | Relative Humidity : | 30~33% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Neutral |
| Function Type : | GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone 1 + Camera | | |

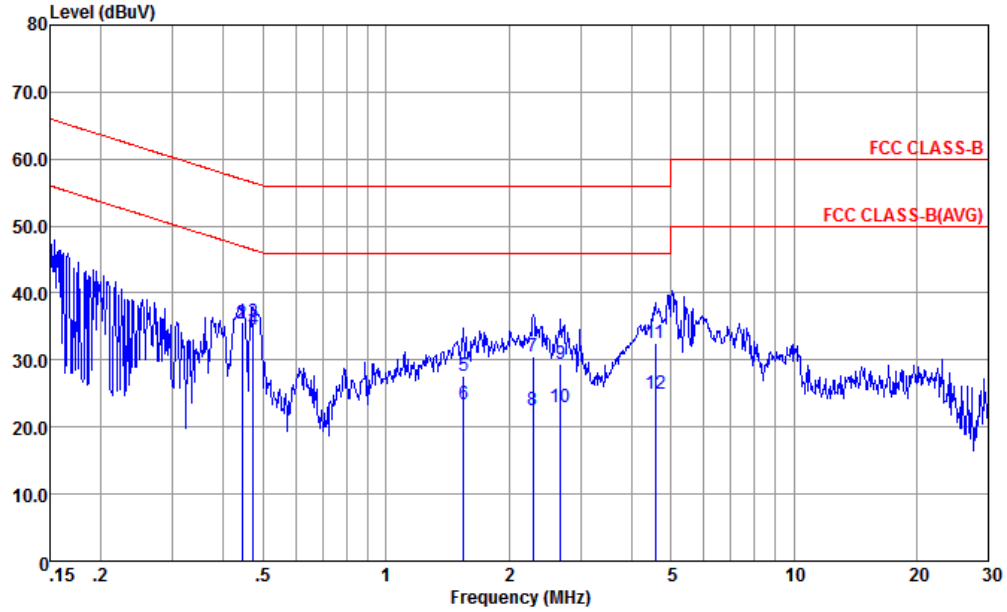



Site : CO01-KS
Condition : FCC CLASS-B LISN-N20140306 NEUTRAL

mode : Mode 1

| | | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | | 0.52 | 38.82 | -17.18 | 56.00 | 27.90 | 0.29 | 10.63 | QP |
| 2 | * | 0.52 | 29.72 | -16.28 | 46.00 | 18.80 | 0.29 | 10.63 | Average |
| 3 | | 0.55 | 36.31 | -19.69 | 56.00 | 25.40 | 0.28 | 10.63 | QP |
| 4 | | 0.55 | 26.81 | -19.19 | 46.00 | 15.90 | 0.28 | 10.63 | Average |
| 5 | | 0.60 | 36.27 | -19.73 | 56.00 | 25.40 | 0.24 | 10.63 | QP |
| 6 | | 0.60 | 25.57 | -20.43 | 46.00 | 14.70 | 0.24 | 10.63 | Average |
| 7 | | 1.22 | 33.56 | -22.44 | 56.00 | 22.80 | 0.10 | 10.66 | QP |
| 8 | | 1.22 | 24.26 | -21.74 | 46.00 | 13.50 | 0.10 | 10.66 | Average |
| 9 | | 1.50 | 34.28 | -21.72 | 56.00 | 23.50 | 0.10 | 10.68 | QP |
| 10 | | 1.50 | 25.28 | -20.72 | 46.00 | 14.50 | 0.10 | 10.68 | Average |
| 11 | | 1.94 | 33.00 | -23.00 | 56.00 | 22.20 | 0.10 | 10.70 | QP |
| 12 | | 1.94 | 24.20 | -21.80 | 46.00 | 13.40 | 0.10 | 10.70 | Average |

| Test Mode : | Mode 5 | Temperature : | 22~24℃ |
|---|---|---|---|
| Test Engineer : | Eko Guan | Relative Humidity : | 30~33% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Line |
| Function Type : | LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 1 + GPS Rx | | |

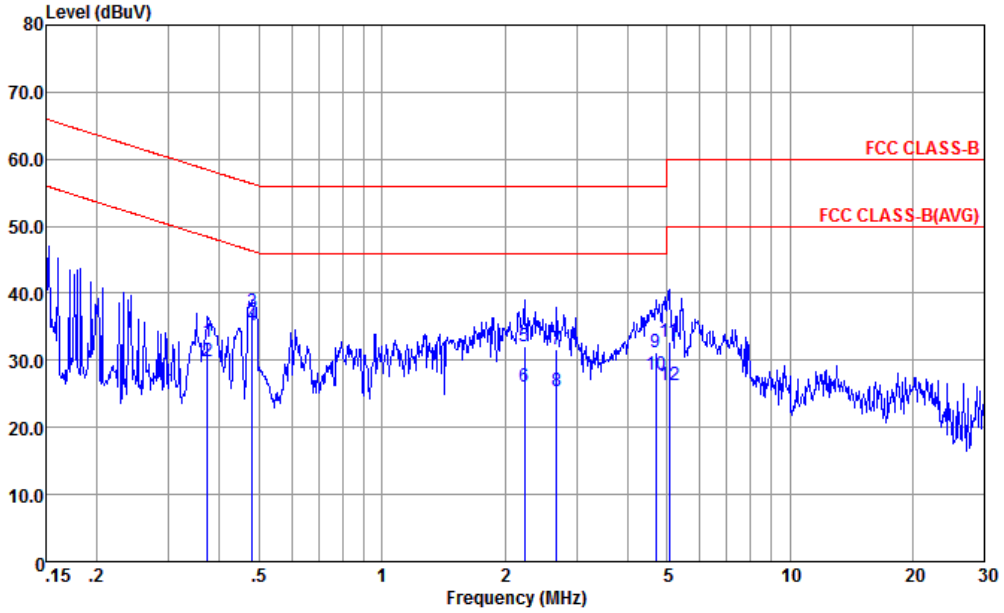



Site : CO01-KS
Condition : FCC CLASS-B LISN-L20140306 LINE

mode : Mode 5

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | 0.44 | 35.68 | -21.30 | 56.98 | 24.81 | 0.25 | 10.62 | QP |
| 2 * | 0.44 | 35.48 | -11.50 | 46.98 | 24.61 | 0.25 | 10.62 | Average |
| 3 | 0.47 | 35.65 | -20.80 | 56.45 | 24.81 | 0.22 | 10.62 | QP |
| 4 | 0.47 | 34.45 | -12.00 | 46.45 | 23.61 | 0.22 | 10.62 | Average |
| 5 | 1.55 | 27.59 | -28.41 | 56.00 | 16.80 | 0.10 | 10.69 | QP |
| 6 | 1.55 | 23.39 | -22.61 | 46.00 | 12.60 | 0.10 | 10.69 | Average |
| 7 | 2.30 | 30.42 | -25.58 | 56.00 | 19.59 | 0.11 | 10.72 | QP |
| 8 | 2.30 | 22.42 | -23.58 | 46.00 | 11.59 | 0.11 | 10.72 | Average |
| 9 | 2.68 | 29.47 | -26.53 | 56.00 | 18.60 | 0.12 | 10.75 | QP |
| 10 | 2.68 | 22.97 | -23.03 | 46.00 | 12.10 | 0.12 | 10.75 | Average |
| 11 | 4.57 | 32.54 | -23.46 | 56.00 | 21.51 | 0.19 | 10.84 | QP |
| 12 | 4.57 | 24.94 | -21.06 | 46.00 | 13.91 | 0.19 | 10.84 | Average |

| Test Mode : | Mode 5 | Temperature : | 22~24℃ |
|---|---|---|---|
| Test Engineer : | Eko Guan | Relative Humidity : | 30~33% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Neutral |
| Function Type : | LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 1 + GPS Rx | | |



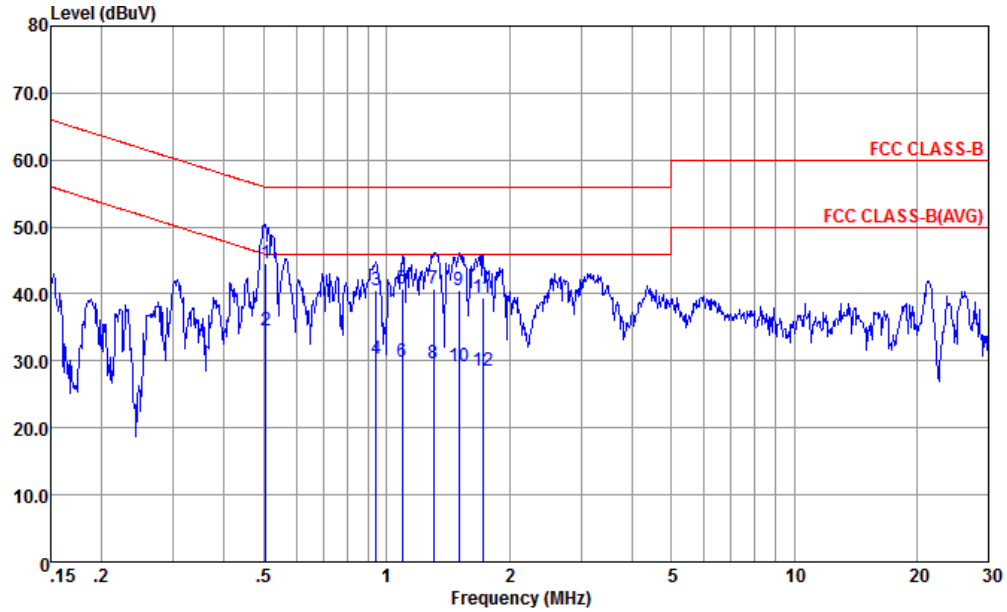

Site : CO01-KS
Condition : FCC CLASS-B LISN-N20140306 NEUTRAL

mode : Mode 5

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | 0.37 | 32.66 | -25.77 | 58.43 | 21.60 | 0.45 | 10.61 | QP |
| 2 | 0.37 | 29.86 | -18.57 | 48.43 | 18.80 | 0.45 | 10.61 | Average |
| 3 | 0.48 | 37.24 | -19.08 | 56.32 | 26.31 | 0.31 | 10.62 | QP |
| 4 * | 0.48 | 35.14 | -11.18 | 46.32 | 24.21 | 0.31 | 10.62 | Average |
| 5 | 2.24 | 32.12 | -23.88 | 56.00 | 21.30 | 0.11 | 10.71 | QP |
| 6 | 2.24 | 26.12 | -19.88 | 46.00 | 15.30 | 0.11 | 10.71 | Average |
| 7 | 2.68 | 31.67 | -24.33 | 56.00 | 20.80 | 0.12 | 10.75 | QP |
| 8 | 2.68 | 25.47 | -20.53 | 46.00 | 14.60 | 0.12 | 10.75 | Average |
| 9 | 4.70 | 31.24 | -24.76 | 56.00 | 20.20 | 0.20 | 10.84 | QP |
| 10 | 4.70 | 27.84 | -18.16 | 46.00 | 16.80 | 0.20 | 10.84 | Average |
| 11 | 5.06 | 32.85 | -27.15 | 60.00 | 21.80 | 0.20 | 10.85 | QP |
| 12 | 5.06 | 26.35 | -23.65 | 50.00 | 15.30 | 0.20 | 10.85 | Average |

### 3.1.6 Test Result of AC Conducted Emission for Spot Check

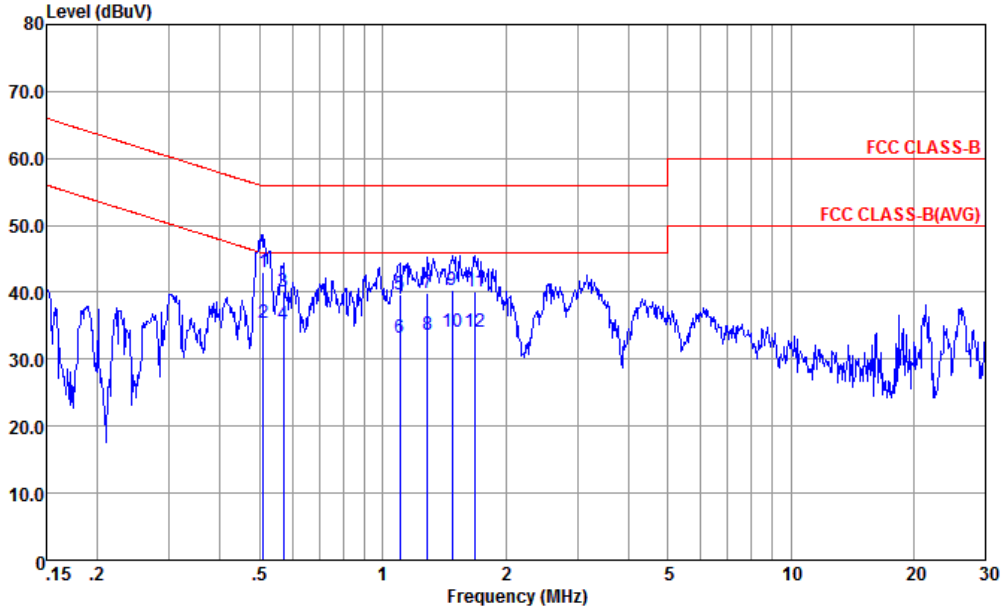
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 1 | **Temperature :** | 22~24℃ |
| **Test Engineer :** | Amos Zhang | **Relative Humidity :** | 44~46% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Line |
| **Function Type :** | GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone 2 + Camera | | |




Site : CO01-KS
Condition : FCC CLASS-B LISN-L-20151024 LINE
Project : (FC) 511301-30
mode : Mode 1

| | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 * | 0.50 | 44.59 | -11.41 | 56.00 | 34.20 | 0.23 | 10.16 | QP |
| 2 | 0.50 | 34.49 | -11.51 | 46.00 | 24.10 | 0.23 | 10.16 | Average |
| 3 | 0.94 | 40.49 | -15.51 | 56.00 | 30.10 | 0.25 | 10.14 | QP |
| 4 | 0.94 | 30.29 | -15.71 | 46.00 | 19.90 | 0.25 | 10.14 | Average |
| 5 | 1.09 | 40.68 | -15.32 | 56.00 | 30.30 | 0.24 | 10.14 | QP |
| 6 | 1.09 | 29.88 | -16.12 | 46.00 | 19.50 | 0.24 | 10.14 | Average |
| 7 | 1.30 | 40.86 | -15.14 | 56.00 | 30.50 | 0.22 | 10.14 | QP |
| 8 | 1.30 | 29.66 | -16.34 | 46.00 | 19.30 | 0.22 | 10.14 | Average |
| 9 | 1.50 | 40.65 | -15.35 | 56.00 | 30.30 | 0.21 | 10.14 | QP |
| 10 | 1.50 | 29.15 | -16.85 | 46.00 | 18.80 | 0.21 | 10.14 | Average |
| 11 | 1.73 | 39.44 | -16.56 | 56.00 | 29.11 | 0.19 | 10.14 | QP |
| 12 | 1.73 | 28.54 | -17.46 | 46.00 | 18.21 | 0.19 | 10.14 | Average |

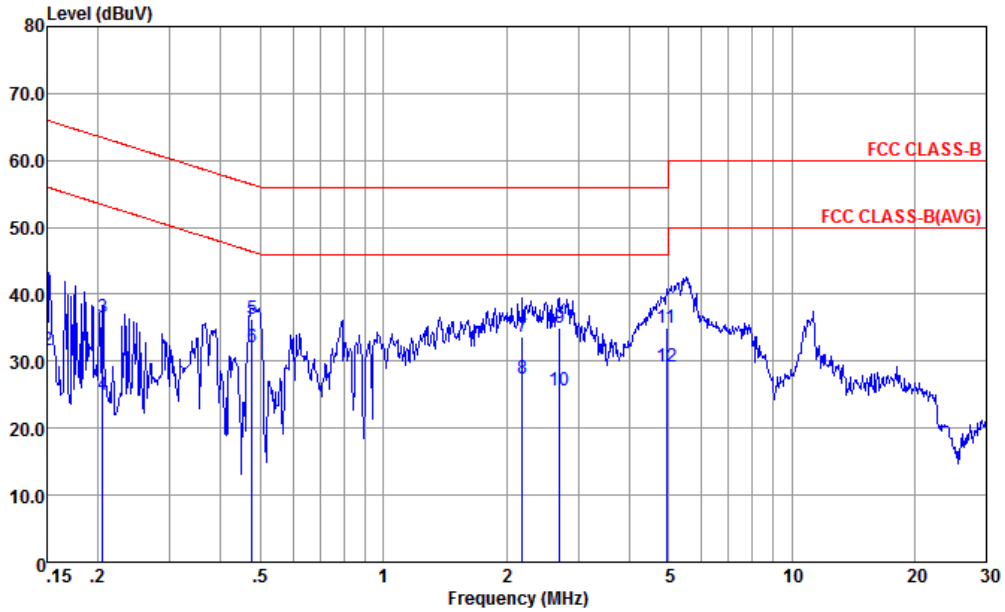
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 1 | **Temperature :** | 22~24℃ |
| **Test Engineer :** | Amos Zhang | **Relative Humidity :** | 44~46% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Neutral |
| **Function Type :** | GSM850 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Charging from Adapter) + Battery + Earphone 2 + Camera | | |




Site : CO01-KS
Condition : FCC CLASS-B LISN-N-20151024 NEUTRAL
Project : (FC) 511301-30
mode : Mode 1

| | | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | | 0.51 | 42.98 | -13.02 | 56.00 | 32.50 | 0.32 | 10.16 | QP |
| 2 | * | 0.51 | 35.38 | -10.62 | 46.00 | 24.90 | 0.32 | 10.16 | Average |
| 3 | | 0.57 | 40.09 | -15.91 | 56.00 | 29.60 | 0.33 | 10.16 | QP |
| 4 | | 0.57 | 35.29 | -10.71 | 46.00 | 24.80 | 0.33 | 10.16 | Average |
| 5 | | 1.10 | 39.71 | -16.29 | 56.00 | 29.20 | 0.37 | 10.14 | QP |
| 6 | | 1.10 | 33.31 | -12.69 | 46.00 | 22.80 | 0.37 | 10.14 | Average |
| 7 | | 1.29 | 39.81 | -16.19 | 56.00 | 29.30 | 0.37 | 10.14 | QP |
| 8 | | 1.29 | 33.71 | -12.29 | 46.00 | 23.20 | 0.37 | 10.14 | Average |
| 9 | | 1.48 | 40.31 | -15.69 | 56.00 | 29.79 | 0.38 | 10.14 | QP |
| 10 | | 1.48 | 34.11 | -11.89 | 46.00 | 23.59 | 0.38 | 10.14 | Average |
| 11 | | 1.69 | 40.02 | -15.98 | 56.00 | 29.50 | 0.38 | 10.14 | QP |
| 12 | | 1.69 | 34.12 | -11.88 | 46.00 | 23.60 | 0.38 | 10.14 | Average |

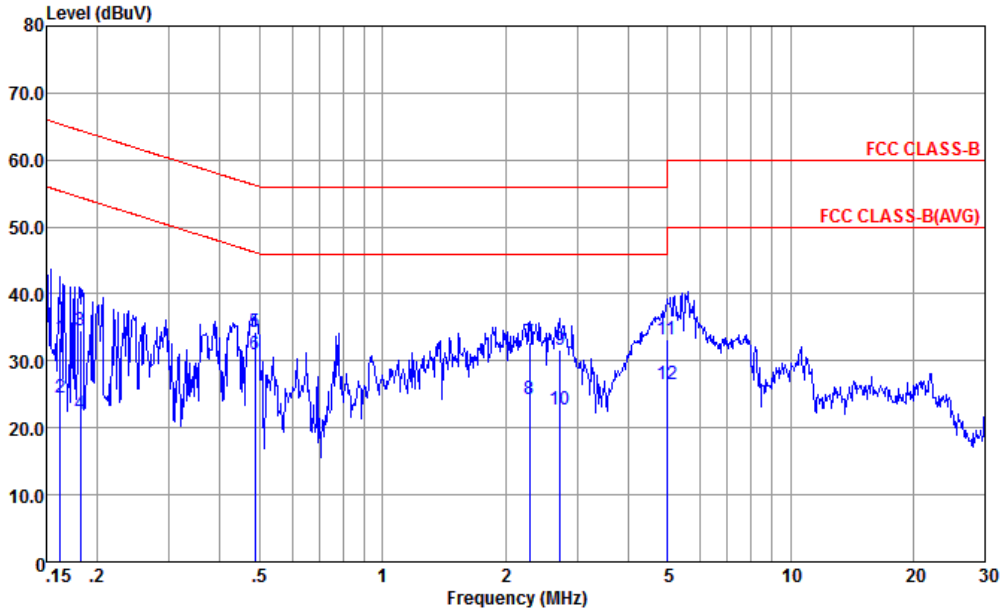
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 2 | **Temperature :** | 22~24℃ |
| **Test Engineer :** | Amos Zhang | **Relative Humidity :** | 44~46% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Line |
| **Function Type :** | LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 2 + GPS Rx | | |




Site : CO01-KS
Condition : FCC CLASS-B LISN-N-20151024 NEUTRAL
Project : (FC) 511301-30
mode : Mode 2

| | | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV | dB | dBuV | dBuV | dB | dB | |
| 1 | | 0.15 | 40.61 | -25.39 | 66.00 | 30.20 | 0.30 | 10.11 | QP |
| 2 | | 0.15 | 31.71 | -24.29 | 56.00 | 21.30 | 0.30 | 10.11 | Average |
| 3 | | 0.21 | 36.64 | -26.76 | 63.40 | 26.20 | 0.31 | 10.13 | QP |
| 4 | | 0.21 | 24.94 | -28.46 | 53.40 | 14.50 | 0.31 | 10.13 | Average |
| 5 | | 0.48 | 36.28 | -20.13 | 56.41 | 25.80 | 0.32 | 10.16 | QP |
| 6 | * | 0.48 | 32.08 | -14.33 | 46.41 | 21.60 | 0.32 | 10.16 | Average |
| 7 | | 2.19 | 33.72 | -22.28 | 56.00 | 23.20 | 0.38 | 10.14 | QP |
| 8 | | 2.19 | 27.32 | -18.68 | 46.00 | 16.80 | 0.38 | 10.14 | Average |
| 9 | | 2.71 | 35.02 | -20.98 | 56.00 | 24.50 | 0.37 | 10.15 | QP |
| 10 | | 2.71 | 25.72 | -20.28 | 46.00 | 15.20 | 0.37 | 10.15 | Average |
| 11 | | 4.93 | 34.94 | -21.06 | 56.00 | 24.40 | 0.36 | 10.18 | QP |
| 12 | | 4.93 | 29.14 | -16.86 | 46.00 | 18.60 | 0.36 | 10.18 | Average |

| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 2 | **Temperature :** | 22~24℃ |
| **Test Engineer :** | Amos Zhang | **Relative Humidity :** | 44~46% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Neutral |
| **Function Type :** | LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 2 + GPS Rx | | |




Site : CO01-KS
Condition : FCC CLASS-B LISN-L-20151024 LINE
Project : (FC) 511301-30
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 | 33.35 | -31.99 | 65.34 | 22.80 | 0.44 | 10.11 | QP |
| 2 | | 0.16 | 24.45 | -30.89 | 55.34 | 13.90 | 0.44 | 10.11 | Average |
| 3 | | 0.18 | 34.55 | -29.87 | 64.42 | 24.10 | 0.33 | 10.12 | QP |
| 4 | | 0.18 | 22.05 | -32.37 | 54.42 | 11.60 | 0.33 | 10.12 | Average |
| 5 | | 0.49 | 34.29 | -21.94 | 56.23 | 23.90 | 0.23 | 10.16 | QP |
| 6 | * | 0.49 | 30.99 | -15.24 | 46.23 | 20.60 | 0.23 | 10.16 | Average |
| 7 | | 2.30 | 32.83 | -23.17 | 56.00 | 22.50 | 0.18 | 10.15 | QP |
| 8 | | 2.30 | 24.23 | -21.77 | 46.00 | 13.90 | 0.18 | 10.15 | Average |
| 9 | | 2.72 | 31.63 | -24.37 | 56.00 | 21.30 | 0.18 | 10.15 | QP |
| 10 | | 2.72 | 22.63 | -23.37 | 46.00 | 12.30 | 0.18 | 10.15 | Average |
| 11 | | 4.98 | 33.27 | -22.73 | 56.00 | 22.90 | 0.19 | 10.18 | QP |
| 12 | | 4.98 | 26.57 | -19.43 | 46.00 | 16.20 | 0.19 | 10.18 | 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 (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

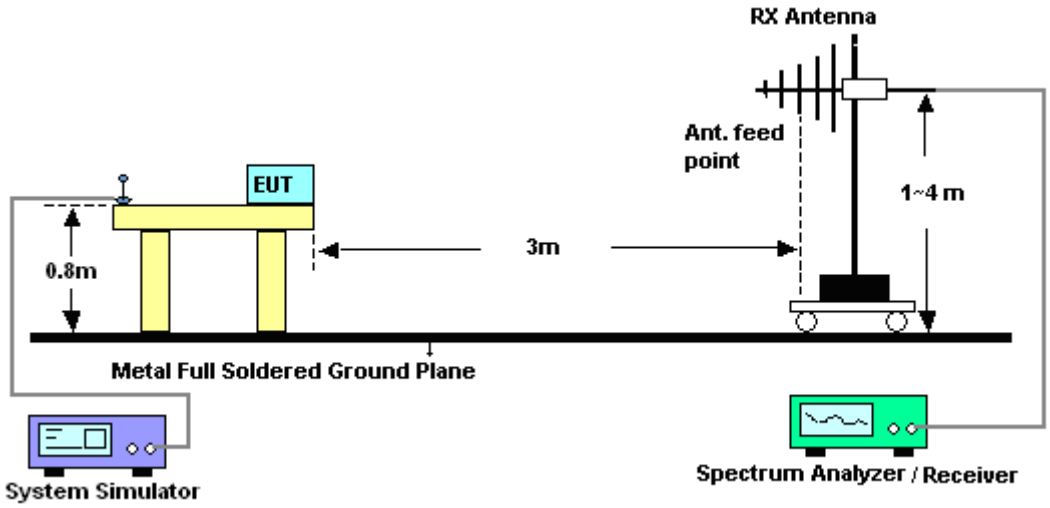
The measuring equipment is listed in the section 4 of this test report.

## 3.2.3. Test Procedures

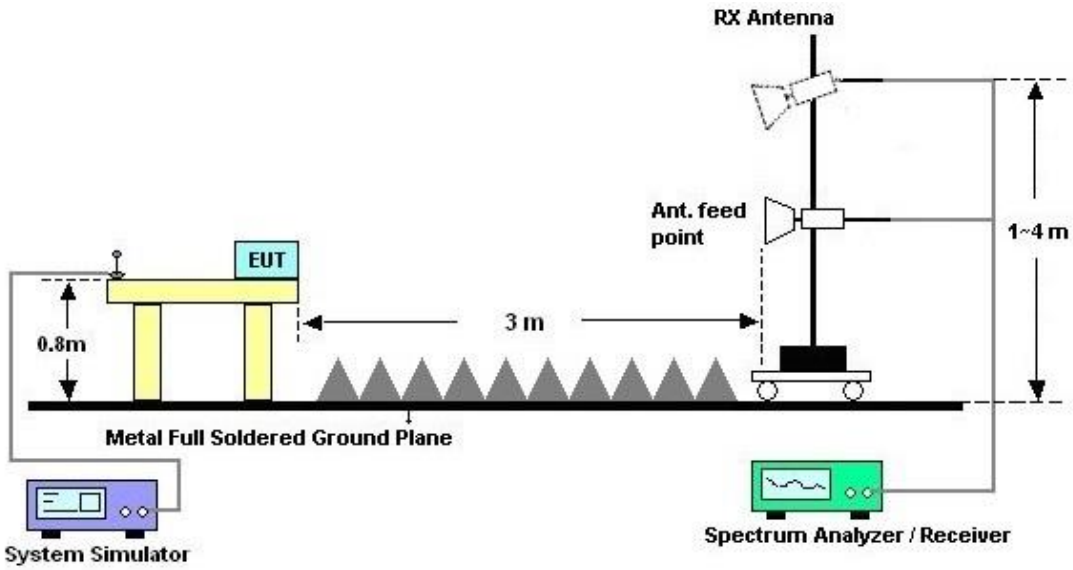
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna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

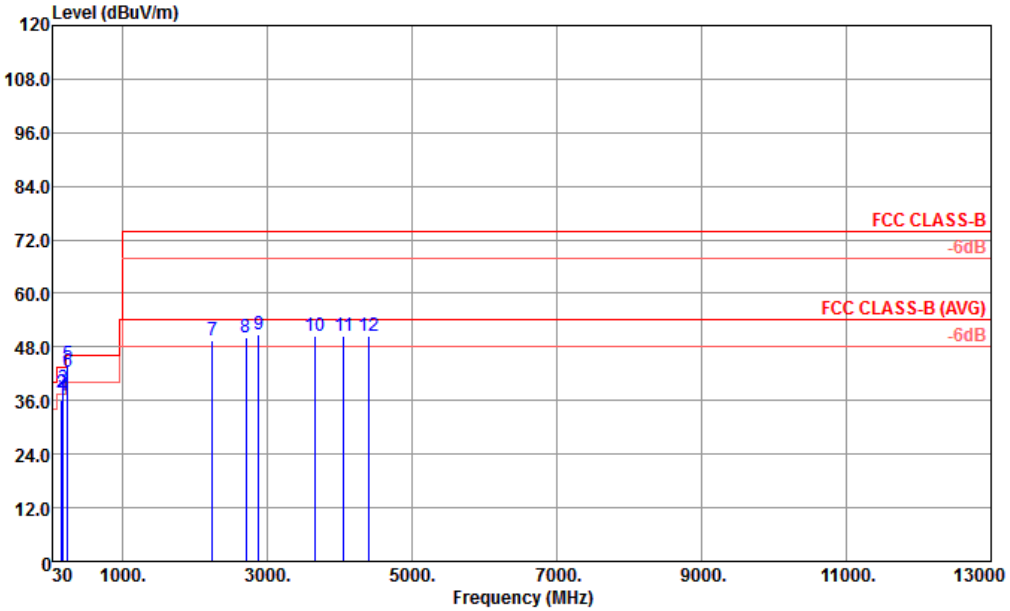



**For radiated emissions above 1GHz**



## 3.2.5. Test Result of Radiated Emission

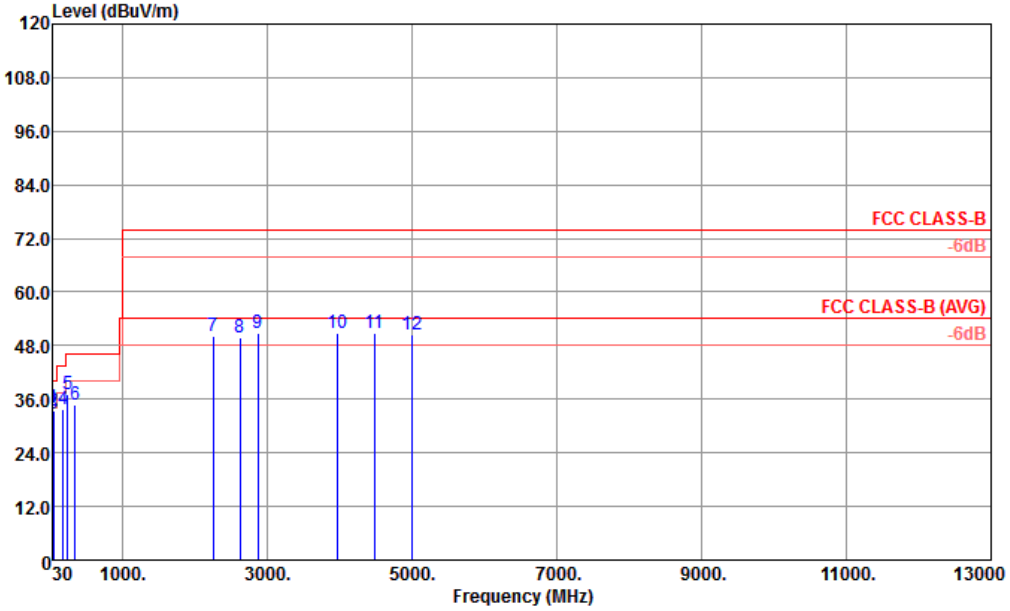
| Test Mode : | Mode 5 | Temperature : | 22~23°C |
|---|---|---|---|
| Test Engineer : | Nick Su | Relative Humidity : | 40~41% |
| Test Distance : | 3m | Polarization : | Horizontal |
| Function Type : | LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 2 + GPS Rx | | |




Condition : FCC CLASS-B 3m LF_ANT_37879 HORIZONTAL
Project : (FC)511301-03
Mode : 5

| | | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phas |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | | |
| 1 | | 155.13 | 36.22 | -7.28 | 43.50 | 54.70 | 11.51 | 2.57 | 32.56 | --- | --- | Peak | HORIZONT |
| 2 | ! | 165.80 | 37.77 | -5.73 | 43.50 | 57.17 | 11.10 | 2.03 | 32.53 | --- | --- | Peak | HORIZONT |
| 3 | ! | 174.53 | 38.86 | -4.64 | 43.50 | 58.55 | 10.77 | 2.03 | 32.49 | --- | --- | Peak | HORIZONT |
| 4 | | 181.32 | 37.19 | -6.31 | 43.50 | 56.89 | 10.51 | 2.25 | 32.46 | --- | --- | Peak | HORIZONT |
| 5 | ! | 237.58 | 44.11 | -1.89 | 46.00 | 62.59 | 11.53 | 2.47 | 32.48 | 100 | 10 | QP | HORIZONT |
| 6 | ! | 246.31 | 42.53 | -3.47 | 46.00 | 60.60 | 11.92 | 2.47 | 32.46 | --- | --- | Peak | HORIZONT |
| 7 | | 2246.00 | 49.41 | -24.59 | 74.00 | 43.89 | 31.14 | 6.94 | 32.56 | --- | --- | Peak | HORIZONT |
| 8 | | 2702.00 | 50.01 | -23.99 | 74.00 | 41.52 | 32.05 | 7.45 | 31.01 | --- | --- | Peak | HORIZONT |
| 9 | | 2884.00 | 50.71 | -23.29 | 74.00 | 41.08 | 32.57 | 7.69 | 30.63 | --- | --- | Peak | HORIZONT |
| 10 | | 3650.00 | 50.33 | -23.67 | 74.00 | 38.22 | 33.87 | 8.79 | 30.55 | --- | --- | Peak | HORIZONT |
| 11 | | 4056.00 | 50.39 | -23.61 | 74.00 | 37.83 | 34.63 | 9.29 | 31.36 | --- | --- | Peak | HORIZONT |
| 12 | | 4396.00 | 50.40 | -23.60 | 74.00 | 38.45 | 34.73 | 9.60 | 32.38 | --- | --- | Peak | HORIZONT |

| Test Mode : | Mode 5 | Temperature : | 22~23°C |
|---|---|---|---|
| Test Engineer : | Nick Su | Relative Humidity : | 40~41% |
| Test Distance : | 3m | Polarization : | Vertical |
| Function Type : | LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 2 + GPS Rx | | |

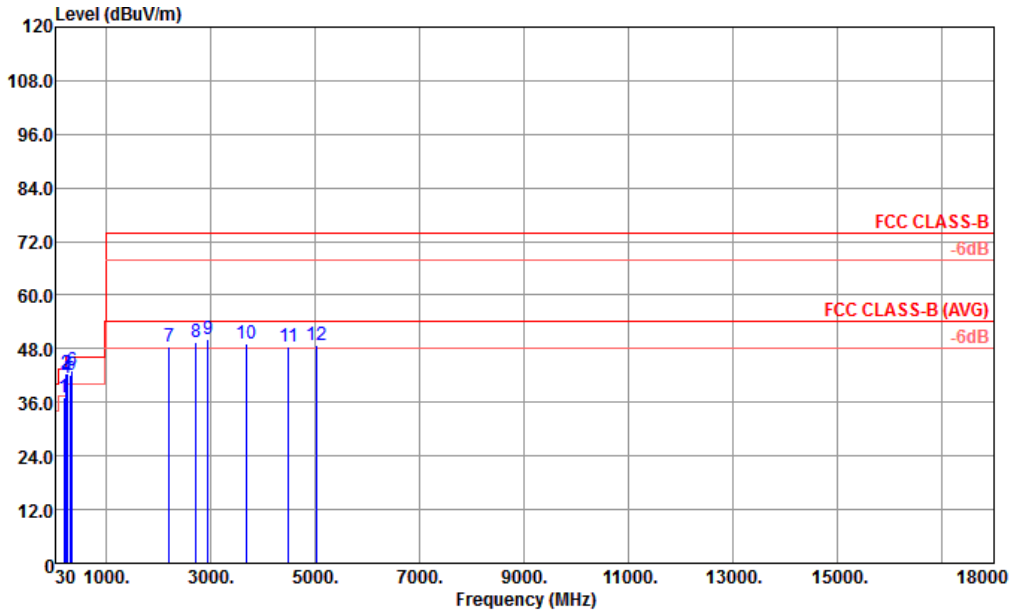



Condition : FCC CLASS-B 3m LF_ANT_37879 VERTICAL
Project : (FC)511301-03
Mode : 5

| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phas |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | | |
| 1 ! | 30.00 | 34.14 | -5.86 | 40.00 | 46.62 | 19.20 | 0.98 | 32.66 | 100 | 98 | Peak | VERTICAL |
| 2 | 40.67 | 33.31 | -6.69 | 40.00 | 50.61 | 13.79 | 1.52 | 32.61 | --- | --- | Peak | VERTICAL |
| 3 | 48.43 | 32.69 | -7.31 | 40.00 | 54.08 | 9.72 | 1.52 | 32.63 | --- | --- | Peak | VERTICAL |
| 4 | 174.53 | 33.88 | -9.62 | 43.50 | 53.57 | 10.77 | 2.03 | 32.49 | --- | --- | Peak | VERTICAL |
| 5 | 236.61 | 36.97 | -9.03 | 46.00 | 55.50 | 11.48 | 2.47 | 32.48 | --- | --- | Peak | VERTICAL |
| 6 | 345.25 | 34.67 | -11.33 | 46.00 | 49.38 | 14.81 | 2.84 | 32.36 | --- | --- | Peak | VERTICAL |
| 7 | 2250.00 | 50.19 | -23.81 | 74.00 | 44.62 | 31.15 | 6.96 | 32.54 | --- | --- | Peak | VERTICAL |
| 8 | 2618.00 | 49.91 | -24.09 | 74.00 | 42.27 | 31.75 | 7.34 | 31.45 | --- | --- | Peak | VERTICAL |
| 9 | 2868.00 | 50.84 | -23.16 | 74.00 | 41.25 | 32.53 | 7.66 | 30.60 | --- | --- | Peak | VERTICAL |
| 10 | 3962.00 | 50.71 | -23.29 | 74.00 | 37.97 | 34.49 | 9.14 | 30.89 | --- | --- | Peak | VERTICAL |
| 11 | 4478.00 | 50.86 | -23.14 | 74.00 | 38.92 | 34.71 | 9.61 | 32.38 | --- | --- | Peak | VERTICAL |
| 12 | 4990.00 | 50.54 | -23.46 | 74.00 | 39.98 | 34.99 | 9.95 | 34.38 | --- | --- | Peak | VERTICAL |

## 3.2.6. Test Result of Radiated Emission for Spot Check

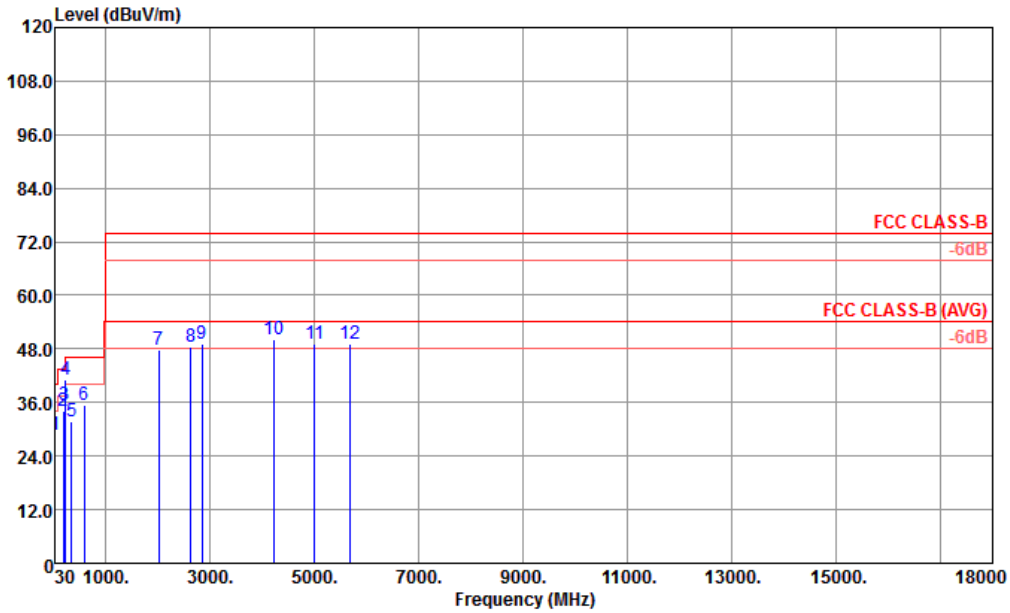
| Test Mode : | Mode 1 | Temperature : | 22~23°C |
|---|---|---|---|
| Test Engineer : | Jason Peng | Relative Humidity : | 42~43% |
| Test Distance : | 3m | Polarization : | Horizontal |
| Function Type : | LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 2 + GPS Rx | | |




Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF_ANT_37879 HORIZONTAL
Project : (FC) 511301-30
Mode : 1

| | | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phas |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | | |
| 1 | | 196.05 | 37.24 | -6.26 | 43.50 | 55.41 | 9.95 | 2.28 | 30.40 | --- | --- | Peak | HORIZONT |
| 2 | ! | 240.87 | 42.42 | -3.58 | 46.00 | 58.73 | 11.66 | 2.51 | 30.48 | --- | --- | Peak | HORIZONT |
| 3 | ! | 249.24 | 42.58 | -3.42 | 46.00 | 58.43 | 12.06 | 2.59 | 30.50 | --- | --- | Peak | HORIZONT |
| 4 | ! | 254.10 | 41.52 | -4.48 | 46.00 | 57.20 | 12.17 | 2.65 | 30.50 | 167 | 130 | QP | HORIZONT |
| 5 | ! | 329.40 | 41.98 | -4.02 | 46.00 | 55.36 | 14.19 | 2.99 | 30.56 | --- | --- | Peak | HORIZONT |
| 6 | ! | 344.80 | 43.13 | -2.87 | 46.00 | 55.90 | 14.81 | 3.01 | 30.59 | 101 | 134 | QP | HORIZONT |
| 7 | | 2210.00 | 48.36 | -25.64 | 74.00 | 42.91 | 31.10 | 5.96 | 31.61 | --- | --- | Peak | HORIZONT |
| 8 | | 2726.00 | 49.51 | -24.49 | 74.00 | 40.56 | 32.16 | 6.62 | 29.83 | --- | --- | Peak | HORIZONT |
| 9 | | 2952.00 | 49.97 | -24.03 | 74.00 | 40.17 | 32.70 | 6.86 | 29.76 | --- | --- | Peak | HORIZONT |
| 10 | | 3675.00 | 49.28 | -24.72 | 74.00 | 36.98 | 33.92 | 7.91 | 29.53 | --- | --- | Peak | HORIZONT |
| 11 | | 4497.00 | 48.41 | -25.59 | 74.00 | 36.52 | 34.70 | 8.52 | 31.33 | --- | --- | Peak | HORIZONT |
| 12 | | 5037.00 | 48.78 | -25.22 | 74.00 | 38.38 | 35.01 | 8.88 | 33.49 | --- | --- | Peak | HORIZONT |

| Test Mode : | Mode 1 | Temperature : | 22~23°C |
|---|---|---|---|
| Test Engineer : | Jason Peng | Relative Humidity : | 42~43% |
| Test Distance : | 3m | Polarization : | Vertical |
| Function Type : | LTE Band 4 Idle + Bluetooth Idle + WLAN Idle(2.4G) + USB Cable (Data Link with Notebook) + Battery + Earphone 2 + GPS Rx | | |




Site : 03CH02-KS
Condition : FCC CLASS-B 3m LF_ANT_37879 VERTICAL
Project : (FC) 511301-30
Mode : 1

| | | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark | Pol/Phas |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | | |
| 1 | | 39.72 | 28.63 | -11.37 | 40.00 | 44.15 | 14.30 | 1.08 | 30.90 | --- | --- | Peak | VERTICAL |
| 2 | | 196.32 | 33.99 | -9.51 | 43.50 | 52.16 | 9.95 | 2.28 | 30.40 | --- | --- | Peak | VERTICAL |
| 3 | | 225.75 | 35.43 | -10.57 | 46.00 | 52.39 | 10.99 | 2.50 | 30.45 | --- | --- | Peak | VERTICAL |
| 4 | ! | 239.25 | 41.08 | -4.92 | 46.00 | 57.44 | 11.61 | 2.51 | 30.48 | 112 | 54 | Peak | VERTICAL |
| 5 | | 344.80 | 31.71 | -14.29 | 46.00 | 44.48 | 14.81 | 3.01 | 30.59 | --- | --- | Peak | VERTICAL |
| 6 | | 599.60 | 35.55 | -10.45 | 46.00 | 42.76 | 18.80 | 4.19 | 30.20 | --- | --- | Peak | VERTICAL |
| 7 | | 2028.00 | 47.93 | -26.07 | 74.00 | 44.32 | 30.82 | 5.69 | 32.90 | --- | --- | Peak | VERTICAL |
| 8 | | 2642.00 | 48.34 | -25.66 | 74.00 | 40.22 | 31.87 | 6.52 | 30.27 | --- | --- | Peak | VERTICAL |
| 9 | | 2848.00 | 49.23 | -24.77 | 74.00 | 39.53 | 32.50 | 6.77 | 29.57 | --- | --- | Peak | VERTICAL |
| 10 | | 4242.00 | 50.09 | -23.91 | 74.00 | 37.16 | 34.78 | 8.52 | 30.37 | --- | --- | Peak | VERTICAL |
| 11 | | 5010.00 | 49.16 | -24.84 | 74.00 | 38.71 | 35.00 | 8.88 | 33.43 | --- | --- | Peak | VERTICAL |
| 12 | | 5691.00 | 49.04 | -24.96 | 74.00 | 39.64 | 35.25 | 9.59 | 35.44 | --- | --- | Peak | VERTICAL |

# 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 | Apr. 15, 2015 | May 03, 2015 | Conduction (CO01-KS) |
| AC LISN | MessTec | AN3016 | 060103 | 9kHz~30MHz | Oct. 25, 2014 | Apr. 15, 2015 | Oct. 24, 2015 | Conduction (CO01-KS) |
| AC LISN (for auxiliary equipment) | MessTec | AN3016 | 060105 | 9kHz~30MHz | Oct. 25, 2014 | Apr. 15, 2015 | Oct. 24, 2015 | Conduction (CO01-KS) |
| AC Power Source | Chroma | 61602 | ABP000000811 | AC 0V~300V, 45Hz~1000Hz | Oct. 25, 2014 | Apr. 15, 2015 | Oct. 24, 2015 | Conduction (CO01-KS) |
| EMI Test Receiver | R&S | ESR7 | 101403 | 9kHz~7GHz;Max 30dBm | Sep. 29, 2014 | Apr. 15, 2015 | Sep. 28, 2015 | Radiation (03CH02-KS) |
| Spectrum Analyzer | R&S | FSV40 | 101040 | 10kHz~40GHz; Max 30dBm | Sep. 25, 2014 | Apr. 15, 2015 | Sep. 24, 2015 | Radiation (03CH02-KS) |
| Bilog Antenna | TeseQ | CBL6112D | 37879 | 30MHz-2GHz | Sep. 13, 2014 | Apr. 15, 2015 | Sep. 12, 2015 | Radiation (03CH02-KS) |
| Double Ridge Horn Antenna | ETS-Lindgren | 3117 | 75957 | 1GHz~18GHz | Sep. 13, 2014 | Apr. 15, 2015 | Sep. 12, 2015 | Radiation (03CH02-KS) |
| Amplifier | SONOMA | 310N | 187289 | 9kHz-1GHz Gain 32dB | Sep. 13, 2014 | Apr. 15, 2015 | Sep. 12, 2015 | Radiation (03CH02-KS) |
| Amplifier | Agilent | 8449B | 3008A02384 | 1-26.5GHz Gain 30dB | Oct. 28, 2014 | Apr. 15, 2015 | Oct. 27, 2015 | Radiation (03CH02-KS) |
| AC Power Source | Chroma | 61601 | F104090004 | N/A | NCR | Apr. 15, 2015 | NCR | Radiation (03CH02-KS) |
| Turn Table | MF | MF7802 | N/A | 0~360 degree | NCR | Apr. 15, 2015 | NCR | Radiation (03CH02-KS) |
| Antenna Mast | MF | MF7802 | N/A | 1 m~4 m | NCR | Apr. 15, 2015 | NCR | Radiation (03CH02-KS) |

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Test Date | Due Date | Remark |
|---|---|---|---|---|---|---|---|---|
| EMI Receiver | R&S | ESCI7 | 100768 | 9kHz~7GHz; | May 04, 2015 | Feb. 27, 2016 | May 03, 2016 | Conduction (CO01-KS) |
| AC LISN | MessTec | AN3016 | 060103 | 9kHz~30MHz | Oct. 24, 2015 | Feb. 27, 2016 | Oct. 23, 2016 | Conduction (CO01-KS) |
| AC LISN (for auxiliary equipment) | MessTec | AN3016 | 060105 | 9kHz~30MHz | Oct. 24, 2015 | Feb. 27, 2016 | Oct. 23, 2016 | Conduction (CO01-KS) |
| AC Power Source | Chroma | 61602 | ABP000000811 | AC 0V~300V, 45Hz~1000Hz | Oct. 24, 2015 | Feb. 27, 2016 | Oct. 23, 2016 | Conduction (CO01-KS) |
| EMI Test Receiver | R&S | ESR7 | 101403 | 9kHz~7GHz;Max 30dBm | Sep. 10, 2015 | Mar. 02, 2016 | Sep. 09, 2016 | Radiation (03CH02-KS) |
| Spectrum Analyzer | R&S | FSV40 | 101040 | 10kHz~40GHz; Max 30dBm | Sep. 10, 2015 | Mar. 02, 2016 | Sep. 09, 2016 | Radiation (03CH02-KS) |
| Bilog Antenna | TeseQ | CBL6112D | 37879 | 30MHz-2GHz | Sep. 12, 2015 | Mar. 02, 2016 | Sep. 11, 2016 | Radiation (03CH02-KS) |
| Double Ridge Horn Antenna | ETS-Lindgren | 3117 | 75957 | 1GHz~18GHz | Nov. 07, 2015 | Mar. 02, 2016 | Nov. 06, 2016 | Radiation (03CH02-KS) |
| Amplifier | com-power | PA-103A | 161069 | 1kHz ~1000MHz / 32 dB | May 04, 2015 | Mar. 02, 2016 | May 03, 2016 | Radiation (03CH02-KS) |
| Amplifier | Agilent | 8449B | 3008A02384 | 1-26.5GHz Gain 30dB | Oct. 24, 2015 | Mar. 02, 2016 | Oct. 23, 2016 | Radiation (03CH02-KS) |
| AC Power Source | Chroma | 61601 | 616010002473 | N/A | NCR | Mar. 02, 2016 | NCR | Radiation (03CH02-KS) |
| Turn Table | MF | MF7802 | N/A | 0~360 degree | NCR | Mar. 02, 2016 | NCR | Radiation (03CH02-KS) |
| Antenna Mast | MF | MF7802 | N/A | 1 m~4 m | NCR | Mar. 02, 2016 | NCR | Radiation (03CH02-KS) |

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 = 2Uc(y))** | **2.3 dB** |

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

| | |
|---|---|
| **Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))** | **5.1 dB** |