

# EMC TEST REPORT



Report No.: 17020576-FCC-E1

Supersede Report No.: N/A

|                                                                                                                                      |                                                                        |  |
|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|--|
| Applicant                                                                                                                            | Sangoma Technologies Corp.                                             |  |
| Product Name                                                                                                                         | IP PHONE                                                               |  |
| Model No.                                                                                                                            | S705                                                                   |  |
| Serial No.                                                                                                                           | S505                                                                   |  |
| Test Standard                                                                                                                        | FCC Part 15 Subpart B Class B:2016, ANSI C63.4: 2014                   |  |
| Test Date                                                                                                                            | June 20, 2017                                                          |  |
| Issue Date                                                                                                                           | June 28, 2017                                                          |  |
| Test Result                                                                                                                          | <input checked="" 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"/>                                               |  |
| <i>Trety Lu</i>                                                                                                                      | <i>Deon Dai</i>                                                        |  |
| Trety Lu<br>Test Engineer                                                                                                            | Deon Dai<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 |                                                                        |  |

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## 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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## 1. Report Revision History

| Report No.      | Report Version | Description | Issue Date    |
|-----------------|----------------|-------------|---------------|
| 17020576-FCC-E1 | NONE           | Original    | June 28, 2017 |
|                 |                |             |               |
|                 |                |             |               |
|                 |                |             |               |

## 2. Customer information

|                  |                                                           |
|------------------|-----------------------------------------------------------|
| Applicant Name   | Sangoma Technologies Corp.                                |
| Applicant Add    | 100 Renfrew Drive, Suite 100 / Markham, ON L3R 9R6 CANADA |
| Manufacturer     | Sangoma Technologies Corp.                                |
| Manufacturer Add | 100 Renfrew Drive, Suite 100 / Markham, ON L3R 9R6 CANADA |

## 3. Test site information

|                      |                                                                                    |
|----------------------|------------------------------------------------------------------------------------|
| Lab performing tests | SIEMIC (Nanjing-China) Laboratories                                                |
| Lab Address          | 2-1 Longcang Avenue Yuhua Economic and Technology Development Park, Nanjing, China |
| FCC Test Site No.    | 986914                                                                             |
| IC Test Site No.     | 4842B-1                                                                            |
| Test Software        | EZ EMC                                                                             |

#### 4. Equipment under Test (EUT) Information

|                               |                                                                                                             |
|-------------------------------|-------------------------------------------------------------------------------------------------------------|
| Description of EUT:           | IP PHONE                                                                                                    |
| Date EUT received:            | May 18, 2017                                                                                                |
| Test Date(s):                 | June 20, 2017                                                                                               |
| Main Model:                   | S705                                                                                                        |
| Serial Model:                 | S505                                                                                                        |
| Antenna Gain:                 | Bluetooth/BLE/WIFI:2.8dBi                                                                                   |
| Input Power:                  | Adapter:<br>Model:NBS05B050120VU<br>Input Power:100-240V,50/60Hz,0.2A<br>Output:5V,1.2A                     |
| Type of Modulation:           | 802.11b/g/n: DSSS, OFDM<br>Bluetooth: GFSK, $\pi/4$ DQPSK, 8DPSK<br>BLE: GFSK                               |
| RF Operating Frequency (ies): | WIFI: 802.11b/g/n(20M): 2412-2472 MHz<br>WIFI: 802.11n(40M): 2422-2462 MHz<br>Bluetooth& BLE: 2402-2480 MHz |
| Number of Channels:           | WIFI :802.11b/g/n(20M): 13CH<br>WIFI :802.11n(40M): 9CH<br>Bluetooth: 79CH<br>BLE: 40CH                     |
| Port:                         | Power Port、Ext Port、Internet Port、PC Port、Earphone Port、Telephone Port                                      |
| Trade Name :                  | Sangoma                                                                                                     |
| FCC ID:                       | 2AL9Y-PHONS705A                                                                                             |

## 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

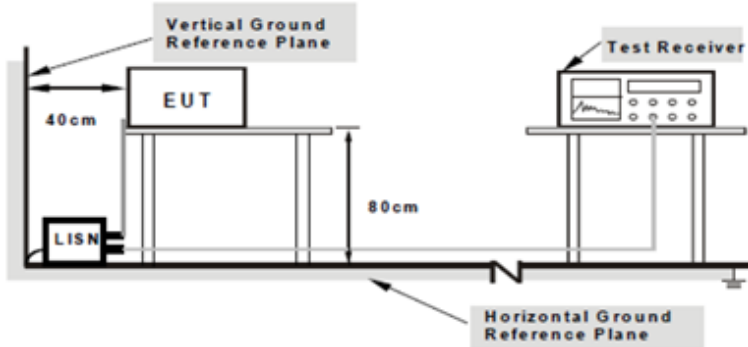
| Emissions                                 |                                                                                                                                                 |               |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 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    | 56%           |
| Atmospheric Pressure | 1023mbar      |
| Test date :          | June 20, 2017 |
| Tested By :          | Trety Lu      |

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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <div><input checked="" type="checkbox"/></div> |                        |              |  |    |         |            |         |         |         |    |    |        |    |    |
|              |                                                                                                        | <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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                | Frequency ranges (MHz) | Limit (dBμV) |  | QP | Average | 0.15 ~ 0.5 | 66 – 56 | 56 – 46 | 0.5 ~ 5 | 56 | 46 | 5 ~ 30 | 60 | 50 |
|              |                                                                                                        | Frequency ranges (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                |                        | Limit (dBμV) |  |    |         |            |         |         |         |    |    |        |    |    |
|              |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                | QP                     | Average      |  |    |         |            |         |         |         |    |    |        |    |    |
|              |                                                                                                        | 0.15 ~ 0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                | 66 – 56                | 56 – 46      |  |    |         |            |         |         |         |    |    |        |    |    |
|              |                                                                                                        | 0.5 ~ 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                | 56                     | 46           |  |    |         |            |         |         |         |    |    |        |    |    |
| 5 ~ 30       | 60                                                                                                     | 50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                |                        |              |  |    |         |            |         |         |         |    |    |        |    |    |
|              |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |                        |              |  |    |         |            |         |         |         |    |    |        |    |    |
|              |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |                        |              |  |    |         |            |         |         |         |    |    |        |    |    |
|              |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |                        |              |  |    |         |            |         |         |         |    |    |        |    |    |
|              |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |                        |              |  |    |         |            |         |         |         |    |    |        |    |    |
| Test Setup   |                                                                                                        | <div><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></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |                        |              |  |    |         |            |         |         |         |    |    |        |    |    |
| Procedure    |                                                                                                        | <div><div>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.</div><div>2. The power supply for the EUT was fed through a 50Ω/50mH EUT LISN, connected to filtered mains.</div><div>3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.</div><div>4. All other supporting equipment were powered separately from another main supply.</div><div>5. The EUT was switched on and allowed to warm up to its normal operating condition.</div><div>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.</div><div>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.</div><div>8. Step 7 was then repeated for the LIVE line (for AC mains) or DC line (for DC power).</div></div> |                                                |                        |              |  |    |         |            |         |         |         |    |    |        |    |    |
| Remark       |                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |                        |              |  |    |         |            |         |         |         |    |    |        |    |    |
| Result       | <div><div><input checked="" type="checkbox"/> Pass</div><div><input type="checkbox"/> Fail</div></div> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |                        |              |  |    |         |            |         |         |         |    |    |        |    |    |

Test Data ☒ Yes ☐ N/A  
Test Plot ☒ Yes (See below) ☐ N/A

#### Data sample

| No. | Frequency | Reading | Detector | Lisn/Isn | Ps_Lmt | Cab_L | Result | Limit  | Margin |
|-----|-----------|---------|----------|----------|--------|-------|--------|--------|--------|
|     | (MHz)     | (dBμV)  |          | (dB}     | (dB)   | (dB)  | (dBμV) | (dBμV) | (dB)   |

Frequency (MHz) = Emission frequency in MHz

Reading (dBμV) = Receiver Reading Value

Detector=Quasi Peak Detector or Average Detector

Lisn/Isn= Insertion loss of LISN

Ps\_Lmt= Insertion loss of transient limiter (The transient limiter included 10dB attenuation)

Cab\_L= cable loss

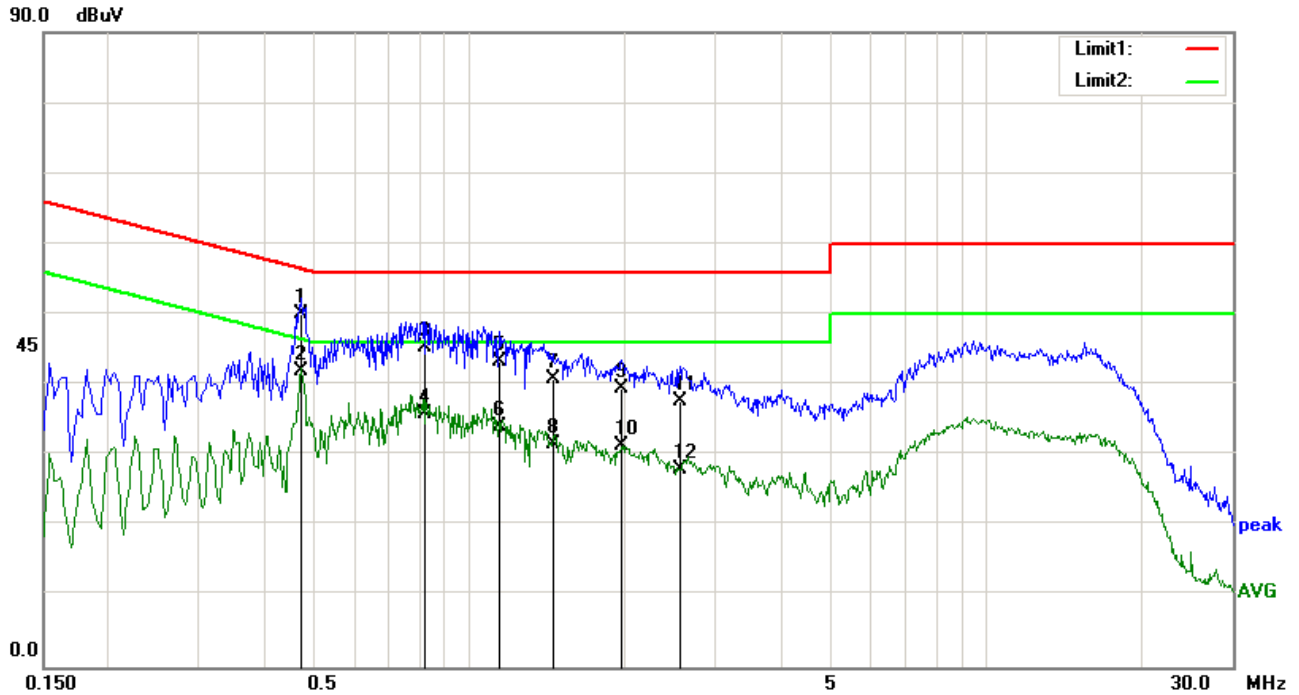
Result (dBμV) = Reading Value + Corrected Value

Limit (dBμV) = Limit stated in standard

#### Calculation Formula:

Margin (dB) = Result (dBμV) – limit (dBμV)

Test Mode : Fully Load Working Mode

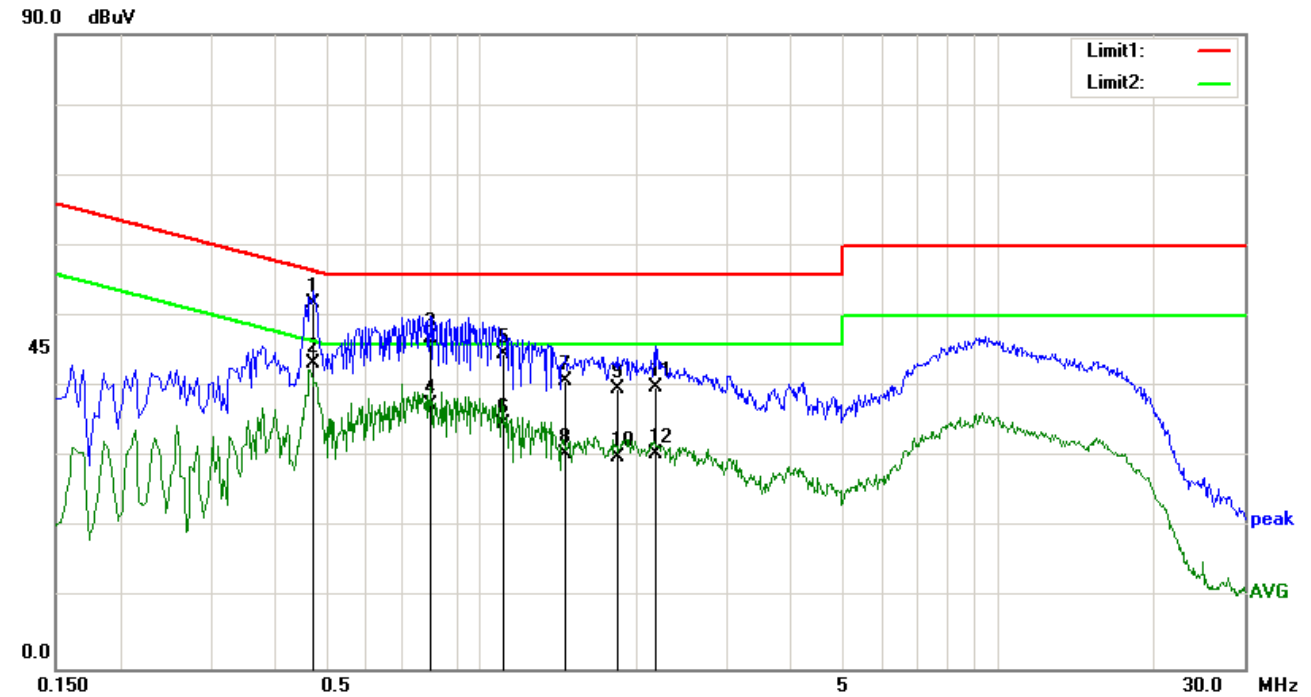


Test Data

Phase Line Plot at 120Vac, 60Hz

| No. | Frequency (MHz) | Reading (dBuV) | Detector | Lisn/Isn (dB) | Ps Lmt (dB) | Cab L (dB) | Result (dBuV) | Limit (dBuV) | Margin (dB) |
|-----|-----------------|----------------|----------|---------------|-------------|------------|---------------|--------------|-------------|
| 1   | 0.4740          | 39.78          | QP       | 0.12          | -10.00      | 0.21       | 50.11         | 56.44        | -6.33       |
| 2   | 0.4740          | 31.74          | AVG      | 0.12          | -10.00      | 0.21       | 42.07         | 46.44        | -4.37       |
| 3   | 0.8220          | 34.95          | QP       | 0.13          | -10.00      | 0.20       | 45.28         | 56.00        | -10.72      |
| 4   | 0.8220          | 25.66          | AVG      | 0.13          | -10.00      | 0.20       | 35.99         | 46.00        | -10.01      |
| 5   | 1.1420          | 33.01          | QP       | 0.14          | -10.00      | 0.20       | 43.35         | 56.00        | -12.65      |
| 6   | 1.1420          | 23.77          | AVG      | 0.14          | -10.00      | 0.20       | 34.11         | 46.00        | -11.89      |
| 7   | 1.4500          | 30.59          | QP       | 0.15          | -10.00      | 0.20       | 40.94         | 56.00        | -15.06      |
| 8   | 1.4500          | 21.34          | AVG      | 0.15          | -10.00      | 0.20       | 31.69         | 46.00        | -14.31      |
| 9   | 1.9780          | 29.21          | QP       | 0.16          | -10.00      | 0.18       | 39.55         | 56.00        | -16.45      |
| 10  | 1.9780          | 21.03          | AVG      | 0.16          | -10.00      | 0.18       | 31.37         | 46.00        | -14.63      |
| 11  | 2.5540          | 27.30          | QP       | 0.18          | -10.00      | 0.23       | 37.71         | 56.00        | -18.29      |
| 12  | 2.5540          | 17.52          | AVG      | 0.18          | -10.00      | 0.23       | 27.93         | 46.00        | -18.07      |

Test Mode : Fully Load Working Mode

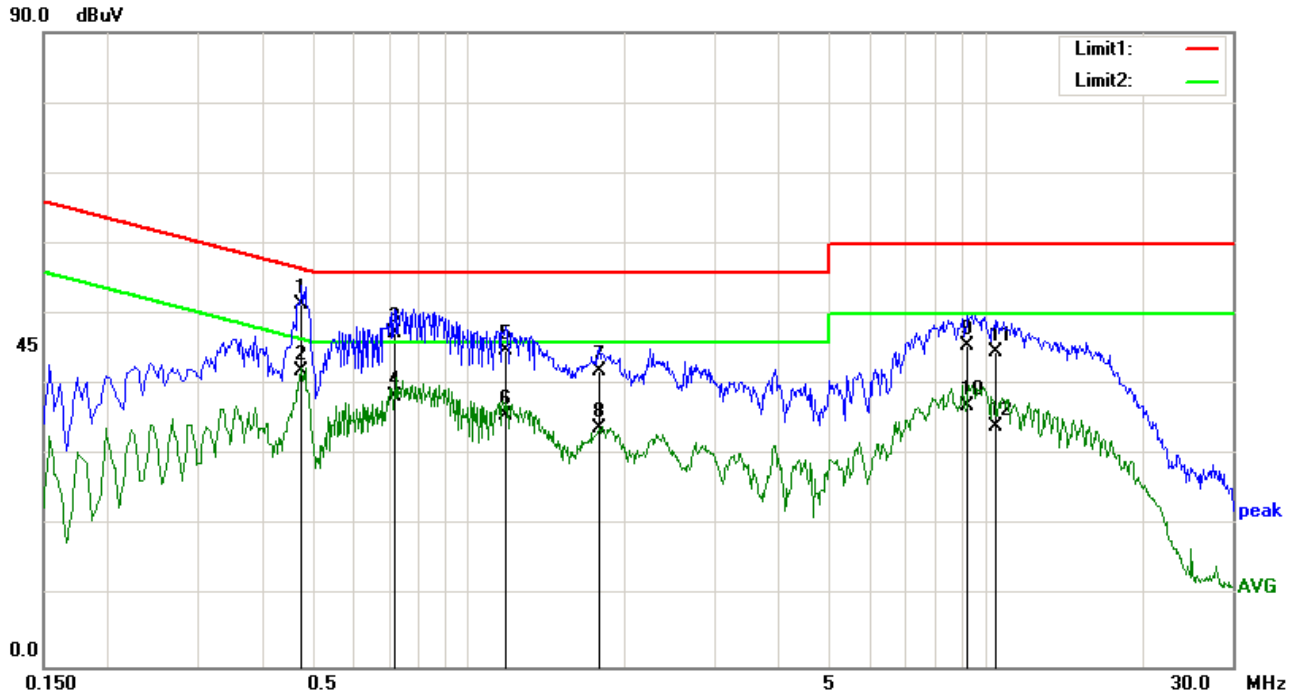


Test Data

Phase Neutral Plot at 120Vac, 60Hz

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Detector | Lisn/Isn<br>(dB) | Ps Lmt<br>(dB) | Cab L<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) |
|-----|--------------------|-------------------|----------|------------------|----------------|---------------|------------------|-----------------|----------------|
| 1   | 0.4740             | 41.54             | QP       | 0.11             | -10.00         | 0.21          | 51.86            | 56.44           | -4.58          |
| 2   | 0.4740             | 32.93             | AVG      | 0.11             | -10.00         | 0.21          | 43.25            | 46.44           | -3.19          |
| 3   | 0.7980             | 36.52             | QP       | 0.12             | -10.00         | 0.20          | 46.84            | 56.00           | -9.16          |
| 4   | 0.7980             | 27.15             | AVG      | 0.12             | -10.00         | 0.20          | 37.47            | 46.00           | -8.53          |
| 5   | 1.1100             | 34.38             | QP       | 0.13             | -10.00         | 0.20          | 44.71            | 56.00           | -11.29         |
| 6   | 1.1100             | 24.39             | AVG      | 0.13             | -10.00         | 0.20          | 34.72            | 46.00           | -11.28         |
| 7   | 1.4620             | 30.42             | QP       | 0.15             | -10.00         | 0.20          | 40.77            | 56.00           | -15.23         |
| 8   | 1.4620             | 20.10             | AVG      | 0.15             | -10.00         | 0.20          | 30.45            | 46.00           | -15.55         |
| 9   | 1.8340             | 29.39             | QP       | 0.16             | -10.00         | 0.20          | 39.75            | 56.00           | -16.25         |
| 10  | 1.8340             | 19.71             | AVG      | 0.16             | -10.00         | 0.20          | 30.07            | 46.00           | -15.93         |
| 11  | 2.1740             | 29.55             | QP       | 0.18             | -10.00         | 0.21          | 39.94            | 56.00           | -16.06         |
| 12  | 2.1740             | 20.13             | AVG      | 0.18             | -10.00         | 0.21          | 30.52            | 46.00           | -15.48         |

Test Mode : Fully Load Working Mode

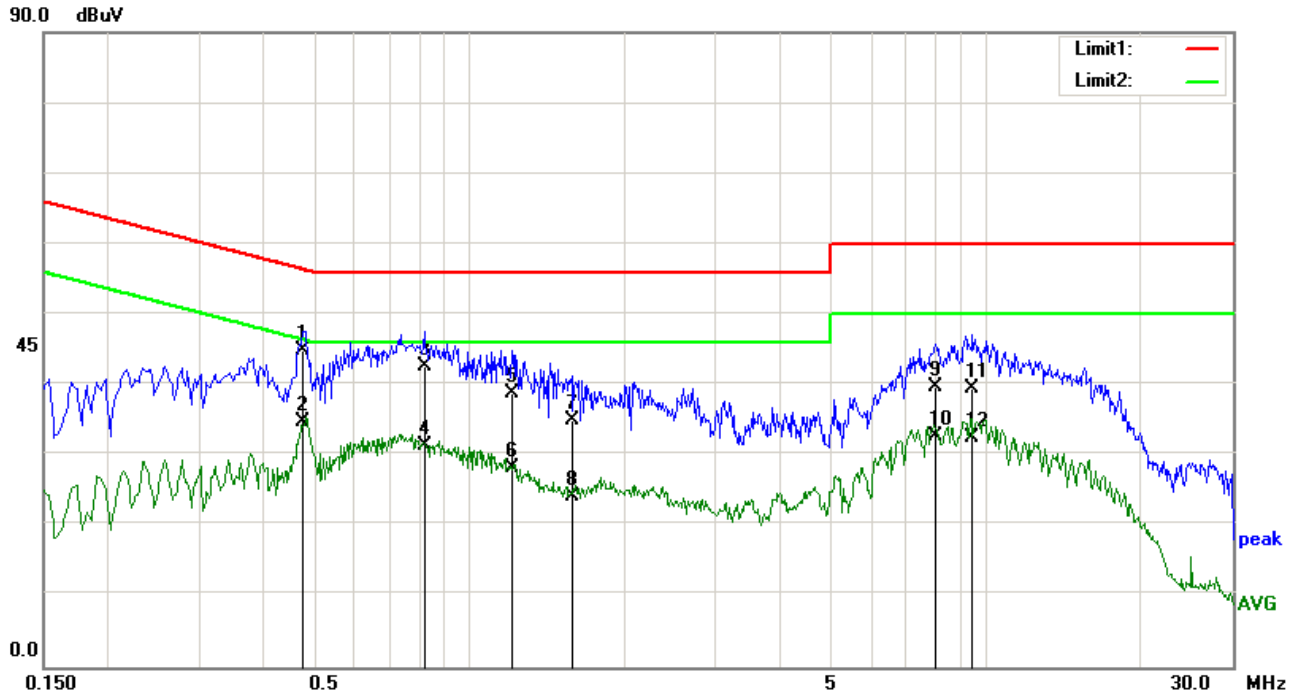


Test Data

Phase Line Plot at 230Vac, 50Hz

| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Detector | Lisn/Isn<br>(dB) | Ps_Lmt<br>(dB) | Cab_L<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) |
|-----|--------------------|-------------------|----------|------------------|----------------|---------------|------------------|-----------------|----------------|
| 1   | 0.4740             | 40.98             | QP       | 0.12             | -10.00         | 0.21          | 51.31            | 56.44           | -5.13          |
| 2   | 0.4740             | 31.67             | AVG      | 0.12             | -10.00         | 0.21          | 42.00            | 46.44           | -4.44          |
| 3   | 0.7180             | 36.94             | QP       | 0.13             | -10.00         | 0.20          | 47.27            | 56.00           | -8.73          |
| 4   | 0.7180             | 27.93             | AVG      | 0.13             | -10.00         | 0.20          | 38.26            | 46.00           | -7.74          |
| 5   | 1.1820             | 34.66             | QP       | 0.14             | -10.00         | 0.20          | 45.00            | 56.00           | -11.00         |
| 6   | 1.1820             | 25.26             | AVG      | 0.14             | -10.00         | 0.20          | 35.60            | 46.00           | -10.40         |
| 7   | 1.7900             | 31.63             | QP       | 0.16             | -10.00         | 0.21          | 42.00            | 56.00           | -14.00         |
| 8   | 1.7900             | 23.40             | AVG      | 0.16             | -10.00         | 0.21          | 33.77            | 46.00           | -12.23         |
| 9   | 9.2060             | 34.62             | QP       | 0.46             | -10.00         | 0.38          | 45.46            | 60.00           | -14.54         |
| 10  | 9.2060             | 26.12             | AVG      | 0.46             | -10.00         | 0.38          | 36.96            | 50.00           | -13.04         |
| 11  | 10.4700            | 33.73             | QP       | 0.52             | -10.00         | 0.50          | 44.75            | 60.00           | -15.25         |
| 12  | 10.4700            | 23.11             | AVG      | 0.52             | -10.00         | 0.50          | 34.13            | 50.00           | -15.87         |

Test Mode : Fully Load Working Mode



Test Data

Phase Neutral Plot at 230Vac, 50Hz

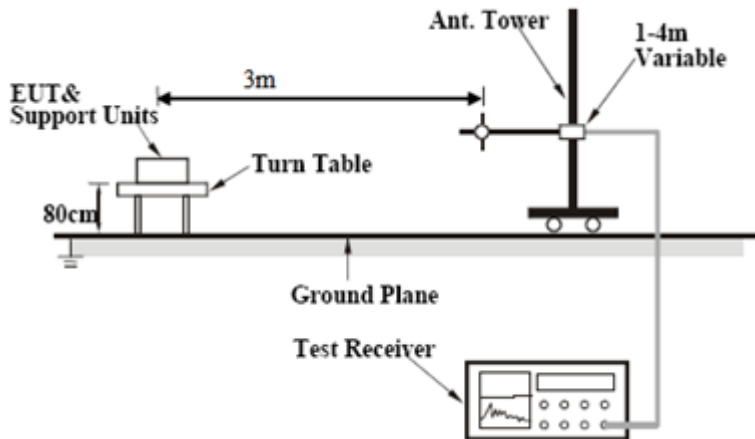
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Detector | Lisn/Isn<br>(dB) | Ps Lmt<br>(dB) | Cab L<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) |
|-----|--------------------|-------------------|----------|------------------|----------------|---------------|------------------|-----------------|----------------|
| 1   | 0.4780             | 34.56             | QP       | 0.11             | -10.00         | 0.21          | 44.88            | 56.37           | -11.49         |
| 2   | 0.4780             | 24.38             | AVG      | 0.11             | -10.00         | 0.21          | 34.70            | 46.37           | -11.67         |
| 3   | 0.8180             | 32.29             | QP       | 0.12             | -10.00         | 0.20          | 42.61            | 56.00           | -13.39         |
| 4   | 0.8180             | 20.99             | AVG      | 0.12             | -10.00         | 0.20          | 31.31            | 46.00           | -14.69         |
| 5   | 1.2140             | 28.45             | QP       | 0.14             | -10.00         | 0.21          | 38.80            | 56.00           | -17.20         |
| 6   | 1.2140             | 17.93             | AVG      | 0.14             | -10.00         | 0.21          | 28.28            | 46.00           | -17.72         |
| 7   | 1.5780             | 24.69             | QP       | 0.15             | -10.00         | 0.20          | 35.04            | 56.00           | -20.96         |
| 8   | 1.5780             | 13.82             | AVG      | 0.15             | -10.00         | 0.20          | 24.17            | 46.00           | -21.83         |
| 9   | 7.9980             | 28.98             | QP       | 0.45             | -10.00         | 0.36          | 39.79            | 60.00           | -20.21         |
| 10  | 7.9980             | 21.98             | AVG      | 0.45             | -10.00         | 0.36          | 32.79            | 50.00           | -17.21         |
| 11  | 9.4500             | 28.60             | QP       | 0.51             | -10.00         | 0.39          | 39.50            | 60.00           | -20.50         |
| 12  | 9.4500             | 21.67             | AVG      | 0.51             | -10.00         | 0.39          | 32.57            | 50.00           | -17.43         |

## 6.2 Radiated Emissions

|                      |               |
|----------------------|---------------|
| Temperature          | 24°C          |
| Relative Humidity    | 56%           |
| Atmospheric Pressure | 1023mbar      |
| Test date :          | June 20, 2017 |
| Tested By :          | Trety Lu      |

### Requirement(s):

| Spec                | Item | Requirement                                                                                                                                                                                                                                                                                                                                   | Applicable            |
|---------------------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 47CFR§15.10<br>9(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 |                       |
|                     |      | 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 over a full rotation of the EUT) was chosen.</li> <li>The EUT was then rotated to the direction that gave the maximum emission.</li> <li>Finally, the antenna height was adjusted to the height that gave the maximum emission.</li> </ol> </li> <li>The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi Peak detection at frequency below 1GHz.</li> <li>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 &lt; 98%) □ 10 Hz (Duty cycle &gt; 98%)</li> <li>Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</li> </ol> |
| Remark    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

|        |                                          |                               |
|--------|------------------------------------------|-------------------------------|
| Result | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
|--------|------------------------------------------|-------------------------------|

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

**Data sample**

| No. | Frequency | Reading  | Detector | Ant_F  | PA_G | Cab_L | Result   | Limit    | Margin | Height | Degree |
|-----|-----------|----------|----------|--------|------|-------|----------|----------|--------|--------|--------|
|     | (MHz)     | (dBμV/m) |          | (dB/m) | (dB) | (dB)  | (dBμV/m) | (dBμV/m) | (dB)   | (cm)   | (°)    |

Frequency (MHz) = Emission frequency in MHz

Reading (dBμV/m) = Receiver Reading Value

Detector= Peak Detector or Quasi Peak Detector

Ant\_F=Antenna Factor

PA\_G=Pre-Amplifier Gain

Cab\_L=Cable Loss

Result (dBμV/m) = Reading Value + Corrected Value

Limit (dBμV/m) = Limit stated in standard

Height (cm) = Height of Receiver antenna

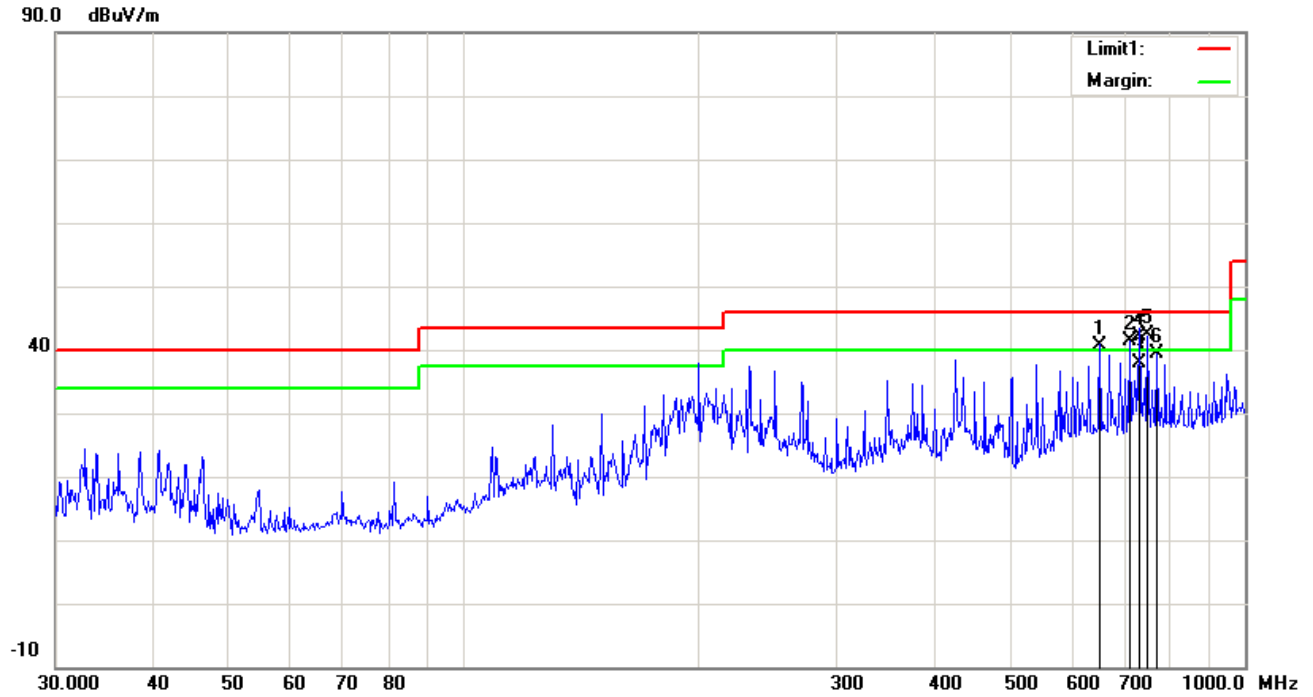
Degree = Turn table degree

**Calculation Formula:**

Margin (dB) = Result (dBμV/m) – limit (dBμV/m)

Test Mode : Fully Load Working Mode

Below 1GHz



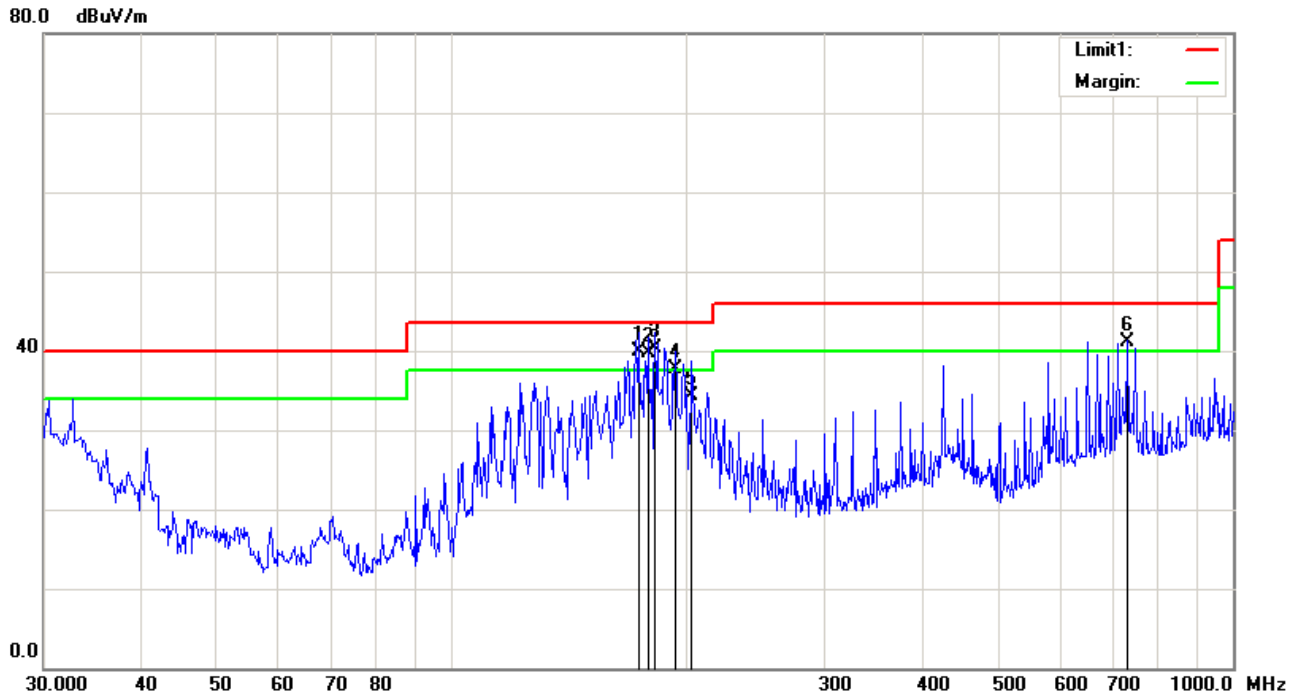
### Test Data

#### Horizontal Polarity Plot @3m

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Ant F<br>(dB/m) | PA G<br>(dB) | Cab L<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(°) |
|-----|--------------------|---------------------|----------|-----------------|--------------|---------------|--------------------|-------------------|----------------|----------------|---------------|
| 1   | 651.9417           | 62.88               | QP       | 21.85           | 48.15        | 4.10          | 40.68              | 46.00             | -5.32          | 300            | 241           |
| 2   | 711.6734           | 60.12               | QP       | 22.47           | 45.60        | 4.29          | 41.28              | 46.00             | -4.72          | 200            | 186           |
| 3   | 731.9203           | 56.43               | QP       | 22.59           | 45.38        | 4.34          | 37.98              | 46.00             | -8.02          | 200            | 206           |
| 4   | 731.9203           | 60.64               | QP       | 22.59           | 45.38        | 4.34          | 42.19              | 46.00             | -3.81          | 200            | 206           |
| 5   | 750.1083           | 60.34               | QP       | 22.70           | 45.02        | 4.40          | 42.42              | 46.00             | -3.58          | 200            | 221           |
| 6   | 771.4486           | 57.81               | peak     | 22.83           | 45.62        | 4.46          | 39.48              | 46.00             | -6.52          | 200            | 214           |

Test Mode : Fully Load Working Mode

Below 1GHz



Test Data

Vertical Polarity Plot @3m

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Ant F<br>(dB/m) | PA G<br>(dB) | Cab L<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(°) |
|-----|--------------------|---------------------|----------|-----------------|--------------|---------------|--------------------|-------------------|----------------|----------------|---------------|
| 1   | 173.2051           | 70.47               | QP       | 13.73           | 46.43        | 2.12          | 39.89              | 43.50             | -3.61          | 100            | 215           |
| 2   | 178.1327           | 71.21               | QP       | 12.69           | 46.34        | 2.15          | 39.71              | 43.50             | -3.79          | 100            | 216           |
| 3   | 181.9202           | 72.13               | QP       | 12.33           | 46.38        | 2.17          | 40.25              | 43.50             | -3.25          | 100            | 227           |
| 4   | 193.0945           | 69.10               | QP       | 13.20           | 46.90        | 2.23          | 37.63              | 43.50             | -5.87          | 100            | 214           |
| 5   | 202.8104           | 64.66               | QP       | 14.85           | 47.41        | 2.27          | 34.37              | 43.50             | -9.13          | 100            | 215           |
| 6   | 731.9203           | 59.98               | QP       | 22.26           | 45.38        | 4.34          | 41.20              | 46.00             | -4.80          | 100            | 318           |

|             |                         |
|-------------|-------------------------|
| Test Mode : | Fully Load Working Mode |
|-------------|-------------------------|

### Above 1GHz

#### Vertical

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Ant F<br>(dB/m) | PA_G<br>(dB) | Cab_L<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(°) |
|-----|--------------------|---------------------|----------|-----------------|--------------|---------------|--------------------|-------------------|----------------|----------------|---------------|
| 1   | 4911.000           | 59.51               | peak     | 33.43           | 53.81        | 5.96          | 45.09              | 74                | -28.91         | 200            | 170           |
| 2   | 6120.000           | 55.63               | peak     | 35.21           | 54.00        | 6.11          | 42.95              | 74                | -31.05         | 100            | 310           |
| 3   | 8631.000           | 55.91               | peak     | 37.35           | 54.02        | 8.29          | 47.53              | 74                | -26.47         | 100            | 298           |
| 4   | 10774.000          | 54.84               | peak     | 38.05           | 53.14        | 9.43          | 49.18              | 74                | -24.82         | 100            | 106           |
| 5   | 13187.000          | 54.36               | peak     | 39.13           | 51.88        | 9.56          | 51.17              | 74                | -22.83         | 200            | 114           |
| 6   | 14716.000          | 55.29               | peak     | 40.34           | 52.74        | 9.36          | 52.25              | 74                | -21.75         | 200            | 9             |

#### Horizontal

| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Detector | Ant F<br>(dB/m) | PA_G<br>(dB) | Cab_L<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Height<br>(cm) | Degree<br>(°) |
|-----|--------------------|---------------------|----------|-----------------|--------------|---------------|--------------------|-------------------|----------------|----------------|---------------|
| 1   | 4960.000           | 62.1                | peak     | 33.58           | 54.04        | 5.88          | 47.52              | 74                | -26.48         | 154            | 360           |
| 2   | 6303.000           | 55.71               | peak     | 34.32           | 52.22        | 5.84          | 43.65              | 74                | -30.35         | 200            | 2             |
| 3   | 8580.000           | 54.47               | peak     | 37.37           | 53.91        | 8.33          | 46.26              | 74                | -27.74         | 154            | 360           |
| 4   | 10755.000          | 54.23               | peak     | 38.05           | 53.13        | 9.43          | 48.58              | 74                | -25.42         | 100            | 30            |
| 5   | 11456.000          | 54.45               | peak     | 38.37           | 53.15        | 10.05         | 49.72              | 74                | -24.28         | 200            | 256           |
| 6   | 13902.000          | 54.41               | peak     | 39.98           | 52.11        | 9.11          | 51.39              | 74                | -22.61         | 100            | 282           |

Note1: The frequency that above 3GHz is mainly from the environment noise.

Note2: 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>           |              |                |            |            |                                     |
| R&S EMI Test Receiver                        | ESPI3        | 101216         | 05/03/2017 | 05/02/2018 | <input checked="" type="checkbox"/> |
| V-LISN                                       | ESH3-Z5      | 838979/005     | 03/30/2017 | 03/29/2018 | <input checked="" type="checkbox"/> |
| SIEMIC EZ_EMC<br>Conducted Emissions         | Ver.ICP-03A1 | N/A            | N/A        | N/A        | <input checked="" type="checkbox"/> |
| <b>Radiated Emissions</b>                    |              |                |            |            |                                     |
| Spectrum Analyzer                            | N9010A       | MY47191130     | 05/03/2017 | 05/02/2018 | <input checked="" type="checkbox"/> |
| R&S EMI Receiver                             | ESPI3        | 101216         | 05/03/2017 | 05/02/2018 | <input checked="" type="checkbox"/> |
| Antenna (30MHz~6GHz)                         | JB6          | A121411        | 10/31/2016 | 10/31/2017 | <input checked="" type="checkbox"/> |
| EMCO Horn Antenna<br>(1 ~18GHz)              | 3115         | N/A            | 11/15/2016 | 11/14/2017 | <input checked="" type="checkbox"/> |
| INFOMW Antenna<br>(1 ~18GHz)                 | JXTXLB-10180 | J2031081120092 | 10/09/2016 | 10/08/2017 | <input checked="" type="checkbox"/> |
| Hp Pre-Amplifier                             | 8447F        | 1937A01160     | 10/31/2016 | 10/30/2017 | <input checked="" type="checkbox"/> |
| Agilent Pre-Amplifier                        | 8449B        | N/A            | 10/31/2016 | 10/30/2017 | <input checked="" type="checkbox"/> |
| SIEMIC EZ_EMC Radiated<br>Emissions software | Ver.ICP-03A1 | N/A            | N/A        | N/A        | <input checked="" type="checkbox"/> |

## Annex B. EUT And Test Setup Photographs

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



The Whole of EUT - Front View



Adapter - Front View



Adapter – Right View



EUT - Top View



EUT - Bottom View



EUT - Front View



EUT - Rear View

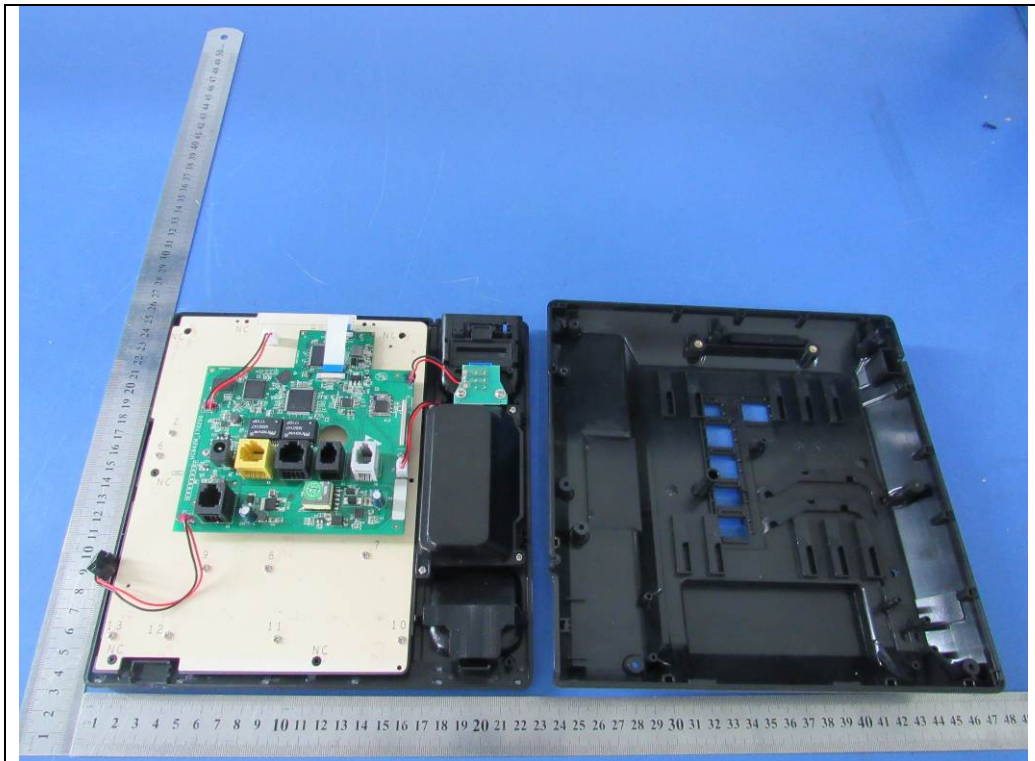


EUT - Left View

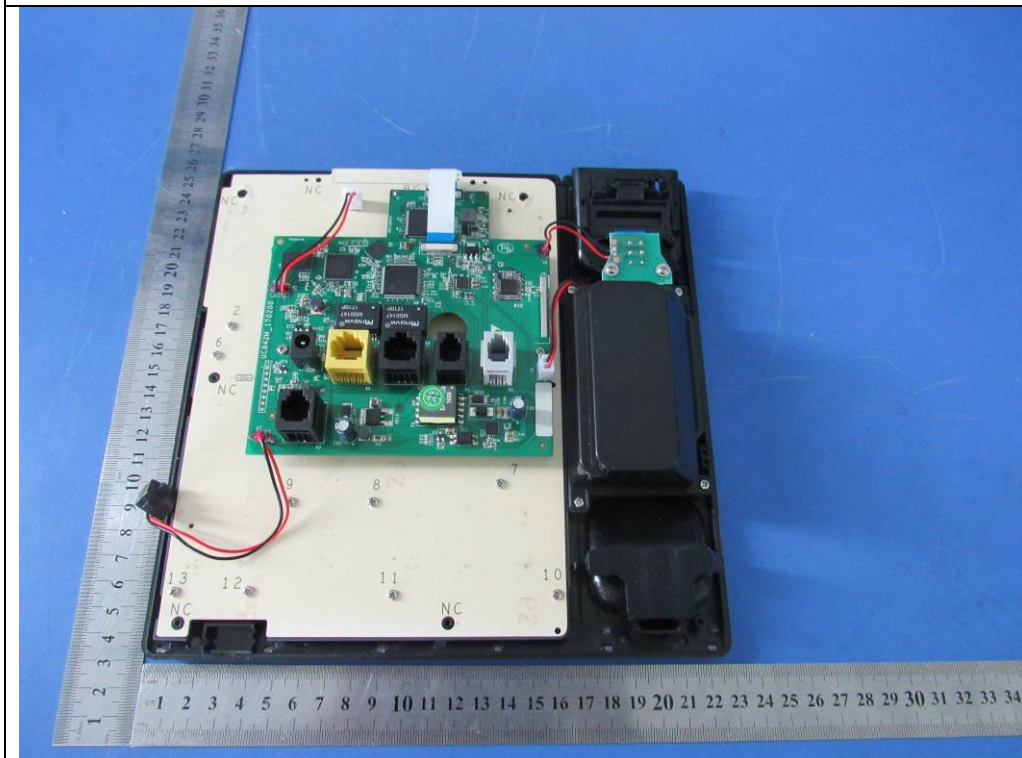


EUT - Right View

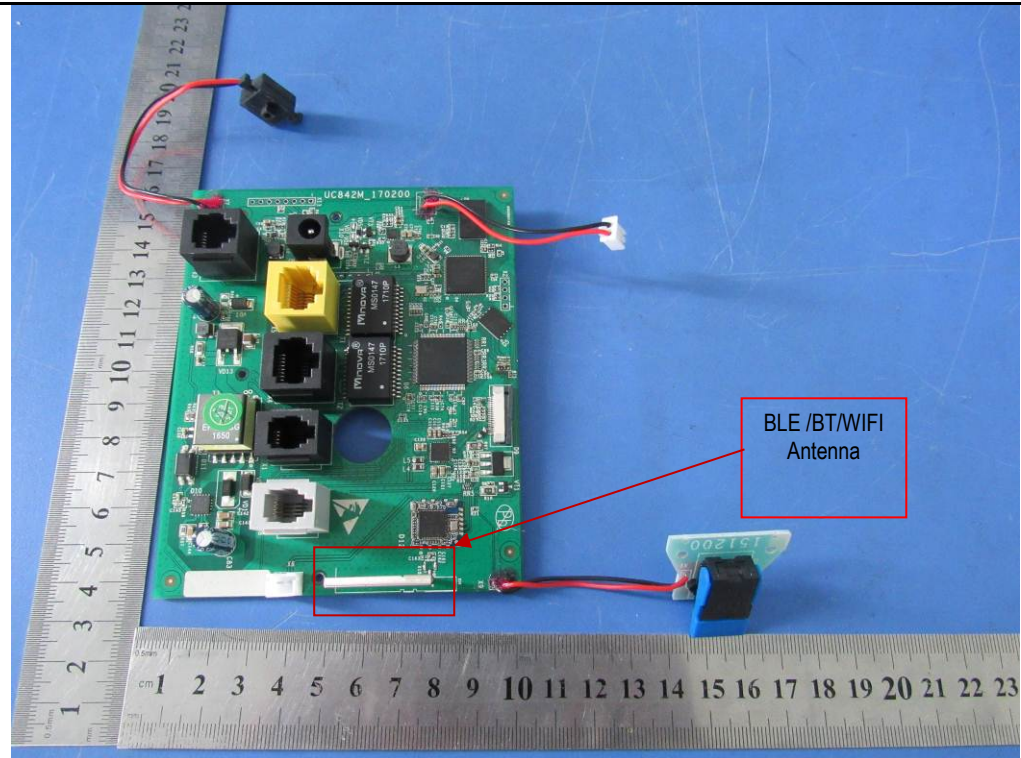
**Annex B.ii. Photograph: EUT Internal Photo**



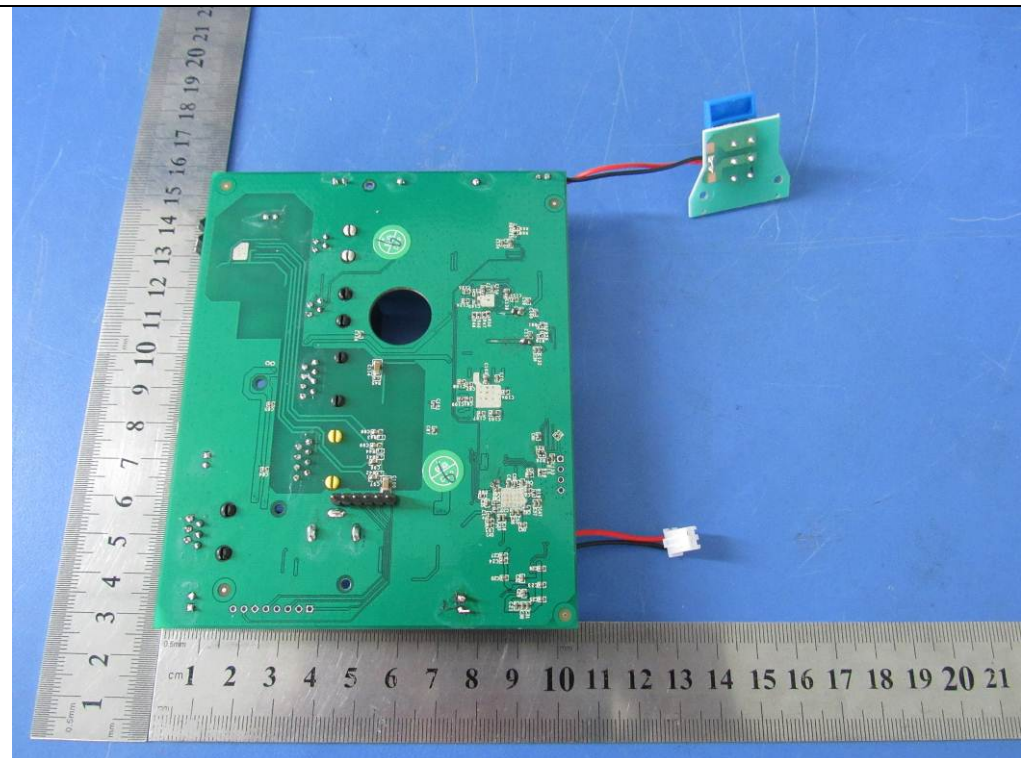
**EUT – Uncover Front View - 1**



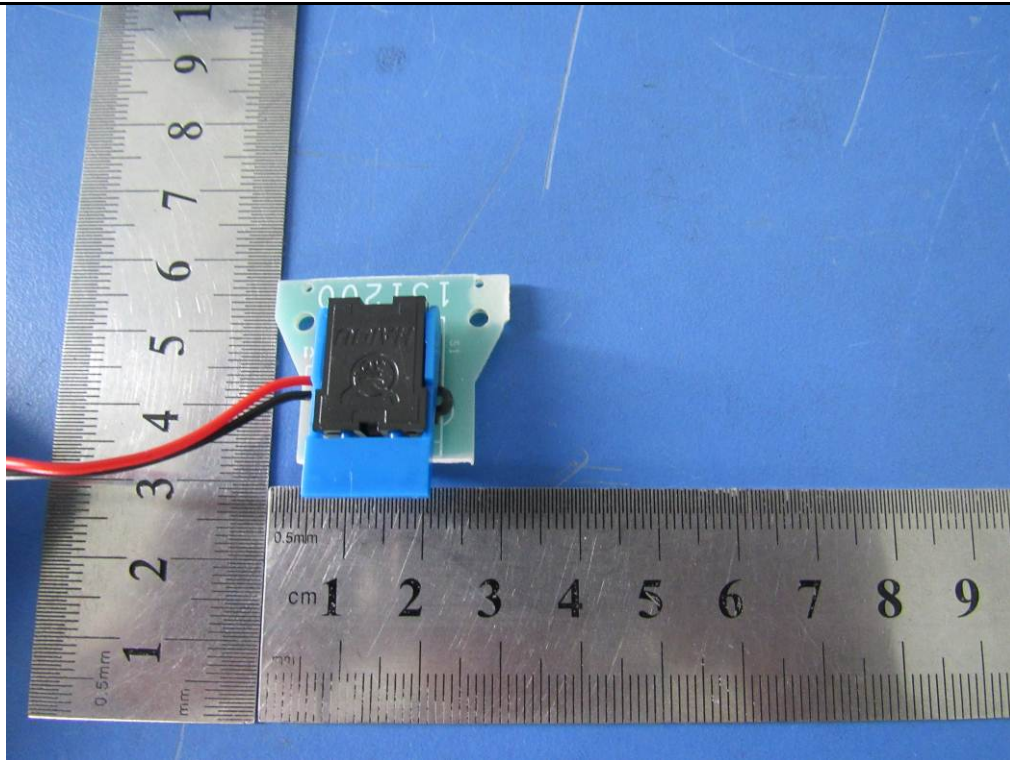
**EUT – Uncover Front View - 2**



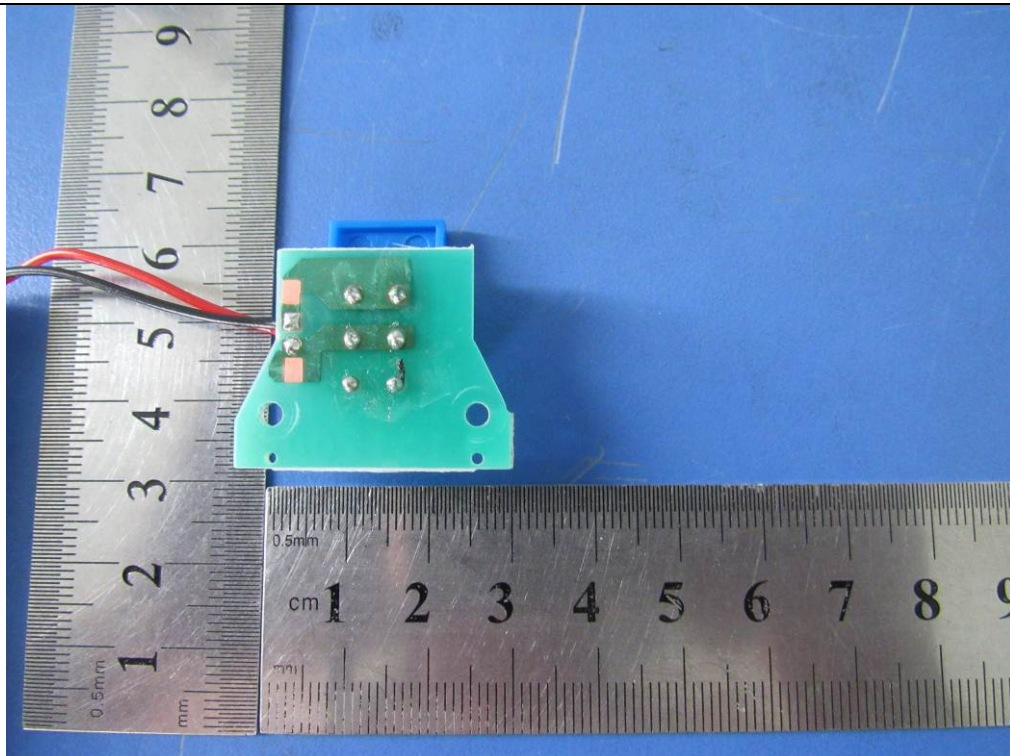
EUT PCB1 – Front View



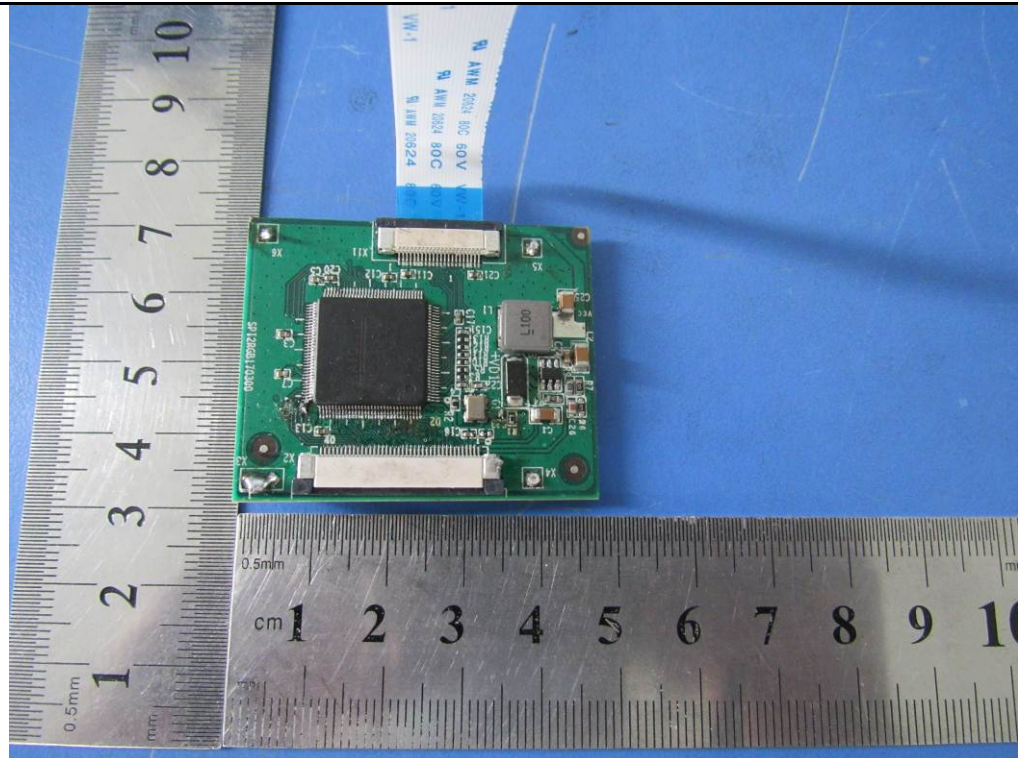
EUT PCB1 – Rear View



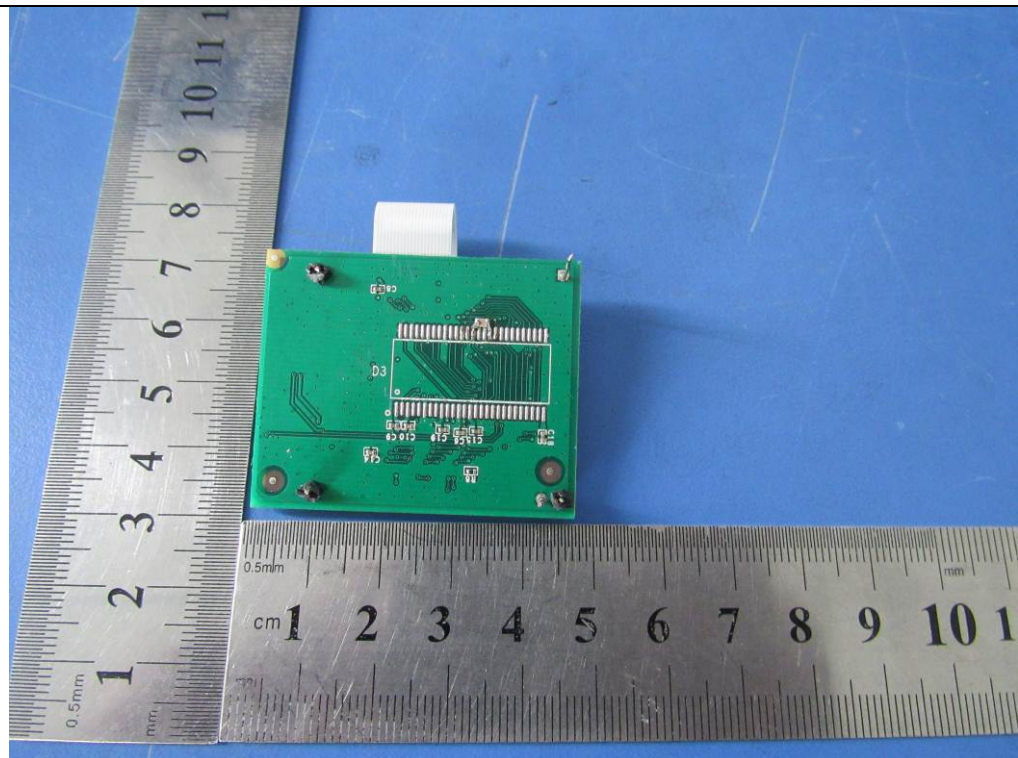
EUT PCB2 – Front View



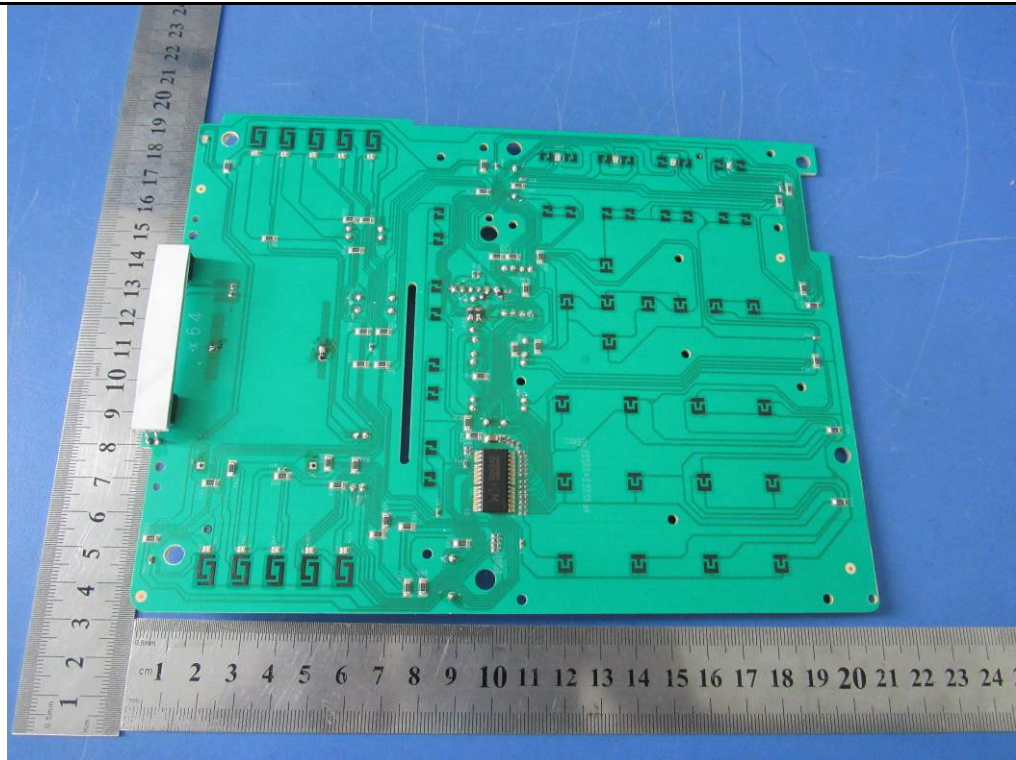
EUT PCB2 – Rear View



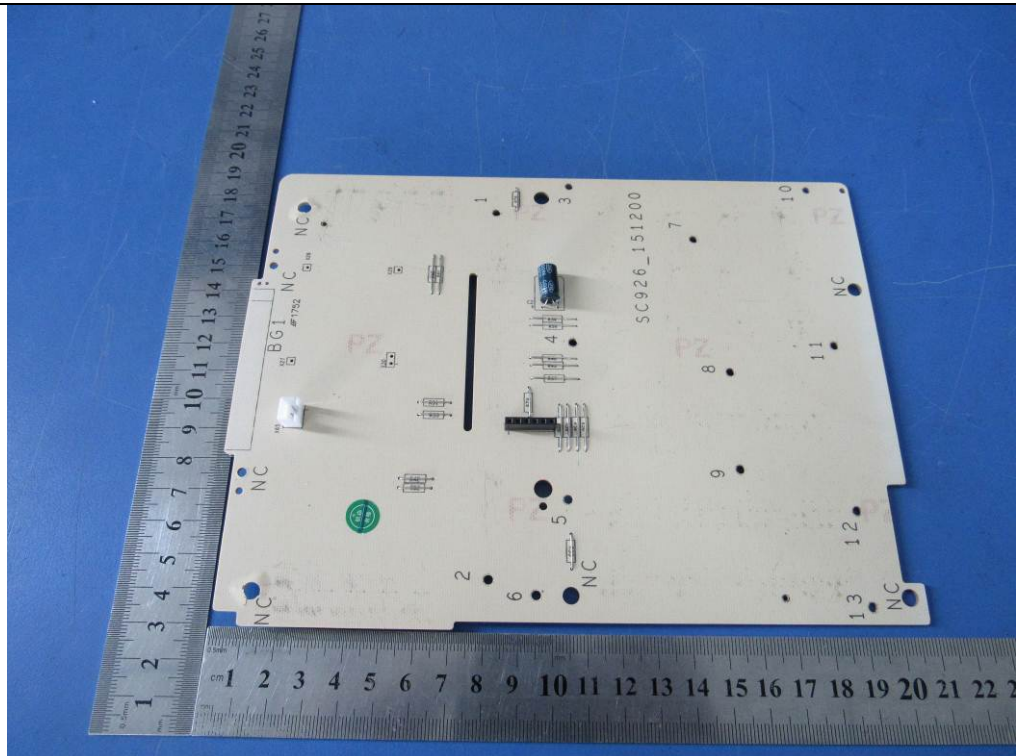
EUT PCB3 – Front View



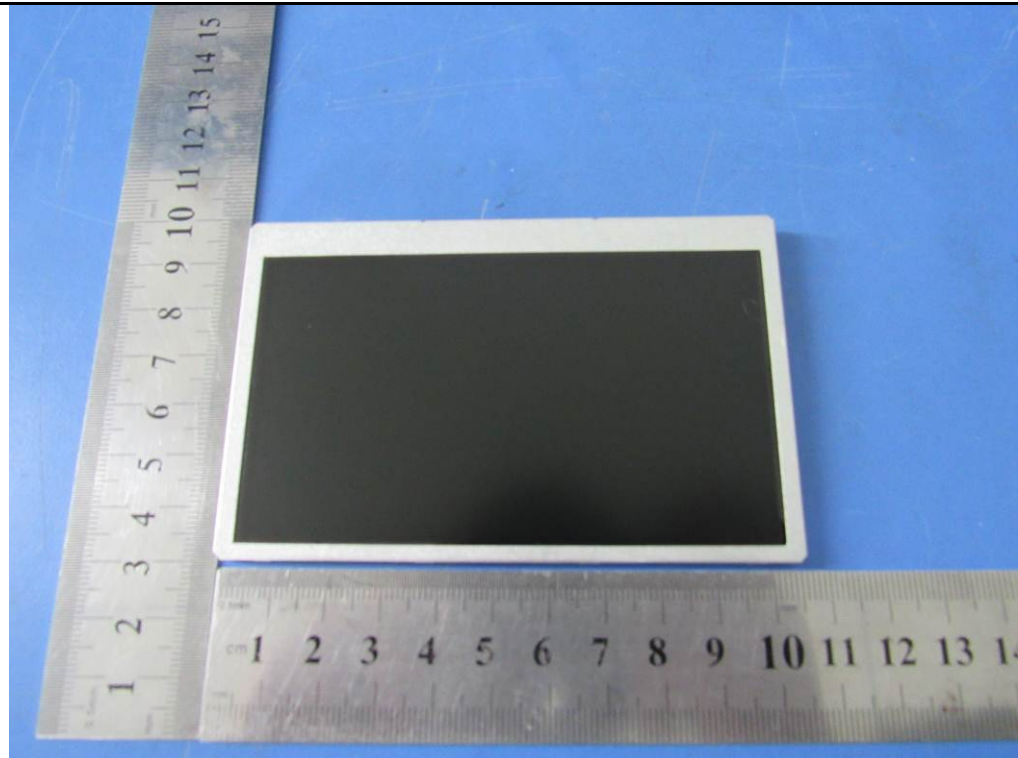
EUT PCB3 – Rear View



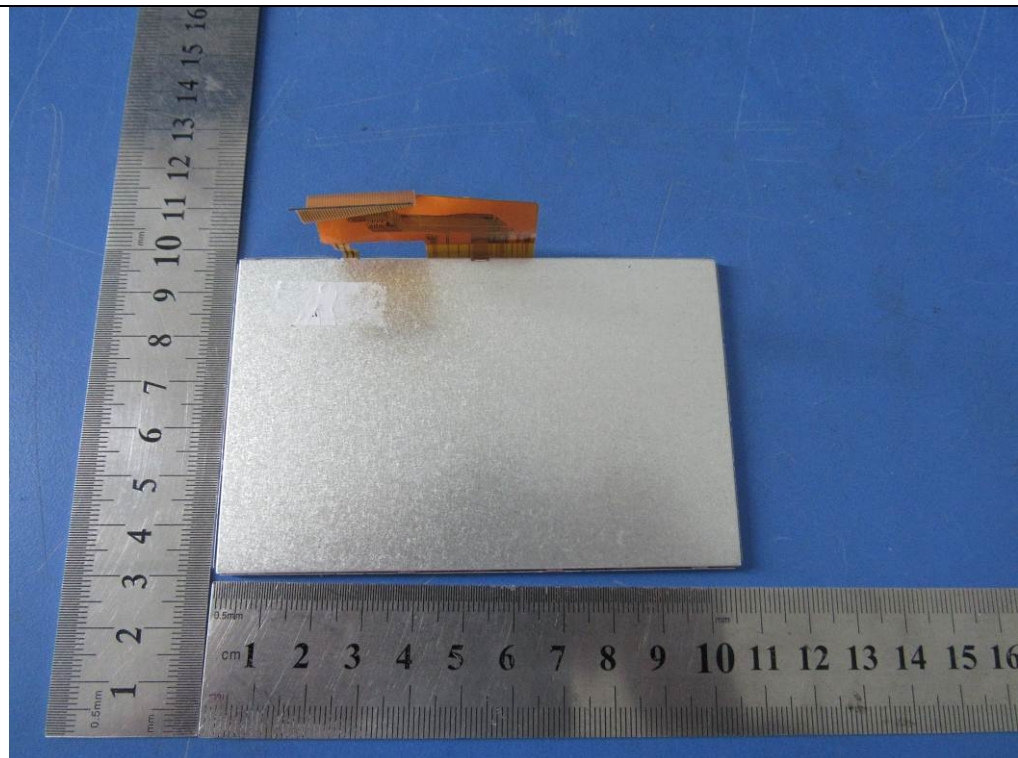
EUT PCB4 – Front View



EUT PCB4 – Rear View



EUT Screen – Front View



EUT Screen – Rear View

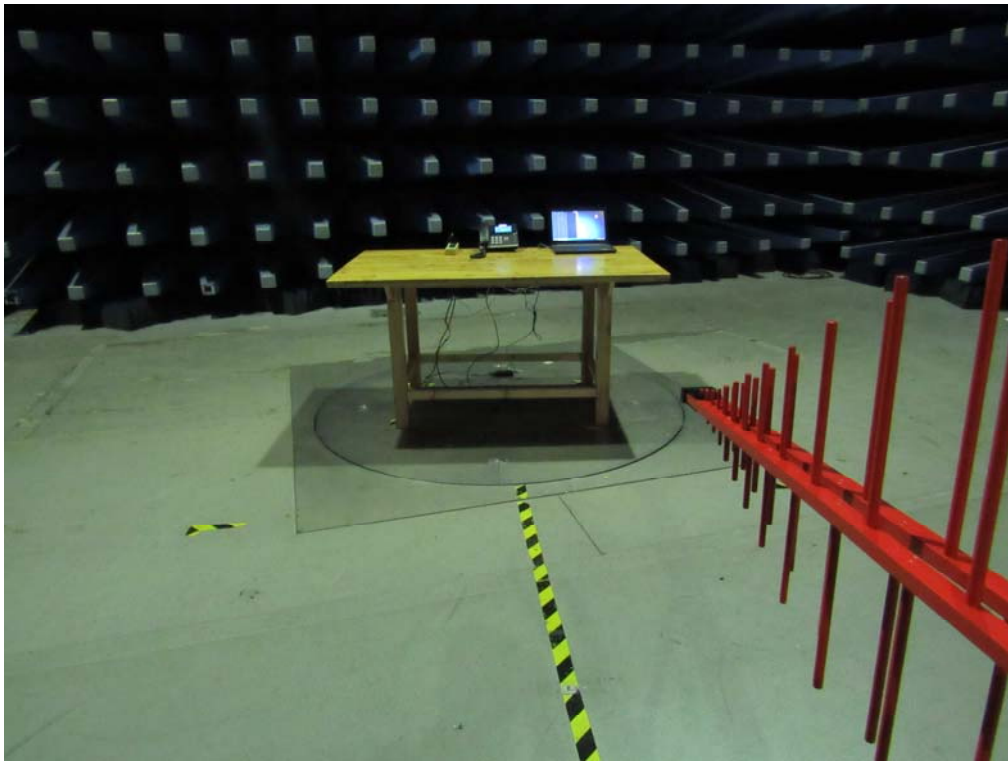
Annex B.iii. Photograph: Test Setup Photo



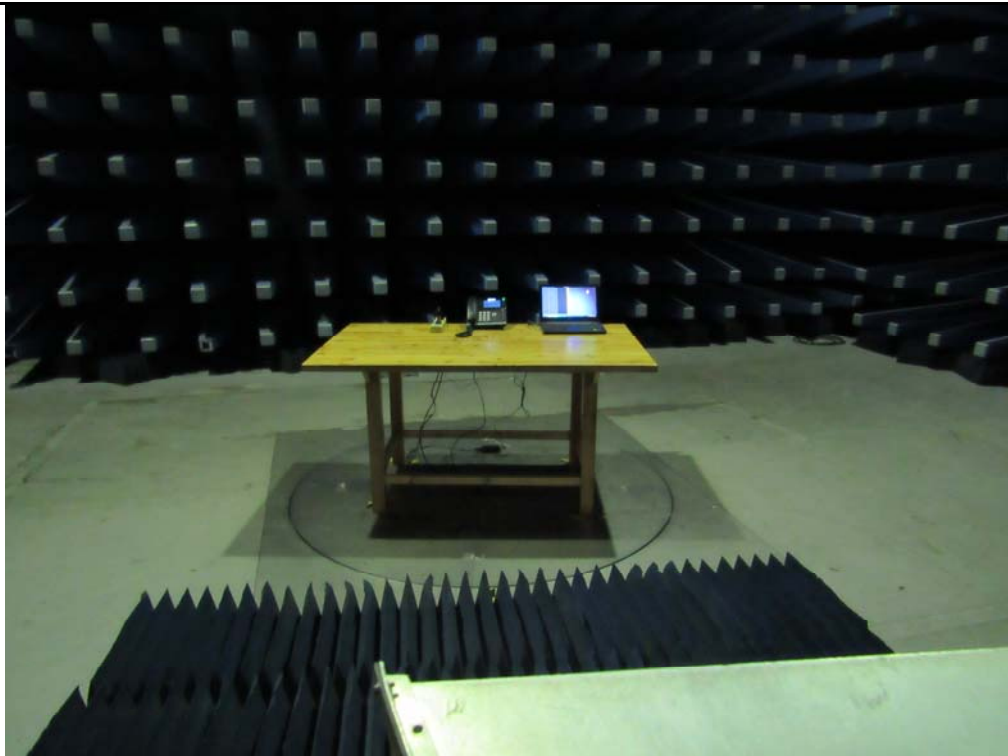
Conducted Emissions Test Setup Front View



Conducted Emissions Test Setup Side View



Radiated Spurious Emissions Test Setup Below 1GHz

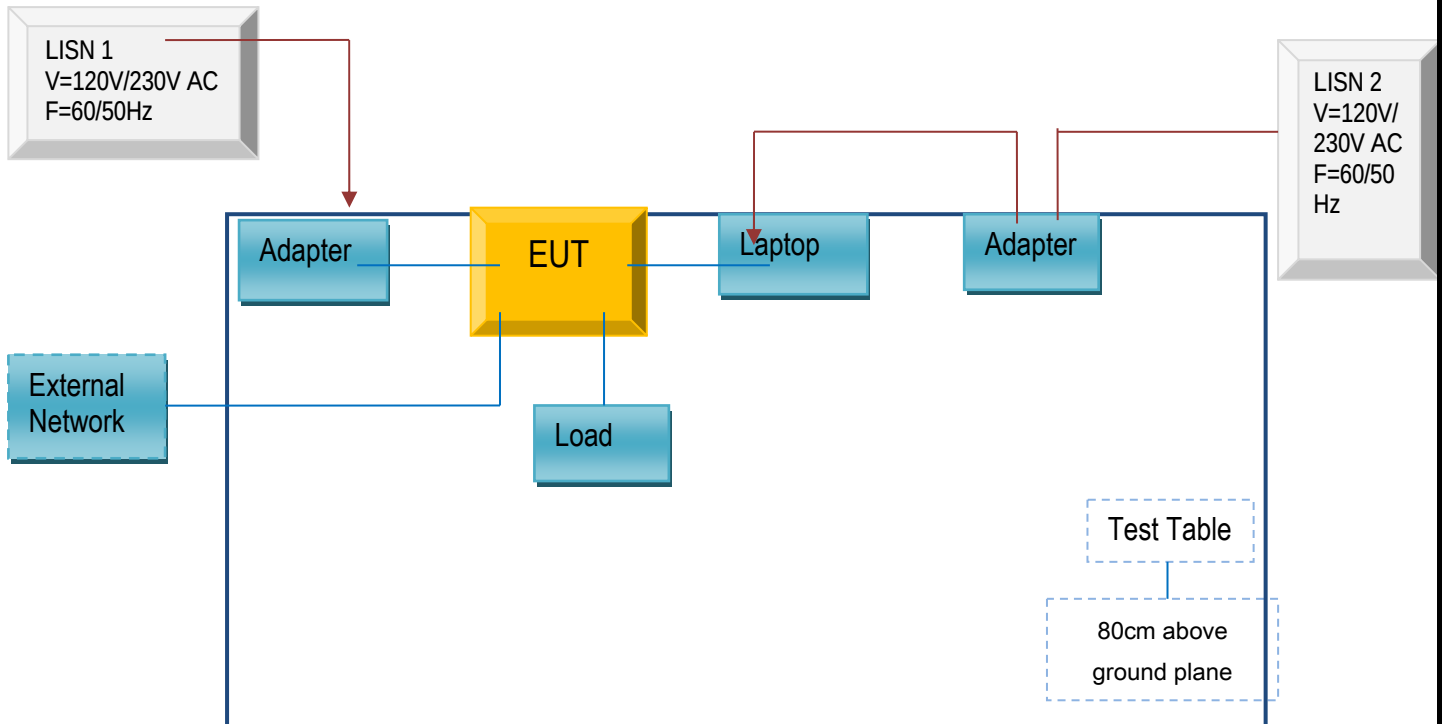


Radiated Spurious Emissions Test Setup Above 1GHz

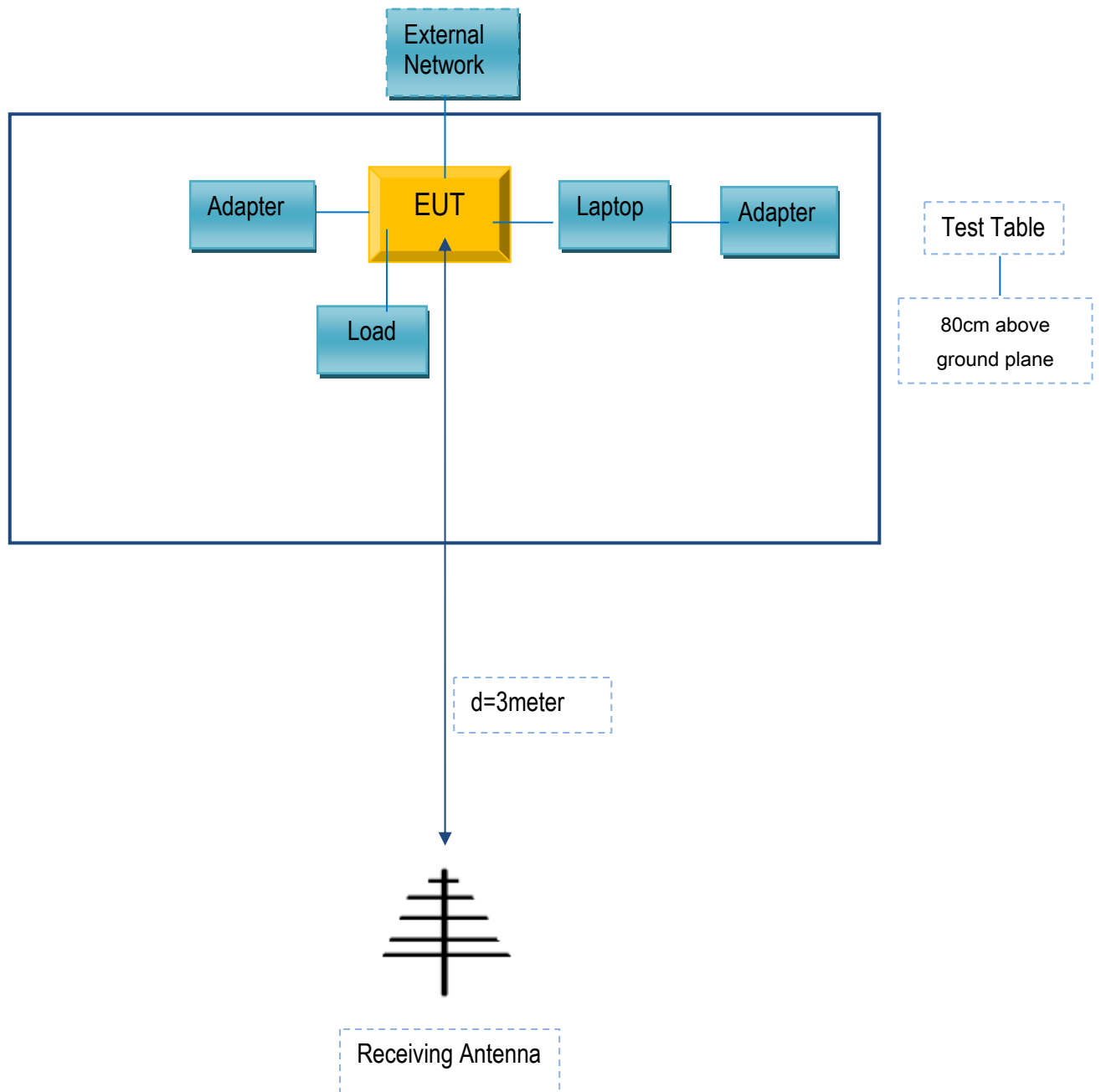
## Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

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

#### Block Configuration Diagram for Conducted Emissions



### Block Configuration Diagram for Radiated Emissions



### Annex C. 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 |
|--------------|-----------------------|-------|-----------|
| HP           | Laptop                | 4321S | N/A       |
| N/A          | Load                  | N/A   | N/A       |

#### Supporting Cable:

| Cable type  | Shield Type  | Ferrite Core | Length | Serial No |
|-------------|--------------|--------------|--------|-----------|
| Power Cable | Un-shielding | No           | 0.8m   | N/A       |

|                 |                 |
|-----------------|-----------------|
| Test Report No. | 17020576-FCC-E1 |
| Page            | 36 of 37        |

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

See attachment

Annex E. DECLARATION OF SIMILARITY

**Sangoma Technologies Corp.**

**Statement**

Model number: S705, S505

FCC ID: 2AL9Y-PHONS705A

We hereby state that S705,S505 are identical in interior structure, electrical circuits and components, and just model names, the number of account keys and screen sizes are different.

Your assistance on this matter is highly appreciated.

Sincerely,



Name: Frederic Dickey

Title: VP Marketing & Product Mgmt

Company Name: Sangoma Technologies Corp.

Address: 100 Renfrew Drive, Suite 100 Markham ON L3R 9R6 Canada

Telephone: +1 905 474 1990

E-mail: fdickey@sangoma.com