# EMC TEST REPORT


**Report No.: 15050011-FCC-E1**

**Supersede Report No.: N/A**

| | |
|---|---|
| **Applicant** | B mobile HK Limited |
| **Product Name** | Mobile phone |
| **Model No.** | AX800 |
| **Serial No.** | N/A |
| **Test Standard** | FCC Part 15 Subpart B Class B:2014, ANSI C63.4: 2014 |
| **Test Date** | Apr. 02 to Apr. 03, 2015 |
| **Issue Date** | May 29, 2015 |
| **Test Result** | ☑ Pass ☐ Fail |
| **Equipment complied with the specification** | ☑ |
| **Equipment did not comply with the specification** | ☐ |

| | | |
|---|---|---|
| Kahn.Yang | Chris You | |
| Kahn Yang<br>Test Engineer | Chris You<br>Checked By | |

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**Test result presented in this test report is applicable to the tested sample only**

**Issued by:**

**SIEMIC (SHENZHEN-CHINA) LABORATORIES**

Zone A, Floor 1, Building 2 Wan Ye Long Technology Park

South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong China 518108

Phone: +86 0755 2601 4629801 Email: China@siemic.com.cn

# Laboratories Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.


In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

## Accreditations for Conformity Assessment

| Country/Region | Scope |
|---|---|
| USA | EMC, RF/Wireless, SAR, Telecom |
| Canada | EMC, RF/Wireless, SAR, Telecom |
| Taiwan | EMC, RF, Telecom, SAR, Safety |
| Hong Kong | RF/Wireless, SAR, Telecom |
| Australia | EMC, RF, Telecom, SAR, Safety |
| Korea | EMI, EMS, RF, SAR, Telecom, Safety |
| Japan | EMI, RF/Wireless, SAR, Telecom |
| Singapore | EMC, RF, SAR, Telecom |
| Europe | EMC, RF, SAR, Telecom, Safety |

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# CONTENTS

# 1. Report Revision History

| Report No. | Report Version | Description | Issue Date |
|---|---|---|---|
| 15050011-FCC-E1 | NONE | Original | May 29, 2015 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# 2. Customer information

| | |
|---|---|
| Applicant Name | B mobile HK Limited |
| Applicant Add | Flat 18; 14/F Block 1; Golden Industrial Building;16-26 Kwai Tak Street; Kwai Chung;New Territories; Hong Kong |
| Manufacturer | B mobile HK Limited |
| Manufacturer Add | Flat 18; 14/F Block 1; Golden Industrial Building;16-26 Kwai Tak Street; Kwai Chung;New Territories; Hong Kong |

# 3. Test site information

| | |
|---|---|
| Lab performing tests | SIEMIC (Shenzhen-China) LABORATORIES |
| Lab Address | Zone A, Floor 1, Building 2 Wan Ye Long Technology Park<br>South Side of Zhoushi Road, Bao' an District, Shenzhen, Guangdong<br>China 518108 |
| FCC Test Site No. | 718246 |
| IC Test Site No. | 4842E-1 |
| Test Software | Radiated Emission Program-To Shenzhen v2.0 |

# 4. Equipment under Test (EUT) Information

| | |
|---|---|
| Description of EUT: | Mobile phone |
| Main Model: | AX800 |
| Serial Model: | N/A |
| Date EUT received: | Apr. 01, 2015 |
| Test Date(s): | Apr. 02 to Apr. 03, 2015 |
| Equipment Category： | JBP |
| Antenna Gain: | GSM850: -2.2 dBi<br>PCS1900: -1.8 dBi<br>UMTS-FDD Band 5/ Band 2/ Band 4: -2 dBi<br>Bluetooth: -1 dBi<br>WIFI: -3 dBi |
| Type of Modulation: | GSM / GPRS: GMSK<br>EGPRS: GMSK, 8PSK<br>UMTS-FDD: QPSK<br>802.11b/g/n: DSSS, OFDM<br>Bluetooth: GFSK, π /4DQPSK, 8DPSK |
| RF Operating Frequency (ies): | GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz<br>PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz<br>UMTS-FDD Band 5 TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz<br>UMTS-FDD Band 2 TX:1852.4 ~ 1907.6 MHz;<br>RX: 1932.4 ~ 1987.6 MHz<br>UMTS-FDD Band 4 TX :1712.4 ~ 1752.6 MHz;<br>RX : 2112.4 ~ 2152.6 MHz<br>WIFI:802.11b/g/n(20M): 2412-2472 MHz<br>WIFI: 802.11n(40M): 2422-2462 MHz<br>Bluetooth: 2402-2480 MHz |

| | |
|---|---|
| Number of Channels: | GSM 850: 124CH<br>PCS1900: 299CH<br>UMTS-FDD Band V : 102CH<br>UMTS-FDD Band II : 277CH<br>UMTS-FDD Band IV: 202CH<br>WIFI :802.11b/g/n(20M): 13CH<br>WIFI :802.11n(40M): 9CH<br>Bluetooth: 79CH |
| Port: | Power Port, Earphone Port, USB Port |
| Input Power: | Battery:<br>Model: 5005<br>Spec: DC3.7V 1900mAh.7.03Wh<br>Limited charger voltage: 4.2V<br>Adapter:<br>Input: AC 100-240V; 50/60Hz 0.15A<br>Output: DC 5.0V; 700mA |
| Trade Name : | Bmobile |
| GPRS/EGPRS Multi-slot class | 8/10/12 |
| FCC ID: | ZSW-30-010 |

## 5. Test Summary

The product was tested in accordance with the following specifications.

All testing has been performed according to below product classification:

| FCC Rules | Description of Test | Result |
|---|---|---|
| §15.107; ANSI C63.4: 2014 | AC Power Line Conducted Emissions | Compliance |
| §15.109; ANSI C63.4: 2014 | Radiated Emissions | Compliance |

**Measurement Uncertainty**

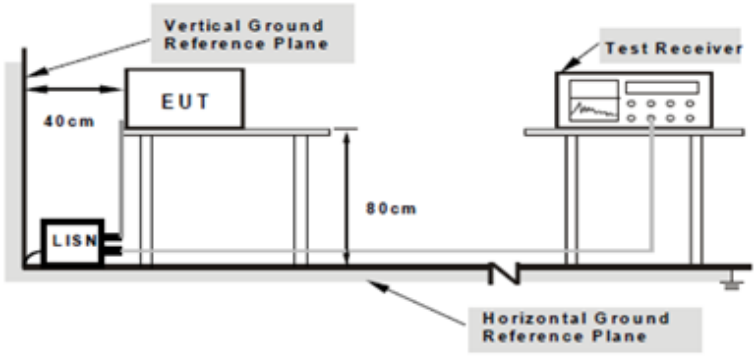
| Emissions | | |
|---|---|---|
| **Test Item** | **Description** | **Uncertainty** |
| Band Edge and Radiated Spurious Emissions | Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m) | +5.6dB/-4.5dB |
| - | - | - |

# 6. Measurements, Examination And Derived Results

## 6.1 AC Power Line Conducted Emissions

| | |
|---|---|
| Temperature: | 24°C |
| Relative Humidity: | 58% |
| Atmospheric Pressure: | 1009mbar |
| Test date: | Apr. 02, 2015 |
| Tested By: | Kahn Yang |

**Requirement(s):**

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.107</td><td>a)</td><td>For Low-power radio-frequency devices 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, as measured using a 50 [mu] H/50 ohms line impedance stabilization network (LISN). The lower limit applies at the boundary between the frequencies ranges.
<table>
<tr><th rowspan="2">Frequency ranges (MHz)</th><th colspan="2">Limit (dBμV)</th></tr>
<tr><th>QP</th><th>Average</th></tr>
<tr><td>0.15 ~ 0.5</td><td>66 – 56</td><td>56 – 46</td></tr>
<tr><td>0.5 ~ 5</td><td>56</td><td>46</td></tr>
<tr><td>5 ~ 30</td><td>60</td><td>50</td></tr>
</table>
</td><td>☑</td></tr>
<tr><td>Test Setup</td><td colspan="3"> 

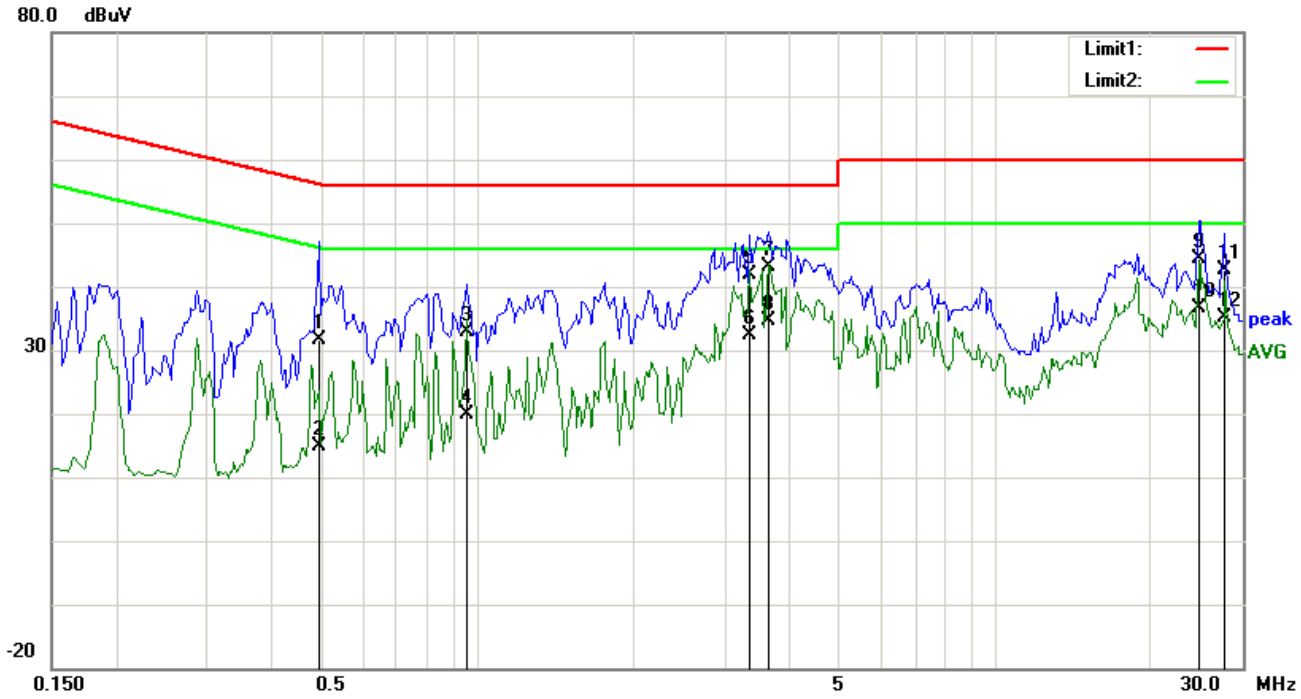
Note: 1.Support units were connected to second LISN.<br>2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.</td></tr>
<tr><td>Procedure</td><td colspan="3">1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table.<br>2. The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains.</td></tr>
</table>

| | |
|---|---|
| | 3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.<br>4. All other supporting equipment were powered separately from another main supply.<br>5. The EUT was switched on and allowed to warm up to its normal operating condition.<br>6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver.<br>7. High peaks, relative to the limit line, The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 kHz.<br>8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power). |
| Remark | |
| Result | ☑ Pass ☐ Fail |

**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☑ Yes (See below) ☐ N/A

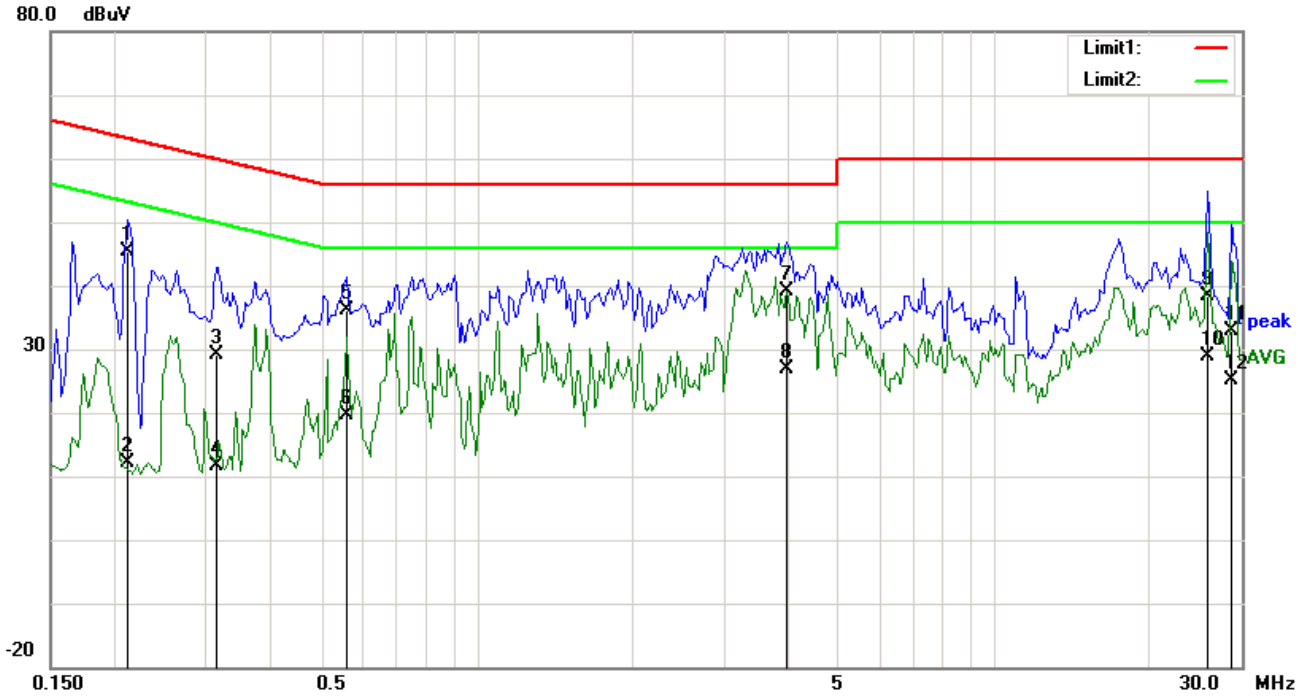
| Test Mode: | USB Mode |
|---|---|




*Test Data*

Phase Line Plot at 120Vac, 60Hz

| No. | P/L | Frequency (MHz) | Reading (dBµV/m) | Detector | Corrected (dB/m) | Result (dBµV/m) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 | L1 | 0.4938 | 20.39 | QP | 11.14 | 31.53 | 56.10 | -24.57 |
| 2 | L1 | 0.4938 | 3.86 | AVG | 11.14 | 15.00 | 46.10 | -31.10 |
| 3 | L1 | 0.9508 | 21.84 | QP | 10.92 | 32.76 | 56.00 | -23.24 |
| 4 | L1 | 0.9508 | 9.07 | AVG | 10.92 | 19.99 | 46.00 | -26.01 |
| 5 | L1 | 3.3633 | 30.92 | QP | 10.90 | 41.82 | 56.00 | -14.18 |
| 6 | L1 | 3.3633 | 21.44 | AVG | 10.90 | 32.34 | 46.00 | -13.66 |
| 7 | L1 | 3.6484 | 32.28 | QP | 10.90 | 43.18 | 56.00 | -12.82 |
| 8 | L1 | 3.6484 | 23.82 | AVG | 10.90 | 34.72 | 46.00 | -11.28 |
| 9 | L1 | 24.7734 | 33.54 | QP | 10.90 | 44.44 | 60.00 | -15.56 |
| 10 | L1 | 24.7734 | 25.66 | AVG | 10.90 | 36.56 | 50.00 | -13.44 |
| 11 | L1 | 27.6992 | 31.77 | QP | 10.90 | 42.67 | 60.00 | -17.33 |
| 12 | L1 | 27.6992 | 24.31 | AVG | 10.90 | 35.21 | 50.00 | -14.79 |




## *Test Data*

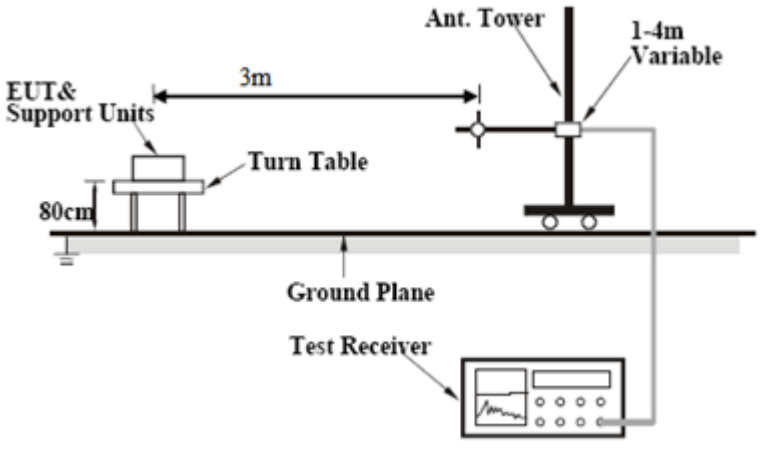
Phase Neutral Plot at 120Vac, 60Hz

| No. | P/L | Frequency (MHz) | Reading (dBµV/m) | Detector | Corrected (dB/m) | Result (dBµV/m) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| 1 | N | 0.2125 | 45.38 | QP | 0.00 | 45.38 | 63.11 | -17.73 |
| 2 | N | 0.2125 | 12.02 | AVG | 0.00 | 12.02 | 53.11 | -41.09 |
| 3 | N | 0.3141 | 29.24 | QP | 0.00 | 29.24 | 59.86 | -30.62 |
| 4 | N | 0.3141 | 11.51 | AVG | 0.00 | 11.51 | 49.86 | -38.35 |
| 5 | N | 0.5602 | 36.24 | QP | 0.00 | 36.24 | 56.00 | -19.76 |
| 6 | N | 0.5602 | 19.63 | AVG | 0.00 | 19.63 | 46.00 | -26.37 |
| 7 | N | 3.9648 | 39.12 | QP | 0.00 | 39.12 | 56.00 | -16.88 |
| 8 | N | 3.9648 | 26.84 | AVG | 0.00 | 26.84 | 46.00 | -19.16 |
| 9 | N | 25.7891 | 38.46 | QP | 0.00 | 38.46 | 60.00 | -21.54 |
| 10 | N | 25.7891 | 28.76 | AVG | 0.00 | 28.76 | 50.00 | -21.24 |
| 11 | N | 28.7031 | 32.78 | QP | 0.00 | 32.78 | 60.00 | -27.22 |
| 12 | N | 28.7031 | 25.17 | AVG | 0.00 | 25.17 | 50.00 | -24.83 |

## 6.2 Radiated Emissions

| | |
|---|---|
| Temperature | 23°C |
| Relative Humidity | 58% |
| Atmospheric Pressure | 1009mbar |
| Test date : | Apr. 03, 2015 |
| Tested By : | Kahn Yang |

**Requirement(s):**

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>47CFR§15.<br>107(d)</td><td>a)</td><td>Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges
<table>
<tr><th>Frequency range (MHz)</th><th>Field Strength (μV/m)</th></tr>
<tr><td>30 – 88</td><td>100</td></tr>
<tr><td>88 – 216</td><td>150</td></tr>
<tr><td>216 960</td><td>200</td></tr>
<tr><td>Above 960</td><td>500</td></tr>
</table></td><td>☑</td></tr>
<tr><td>Test Setup</td><td colspan="3"> 
</td></tr>
<tr><td>Procedure</td><td colspan="3">1. The EUT was switched on and allowed to warm up to its normal operating condition.<br>2. The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:<br>a. Vertical or horizontal polarization (whichever gave the higher emission level</td></tr>
</table>

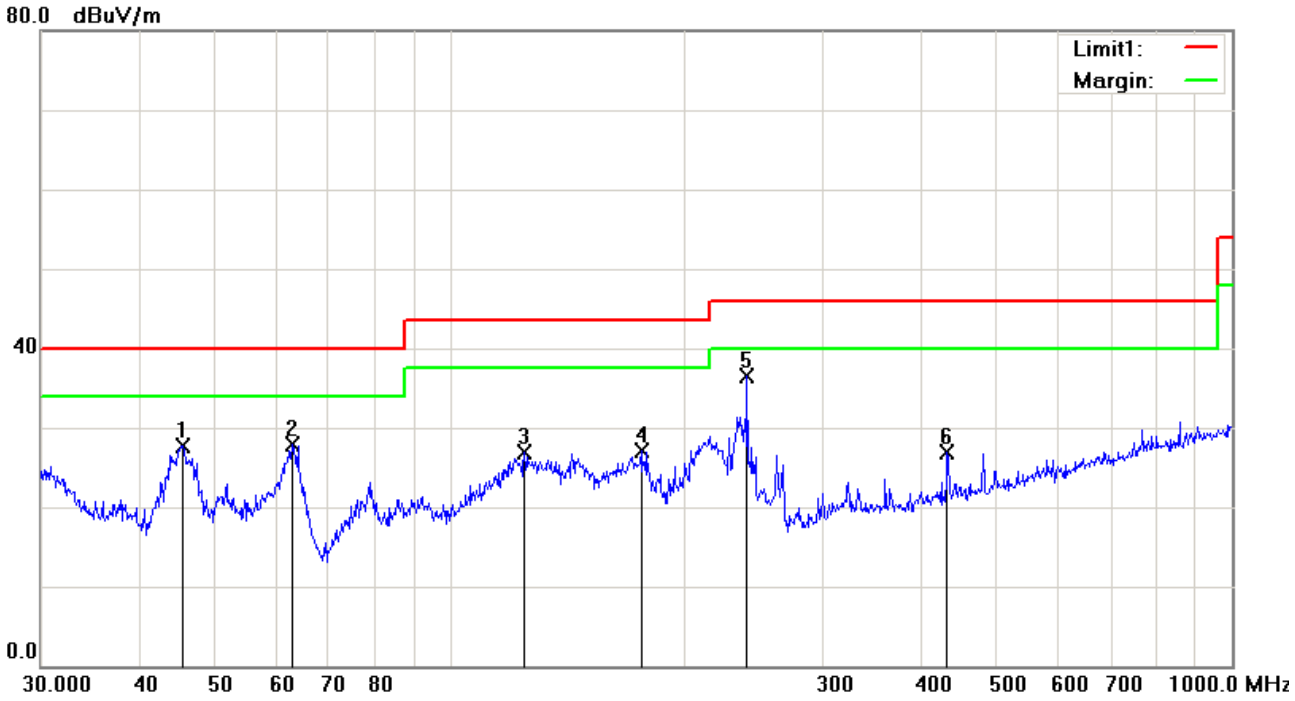
| | |
|---|---|
| | over a full rotation of the EUT) was chosen.<br>b. The EUT was then rotated to the direction that gave the maximum emission.<br>c. Finally, the antenna height was adjusted to the height that gave the maximum emission.<br>3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasiy Peak detection at frequency below 1GHz.<br>4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak measurement at frequency above 1GHz.<br>The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth with Peak detection for Average Measurement as below at frequency above 1GHz.<br>■ 1 kHz (Duty cycle < 98%) □ 10 Hz (Duty cycle > 98%)<br>5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured. |
| Remark | |
| Result | ☑ Pass ☐ Fail |

**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☑ Yes (See below) ☐ N/A

| Test Mode: | USB Mode |
|---|---|

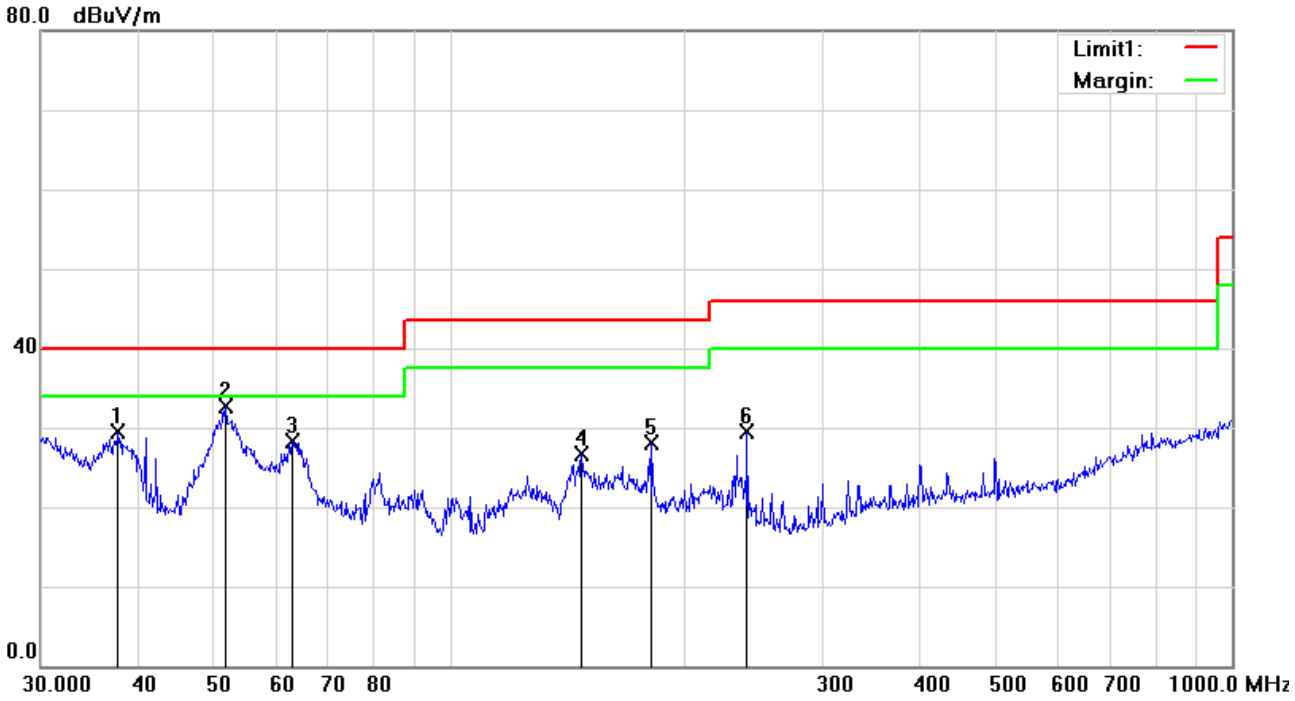
## Below 1GHz




*Test Data*

### Horizontal Polarity Plot @3m

| No. | P/L | Frequency (MHz) | Reading (dBμV/m) | Detector | Corrected (dB/m) | Result (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Degree (°) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | H | 45.5348 | 29.47 | peak | -1.71 | 27.76 | 40.00 | -12.24 | 200 | 147 |
| 2 | H | 62.8708 | 41.98 | peak | -14.14 | 27.84 | 40.00 | -12.16 | 200 | 174 |
| 3 | H | 124.5690 | 34.43 | peak | -7.59 | 26.84 | 43.50 | -16.66 | 200 | 102 |
| 4 | H | 175.6516 | 36.68 | peak | -9.54 | 27.14 | 43.50 | -16.36 | 100 | 145 |
| 5 | H | 239.9873 | 45.55 | peak | -9.10 | 36.45 | 46.00 | -9.55 | 100 | 163 |
| 6 | H | 432.5457 | 30.33 | peak | -3.50 | 26.83 | 46.00 | -19.17 | 100 | 201 |




*Test Data*

Vertical Polarity Plot @3m

| No. | P/L | Frequency (MHz) | Reading (dBμV/m) | Detector | Corrected (dB/m) | Result (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Degree (°) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | V | 37.6798 | 35.42 | peak | -5.87 | 29.55 | 40.00 | -10.45 | 100 | 173 |
| 2 | V | 51.6616 | 46.86 | peak | -14.09 | 32.77 | 40.00 | -7.23 | 100 | 222 |
| 3 | V | 62.8708 | 42.23 | peak | -13.99 | 28.24 | 40.00 | -11.76 | 200 | 254 |
| 4 | V | 147.4036 | 34.10 | peak | -7.42 | 26.68 | 43.50 | -16.82 | 200 | 182 |
| 5 | V | 181.2834 | 36.95 | peak | -8.84 | 28.11 | 43.50 | -15.39 | 200 | 190 |
| 6 | V | 239.9873 | 36.85 | peak | -7.30 | 29.55 | 46.00 | -16.45 | 100 | 121 |

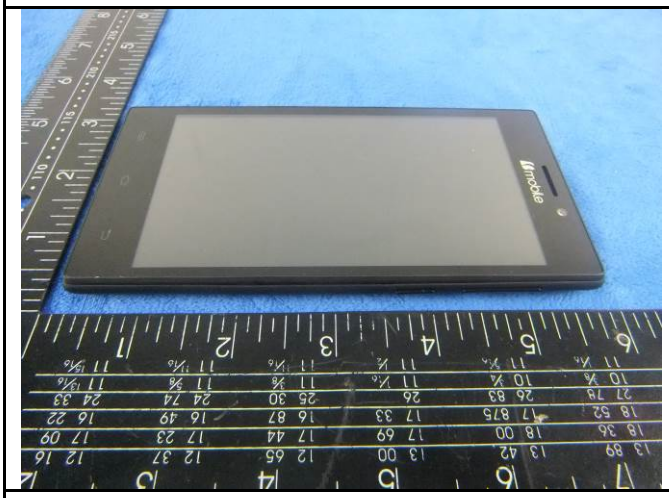
Note: The above 1GHz frequency was pre-scanned and the result which was 20dB lower than the limit line per 15.109 was not recorded.

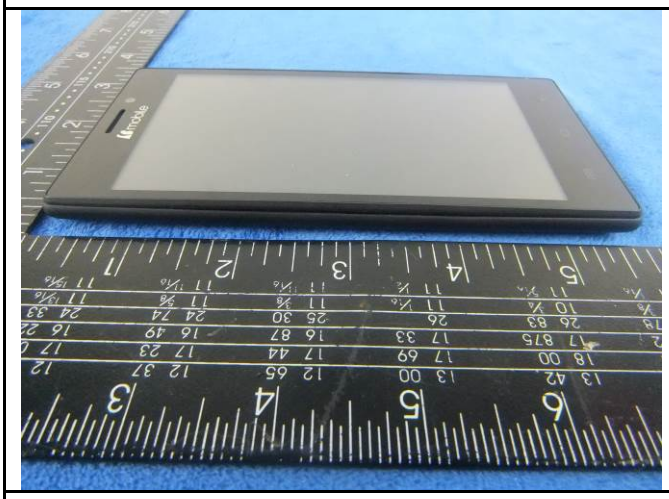
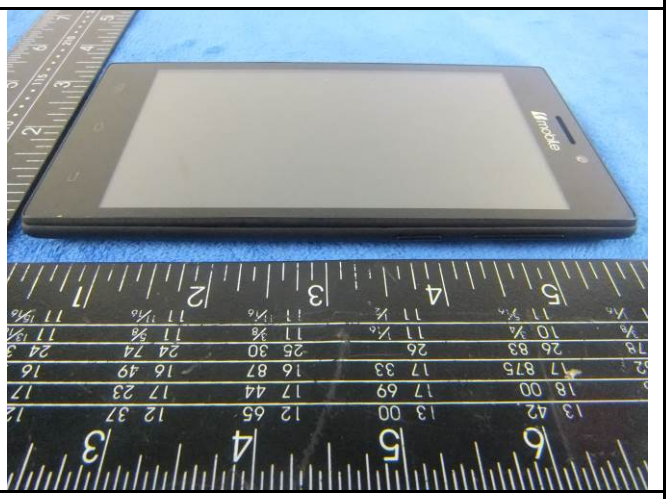
# Annex A. TEST INSTRUMENT

| Instrument | Model | Serial # | Cal Date | Cal Due | In use |
|---|---|---|---|---|---|
| **AC Line Conducted Emissions** | | | | | |
| EMI test receiver | ESCS30 | 8471241027 | 09/18/2014 | 09/17/2015 | ☑ |
| Line Impedance Stabilization Network | LI-125A | 191106 | 09/26/2014 | 09/25/2015 | ☑ |
| Line Impedance Stabilization Network | LI-125A | 191107 | 09/26/2014 | 09/25/2015 | ☑ |
| LISN | ISN T800 | 34373 | 09/26/2014 | 09/25/2015 | ☑ |
| Transient Limiter | LIT-153 | 531118 | 09/02/2014 | 09/01/2015 | ☑ |
| **Radiated Emissions** | | | | | |
| EMI test receiver | ESL6 | 100262 | 09/18/2014 | 09/17/2015 | ☑ |
| OPT 010 AMPLIFIER (0.1-1300MHz) | 8447E | 2727A02430 | 09/02/2014 | 09/01/2015 | ☑ |
| Microwave Preamplifier (1 ~ 26.5GHz) | 8449B | 3008A02402 | 10/04/2015 | 10/04/2016 | ☑ |
| Bilog Antenna (30MHz~6GHz) | JB6 | A110712 | 09/22/2014 | 09/21/2015 | ☑ |
| Double Ridge Horn Antenna | AH-118 | 71259 | 09/25/2014 | 09/24/2015 | ☑ |

# Annex B. EUT And Test Setup Photographs

## Annex B.i. Photograph: EUT External Photo

<table>
<tr><td>  </td><td>  </td></tr>
<tr><td>Whole Package - Top View</td><td>Adapter - Front View</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>EUT - Front View</td><td>EUT - Rear View</td></tr>
</table>

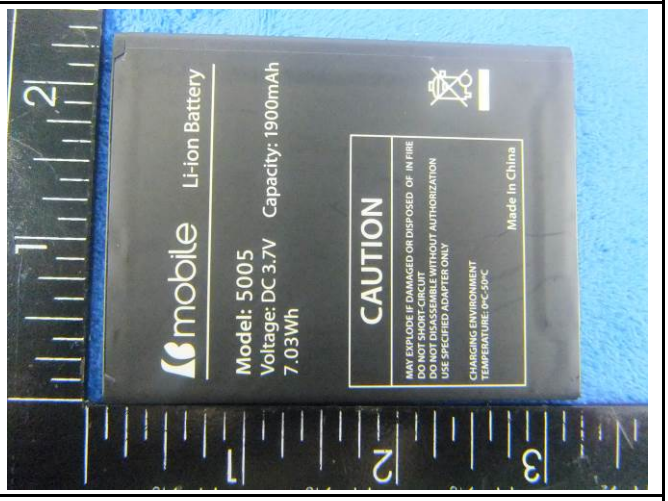
| | |
| --- | --- |
|  |  |
| EUT - Top View | EUT - Bottom View |
|  |  |
| EUT - Left View | EUT - Right View |

## Annex B.ii. Photograph: EUT Internal Photo

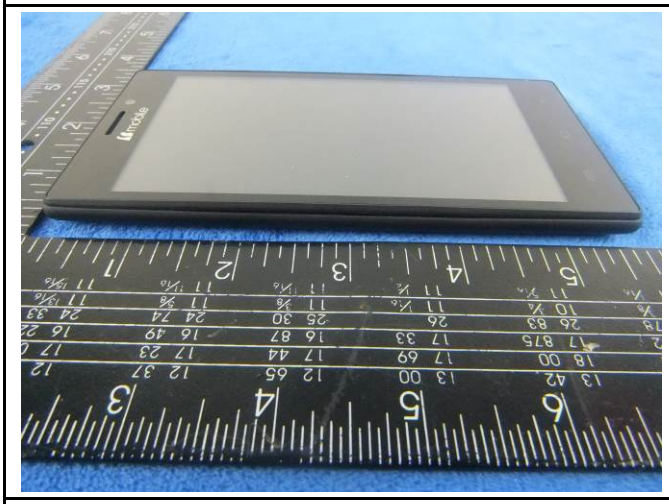

Cover Off - Top View 1


Cover Off - Top View 2

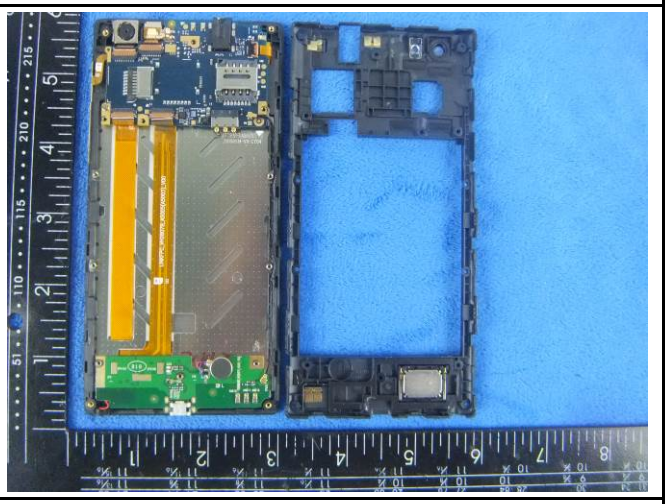

Battery - Top View



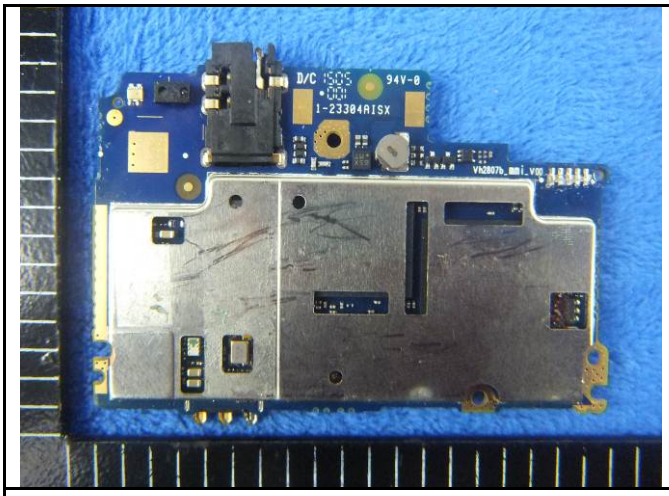

Battery - Bottom View



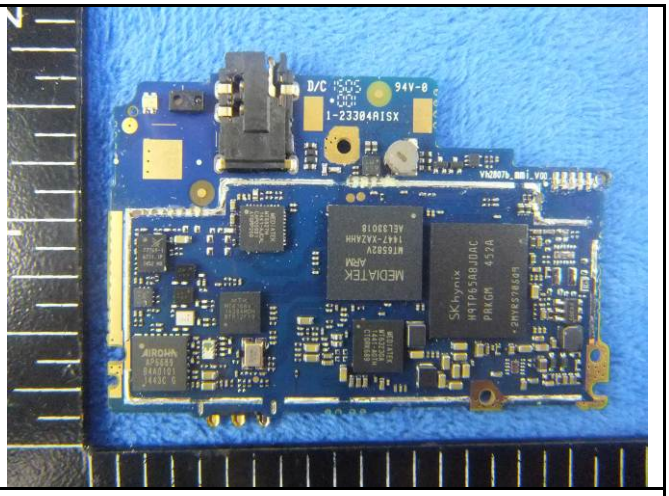
LCD - Front View



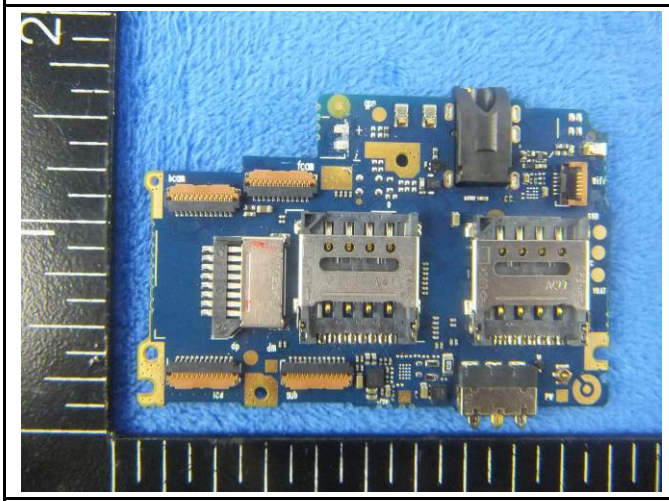
LCD - Rear View



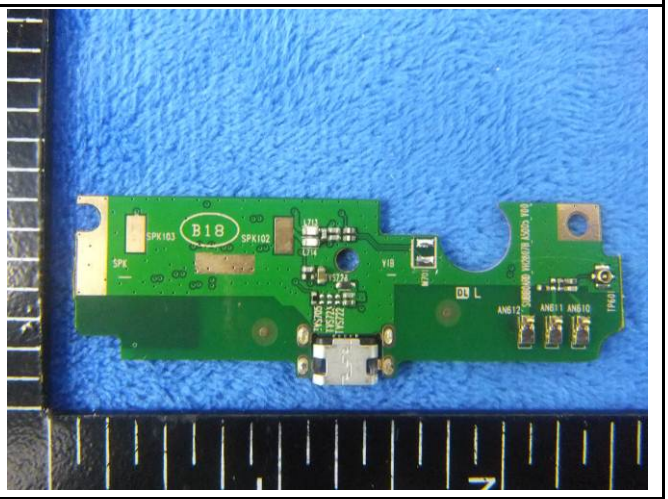
Mainborad With Shielding - Front View



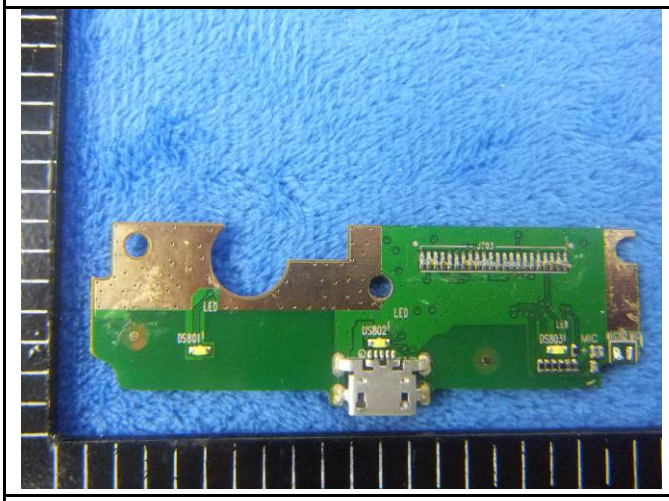
Mainborad Without Shielding - Front View



Mainborad - Rear View



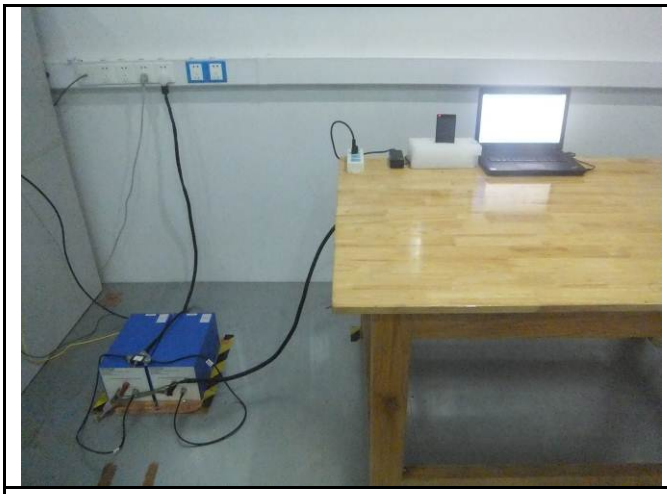
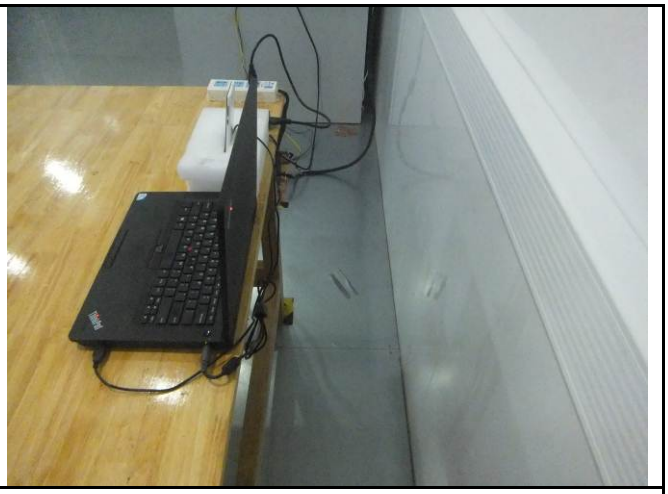
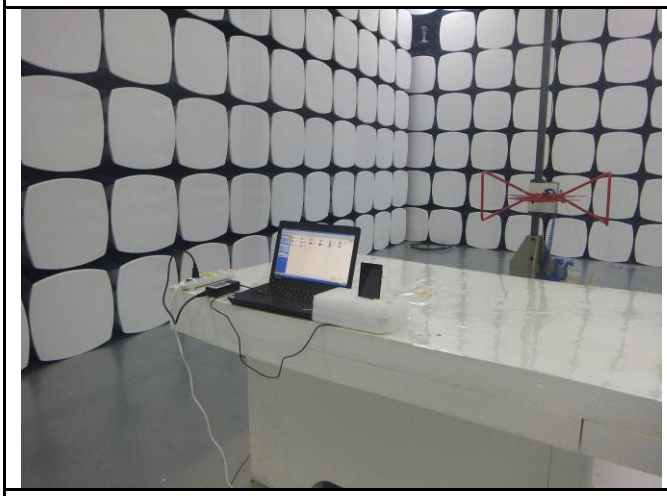
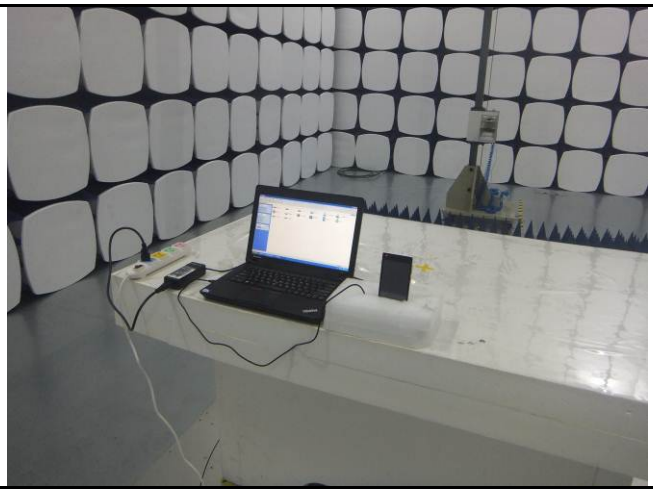
Connect borad - Front View



Connect borad - Rear View

| | |
| --- | --- |
|  |  |
| GSM/PCS/UMTS-FDD Antenna View | BT/ WIFI Antenna View |

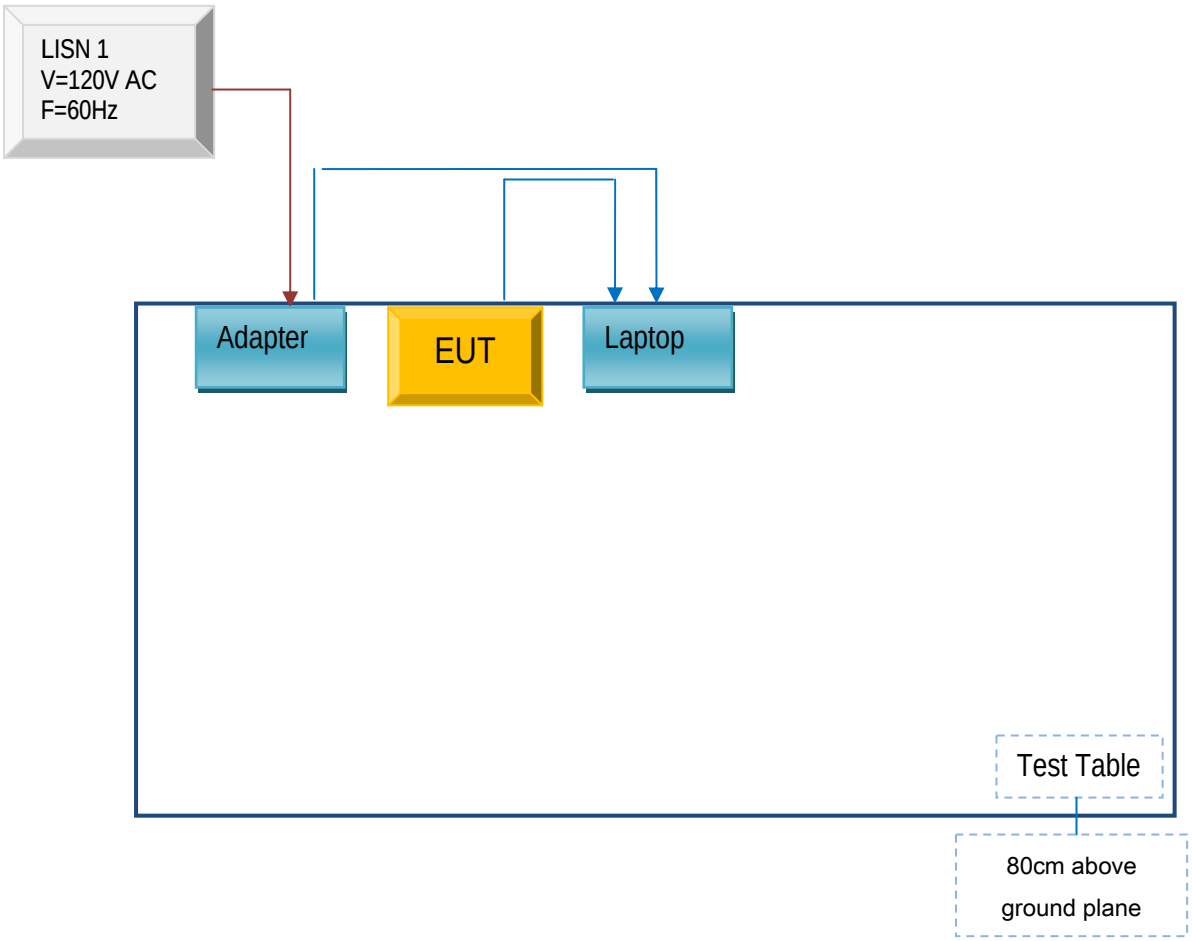
## Annex B.iii. Photograph: Test Setup Photo

| | |
|---|---|
|  |  |
| Conducted Emissions Test Setup Front View | Conducted Emissions Test Setup Side View |
|  |  |
| Radiated Spurious Emissions Test Setup Below 1GHz | Radiated Spurious Emissions Test Setup Above 1GHz |

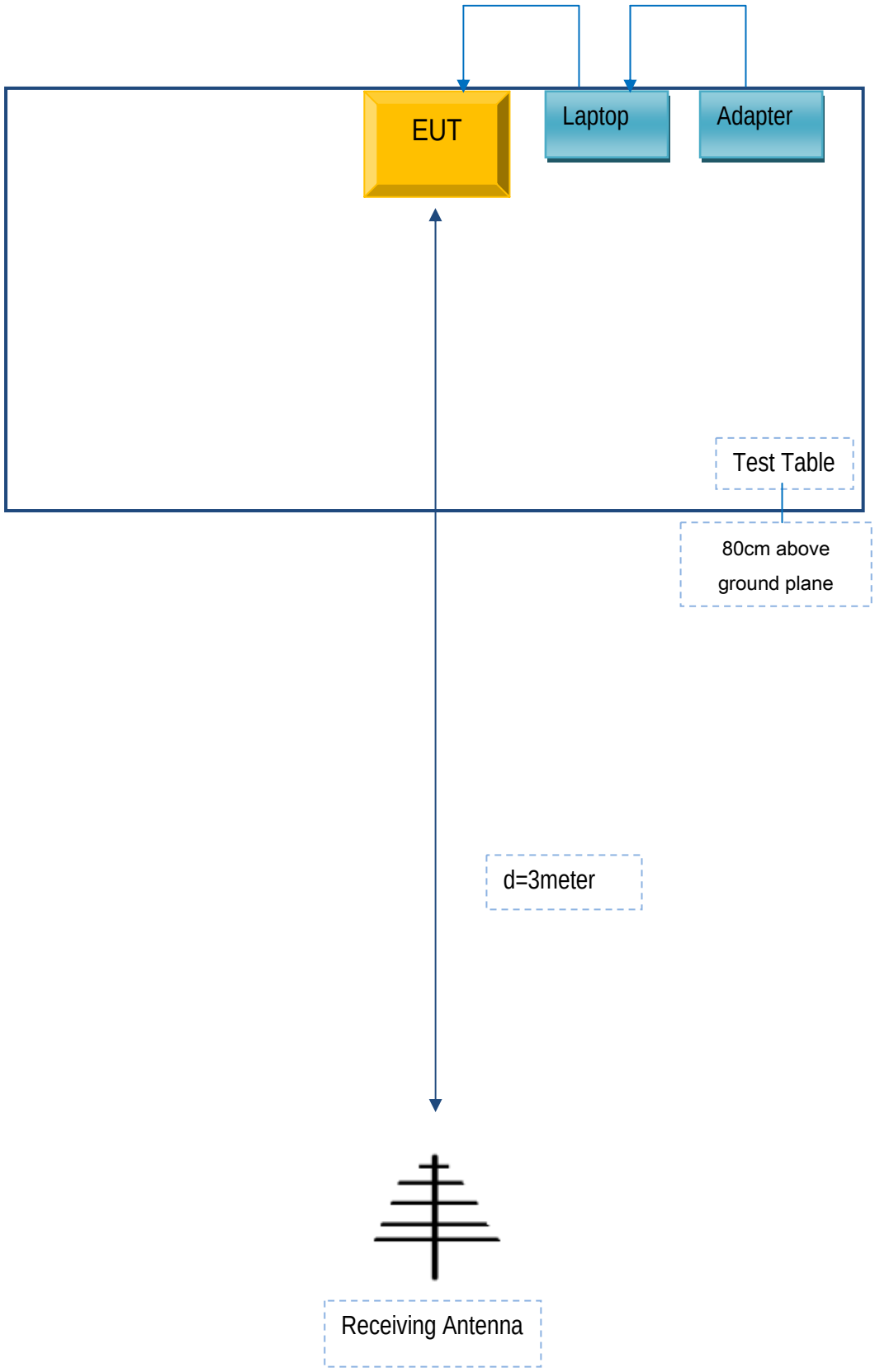
# Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

## Annex C.ii. TEST SET UP BLOCK

### Block Configuration Diagram for Conducted Emissions



## Block Configuration Diagram for Radiated Emissions



## Annex C. il. SUPPORTING EQUIPMENT DESCRIPTION

The following is a description of supporting equipment and details of cables used with the EUT.

| Manufacturer | Equipment Description | Model | Calibration Date | Calibration Due Date |
|---|---|---|---|---|
| Lenovo | Lenovo Laptop | E40& 0579A52 | N/A | N/A |

# Annex D. User Manual / Block Diagram / Schematics / Partlist

Please see Attachment

# Annex E. DECLARATION OF SIMILARITY

N/A