

# EMC TEST REPORT



Report No.: 16071169-FCC-E

Supersede Report No: N/A

|                                                                                                                                      |                                                             |  |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--|
| Applicant                                                                                                                            | Juniper Systems Inc                                         |  |
| Product Name                                                                                                                         | 4G Tablet PC                                                |  |
| Model No.                                                                                                                            | CT7G                                                        |  |
| Serial No.                                                                                                                           | N/A                                                         |  |
| Test Standard                                                                                                                        | FCC Part 15 Subpart B Class B:2015, ANSI C63.4: 2014        |  |
| Test Date                                                                                                                            | September 21 to October 24, 2016                            |  |
| Issue Date                                                                                                                           | November 08, 2016                                           |  |
| Test Result                                                                                                                          | <input type="checkbox"/> Pass <input type="checkbox"/> Fail |  |
| Equipment complied with the specification <input checked="" type="checkbox"/>                                                        |                                                             |  |
| Equipment did not comply with the specification <input type="checkbox"/>                                                             |                                                             |  |
|                                                                                                                                      |                                                             |  |
| Loren Luo<br>Test Engineer                                                                                                           | David Huang<br>Checked By                                   |  |
| This test report may be reproduced in full only<br>Test result presented in this test report is applicable to the tested sample only |                                                             |  |

Issued by:

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## Laboratories Introduction

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### 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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|-------------|----------------|
| Test Report | 16071169-FCC-E |
| Page        | 3 of 31        |

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## CONTENTSD

|                                                                    |    |
|--------------------------------------------------------------------|----|
| 1. REPORT REVISION HISTORY .....                                   | 5  |
| 2. CUSTOMER INFORMATION .....                                      | 5  |
| 3. TEST SITE INFORMATION .....                                     | 5  |
| 4. EQUIPMENT UNDER TEST (EUT) INFORMATION .....                    | 6  |
| 5. TEST SUMMARY .....                                              | 8  |
| 6. MEASUREMENTS, EXAMINATION AND DERIVED RESULTS .....             | 9  |
| 6.1 AC POWER LINE CONDUCTED EMISSIONS.....                         | 9  |
| 6.2 RADIATED EMISSIONS.....                                        | 15 |
| ANNEX A. TEST INSTRUMENT.....                                      | 20 |
| ANNEX B. EUT AND TEST SETUP PHOTOGRAPHS.....                       | 21 |
| ANNEX C. TEST SETUP AND SUPPORTING EQUIPMENT.....                  | 27 |
| ANNEX D. USER MANUAL / BLOCK DIAGRAM / SCHEMATICS / PARTLIST ..... | 30 |
| ANNEX E. DECLARATION OF SIMILARITY .....                           | 31 |

## 1. Report Revision History

| Report No.     | Report Version | Description                            | Issue Date        |
|----------------|----------------|----------------------------------------|-------------------|
| 16071169-FCC-E | NONE           | Original                               | October 25, 2016  |
| 16071169-FCC-E | V1             | Updated the product equipment category | November 08, 2016 |
|                |                |                                        |                   |
|                |                |                                        |                   |
|                |                |                                        |                   |
|                |                |                                        |                   |
|                |                |                                        |                   |

## 2. Customer information

|                  |                                              |
|------------------|----------------------------------------------|
| Applicant Name   | Juniper Systems Inc                          |
| Applicant Add    | 1132W 1700N, Logan, Utah 84321,United States |
| Manufacturer     | Juniper Systems Inc                          |
| Manufacturer Add | 1132W 1700N, Logan, Utah 84321,United States |

## 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 China<br>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:  | 4G Tablet PC                                                                                                                                                                                                                   |
| Main Model:          | CT7G                                                                                                                                                                                                                           |
| Serial Model:        | N/A                                                                                                                                                                                                                            |
| Antenna Gain:        | GSM850: 1.5dBi<br>PCS1900: 1.5dBi<br>UMTS-FDD Band V:1.5dBi<br>UMTS-FDD Band II:1.5dBi<br>LTE Band IV:1.5dBi<br>LTE Band V: 1.5dBi<br>LTE Band VII: 1.5dBi<br>LTE Band XVII: 1.5dBi<br>Bluetooth/BLE/WIFI:1.5dBi<br>GPS:1.5dBi |
| Antenna Type:        | PIFA antenna                                                                                                                                                                                                                   |
| Input Power:         | Battery:<br>Spec: 3.7V                                                                                                                                                                                                         |
| Equipment Category : | JBC                                                                                                                                                                                                                            |
| Type of Modulation:  | GSM / GPRS: GMSK<br>EGPRS: GMSK,8PSK<br>UMTS-FDD: QPSK<br>LTE Band: QPSK, 16QAM<br>802.11b/g/n: DSSS, OFDM<br>Bluetooth: GFSK, $\pi$ /4DQPSK, 8DPSK<br>BLE: GFSK<br>GPS:BPSK                                                   |

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|-------------|----------------|
| Test Report | 16071169-FCC-E |
| Page        | 7 of 31        |

|                               |                                                                |
|-------------------------------|----------------------------------------------------------------|
|                               | GSM850 TX: 824.2 ~ 848.8 MHz; RX: 869.2 ~ 893.8 MHz            |
|                               | PCS1900 TX: 1850.2 ~ 1909.8 MHz; RX: 1930.2 ~ 1989.8 MHz       |
|                               | UMTS-FDD Band V TX: 826.4 ~ 846.6 MHz; RX: 871.4 ~ 891.6 MHz   |
|                               | UMTS-FDD Band II TX:1852.4 ~ 1907.6 MHz;                       |
|                               | RX: 1932.4 ~ 1987.6 MHz                                        |
|                               | LTE Band IV TX: 1710.7 ~ 1754.3 MHz; RX : 2110.7 ~ 2154.3 MHz  |
| RF Operating Frequency (ies): | LTE Band V TX: 826.5 ~ 846.5 MHz; RX : 871.5 ~ 891.5 MHz       |
|                               | LTE Band VII TX: 2502.5 ~ 2567.5 MHz; RX : 2622.5 ~ 2687.5 MHz |
|                               | LTE Band XVII TX: 706.5 ~ 713.5 MHz; RX : 736.5 ~ 743.5 MHz    |
|                               | WIFI: 802.11b/g/n(20M): 2412-2462 MHz                          |
|                               | WIFI: 802.11n(40M): 2422-2452 MHz                              |
|                               | Bluetooth& BLE: 2402-2480 MHz                                  |
|                               | GPS: 1575.42 MHz                                               |
|                               | GSM 850: 124CH                                                 |
|                               | PCS1900: 299CH                                                 |
|                               | UMTS-FDD Band V: 102CH                                         |
|                               | UMTS-FDD Band II: 277CH                                        |
| Number of Channels:           | WIFI :802.11b/g/n(20M): 11CH                                   |
|                               | WIFI :802.11n(40M): 7CH                                        |
|                               | Bluetooth: 79CH                                                |
|                               | BLE: 40CH                                                      |
|                               | GPS:1CH                                                        |
| Port:                         | USB Port, Earphone Port                                        |
| Trade Name :                  | Cedar                                                          |
| FCC ID:                       | VSFCT7G                                                        |
| Date EUT received:            | September 20, 2016                                             |
| Test Date(s):                 | September 21 to October 24, 2016                               |

## 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 |
| -                                         | -                                                                                                                                               | -             |



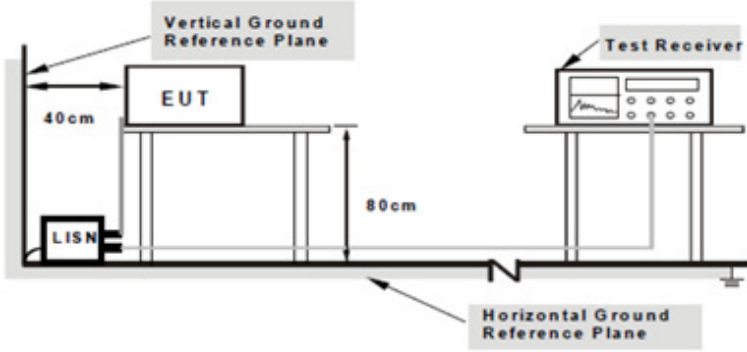
## 6. Measurements, Examination And Derived Results

### 6.1 AC Power Line Conducted Emissions

|                      |                  |
|----------------------|------------------|
| Temperature          | 23°C             |
| Relative Humidity    | 56%              |
| Atmospheric Pressure | 1014mbar         |
| Test date :          | October 14, 2016 |
| Tested By :          | Loren Luo        |

#### Requirement(s):

| Spec         | Item | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Applicable                                                                            |                           |              |  |    |         |            |         |         |         |    |    |        |    |    |
|--------------|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------|--------------|--|----|---------|------------|---------|---------|---------|----|----|--------|----|----|
| 47CFR§15.107 | a)   | 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<br/>(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>                                                                                                                                                                      |                                                                                       | Frequency ranges<br>(MHz) | Limit (dBµV) |  | QP | Average | 0.15 ~ 0.5 | 66 – 56 | 56 – 46 | 0.5 ~ 5 | 56 | 46 | 5 ~ 30 | 60 | 50 |
|              |      | Frequency ranges<br>(MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                       |                           | Limit (dBµV) |  |    |         |            |         |         |         |    |    |        |    |    |
|              |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                       | QP                        | Average      |  |    |         |            |         |         |         |    |    |        |    |    |
|              |      | 0.15 ~ 0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                       | 66 – 56                   | 56 – 46      |  |    |         |            |         |         |         |    |    |        |    |    |
| 0.5 ~ 5      | 56   | 46                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                       |                           |              |  |    |         |            |         |         |         |    |    |        |    |    |
| 5 ~ 30       | 60   | 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                       |                           |              |  |    |         |            |         |         |         |    |    |        |    |    |
|              |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                       |                           |              |  |    |         |            |         |         |         |    |    |        |    |    |
|              |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                       |                           |              |  |    |         |            |         |         |         |    |    |        |    |    |
|              |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                       |                           |              |  |    |         |            |         |         |         |    |    |        |    |    |

|            |                                                                                                                                                                                                                                                                       |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Setup |  <p>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.</p> |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|           |                                                                                                                                                                                                                                                                                                                    |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Procedure | <ol style="list-style-type: none"> <li>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.</li> <li>The power supply for the EUT was fed through a 50Ω /50mH EUT LISN, connected to filtered mains.</li> </ol> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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|-------------|----------------|
| Test Report | 16071169-FCC-E |
| Page        | 10 of 31       |

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <p>3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.</p> <p>4. All other supporting equipment were powered separately from another main supply.</p> <p>5. The EUT was switched on and allowed to warm up to its normal operating condition.</p> <p>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.</p> <p>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.</p> <p>8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power).</p> |
| Remark |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

|              |          |
|--------------|----------|
| Test Mode 1: | USB Mode |
|--------------|----------|

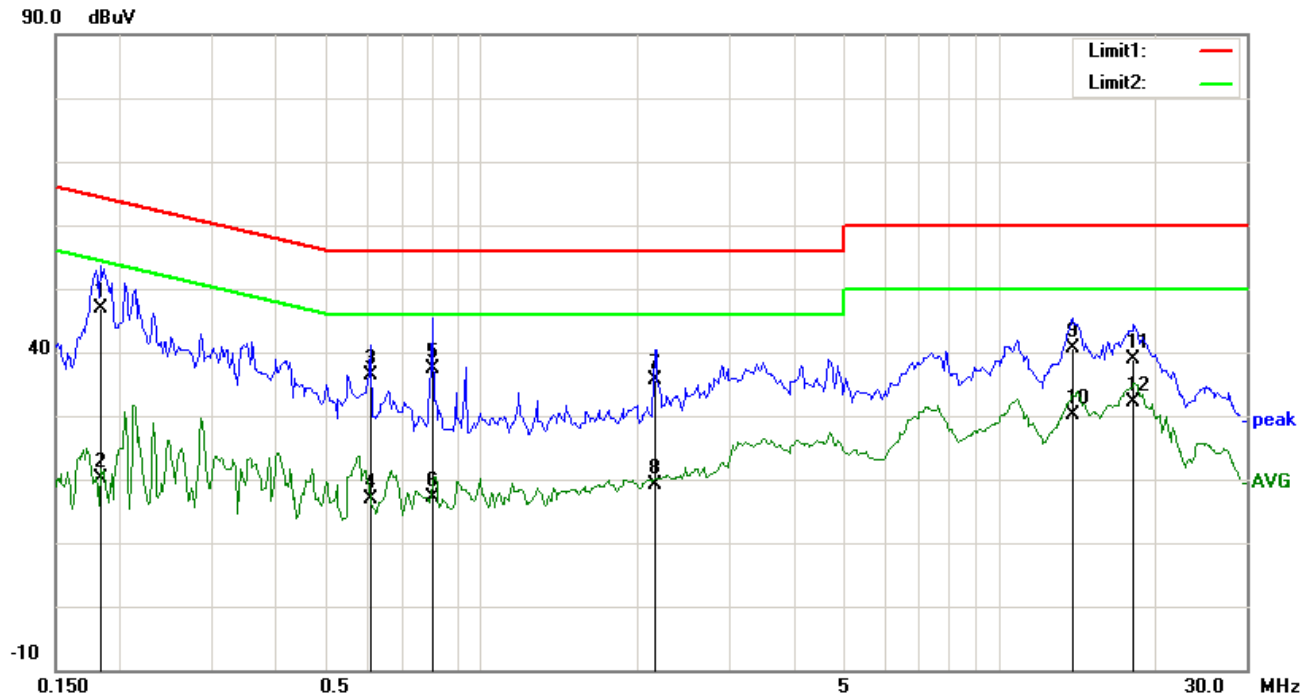
|              |          |
|--------------|----------|
| Test Mode 2: | MP4 Mode |
|--------------|----------|

|              |             |
|--------------|-------------|
| Test Mode 3: | Camera Mode |
|--------------|-------------|

|              |              |
|--------------|--------------|
| Test Mode 4: | SD Card Mode |
|--------------|--------------|

All modes were investigated. But only show the worst result case as below.

**Test Mode 1 : USB Mode**

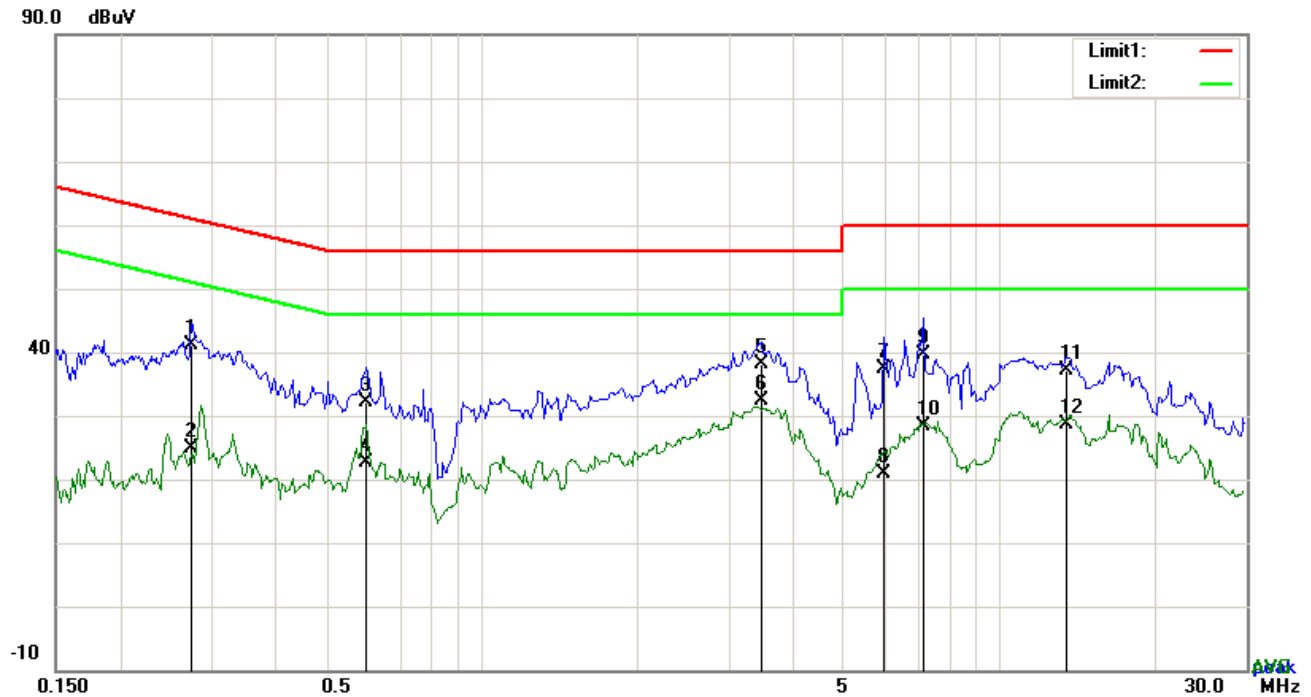


**Test Data**

**Phase Line Plot at 120Vac, 60Hz**

| No. | P/L | Frequency | Reading | Detector | Corrected | Result | Limit  | Margin |
|-----|-----|-----------|---------|----------|-----------|--------|--------|--------|
|     |     | (MHz)     | (dBuV)  |          | (dB)      | (dBuV) | (dBuV) | (dB)   |
| 1   | L1  | 0.1835    | 36.76   | QP       | 10.03     | 46.79  | 64.33  | -17.54 |
| 2   | L1  | 0.1835    | 10.02   | AVG      | 10.03     | 20.05  | 54.33  | -34.28 |
| 3   | L1  | 0.6102    | 26.26   | QP       | 10.03     | 36.29  | 56.00  | -19.71 |
| 4   | L1  | 0.6102    | 6.93    | AVG      | 10.03     | 16.96  | 46.00  | -29.04 |
| 5   | L1  | 0.8013    | 27.27   | QP       | 10.03     | 37.30  | 56.00  | -18.70 |
| 6   | L1  | 0.8013    | 6.98    | AVG      | 10.03     | 17.01  | 46.00  | -28.99 |
| 7   | L1  | 2.1663    | 25.63   | QP       | 10.04     | 35.67  | 56.00  | -20.33 |
| 8   | L1  | 2.1663    | 9.02    | AVG      | 10.04     | 19.06  | 46.00  | -26.94 |
| 9   | L1  | 13.9122   | 30.46   | QP       | 10.21     | 40.67  | 60.00  | -19.33 |
| 10  | L1  | 13.9122   | 19.96   | AVG      | 10.21     | 30.17  | 50.00  | -19.83 |
| 11  | L1  | 18.1749   | 28.55   | QP       | 10.27     | 38.82  | 60.00  | -21.18 |
| 12  | L1  | 18.1749   | 21.84   | AVG      | 10.27     | 32.11  | 50.00  | -17.89 |

**Test Mode 1: USB Mode**

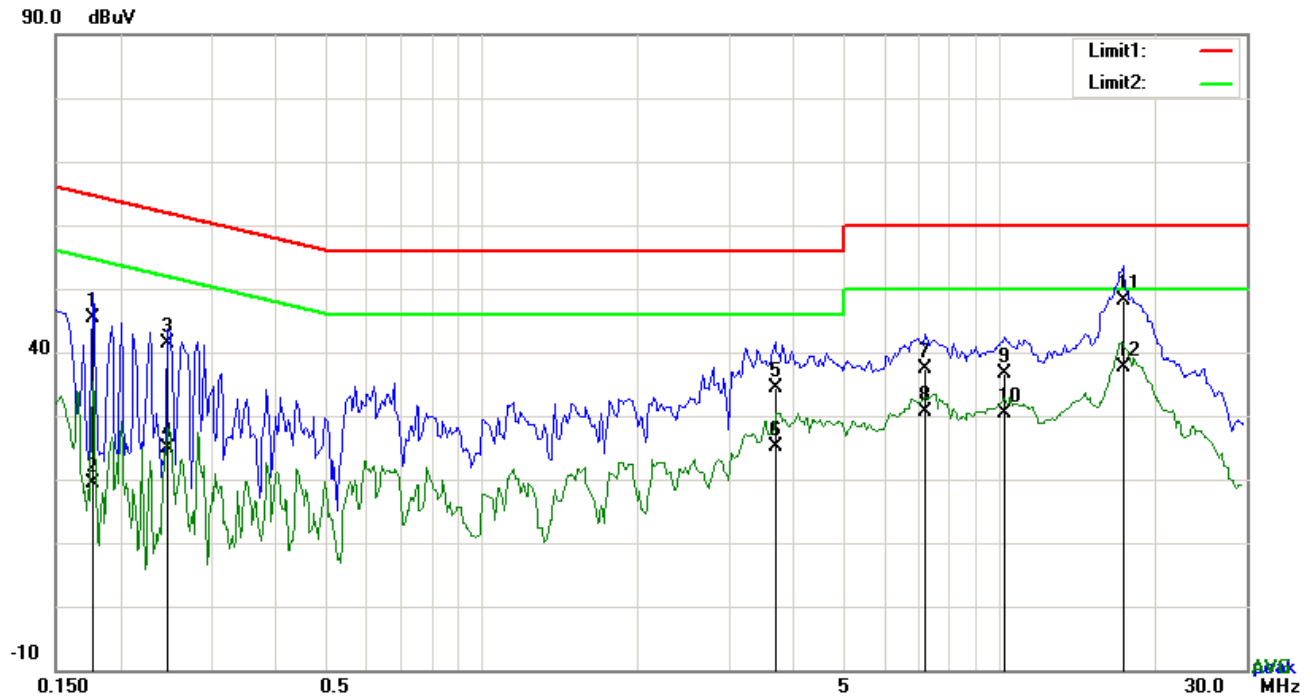


**Test Data**

**Phase Neutral Plot at 120Vac, 60Hz**

| No. | P/L | Frequency | Reading | Detector | Corrected | Result | Limit  | Margin |
|-----|-----|-----------|---------|----------|-----------|--------|--------|--------|
|     |     | (MHz)     | (dBuV)  |          | (dB)      | (dBuV) | (dBuV) | (dB)   |
| 1   | N   | 0.2748    | 31.02   | QP       | 10.02     | 41.04  | 60.97  | -19.93 |
| 2   | N   | 0.2748    | 14.78   | AVG      | 10.02     | 24.80  | 50.97  | -26.17 |
| 3   | N   | 0.5985    | 22.20   | QP       | 10.02     | 32.22  | 56.00  | -23.78 |
| 4   | N   | 0.5985    | 12.71   | AVG      | 10.02     | 22.73  | 46.00  | -23.27 |
| 5   | N   | 3.4602    | 28.16   | QP       | 10.05     | 38.21  | 56.00  | -17.79 |
| 6   | N   | 3.4602    | 22.39   | AVG      | 10.05     | 32.44  | 46.00  | -13.56 |
| 7   | N   | 5.9640    | 27.23   | QP       | 10.08     | 37.31  | 60.00  | -22.69 |
| 8   | N   | 5.9640    | 10.78   | AVG      | 10.08     | 20.86  | 50.00  | -29.14 |
| 9   | N   | 7.1028    | 29.46   | QP       | 10.10     | 39.56  | 60.00  | -20.44 |
| 10  | N   | 7.1028    | 18.23   | AVG      | 10.10     | 28.33  | 50.00  | -21.67 |
| 11  | N   | 13.4715   | 26.90   | QP       | 10.18     | 37.08  | 60.00  | -22.92 |
| 12  | N   | 13.4715   | 18.52   | AVG      | 10.18     | 28.70  | 50.00  | -21.30 |

|                     |                 |
|---------------------|-----------------|
| <b>Test Mode 1:</b> | <b>USB Mode</b> |
|---------------------|-----------------|

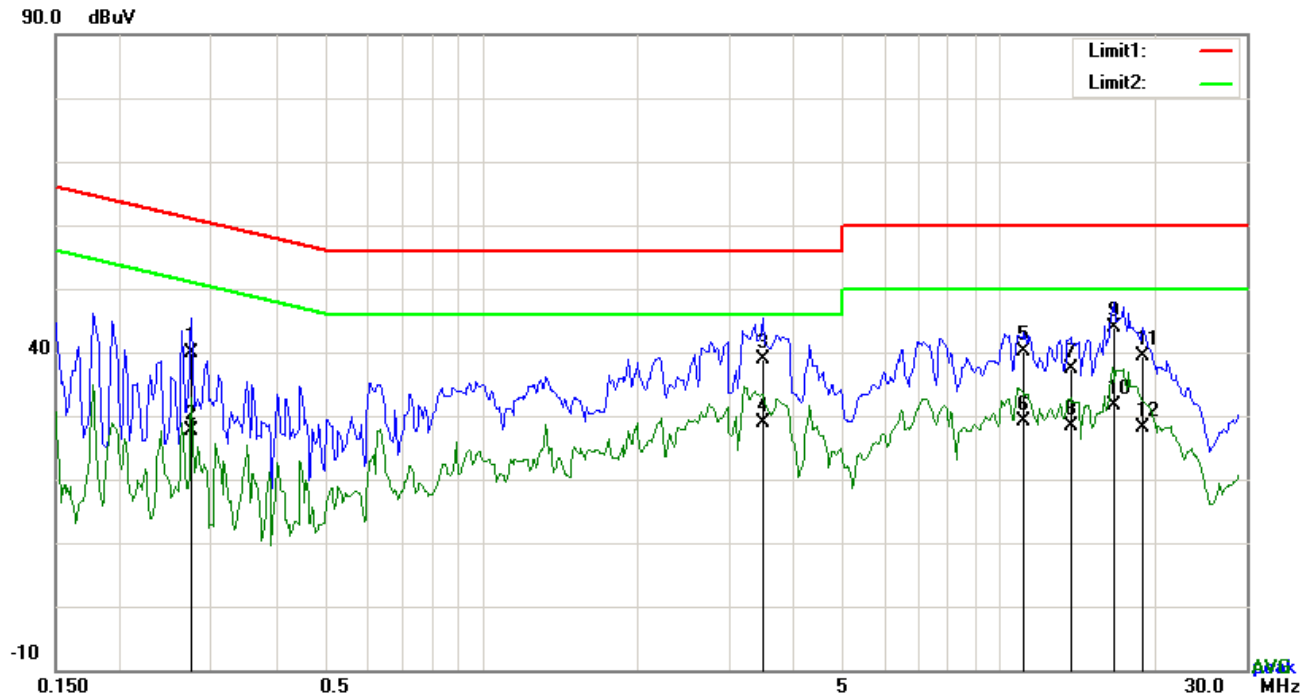


**Test Data**

**Phase Line Plot at 240Vac, 60Hz**

| No. | P/L | Frequency | Reading | Detector | Corrected | Result | Limit  | Margin |
|-----|-----|-----------|---------|----------|-----------|--------|--------|--------|
|     |     | (MHz)     | (dBuV)  |          | (dB}      | (dBuV) | (dBuV) | (dB)   |
| 1   | L1  | 0.1773    | 35.35   | QP       | 10.03     | 45.38  | 64.61  | -19.23 |
| 2   | L1  | 0.1773    | 9.29    | AVG      | 10.03     | 19.32  | 54.61  | -35.29 |
| 3   | L1  | 0.2475    | 31.34   | QP       | 10.03     | 41.37  | 61.84  | -20.47 |
| 4   | L1  | 0.2475    | 14.88   | AVG      | 10.03     | 24.91  | 51.84  | -26.93 |
| 5   | L1  | 3.6942    | 24.38   | QP       | 10.06     | 34.44  | 56.00  | -21.56 |
| 6   | L1  | 3.6942    | 15.19   | AVG      | 10.06     | 25.25  | 46.00  | -20.75 |
| 7   | L1  | 7.1886    | 27.20   | QP       | 10.11     | 37.31  | 60.00  | -22.69 |
| 8   | L1  | 7.1886    | 20.62   | AVG      | 10.11     | 30.73  | 50.00  | -19.27 |
| 9   | L1  | 10.2150   | 26.49   | QP       | 10.15     | 36.64  | 60.00  | -23.36 |
| 10  | L1  | 10.2150   | 20.14   | AVG      | 10.15     | 30.29  | 50.00  | -19.71 |
| 11  | L1  | 17.3676   | 37.75   | QP       | 10.26     | 48.01  | 60.00  | -11.99 |
| 12  | L1  | 17.3676   | 27.27   | AVG      | 10.26     | 37.53  | 50.00  | -12.47 |

**Test Mode 1: USB Mode**



**Test Data**

**Phase Neutral Plot at 240Vac, 60Hz**

| No. | P/L | Frequency | Reading | Detector | Corrected | Result | Limit  | Margin |
|-----|-----|-----------|---------|----------|-----------|--------|--------|--------|
|     |     | (MHz)     | (dBuV)  |          | (dB}      | (dBuV) | (dBuV) | (dB)   |
| 1   | N   | 0.2748    | 29.83   | QP       | 10.02     | 39.85  | 60.97  | -21.12 |
| 2   | N   | 0.2748    | 17.63   | AVG      | 10.02     | 27.65  | 50.97  | -23.32 |
| 3   | N   | 3.5031    | 28.79   | QP       | 10.06     | 38.85  | 56.00  | -17.15 |
| 4   | N   | 3.5031    | 18.77   | AVG      | 10.06     | 28.83  | 46.00  | -17.17 |
| 5   | N   | 11.1510   | 29.94   | QP       | 10.15     | 40.09  | 60.00  | -19.91 |
| 6   | N   | 11.1510   | 18.94   | AVG      | 10.15     | 29.09  | 50.00  | -20.91 |
| 7   | N   | 13.7250   | 27.11   | QP       | 10.18     | 37.29  | 60.00  | -22.71 |
| 8   | N   | 13.7250   | 18.26   | AVG      | 10.18     | 28.44  | 50.00  | -21.56 |
| 9   | N   | 16.6851   | 33.76   | QP       | 10.22     | 43.98  | 60.00  | -16.02 |
| 10  | N   | 16.6851   | 21.48   | AVG      | 10.22     | 31.70  | 50.00  | -18.30 |
| 11  | N   | 18.9081   | 29.06   | QP       | 10.25     | 39.31  | 60.00  | -20.69 |
| 12  | N   | 18.9081   | 17.84   | AVG      | 10.25     | 28.09  | 50.00  | -21.91 |

## 6.2 Radiated Emissions

|                      |                  |
|----------------------|------------------|
| Temperature          | 23°C             |
| Relative Humidity    | 56%              |
| Atmospheric Pressure | 1014mbar         |
| Test date :          | October 14, 2016 |
| Tested By :          | Loren Luo        |

### Requirement(s):

| Spec            | Item | Requirement                                                                                                                                                                                                                                                                                                                                   | Applicable                                     |                       |
|-----------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----------------------|
| 47CFR§15.109(d) | a)   | 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 | <div><input checked="" type="checkbox"/></div> |                       |
|                 |      | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                         |                                                | Field Strength (µV/m) |
|                 |      | 30 – 88                                                                                                                                                                                                                                                                                                                                       |                                                | 100                   |
|                 |      | 88 – 216                                                                                                                                                                                                                                                                                                                                      |                                                | 150                   |
|                 |      | 216 960                                                                                                                                                                                                                                                                                                                                       |                                                | 200                   |
|                 |      | Above 960                                                                                                                                                                                                                                                                                                                                     |                                                | 500                   |

|            |  |
|------------|--|
| Test Setup |  |
|------------|--|

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Procedure | <ol style="list-style-type: none"> <li>The EUT was switched on and allowed to warm up to its normal operating condition.</li> <li>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: <ol style="list-style-type: none"> <li>Vertical or horizontal polarization (whichever gave the higher emission level</li> </ol> </li> </ol> |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|             |                |
|-------------|----------------|
| Test Report | 16071169-FCC-E |
| Page        | 16 of 31       |

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <p>over a full rotation of the EUT) was chosen.</p> <p>b. The EUT was then rotated to the direction that gave the maximum emission.</p> <p>c. Finally, the antenna height was adjusted to the height that gave the maximum emission.</p> <p>3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi Peak detection at frequency below 1GHz.</p> <p>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.</p> <p>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.</p> <p>■ 1 kHz (Duty cycle &lt; 98%) □ 10 Hz (Duty cycle &gt; 98%)</p> <p>5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</p> |
| Remark |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

|              |          |
|--------------|----------|
| Test Mode 1: | USB Mode |
|--------------|----------|

|              |          |
|--------------|----------|
| Test Mode 2: | MP4 Mode |
|--------------|----------|

|              |             |
|--------------|-------------|
| Test Mode 3: | Camera Mode |
|--------------|-------------|

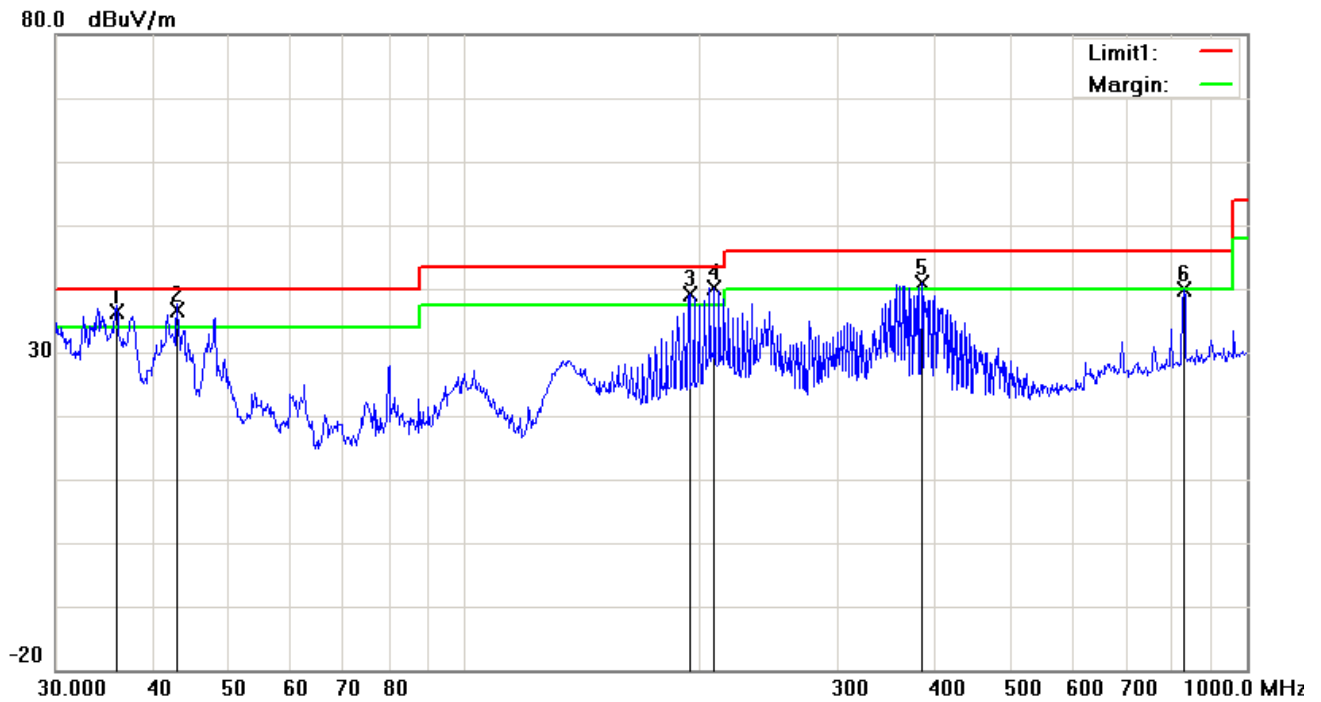
|              |              |
|--------------|--------------|
| Test Mode 4: | SD Card Mode |
|--------------|--------------|

All modes were investigated. But only show the worst result case as below.



**Test Mode 1: USB Mode**

**Below 1GHz**

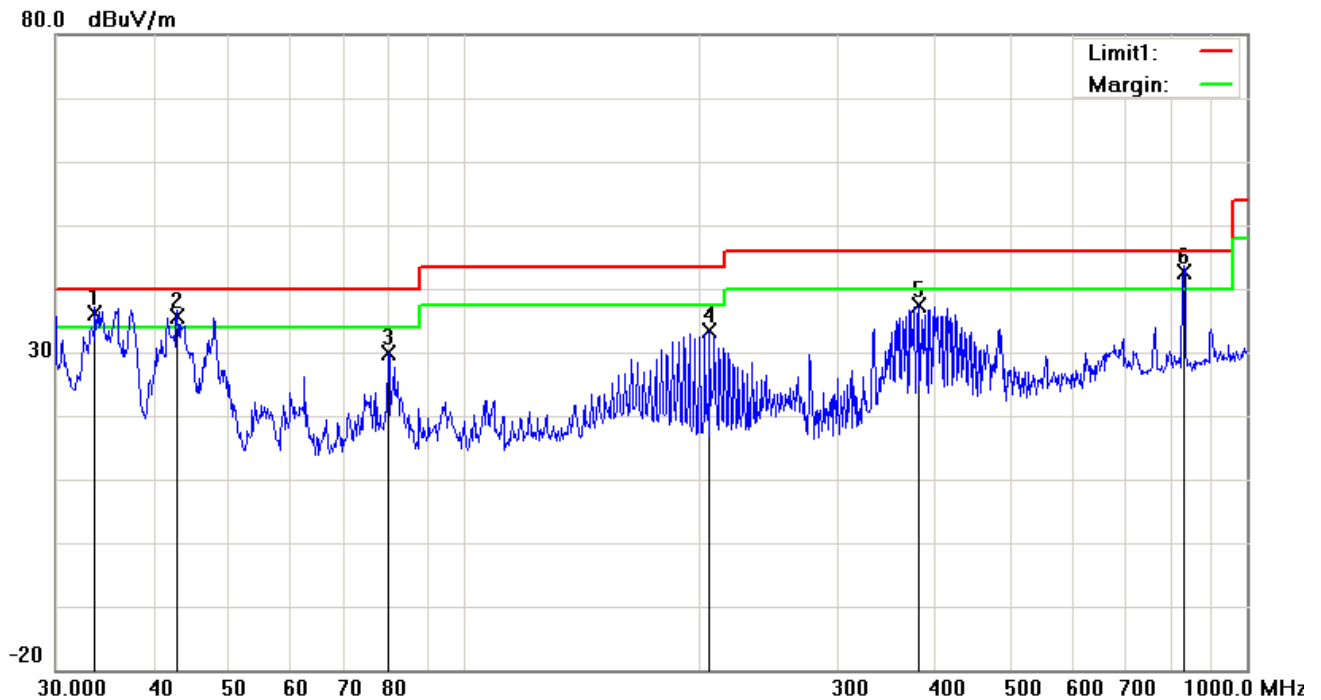


**Test Data**

**Horizontal Polarity Plot @3m**

| No. | P/L | Frequency | Reading  | Detector | Corrected | Result   | Limit    | Margin | Height | Degree |
|-----|-----|-----------|----------|----------|-----------|----------|----------|--------|--------|--------|
|     |     | (MHz)     | (dBuV/m) |          | (dB/m)    | (dBuV/m) | (dBuV/m) | (dB)   | (cm)   | ( ° )  |
| 1   | H   | 35.8747   | 40.94    | QP       | -4.58     | 36.36    | 40.00    | -3.64  | 100    | 57     |
| 2   | H   | 42.8998   | 46.08    | QP       | -9.53     | 36.55    | 40.00    | -3.45  | 100    | 43     |
| 3   | H   | 193.7728  | 48.09    | QP       | -9.04     | 39.05    | 43.50    | -4.45  | 100    | 112    |
| 4   | H   | 208.5803  | 49.01    | QP       | -8.81     | 40.20    | 43.50    | -3.30  | 100    | 219    |
| 5   | H   | 383.9318  | 45.56    | QP       | -4.67     | 40.89    | 46.00    | -5.11  | 100    | 56     |
| 6   | H   | 830.4002  | 36.25    | QP       | 3.57      | 39.82    | 46.00    | -6.18  | 100    | 135    |

### Below 1GHz



### Test Data

#### Vertical Polarity Plot @3m

| No. | P/L | Frequency | Reading  | Detector | Corrected | Result   | Limit    | Margin | Height | Degree |
|-----|-----|-----------|----------|----------|-----------|----------|----------|--------|--------|--------|
|     |     | (MHz)     | (dBuV/m) |          | (dB/m)    | (dBuV/m) | (dBuV/m) | (dB)   | (cm)   | (°)    |
| 1   | V   | 33.6803   | 39.16    | QP       | -2.97     | 36.19    | 40.00    | -3.81  | 100    | 323    |
| 2   | V   | 42.8998   | 45.23    | QP       | -9.53     | 35.70    | 40.00    | -4.30  | 100    | 38     |
| 3   | V   | 79.8003   | 43.68    | peak     | -13.77    | 29.91    | 40.00    | -10.09 | 100    | 95     |
| 4   | V   | 205.6751  | 42.12    | peak     | -8.79     | 33.33    | 43.50    | -10.17 | 100    | 195    |
| 5   | V   | 381.2487  | 42.11    | peak     | -4.73     | 37.38    | 46.00    | -8.62  | 100    | 289    |
| 6   | V   | 830.4002  | 39.00    | QP       | 3.57      | 42.57    | 46.00    | -3.43  | 100    | 164    |

### *Above 1GHz*

| Frequency (MHz) | Amplitude (dBμV/m) | Azimuth | Height (cm) | Polarity (H/V) | Factors (dB) | Limit (dBμV/m) | Margin (dB) | Detector (PK/AV) |
|-----------------|--------------------|---------|-------------|----------------|--------------|----------------|-------------|------------------|
| 1552.38         | 50.24              | 88      | 160         | V              | -21.69       | 74             | -23.76      | PK               |
| 2067.45         | 50.47              | 99      | 122         | V              | -21.58       | 74             | -23.53      | PK               |
| 1686.92         | 50.15              | 66      | 172         | V              | -21.76       | 74             | -23.85      | PK               |
| 2167.48         | 49.33              | 75      | 166         | H              | -21.48       | 74             | -24.67      | PK               |
| 2839.55         | 48.46              | 44      | 177         | H              | -21.38       | 74             | -25.54      | PK               |
| 1889.45         | 50.59              | 81      | 110         | H              | -21.45       | 74             | -23.41      | PK               |

*Note1: The highest frequency of the EUT is 2480 MHz, so the testing has been conformed to  $5 \times 2472 \text{ MHz} = 12,360 \text{ MHz}$ .*

*Note2: The frequency that above 3GHz is mainly from the environment noise.*

*Note3: The AV measurement performed, more than 20dB below limit so AV test data was not presented.*

## Annex A. TEST INSTRUMENT

| Instrument                              | Model    | Serial #   | Cal Date   | Cal Due    | In use                              |
|-----------------------------------------|----------|------------|------------|------------|-------------------------------------|
| <b>AC Line Conducted Emissions</b>      |          |            |            |            |                                     |
| EMI test receiver                       | ESCS30   | 8471241027 | 09/16/2016 | 09/15/2017 | <input checked="" type="checkbox"/> |
| Line Impedance Stabilization Network    | LI-125A  | 191106     | 09/24/2016 | 09/23/2017 | <input checked="" type="checkbox"/> |
| Line Impedance Stabilization Network    | LI-125A  | 191107     | 09/24/2016 | 09/23/2017 | <input checked="" type="checkbox"/> |
| LISN                                    | ISN T800 | 34373      | 09/24/2016 | 09/23/2017 | <input checked="" type="checkbox"/> |
| Transient Limiter                       | LIT-153  | 531118     | 08/31/2016 | 08/30/2017 | <input checked="" type="checkbox"/> |
| <b>Radiated Emissions</b>               |          |            |            |            |                                     |
| EMI test receiver                       | ESL6     | 100262     | 09/16/2016 | 09/15/2017 | <input checked="" type="checkbox"/> |
| OPT 010 AMPLIFIER<br>(0.1-1300MHz)      | 8447E    | 2727A02430 | 08/31/2016 | 08/30/2017 | <input checked="" type="checkbox"/> |
| Microwave Preamplifier<br>(1 ~ 26.5GHz) | 8449B    | 3008A02402 | 03/24/2016 | 03/23/2017 | <input checked="" type="checkbox"/> |
| Bilog Antenna<br>(30MHz~6GHz)           | JB6      | A110712    | 09/20/2016 | 09/19/2017 | <input checked="" type="checkbox"/> |
| Double Ridge Horn Antenna               | AH-118   | 71259      | 09/23/2016 | 09/22/2017 | <input checked="" type="checkbox"/> |

## Annex B. EUT And Test Setup Photographs

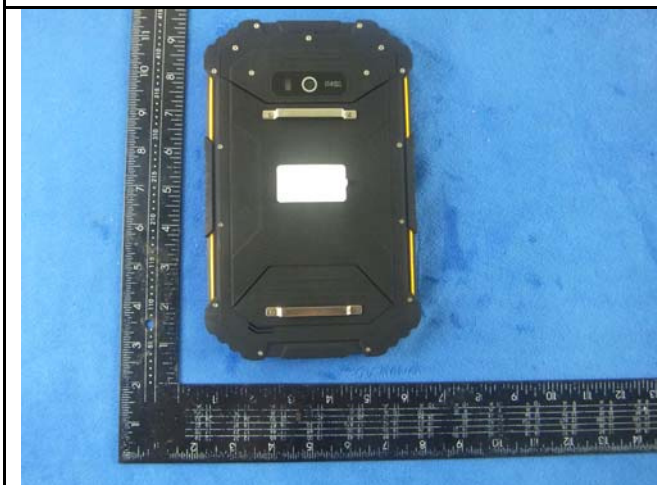
### Annex B.i. Photograph: EUT External Photo



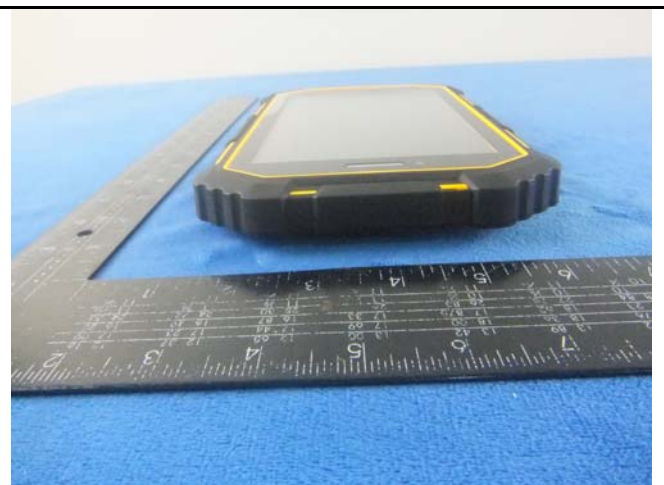
Whole Package View



EUT - Front View

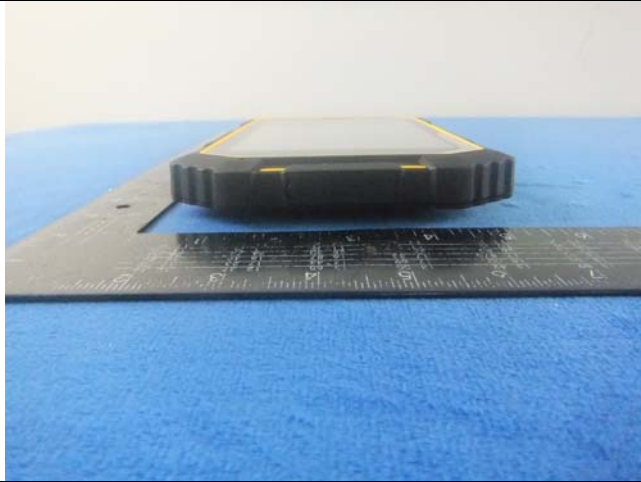


EUT - Rear View



EUT - Top View

|             |                |
|-------------|----------------|
| Test Report | 16071169-FCC-E |
| Page        | 22 of 31       |



EUT - Bottom View



EUT - Left View



EUT - Right View



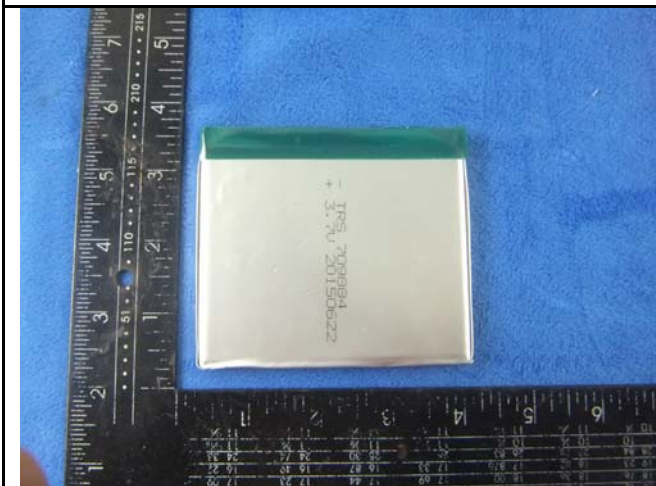
**Annex B.ii. Photograph: EUT Internal Photo**



Cover Off - Top View 1



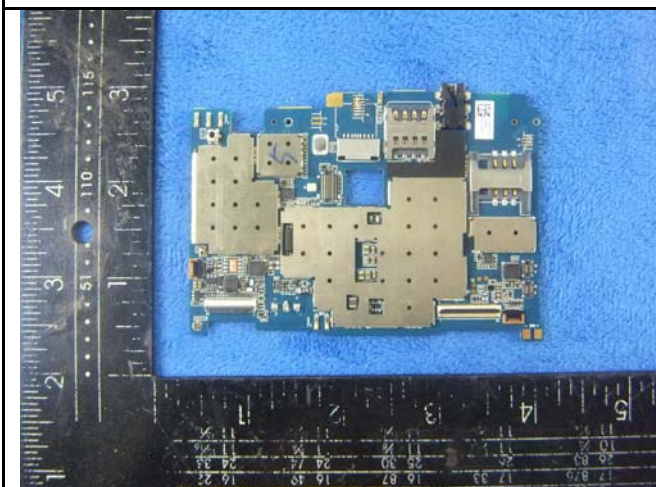
Cover Off - Top View 2



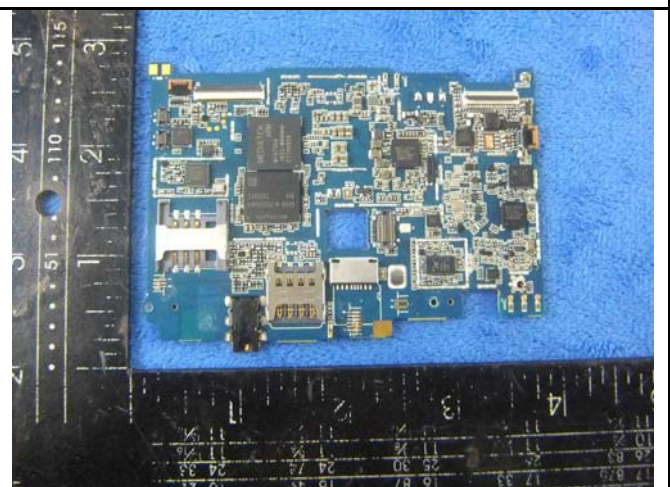
Battery - Front View



Battery - Rear View

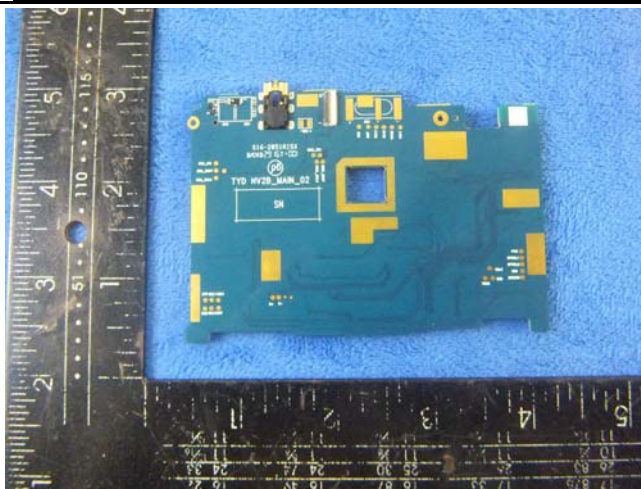


Mainboard with sheilding - Front View

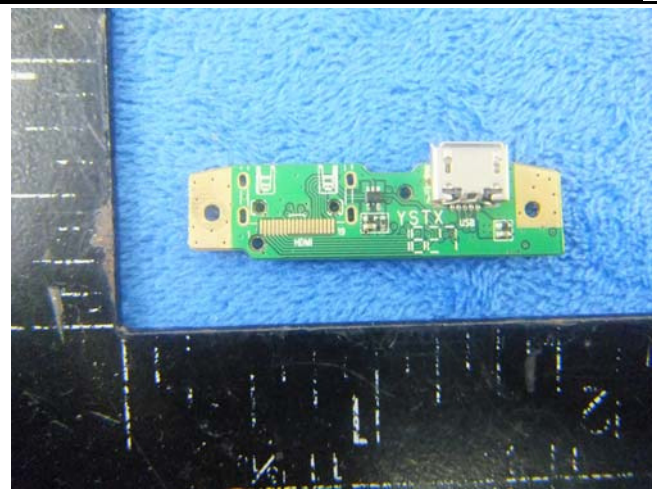


Mainboard without sheilding - Front View

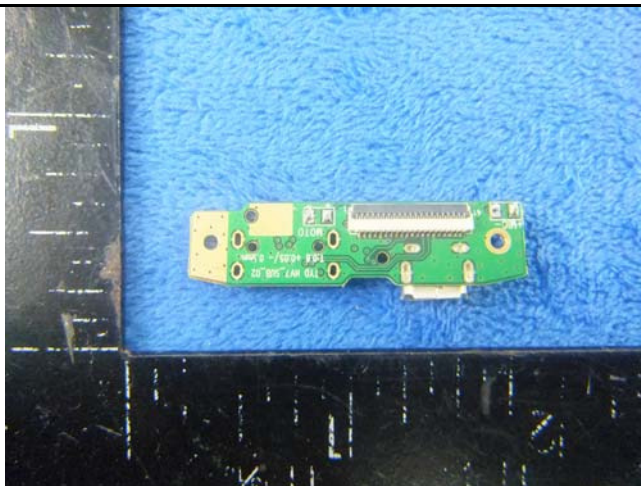




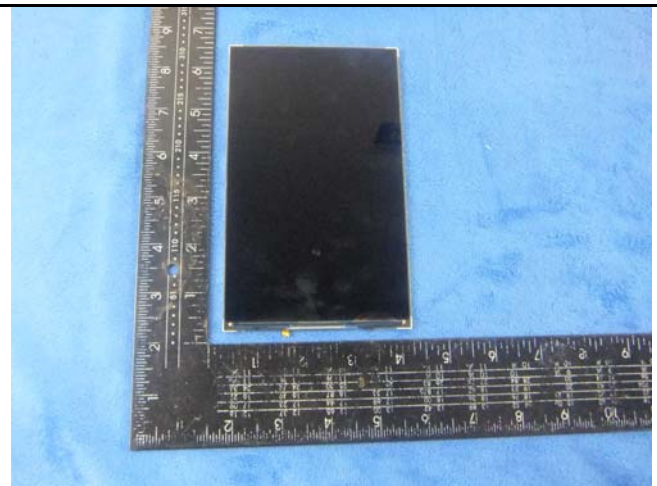
Mainboard – Rear View



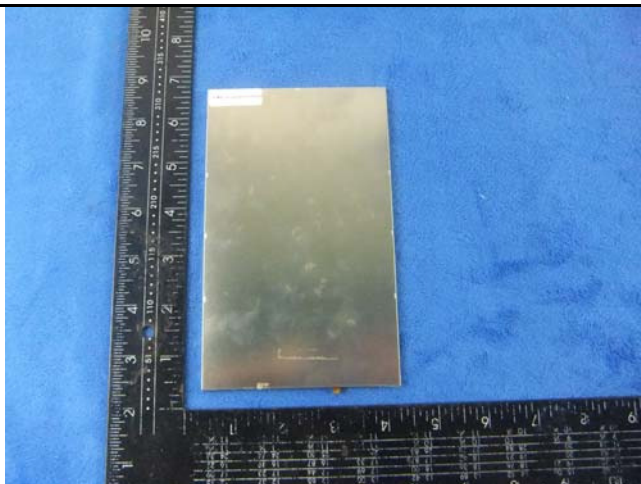
USB board – Front View



USB board - Rear View



LCD – Front View

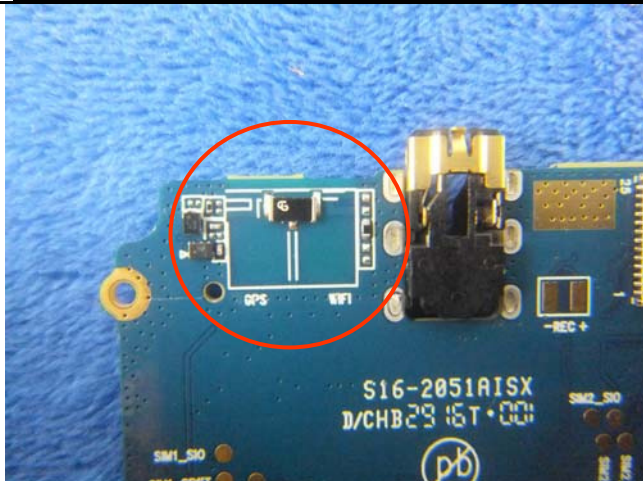


LCD – Rear View

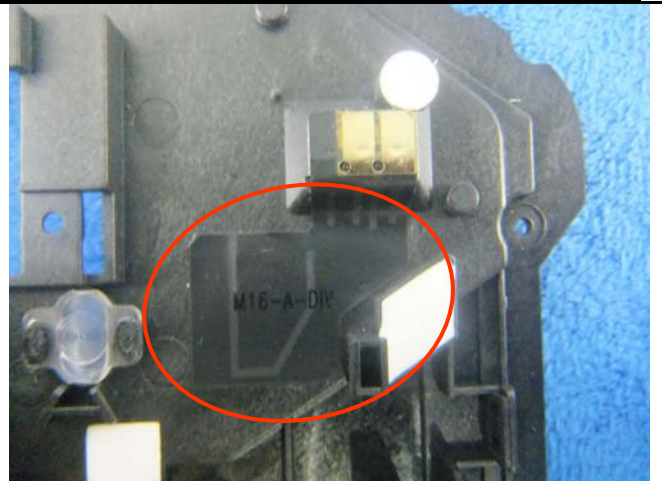


GSM/PCS/UMTS-FDD Antenna View





WIFI/BT/BLE/GPS - Antenna View



LTE Antenna View



NFC - Antenna View

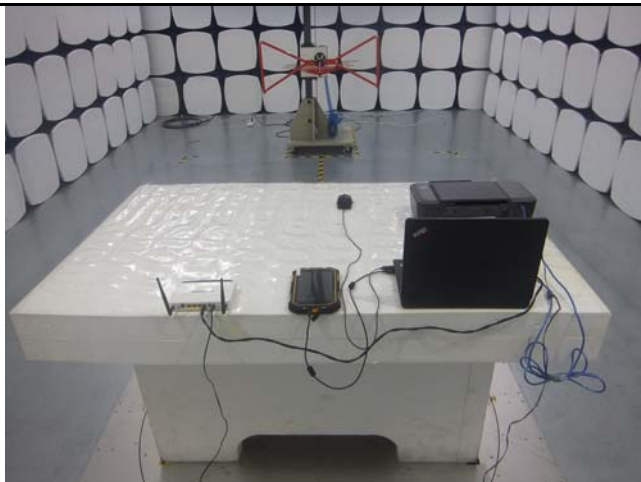
### Annex B.iii. Photograph: Test Setup Photo



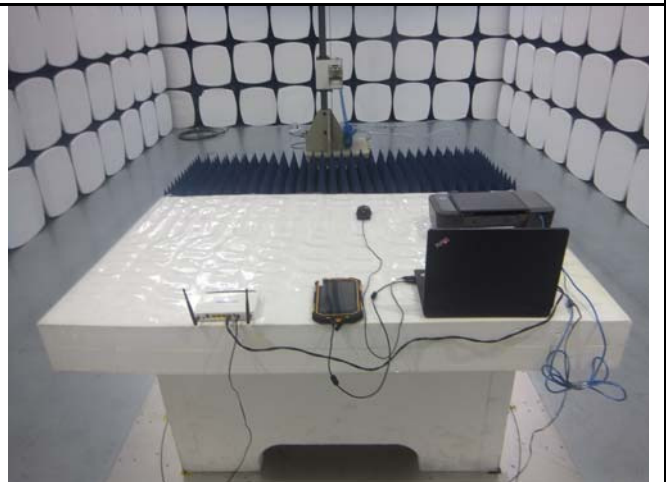
Conducted Emissions Test Setup – Front View



Conducted Emissions Test Setup – Side View



Radiated Emissions Test Setup Below 1GHz

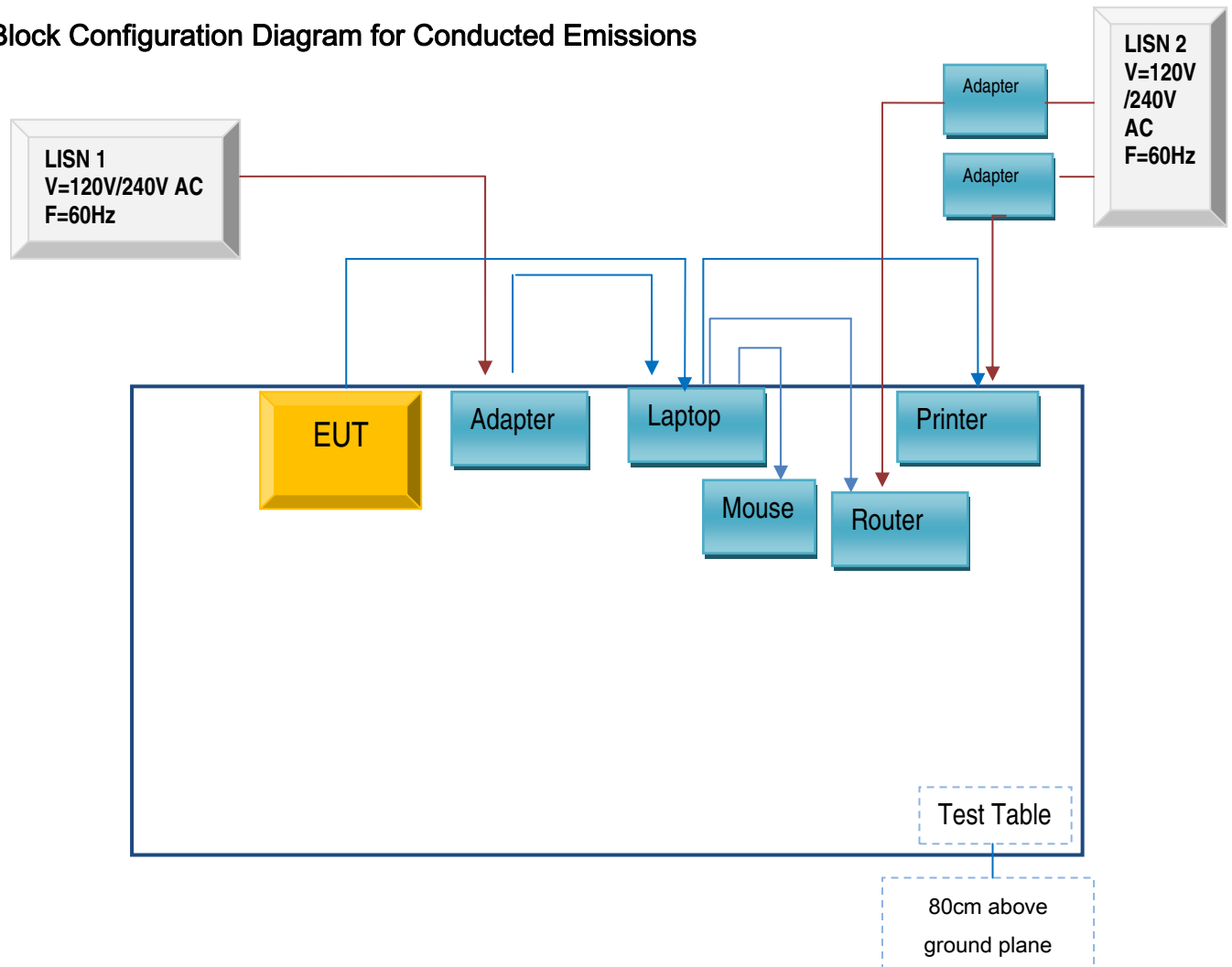


Radiated Emissions Test Setup Above 1GHz

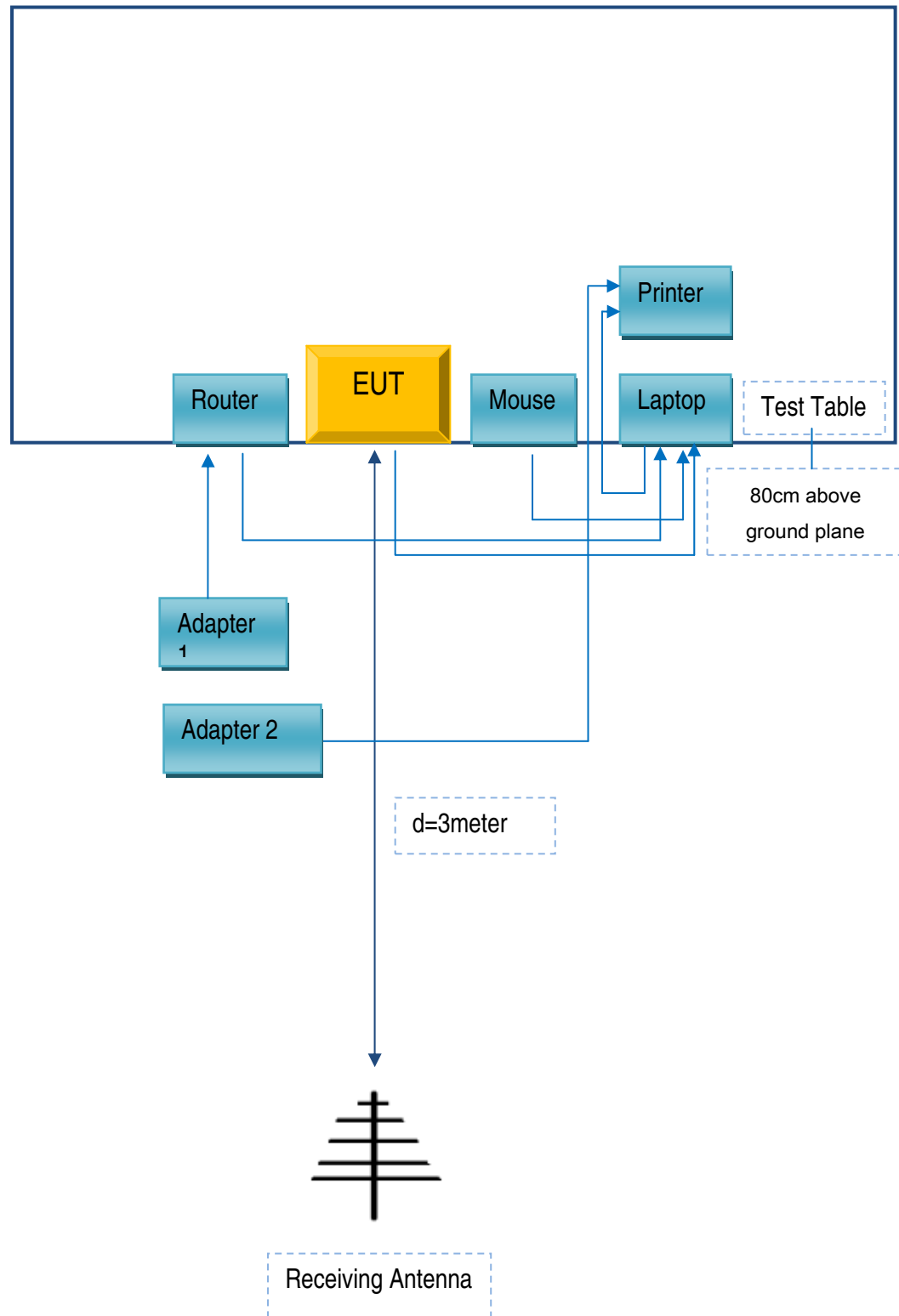
## Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

### Annex C.ii. TEST SET UP BLOCK

#### Block Configuration Diagram for Conducted Emissions



## Block Configuration Diagram for Radiated Emissions



## **Annex C. ii. SUPPORTING EQUIPMENT DESCRIPTION**

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

### **Supporting Equipment:**

| Manufacturer | Equipment Description | Model      | Serial No     |
|--------------|-----------------------|------------|---------------|
| Lenovo       | Laptop                | E40        | LR-1EHRX      |
| GOLDWEB      | Router                | R102       | 1202032094    |
| Lenovo       | AC Adapter            | 42T4416    | 21D9JU        |
| HP           | Printer               | VCVRA-1003 | CN36M19JWX    |
| DELL         | Mouse                 | E100       | 912NMTUT41481 |
| BULL         | Socket                | GN-403     | GN201203      |

### **Supporting Cable:**

| Cable type          | Shield Type  | Ferrite Core | Length | Serial No    |
|---------------------|--------------|--------------|--------|--------------|
| USB Cable           | Un-shielding | No           | 2m     | JX120051274  |
| USB Cable           | Un-shielding | No           | 2m     | CBA3000AH0C1 |
| RJ45 Cable          | Un-shielding | No           | 2m     | KX156327541  |
| Router Power cable  | Un-shielding | No           | 2m     | 13274630Z    |
| Printer Power cable | Un-shielding | No           | 2m     | 127581031    |
| Power Cable         | Un-shielding | No           | 0.8m   | GT211032     |

|             |                |
|-------------|----------------|
| Test Report | 16071169-FCC-E |
| Page        | 30 of 31       |

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

Please see the attachment

|             |                |
|-------------|----------------|
| Test Report | 16071169-FCC-E |
| Page        | 31 of 31       |

## Annex E. DECLARATION OF SIMILARITY

N/A