# FCC PART 15B TEST REPORT FOR CERTIFICATION

On Behalf of

ARTIKA FOR LIVING INC
**********

**FCC ID：2AYFP21OUT-C7**

| **Report Type：** | **Product Type：** |
|---|---|
| Original report | LED fixed luminaire(C7 pro) |

**Test Engineer:** Clint Chen

**Report Number:** STDNB-201207F-006

**Report Date:** 2021-09-06

**Reviewed By:** Lion Li

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The device described above is tested by Standard-Tech Co., Ltd. Testing Center. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and Standard-Tech Co., Ltd. Testing Center is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements. This Report is made under FCC Part 2.1074. No modifications were required during testing to bring this product into compliance. This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Standard-Tech Co., Ltd. Testing Center.

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# 1. SUMMARY OF STANDARDS AND RESULTS

## 1.1.Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

| EMISSION | | |
|---|---|---|
| **Description of Test Item** | **Standard** | **Results** |
| Power Line Conducted Emission | FCC Part 15: 15.107 | PASS |
| Radiated Emission | FCC Part 15: 15.109 | PASS |

# 2. GENERAL INFORMATION

## 2.1.Description of Equipment Under Test

| | |
|---|---|
| **Applicant** | ARTIKA FOR LIVING INC |
| **Address** | 1756 50th avenue, Lachine, Québec, Canada H8T 2V5 |
| **Manufacturer** | Ningbo Shenghe Lighting Co.,LTD |
| **Address** | No.311 Penglai Road,Xiangshan Economic development Zone, Ningbo, Zhejiang, 315700 |
| **Factory** | Ningbo Shenghe Lighting Co.,LTD |
| **Address** | No.311 Penglai Road,Xiangshan Economic development Zone, Ningbo, Zhejiang, 315700 |
| **Brand Name** | ARTIKA |
| **Product** | LED fixed luminaire(C7 pro) |
| **Model No.** | 21OUT-C7-PMB, 21OUT-C7-PSS, 21OUT-C7-MB, 21OUT-C7-SS, 21OUT-C7-PMB1, 21OUT-C7-PMB2, 21OUT-C7-PMB3, 21OUT-C7-PMB4, 21OUT-C7-PMB5, 21OUT-C7-PMB6, 21OUT-C7-PMB7, 21OUT-C7-PMB8, 21OUT-C7-PSS1, 21OUT-C7-PSS2, 21OUT-C7-PSS3, 21OUT-C7-PSS4, 21OUT-C7-PSS5, 21OUT-C7-PSS6, 21OUT-C7-PSS7, 21OUT-C7-PSS8 |
| **Differences** | The above models use models with the same circuit principle and the same PCB layout. |
| **Power Adapter** | AC 120-347V, 50/60Hz, 24W |
| **Sample Type** | Prototype production |
| **Date of Receipt** | 2021/09/01 |
| **Date of Test** | 2021/09/01-2021/09/06 |

## 2.2. Equipments Used during the Test

**Conducted Emissions**

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | Shielding Room | AUDIX | N/A | N/A | 2021/07/27 | 3 Year |
| 2. | EMI Test Receiver | Rohde & Schwarz | ESR7 | 101487 | 2020/08/06 | 2 Year |
| 3. | V-LISN | Rohde & Schwarz | NNLK 8122 | 8122-00128 | 2021/07/19 | 2 Year |
| 4. | RF Cable | YuanDao | RG223 | N/A | 2021/05/04 | 1 Year |
| 5. | Test Software | AUDIX | e3 | N/A | N/A | N/A |
| Note: N/A means Not applicable. | | | | | | |

**For frequency range 30MHz~1000MHz (In 3m Anechoic Chamber)**

| Item | Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|---|---|---|---|---|---|---|
| 1. | Semi-anechoic chamber | AUDIX | N/A | N/A | 2018/11/18 | 3 Year |
| 2. | EMI Test Receiver | R&S | ESR7 | 101487 | 2020/08/06 | 2 Year |
| 3. | Biconical Logarithmic Antenna | SCHWARDZBECK | VULB 9162 | 9162-104 | 2021/01/05 | 2 Year |
| 4. | Cable Line | PEWC | CFD400NL | N/A | 2021/05/04 | 1 Year |
| 5. | Loop Antenna | Beijing Daze | ZN30900C | 1062 | 2019/12/20 | 2 Year |
| 6. | Test Software | AUDIX | e3 | N/A | N/A | 1 Year |
| Note: N/A means Not applicable. | | | | | | |

## 2.3. Test Facility

Site Description

Name of Firm : STANDARD-TECH TESTING SERVICES
Standard-Tech Building, No. 6 Guanhong Road, Guangzhou Science City, Guangzhou 510663, China

EMC Lab. : Certificated by Industry Canada
Registration Number: 20901
Valid Date: 2020/02/28

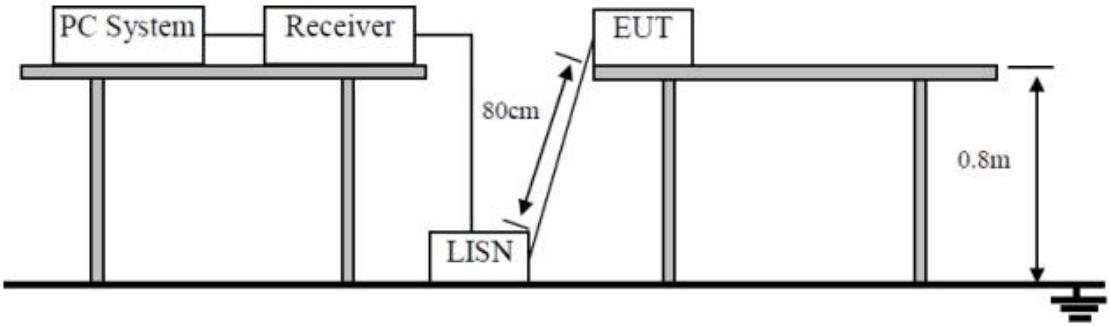
: Certificated by FCC USA.
Designation No.: CN1222
Valid Date: 2020/02/28

## 2.4.Measurement Uncertainty (95% confidence levels, k=2)

| Test Item | Uncertainty |
|---|---|
| Uncertainty for Conduction emission test in No. 1 Conduction | 2.42dB(150KHz to 30MHz) |
| Uncertainty for Radiation Emission test in 3m chamber | 3.94dB(30M~1GHz, Distance: 3m) |
| Uncertainty for Radiation Emission test in 3m chamber(1GHz-25GHz) | 4.92dB(1~6GHz, Distance: 3m) |
| | 5.24dB(6~40GHz, Distance: 3m) |
| Uncertainty for Output power test | 0.67dB |
| Uncertainty for Bandwidth test | 83kHz |

# 3. POWER LINE CONDUCTED EMISSION TEST

## 3.1.Block Diagram of Test Setup




## 3.2.Power Line Conducted Emission Test Limits

| FREQUENCY (MHz) | ☐ Class A (dBμV) | | ☒ Class B (dBμV) | |
|---|---|---|---|---|
| | Quasi-peak | Average | Quasi-peak | Average |
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46* |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 |

Notes: 1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

## 3.3.Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via PC connected to the power mains through a line impedance stabilization network (V-LISN). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2014 on Conducted Emission Test.

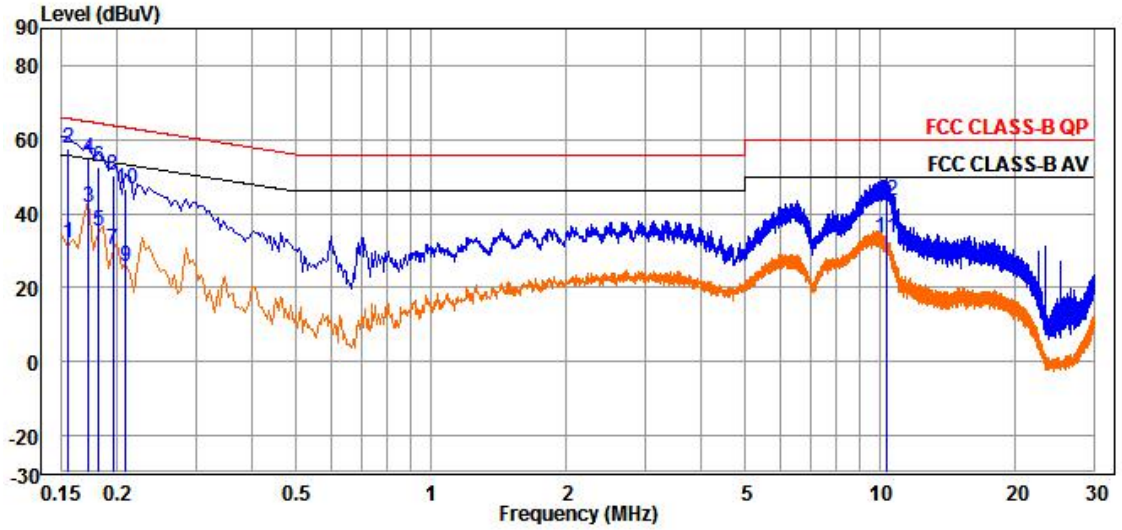
The bandwidth of test receiver (R & S ESR7) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

## 3.4.Test Environment

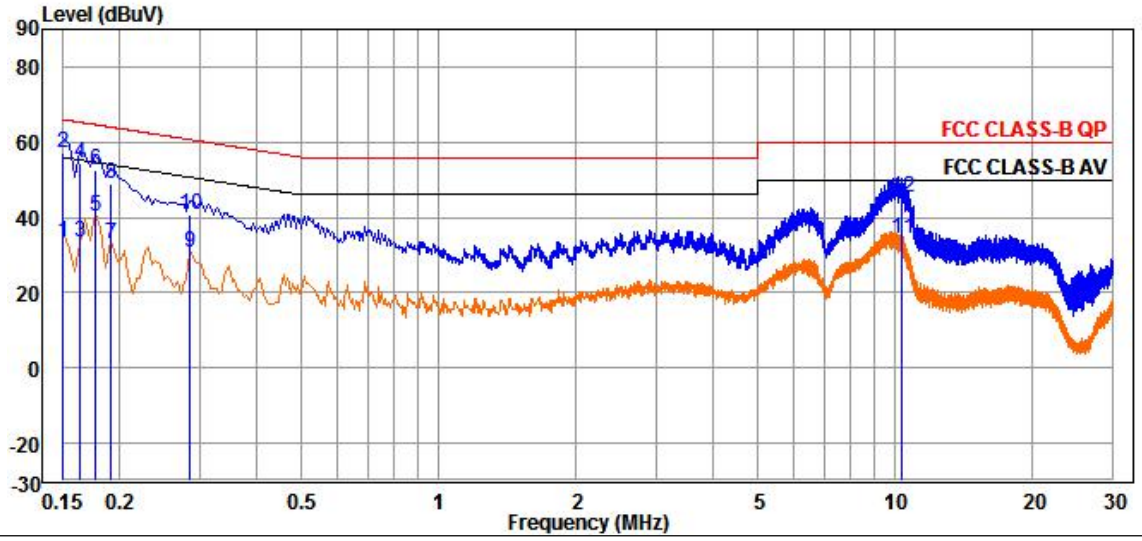
| | |
|---|---|
| Temperature: | 22.1℃ |
| Humidity: | 57.1% |
| ATM pressure: | 101kPa |

| | |
|---|---|
| **Test Model:** | **21OUT-C7-PMB** |
| **Polarization:** | **Line** |
| **Test Voltage** | **AC 120V/60Hz** |



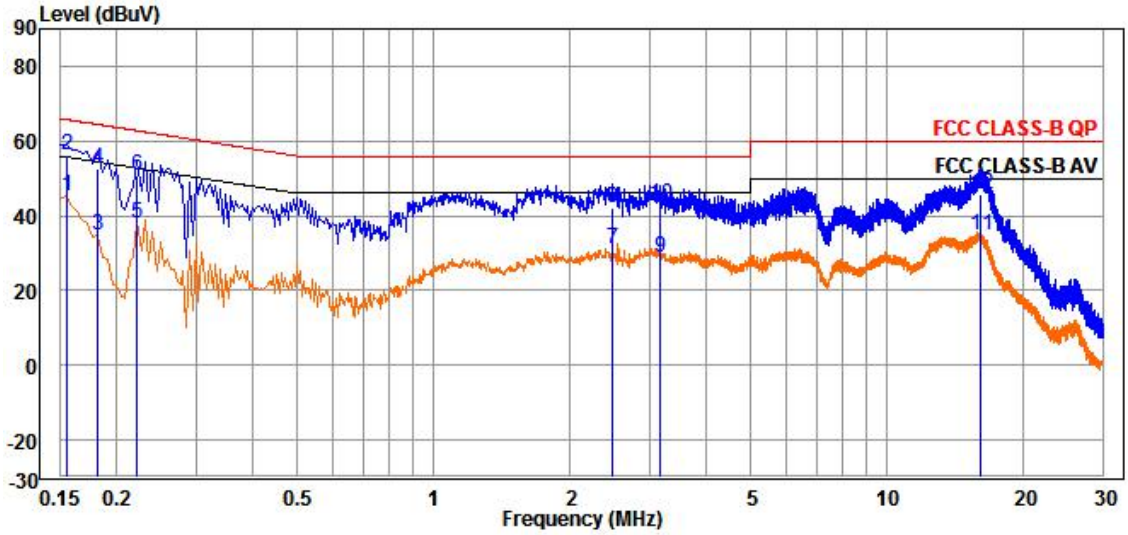

| | Freq | Level | Read Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dBuV | dB | dBuV | dB | |
| 1 | 0.15 | 31.83 | 31.70 | 0.13 | 55.75 | -23.92 | Average |
| 2 | 0.15 | 57.83 | 57.70 | 0.13 | 65.75 | -7.92 | QP |
| 3 | 0.17 | 41.74 | 41.59 | 0.15 | 54.84 | -13.10 | Average |
| 4 | 0.17 | 54.74 | 54.59 | 0.15 | 64.84 | -10.10 | QP |
| 5 | 0.18 | 35.44 | 35.29 | 0.15 | 54.42 | -18.98 | Average |
| 6 | 0.18 | 52.44 | 52.29 | 0.15 | 64.42 | -11.98 | QP |
| 7 | 0.19 | 30.13 | 29.99 | 0.14 | 53.82 | -23.69 | Average |
| 8 | 0.19 | 50.13 | 49.99 | 0.14 | 63.82 | -13.69 | QP |
| 9 | 0.21 | 25.58 | 25.44 | 0.14 | 53.27 | -27.69 | Average |
| 10 | 0.21 | 46.58 | 46.44 | 0.14 | 63.27 | -16.69 | QP |
| 11 | 10.31 | 33.28 | 32.89 | 0.39 | 50.00 | -16.72 | Average |
| 12 | 10.31 | 43.28 | 42.89 | 0.39 | 60.00 | -16.72 | QP |

| | |
|---|---|
| **Test Model:** | **21OUT-C7-PMB** |
| **Polarization:** | **Neutral** |
| **Test Voltage** | **AC 120V/60Hz** |



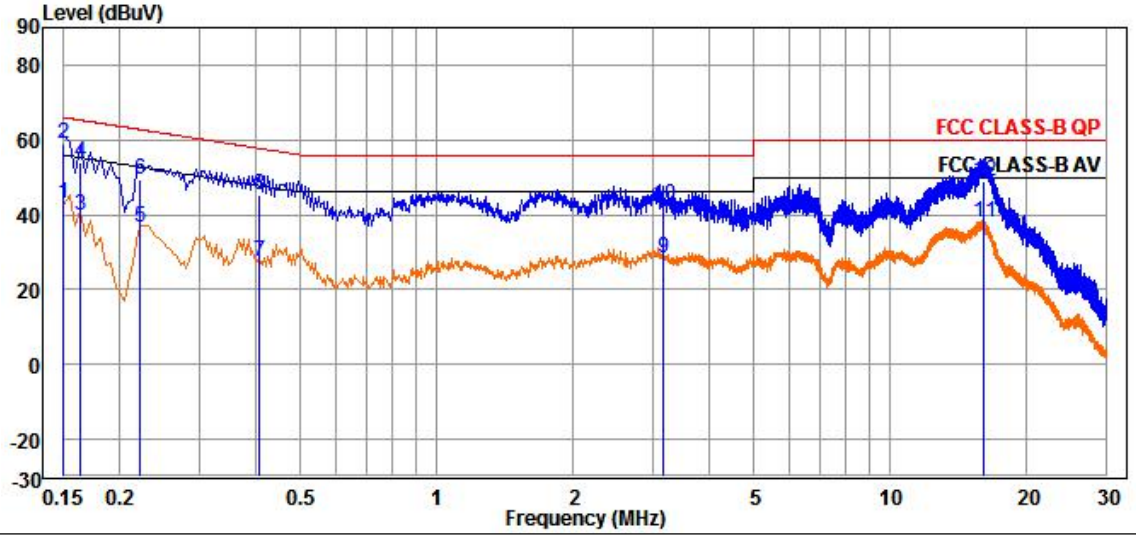

| | Freq | Level | Read Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dBuV | dB | dBuV | dB | |
| 1 | 0.15 | 33.55 | 33.40 | 0.15 | 56.00 | -22.45 | Average |
| 2 | 0.15 | 57.25 | 57.10 | 0.15 | 66.00 | -8.75 | QP |
| 3 | 0.16 | 33.62 | 33.48 | 0.14 | 55.28 | -21.66 | Average |
| 4 | 0.16 | 54.62 | 54.48 | 0.14 | 65.28 | -10.66 | QP |
| 5 | 0.18 | 40.36 | 40.22 | 0.14 | 54.63 | -14.27 | Average |
| 6 | 0.18 | 52.36 | 52.22 | 0.14 | 64.63 | -12.27 | QP |
| 7 | 0.19 | 32.98 | 32.85 | 0.13 | 54.01 | -21.03 | Average |
| 8 | 0.19 | 48.98 | 48.85 | 0.13 | 64.01 | -15.03 | QP |
| 9 | 0.28 | 30.54 | 30.41 | 0.13 | 50.67 | -20.13 | Average |
| 10 | 0.28 | 40.54 | 40.41 | 0.13 | 60.67 | -20.13 | QP |
| 11 | 10.33 | 34.22 | 33.89 | 0.33 | 50.00 | -15.78 | Average |
| 12 | 10.33 | 45.22 | 44.89 | 0.33 | 60.00 | -14.78 | QP |

| | |
|---|---|
| **Test Model:** | **21OUT-C7-PMB** |
| **Polarization:** | **Line** |
| **Test Voltage** | **AC 347V/60Hz** |




| | Freq | Level | Read Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dBuV | dB | dBuV | dB | |
| 1 | 0.15 | 45.20 | 45.07 | 0.13 | 55.75 | -10.55 | Average |
| 2 | 0.15 | 56.20 | 56.07 | 0.13 | 65.75 | -9.55 | QP |
| 3 | 0.18 | 34.64 | 34.49 | 0.15 | 54.42 | -19.78 | Average |
| 4 | 0.18 | 52.64 | 52.49 | 0.15 | 64.42 | -11.78 | QP |
| 5 | 0.22 | 37.97 | 37.83 | 0.14 | 52.74 | -14.77 | Average |
| 6 | 0.22 | 50.97 | 50.83 | 0.14 | 62.74 | -11.77 | QP |
| 7 | 2.48 | 31.29 | 31.14 | 0.15 | 46.00 | -14.71 | Average |
| 8 | 2.48 | 42.29 | 42.14 | 0.15 | 56.00 | -13.71 | QP |
| 9 | 3.17 | 29.05 | 28.89 | 0.16 | 46.00 | -16.95 | Average |
| 10 | 3.17 | 43.05 | 42.89 | 0.16 | 56.00 | -12.95 | QP |
| 11 | 16.09 | 34.66 | 34.05 | 0.61 | 50.00 | -15.34 | Average |
| 12 | 16.09 | 45.66 | 45.05 | 0.61 | 60.00 | -14.34 | QP |

| | |
|---|---|
| **Test Model:** | **21OUT-C7-PMB** |
| **Polarization:** | **Neutral** |
| **Test Voltage** | **AC 347V/60Hz** |

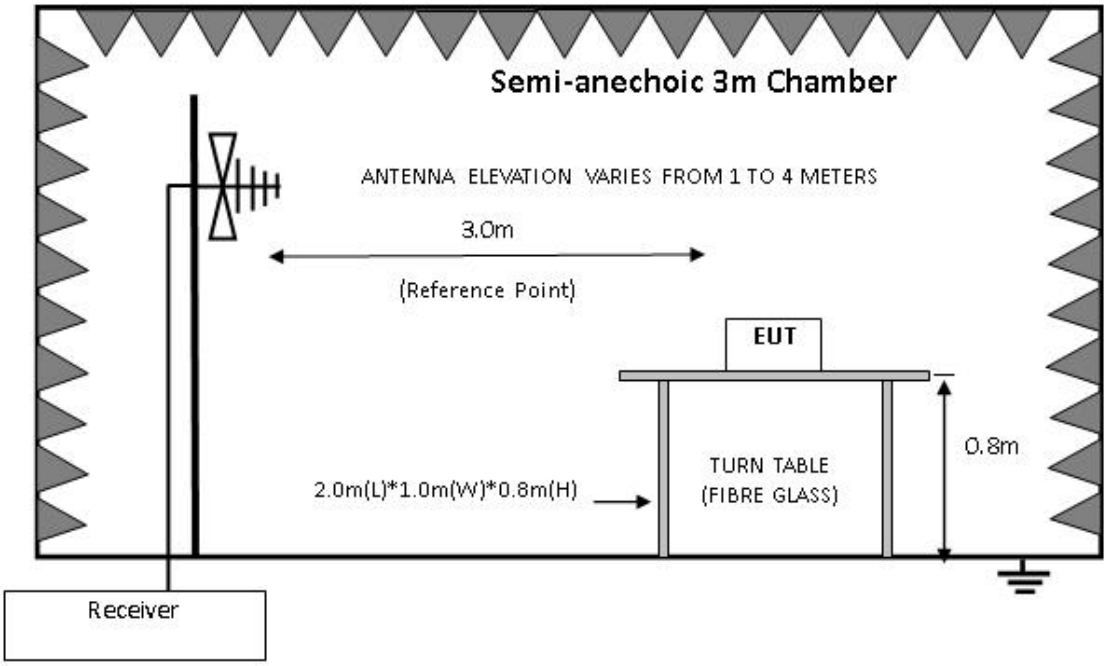



| | Freq | Level | Read Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dBuV | dB | dBuV | dB | |
| 1 | 0.15 | 42.85 | 42.70 | 0.15 | 56.00 | -13.15 | Average |
| 2 | 0.15 | 58.85 | 58.70 | 0.15 | 66.00 | -7.15 | QP |
| 3 | 0.16 | 39.88 | 39.74 | 0.14 | 55.28 | -15.40 | Average |
| 4 | 0.16 | 53.88 | 53.74 | 0.14 | 65.28 | -11.40 | QP |
| 5 | 0.22 | 36.61 | 36.48 | 0.13 | 52.74 | -16.13 | Average |
| 6 | 0.22 | 49.61 | 49.48 | 0.13 | 62.74 | -13.13 | QP |
| 7 | 0.41 | 27.33 | 27.16 | 0.17 | 47.72 | -20.39 | Average |
| 8 | 0.41 | 45.33 | 45.16 | 0.17 | 57.72 | -12.39 | QP |
| 9 | 3.16 | 28.51 | 28.36 | 0.15 | 46.00 | -17.49 | Average |
| 10 | 3.16 | 42.51 | 42.36 | 0.15 | 56.00 | -13.49 | QP |
| 11 | 16.06 | 38.01 | 37.50 | 0.51 | 50.00 | -11.99 | Average |
| 12 | 16.06 | 49.01 | 48.50 | 0.51 | 60.00 | -10.99 | QP |

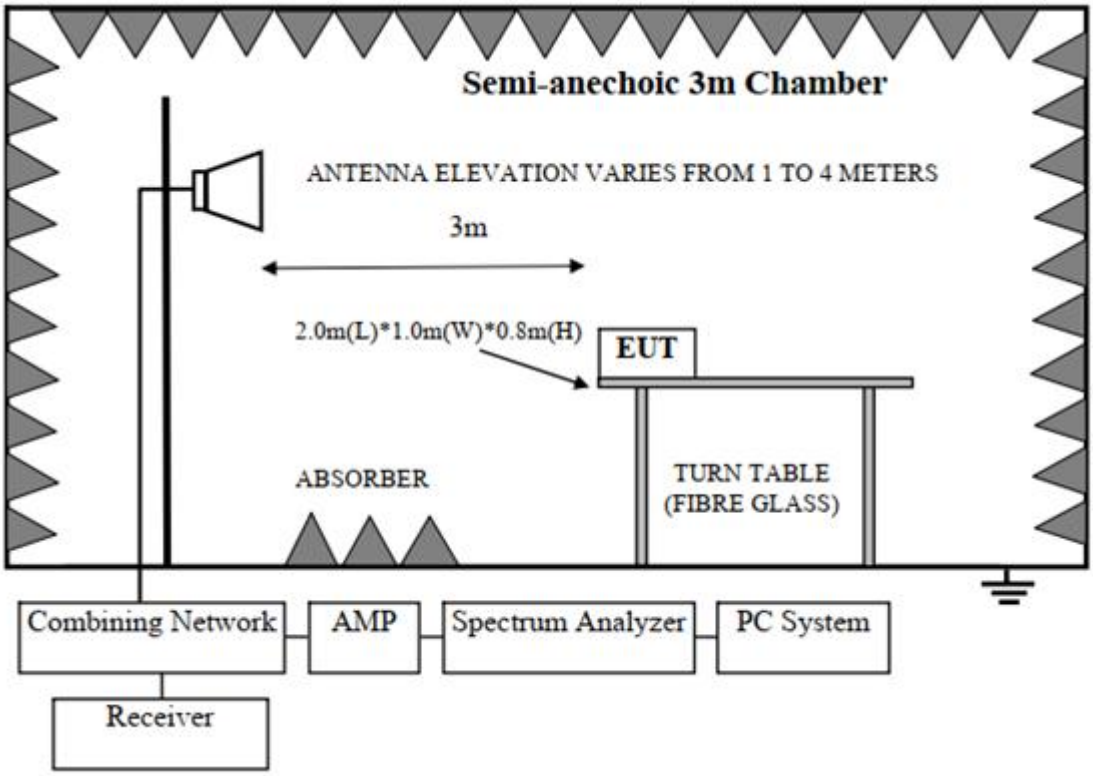
# 4. RADIATED EMISSION TEST

## 4.1.Block Diagram of Test Setup

For frequency range 30MHz-1000MHz




For frequency range above 1GHz



## 4.2.Radiated Emission Limit

**15.109 limits**

**Below 1GHz**

| Frequency (MHz) | ☐ Class A | | ☒ Class B |
|---|---|---|---|
| | Field strength (dBuV/m) ( at 10m) | Field strength (dBuV/m) (at 3m) | Field strength (dBuV/m) (at 3m) |
| 30 - 88 | 39 | 49 | 40 |
| 88 - 216 | 43.5 | 53.5 | 43.5 |
| 216 - 960 | 46 | 56 | 46 |
| Above 960 | 49.5 | 59.5 | 54 |

**Above 1 GHz**

| Frequency (MHz) | ☐ Class A | | | | ☐ Class B | |
|---|---|---|---|---|---|---|
| | (dBuV/m) (at 3m) | | (dBuV/m) (at 10m) | | (dBuV/m) (at 3m) | |
| | Peak | Average | Peak | Average | Peak | Average |
| Above 1000 | 80 | 60 | 69.5 | 49.5 | 74 | 54 |

**Frequency Range of Radiated Disturbance Measurement**

| Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz) | Range (MHz) |
|---|---|
| Below 1.705 | 30 |
| 1.705 - 108 | 1000 |
| 108 - 500 | 2000 |
| 500 - 1000 | 5000 |
| Above 1000 | 5th harmonic of the highest frequency or 40 GHz, whichever is lower |

Remark: (1) Emission level dBμV = 20 log Emission level μV/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

## 4.3. Test Procedure

**Frequency below 30MHz:**
The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4-2014 regulation.

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground for frequency 30MHz~1000MHz, 1.5 meter high above ground for frequency above 1GHz and put the absorbing with 2.4m(L)*2.4m(W)*0.3m(H) on the ground . The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it.EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna for frequency 30MHz~1000MHz, and the Horm antenna is used as receiving antenna for frequency above 1GHz. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2014 on radiated emission Test.

The bandwidth of the EMI test receiver (R&S ESR7) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

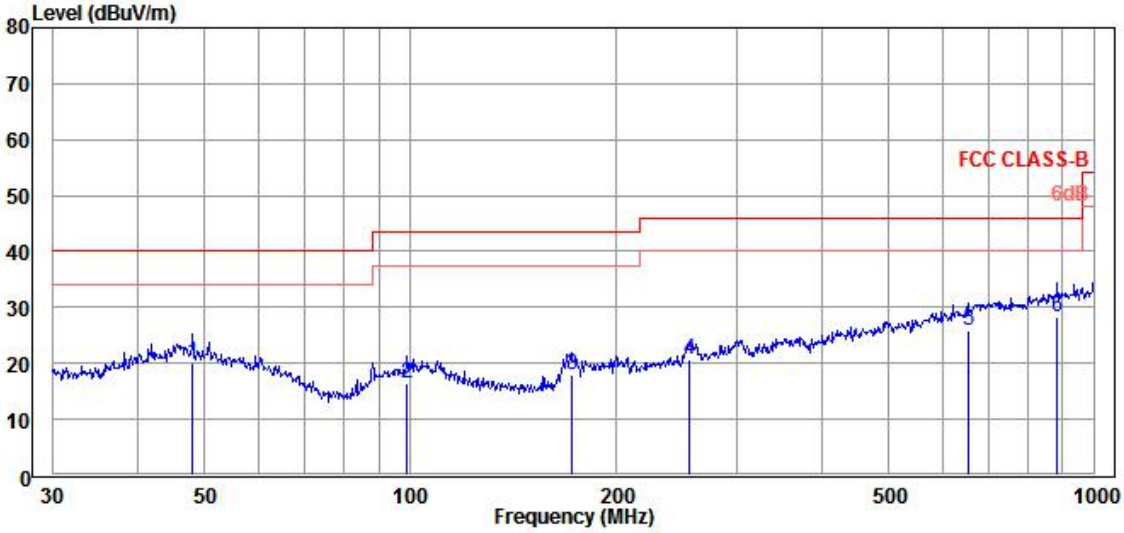
The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

## 4.4. Test Environment

| | |
|---|---|
| Temperature: | 20.2℃ |
| Humidity: | 59.1% |
| ATM pressure: | 101kPa |

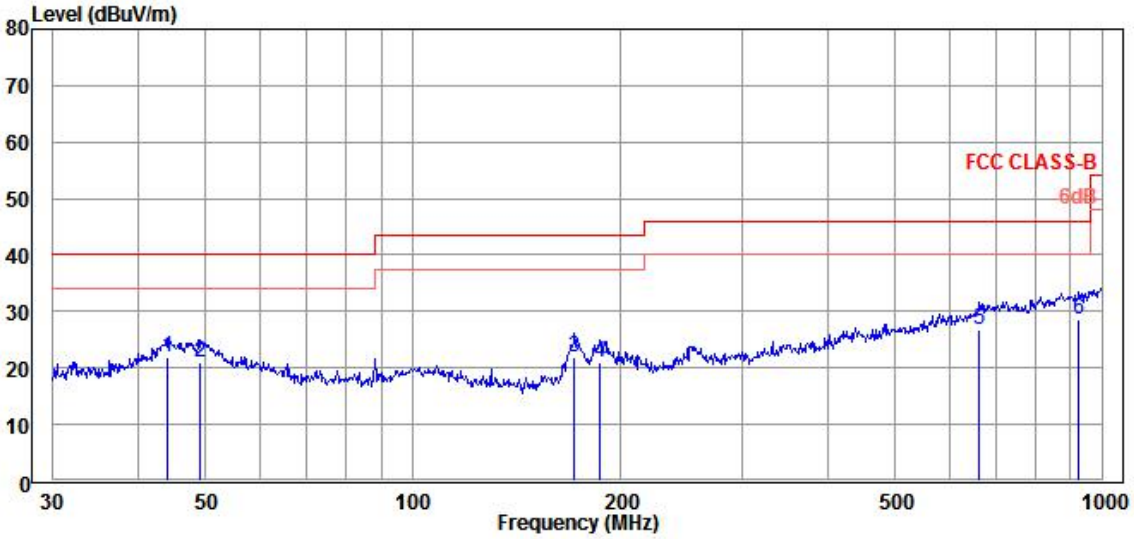
**Frequency: 30MHz~1GHz**

| | |
|---|---|
| **Test Model:** | **21OUT-C7-PMB** |
| **Polarization:** | **Horizontal** |
| **Test Voltage** | **AC 120V/60Hz** |



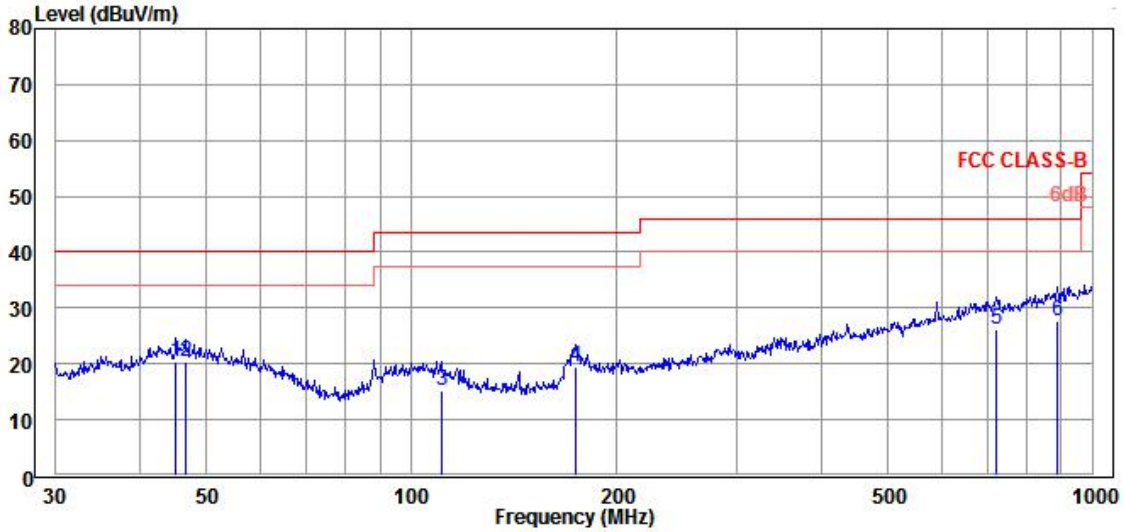

| | Freq | Level | Read Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV | dB/m | dBuV/m | dB | |
| 1 | 47.99 | 20.16 | -2.74 | 22.90 | 40.00 | -19.84 | QP |
| 2 | 98.83 | 16.40 | -3.91 | 20.31 | 43.50 | -27.10 | QP |
| 3 | 171.99 | 17.82 | 0.64 | 17.18 | 43.50 | -25.68 | QP |
| 4 | 255.62 | 20.62 | -0.79 | 21.41 | 46.00 | -25.38 | QP |
| 5 | 654.23 | 25.84 | -3.32 | 29.16 | 46.00 | -20.16 | QP |
| 6 | 884.50 | 28.29 | -4.09 | 32.38 | 46.00 | -17.71 | QP |

| | |
|---|---|
| **Test Model:** | **21OUT-C7-PMB** |
| **Polarization:** | **Vertical** |
| **Test Voltage** | **AC 120V/60Hz** |



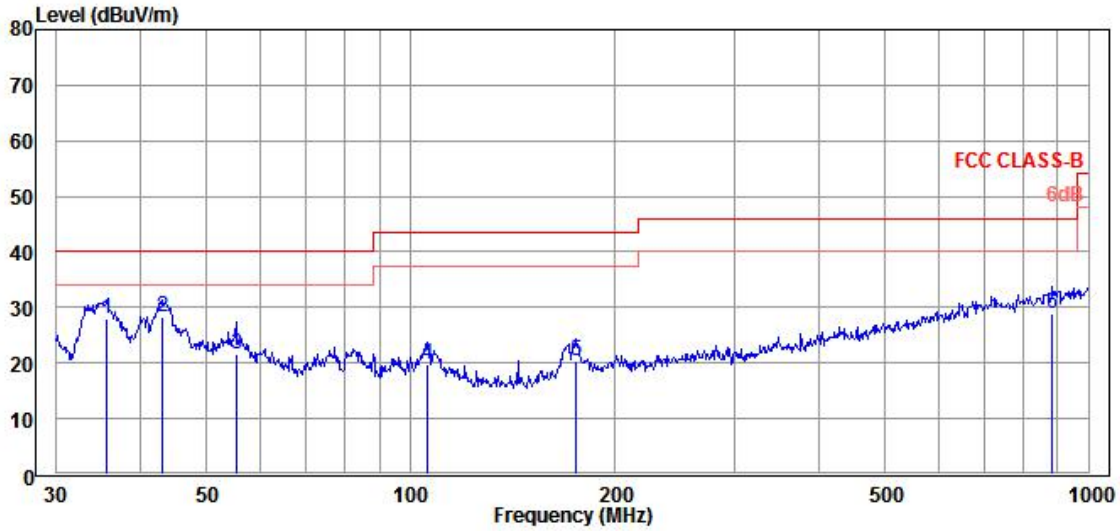

| | Freq | Level | Read Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV | dB/m | dBuV/m | dB | |
| 1 | 43.97 | 21.99 | -0.64 | 22.63 | 40.00 | -18.01 | QP |
| 2 | 49.19 | 20.88 | -2.03 | 22.91 | 40.00 | -19.12 | QP |
| 3 | 171.39 | 22.01 | 4.85 | 17.16 | 43.50 | -21.49 | QP |
| 4 | 186.44 | 21.00 | 2.59 | 18.41 | 43.50 | -22.50 | QP |
| 5 | 663.47 | 26.71 | -2.86 | 29.57 | 46.00 | -19.29 | QP |
| 6 | 925.76 | 28.58 | -4.06 | 32.64 | 46.00 | -17.42 | QP |

| | |
|---|---|
| **Test Model:** | **21OUT-C7-PMB** |
| **Polarization:** | **Horizontal** |
| **Test Voltage** | **AC 347V/60Hz** |




| | Freq | Level | Read Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV | dB/m | dBuV/m | dB | |
| 1 | 45.06 | 20.49 | -2.35 | 22.84 | 40.00 | -19.51 | QP |
| 2 | 46.50 | 20.32 | -2.55 | 22.87 | 40.00 | -19.68 | QP |
| 3 | 110.57 | 15.31 | -4.90 | 20.21 | 43.50 | -28.19 | QP |
| 4 | 173.81 | 19.49 | 2.26 | 17.23 | 43.50 | -24.01 | QP |
| 5 | 721.73 | 26.07 | -4.16 | 30.23 | 46.00 | -19.93 | QP |
| 6 | 887.61 | 27.78 | -4.51 | 32.29 | 46.00 | -18.22 | QP |

| | |
|---|---|
| **Test Model:** | **21OUT-C7-PMB** |
| **Polarization:** | **Vertical** |
| **Test Voltage** | **AC 347V/60Hz** |




| | Freq | Level | Read Level | Factor | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|
| | MHz | dBuV/m | dBuV | dB/m | dBuV/m | dB | |
| 1 | 35.62 | 27.93 | 8.00 | 19.93 | 40.00 | -12.07 | QP |
| 2 | 42.90 | 28.42 | 5.99 | 22.43 | 40.00 | -11.58 | QP |
| 3 | 55.22 | 21.48 | -0.39 | 21.87 | 40.00 | -18.52 | QP |
| 4 | 105.64 | 19.74 | -0.84 | 20.58 | 43.50 | -23.76 | QP |
| 5 | 175.04 | 20.32 | 3.07 | 17.25 | 43.50 | -23.18 | QP |
| 6 | 884.50 | 28.79 | -3.59 | 32.38 | 46.00 | -17.21 | QP |

**End of Report**

# FCC LABELING AND INSTRUCTION MANUAL REQUIREMENTS

A device subject to Supplier's Declaration of Conformity shall bear the following statement in a conspicuous location on the device. The label can be affixed at any space external to the product except the battery door or detachable parts.

**This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.**

In addition, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

**Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.**
For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

**NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:**

- **Reorient or relocate the receiving antenna.**
- **Increase the separation between the equipment and receiver.**
- **Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**
- **Consult the dealer or an experienced radio/ TV technician for help.**