**SGS-CSTC Standards Technical Services Co., Ltd.**
**Shenzhen Branch**

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# TEST REPORT

| | |
|---|---|
| **Application No.:** | SZEM1801000155CR |
| **Applicant:** | Shanghai Baolu Technology Co., Ltd. |
| **Address of Applicant:** | Silver tower, No.407 Yishan Road, 200030 Shanghai China |
| **Manufacturer/ Factory:** | Shanghai Baolu Technology Co., Ltd. |
| **Address of Manufacturer/ Factory:** | Silver tower, No.407 Yishan Road, 200030 Shanghai China |
| **Equipment Under Test (EUT):** | |
| **EUT Name:** | Garage door opener |
| **Model No.:** | H600N/800N/1000N/1200N,F600N/800N/1000N/1200N,V600N/800N/1000N/1200N, I600N/800N/1000N/1200N, A600N/800N/1000N/1200N ♣ |
| ♣ | Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical. |
| **FCC ID:** | 2AO7R-BL-RELIANCE |
| **Standard(s) :** | 47 CFR Part 15, Subpart C 15.231 |
| **Date of Receipt:** | 2018-01-05 |
| **Date of Test:** | 2018-01-30 to 2018-03-07 |
| **Date of Issue:** | 2018-03-08 |
| **Test Result:** | **Pass*** |

* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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| Revision Record | | | | |
|---|---|---|---|---|
| ***Version*** | ***Chapter*** | ***Date*** | ***Modifier*** | ***Remark*** |
| *01* | | *2018-03-08* | | *Original* |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| **Authorized for issue by:** | | | | |
| | | Leo Li<br>**Leo Li /Project Engineer** | | |
| | | Eric Fu<br>**Eric Fu /Reviewer** | | |

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# 2 Test Summary

| Radio Spectrum Technical Requirement | | | | |
|---|---|---|---|---|
| **Item** | **Standard** | **Method** | **Requirement** | **Result** |
| Antenna Requirement | 47 CFR Part 15, Subpart C 15.231 | N/A | 47 CFR Part 15, Subpart C 15.203 | Pass |

N/A: Not applicable

| Radio Spectrum Matter Part | | | | |
|---|---|---|---|---|
| **Item** | **Standard** | **Method** | **Requirement** | **Result** |
| 20dB Bandwidth | 47 CFR Part 15, Subpart C 15.231 | ANSI C63.10 (2013) Section 6.9 | 47 CFR Part 15, Subpart C 15.231(c) | Pass |
| Dwell Time (15.231(a)) | 47 CFR Part 15, Subpart C 15.231 | ANSI C63.10 (2013) Section 7.8.4 | 47 CFR Part 15, Subpart C 15.231(a) | Pass |
| Field Strength of the Fundamental Signal (15.231(b)) | 47 CFR Part 15, Subpart C 15.231 | ANSI C63.10 (2013) Section 6.5 | 47 CFR Part 15, Subpart C 15.231(b) | Pass |
| Radiated Emissions | 47 CFR Part 15, Subpart C 15.231 | ANSI C63.10 (2013) Section 6.4&6.5&6.6 | 47 CFR Part 15, Subpart C 15.231(b) | Pass |

**Declaration of EUT Family Grouping:**

Model No.: H600N/800N/1000N/1200N, F600N/800N/1000N/1200N, V600N/800N/ 1000N/1200N, I600N/800N/1000N/1200N, A600N/800N/1000N/1200N

Only the model H600N/800N/1000N/1200N was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for the above models, with only difference on appearance.

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# 4 General Information

## 4.1 Details of E.U.T.

| | |
|---|---|
| Power supply: | DC 3.0V(1x3.0 "CR2" LITHIUM BATTERY) |
| Test voltage | DC 3V |
| Operation Frequency | 433.92MHz |
| Channel Numbers: | 1 |
| Modulation Type | OOK |
| Antenna Type | Loop Antenna |
| Antenna Gain | 0dBi |
| Sample Type: | Portable production |
| Transmission type | Manually operated |

## 4.2 Description of Support Units

The EUT has been tested as an independent unit.

## 4.3 Measurement Uncertainty

| No. | Item | Measurement Uncertainty |
|---|---|---|
| 1 | Radio Frequency | $7.25 \times 10^{-8}$ |
| 2 | Duty cycle | 0.37% |
| 3 | Occupied Bandwidth | 3% |
| 4 | RF conducted power | 0.75dB |
| 5 | RF power density | 2.84dB |
| 6 | Conducted Spurious emissions | 0.75dB |
| 7 | RF Radiated power | 4.5dB (below 1GHz) |
| | | 4.8dB (above 1GHz) |
| 8 | Radiated Spurious emission test | 4.5dB (Below 1GHz) |
| | | 4.8dB (Above 1GHz) |
| 9 | Temperature test | 1℃ |
| 10 | Humidity test | 3% |
| 11 | Supply voltages | 1.5% |
| 12 | Time | 3% |

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## 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

## 4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

## 4.6 Deviation from Standards

None

## 4.7 Abnormalities from Standard Conditions

None

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# 5 Equipment List

| 20dB Bandwidth | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| DC Power Supply | ZhaoXin | RXN-305D | SEM011-02 | 2017-09-27 | 2018-09-26 |
| Spectrum Analyzer | Rohde & Schwarz | FSP | SEM004-06 | 2017-09-27 | 2018-09-26 |
| Measurement Software | JS Tonscend | JS1120-2 BT/WIFI V2. | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM031-02 | 2017-07-13 | 2018-07-12 |
| Attenuator | Weinschel Associates | WA41 | SEM021-09 | N/A | N/A |
| Signal Generator | KEYSIGHT | N5173B | SEM006-05 | 2017-09-27 | 2018-09-26 |
| Power Meter | Rohde & Schwarz | NRVS | SEM014-02 | 2017-09-27 | 2018-09-26 |

| Dwell Time (15.231(a)) | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| DC Power Supply | ZhaoXin | RXN-305D | SEM011-02 | 2017-09-27 | 2018-09-26 |
| Spectrum Analyzer | Rohde & Schwarz | FSP | SEM004-06 | 2017-09-27 | 2018-09-26 |
| Measurement Software | JS Tonscend | JS1120-2 BT/WIFI V2. | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM031-02 | 2017-07-13 | 2018-07-12 |
| Attenuator | Weinschel Associates | WA41 | SEM021-09 | N/A | N/A |
| Signal Generator | KEYSIGHT | N5173B | SEM006-05 | 2017-09-27 | 2018-09-26 |
| Power Meter | Rohde & Schwarz | NRVS | SEM014-02 | 2017-09-27 | 2018-09-26 |

| Field Strength of the Fundamental Signal (15.231(b)) | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| 3m Semi-Anechoic Chamber | ETS-LINDGREN | N/A | SEM001-01 | 2017-08-05 | 2020-08-04 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM025-01 | 2017-07-13 | 2018-07-12 |
| EMI Test Receiver | Agilent Technologies | N9038A | SEM004-05 | 2017-09-27 | 2018-09-26 |
| BiConiLog Antenna (26-3000MHz) | ETS-LINDGREN | 3142C | SEM003-01 | 2017-06-27 | 2020-06-26 |
| Pre-amplifier (0.1-1300MHz) | Agilent Technologies | 8447D | SEM005-01 | 2017-04-14 | 2018-04-13 |

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| Radiated Emissions | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| 3m Semi-Anechoic Chamber | AUDIX | N/A | SEM001-02 | 2017-05-02 | 2020-05-01 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM026-01 | 2017-07-13 | 2018-07-12 |
| Spectrum Analyzer | Rohde & Schwarz | FSU43 | SEM004-08 | 2017-04-14 | 2018-04-13 |
| BiConiLog Antenna (26-3000MHz) | ETS-Lindgren | 3142C | SEM003-01 | 2017-06-27 | 2020-06-26 |
| Horn Antenna (1-18GHz) | Rohde & Schwarz | HF907 | SEM003-07 | 2015-06-14 | 2018-06-13 |
| Horn Antenna (15GHz-40GHz) | Schwarzbeck | BBHA 9170 | SEM003-15 | 2017-10-17 | 2020-10-16 |
| Pre-amplifier (0.1-1300MHz) | HP | 8447D | SEM005-02 | 2017-09-27 | 2018-09-26 |
| Low Noise Amplifier (100MHz-18GHz) | Black Diamond Series | BDLNA-0118-352810 | SEM005-05 | 2017-09-27 | 2018-09-27 |
| Pre-amplifier(18-26GHz) | Rohde & Schwarz | CH14-H052 | SEM005-17 | 2017-12-04 | 2018-12-03 |
| Pre-amplifier (26GHz-40GHz) | Compliance Directions Systems Inc. | PAP-2640-50 | SEM005-08 | 2017-04-14 | 2018-04-13 |
| DC Power Supply | Zhao Xin | RXN-305D | SEM011-02 | 2017-09-27 | 2018-09-26 |
| Active Loop Antenna | ETS-Lindgren | 6502 | SEM003-08 | 2017-08-22 | 2020-08-21 |
| Band filter | N/A | N/A | SEM023-01 | N/A | N/A |

| General used equipment | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| Humidity/ Temperature Indicator | Shanghai Meteorological Industry Factory | ZJ1-2B | SEM002-03 | 2017-09-29 | 2018-09-28 |
| Humidity/ Temperature Indicator | Shanghai Meteorological Industry Factory | ZJ1-2B | SEM002-04 | 2017-09-29 | 2018-09-28 |
| Humidity/ Temperature Indicator | Mingle | N/A | SEM002-08 | 2017-09-29 | 2018-09-28 |
| Barometer | Changchun Meteorological Industry Factory | DYM3 | SEM002-01 | 2017-04-18 | 2018-04-17 |

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# 6 Radio Spectrum Technical Requirement

## 6.1 Antenna Requirement

### 6.1.1 Test Requirement:

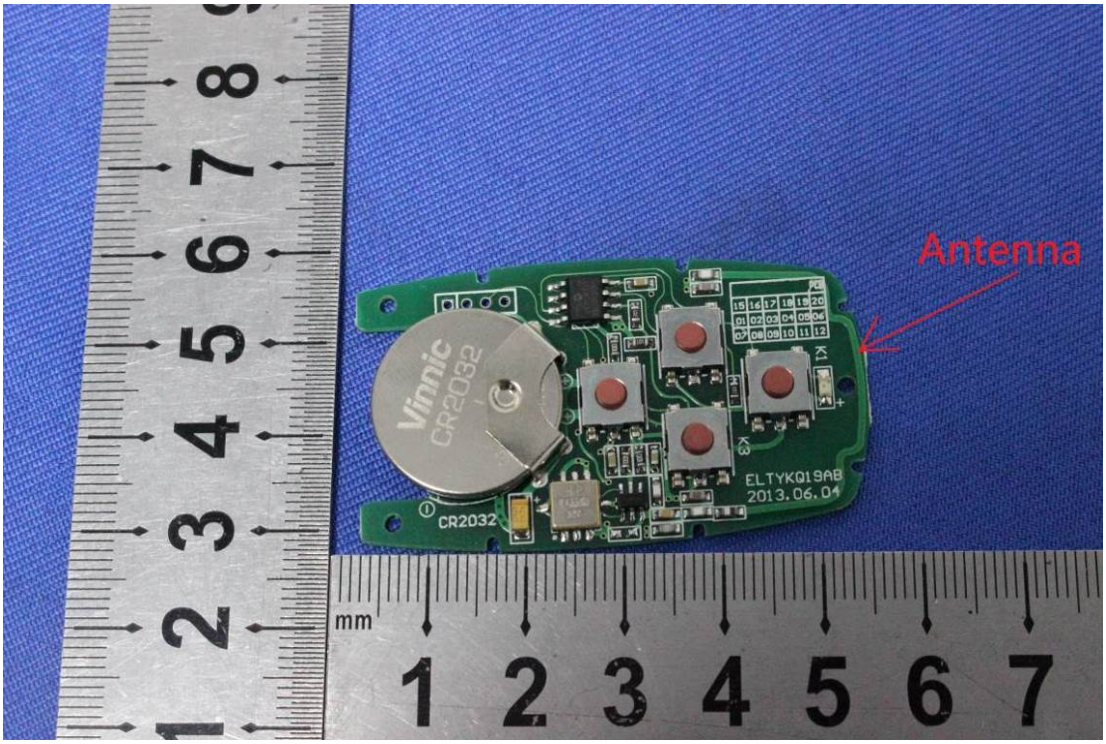
47 CFR Part 15, Subpart C 15.203

### 6.1.2 Conclusion

Standard Requirement:

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. The use of a antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:




The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.

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# 7 Radio Spectrum Matter Test Results

## 7.1 20dB Bandwidth

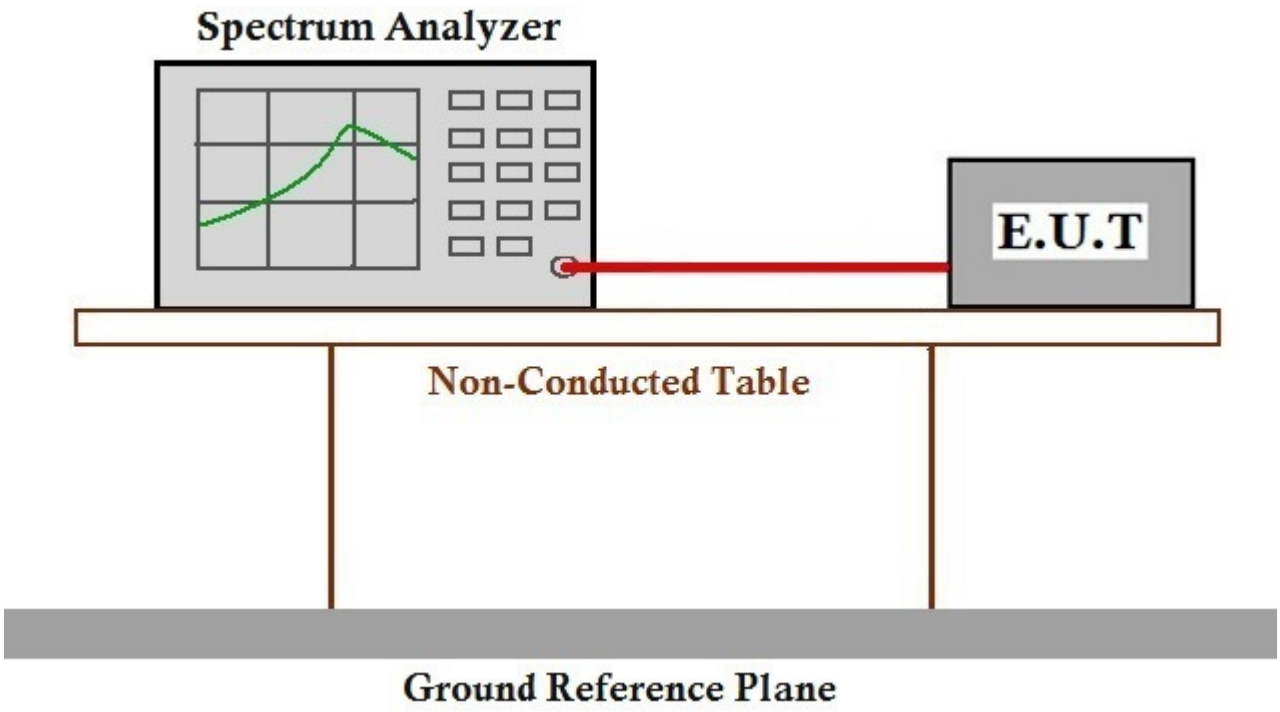
Test Requirement 47 CFR Part 15, Subpart C 15.231(c)
Test Method: ANSI C63.10 (2013) Section 6.9
Limit:

| Frequency range(MHz) | Limit |
|---|---|
| 70-900 | No wider than 0.25% of the center frequency |
| Above 900 | No wider than 0.5% of the center frequency |

### 7.1.1 E.U.T. Operation

Operating Environment:
Temperature: 19 °C Humidity: 36.7 % RH Atmospheric Pressure: 1015 mbar
Test mode b:TX mode_Keep the EUT in transmitting with modulation mode.

### 7.1.2 Test Setup Diagram




### 7.1.3 Measurement Procedure and Data

| 20dB bandwidth (MHz) | Limit (MHz) | Results |
|---|---|---|
| 0.012 | 1.8048 | Pass |

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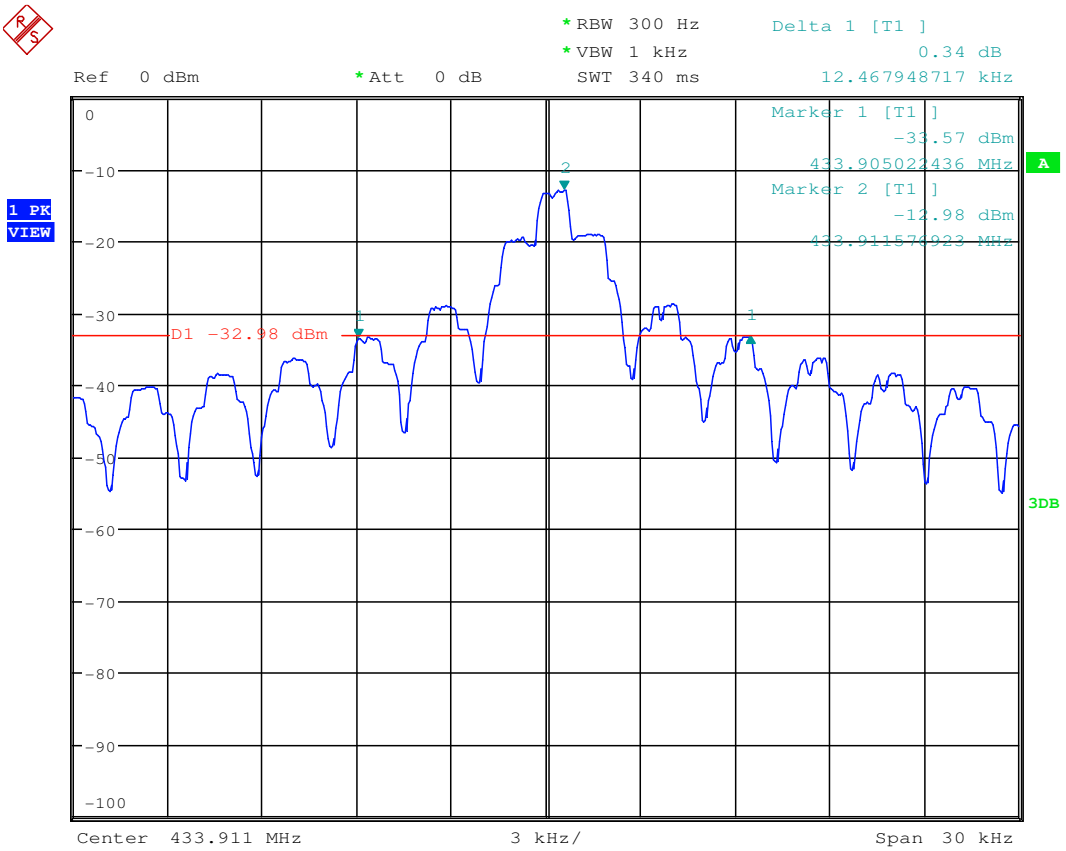


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## 7.2 Dwell Time

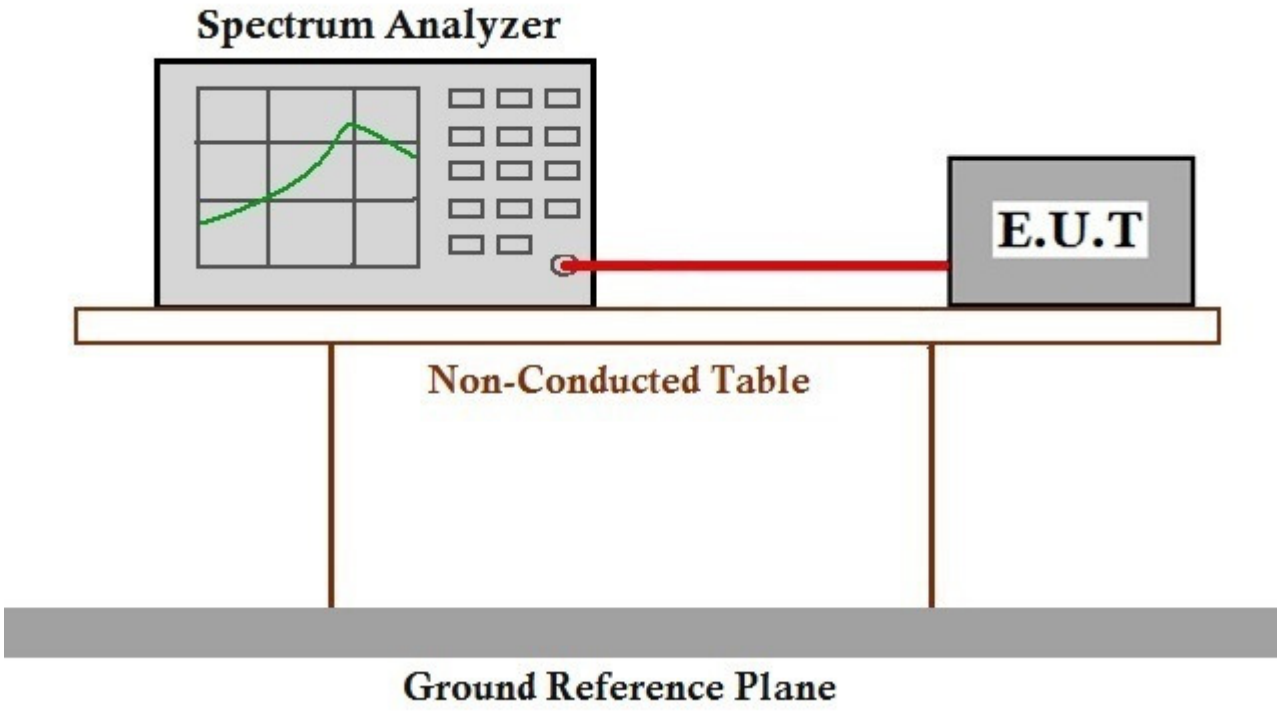
Test Requirement 47 CFR Part 15, Subpart C 15.231(a)
Test Method: ANSI C63.10 (2013) Section 7.8.4
Limit:

| Device type | Limit |
|---|---|
| Manually operated transmitter | The switch automatically deactivate the transmitter within not more than 5 seconds of being released |
| Automatically actived transmitter | Cease transmission within 5 seconds after activation |
| Periodic transmissions to determine system integrity of transmitters used in security or safety applications | The total transmission time does not exceed 2 seconds per hour |

### 7.2.1 E.U.T. Operation

Operating Environment:
Temperature: 19 °C Humidity: 36.7 % RH Atmospheric Pressure: 1015 mbar
Test mode b:TX mode_Keep the EUT in transmitting with modulation mode.

### 7.2.2 Test Setup Diagram




### 7.2.3 Measurement Procedure and Data

**Measurement Data**

| Test item | Limit | Results |
|---|---|---|
| Transmitting time:0.304s | ≤5S | Pass |

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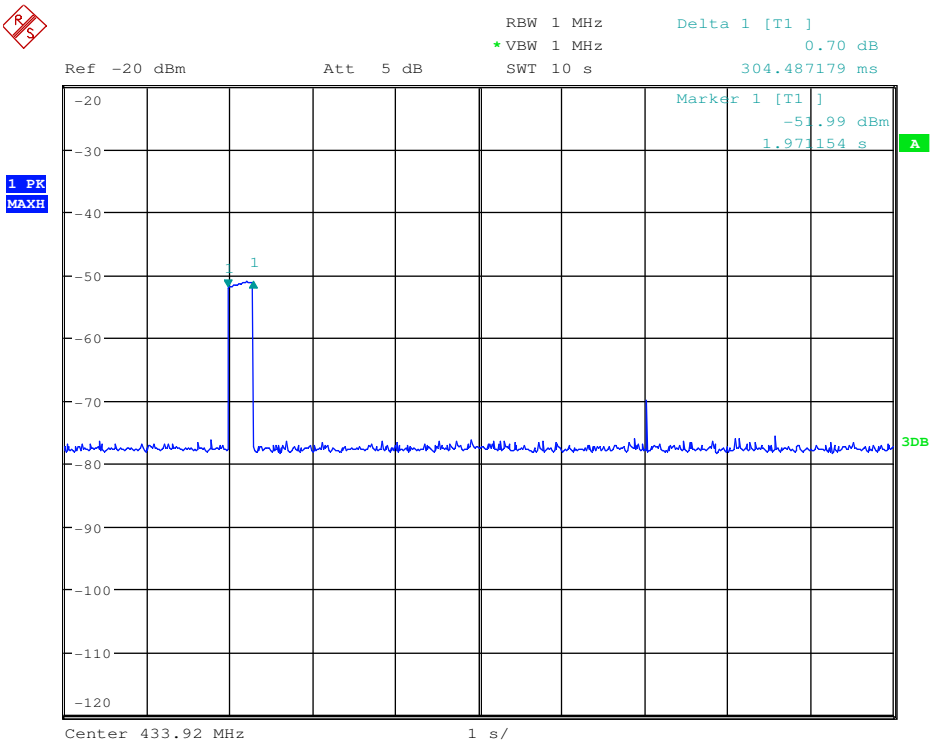


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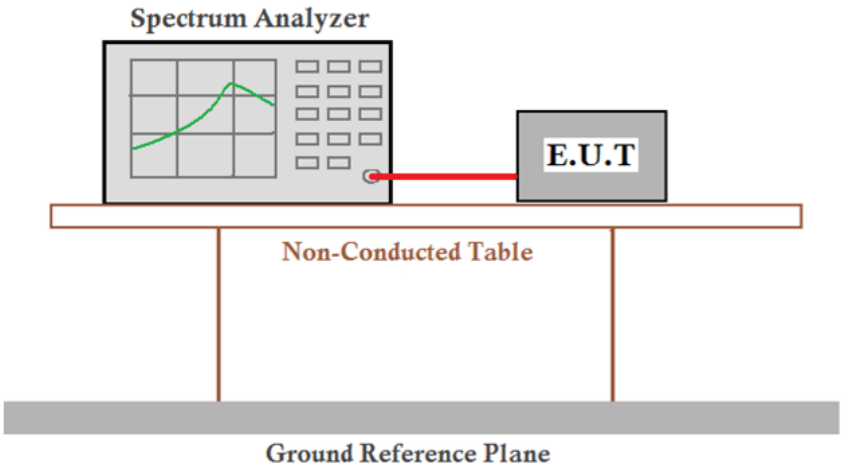
## 7.3 Duty Cycle

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.35 (c) |
| Test Method: | ANSI C63.10:2013 |
| Test Setup: |  |
| Limit: | N/A |
| Test Mode: | Transmitting mode |
| Instruments Used: | Refer to section 5 for details |
| Test Results: | Pass |

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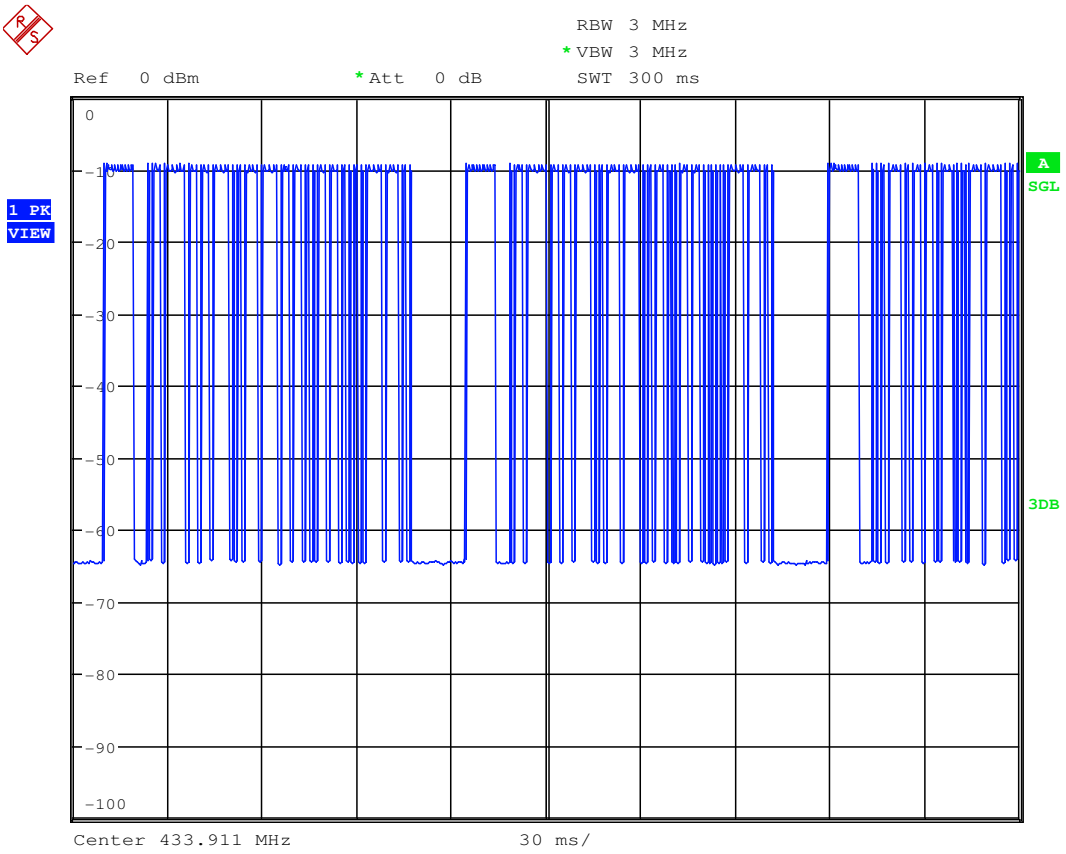


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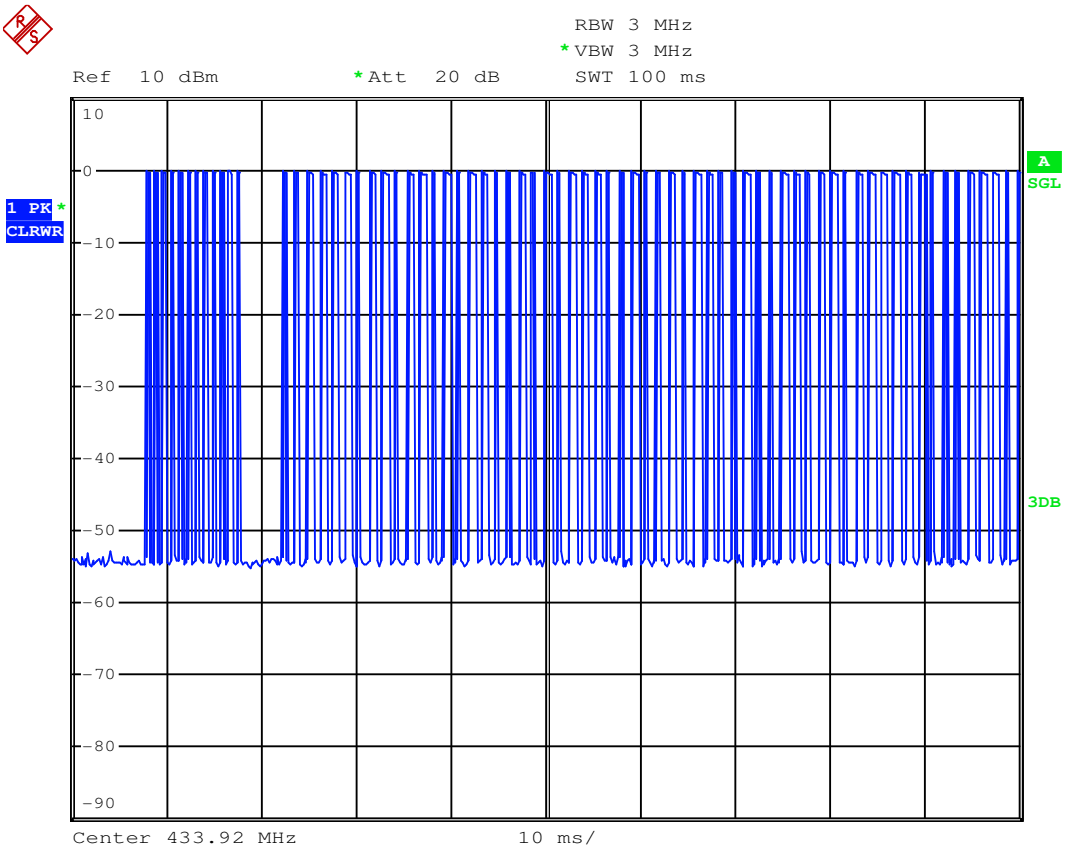


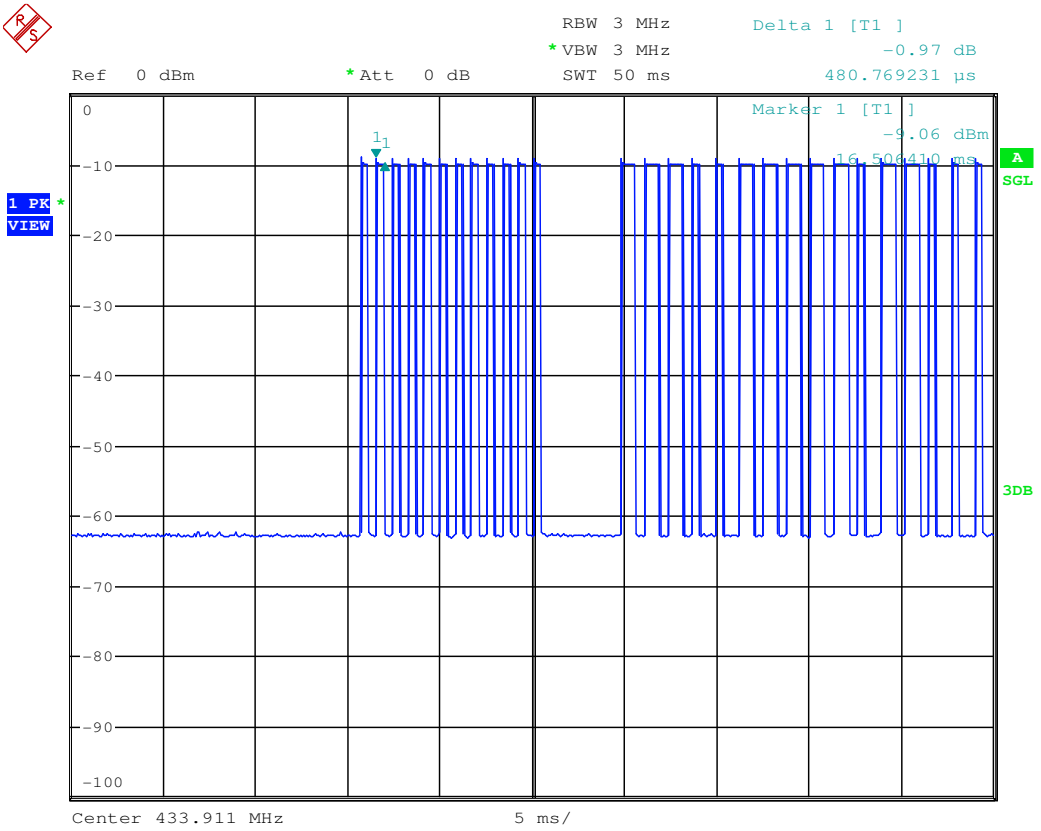


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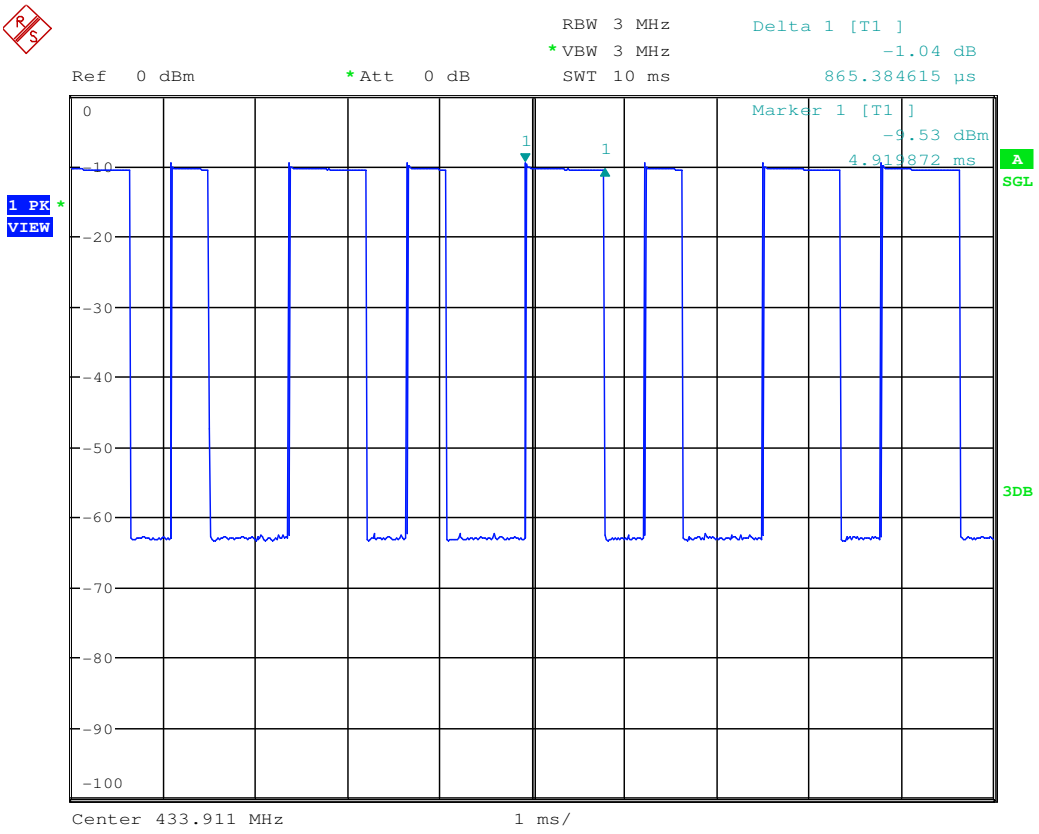


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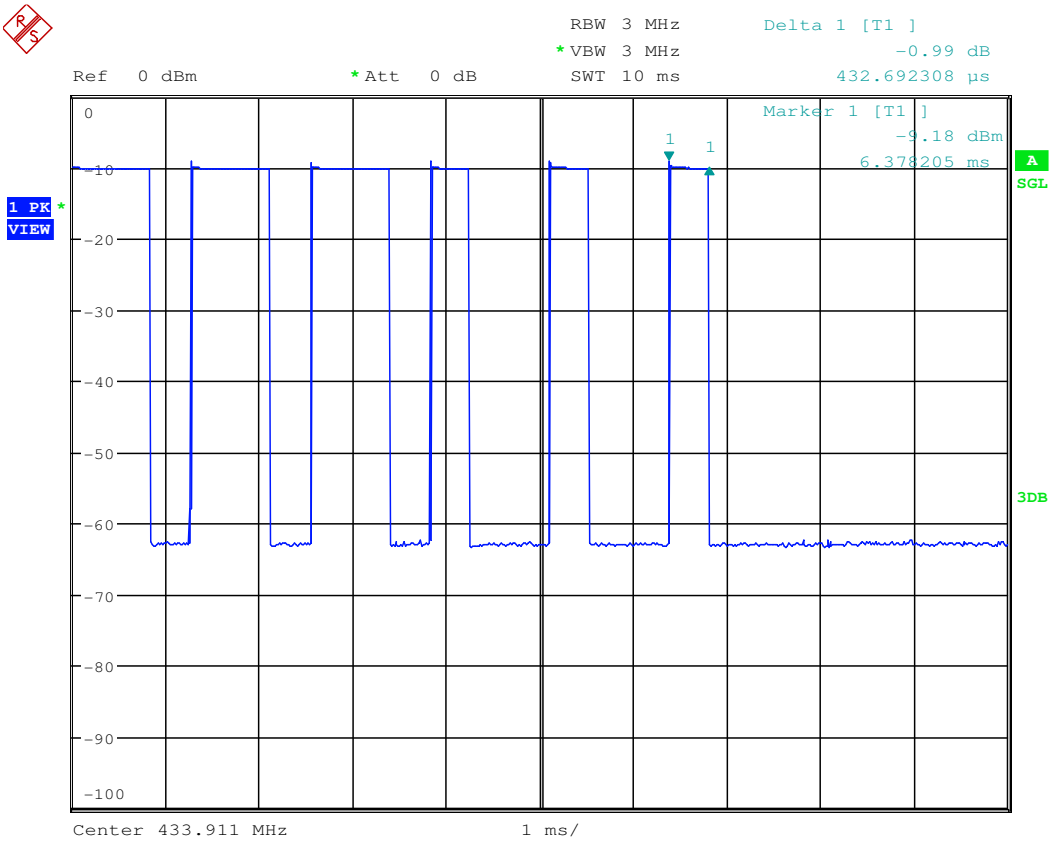


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## 7.4 Spurious Emissions

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.231(b) |
| Test Method: | ANSI C63.10: 2013 |
| Test Site: | Measurement Distance: 3m (Semi-Anechoic Chamber)<br>3m (Fully-Anechoic Chamber) |

Receiver Setup:

| Frequency | Detector | RBW | VBW | Remark |
|---|---|---|---|---|
| 0.009MHz-0.015MHz | Quasi-peak | 200Hz | 1KHz | Quasi-peak |
| 0.015MHz-30MHz | Quasi-peak | 9kHz | 30KHz | Quasi-peak |
| 30MHz-1GHz | Quasi-peak | 120 kHz | 300KHz | Quasi-peak |
| Above 1GHz | Peak | 1MHz | 3MHz | Peak |
| | Peak | 1MHz | 10Hz | Average |

Limit:

| Frequency | Field strength (microvolt/meter) | Limit (dBuV/m ) | Remark | Measurement distance (m) |
|---|---|---|---|---|
| 0.009MHz-0.490MHz | 2400/F(kHz) | - | Quasi-peak | 300 |
| 0.490MHz-1.705MHz | 24000/F(kHz) | - | Quasi-peak | 30 |
| 1.705MHz-30MHz | 30 | - | Quasi-peak | 30 |
| 30MHz-88MHz | 100 | 40.0 | Quasi-peak | 3 |
| 88MHz-216MHz | 150 | 43.5 | Quasi-peak | 3 |
| 216MHz-960MHz | 200 | 46.0 | Quasi-peak | 3 |
| 960MHz-1GHz | 500 | 54.0 | Quasi-peak | 3 |
| Above 1GHz | 500 | 54.0 | Average | 3 |
| | | 74.0 | Peak | 3 |

Limit:
(Field strength of the fundamental signal)

| Frequency | Limit (dBuV/m @3m) | Remark |
|---|---|---|
| 433.92MHz | 80.83 | Average Value |
| | 100.83 | Peak Value |

Test Setup:

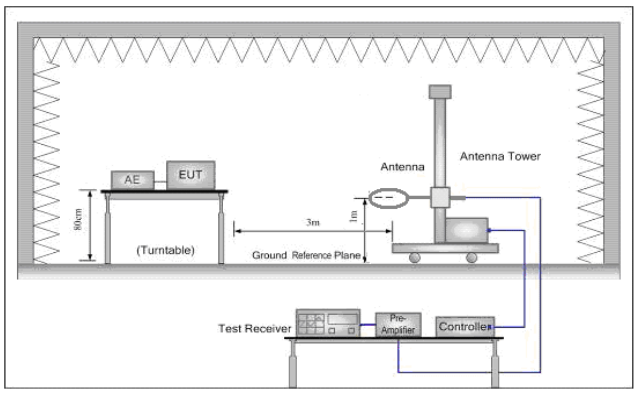


Figure 1. Below 30MHz

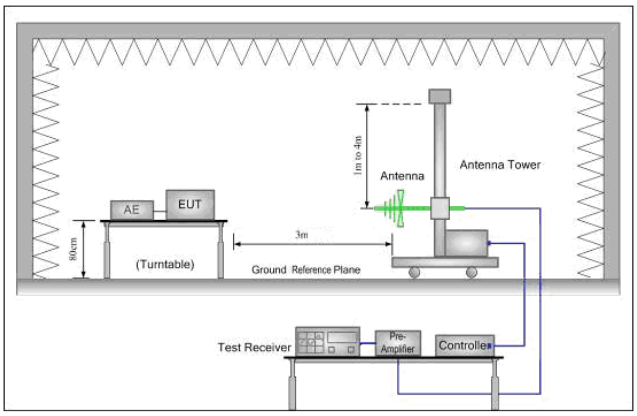


Figure 2. 30MHz to 1GHz

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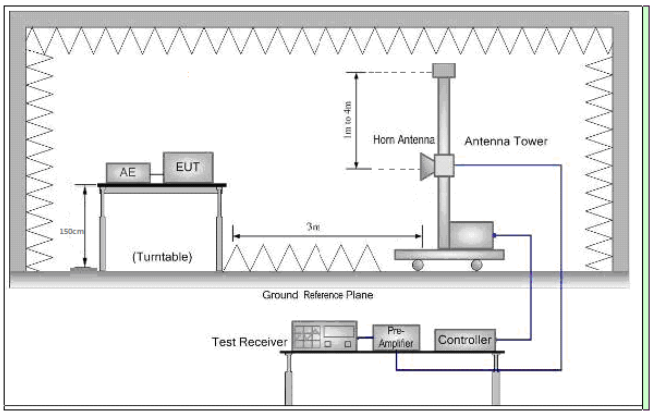


Figure 3. Above 1 GHz

| | |
|---|---|
| Test Procedure: | a. For below 1GHz test, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>b. For above 1GHz test, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>a. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.<br>b. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.<br>c. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>d. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>e. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.<br>f. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, Only the test worst case mode is recorded in the report. |
| Test Mode: | Transmitting mode |
| Instruments Used: | Refer to section 5 for details |
| Test Results: | Pass |

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**Measurement Data**

**7.4.1.1 Field Strength Of The Fundamental Signal**

**Average value:**

| | |
|---|---|
| Calculate Formula: | Average value=Peak value + PDCF |
| | PDCF=20 log(Duty cycle)= 20 log(48.168/100)=-6.34 |
| | Duty cycle= T on time / T period |
| Test data: | Ton time =(22*0.433+38*0.865+0.481*12)=48.168ms |
| | T period =100ms |

**Peak value:**

| Frequency (MHz) | Cable Loss (dB) | Antenna Factor (dB/m) | Preamp Factor (dB) | Read Level (dBuV) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 433.92 | 2.35 | 16.58 | 27.33 | 83.33 | 74.93 | 100.83 | -25.90 | Horizontal |
| 433.92 | 2.35 | 16.58 | 27.33 | 73.40 | 65.00 | 100.83 | -35.83 | Vertical |

**Average Value:**

| Frequency (MHz) | PCDF | Average Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|
| 433.92 | -6.34 | 68.59 | 80.83 | -12.24 | Horizontal |
| 433.92 | | 58.66 | 80.83 | -22.17 | Vertical |

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## 7.5 Radiated Emissions

Test Requirement 47 CFR Part 15C Section 15.209
Test Method: ANSI C63.10 (2013) Section
Measurement Distance: 3m
Limit:

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|---|---|---|
| 0.009-0.490 | 2400/F(kHz) | 300 |
| 0.490-1.705 | 24000/F(kHz) | 30 |
| 1.705-30.0 | 30 | 30 |
| 30-88 | 100 | 3 |
| 88-216 | 150 | 3 |
| 216-960 | 200 | 3 |
| Above 960 | 500 | 3 |
| Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. | | |

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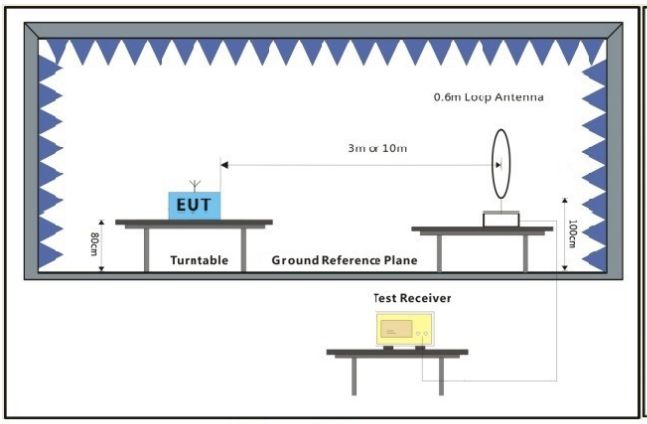
### 7.5.1 E.U.T. Operation

Operating Environment:

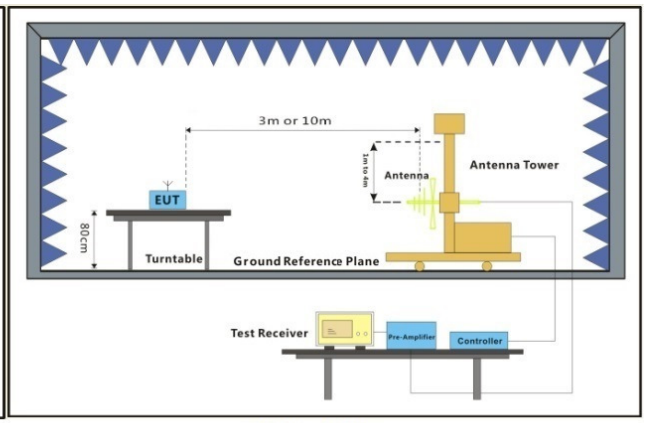
Temperature: 20.1 °C Humidity: 55 % RH Atmospheric Pressure: 1020 mbar

Test mode b:TX mode_Keep the EUT in transmitting with modulation mode.

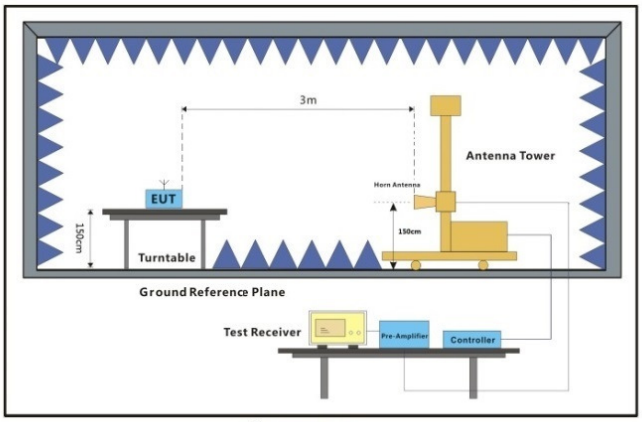
### 7.5.2 Test Setup Diagram




Below 30MHz




30MHz-1GHz




Above 1GHz

### 7.5.3 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

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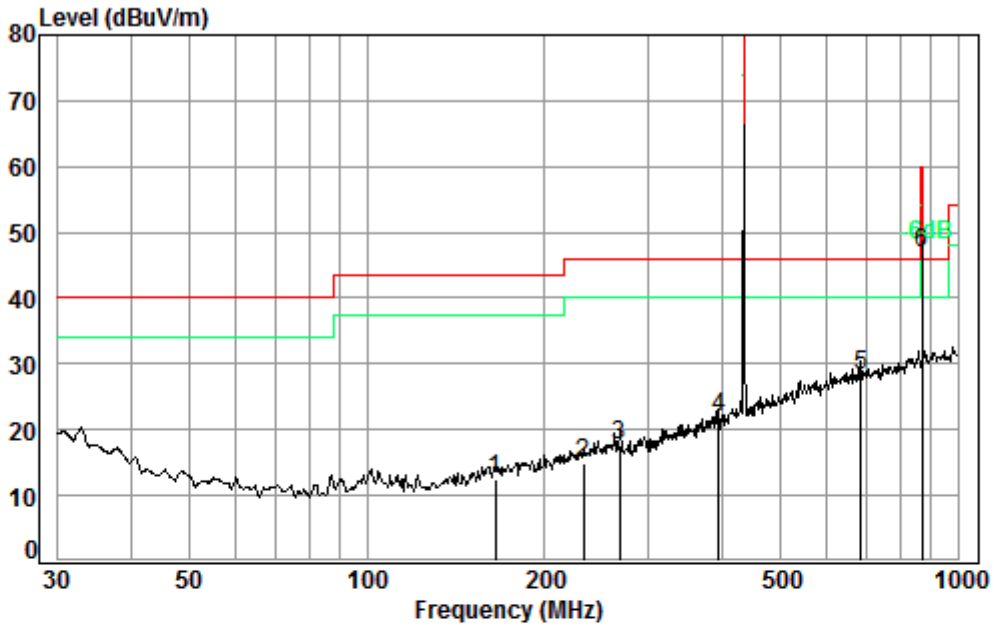
**30MHz~1GHz**

Mode: b; Polarization: Horizontal




Condition: 3m HORIZONTAL
Job No. : 00155CR
Test mode: b

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit |
|---|---|---|---|---|---|---|---|---|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 | 164.91 | 1.34 | 15.60 | 27.52 | 23.10 | 12.52 | 43.50 | -30.98 |
| 2 | 232.53 | 1.59 | 18.22 | 27.53 | 22.72 | 15.00 | 46.00 | -31.00 |
| 3 | 267.55 | 1.76 | 18.98 | 27.54 | 24.56 | 17.76 | 46.00 | -28.24 |
| 4 | 393.47 | 2.18 | 22.24 | 27.72 | 25.30 | 22.00 | 46.00 | -24.00 |
| 5 | 684.75 | 2.87 | 27.71 | 27.57 | 25.27 | 28.28 | 46.00 | -17.72 |
| 6 pp | 867.00 | 3.47 | 29.39 | 27.19 | 41.03 | 46.70 | 60.00 | -13.30 |

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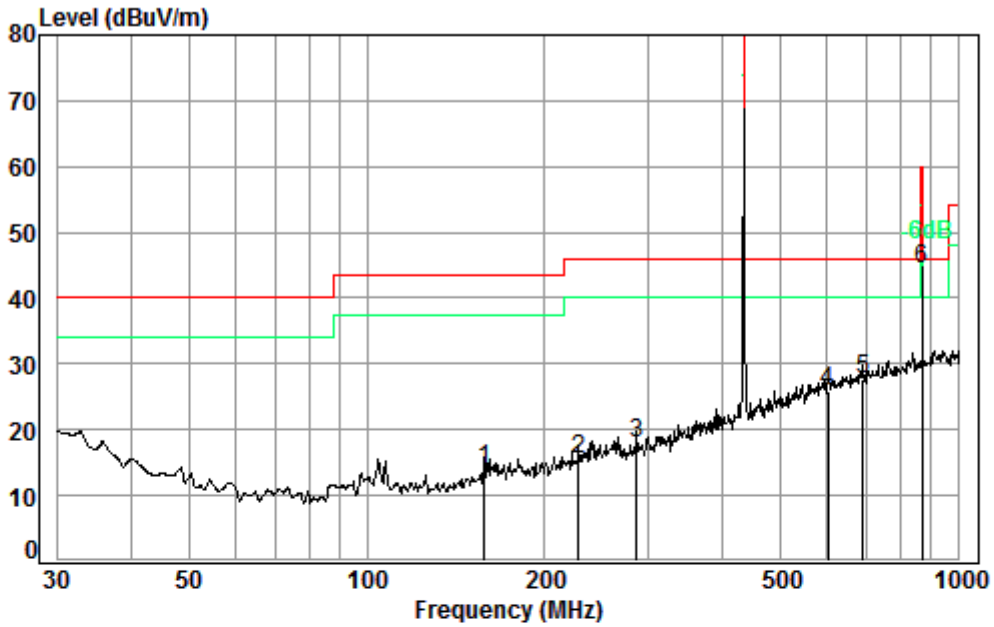
Mode: b; Polarization: Vertical




Condition: 3m VERTICAL
Job No. : 00155CR
Test mode: b

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit |
|---|---|---|---|---|---|---|---|---|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 | 158.11 | 1.33 | 15.34 | 27.52 | 24.75 | 13.90 | 43.50 | -29.60 |
| 2 | 227.69 | 1.56 | 17.83 | 27.53 | 23.67 | 15.53 | 46.00 | -30.47 |
| 3 | 285.98 | 1.84 | 19.04 | 27.54 | 24.48 | 17.82 | 46.00 | -28.18 |
| 4 | 601.43 | 2.70 | 26.62 | 27.70 | 24.10 | 25.72 | 46.00 | -20.28 |
| 5 | 689.56 | 2.88 | 27.77 | 27.57 | 24.61 | 27.69 | 46.00 | -18.31 |
| 6 pp | 867.00 | 3.47 | 29.39 | 27.19 | 38.89 | 44.56 | 60.00 | -15.44 |

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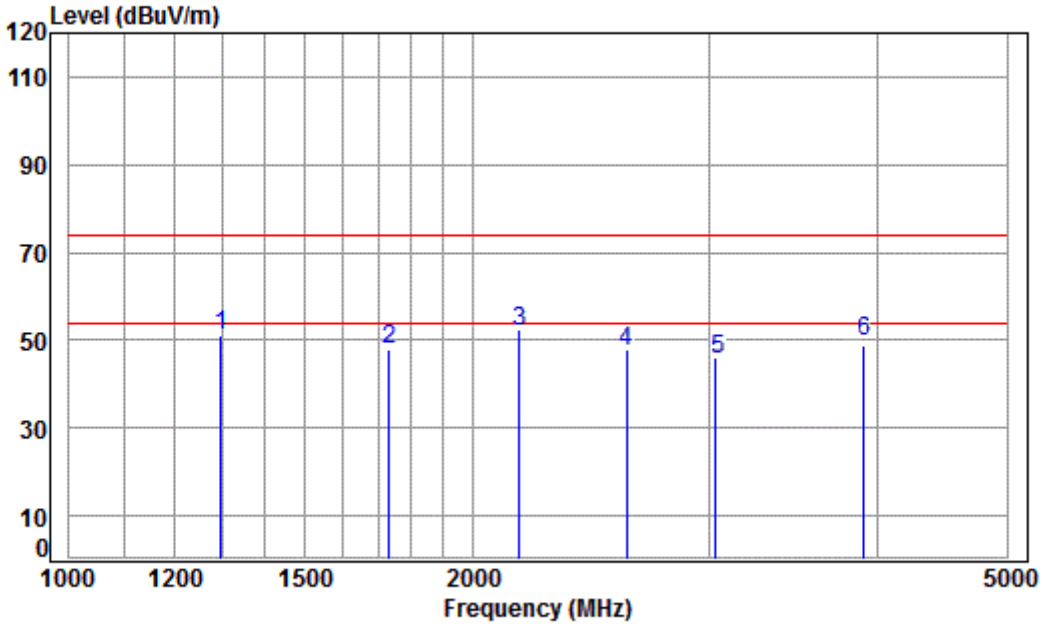
**Above 1GHz**

Mode:b; Polarization:Horizontal




Condition: 3m HORIZONTAL
Job No : 00155CR
Mode : 433 TX SE
Note :

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1299.000 | 4.81 | 24.96 | 41.26 | 62.64 | 51.15 | 74.00 | -22.85 | Peak |
| 2 | 1732.000 | 5.18 | 26.82 | 41.55 | 57.58 | 48.03 | 74.00 | -25.97 | Peak |
| 3 pk | 2165.000 | 5.16 | 28.38 | 41.78 | 61.78 | 53.54 | 74.00 | -20.46 | Peak |
| 4 | 2605.477 | 5.70 | 29.83 | 41.96 | 54.20 | 47.77 | 74.00 | -26.23 | Peak |
| 5 | 3035.913 | 6.02 | 31.37 | 42.11 | 51.03 | 46.31 | 74.00 | -27.69 | Peak |
| 6 | 3902.372 | 6.88 | 33.34 | 42.31 | 50.80 | 48.71 | 74.00 | -25.29 | Peak |

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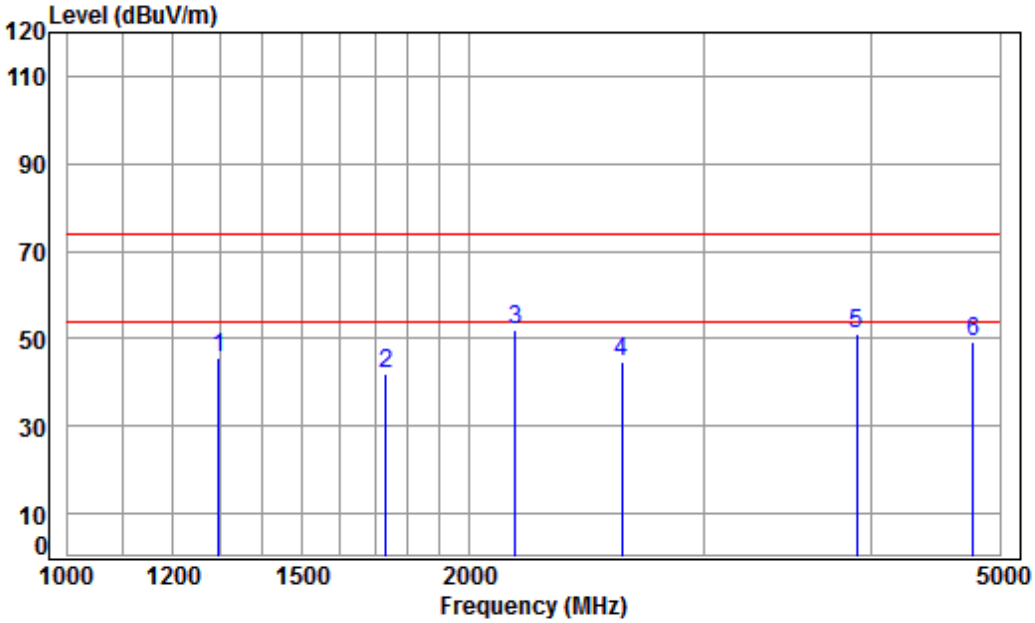
Mode:b; Polarization:Vertical




Condition: 3m VERTICAL
Job No : 00155CR
Mode : 433 TX SE
Note :

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1299.000 | 4.81 | 24.96 | 41.26 | 57.00 | 45.51 | 74.00 | -28.49 | Peak |
| 2 | 1732.000 | 5.18 | 26.82 | 41.55 | 51.74 | 42.19 | 74.00 | -31.81 | Peak |
| 3 pp | 2165.000 | 5.16 | 28.38 | 41.78 | 60.14 | 51.90 | 74.00 | -22.10 | Peak |
| 4 | 2605.477 | 5.70 | 29.83 | 41.96 | 51.37 | 44.94 | 74.00 | -29.06 | Peak |
| 5 | 3902.372 | 6.88 | 33.34 | 42.31 | 53.15 | 51.06 | 74.00 | -22.94 | Peak |
| 6 | 4771.994 | 7.86 | 34.10 | 42.46 | 49.80 | 49.30 | 74.00 | -24.70 | Peak |

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

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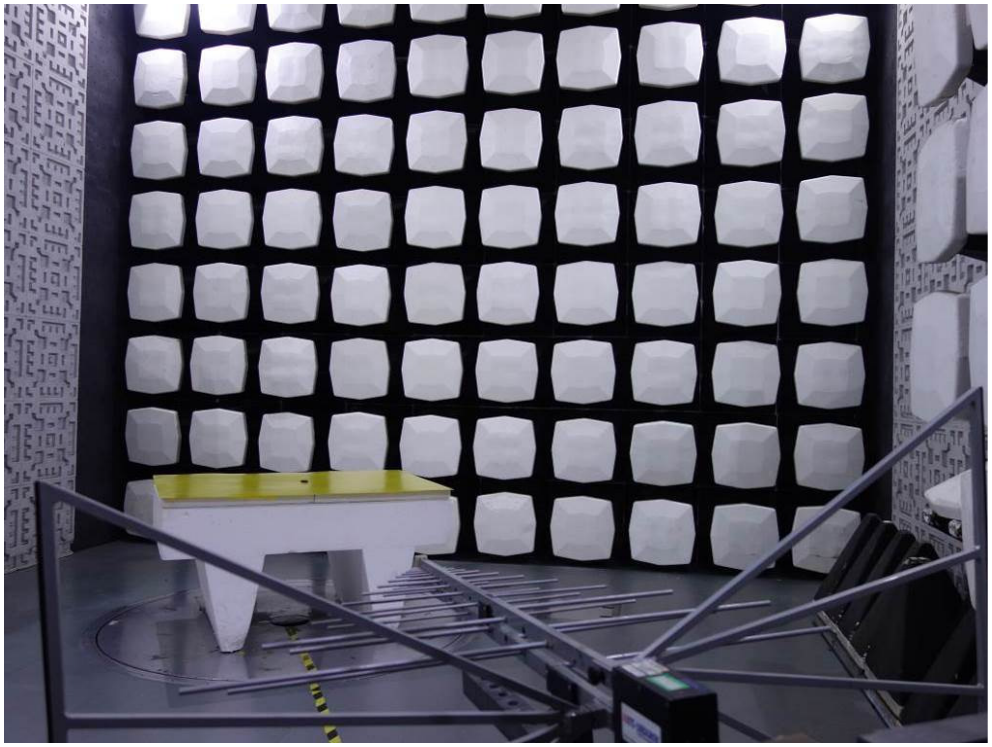
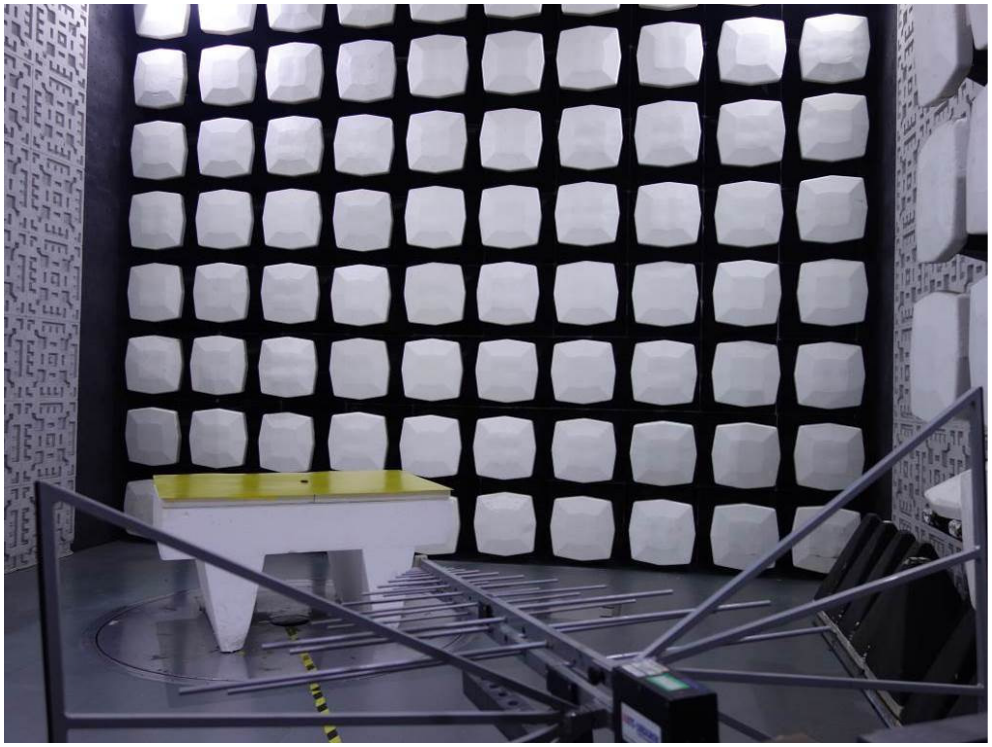
# 8 Photographs

## 8.1 Field Strength of the Fundamental Signal (15.231(b)) Test Setup



## 8.2 Radiated Emissions Test Setup



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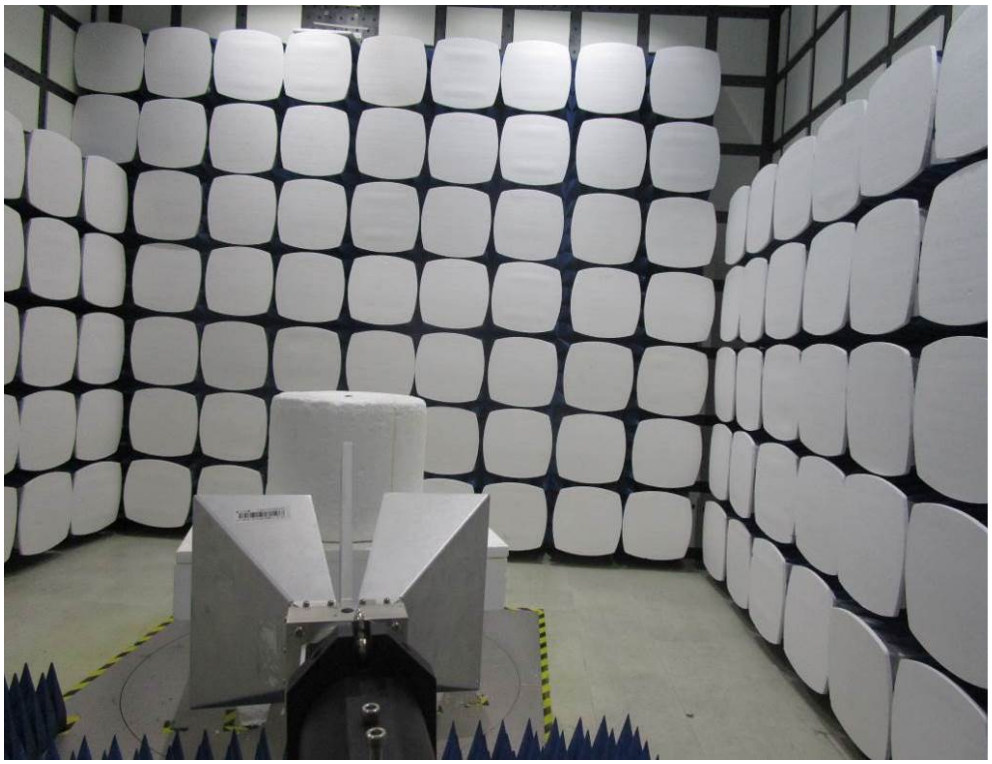

- End of the Report -

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