# RF TEST REPORT

**Report No.: 18020175-FCC-R1**
**Supersede Report No.: N/A**

| | |
|---|---|
| **Applicant** | Great American Merchandise & Events (GAME) |
| **Product Name** | Pool & Spa Thermometer with Indoor Display |
| **Main Model** | 15900-4PK-E-01 |
| **Serial Model** | N/A |
| **Test Standard** | FCC Part 15.231: 2017, ANSI C63.10: 2013 |
| **Test Date** | February 6 to February 7, 2018 |
| **Issue Date** | February 9, 2018 |
| **Test Result** | ☑ **Pass** ☐ **Fail** |
| **Equipment complied with the specification** | ☑ |
| **Equipment did not comply with the specification** | ☐ |

| | | |
|---|---|---|
| Louise Tu | Deon Dai | |
| **Louise Tu**<br>**Test Engineer** | **Deon Dai**<br>**Engineer Reviewer** | |

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


**Issued by:**
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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 , Telecom |
| Canada | EMC, RF/Wireless , Telecom |
| Taiwan | EMC, RF, Telecom , Safety |
| Hong Kong | RF/Wireless ,Telecom |
| Australia | EMC, RF, Telecom , Safety |
| Korea | EMI, EMS, RF , Telecom, Safety |
| Japan | EMI, RF/Wireless, Telecom |
| Singapore | EMC , RF , Telecom |
| Europe | EMC, RF, Telecom , Safety |

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# 1. Report Revision History

| Report No. | Report Version | Description | Issue Date |
| --- | --- | --- | --- |
| 18020175-FCC-R1 | NONE | Original | February 9, 2018 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# 2. Customer information

| | |
| --- | --- |
| Applicant Name | Great American Merchandise & Events (GAME) |
| Applicant Add | 16444 N 91st Street, Scottsdale, AZ 85260,USA |
| Manufacturer Name | Great American Merchandise & Events (GAME) |
| Manufacturer Add | 16444 N 91st Street, Scottsdale, AZ 85260,USA |

# 3. Test site information

| | |
| --- | --- |
| Lab performing tests | SIEMIC (Nanjing-China) Laboratories |
| Lab Add | 2-1 Longcang Avenue Yuhua Economic and Technology Development Park, Nanjing, China |
| FCC Test Site No. | 694825 |
| IC Test Site No. | 4842B-1 |
| Test Software | EZ_EMC |

# 4. Equipment Under Test (EUT) Information

| | |
| --- | --- |
| Description of EUT: | Pool & Spa Thermometer with Indoor Display |
| Main Model: | 15900-4PK-E-01 |
| Serial Model: | N/A |
| Date EUT received: | February 6, 2018 |
| Test Date(s): | February 6 to February 7, 2018 |
| Antenna Gain: | 0 dBi |
| Type of Modulation: | ASK |
| RF Operating Frequency (ies): | Tx:434.04 MHz |
| Number of Channels: | 1 CH |
| Port: | N/A |
| Input Power: | 2.7-3.3V |
| Trade Name : | N/A |
| FCC ID: | 2AKBO-15900-1 |

## 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 |
| --- | --- | --- |
| §15.203 | Antenna Requirement | Compliance |
| §15.207 | Conducted Emissions Voltage | N/A |
| §15.231(b) | Fundamental & Radiated Spurious Emission | Compliance |
| §15.231(c) | 20dB Bandwidth | Compliance |
| §15.231(a)(1) | Deactivation | Compliance |

Note: Preliminary radiated emission testing has been performed on X, Y, Z axis, only worst case test result is presented in this test report.

"N/A" means the EUT is powered by the battery.

**Measurement Uncertainty**

| Emissions | | |
| --- | --- | --- |
| **Test Item** | **Description** | **Uncertainty** |
| Conducted Emissions & 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) | 1.634dB / 3.952dB |

# 6. Measurements, Examination And Derived Results

## 6.1 Antenna Requirement

### Applicable Standard

**Requirement(s):** 47 CFR §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

Antenna requirement must meet at least one of the following:

a) Antenna must be permanently attached to the device.

b) Antenna must use a unique type of connector to attach to the device.

c) Device must be professionally installed. Installer shall be responsible for ensuring that the correct antenna is employed with the device.

The antenna is permanently attached to the device which meets the requirement.

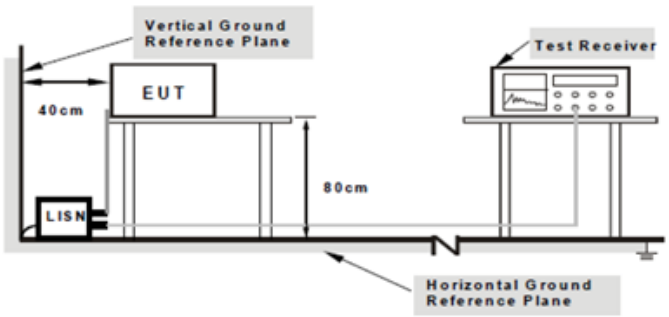
**Result:** Compliance.

## 6.2 AC Conducted Emissions Voltage

| | |
|---|---|
| Temperature | --- |
| Relative Humidity | --- |
| Atmospheric Pressure | --- |
| Test date : | --- |
| Tested By : | --- |

**Conducted Emission Limit**

| Frequency ranges (MHz) | Limit (dBμV) | |
|---|---|---|
| | QP | Average |
| 0.15 ~ 0.5 | 66 – 56 | 56 – 46 |
| 0.5 ~ 5 | 56 | 46 |
| 5 ~ 30 | 60 | 50 |

| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| 47CFR§15.207 | 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 frequency ranges. | ☐ |
| Test Setup |  Note: 1.Support units were connected to second LISN. 2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units. | | |
| Procedure | - 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, as shown in Annex B.<br>- The power supply for the EUT was fed through a 50W/50mH EUT LISN, connected to filtered mains.<br>- The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.<br>- All other supporting equipment were powered separately from another main supply. | | |
| Remark | "N/A" means the EUT is powered by the battery. | | |
| Result | ☑ N/A ☐ Fail | | |

**Test Data** ☑ N/A ☐ Fail

**Test Plot** ☑ N/A ☐ Fail

**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)

## 6.3 20dB Occupied Bandwidth

| | |
|---|---|
| Temperature | 18°C |
| Relative Humidity | 50% |
| Atmospheric Pressure | 1018mbar |
| Test date : | February 7, 2018 |
| Tested By : | Louise Tu |

**Requirement(s):**

| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| §15.231(c) | a) | The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. | ☑ |
| | b) | For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. | ☐ |
| Test Setup | Spectrum Analyzer — EUT | | |
| Test Procedure | 20dB Emission bandwidth measurement procedure<br>- Set RBW = 100 kHz.<br>- Set the video bandwidth (VBW) ≥3*RBW.<br>- Detector = Peak.<br>- Trace mode = max hold.<br>- Sweep = auto couple.<br>- Allow the trace to stabilize.<br>Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB relative to the maximum level measured in the fundamental emission. | | |
| Remark | | | |
| Result | ☑ Pass ☐ Fail | | |

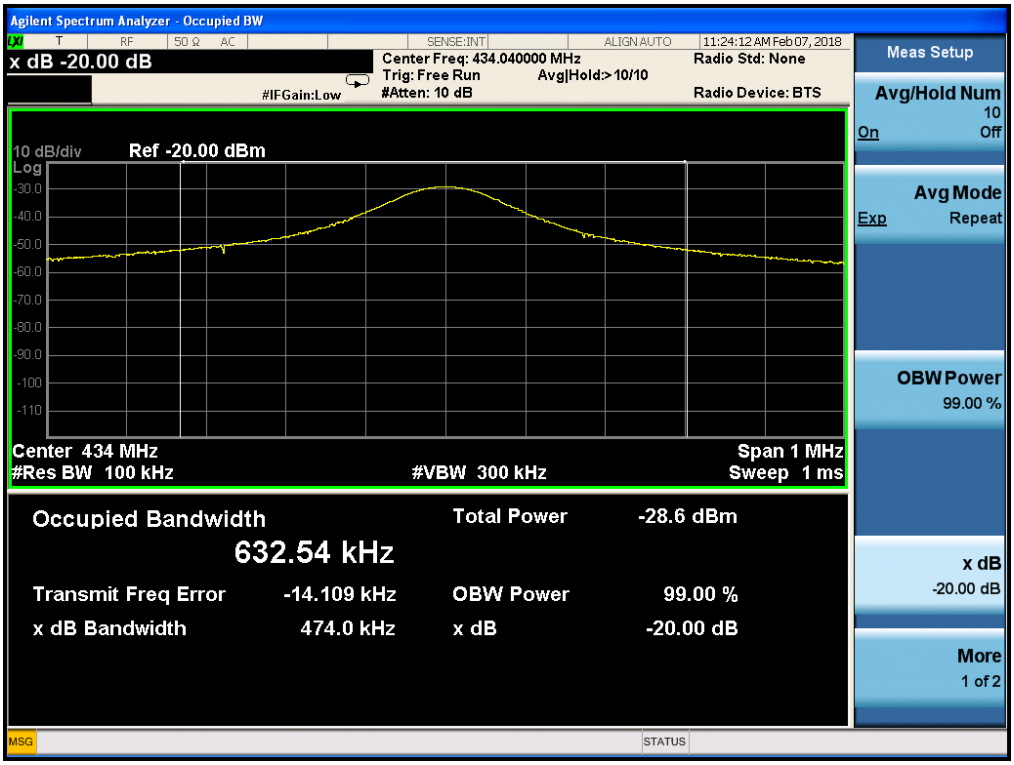
**Test Data** ☑ Yes ☐ N/A

**Test Plot** ☑ Yes ☐ N/A

## 20dB Bandwidth measurement result

| Type | Freq (MHz) | CH | Measured 20dB Bandwidth (kHz) | Limit (kHz) | Result |
|---|---|---|---|---|---|
| 20dB BW | 434.04 | 1 CH | 474 | 1085.1 | Pass |

## Test Plots
## 20dB Bandwidth measurement result

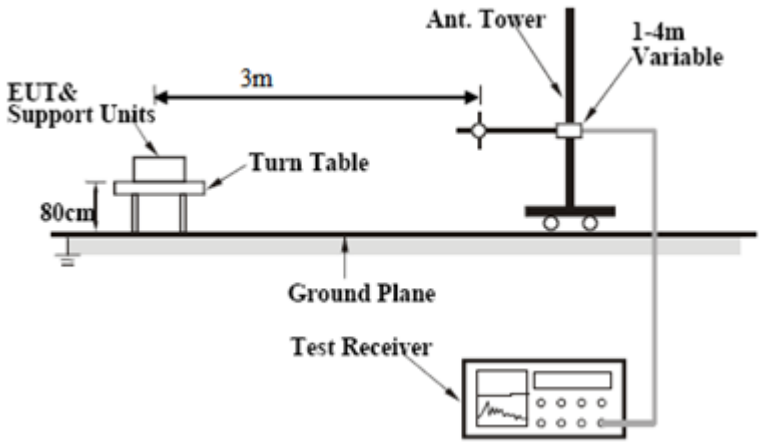



20dB Bandwidth

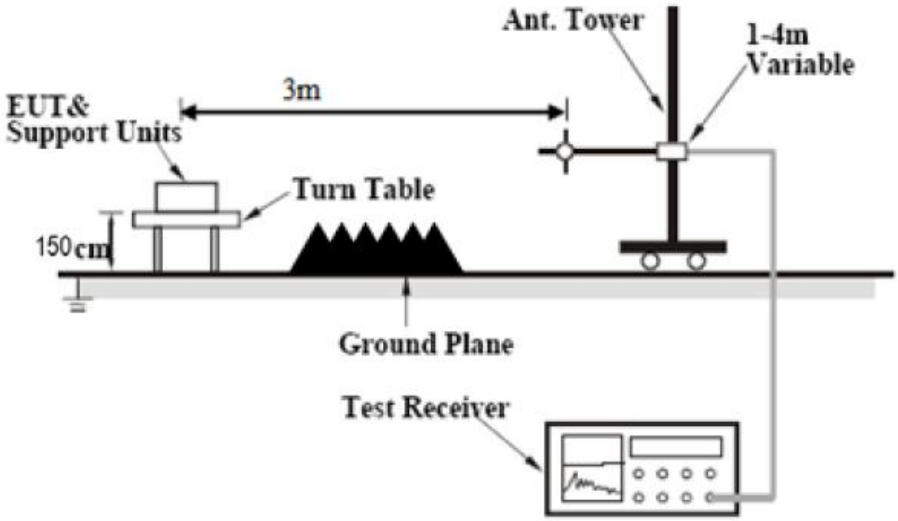
# 6.4 Radiated Fundamental and Spurious Emission

| | |
|---|---|
| Temperature | 18°C |
| Relative Humidity | 50% |
| Atmospheric Pressure | 1018mbar |
| Test date : | February 6 to February 7, 2018 |
| Tested By : | Louise Tu |

**Requirement(s):**

<table>
<tr><th>Spec</th><th>Item</th><th>Requirement</th><th>Applicable</th></tr>
<tr><td>§15.231(b)</td><td>a)</td><td>Intentional radiators may operate at a periodic rate exceeding that specified in paragraph (a) of this section and may be employed for any type of operation, including operation prohibited in paragraph (a) of this section, provided the intentional radiator complies with the provisions of paragraphs (b) through (d) of this section, except the field strength table in paragraph (b) of this section is replaced by the following:
<table>
<tr><th>Fundamental frequency (MHz)</th><th>Field strength of fundamental (microvolts/meter)</th><th>Field strength of spurious emissions (microvolts/meter)</th></tr>
<tr><td>40.66-40.70</td><td>1000</td><td>100</td></tr>
<tr><td>70-130</td><td>500</td><td>50</td></tr>
<tr><td>130-174</td><td>500 to 1500[1]</td><td>50 to 150[1]</td></tr>
<tr><td>174-260</td><td>1500</td><td>150</td></tr>
<tr><td>260-470</td><td>1500 to 5000[1]</td><td>150 to 500[1]</td></tr>
<tr><td>Above 470</td><td>5000</td><td>500</td></tr>
<tr><td></td><td></td><td></td></tr>
</table></td><td>☑</td></tr>
<tr><td>Test Setup</td><td colspan="3">A: < 1GHz<br> 

<br>B: >1GHz</td></tr>
</table>

| | |
|---|---|
| |  |
| Procedure | 1. The EUT was switched on and allowed to warm up to its normal operating condition.<br>2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:<br>a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.<br>b. The EUT was then rotated to the direction that gave the maximum emission.<br>c. Finally, the antenna height was adjusted to the height that gave the maximum emission.<br>3. A Quasi-peak measurement was then made for that frequency point.<br>4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured. |
| Result | ☑ Pass ☐ 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) = Read ing Value + Corrected Value

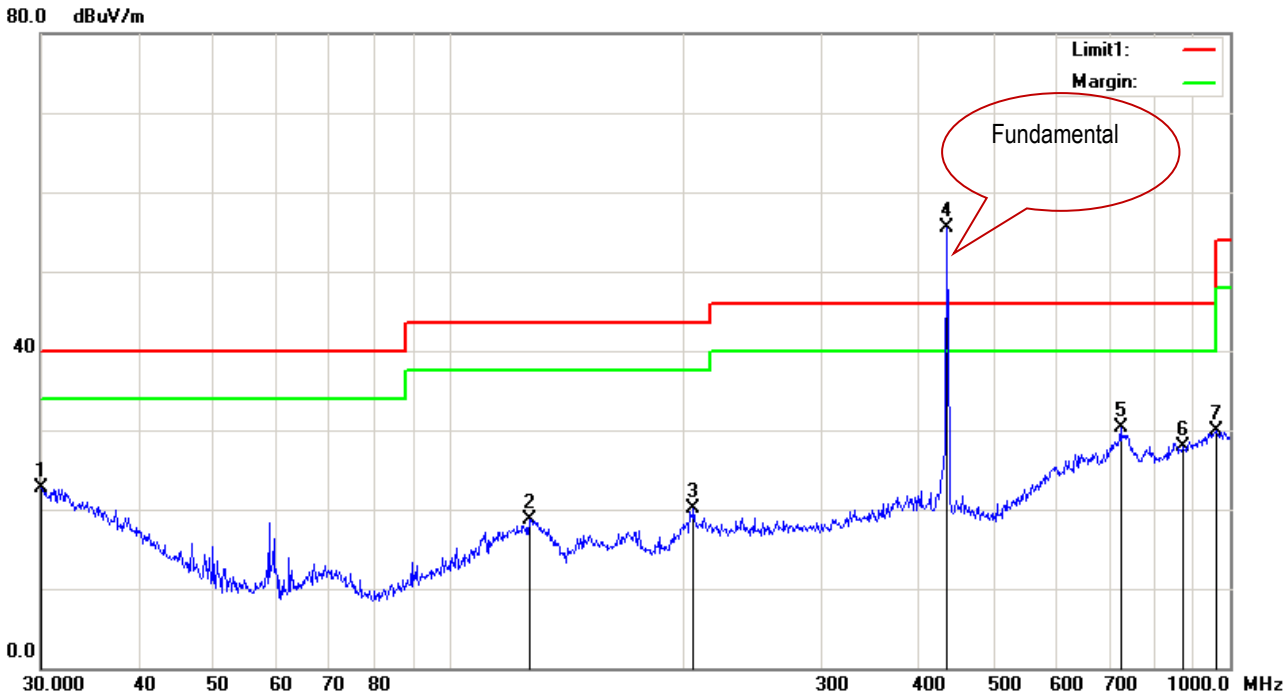
Limit (dBμV/m) = Limit stated in standard

Height (cm) = Height of Receiver antenna

Degree = Turn table degree

**Calculation Formula:**

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



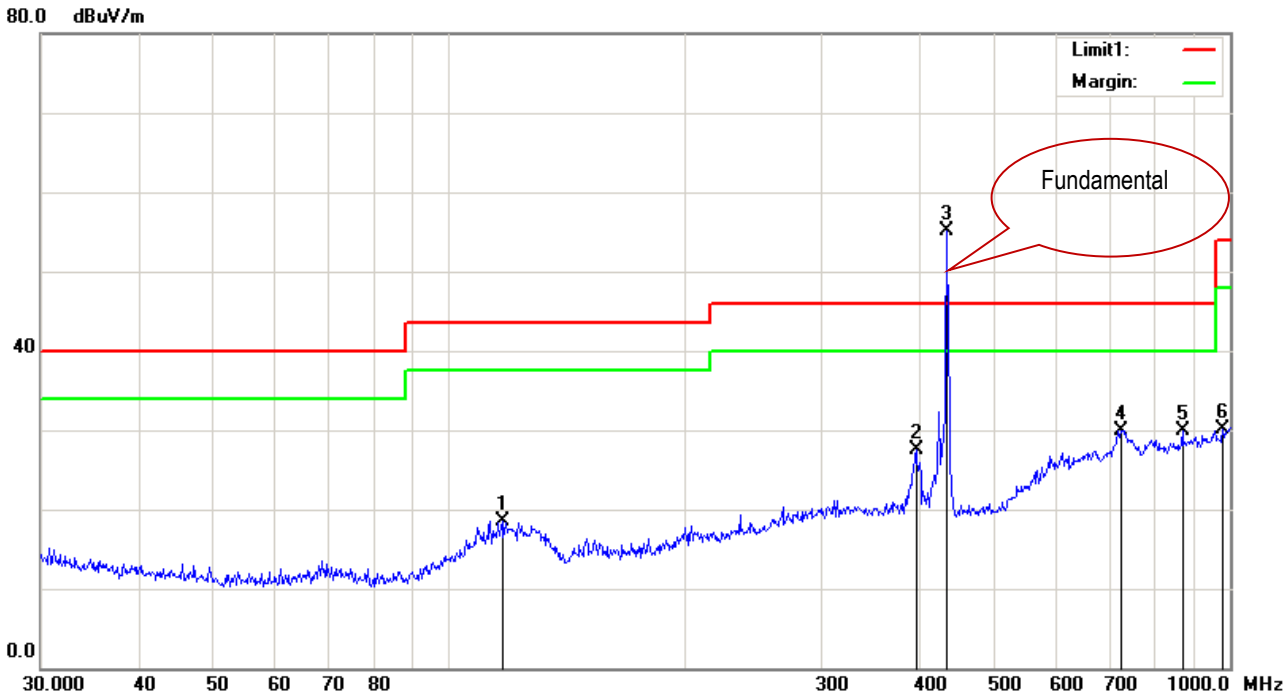

**Vertical Polarity Plot @3m**

## Field strength of fundamental Result

| Frequency (MHz) | Reading (dBµV/m) | Factors (dB) | Azimuth | Polarity | Height (m) | correct (dBµV/m) | Limit (dBµV) | Margin (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 434.04 | 84.76 | -29.35 | 21.00 | V | 2.00 | 55.41 | 92.87 | -37.46 | Pk |
| 434.04 | - | - | - | V | - | 44.15 | 72.87 | -28.72 | Ave |

## Field strength of spurious emissions Result

| Frequency (MHz) | Reading (dBµV/m) | Factors (dB) | Azimuth | Polarity | Height (m) | correct (dBµV/m) | Limit (dBµV) | Margin (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 868.08 | 46.25 | -18.39 | 124.00 | V | 1.00 | 27.86 | 72.87 | -45.01 | Pk |
| 868.08 | - | - | - | V | - | 16.6 | 52.87 | -36.27 | Ave |




**Horizontal Polarity Plot @3m**

## Field strength of fundamental Result

| Frequency (MHz) | Reading (dBµV/m) | Factors (dB) | Azimuth | Polarity | Height (m) | correct (dBµV/m) | Limit (dBµV) | Margin (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 434.04 | 84.79 | -29.35 | 164.00 | H | 3.00 | 55.44 | 92.87 | -37.43 | Pk |
| 434.04 | - | - | - | H | - | 44.18 | 72.87 | -28.69 | Ave |

## Field strength of spurious emissions Result

| Frequency (MHz) | Reading (dBµV/m) | Factors (dB) | Azimuth | Polarity | Height (m) | correct (dBµV/m) | Limit (dBµV) | Margin (dB) | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 868.08 | 48.53 | -18.39 | 244.00 | H | 2.00 | 30.14 | 72.87 | -42.73 | Pk |
| 868.08 | - | - | - | H | - | 18.88 | 52.87 | -33.99 | Ave |

## Spurious Emissions ( < 1GHz) Measurement Result

### Vertical Polarity Plot @3m

| 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) | ( ° ) |
| 1 | 30.1054 | 46.05 | peak | 21.54 | 45.69 | 0.87 | 22.77 | 40.00 | -17.23 | 200 | 148 |
| 2 | 126.7723 | 47.74 | peak | 16.20 | 47.06 | 1.83 | 18.71 | 43.50 | -24.79 | 100 | 234 |
| 3 | 205.6751 | 50.39 | peak | 14.86 | 47.48 | 2.28 | 20.05 | 43.50 | -23.45 | 200 | 231 |
| 5 | 724.2611 | 49.33 | peak | 22.34 | 45.63 | 4.32 | 30.36 | 46.00 | -15.64 | 100 | 62 |
| 6 | 868.0800 | 46.25 | peak | 22.99 | 46.14 | 4.76 | 27.86 | 46.00 | -18.14 | 100 | 124 |
| 7 | 962.1623 | 47.57 | peak | 23.64 | 46.29 | 4.98 | 29.90 | 54.00 | -24.10 | 100 | 357 |

### Horizontal Polarity Plot @3m

| 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) | ( ° ) |
| 1 | 116.9495 | 47.58 | peak | 15.73 | 46.46 | 1.75 | 18.60 | 43.50 | -24.90 | 200 | 143 |
| 2 | 396.2415 | 57.10 | peak | 16.03 | 48.90 | 3.21 | 27.44 | 46.00 | -18.56 | 300 | 269 |
| 4 | 724.2611 | 48.71 | peak | 22.55 | 45.63 | 4.32 | 29.95 | 46.00 | -16.05 | 300 | 293 |
| 5 | 869.1302 | 48.53 | peak | 22.79 | 46.12 | 4.76 | 29.96 | 46.00 | -16.04 | 200 | 244 |
| 6 | 979.1804 | 47.18 | peak | 24.60 | 46.62 | 5.02 | 30.18 | 54.00 | -23.82 | 200 | 74 |

Notes:

1. Duty cycle is 27.35%, 20log (duty cycle) = -11.26dB correction was used to determine the average level from the peak reading. Average = peak reading + 20log (duty cycle), Final Average= peak reading -11.26dB

2. All the data measurement of peak values.

3. FCC Limit for Average Measurement=16.67* (434.04-260)+1500=4401.2468μV/m=72.87dBμV/m

4. Average pulsed signal over one complete pulse train or 100 ms time frame if pulse train exceeds 100 ms

5. Maximum average in 100 ms

6. Calculate duty cycle for pulse train or 100 ms

7. Duty cycle = (t1 + t2 + t3+…tn)/T  where tn = pulse width, T = pulse train length or 100 ms

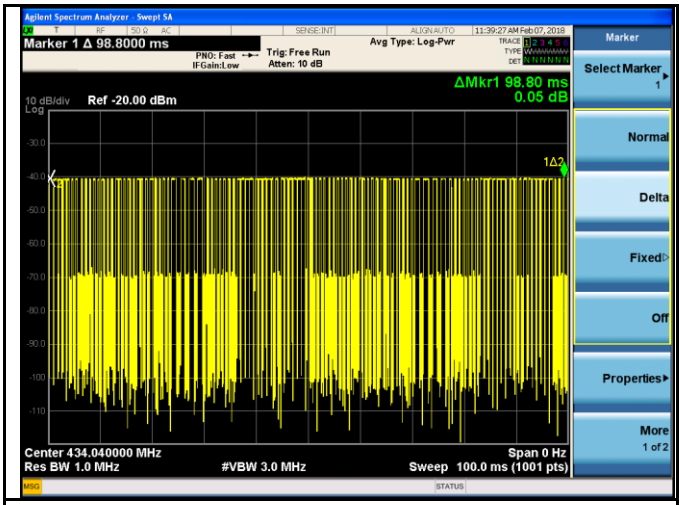
## Spurious Emissions ( > 1GHz) Measurement Result

| Frequency GHz | Reading (dBµV/m) | Direction Degree | Height Meter | Polar H/V | Factors (dB) | correct (dBµV/m) | FCC15.231 Limit (dBµV/m) | Margin | Comments |
|---|---|---|---|---|---|---|---|---|---|
| 1.302 | 66.84 | 126.00 | 1.00 | V | -19.10 | 47.74 | 74 | -26.26 | Peak |
| 1.302 | - | - | - | V | - | 36.48 | 54 | -17.52 | *Ave* |
| 1.736 | 61.15 | 134.00 | 1.00 | V | -17.22 | 43.93 | 72.87 | -28.94 | Peak |
| 1.736 | - | - | - | V | - | 32.67 | 52.87 | -20.2 | *Ave* |
| 2169 | 65.94 | 6.00 | 1.00 | V | -16.81 | 49.13 | 72.87 | -23.74 | Peak |
| 2169 | - | - | - | V | - | 37.87 | 52.87 | -15 | *Ave* |
| 2.603 | 59.96 | 214.00 | 2.00 | V | -16.96 | 43 | 72.87 | -29.87 | Peak |
| 2.603 | - | - | - | V | - | 31.74 | 52.87 | -21.13 | *Ave* |
| 3.037 | 59.93 | 249.00 | 1.00 | V | -16.77 | 43.16 | 72.87 | -29.71 | Peak |
| 3.037 | - | - | - | V | - | 31.9 | 52.87 | -20.97 | *Ave* |
| 3.471 | 58.02 | 19.00 | 2.00 | V | -16.37 | 41.65 | 72.87 | -31.22 | Peak |
| 3.471 | - | - | - | V | - | 30.39 | 52.87 | -22.48 | *Ave* |
| 3.905 | 56.77 | 299.00 | 1.00 | V | -15.97 | 40.8 | 72.87 | -32.07 | Peak |
| 3.905 | - | - | - | V | - | 29.54 | 52.87 | -23.33 | *Ave* |
| 4.338 | 57.34 | 267.00 | 2.00 | V | -14.26 | 43.08 | 74 | -30.92 | Peak |
| 4.338 | - | - | - | V | - | 31.82 | 54 | -22.18 | *Ave* |
| 1.302 | 68.53 | 5.00 | 1.00 | H | -19.10 | 49.43 | 74 | -24.57 | Peak |
| 1.302 | - | - | - | H | - | 38.17 | 54 | -15.83 | *Ave* |
| 1.736 | 62.37 | 128.00 | 1.00 | H | -17.22 | 45.15 | 72.87 | -27.72 | Peak |
| 1.736 | - | - | - | H | - | 33.89 | 52.87 | -18.98 | *Ave* |
| 2169 | 65.87 | 293.00 | 1.00 | H | -16.81 | 49.06 | 72.87 | -23.81 | Peak |
| 2169 | - | - | - | H | - | 37.8 | 52.87 | -15.07 | *Ave* |
| 2.603 | 63.61 | 337.00 | 2.00 | H | -16.96 | 46.65 | 72.87 | -26.22 | Peak |
| 2.603 | | - | - | H | - | 35.39 | 52.87 | -17.48 | *Ave* |
| 3.037 | 58.58 | 144.00 | 1.00 | H | -16.77 | 41.81 | 72.87 | -31.06 | Peak |
| 3.037 | - | - | - | H | - | 30.55 | 52.87 | -22.32 | *Ave* |
| 3.471 | 58.21 | 359.00 | 2.00 | H | -16.37 | 41.84 | 72.87 | -31.03 | Peak |
| 3.471 | - | - | - | H | - | 30.58 | 52.87 | -22.29 | *Ave* |
| 3.905 | 56.35 | 257.00 | 1.00 | H | -15.97 | 40.38 | 72.87 | -32.49 | Peak |
| 3.905 | - | - | - | H | - | 29.12 | 52.87 | -23.75 | *Ave* |
| 4.338 | 57.29 | 198.00 | 1.00 | H | -14.26 | 43.03 | 74 | -30.97 | Peak |
| 4.338 | - | - | - | H | - | 31.77 | 54 | -22.23 | *Ave* |

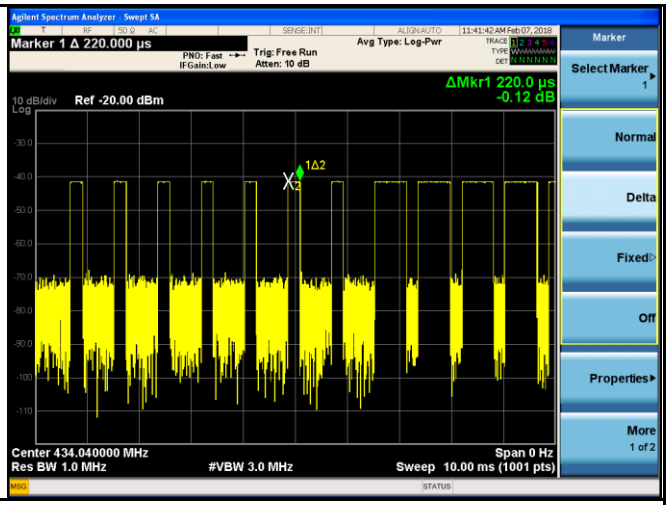
Note: Duty cycle is 27.35%, 20log (duty cycle) = -11.26dB correction was used to determine the average level from the peak reading.
Average = peak reading + 20log (duty cycle), final Average= peak reading -11.26dB

**Note:**
**Narrow Pulse: 0.22ms**
**2/NP = 2/0.22ms =9.09 kHz**
**RBW > 2/NP (9.09 kHz)**
**Therefore PDCF is not needed.**

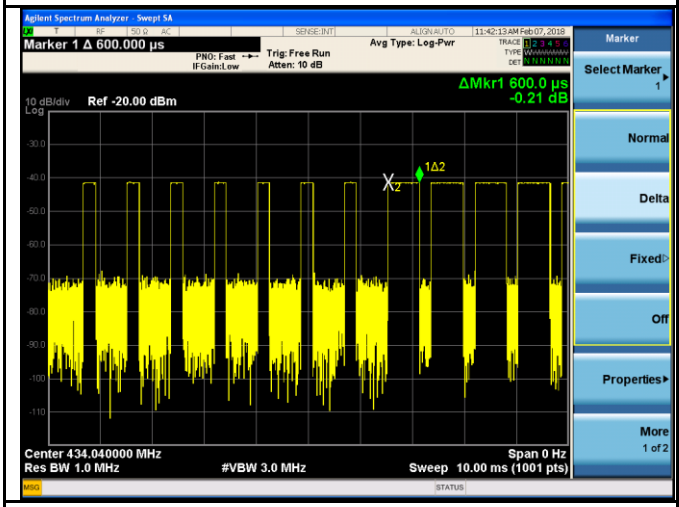
## Duty Cycle Measurement Result




**Duty Cycle 1#**




**Duty Cycle 2#**




**Duty Cycle 3#**

Wide Pulse: 0.6ms
Narrow Pulse: 0.22ms
Duty cycle= (0.6*8+0.22*101)/98.8*100%=27.35%
Average Duty Factor: 20*log (Duty Cycle) = -11.26 dB

**Pulse Duty Cycle**

## 6.5 Deactivation

| | |
|---|---|
| Temperature | 18°C |
| Relative Humidity | 50% |
| Atmospheric Pressure | 1018mbar |
| Test date : | March 05, 2018 |
| Tested By : | Louise Tu |

**Requirement(s):**

| Spec | Item | Requirement | Applicable |
|---|---|---|---|
| §15.231 | e) | In addition, devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds. | ☑ |
| Test Setup | Spectrum Analyzer — EUT | | |
| Test Procedure | measurement procedure<br>- Set analyzer center frequency to channel center frequency.<br>- Set the span to 0Hz.<br>- Set the VBW ≥ 3 ´ RBW.<br>- Detector = peak.<br>- Sweep time = auto couple.<br>- Trace mode = max hold.<br>- Allow trace to fully stabilize. | | |
| Remark | | | |
| Result | ☑ Pass | ☐ Fail | |

**Test Data** ☐ Yes ☑ N/A

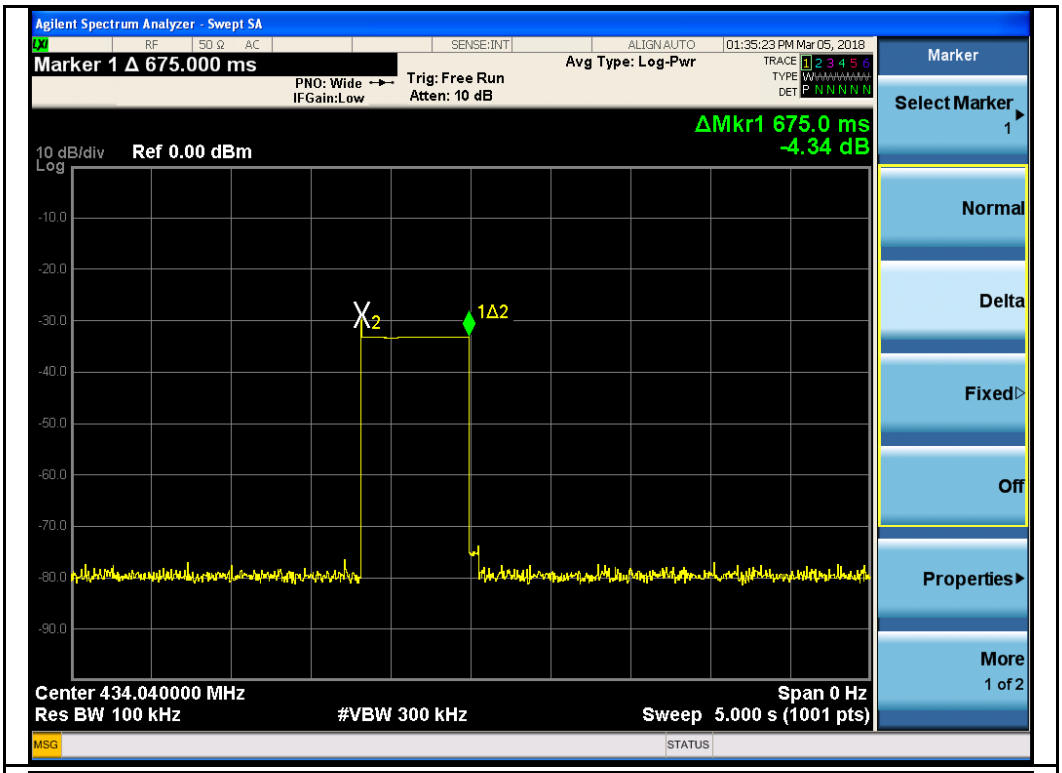
**Test Plot** ☑ Yes (See below) ☐ N/A

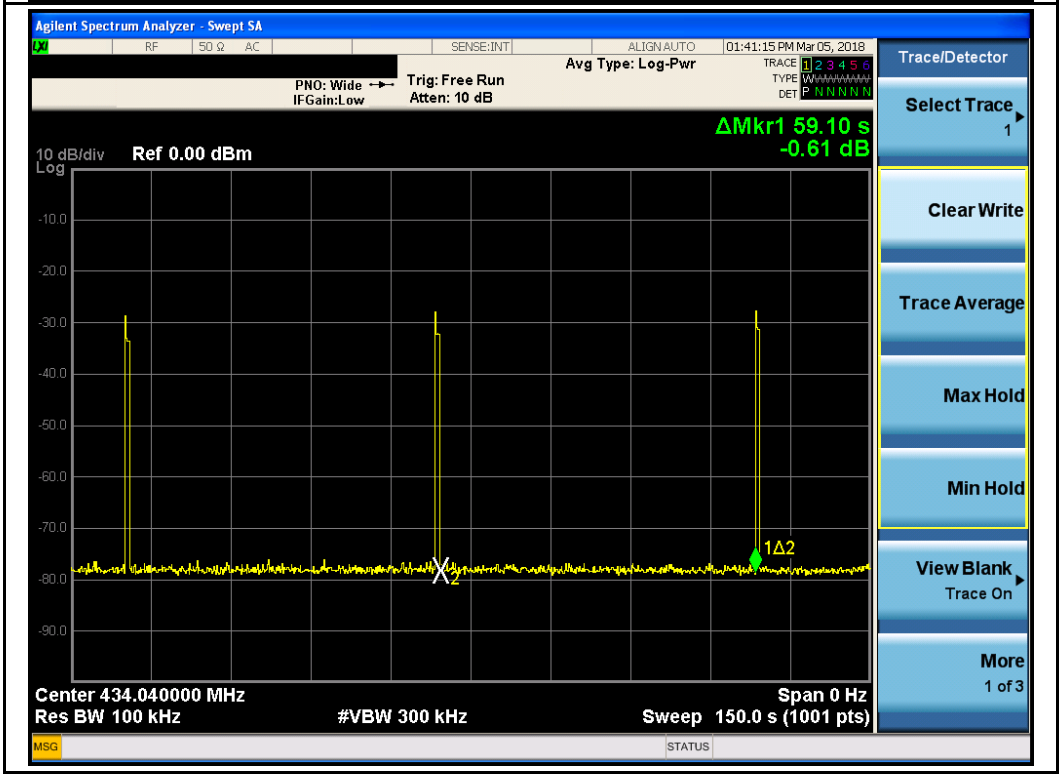
**Test Plots**
**Deactivation Measurement Result**

**Duration time=0.675s < 1s**

**Silent time=59.1s > 10s**

**Silent time=59.1s > 30*0.675s=20.25s**



# Annex A. TEST INSTRUMENT

| Instrument | Model | Serial # | Cal Date | Cal Due | In use |
|---|---|---|---|---|---|
| **AC Line Conducted Emissions** | | | | | |
| R&S EMI Test Receiver | ESPI3 | 101216 | 05/03/2017 | 05/02/2018 | ☐ |
| V-LISN | ESH3-Z5 | 838979/005 | 05/15/2017 | 05/14/2018 | ☐ |
| SIEMIC EZ_EMC software Conducted Emissions | Ver.ICP-03A1 | N/A | N/A | N/A | ☐ |
| **RF conducted test** | | | | | |
| Agilent Technologies Spectrum Analyzer | N9010A | MY47191130 | 05/03/2017 | 05/02/2018 | ☒ |
| **Radiated Emissions** | | | | | |
| Agilent Technologies Spectrum Analyzer | N9010A | MY47191130 | 05/03/2017 | 05/02/2018 | ☒ |
| R&S EMI Receiver | ESPI3 | 101216 | 05/03/2017 | 05/02/2018 | ☒ |
| Antenna (30MHz~6GHz) | JB6 | A121411 | 10/31/2017 | 10/30/2018 | ☒ |
| EMCO Horn Antenna (1 ~18GHz) | 3115 | N/A | 11/15/2017 | 11/14/2018 | ☒ |
| Hp Agilent Pre-Amplifier | 8447F | 1937A01160 | 10/31/2017 | 10/30/2018 | ☒ |
| Pre-Amplifier | 8449B | 3008A02224 | 10/30/2017 | 10/29/2018 | ☒ |
| SIEMIC EZ_EMC software Radiated Emissions | Ver.ICP-03A1 | N/A | N/A | N/A | ☒ |

# Annex B. EUT And Test Setup Photographs

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

Top View1 of EUT

Bottom View2 of EUT

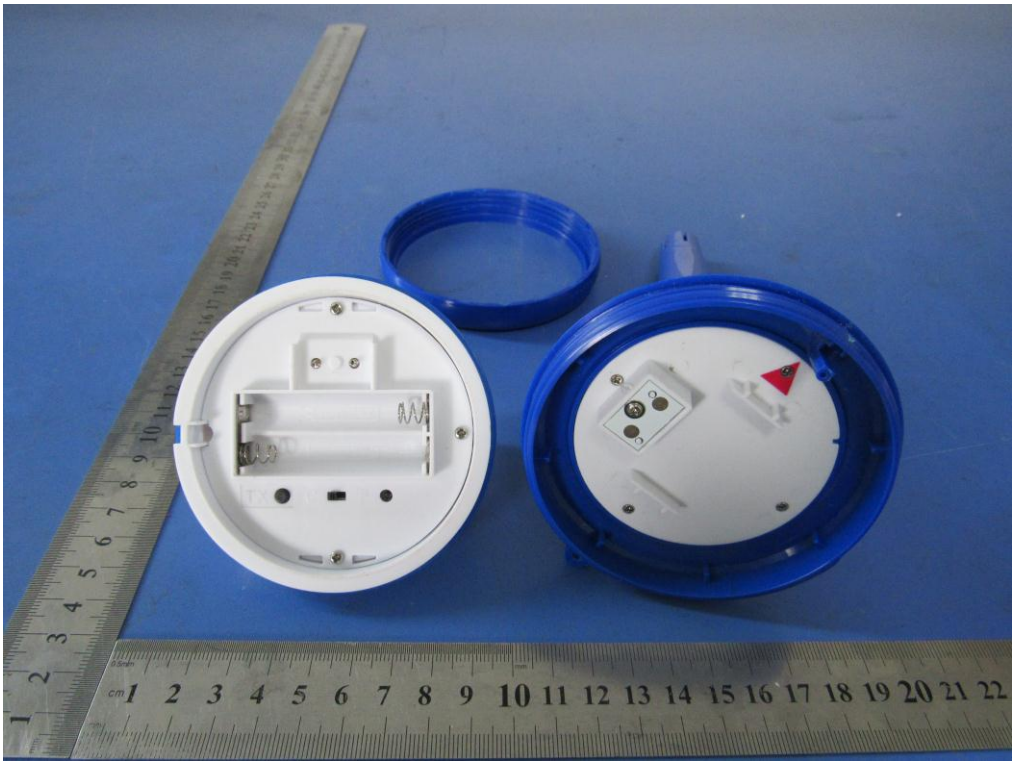
View3 of EUT

View4 of EUT

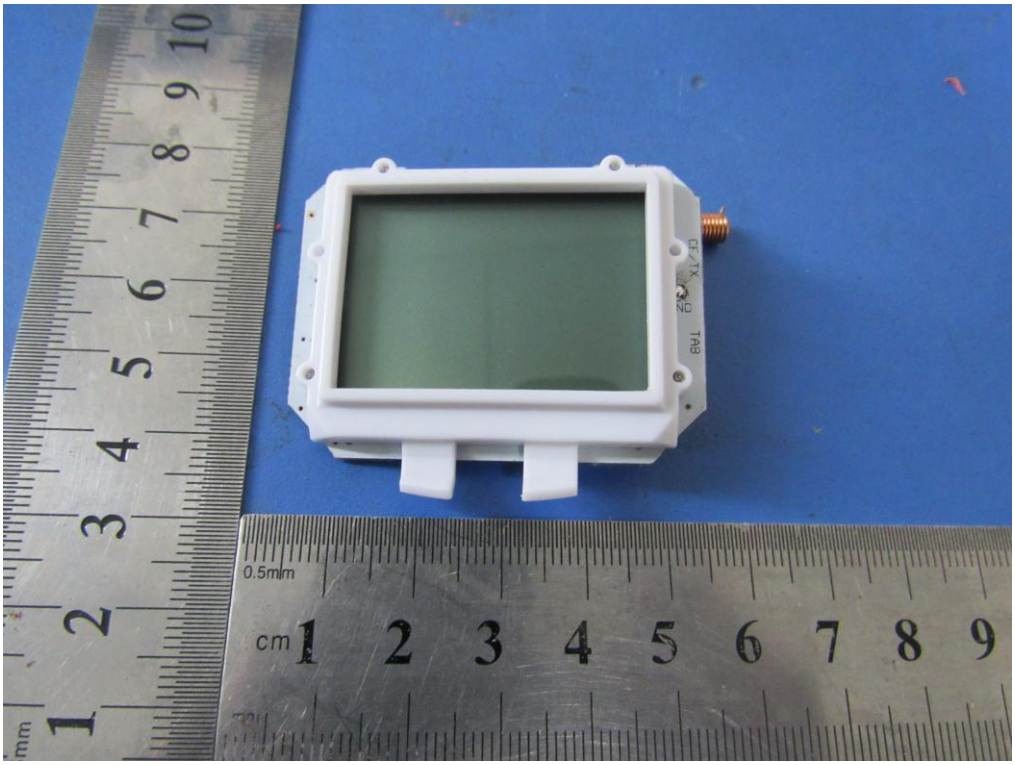
View5 of EUT

View6 of EUT

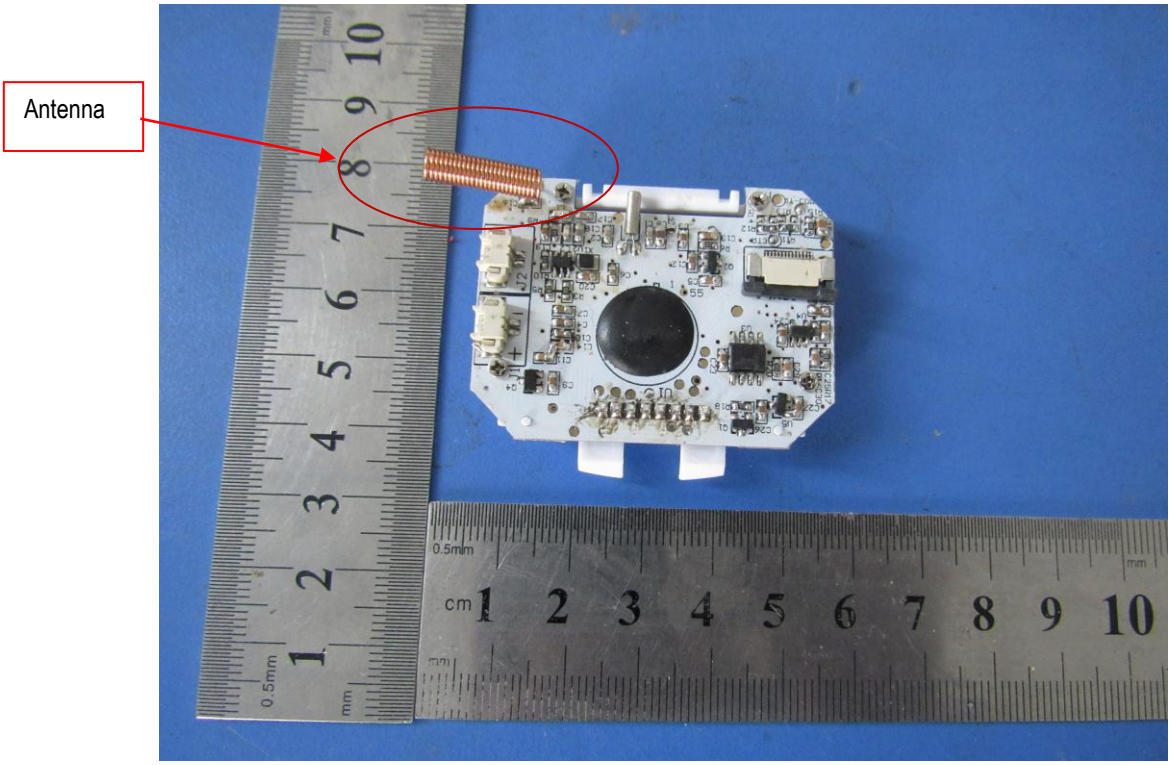
## Annex B.ii. Photograph EUT Internal Photos



Uncover - Front View

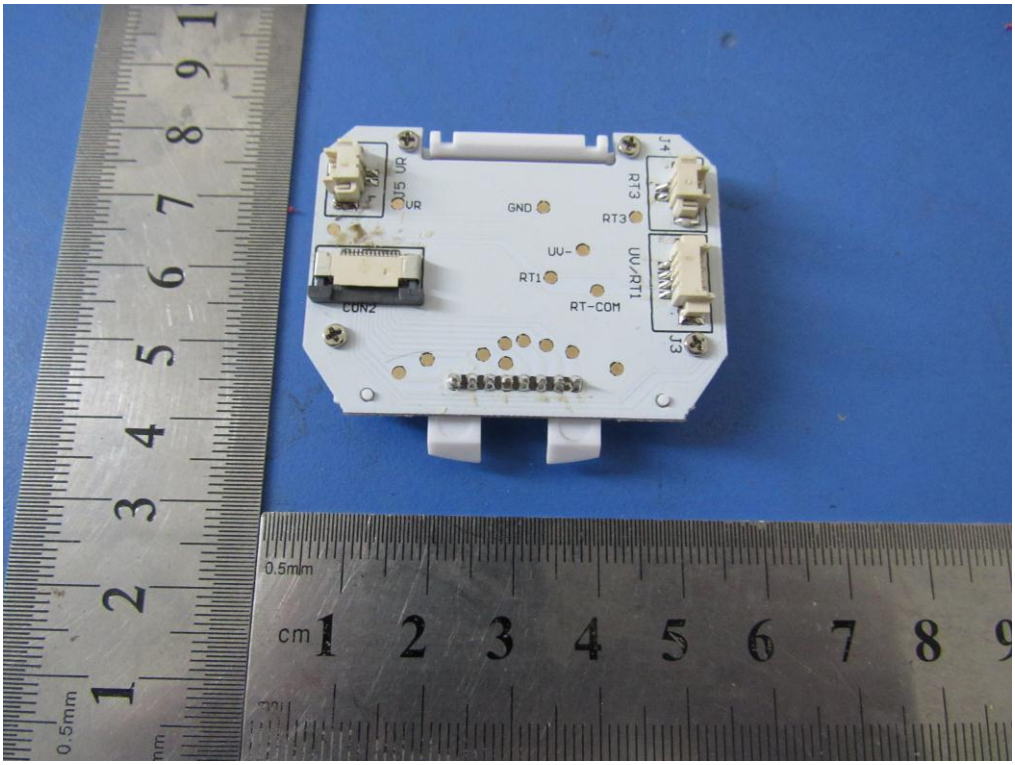


EUT Screen1 – Front View

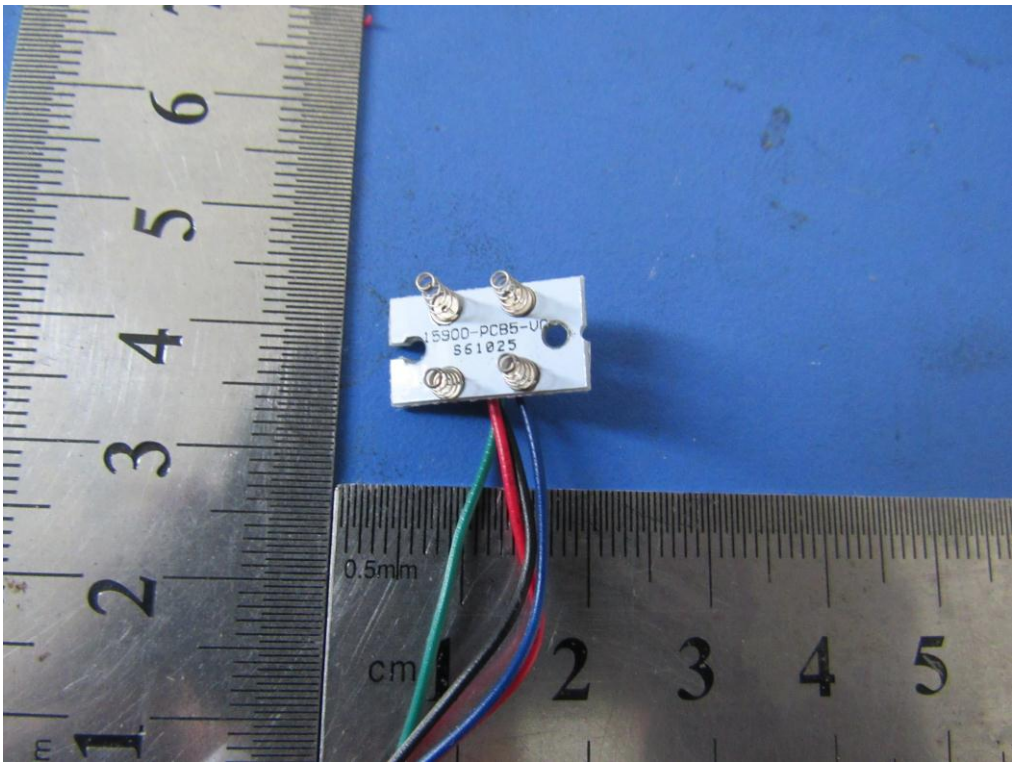



EUT Screen1 – Rear View

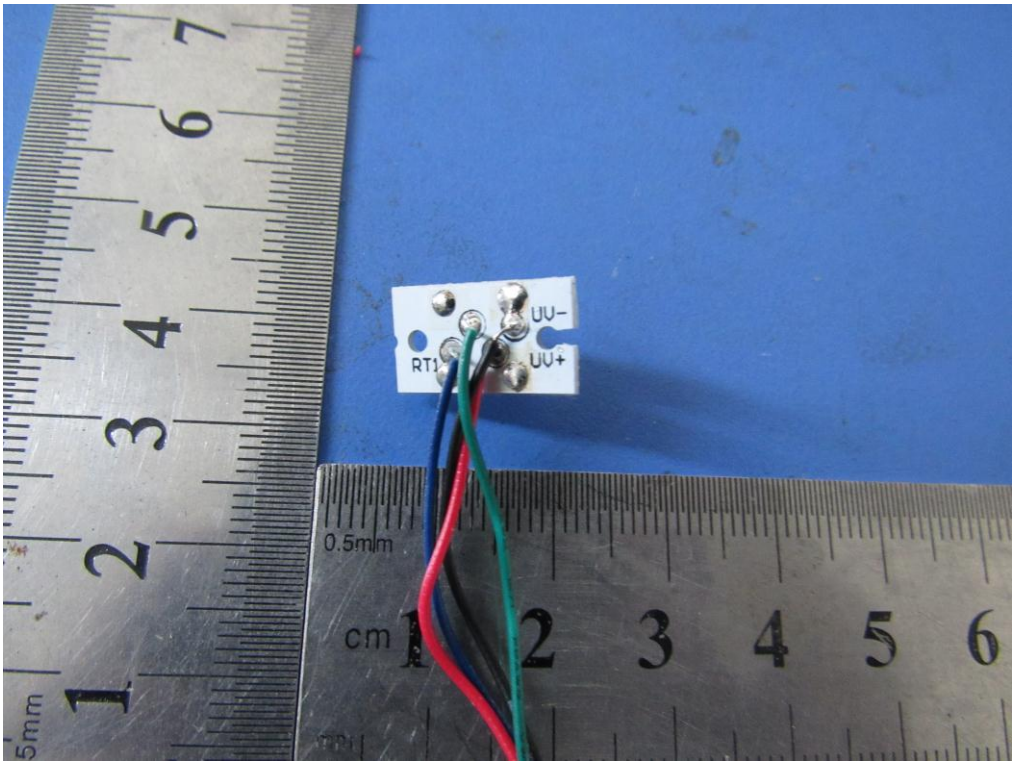
EUT Screen2 – Front View



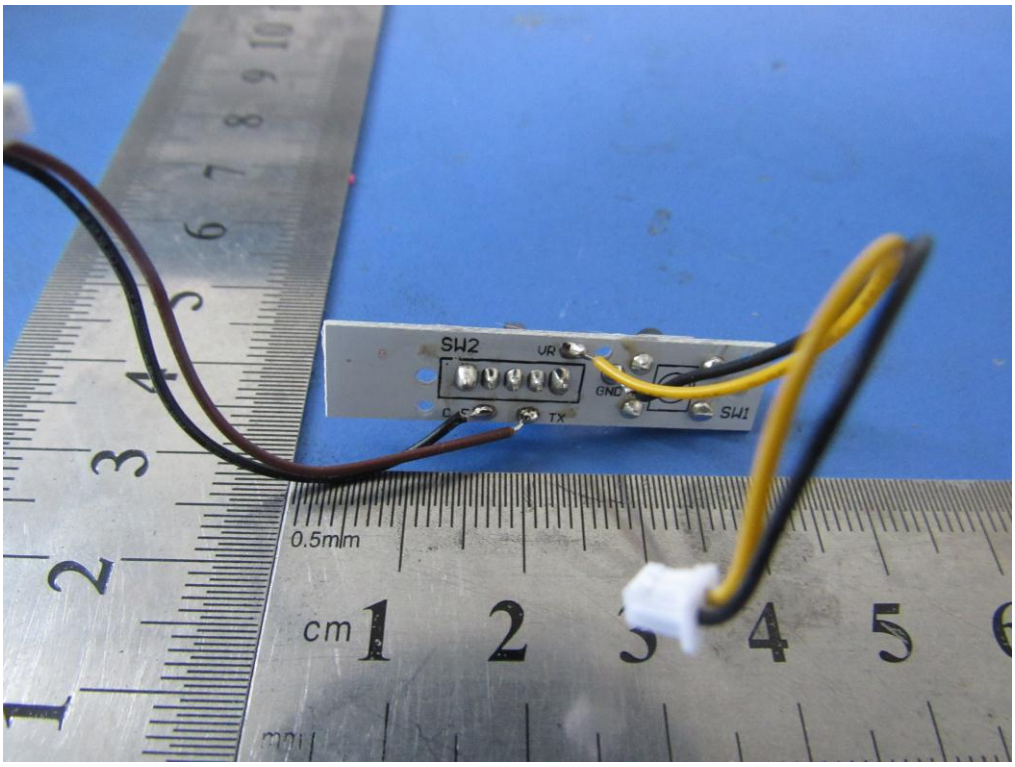

EUT Screen2 – Rear View



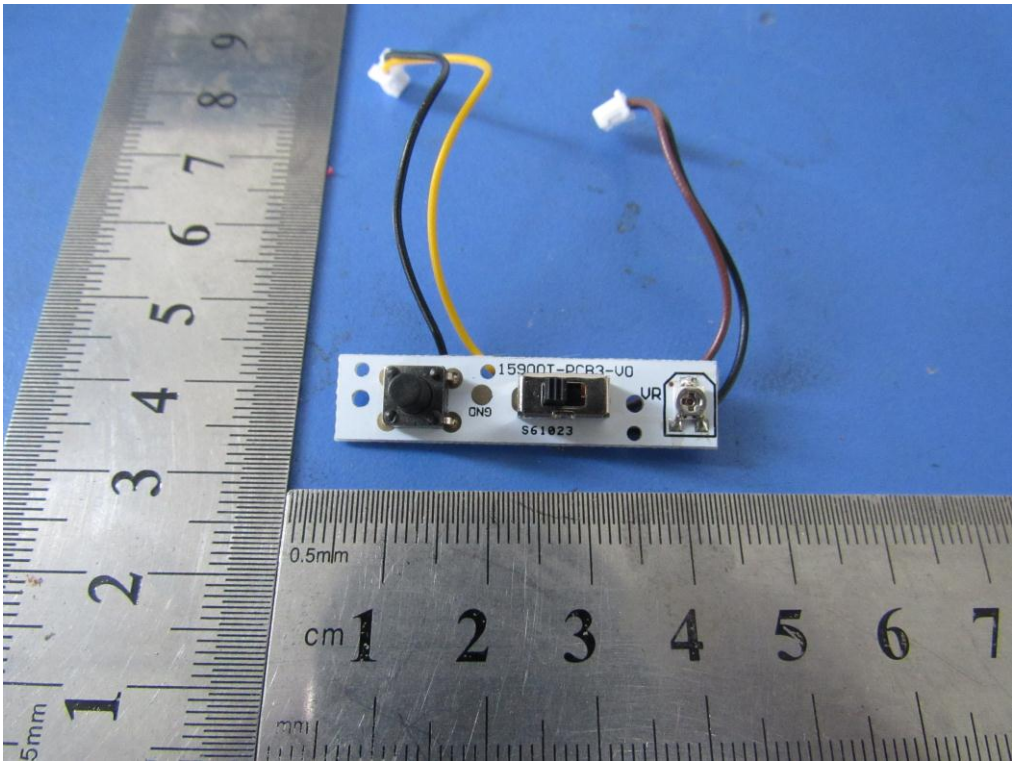

EUT PCB1 – Front View



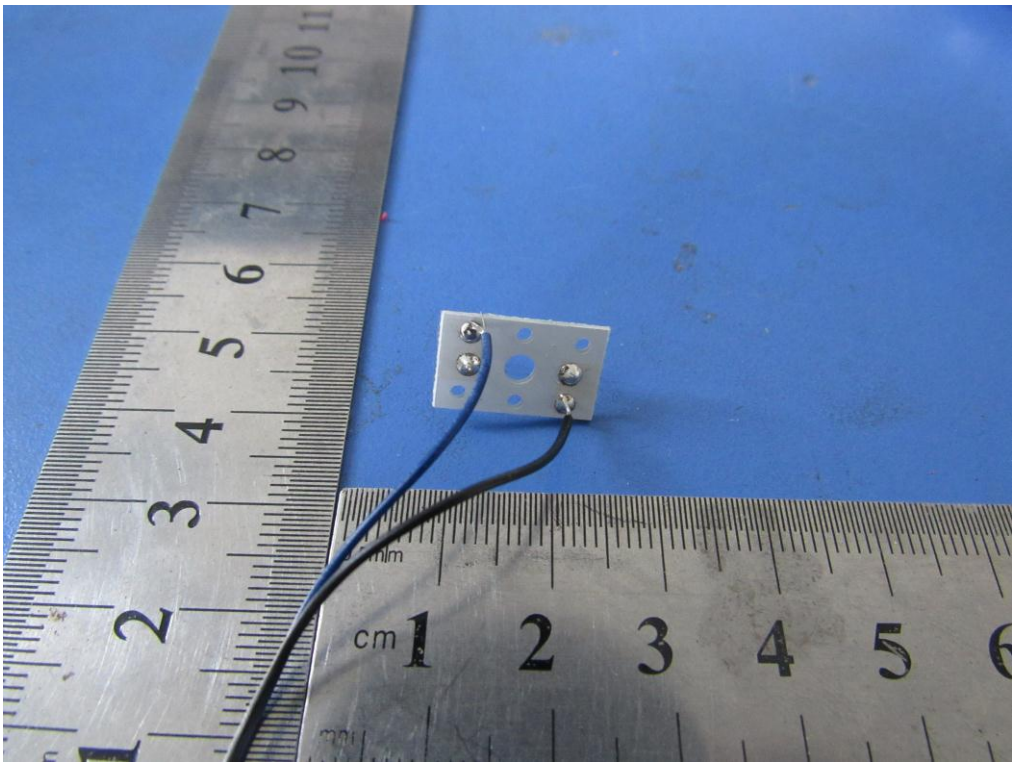

EUT PCB1 – Rear View



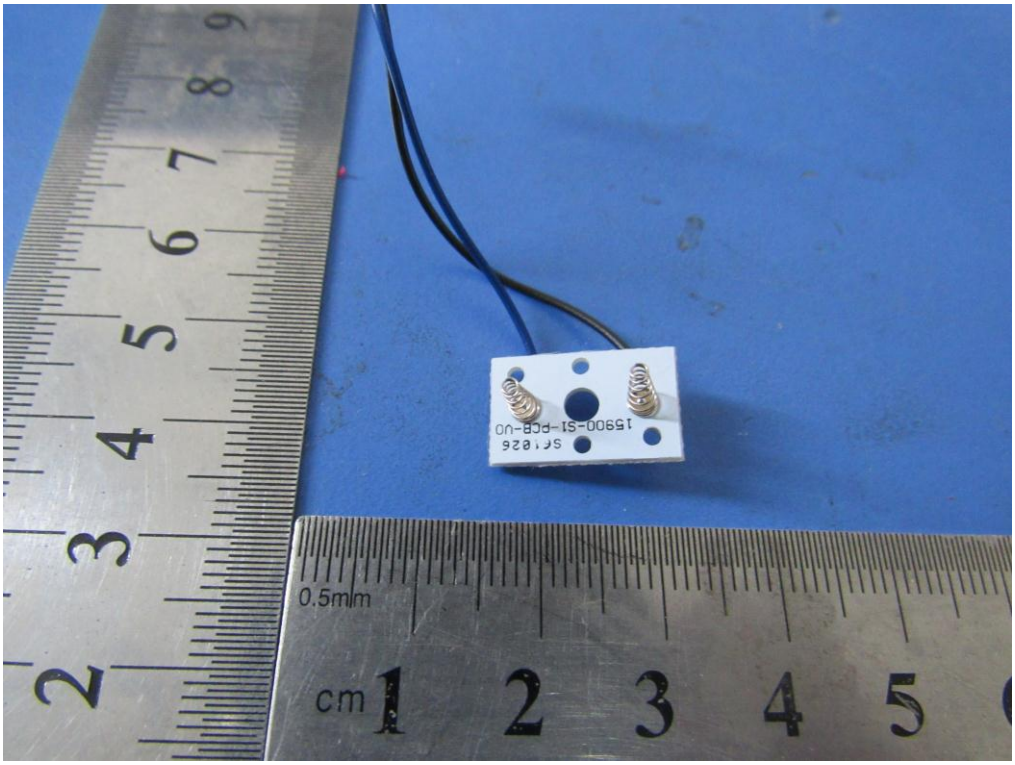

EUT PCB2 – Front View




EUT PCB2 – Rear View

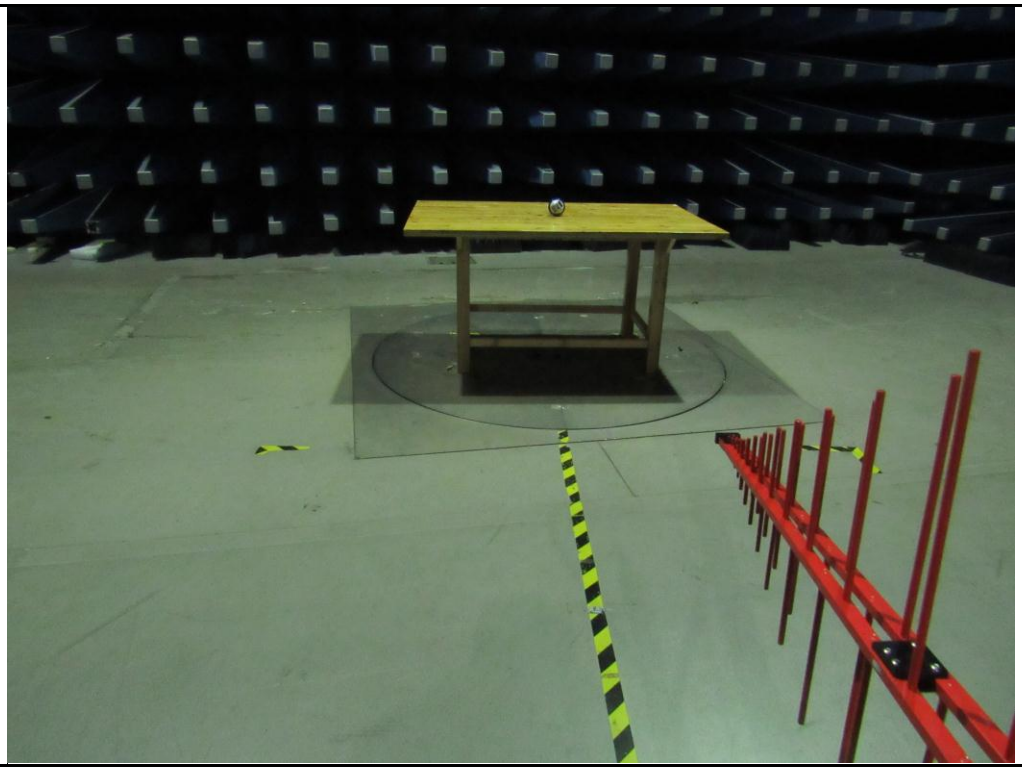



EUT PCB3 – Front View

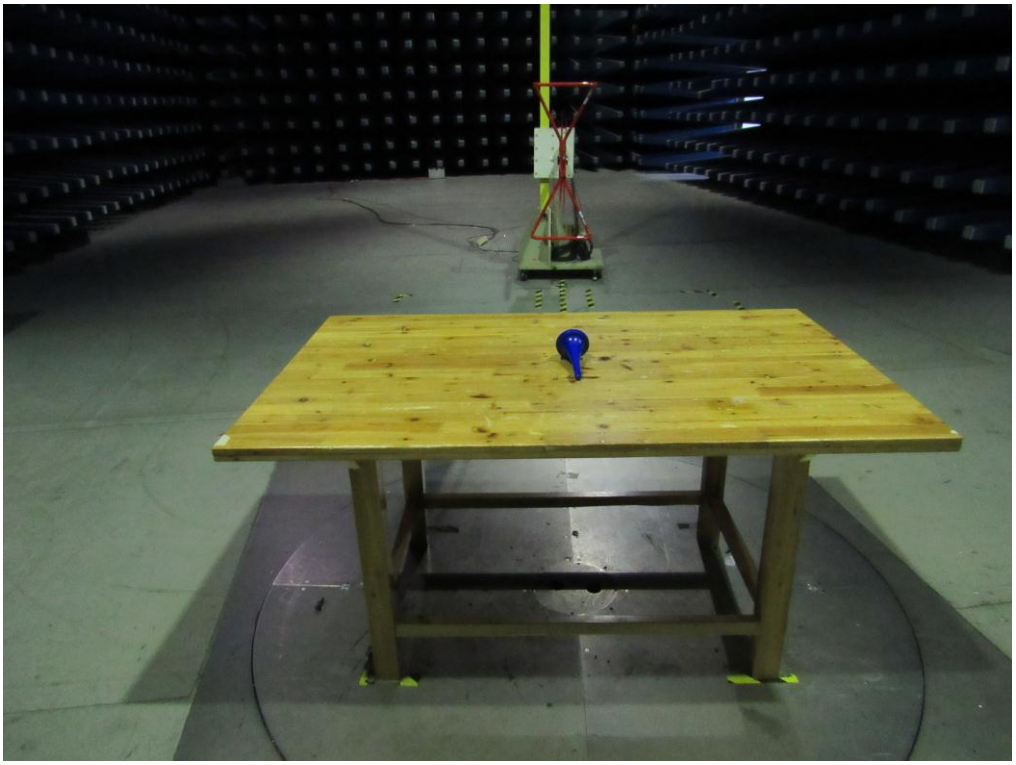



EUT PCB3 – Rear View

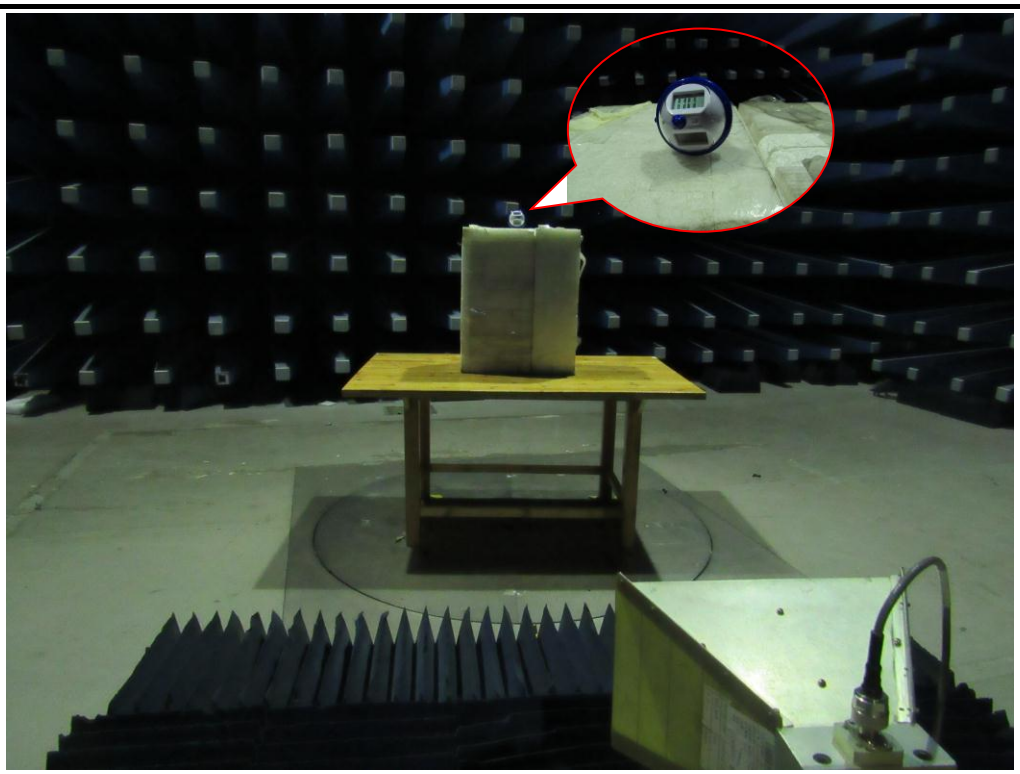
## Annex B.iii. Photograph: Test Setup Photo



Radiated Emissions Test Setup Below 1GHz Front View



Radiated Emissions Test Setup Below 1GHz Rear View

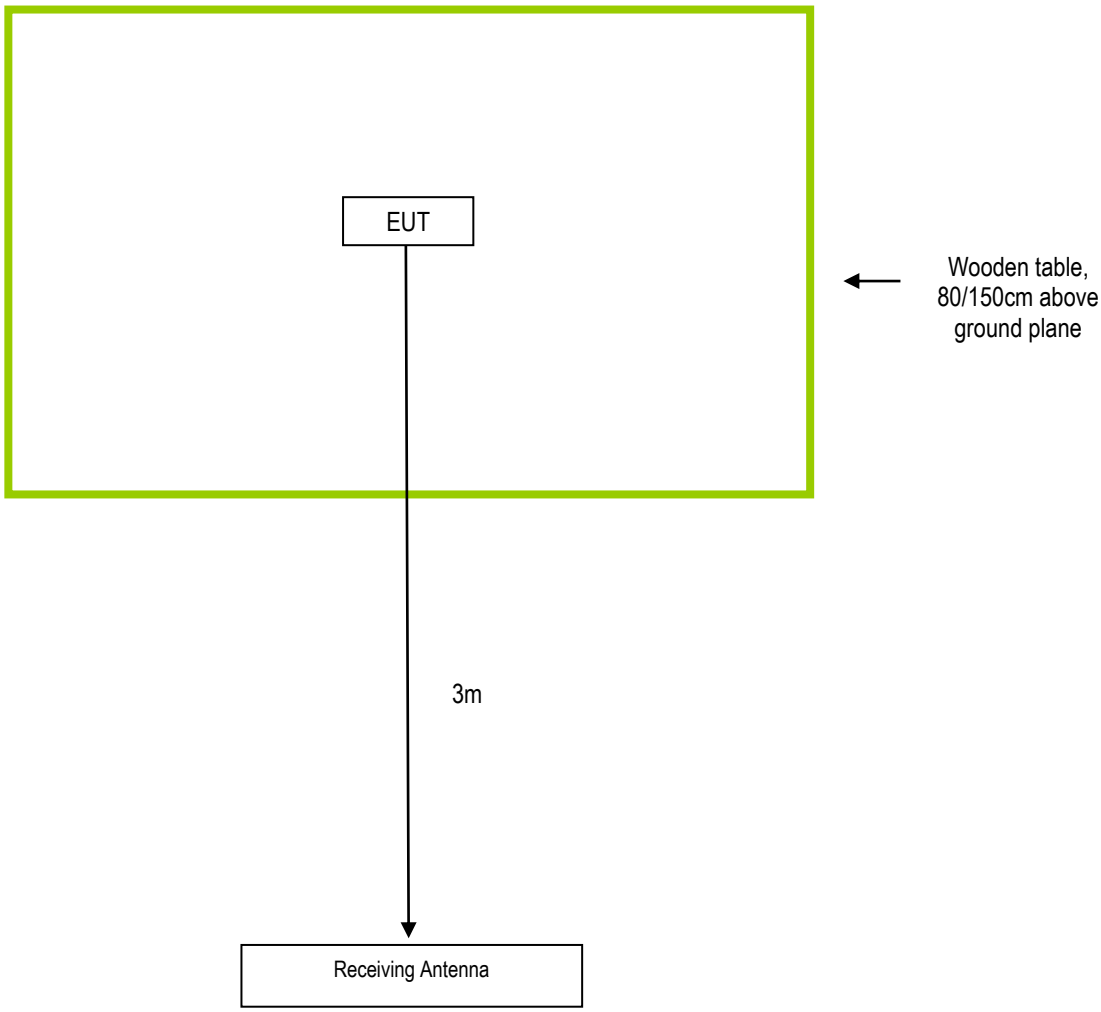


Radiated Emissions Test Setup Above 1GHz

# Annex C. TEST SETUP AND SUPPORTING EQUIPMENT

## Annex C.ii. TEST SET UP BLOCK

### 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.

| Manufacturer | Equipment Description | Model | Calibration Due Date |
| --- | --- | --- | --- |
| N/A | N/A | N/A | N/A |

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

**Please see attachment**

# Annex E. DECLARATION OF SIMILARITY

**N/A**