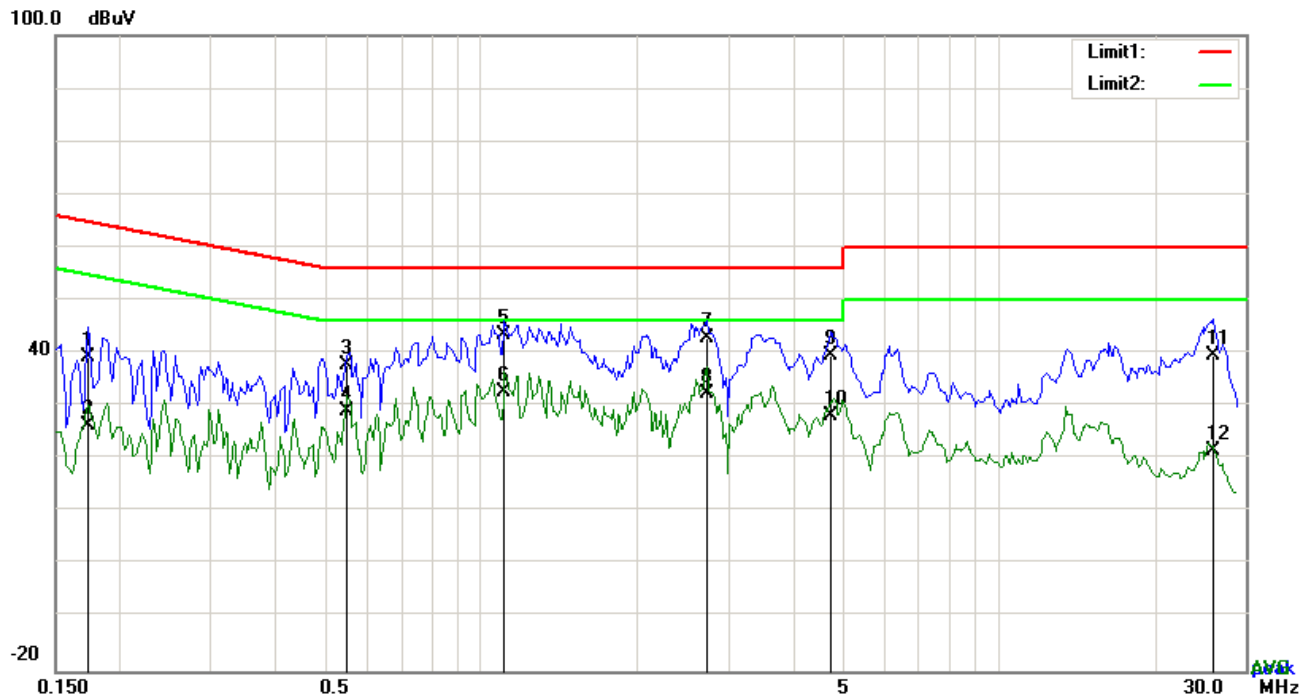


Test Mode: Transmitting Mode



Test Data

Phase Neutral Plot at 240Vac, 60Hz

| No. | P/L | Frequency (MHz) | Reading (dBμV) | Detector | Corrected (dB) | Result (dBμV) | Limit (dBμV) | Margin (dB) |
|-----|-----|-----------------|----------------|----------|----------------|---------------|--------------|-------------|
| 1 | N | 0.1734 | 29.32 | QP | 10.02 | 39.34 | 64.80 | -25.46 |
| 2 | N | 0.1734 | 16.47 | AVG | 10.02 | 26.49 | 54.80 | -28.31 |
| 3 | N | 0.5493 | 27.65 | QP | 10.02 | 37.67 | 56.00 | -18.33 |
| 4 | N | 0.5493 | 19.01 | AVG | 10.02 | 29.03 | 46.00 | -16.97 |
| 5 | N | 1.1094 | 33.30 | QP | 10.03 | 43.33 | 56.00 | -12.67 |
| 6 | N | 1.1094 | 22.64 | AVG | 10.03 | 32.67 | 46.00 | -13.33 |
| 7 | N | 2.7240 | 32.73 | QP | 10.05 | 42.78 | 56.00 | -13.22 |
| 8 | N | 2.7240 | 22.21 | AVG | 10.05 | 32.26 | 46.00 | -13.74 |
| 9 | N | 4.7316 | 29.48 | QP | 10.07 | 39.55 | 56.00 | -16.45 |
| 10 | N | 4.7316 | 17.97 | AVG | 10.07 | 28.04 | 46.00 | -17.96 |
| 11 | N | 25.9632 | 29.09 | QP | 10.36 | 39.45 | 60.00 | -20.55 |
| 12 | N | 25.9632 | 11.21 | AVG | 10.36 | 21.57 | 50.00 | -28.43 |

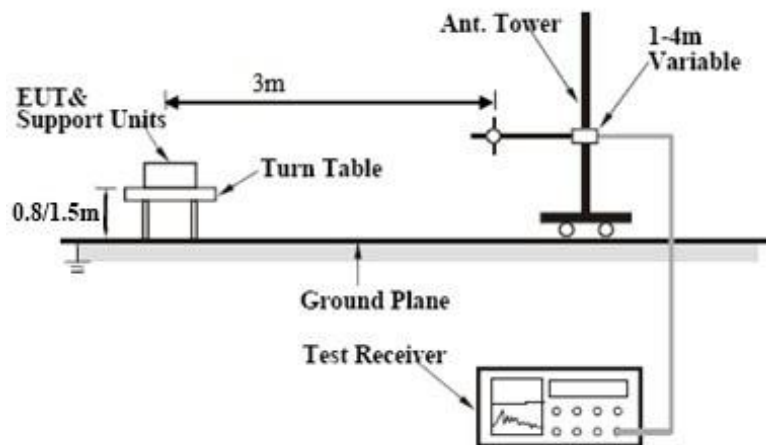
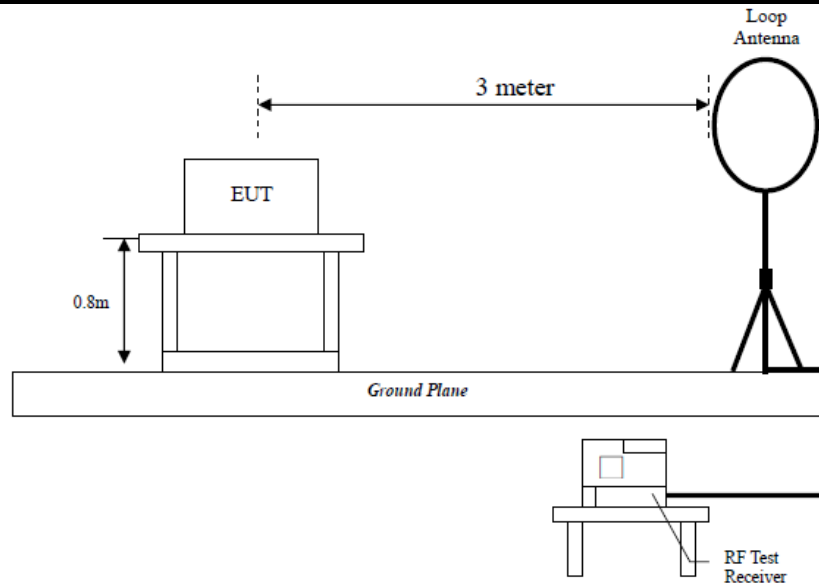
6.7 Radiated Emissions & Restricted Band

| | |
|----------------------|---------------|
| Temperature | 25 °C |
| Relative Humidity | 55% |
| Atmospheric Pressure | 1017mbar |
| Test date : | June 23, 2017 |
| Tested By : | Loren Luo |

Requirement(s):

| Spec | Item | Requirement | Applicable | | | | | | | | | | | | | | | | |
|--------------------------------------|---|---|---|-------------------------------------|-----------------------|-------------|-------------|-------------|--------------|------------|----|---------|-----|----------|-----|---------|-----|-----------|-----|
| 47CFR§15.247(d), RSS210 (A8.5) | 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 | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | |
| | | <table><tr><th>Frequency range (MHz)</th><th>Field Strength (μV/m)</th></tr><tr><td>0.009~0.490</td><td>2400/F(KHz)</td></tr><tr><td>0.490~1.705</td><td>24000/F(KHz)</td></tr><tr><td>1.705~30.0</td><td>30</td></tr><tr><td>30 – 88</td><td>100</td></tr><tr><td>88 – 216</td><td>150</td></tr><tr><td>216 960</td><td>200</td></tr><tr><td>Above 960</td><td>500</td></tr></table> | | Frequency range (MHz) | Field Strength (μV/m) | 0.009~0.490 | 2400/F(KHz) | 0.490~1.705 | 24000/F(KHz) | 1.705~30.0 | 30 | 30 – 88 | 100 | 88 – 216 | 150 | 216 960 | 200 | Above 960 | 500 |
| | | Frequency range (MHz) | | Field Strength (μV/m) | | | | | | | | | | | | | | | |
| | | 0.009~0.490 | | 2400/F(KHz) | | | | | | | | | | | | | | | |
| | | 0.490~1.705 | | 24000/F(KHz) | | | | | | | | | | | | | | | |
| | | 1.705~30.0 | | 30 | | | | | | | | | | | | | | | |
| | | 30 – 88 | | 100 | | | | | | | | | | | | | | | |
| | | 88 – 216 | | 150 | | | | | | | | | | | | | | | |
| | | 216 960 | | 200 | | | | | | | | | | | | | | | |
| | Above 960 | 500 | | | | | | | | | | | | | | | | | |
| b) | For non-restricted band, In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB or 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, determined by the measurement method on output power to be used. Attenuation below the general limits specified in § 15.209(a) is not required <input checked="" type="checkbox"/> 20 dB down <input type="checkbox"/> 30 dB down | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | |
| | c) | | or restricted band, emission must also comply with the radiated emission limits specified in 15.209 | <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | |

Test Setup



Procedure

- The EUT was switched on and allowed to warm up to its normal operating condition.
- 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:
 - Vertical or horizontal polarization (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
 - The EUT was then rotated to the direction that gave the maximum emission.
 - Finally, the antenna height was adjusted to the height that gave the maximum emission.
- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi Peak detection at frequency below 1GHz.
- 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.

| | |
|-----------------|-----------------|
| Test Report No. | 17070358-FCC-R4 |
| Page | 39 of 63 |

| | |
|--------|---|
| | <p>The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz with Peak detection for Average Measurement as below at frequency above 1GHz.</p> <p>5. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</p> |
| Remark | Different RF configuration has been evaluated but not much difference was found. The data presented here is the worst case data with EUT under 802.11n – HT20-2437MHz mode. |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test Result:

| | |
|------------|-------------------|
| Test Mode: | Transmitting Mode |
|------------|-------------------|

Frequency range: 9KHz - 30MHz

| Freq. | Detection | Factor | Reading | Result | Limit@3m | Margin |
|-------|-----------|--------|----------|----------|----------|--------|
| (MHz) | value | (dB/m) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) |
| -- | -- | -- | -- | -- | -- | >20 |
| -- | -- | -- | -- | -- | -- | >20 |

Note:

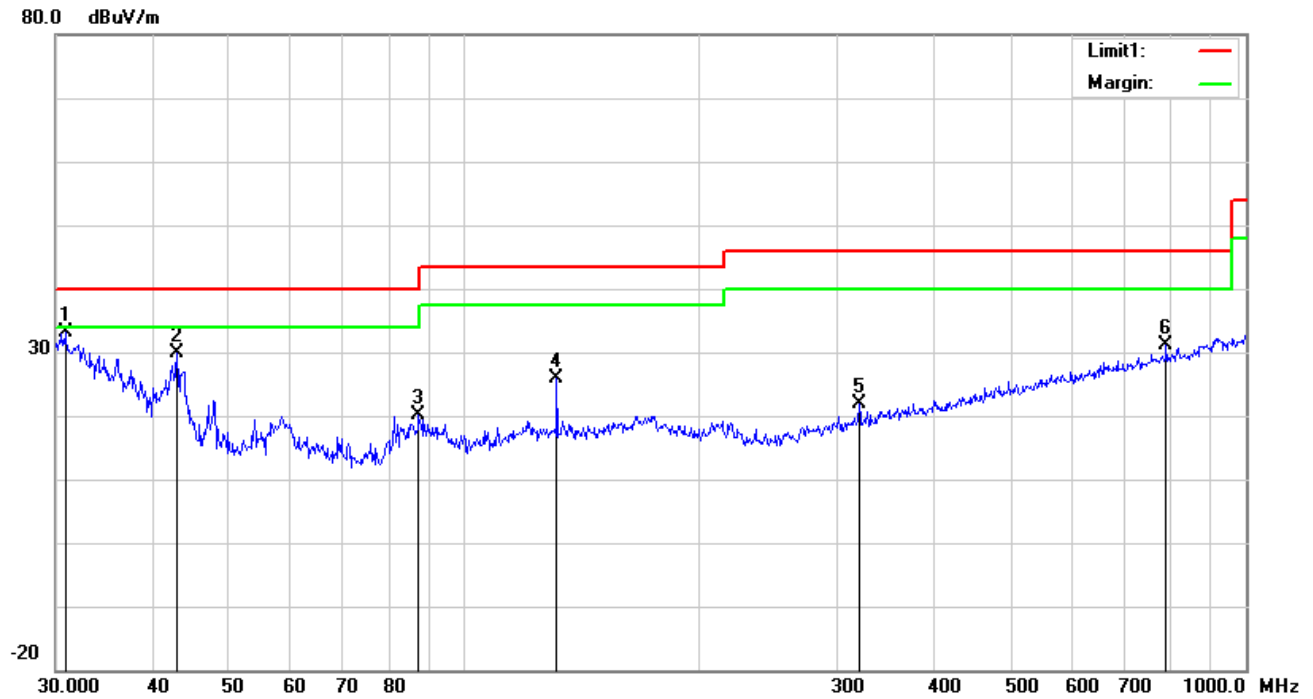
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

Test Mode: Transmitting Mode

30MHz -1GHz

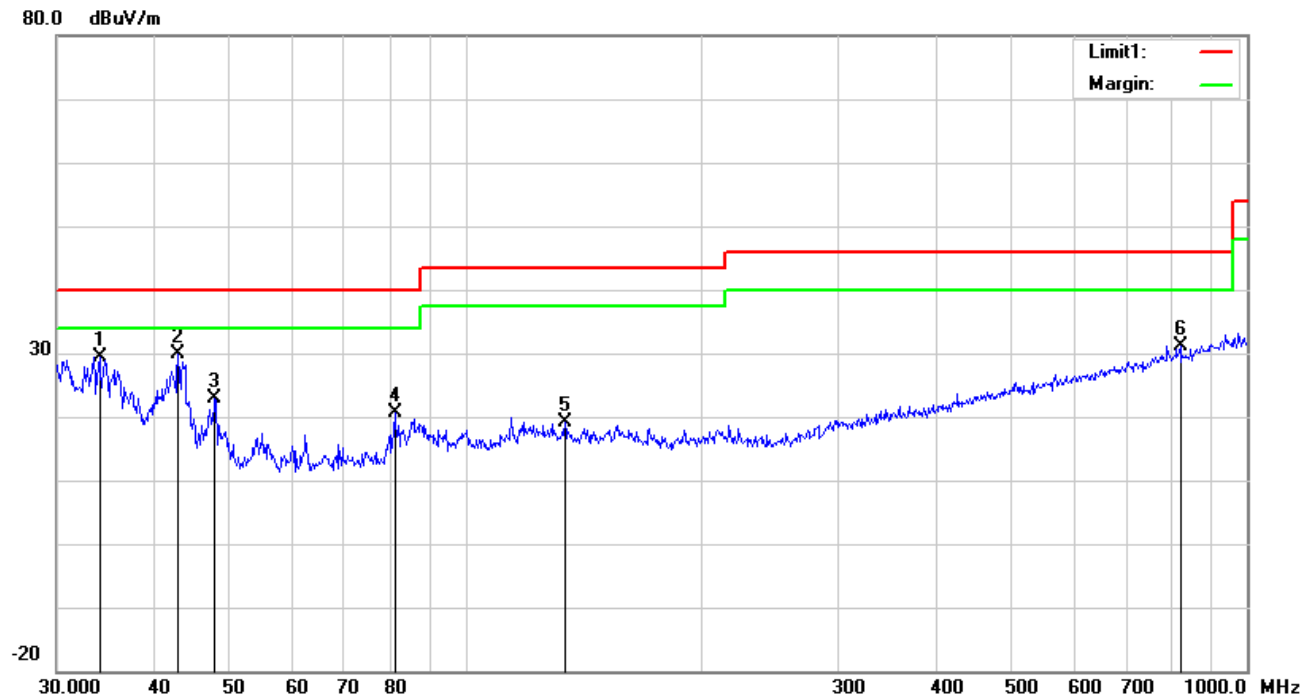


Test Data

Vertical Polarity Plot @3m

| No. | P/L | Frequency | Reading | Detect or | Ant_F | PA_G | Cab_L | Result | Limit | Margin | Height | Degr ee |
|-----|-----|-----------|----------|--------------|--------|-------|-------|----------|----------|--------|--------|------------|
| | | (MHz) | (dBuV/m) | | (dB/m) | (dB) | (dB) | (dBuV/m) | (dBuV/m) | (dB) | (cm) | (°) |
| 1 | V | 30.8535 | 34.06 | peak | 20.74 | 22.27 | 0.64 | 33.17 | 40.00 | -6.83 | 100 | 224 |
| 2 | V | 42.8998 | 39.48 | peak | 11.99 | 22.29 | 0.77 | 29.95 | 40.00 | -10.05 | 100 | 102 |
| 3 | V | 87.4177 | 33.52 | peak | 7.90 | 22.35 | 1.01 | 20.08 | 40.00 | -19.92 | 100 | 154 |
| 4 | V | 131.2965 | 33.98 | peak | 13.17 | 22.39 | 1.21 | 25.97 | 43.50 | -17.53 | 200 | 45 |
| 5 | V | 319.9370 | 28.28 | peak | 14.02 | 22.23 | 1.89 | 21.96 | 46.00 | -24.04 | 100 | 105 |
| 6 | V | 790.6188 | 27.96 | peak | 21.29 | 21.17 | 2.94 | 31.02 | 46.00 | -14.98 | 100 | 70 |

30MHz -1GHz



Test Data

Horizontal Polarity Plot @3m

| N o. | P/ L | Frequency (MHz) | Reading (dBuV/m) | Detect or | Ant_F (dB/m) | PA_G (dB) | Cab_L (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Height (cm) | Degr ee () |
|------|------|-----------------|-------------------|-----------|--------------|-----------|------------|-----------------|----------------|-------------|-------------|-------------|
| 1 | H | 34.0365 | 32.67 | peak | 18.29 | 22.26 | 0.73 | 29.43 | 40.00 | -10.57 | 100 | 263 |
| 2 | H | 42.8998 | 39.52 | peak | 11.99 | 22.29 | 0.77 | 29.99 | 40.00 | -10.01 | 100 | 41 |
| 3 | H | 47.8260 | 35.01 | peak | 9.36 | 22.34 | 0.78 | 22.81 | 40.00 | -17.19 | 100 | 246 |
| 4 | H | 81.2117 | 34.22 | peak | 7.65 | 22.41 | 1.05 | 20.51 | 40.00 | -19.49 | 100 | 87 |
| 5 | H | 134.0882 | 27.32 | peak | 12.98 | 22.40 | 1.23 | 19.13 | 43.50 | -24.37 | 100 | 199 |
| 6 | H | 821.7104 | 27.73 | peak | 21.64 | 21.09 | 2.92 | 31.20 | 46.00 | -14.80 | 100 | 97 |

Above 1GHz

| | |
|------------|-------------------|
| Test Mode: | Transmitting Mode |
|------------|-------------------|

Low Channel (2412 MHz) (b mode worst case)

| Frequency (MHz) | S.A. Reading (dBμV) | Detector (PK/AV) | Polarity (H/V) | Ant. Factor (dB/m) | Cable Loss (dB) | Pre-Amp. Gain (dB) | Cord Amp. (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|-----------------|---------------------|------------------|----------------|--------------------|-----------------|--------------------|--------------------|----------------|-------------|
| 4824 | 39.29 | AV | V | 33.8 | 6.86 | 32.69 | 47.26 | 54 | -6.74 |
| 4824 | 37.95 | AV | H | 33.8 | 6.86 | 32.69 | 45.92 | 54 | -8.08 |
| 4824 | 48.67 | PK | V | 33.8 | 6.86 | 32.69 | 56.64 | 74 | -17.36 |
| 4824 | 47.84 | PK | H | 33.8 | 6.86 | 32.69 | 55.81 | 74 | -18.19 |
| 17897 | 23.81 | AV | V | 45.12 | 11.57 | 32.11 | 48.39 | 54 | -5.61 |
| 17897 | 23.11 | AV | H | 45.12 | 11.57 | 32.11 | 47.69 | 54 | -6.31 |
| 17897 | 39.75 | PK | V | 45.12 | 11.57 | 32.11 | 64.33 | 74 | -9.67 |
| 17897 | 38.87 | PK | H | 45.12 | 11.57 | 32.11 | 63.45 | 74 | -10.55 |

Middle Channel (2437 MHz) (b mode worst case)

| Frequency (MHz) | S.A. Reading (dBμV) | Detector (PK/AV) | Polarity (H/V) | Ant. Factor (dB/m) | Cable Loss (dB) | Pre-Amp. Gain (dB) | Cord Amp. (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|-----------------|---------------------|------------------|----------------|--------------------|-----------------|--------------------|--------------------|----------------|-------------|
| 4874 | 40.53 | AV | V | 33.6 | 6.82 | 32.71 | 45.82 | 54 | -8.18 |
| 4874 | 39.54 | AV | H | 33.6 | 6.82 | 32.71 | 47.25 | 54 | -6.75 |
| 4874 | 48.31 | PK | V | 33.6 | 6.82 | 32.71 | 56.02 | 74 | -17.98 |
| 4874 | 48.02 | PK | H | 33.6 | 6.82 | 32.71 | 55.73 | 74 | -18.27 |
| 17904 | 24.31 | AV | V | 45.17 | 11.63 | 32.18 | 48.93 | 54 | -5.07 |
| 17904 | 22.39 | AV | H | 45.17 | 11.63 | 32.18 | 47.01 | 54 | -6.99 |
| 17904 | 39.14 | PK | V | 45.17 | 11.63 | 32.18 | 63.76 | 74 | -10.24 |
| 17904 | 39.02 | PK | H | 45.17 | 11.63 | 32.18 | 63.64 | 74 | -10.36 |

High Channel (2462 MHz) (b mode worst case)

| Frequency (MHz) | S.A. Reading (dBμV) | Detector (PK/AV) | Polarity (H/V) | Ant. Factor (dB/m) | Cable Loss (dB) | Pre-Amp. Gain (dB) | Cord Amp. (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|-----------------|---------------------|------------------|----------------|--------------------|-----------------|--------------------|--------------------|----------------|-------------|
| 4924 | 38.78 | AV | V | 33.83 | 6.95 | 32.79 | 46.77 | 54 | -7.23 |
| 4924 | 36.95 | AV | H | 33.83 | 6.95 | 32.79 | 46.93 | 54 | -7.07 |
| 4924 | 48.12 | PK | V | 33.83 | 6.95 | 32.79 | 54.73 | 74 | -19.27 |
| 4924 | 47.7 | PK | H | 33.83 | 6.95 | 32.79 | 55.69 | 74 | -18.31 |
| 17917 | 22.6 | AV | V | 45.19 | 11.61 | 32.24 | 47.16 | 54 | -6.84 |
| 17917 | 21.59 | AV | H | 45.19 | 11.61 | 32.24 | 47.87 | 54 | -6.13 |
| 17917 | 39.96 | PK | V | 45.19 | 11.61 | 32.24 | 64.52 | 74 | -9.48 |
| 17917 | 37.88 | PK | H | 45.19 | 11.61 | 32.24 | 64.41 | 74 | -9.59 |

Note:

- 1, The testing has been conformed to $10 \times 2462 \text{ MHz} = 24,620 \text{ MHz}$
- 2, All other emissions more than 30 dB below the limit
- 3, X-Axis, Y-Axis and Z-Axis were investigated. The results above show only the worst case.

Annex A. TEST INSTRUMENT

| Instrument | Model | Serial # | Cal Date | Cal Due | In use |
|--------------------------------------|----------|-------------|------------|------------|-------------------------------------|
| AC Line Conducted | | | | | |
| EMI test receiver | ESCS30 | 8471241027 | 09/16/2016 | 09/15/2017 | <input checked="" type="checkbox"/> |
| Line Impedance | LI-125A | 191106 | 09/24/2016 | 09/23/2017 | <input checked="" type="checkbox"/> |
| Line Impedance | LI-125A | 191107 | 09/24/2016 | 09/23/2017 | <input checked="" type="checkbox"/> |
| ISN | ISN T800 | 34373 | 09/24/2016 | 09/23/2017 | <input type="checkbox"/> |
| Double Ridge Horn Antenna (1 ~18GHz) | AH-118 | 71283 | 09/23/2016 | 09/22/2017 | <input checked="" type="checkbox"/> |
| Transient Limiter | LIT-153 | 531118 | 08/31/2016 | 08/30/2017 | <input checked="" type="checkbox"/> |
| RF conducted test | | | | | |
| Agilent ESA-E SERIES | E4407B | MY45108319 | 09/16/2016 | 09/15/2017 | <input checked="" type="checkbox"/> |
| Power Splitter | 1# | 1# | 08/31/2016 | 08/30/2017 | <input checked="" type="checkbox"/> |
| DC Power Supply | E3640A | MY40004013 | 09/16/2016 | 09/15/2017 | <input checked="" type="checkbox"/> |
| Radiated Emissions | | | | | |
| EMI test receiver | ESL6 | 100262 | 09/16/2016 | 09/15/2017 | <input checked="" type="checkbox"/> |
| Positioning Controller | UC3000 | MF780208282 | 11/18/2016 | 11/17/2017 | <input checked="" type="checkbox"/> |
| OPT 010 AMPLIFIER (0.1-1300MHz) | 8447E | 2727A02430 | 08/31/2016 | 08/30/2017 | <input checked="" type="checkbox"/> |
| Microwave Preamplifier (1 ~ 26.5GHz) | 8449B | 3008A02402 | 03/23/2017 | 03/22/2018 | <input checked="" type="checkbox"/> |
| Active Antenna (9kHz-30MHz) | AL-130 | 121031 | 10/13/2016 | 10/12/2017 | <input checked="" type="checkbox"/> |
| Bilog Antenna (30MHz~6GHz) | JB6 | A110712 | 09/20/2016 | 09/19/2017 | <input checked="" type="checkbox"/> |
| Double Ridge Horn Antenna (1 ~18GHz) | AH-118 | 71283 | 09/23/2016 | 09/22/2017 | <input checked="" type="checkbox"/> |
| Universal Radio Communication Tester | CMU200 | 121393 | 09/24/2016 | 09/23/2017 | <input checked="" type="checkbox"/> |

Annex B. EUT and Test Setup Photographs

Annex B.i. Photograph: EUT External Photo

Whole Package View



Adapter - Front View



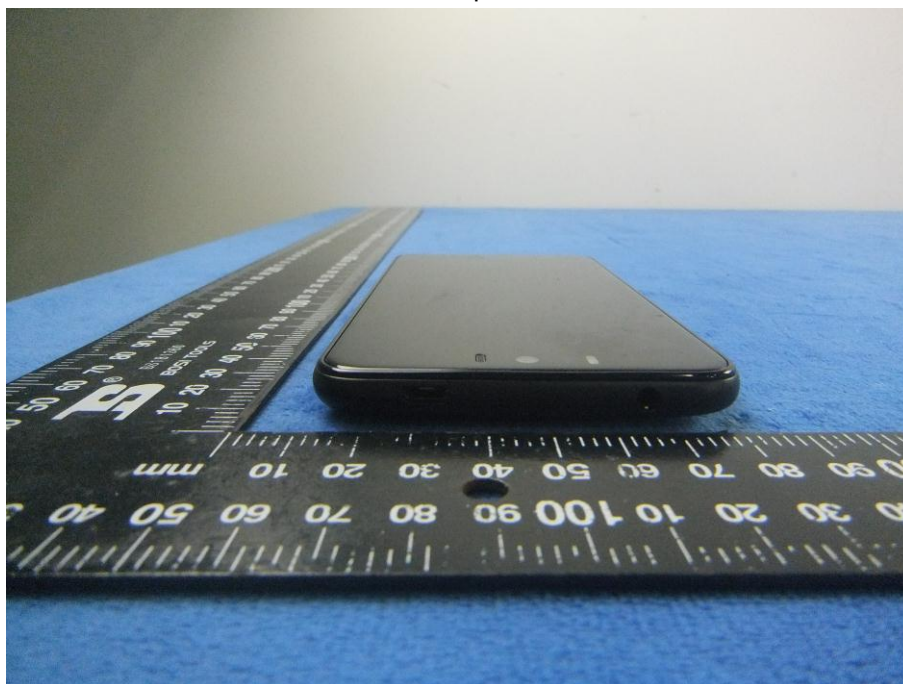
EUT - Front View



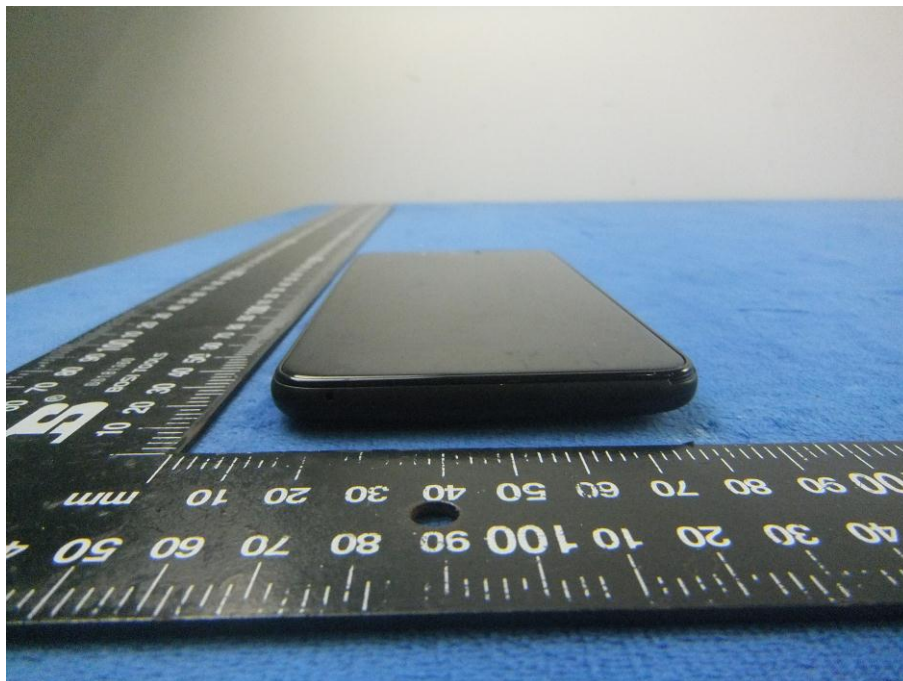
EUT - Rear View



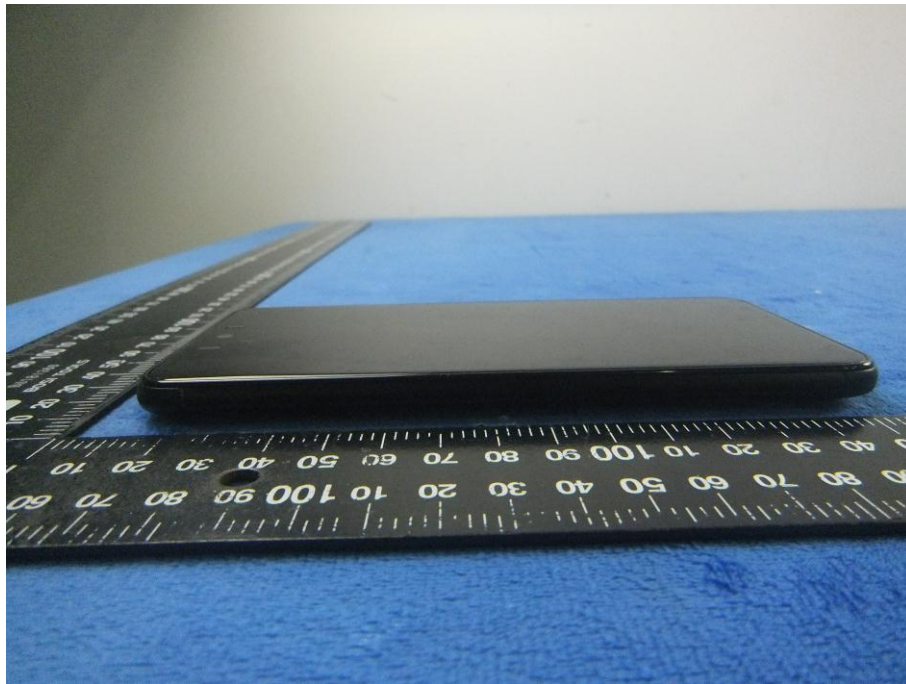
EUT - Top View



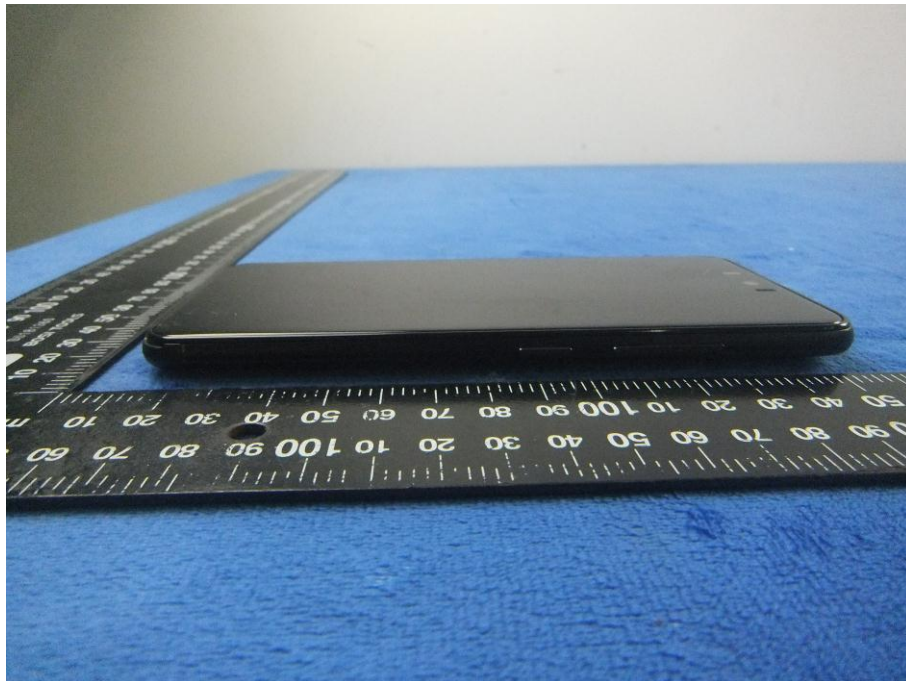
EUT - Bottom View



EUT - Left View



EUT - Right View

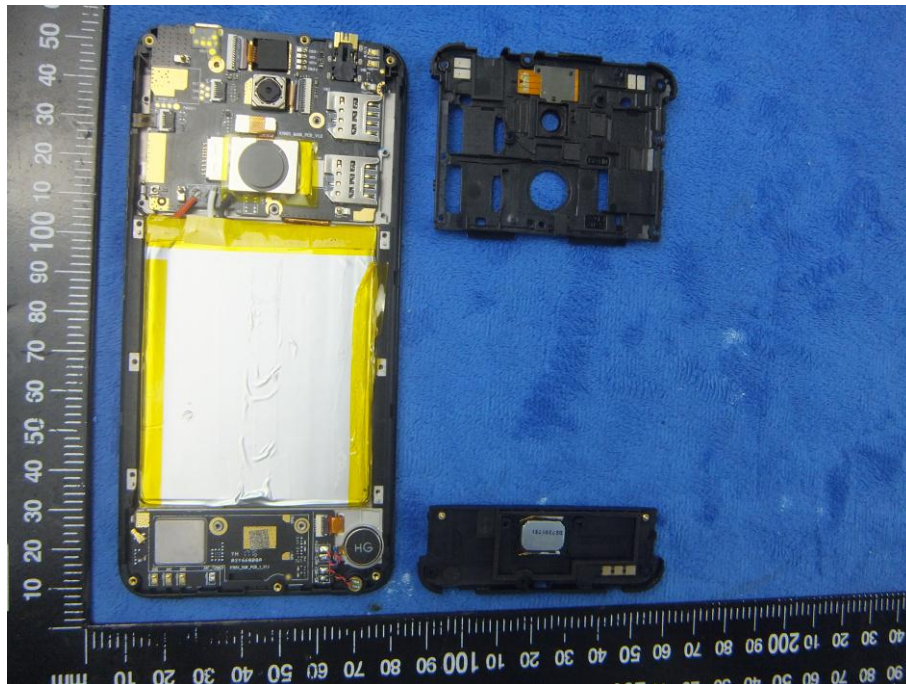


Annex B.ii. Photograph: EUT Internal Photo

Cover Off - Top View 1

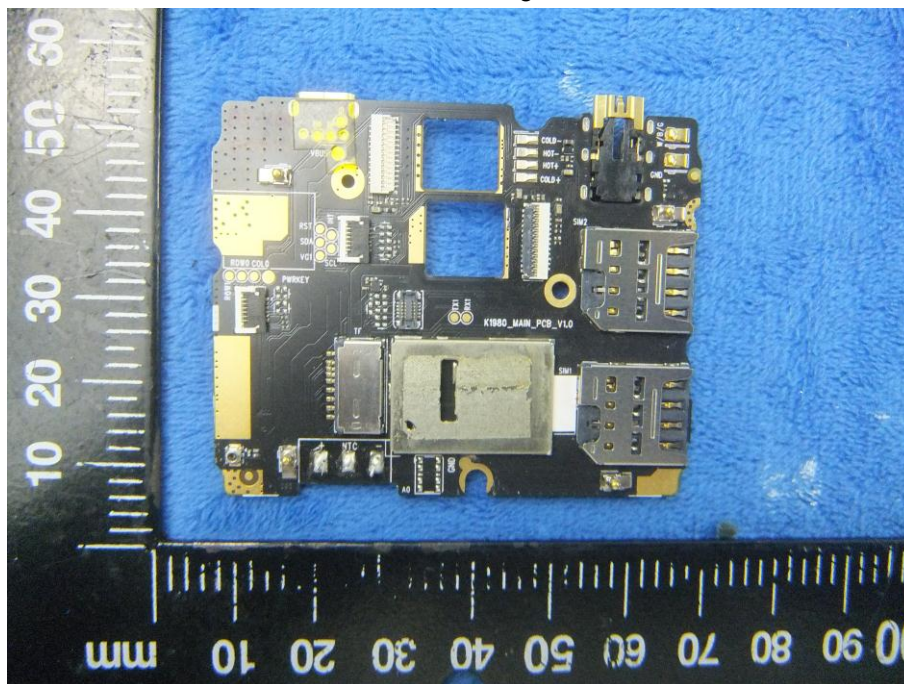


Cover Off - Top View 2

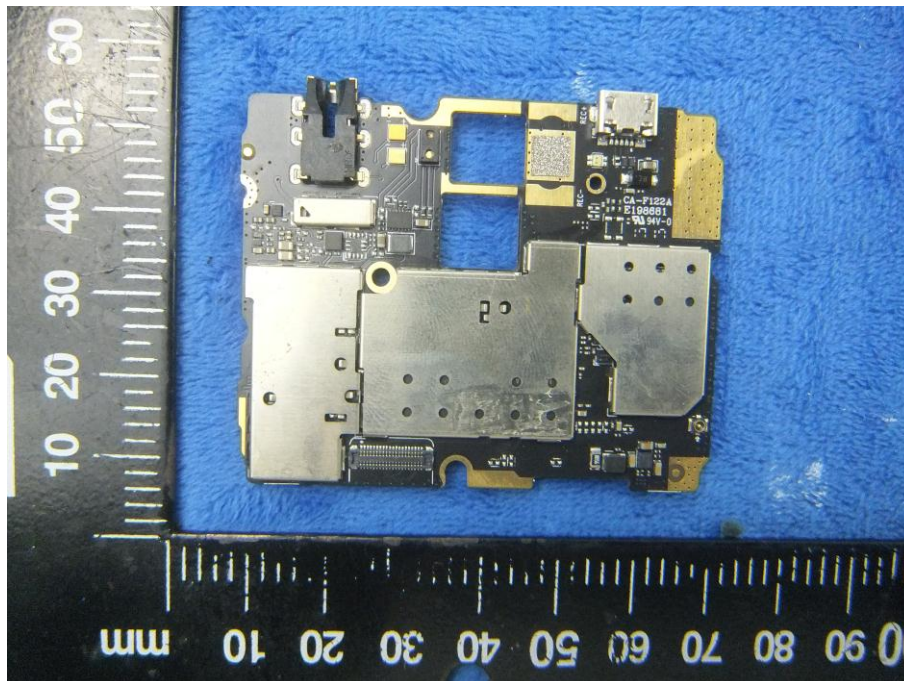


[illegible]

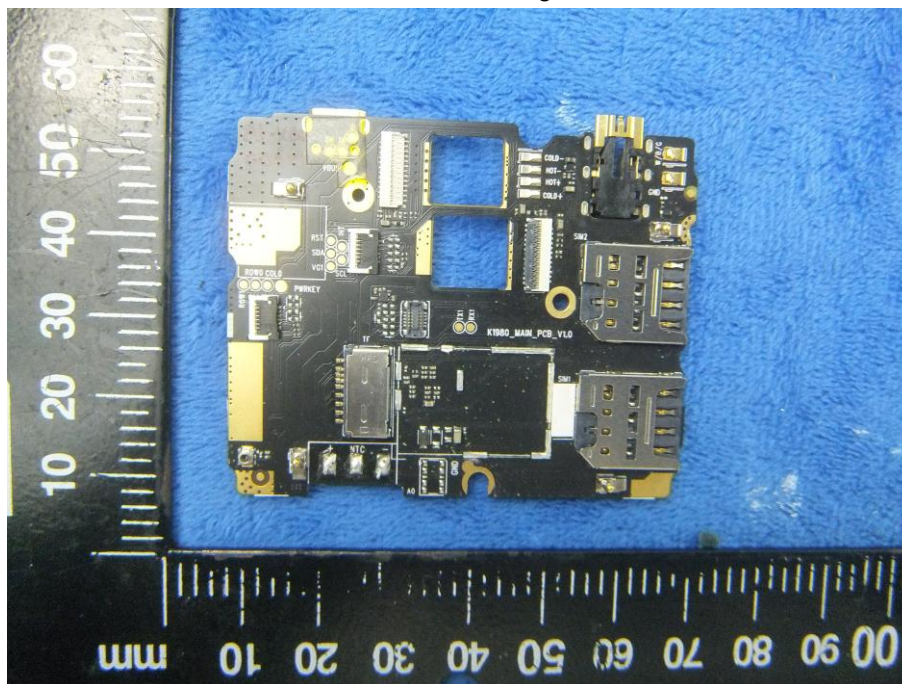
Mainboard with Shielding - Front View



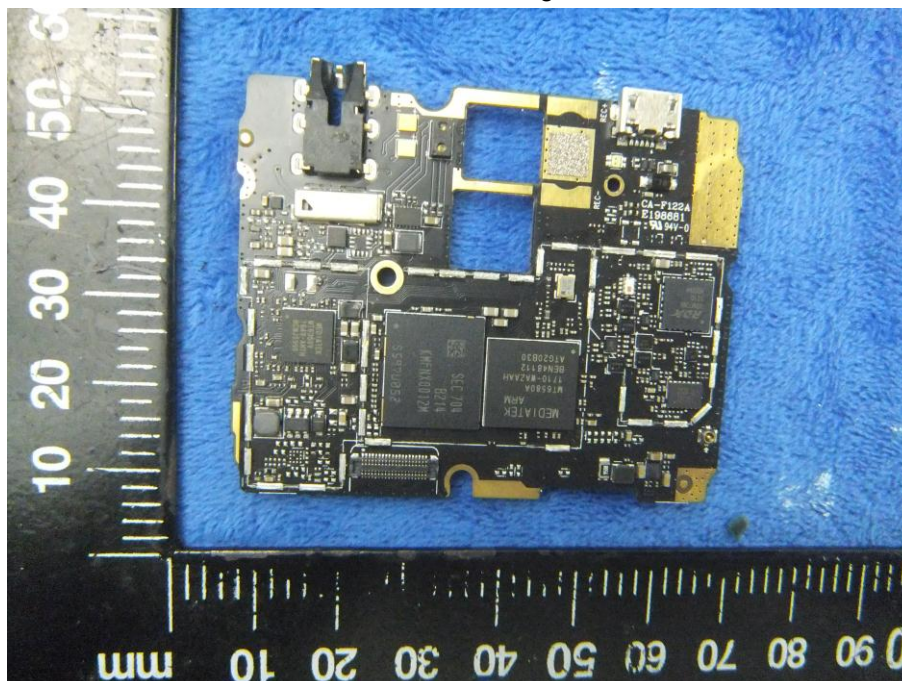
Mainboard with Shielding - Rear View



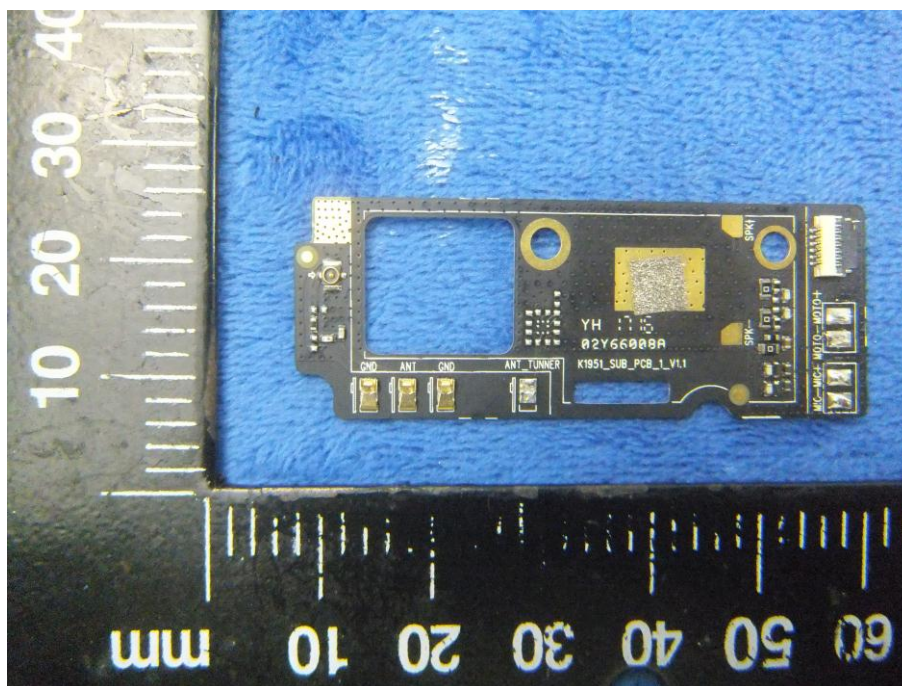
Mainboard without Shielding - Front View



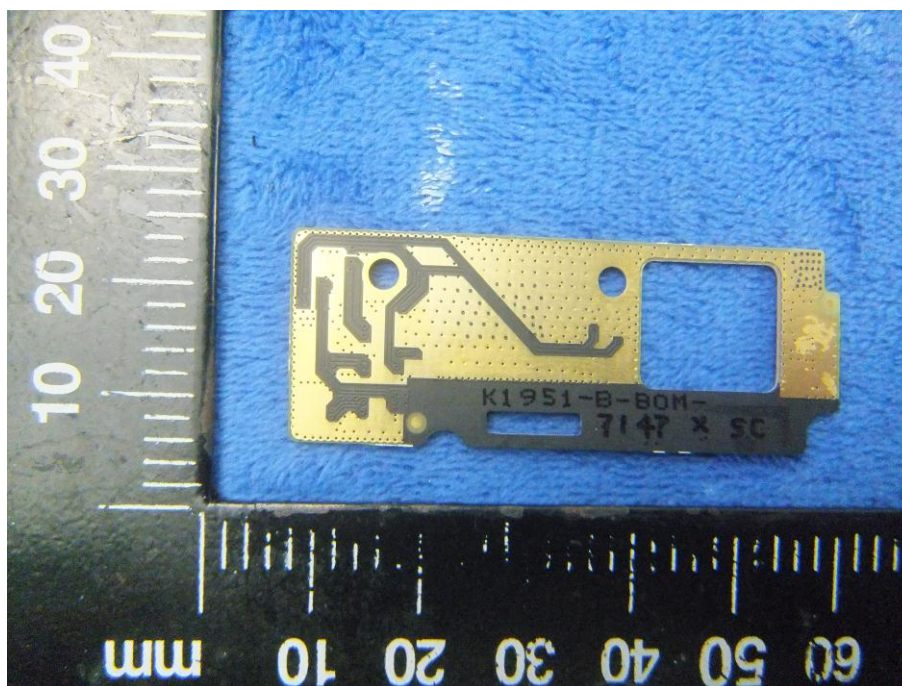
Mainboard without Shielding - Rear View



Small Mainboard - Front View



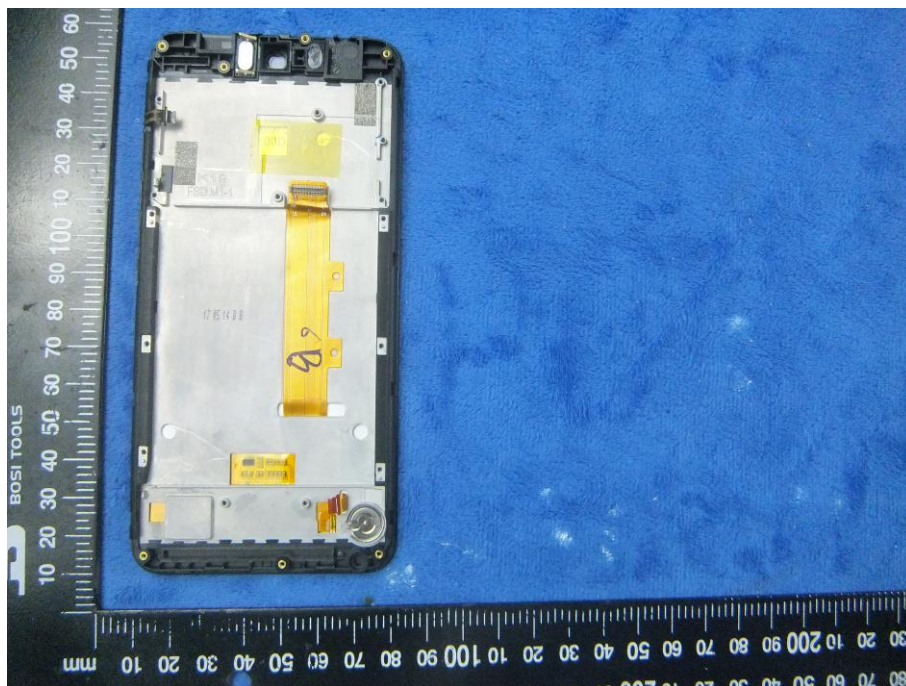
Small Mainboard - Rear View



LCD – Front View



LCD – Rear View



GSM/PCS/UMTS - Antenna View



BT/WIFI - Antenna View



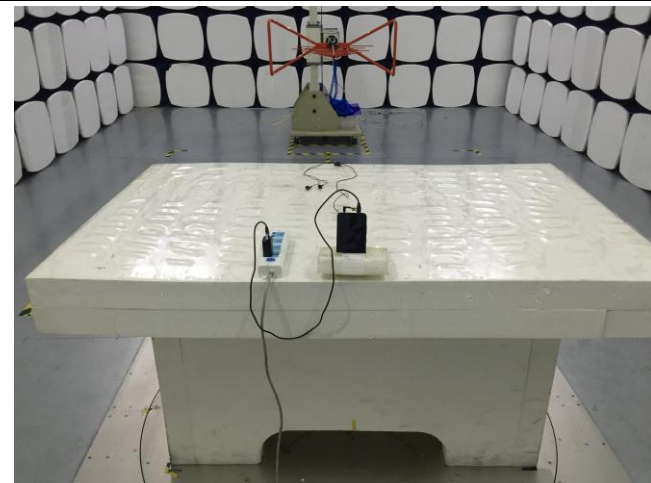
Annex B.iii. Photograph: Test Setup Photo



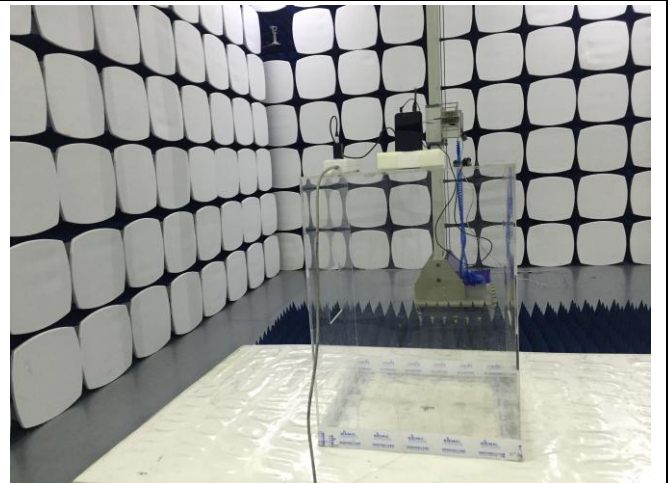
Conducted Emissions Test Setup Front View



Conducted Emissions Test Setup Side View



Radiated Spurious Emissions Test Setup Below 1GHz

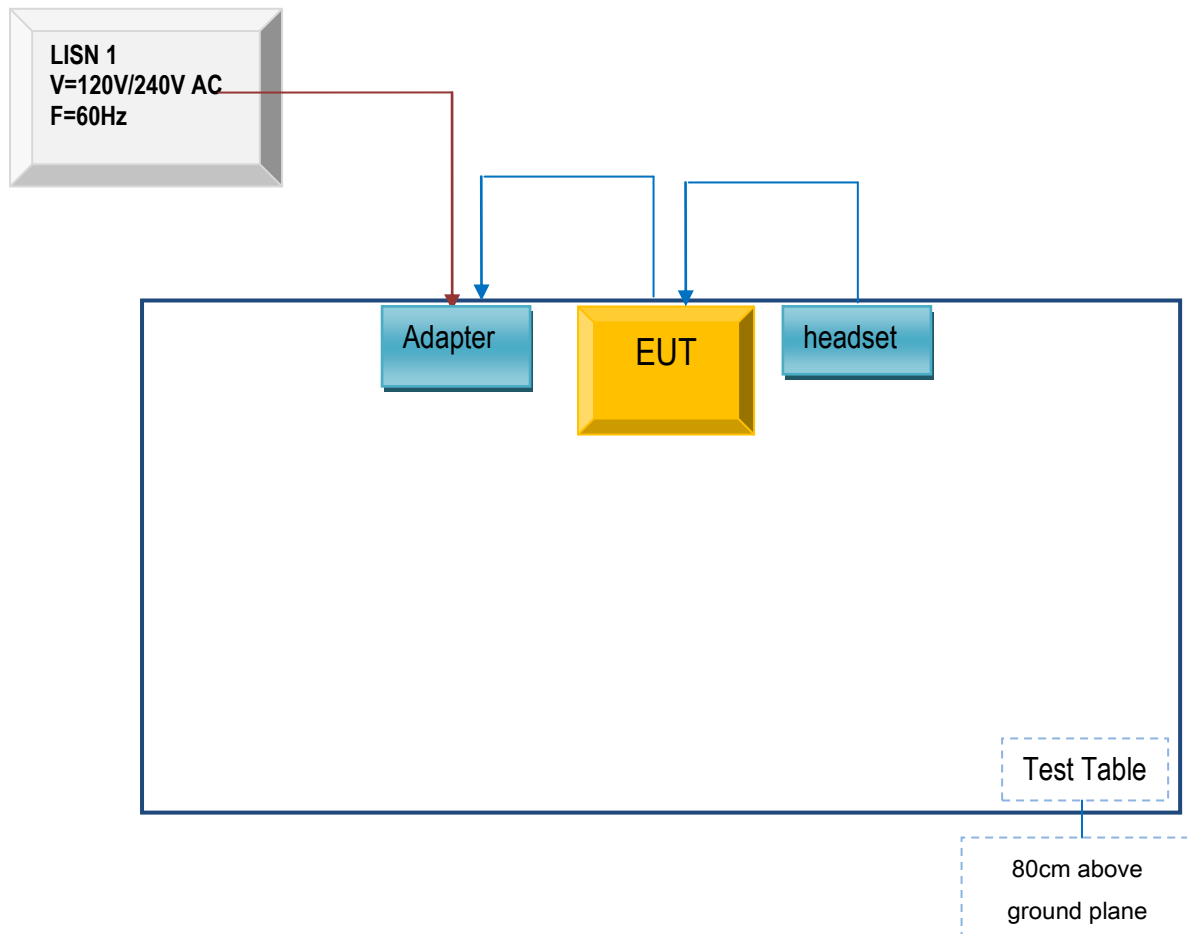


Radiated Spurious Emissions Test Setup Above
1GHz

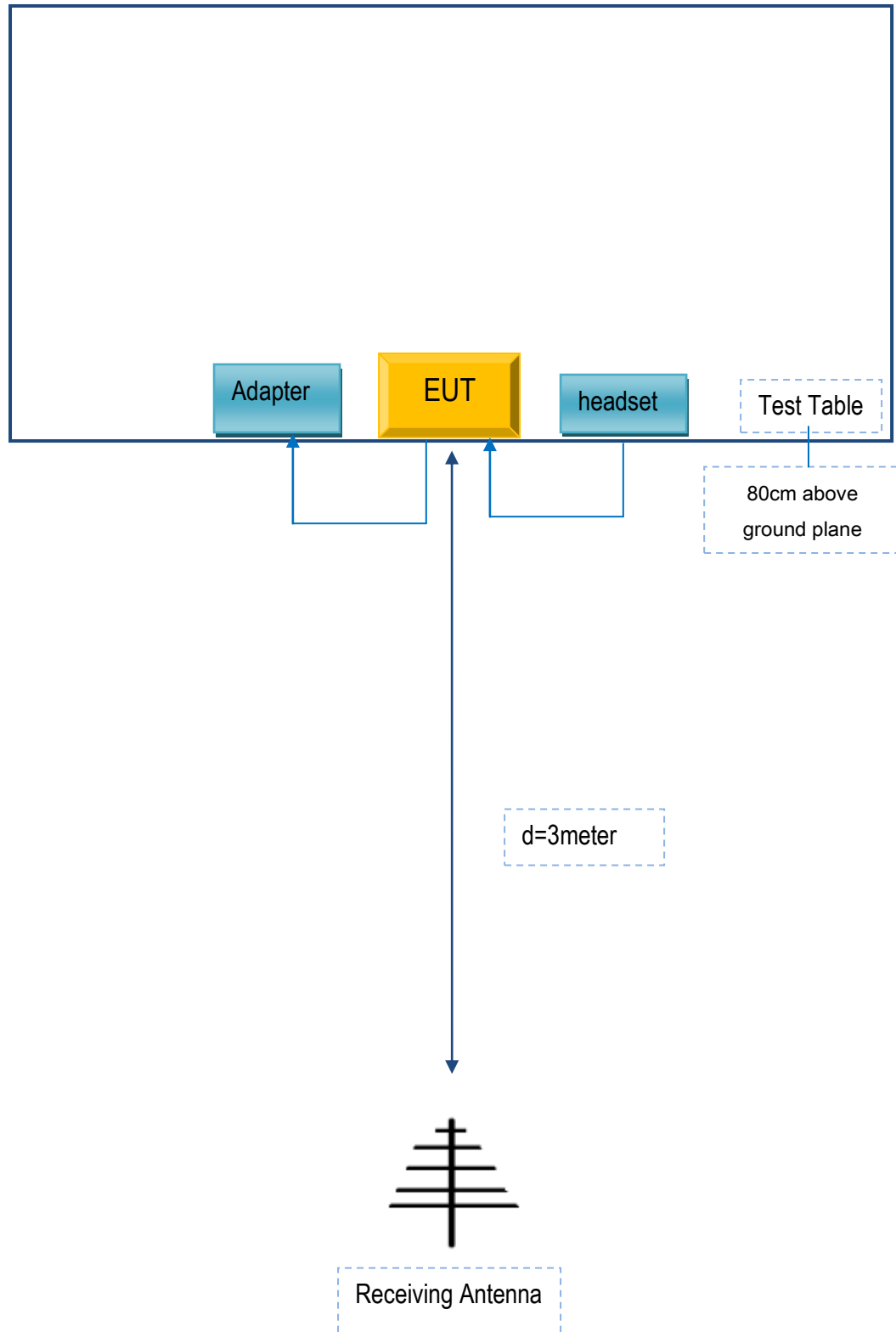
Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

Annex C.ii. TEST SET UP BLOCK

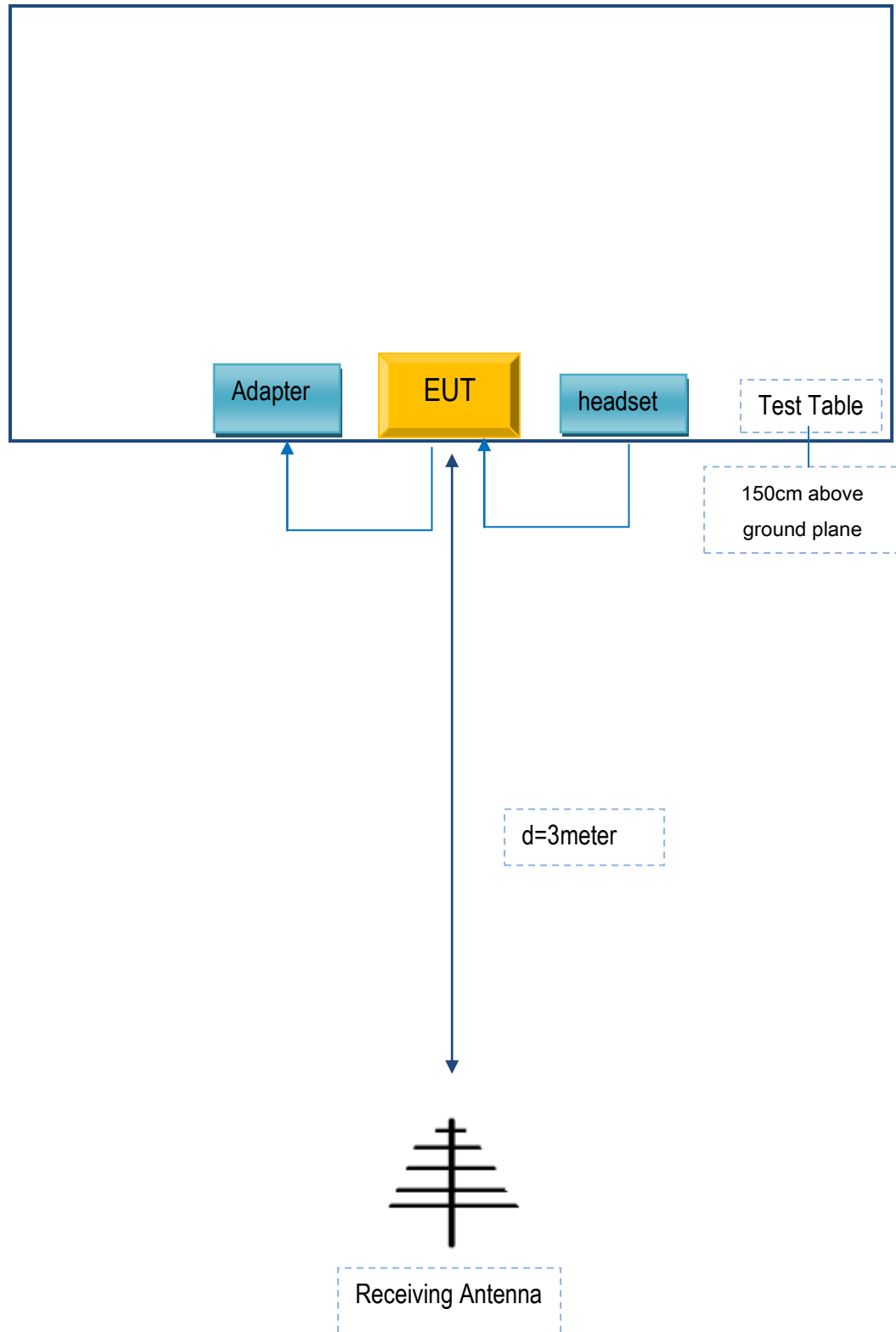
Block Configuration Diagram for AC Line Conducted Emissions



Block Configuration Diagram for Radiated Emissions (Below 1GHz) .



Block Configuration Diagram for Radiated Emissions (Above 1GHz) .



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 |
|--------------------|-----------------------|-----------------|-----------|
| BLU Products , Inc | Adapter | TPA-46B050100UU | N/A |
| SAMSUNG | headset | HS130 | N/A |

Supporting Cable:

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

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

Please see the attachment

Annex E. DECLARATION OF SIMILARITY

N/A