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

No. 1 Workshop, M-10, Middle section, Science & Technology Park,

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# FCC REPORT

| | |
|---|---|
| **Application No. :** | SZEM1805004645CR |
| **Applicant:** | NEW AUDIO LLC. |
| **Address of Applicant:** | 132 W. 31st 7th Floor New York, United States 10001 |
| **Manufacturer/ Factory:** | NEW AUDIO LLC. |
| **Address of Manufacturer/ Factory:** | 132 W. 31st 7th Floor New York, United States 10001 |
| **Product Name:** | MW07 Truewireless Earphone |
| **Model No.(EUT):** | MW07 |
| **Trade Mark:** | Master&Dynamic |
| **FCC ID:** | 2AGA7MW07L |
| **Standards:** | 47 CFR Part 15, Subpart C |
| **Date of Receipt:** | 2018-06-04 |
| **Date of Test:** | 2018-06-12 to 2018-06-20 |
| **Date of Issue:** | 2018-06-25 |
| **Test Result:** | **PASS *** |

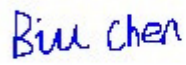
* In the configuration tested, the EUT complied with the standards specified above.

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.

# 2 Version

| Revision Record | | | | |
|---|---|---|---|---|
| **Version** | **Chapter** | **Date** | **Modifier** | **Remark** |
| 01 | | 2018-06-25 | | Original |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| **Authorized for issue by:** | | | | |
| | |  | | |
| | | **Bill Chen /Project Engineer** | | |
| | |  | | |
| | | **Eric Fu /Reviewer** | | |

# 2 Test Summary

| Test Item | Test Requirement | Test method | Result |
|---|---|---|---|
| **Radiated Spurious emissions** | 47 CFR Part 15, Subpart C Section 15.205/15.209 | ANSI C63.10 (2013) | PASS |
| **20dB Occupied Bandwidth** | 47 CFR Part 15, Subpart C Section | ANSI C63.10 (2013) | PASS |

# 3 Contents

Page

# 4 General Information

## 4.1 General Description of EUT

| | |
|---|---|
| Power supply: | Left ear: Li-ion rechargeable battery DC 3.7V |
| Cable: | Type C cable:96cm unshielded |
| Operation Frequency: | 10.54MHz |
| Antenna Type: | Loop Antenna |

## 4.2 Test Environment and Mode

| Operating Environment: | |
|---|---|
| Temperature: | 25.0 °C |
| Humidity: | 55 % RH |
| Atmospheric Pressure: | 1010 mbar |
| **Test mode:** | |
| Tx mode： | Keep the EUT in transmitting mode |

## 4.3 Description of Support Units

The EUT has been tested with associated equipment below.

| Description | Manufacturer | Model No. |
|---|---|---|
| Adapter | Apple | A1357 W010A051 |

## 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

## 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.

## 4.8 Other Information Requested by the Customer

None.

## 4.9 Equipment List

| RE in Chamber | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal. Date (yyyy-mm-dd)** | **Cal. Due date (yyyy-mm-dd)** |
| 10m Semi-Anechoic Chamber | SAEMC | FSAC1018 | SEM001-03 | 2018-03-31 | 2021-03-30 |
| EMI Test Receiver (9k-7GHz) | Rohde & Schwarz | ESR | SEM004-03 | 2018-04-02 | 2019-04-01 |
| Trilog-Broadband Antenna (30M-1GHz) | Schwarzbeck | VULB9168 | SEM003-18 | 2016-06-29 | 2019-06-28 |
| Pre-amplifier (9kHz-1GHz) | Sonoma Instrument Co | 310N | SEM005-04 | 2018-04-13 | 2019-04-12 |
| Loop Antenna (9kHz-30MHz) | ETS-Lindgren | 6502 | SEM003-08 | 2017-08-22 | 2020-08-21 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM029-01 | 2017-07-13 | 2018-07-12 |

| Conducted | | | | | |
|---|---|---|---|---|---|
| **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 |

| 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 | 2018-04-08 | 2019-04-07 |

# 5 Test results and Measurement Data

## 5.1 Radiated Emission

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C Section 15.209 and 15.205 |
| Test Method: | ANSI C63.10: 2013 |
| Test Site: | Measurement Distance: 10m (Semi-Anechoic Chamber) |

Receiver Setup:

| Frequency | Detector | RBW | VBW | Remark |
|---|---|---|---|---|
| 30MHz-1GHz | Quasi-peak | 100kHz | 300kHz | Quasi-peak Value |
| Above 1GHz | Peak | 1MHz | 3MHz | Peak Value |

Limit:

| Frequency | Field strength (microvolt/meter) | Limit (dBuV/m) | Remark | Measurement distance (m) |
|---|---|---|---|---|
| 0.009MHz-0.490MHz | 2400/F(kHz) | - | - | 300 |
| 0.490MHz-1.705MHz | 24000/F(kHz) | - | - | 30 |
| 1.705MHz-30MHz | 30 | - | - | 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 |

Test Procedure:

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 and 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter full-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

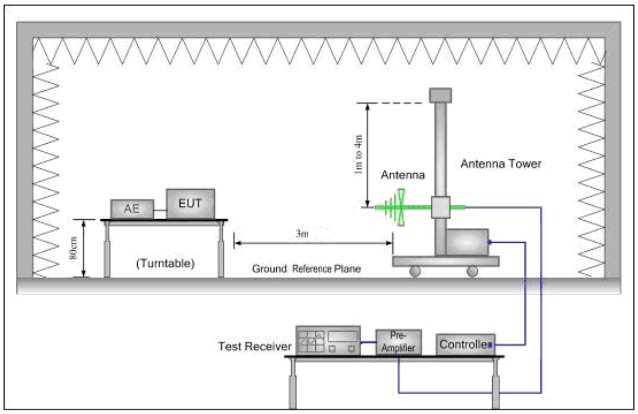
c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. 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.

e. 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.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. 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

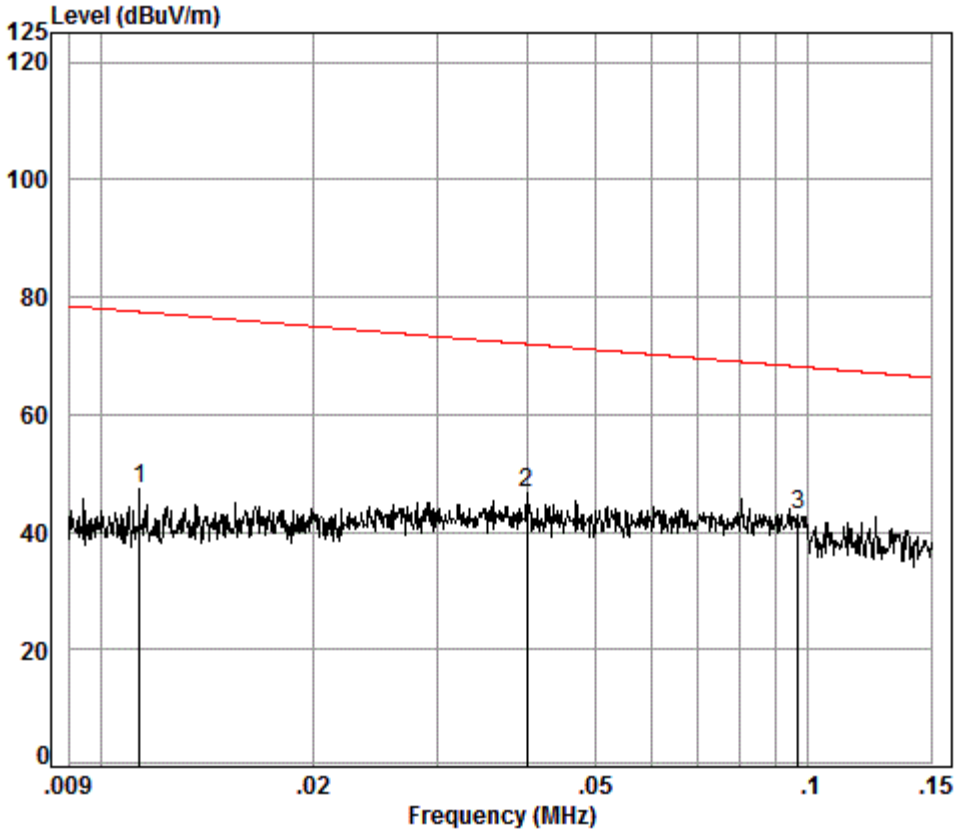
| | |
|---|---|
| | specified and then reported in a data sheet.<br>h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.<br>i. Repeat above procedures until all frequencies measured was complete. |
| Test Setup: | |
|  <br>Figure 1. 30MHz to 1GHz | |
| Instruments Used: | Refer to section 4.10 for details |
| Test Mode: | NFMI mode |
| Test Results: | Pass |

**Field Strength Of The Fundamental Signal**

| Frequency (MHz) | Cable Loss (dB) | Antenna Factor (dB/m) | Preamp Factor (dB) | Read Level (dBuV) | Level @10m (dBuV/m) | Level @ 30m (dBuV/m) | Limit Line @ 30m (dBuV/m) | Over Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|---|
| 10.54 | 0.50 | 10.66 | 32.90 | 55.05 | 33.31 | 4.69 | 29.5 | -24.81 | H |
| 10.54 | 0.50 | 10.66 | 32.90 | 53.84 | 32.10 | 3.48 | 29.5 | -26.02 | V |

**Below 30MHz**

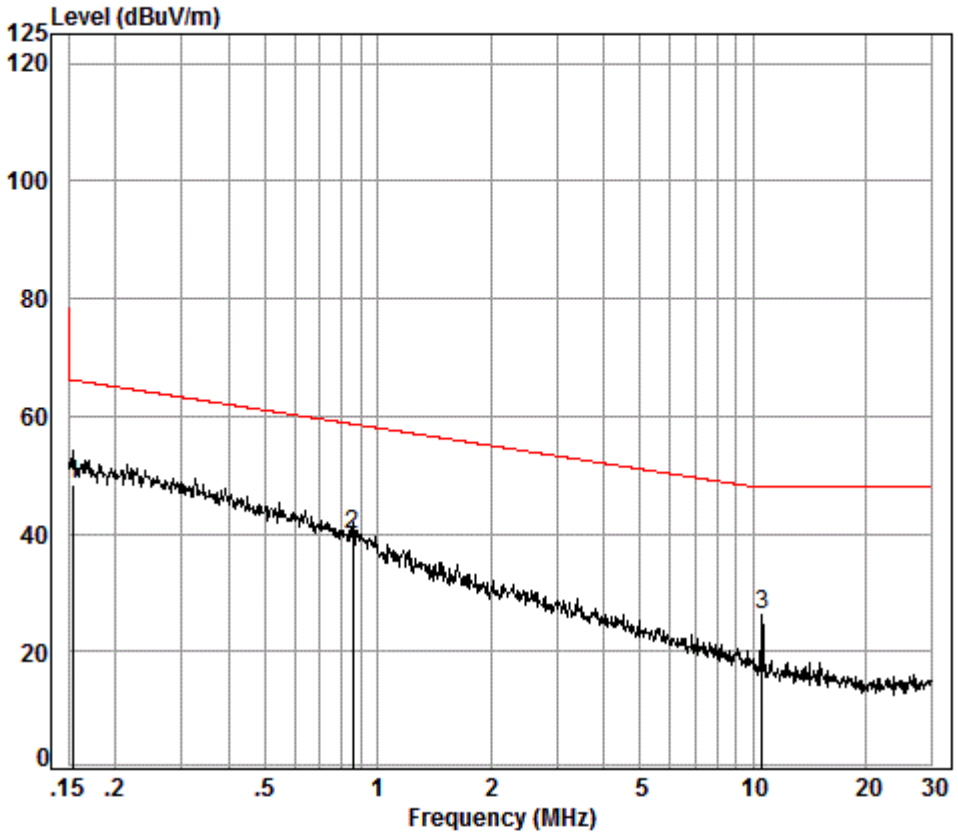
**QP value:0.009MHz-0.15MHz**




Condition: 10m
Job No. : 04645CR
Test Mode: TX(NFMI)

| | 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 | 0.01 | 0.28 | 18.52 | 0.00 | 28.38 | 47.18 | 77.50 | -30.32 |
| 2 | 0.04 | 0.14 | 13.03 | 0.00 | 33.43 | 46.60 | 72.00 | -25.40 |
| 3 pp | 0.10 | 0.05 | 12.01 | 0.00 | 30.80 | 42.86 | 68.16 | -25.30 |

**QP value:0.15MHz-30MHz**

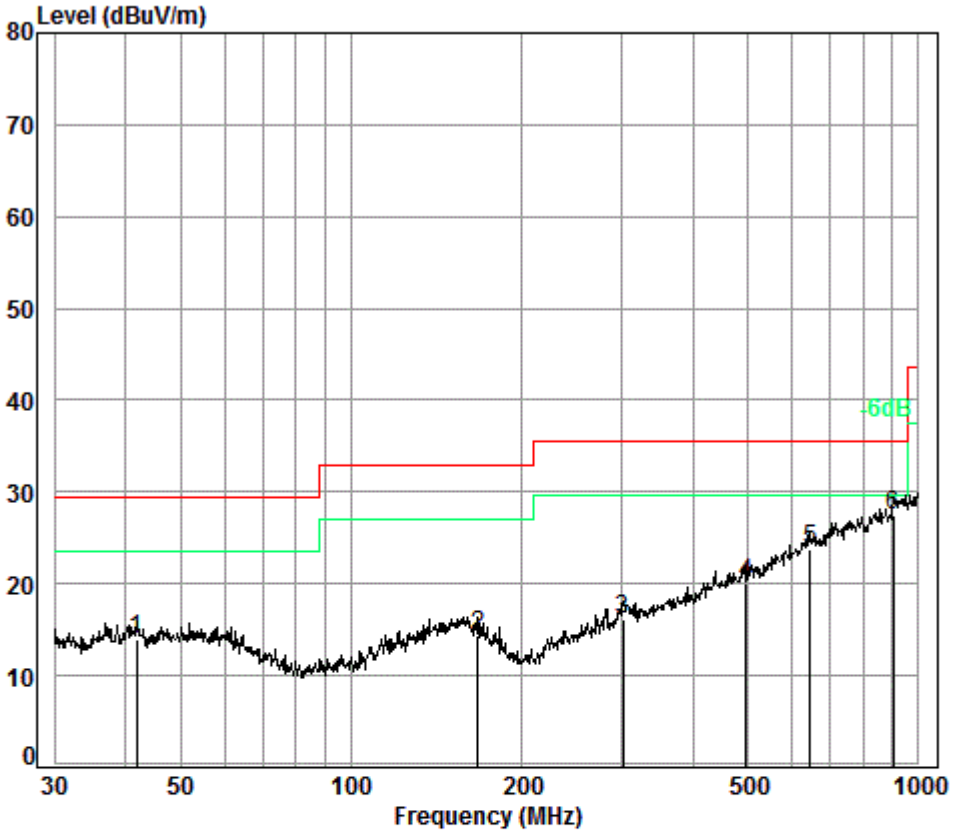



Condition: 10m
Job No. : 04645CR
Test Mode: TX(NFMI)

| | 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 pp | 0.15 | 0.07 | 11.72 | 0.00 | 36.41 | 48.20 | 66.13 | -17.93 |
| 2 | 0.86 | 0.20 | 12.00 | 0.00 | 27.74 | 39.94 | 58.68 | -18.74 |
| 3 | 10.56 | 0.50 | 10.66 | 0.00 | 15.05 | 26.21 | 48.00 | -21.79 |

**QP value: 30MHz~1GHz**

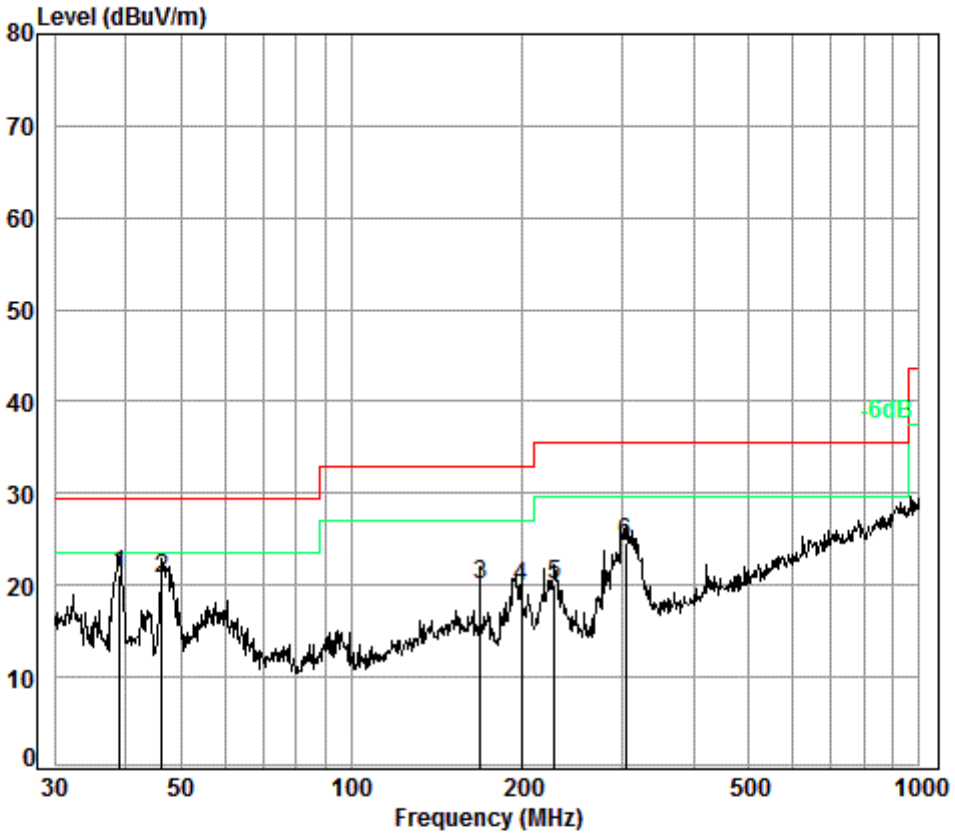
Horizontal




Condition: 10m HORIZONTAL
Job No. : 04645CR
Test Mode: TX(NFMI)

| | 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 | 41.86 | 6.80 | 13.16 | 32.54 | 26.47 | 13.89 | 29.50 | -15.61 |
| 2 | 167.24 | 7.50 | 12.68 | 32.52 | 26.72 | 14.38 | 33.00 | -18.62 |
| 3 | 301.42 | 8.06 | 12.70 | 32.44 | 27.78 | 16.10 | 35.60 | -19.50 |
| 4 | 497.68 | 8.59 | 16.76 | 32.42 | 27.19 | 20.12 | 35.60 | -15.48 |
| 5 | 645.12 | 9.01 | 19.48 | 32.40 | 27.72 | 23.81 | 35.60 | -11.79 |
| 6 pp | 903.31 | 9.50 | 22.27 | 31.51 | 27.12 | 27.38 | 35.60 | -8.22 |

Vertical




Condition: 10m VERTICAL
Job No. : 04645CR
Test Mode: TX(NFMI)

| | 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 pp | 39.16 | 6.78 | 13.21 | 32.56 | 33.66 | 21.09 | 29.50 | -8.41 |
| 2 | 46.34 | 6.83 | 12.87 | 32.52 | 33.64 | 20.82 | 29.50 | -8.68 |
| 3 | 168.41 | 7.50 | 12.57 | 32.52 | 32.47 | 20.02 | 33.00 | -12.98 |
| 4 | 199.29 | 7.60 | 9.32 | 32.53 | 35.49 | 19.88 | 33.00 | -13.12 |
| 5 | 227.69 | 7.74 | 10.64 | 32.50 | 34.27 | 20.15 | 35.60 | -15.45 |
| 6 | 303.54 | 8.06 | 12.76 | 32.44 | 36.14 | 24.52 | 35.60 | -11.08 |

**Below 1GHz**

The test was performed at a 10m test site. According to below formulate and the test data at 10m test distance,

$L_3 / L_{10} = D_{10} / D_3$

Note:

$L_3$: Level @ 3m distance. Unit: uV/m;

$L_{10}$: Level @ 10m distance. Unit: uV/m;

$D_3$: 3m distance. Unit: m

$D_{10}$: 10m distance. Unit: m

The level at 3m test distance is below:

| Frequency (MHz) | Level @ 10m (dBuV/m) | Level @ 10m (uV/m) | Level @ 3m (uV/m) | Level @ 3m (dBuV/m) | Limit @ 3m (dBuV/m) | Margin (dB) | Ant. Polarization |
|---|---|---|---|---|---|---|---|
| 41.86 | 13.89 | 4.95 | 16.50 | 24.35 | 40.00 | -15.65 | H |
| 167.24 | 14.38 | 5.24 | 17.45 | 24.84 | 43.50 | -18.66 | H |
| 301.42 | 16.10 | 6.38 | 21.28 | 26.56 | 46.00 | -19.44 | H |
| 497.68 | 20.12 | 10.14 | 33.80 | 30.58 | 46.00 | -15.42 | H |
| 645.12 | 23.81 | 15.51 | 51.69 | 34.27 | 46.00 | -11.73 | H |
| 903.31 | 27.38 | 23.39 | 77.96 | 37.84 | 46.00 | -8.16 | H |
| 39.16 | 21.09 | 11.34 | 37.79 | 31.55 | 40.00 | -8.45 | V |
| 46.34 | 20.82 | 10.99 | 36.63 | 31.28 | 40.00 | -8.72 | V |
| 168.41 | 20.02 | 10.02 | 33.41 | 30.48 | 43.50 | -13.02 | V |
| 199.29 | 19.88 | 9.86 | 32.88 | 30.34 | 43.50 | -13.16 | V |
| 227.69 | 20.15 | 10.17 | 33.91 | 30.61 | 46.00 | -15.39 | V |
| 303.54 | 24.52 | 16.83 | 56.09 | 34.98 | 46.00 | -11.02 | V |

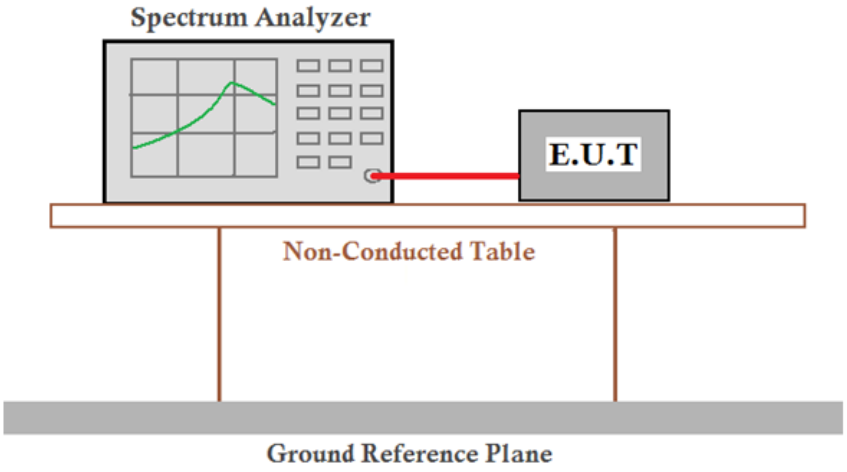
Remark:

1)The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

2)Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

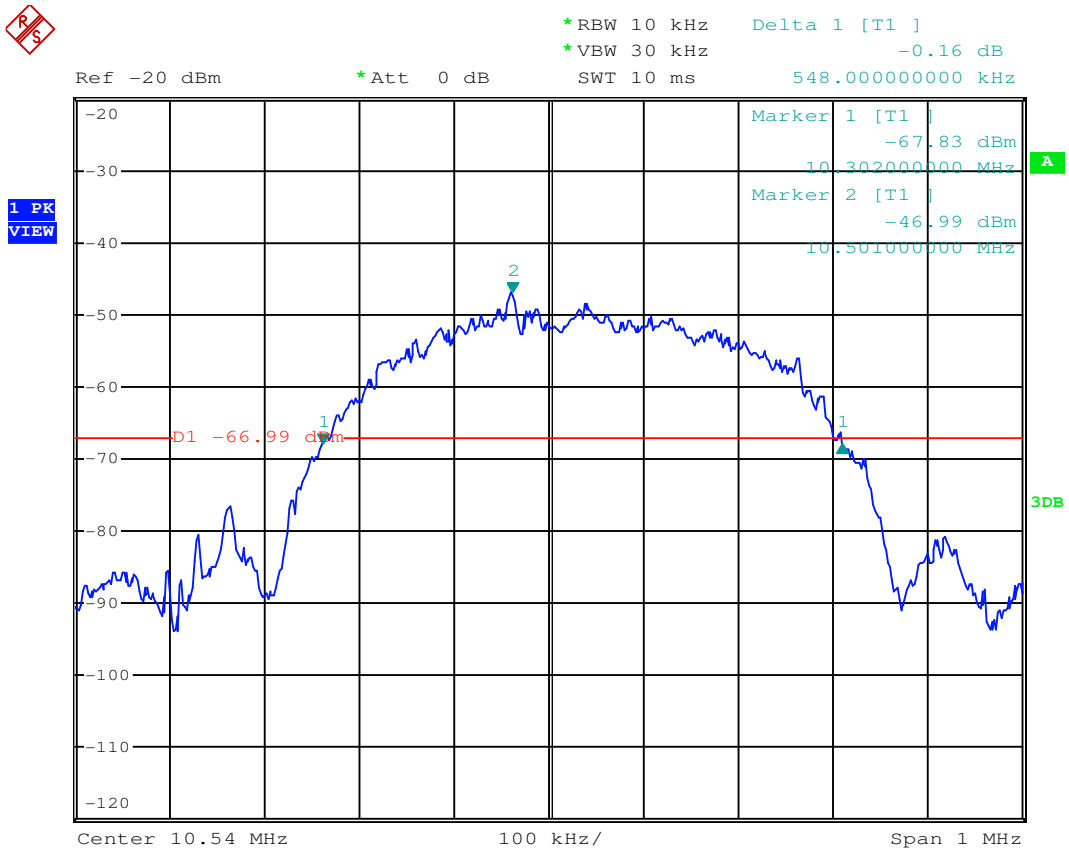
3)Emissions from 9kHz to 30 MHz is too low to be find, so it is not reported.

## 5.2 20dB Occupy Bandwidth

| | |
|---|---|
| Test Requirement: | 47 CFR Part 15C |
| Test Method: | ANSI C63.10:2013 Section 7.8.7 |
| Test Setup: |  |
| Limit: | NA |
| Final Test Mode: | Transmitting mode |
| Instruments Used: | Refer to section 5.10 for details |
| Test Results: | Pass |

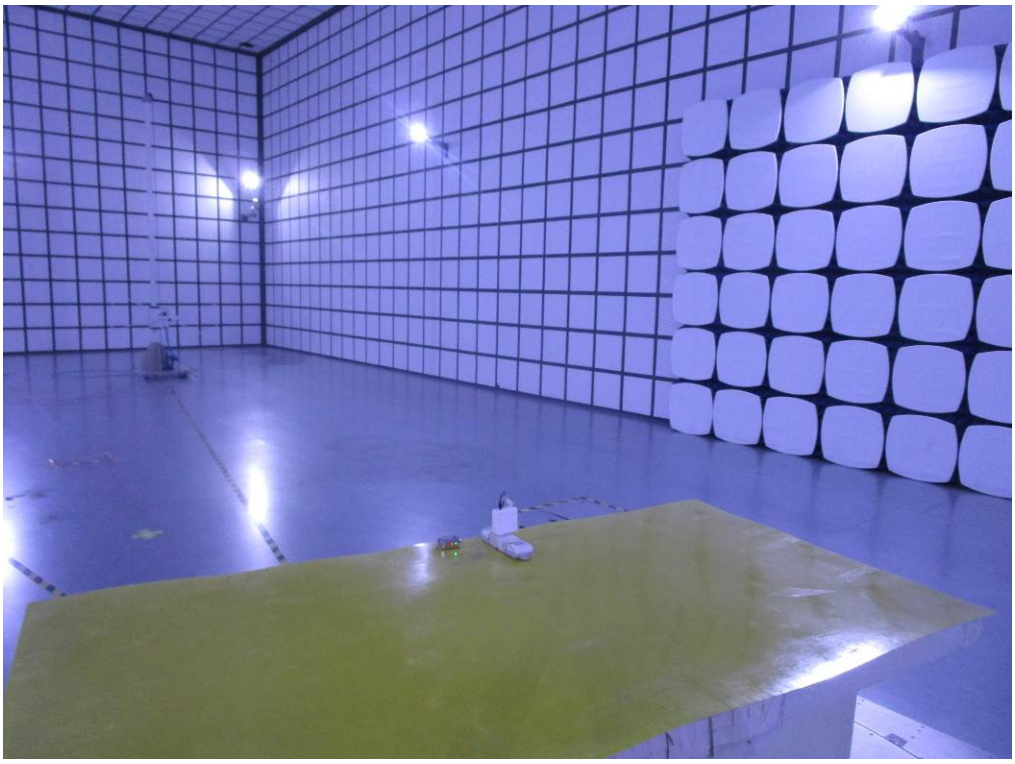
**Measurement Data**

| Test channel | 20dB Occupy Bandwidth (kHz) |
|---|---|
| 10.54MHz | 548 |

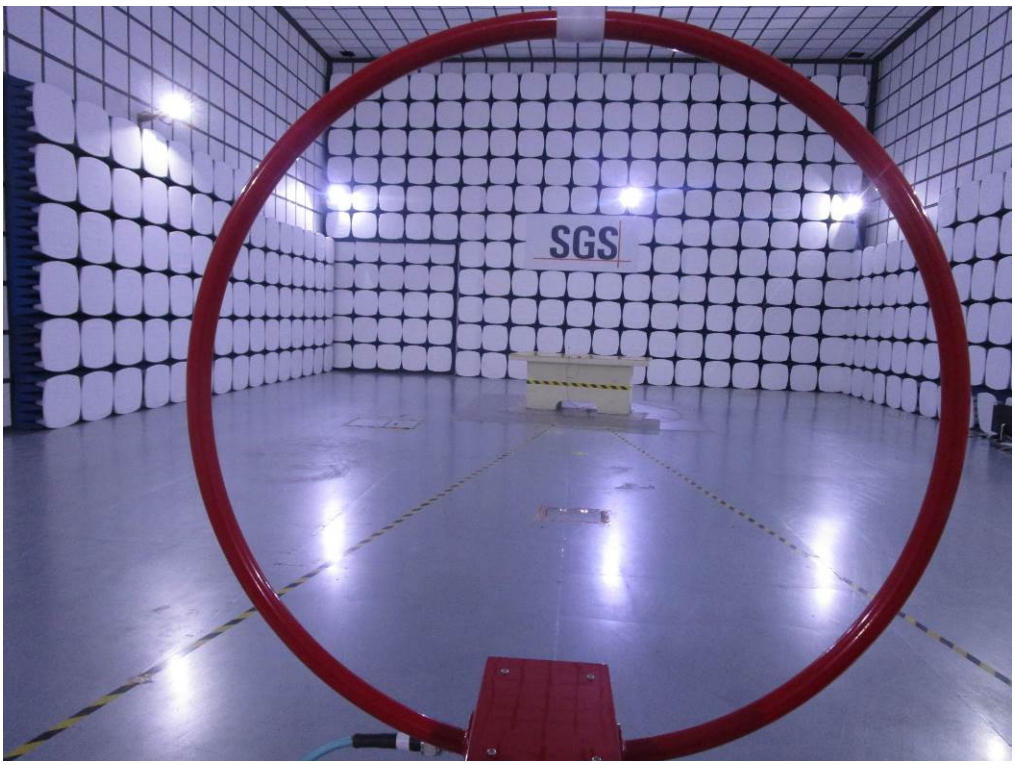


# 6 Photographs - EUT Test Setup

## 6.1 Radiatd Emission (30MHz-1000MHz)



## 6.2 Radiated Spurious Emission (Below 30MHz)




- End of the Report -