



# TEST REPORT

## FCC ID:2BF7H-BM01

Applicant: ORALIC SUPPLIES INC

Address: 15760 ventura blvd ste 1570 Encino CA 91436

Manufacturer: Zhongshan BestClean Technology Co.,Ltd.

Address: 301, 3/F, Building 3, No. 32 Jianye Road, Huoju, Zhongshan City, Guangdong Province, China, 528400

EUT: Sonic electric toothbrush

Trade Mark: BRUSHMO

Model Number: BM01  
BM04, BM05, BM06, BM07, BM08, BM09, BM10, BM11, BM12

Date of Receipt: Sep. 14, 2024

Test Date: Sep. 14, 2024 - Oct. 10, 2024

Date of Report: Oct. 10, 2024

Prepared By: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China

Applicable Standards: FCC Part 18  
FCC/OST MP-5 (1986)

Test Result: Pass

Report Number: DL-240914010ER

Prepared (Engineer): Alisa Song

Reviewer (Supervisor): Jack Bu

Approved (Manager): Jade Yang



*This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.*

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**1. VERSION**

| Version No. | Date          | Description |
|-------------|---------------|-------------|
| 00          | Oct. 10, 2024 | Original    |
|             |               |             |
|             |               |             |

**2. TEST SUMMARY**

| EMC Emission                     |                   |        |        |
|----------------------------------|-------------------|--------|--------|
| Test Item                        | Section in CFR 47 | Result | Remark |
| AC Power Line Conducted Emission | 18.307            | PASS   |        |
| Spurious Emission                | 18.305            | PASS   |        |

**NOTE:**

(1) "N/A" denotes test is not applicable in this Test Report

Test Lab: Shenzhen DL Testing Technology Co., Ltd.

Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China

FCC Test Firm Registration Number: 854456

Designation Number: CN1307

IC Registered No.: 27485

CAB ID.: CN0118



### 3. GENERAL INFORMATION

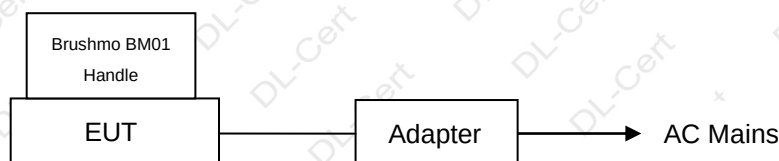
#### 3.1 Description of Device (EUT)

Product Name: Sonic electric toothbrush  
Trade Mark: BRUSHMO  
Model No.: BM01  
BM04, BM05, BM06, BM07, BM08, BM09, BM10, BM11, BM12  
Model Difference: All samples are the same except the model name and appearance color, so we prepare "BM01" for test only.  
Serial No.: N/A  
Hardware version: H1.0  
Software version: S1.0  
Operation Frequency: 200KHz  
Modulation type: MSK  
Antenna Type: Inductive loop coil Antenna  
Antenna gain: 0dBi  
Power supply: Input: 5V  $\overline{\text{---}}$  1A  
Wireless charging output: 1.5W  
Model No.: FX202U  
Adapter: Input: 100-240V~ 50/60Hz 0.7A  
USB-C: 5V/3A, 9V/2.22A, 12V/1.67A 20W Max.

#### 3.2 Tested System Details

None.

#### 3.3 Block Diagram of Test Set-up



#### 3.4 Test Mode Description

Mode1. Wireless Output Mode

Note: 1. We have evaluated 1%, 50% and 99% battery charging mode, and the worst mode (99%) is showed in this report.

#### 3.5 Test Auxiliary Equipment

Brushmo BM01 Handle (Customer Provided):  
Manufacturer: Brushmo  
Battery: DC 3.7V

#### 3.6 Test Uncertainty

Conducted Emission Uncertainty(150KHz-30MHz) :  $\pm 2.56\text{dB}$   
Radiated Emission Uncertainty(9KHz-1GHz) :  $\pm 3.24\text{dB}$

**4. TEST INSTRUMENT USED****For Conducted Emission Test (843 Shielded Room)**

| Equipment         | Manufacturer | Model     | Serial | Last Cal.     | Next Cal.     |
|-------------------|--------------|-----------|--------|---------------|---------------|
| 843 Shielded Room | YIHENG       | 843 Room  | 843    | Nov. 05, 2023 | Nov. 04, 2026 |
| EMI Receiver      | R&S          | ESR       | 101421 | Nov. 04, 2023 | Nov. 03, 2024 |
| LISN              | R&S          | ENV216    | 102417 | Nov. 04, 2023 | Nov. 03, 2024 |
| Clamp             | COM-POWER    | CLA-050   | 431071 | Nov. 04, 2023 | Nov. 03, 2024 |
| 3-Loop Antenna    | DAZE         | ZN30401   | 13021  | Nov. 04, 2023 | Nov. 03, 2024 |
| ISN T8            | Schwarzbeck  | NTFM 8158 | 101135 | Nov. 04, 2023 | Nov. 03, 2024 |
| ISN T5            | Schwarzbeck  | NTFM 8158 | 101136 | Nov. 04, 2023 | Nov. 03, 2024 |
| 843 Cable 1#      | ChengYu      | CE Cable  | 001    | Nov. 04, 2023 | Nov. 03, 2024 |
| 843 Cable 1#      | ChengYu      | CE Cable  | 002    | Nov. 04, 2023 | Nov. 03, 2024 |

**For Radiated Emission Test (966 chamber)**

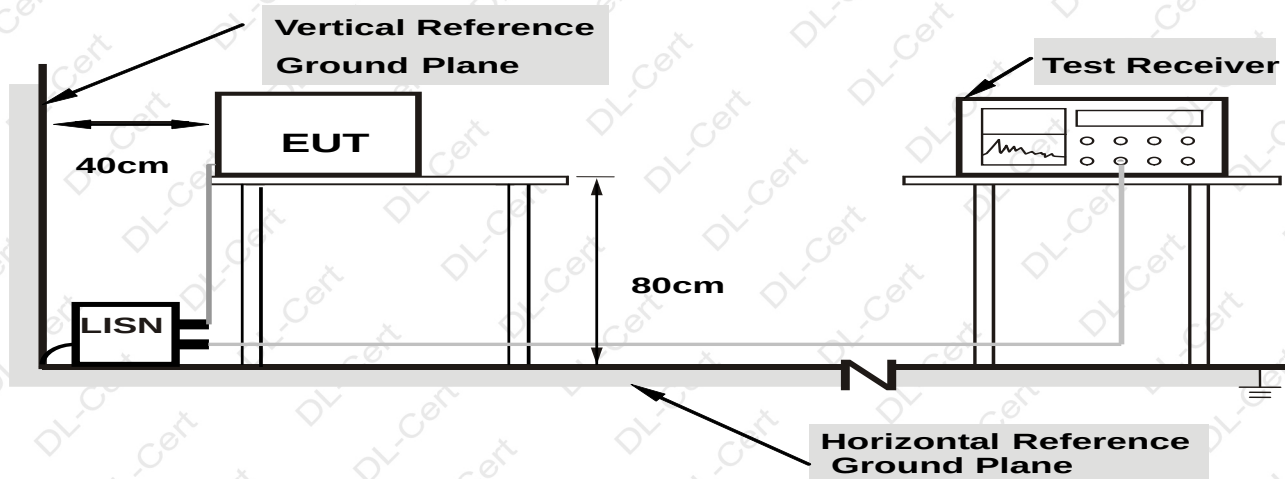
| Equipment                | Manufacturer | Model     | Serial     | Last Cal.     | Next Cal.     |
|--------------------------|--------------|-----------|------------|---------------|---------------|
| 966 Chamber              | YIHENG       | 966 Room  | 966        | Nov. 06, 2023 | Nov. 05, 2026 |
| Spectrum Analyzer        | Agilent      | E4408B    | MY50140780 | Nov. 04, 2023 | Nov. 03, 2024 |
| EMI Receiver             | R&S          | ESRP7     | 101393     | Nov. 04, 2023 | Nov. 03, 2024 |
| Amplifier                | Schwarzbeck  | BBV9743B  | 00153      | Nov. 04, 2023 | Nov. 03, 2024 |
| Amplifier                | EMEC         | EM01G8GA  | 00270      | Nov. 04, 2023 | Nov. 03, 2024 |
| Broadband Trilog Antenna | Schwarzbeck  | VULB9162  | 00306      | Nov. 04, 2023 | Nov. 03, 2024 |
| Horn Antenna             | Schwarzbeck  | BBHA9120D | 02139      | Nov. 04, 2023 | Nov. 03, 2024 |
| Loop Antenna             | ZHINAN       | ZN30900A  | /          | Nov. 04, 2023 | Nov. 03, 2024 |
| 966 Cable 1#             | ChengYu      | 966       | 004        | Nov. 04, 2023 | Nov. 03, 2024 |
| 966 Cable 2#             | ChengYu      | 966       | 003        | Nov. 04, 2023 | Nov. 03, 2024 |



## 5. CONDUCTED EMISSION TEST

### 5.1 Block Diagram of Test Setup

#### For Mains Terminals Test



**Note: 1.**Support units were connected to second LISN.

**2.**Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

### 5.2 Test Standard and Limit

#### FCC Part 18

(b) All other part 18 consumer devices:

| Frequency of emission (MHz) | Conducted limit (dB $\mu$ V) |           |
|-----------------------------|------------------------------|-----------|
|                             | Quasi-peak                   | Average   |
| 0.15-0.5                    | 66 to 56*                    | 56 to 46* |
| 0.5-5                       | 56                           | 46        |
| 5-30                        | 60                           | 50        |

\*Decreases with the logarithm of the frequency.

Notes: 2. The lower limit shall apply at the transition frequencies.

### 5.3 EUT Configuration on Test

The following equipment's are installed on conducted emission test to meet FCC Part 18 requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

### 5.4 Operating Condition of EUT

5.4.1 Setup the EUT and simulators as shown in Section 5.1.

5.4.2 Turn on the power of all equipments.

5.4.3 Let the EUT work in test modes and test it.



### 5.5 Test Procedure

The EUT is put on the table and connected to the AC mains through a Artificial Mains Network (AMN) or ISN. This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **FCC/IST MP-5** regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESR) is set at 10KHz.

The frequency range from 150 KHz to 30 MHz is investigated.

Notes:

- 1.An initial pre-scan was performed on the line and neutral lines with peak detector.
- 2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3.Mesurement Level = Reading level + Correct Factor

### 5.6 Test Result

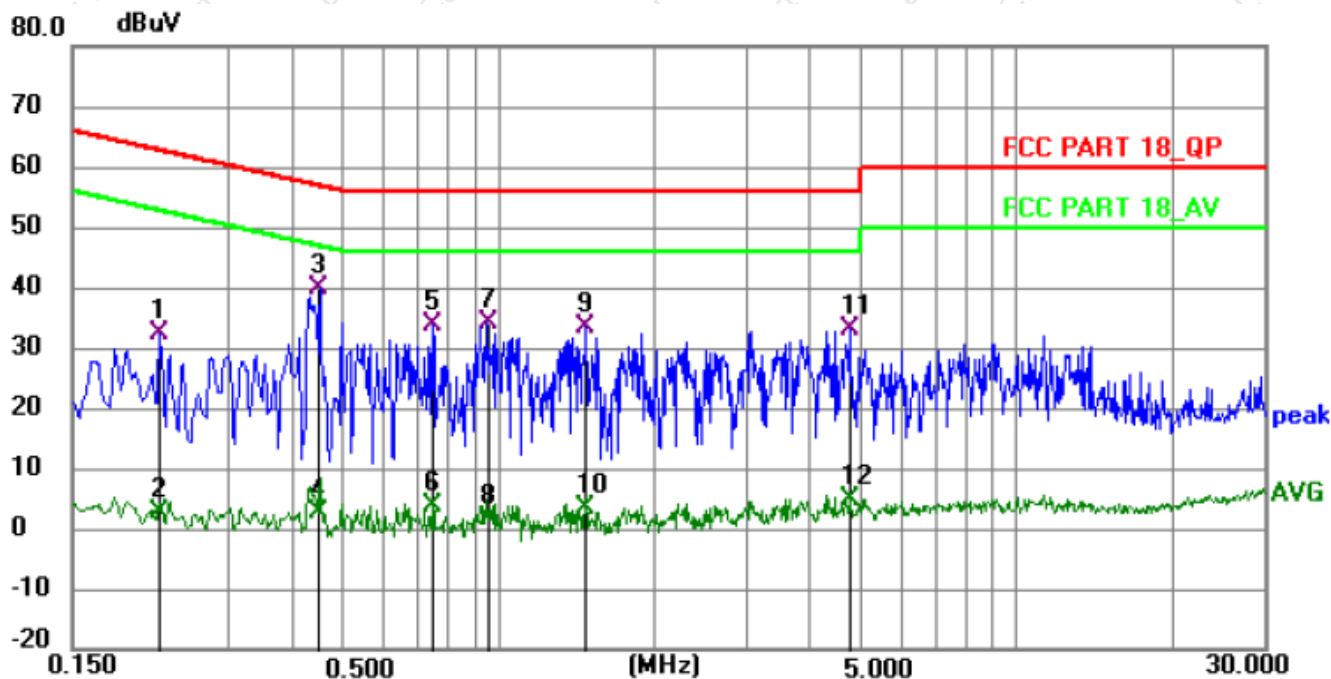
PASS

Please refer to the following page.



## Conducted Emission Test Data

|               |              |                    |        |
|---------------|--------------|--------------------|--------|
| Temperature:  | 24.5 °C      | Relative Humidity: | 54%    |
| Pressure:     | 1009hPa      | Phase:             | Line   |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | Mode 1 |

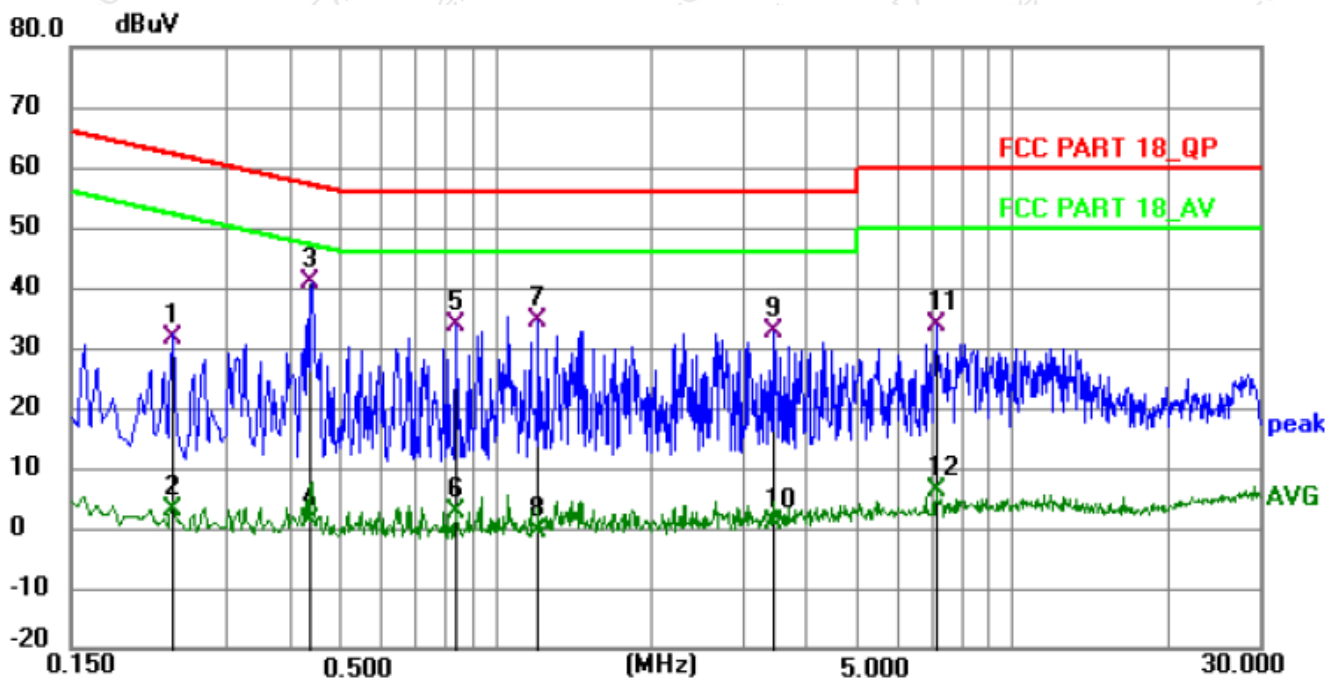


| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1   | 0.2231          | 22.37          | 10.12       | 32.49        | 62.70        | -30.21      | QP       | P   |        |
| 2   | 0.2231          | -7.36          | 10.12       | 2.76         | 52.70        | -49.94      | AVG      | P   |        |
| 3 * | 0.4515          | 29.51          | 10.21       | 39.72        | 56.85        | -17.13      | QP       | P   |        |
| 4   | 0.4515          | -7.64          | 10.21       | 2.57         | 46.85        | -44.28      | AVG      | P   |        |
| 5   | 0.7485          | 23.73          | 10.08       | 33.81        | 56.00        | -22.19      | QP       | P   |        |
| 6   | 0.7485          | -6.47          | 10.08       | 3.61         | 46.00        | -42.39      | AVG      | P   |        |
| 7   | 0.9555          | 24.23          | 10.05       | 34.28        | 56.00        | -21.72      | QP       | P   |        |
| 8   | 0.9555          | -8.42          | 10.05       | 1.63         | 46.00        | -44.37      | AVG      | P   |        |
| 9   | 1.4730          | 23.41          | 10.05       | 33.46        | 56.00        | -22.54      | QP       | P   |        |
| 10  | 1.4730          | -6.75          | 10.05       | 3.30         | 46.00        | -42.70      | AVG      | P   |        |
| 11  | 4.7714          | 22.67          | 10.34       | 33.01        | 56.00        | -22.99      | QP       | P   |        |
| 12  | 4.7714          | -5.59          | 10.34       | 4.75         | 46.00        | -41.25      | AVG      | P   |        |



## Conducted Emission Test Data

|               |              |                    |         |
|---------------|--------------|--------------------|---------|
| Temperature:  | 24.5 °C      | Relative Humidity: | 54%     |
| Pressure:     | 1009hPa      | Phase:             | Neutral |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | Mode 1  |



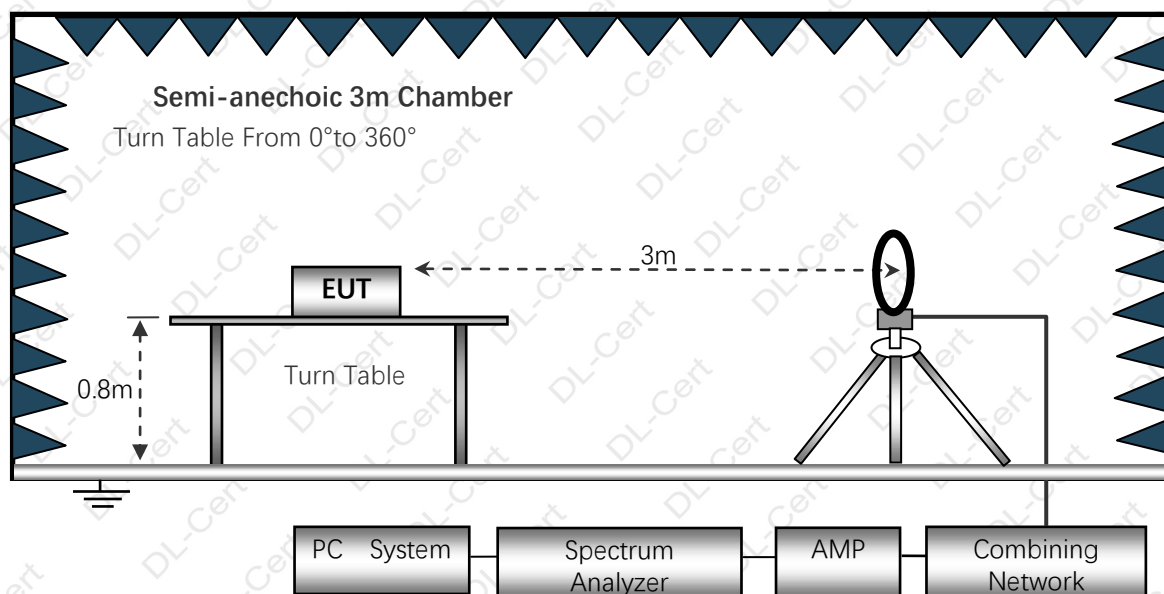
| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F | Remark |
|-----|-----------------|----------------|-------------|--------------|--------------|-------------|----------|-----|--------|
| 1   | 0.2354          | 21.49          | 10.19       | 31.68        | 62.26        | -30.58      | QP       | P   |        |
| 2   | 0.2354          | -7.02          | 10.19       | 3.17         | 52.26        | -49.09      | AVG      | P   |        |
| 3 * | 0.4380          | 30.57          | 10.19       | 40.76        | 57.10        | -16.34      | QP       | P   |        |
| 4   | 0.4380          | -9.10          | 10.19       | 1.09         | 47.10        | -46.01      | AVG      | P   |        |
| 5   | 0.8385          | 23.63          | 10.06       | 33.69        | 56.00        | -22.31      | QP       | P   |        |
| 6   | 0.8385          | -7.22          | 10.06       | 2.84         | 46.00        | -43.16      | AVG      | P   |        |
| 7   | 1.2075          | 24.26          | 10.10       | 34.36        | 56.00        | -21.64      | QP       | P   |        |
| 8   | 1.2075          | -10.76         | 10.10       | -0.66        | 46.00        | -46.66      | AVG      | P   |        |
| 9   | 3.4710          | 22.54          | 10.11       | 32.65        | 56.00        | -23.35      | QP       | P   |        |
| 10  | 3.4710          | -9.33          | 10.11       | 0.78         | 46.00        | -45.22      | AVG      | P   |        |
| 11  | 7.1070          | 23.02          | 10.74       | 33.76        | 60.00        | -26.24      | QP       | P   |        |
| 12  | 7.1070          | -4.32          | 10.74       | 6.42         | 50.00        | -43.58      | AVG      | P   |        |



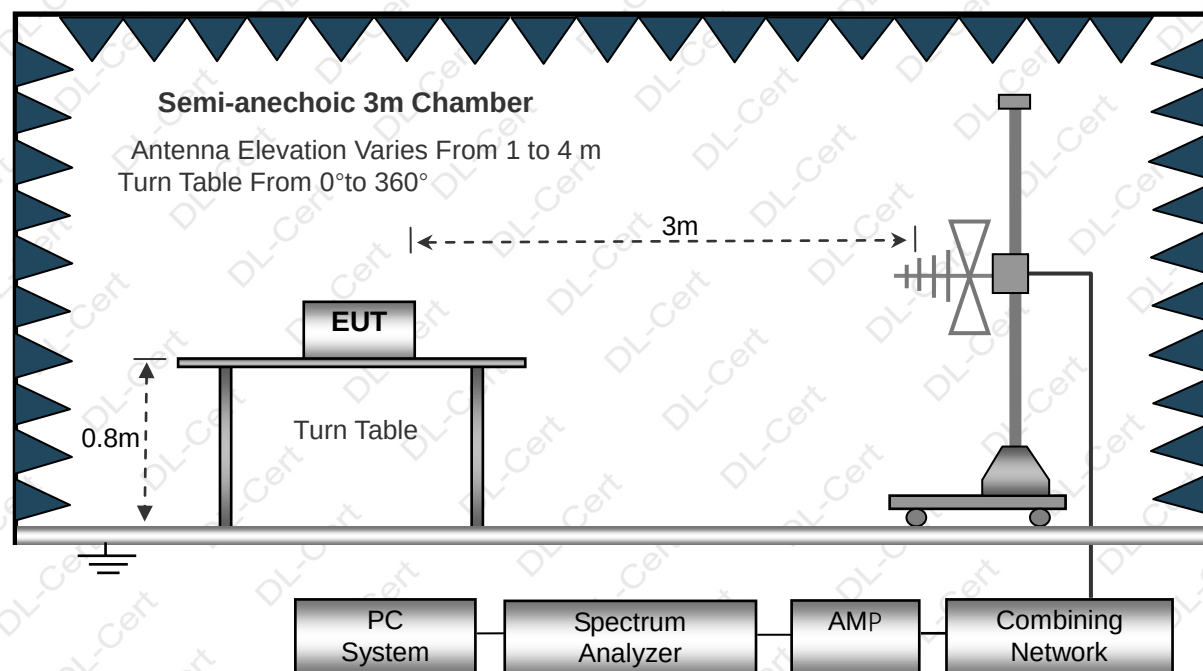
## 6. RADIATION EMISSION TEST

### 6.1 Block Diagram of Test Setup

Radiated Emission Test-Up Frequency Below 30MHz



Below 1GHz



### 6.2 Test Standard and Limit

FCC Part 18



| Equipment                                           | Operating frequency                      | RF Power generated by equipment (watts) | Field strength limit (uV/m)                                                                       | Distance (meters) |
|-----------------------------------------------------|------------------------------------------|-----------------------------------------|---------------------------------------------------------------------------------------------------|-------------------|
| Any type unless otherwise specified (miscellaneous) | Any ISM frequency                        | Below 500<br>500 or more                | 25<br>$25 \times \text{SQRT}(\text{power}/500)$                                                   | 300<br>1300       |
|                                                     | Any non-ISM frequency                    | Below 500<br>500 or more                | 15<br>$15 \times \text{SQRT}(\text{power}/500)$                                                   | 300<br>1300       |
| Industrial heaters and RF stabilized arc welders    | On or below 5,725 MHz<br>Above 5,725 MHz | Any<br>Any                              | 10<br>(2)                                                                                         | 1,600<br>(2)      |
| Medical diathermy                                   | Any ISM frequency                        | Any                                     | 25                                                                                                | 300               |
|                                                     | Any non-ISM frequency                    | Any                                     | 15                                                                                                | 300               |
| Ultrasonic                                          | Below 490 kHz                            | Below 500<br>500 or more                | $2,400/\text{F}(\text{kHz})$<br>$2,400/\text{F}(\text{kHz}) \times \text{SQRT}(\text{power}/500)$ | 300<br>3300       |
|                                                     | 490 to 1,600 kHz<br>Above 1,600 kHz      | Any<br>Any                              | $24,000/\text{F}(\text{kHz})$<br>15                                                               | 30<br>30          |
| Induction cooking ranges                            | Below 90 kHz                             | Any                                     | 1,500                                                                                             | 430               |
|                                                     | On or above 90 kHz                       | Any                                     | 300                                                                                               | 430               |

Remark:

- (1) The smaller limit shall apply at the cross point between two frequency bands.
- (2) Distance refers to the distance in meters between the measuring instrument, antenna and the closed point of any part of the device or system.
- (3) Emission level dBuV/m for 0.009~30MHz =  $20\log(15) + 40\log(300/3)$  dBuV/m
- (3) Emission level dBuV/m for 30MHz~1000MHz =  $20\log(15) + 20\log(300/3)$  dBuV/m

### 6.3 EUT Configuration on Test

The FCC Part 18 regulations test method must be used to find the maximum emission during radiated emission test.

The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 5.3.

### 6.4 Operating Condition of EUT

Same as conducted emission test, which is listed in Section 5.4 except the test set up replaced as Section 6.2.

### 6.5 Test Procedure

- 1) The radiated emissions test was conducted in a semi-anechoic chamber.
- 2) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
- 3) Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.
- 4) The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.
- 5) The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz.
- 6) The frequency range from 9KHz to 1000MHz is checked.

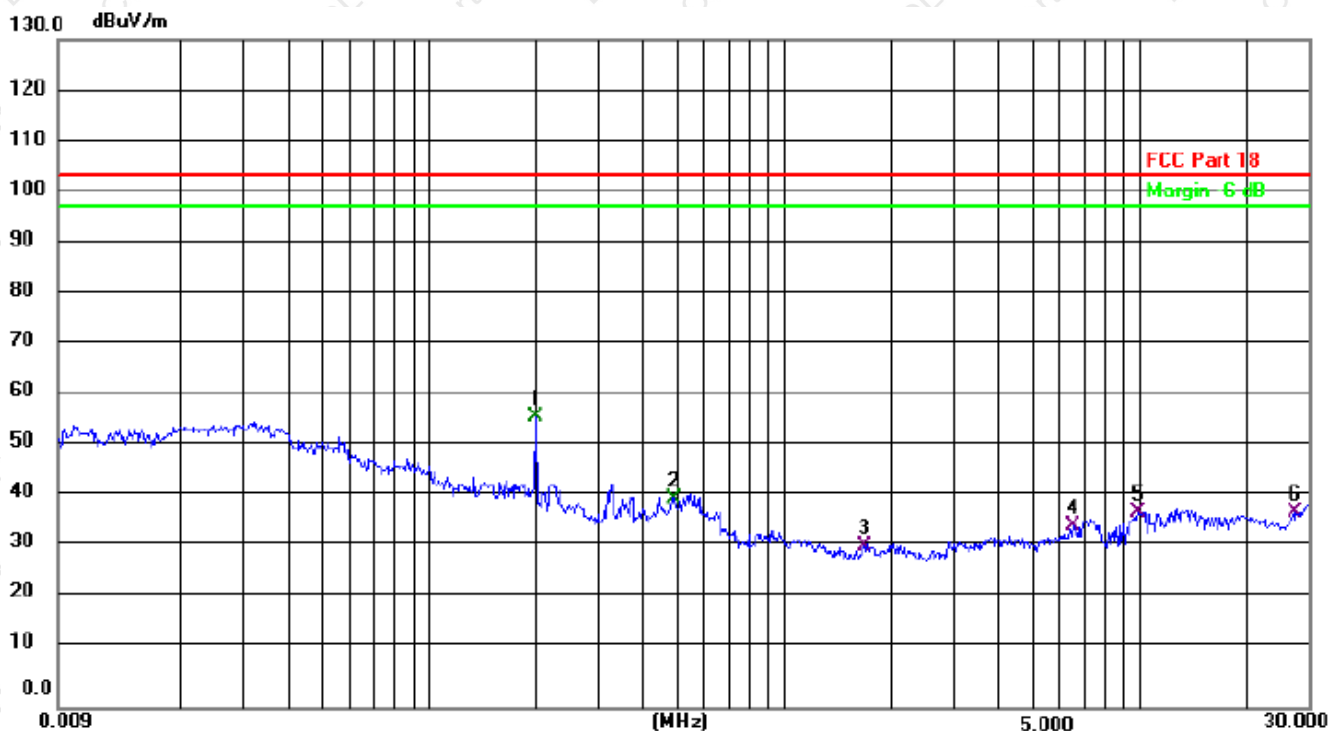
### 6.6 Test Result

PASS, Please refer to the following page.



## Radiation Emission Test Data 9 kHz~30 MHz

|               |              |                    |        |
|---------------|--------------|--------------------|--------|
| Temperature:  | 24.5 °C      | Relative Humidity: | 54%    |
| Pressure:     | 1009hPa      | Polarization:      | /      |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | Mode 1 |



| Frequency<br>(MHz) | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 0.1995             | 48.73                   | 9.13           | 57.86                      | 103.5              | -45.64         | AVERAGE       |
| 0.4909             | 30.90                   | 9.74           | 40.64                      | 103.5              | -62.86         | AVERAGE       |
| 1.6846             | 19.31                   | 9.39           | 28.70                      | 103.5              | -74.80         | QP            |
| 6.4756             | 23.72                   | 9.34           | 33.06                      | 103.5              | -70.44         | QP            |
| 9.8734             | 28.86                   | 8.45           | 37.31                      | 103.5              | -66.19         | QP            |
| 27.4390            | 28.11                   | 9.53           | 37.64                      | 103.5              | -65.86         | QP            |

## Note:

Pre-scan in the all of mode, the worst case in of was recorded.

Factor = antenna factor + cable loss – pre-amplifier.

Margin = Emission Level(Meter Reading+ Factor) - Limit.



## Radiation Emission Test Data

|               |              |                    |            |
|---------------|--------------|--------------------|------------|
| Temperature:  | 24.5 °C      | Relative Humidity: | 54%        |
| Pressure:     | 1009hPa      | Polarization:      | Horizontal |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | Mode 1     |



| No. | Mk. | Freq.    | Reading | Correct | Measure- | Limit | Margin |          |
|-----|-----|----------|---------|---------|----------|-------|--------|----------|
|     |     | MHz      | Level   | Factor  | ment     |       |        | Detector |
|     |     |          | dBuV    | dB      | dBuV     | dB    | dB     |          |
| 1   |     | 33.0949  | 32.29   | -16.02  | 16.27    | 63.50 | -47.23 | QP       |
| 2   | *   | 60.2801  | 37.81   | -13.72  | 24.09    | 63.50 | -39.41 | QP       |
| 3   |     | 106.3850 | 31.84   | -14.80  | 17.04    | 63.50 | -46.46 | QP       |
| 4   |     | 130.3789 | 37.71   | -17.81  | 19.90    | 63.50 | -43.60 | QP       |
| 5   |     | 379.9141 | 27.06   | -9.64   | 17.42    | 63.50 | -46.08 | QP       |
| 6   |     | 520.8882 | 28.33   | -7.08   | 21.25    | 63.50 | -42.25 | QP       |



## Radiation Emission Test Data

|               |              |                    |          |
|---------------|--------------|--------------------|----------|
| Temperature:  | 24.5 °C      | Relative Humidity: | 54%      |
| Pressure:     | 1009hPa      | Polarization:      | Vertical |
| Test Voltage: | AC 120V/60Hz | Test Mode:         | Mode 1   |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dB | Margin<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|-------------|--------------|----------|
| 1   |     | 35.4993      | 36.60                    | -15.66                  | 20.94                    | 63.50       | -42.56       | QP       |
| 2   |     | 43.6584      | 35.44                    | -13.29                  | 22.15                    | 63.50       | -41.35       | QP       |
| 3   | *   | 56.9912      | 53.11                    | -13.62                  | 39.49                    | 63.50       | -24.01       | QP       |
| 4   |     | 103.0800     | 45.45                    | -14.78                  | 30.67                    | 63.50       | -32.83       | QP       |
| 5   |     | 119.4361     | 38.57                    | -16.54                  | 22.03                    | 63.50       | -41.47       | QP       |
| 6   |     | 654.2318     | 27.92                    | -4.39                   | 23.53                    | 63.50       | -39.97       | QP       |

## Remarks:

- 1.Final Level =Receiver Read level + Correct factor (Antenna Factor + Cable Loss – Preamplifier Factor )
- 2.The emission levels of other frequencies are very lower than the limit and not show in test report.



## 7. SETUP PHOTOGRAPHS

Reference to the setup photo for details.

## 8. EUT PHOTOGRAPHS

Reference to the external and internal photo for details.

\*\*\*\*\* END OF REPORT \*\*\*\*\*