

TEST REPORT

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Report No.: 24061110HKG-001

Love to Dream Inc.

Application For Original Grant of 47 CFR Part 15 Certification

Love to Dream™ Sleep Machine LTD-SM23

FCC ID: 2BKAC-LTDSM23**Prepared and Checked by:**

Signed on File

Leung Chun Ning, Peter
Assistant Engineer**Approved by:**Wong Cheuk Ho, Herbert
Assistant Manager
Date: July 17, 2024

TEST REPORT

GENERAL INFORMATION

| | |
|------------------------------------|--|
| Grantee: | Love to Dream Inc. |
| Grantee Address: | 336 Bon Air Center #444, Greenbrae CA 94904, United States |
| FCC Specification Standard: | FCC Part 15, October 1, 2022 Edition |
| FCC ID: | 2BKAC-LTDSM23 |
| FCC Model(s): | LTD-SM23, LTD-SM23XXXXXX |
| Type of EUT: | Transceiver |
| Description of EUT: | Love to Dream™ Sleep Machine LTD-SM23 |
| Brand Name: | Love to Dream™ |
| Sample Receipt Date: | June 25, 2024 |
| Date of Test: | June 25, 2024 to July 12, 2024 |
| Report Date: | 24061110HKG-001 |
| Environmental Conditions: | Temperature: +10 to 40°C Relative Humidity: 10 to 90% |
| Conclusion: | Test was conducted by client submitted sample. The submitted sample as received complied with the 47 CFR Part 15 Certification. |

TEST REPORT**SUMMARY OF TEST RESULT**

| Test Items | FCC Part 15 Section | Results |
|--|---------------------|----------|
| Transmitter Power Line Conducted Emissions | 15.207 | Complied |
| Radiated Emission | 15.249, 15.209 | Complied |
| Radiated Emission on the Bandedge | | Complied |
| Radiated Emission in Restricted Bands | 15.205 | Complied |

The equipment under test is found to be complying with the following standards:

FCC Part 15, October 1, 2022 Edition

Note: 1. The EUT uses a permanently attached antenna which, in accordance to section 15.203, is considered sufficient to comply with the provisions of this section.
2. Pursuant to FCC Part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

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1.0 GENERAL DESCRIPTION

1.1 Product Description

The Equipment Under Test (EUT), is a 2.4GHz BT Transceiver for a Bluetooth Speaker. The sample supplied operated on 79 channels, normally at 2402 - 2480MHz. The channels are separated with 1MHz spacing.

The EUT is powered by 1 x 3.7V Lithium-ion battery. After switching on EUT, it can be paired up with a smartphone and will be used to play different sound based on the sound received from the paired smartphone.

All models in the series LTD-SM23XXXXXX are declared to be the same construction except different customer model and product color as declared by client.

Antenna Type: Internal, Integral

For electronic filing, the brief circuit description is saved with filename: Descri.pdf.

1.2 Related Submittal(s) Grants

This is a single application for certification of a transceiver (Bluetooth Portion).

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). All radiated measurements were performed in an 3m Chamber. Preliminary scans were performed in the 3m Chamber only to determine worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the **“Justification Section”** of this Application.

1.4 Test Facility

The 3m Chamber and conducted measurement facility used to collect the radiated data is located at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong SAR, China. This test facility and site measurement data have been placed on file with the FCC and IC No. 2042H, CABID is “HKAP01”.

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2.0 SYSTEM TEST CONFIGURATION

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.10 (2013).

The device was powered by 3.7VDC (1 x 3.7V Lithium-ion Battery).

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a plastic stand if necessary and placed on the wooden turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

2.2 EUT Exercising Software

The EUT exercise program (FCC Assist v1.0.4) used during radiated testing was designed to exercise the various system components in a manner similar to a typical use.

2.3 Support Equipment List and Description

| Description | Remark |
|----------------------------------|-----------------------|
| HP 820G1 Notebook | Provided by Intertek |
| 20.7cm USB Type-C Charging Cable | Provided by Applicant |

2.4 Measurement Uncertainty

Decision Rule for compliance: For FCC/IC standard, the measured value must be within the limits of applicable standard without accounting for the measurement uncertainty. For EN/IEC/HKTA/HKTC standard, conformity rules will be used as per standard directly excepted EN/IEC 61000-3-2, EN/IEC 61000-3-3, HKTA1004, HKCA1008, HKTA1019, HKTA1020, HKTA1041 and HKTA1044.

Uncertainty and Compliance - Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

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3.0 EMISSION RESULTS

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading.

The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG - AV$$

where FS = Field Strength in dB μ V/m

RA = Receiver Amplitude (including preamplifier) in dB μ V

AF = Antenna Factor in dB

CF = Cable Attenuation Factor in dB

AG = Amplifier Gain in dB

AV = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain.

An example for the calculations in the following table is as follows:

$$FS = RR + LF$$

where FS = Field Strength in dB μ V/m

RR = RA - AG - AV in dB μ V

LF = CF + AF in dB

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29.0 dB and average factor of 5.0 dB are subtracted, giving a field strength of 27.0 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

RA = 52.0 dB μ V/m

AF = 7.4 dB

RR = 18.0 dB μ V

CF = 1.6 dB

LF = 9.0 dB

AG = 29.0 dB

AV = 5.0 dB

FS = RR + LF

FS = 18.0 + 9.0 = 27.0 dB μ V/m

Level in μ V/m = Common Antilogarithm [(27.0 dB μ V/m)/20] = 22.4 μ V/m

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3.2 Radiated Emission Configuration Photograph

The worst case in radiated emission was found at 33.1525 MHz

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: Setup Photos.pdf.

3.3 Radiated Emission Data

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgment: Passed by 11.7 dB

3.4 Conducted Emission Configuration Photograph

The worst case in line-conducted emission was found at 0.15 MHz

For electronic filing, the worst-case line-conducted configuration photographs are saved with filename: Setup Photos.pdf.

3.5 Conducted Emission Data

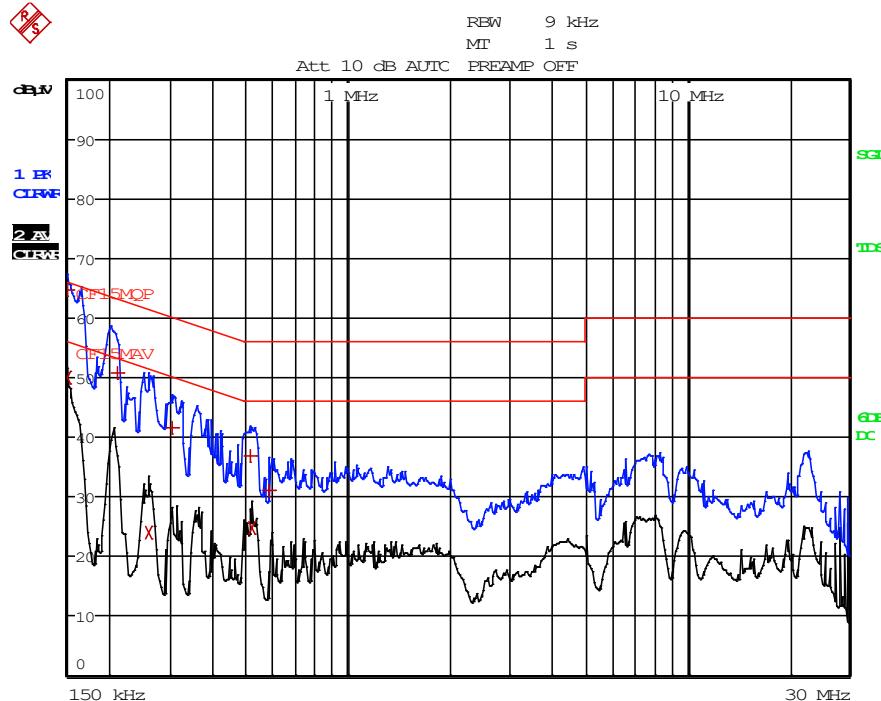
The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgment: Pass by 1.31 dB

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CONDUCTED EMISSION

Model: LTD-SM23
 Date of Test: July 12, 2024
 Worst-Case Operating Mode: Charging and Operating



| EDIT PEAK LIST (Final Measurement Results) | | | | | |
|--|-----------------------|------------|---------|----------|-----|
| Trace1: | CF15MOP | Trace2: | CF15MAV | Trace3: | --- |
| TRACE | FREQUENCY | LEVEL dBuV | DELTA | LIMIT dB | |
| 1 | Quasi Peak 150 kHz | 64.68 | L1 | -1.31 | |
| 2 | CISPR Average 150 kHz | 50.12 | L1 | -5.87 | |
| 1 | Quasi Peak 213 kHz | 50.70 | N | -12.38 | |
| 2 | CISPR Average 258 kHz | 24.03 | N | -27.46 | |
| 1 | Quasi Peak 303 kHz | 41.60 | L1 | -18.55 | |
| 1 | Quasi Peak 514.5 kHz | 36.89 | L1 | -19.10 | |
| 2 | CISPR Average 519 kHz | 24.83 | L1 | -21.16 | |
| 1 | Quasi Peak 586.5 kHz | 31.14 | N | -24.85 | |

Note: Measurement Uncertainty is $\pm 4.2\text{dB}$ at a level of confidence of 95%.

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RADIATED EMISSIONS

Model: LTD-SM23
 Date of Test: July 12, 2024
 Worst-Case Operating Mode: Transmitting

Table 1

Pursuant to FCC Part 15 Section 15.249 Requirement

Lowest Channel

| Polari-zation | Frequency (MHz) | Reading (dB μ V) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m - Average (dB μ V/m) | Average Limit at 3m (dB μ V/m) | Margin (dB) |
|---------------|-----------------|----------------------|-------------------|---------------------|------------------------------------|------------------------------------|-------------|
| V | 2402.000 | 71.9 | 33 | 29.4 | 68.3 | 94.0 | -25.7 |
| V | 4804.000 | 28.3 | 33 | 34.9 | 30.2 | 54.0 | -23.8 |
| V | 7206.000 | 27.1 | 33 | 37.9 | 32.0 | 54.0 | -22.0 |
| H | 9608.000 | 27.1 | 33 | 40.4 | 34.5 | 54.0 | -19.5 |
| H | 12010.000 | 29.3 | 33 | 40.5 | 36.8 | 54.0 | -17.2 |
| V | 14412.000 | 34.0 | 33 | 40.0 | 41.0 | 54.0 | -13.0 |

| Polari-zation | Frequency (MHz) | Reading (dB μ V) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m - Peak (dB μ V/m) | Peak Limit at 3m (dB μ V/m) | Margin (dB) |
|---------------|-----------------|----------------------|-------------------|---------------------|---------------------------------|---------------------------------|-------------|
| V | 2402.000 | 83.6 | 33 | 29.4 | 80.0 | 114.0 | -34.0 |
| V | 4804.000 | 41.5 | 33 | 34.9 | 43.4 | 74.0 | -30.6 |
| V | 7206.000 | 40.6 | 33 | 37.9 | 45.5 | 74.0 | -28.5 |
| H | 9608.000 | 40.4 | 33 | 40.4 | 47.8 | 74.0 | -26.2 |
| H | 12010.000 | 42.8 | 33 | 40.5 | 50.3 | 74.0 | -23.7 |
| V | 14412.000 | 47.2 | 33 | 40.0 | 54.2 | 74.0 | -19.8 |

Notes:

1. Peak Detector Data unless otherwise stated.
2. Average detector is applied according to ANSI C63.10.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205
7. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

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RADIATED EMISSIONS

Model: LTD-SM23
 Date of Test: July 12, 2024
 Worst-Case Operating Mode: Transmitting

Table 2

Pursuant to FCC Part 15 Section 15.249 Requirement

Middle Channel

| Polari-zation | Frequency (MHz) | Reading (dB μ V) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m - Average (dB μ V/m) | Average Limit at 3m (dB μ V/m) | Margin (dB) |
|---------------|-----------------|----------------------|-------------------|---------------------|------------------------------------|------------------------------------|-------------|
| V | 2440.000 | 74.1 | 33 | 29.4 | 70.5 | 94.0 | -23.5 |
| V | 4880.000 | 30.0 | 33 | 34.9 | 31.9 | 54.0 | -22.1 |
| V | 7320.000 | 27.8 | 33 | 37.9 | 32.7 | 54.0 | -21.3 |
| H | 9760.000 | 28.0 | 33 | 40.4 | 35.4 | 54.0 | -18.6 |
| V | 12200.000 | 29.5 | 33 | 40.5 | 37.0 | 54.0 | -17.0 |
| H | 14640.000 | 35.3 | 33 | 38.4 | 40.7 | 54.0 | -13.3 |

| Polari-zation | Frequency (MHz) | Reading (dB μ V) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m - Peak (dB μ V/m) | Peak Limit at 3m (dB μ V/m) | Margin (dB) |
|---------------|-----------------|----------------------|-------------------|---------------------|---------------------------------|---------------------------------|-------------|
| V | 2440.000 | 86.5 | 33 | 29.4 | 82.9 | 114.0 | -31.1 |
| V | 4880.000 | 42.4 | 33 | 34.9 | 44.3 | 74.0 | -29.7 |
| V | 7320.000 | 41.0 | 33 | 37.9 | 45.9 | 74.0 | -28.1 |
| H | 9760.000 | 41.0 | 33 | 40.4 | 48.4 | 74.0 | -25.6 |
| V | 12200.000 | 43.0 | 33 | 40.5 | 50.5 | 74.0 | -23.5 |
| H | 14640.000 | 48.4 | 33 | 38.4 | 53.8 | 74.0 | -20.2 |

Notes:

1. Peak Detector Data unless otherwise stated.
2. Average detector is applied according to ANSI C63.10.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205
7. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

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RADIATED EMISSIONS

Model: LTD-SM23
 Date of Test: July 12, 2024
 Worst-Case Operating Mode: Transmitting

Table 3

Pursuant to FCC Part 15 Section 15.249 Requirement

Highest Channel

| Polari-zation | Frequency (MHz) | Reading (dB μ V) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m - Average (dB μ V/m) | Average Limit at 3m (dB μ V/m) | Margin (dB) |
|---------------|-----------------|----------------------|-------------------|---------------------|------------------------------------|------------------------------------|-------------|
| H | 2480.000 | 73.5 | 33 | 29.4 | 69.9 | 94.0 | -24.1 |
| V | 4960.000 | 33.8 | 33 | 34.9 | 35.7 | 54.0 | -18.3 |
| V | 7440.000 | 27.7 | 33 | 37.9 | 32.6 | 54.0 | -21.4 |
| V | 9920.000 | 27.4 | 33 | 40.4 | 34.8 | 54.0 | -19.2 |
| V | 12400.000 | 30.0 | 33 | 40.5 | 37.5 | 54.0 | -16.5 |
| V | 14880.000 | 34.8 | 33 | 38.4 | 40.2 | 54.0 | -13.8 |

| Polari-zation | Frequency (MHz) | Reading (dB μ V) | Pre-Amp Gain (dB) | Antenna Factor (dB) | Net at 3m - Peak (dB μ V/m) | Peak Limit at 3m (dB μ V/m) | Margin (dB) |
|---------------|-----------------|----------------------|-------------------|---------------------|---------------------------------|---------------------------------|-------------|
| H | 2480.000 | 85.1 | 33 | 29.4 | 81.5 | 114.0 | -32.5 |
| V | 4960.000 | 44.9 | 33 | 34.9 | 46.8 | 74.0 | -27.2 |
| V | 7440.000 | 41.1 | 33 | 37.9 | 46.0 | 74.0 | -28.0 |
| V | 9920.000 | 41.1 | 33 | 40.4 | 48.5 | 74.0 | -25.5 |
| V | 12400.000 | 43.5 | 33 | 40.5 | 51.0 | 74.0 | -23.0 |
| V | 14880.000 | 48.0 | 33 | 38.4 | 53.4 | 74.0 | -20.6 |

Notes:

1. Peak Detector Data unless otherwise stated.
2. Average detector is applied according to ANSI C63.10.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205
7. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

TEST REPORT**RADIATED EMISSIONS**

Model: LTD-SM23
Date of Test: July 12, 2024
Worst-Case Operating Mode: Charging and Operating

Table 4

Pursuant to FCC Part 15 Section 15.209 Requirement

| Polarization | Frequency (MHz) | Reading (dB μ V) | Pre-amp (dB) | Antenna Factor (dB) | Net at 3m (dB μ V/m) | Limit at 3m (dB μ V/m) | Margin (dB) |
|--------------|-----------------|----------------------|--------------|---------------------|--------------------------|----------------------------|-------------|
| V | 32.304 | 33.9 | 16 | 10.0 | 27.9 | 40.0 | -12.1 |
| V | 33.153 | 34.3 | 16 | 10.0 | 28.3 | 40.0 | -11.7 |
| V | 35.699 | 31.9 | 16 | 10.0 | 25.9 | 40.0 | -14.1 |
| V | 89.534 | 30.3 | 16 | 9.0 | 23.3 | 43.5 | -20.2 |
| H | 358.345 | 18.1 | 16 | 24.0 | 26.1 | 46.0 | -19.9 |
| V | 575.989 | 18.9 | 16 | 28.0 | 30.9 | 46.0 | -15.1 |

Notes:

1. Peak Detector Data unless otherwise stated.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna is used for the emission over 1000MHz.
5. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205.
6. Measurement Uncertainty is ± 5.3 dB at a level of confidence of 95%.

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4.0 EQUIPMENT PHOTOGRAPHS

For electronic filing, the photographs are saved with filename: External Photos.pdf and Internal Photos.pdf.

5.0 PRODUCT LABELLING

For electronics filing, the FCC ID label artwork and the label location are saved with filename: Label.pdf.

6.0 TECHNICAL SPECIFICATIONS

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: Block.pdf and Circuit.pdf respectively.

7.0 INSTRUCTION MANUAL

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: Manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

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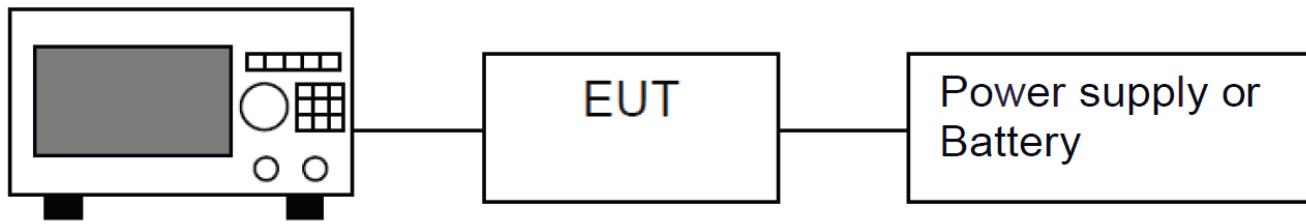
8.0 MISCELLANEOUS INFORMATION

The miscellaneous information includes details of the test procedure and measured bandwidth / calculation of factor such as pulse desensitization and averaging factor (calculation and timing diagram).

8.1 Radiated Emission on the Bandedge

From the following plots, they show that the fundamental emissions are confined in the specified band (2400MHz to 2483.5MHz). In case of the fundamental emissions are within two standard bandwidths from the bandedge, the delta measurement technique is used for determining bandedge compliance. Standard bandwidth is the bandwidth specified by ANSI C63.10 (2013) for frequency being measured.

Emissions radiated outside of the specified frequency bands, except harmonics, are attenuated by 50dB below the level of the fundamental or to the general radiated emissions limits in Section 15.209, whichever is the lesser attenuation, which meet the requirement of Part 15.249(d).

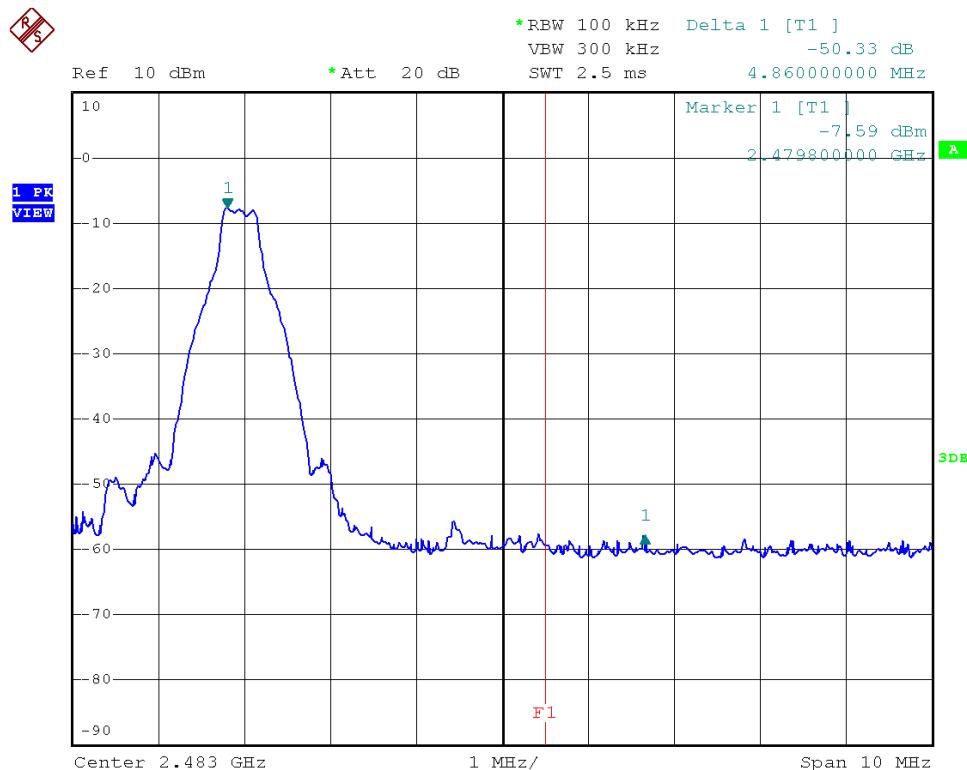
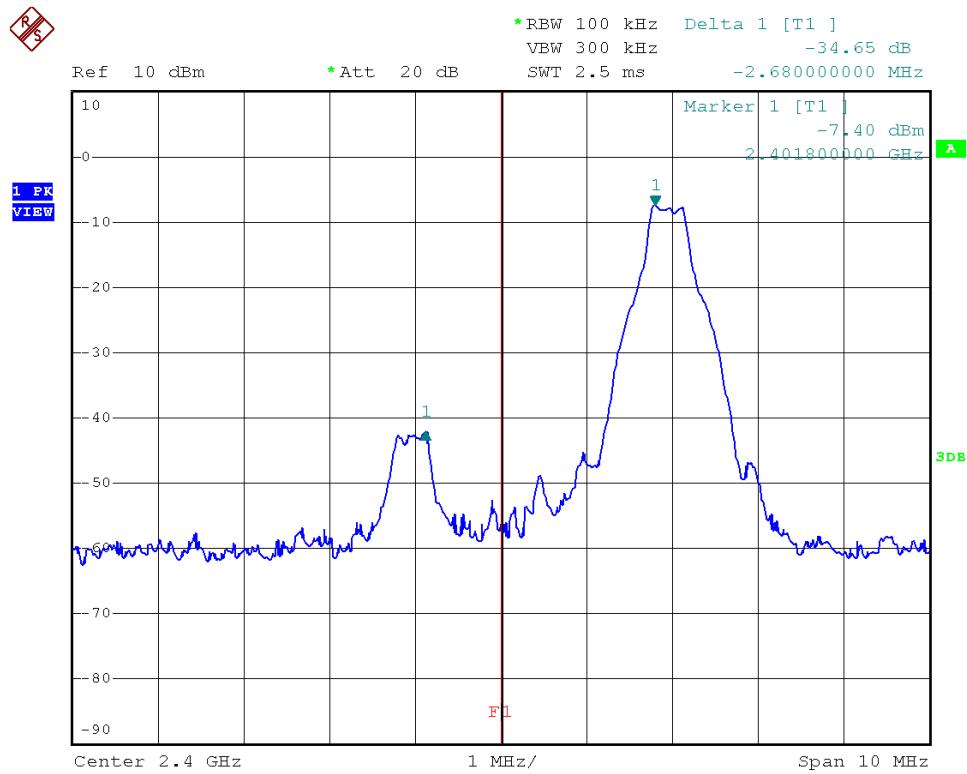


Spectrum Analyzer

Block diagram of Test setup

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PEAK MEASUREMENT (Bluetooth)



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PEAK MEASUREMENT (Bluetooth)

Bandedge compliance is determined by applying marker-delta method, i.e. (Bandedge Plot).

Lower Bandedge

Peak Resultant Field Strength = Fundamental Emissions (Peak Value) – delta from the plot

$$= 80.0 \text{ dB}\mu\text{V/m} - 34.7 \text{ dB}$$

$$= 45.3 \text{ dB}\mu\text{V/m}$$

Average Resultant Field Strength = Fundamental Emissions (Average Value) – delta from the plot

$$= 68.3 \text{ dB}\mu\text{V/m} - 34.7 \text{ dB}$$

$$= 33.6 \text{ dB}\mu\text{V/m}$$

Upper Bandedge

Peak Resultant Field Strength = Fundamental Emissions (Peak Value) – delta from the plot

$$= 81.5 \text{ dB}\mu\text{V/m} - 50.3 \text{ dB}$$

$$= 31.2 \text{ dB}\mu\text{V/m}$$

Average Resultant Field Strength = Fundamental Emissions (Average Value) – delta from the plot

$$= 69.9 \text{ dB}\mu\text{V/m} - 50.3 \text{ dB}$$

$$= 19.6 \text{ dB}\mu\text{V/m}$$

The resultant field strength meets the general radiated emission limit in Section 15.209, which does not exceed 74 dB μ V/m (Peak Limit) and 54 dB μ V/m (Average Limit).

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8.2 Discussion of Pulse Desensitization

Pulse desensitivity is not applicable for this device. The effective period (Teff) is approximately $625\mu\text{s}$ for a digital “1” bit which illustrated on technical specification, with a resolution bandwidth (3dB) of 3MHz, so the pulse desensitivity factor is 0dB.

8.3 Calculation of Average Factor

Not Applicable

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8.4 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services Hong Kong Ltd. in the measurements of transmitter operating under the Part 15, Subpart C rules.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately 0.8m in height above the ground plane for emission measurement at or below 1GHz and 1.5m in height above the ground plane for emission measurement above 1GHz. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusted through all three orthogonal axis to obtain maximum emission levels. The antenna height and polarization are also varied during the testing to search for maximum signal levels. The height of the antenna is varied from one to four meters.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in Exhibit 8.3.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower.

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements were made as described in ANSI C63.10 (2013).

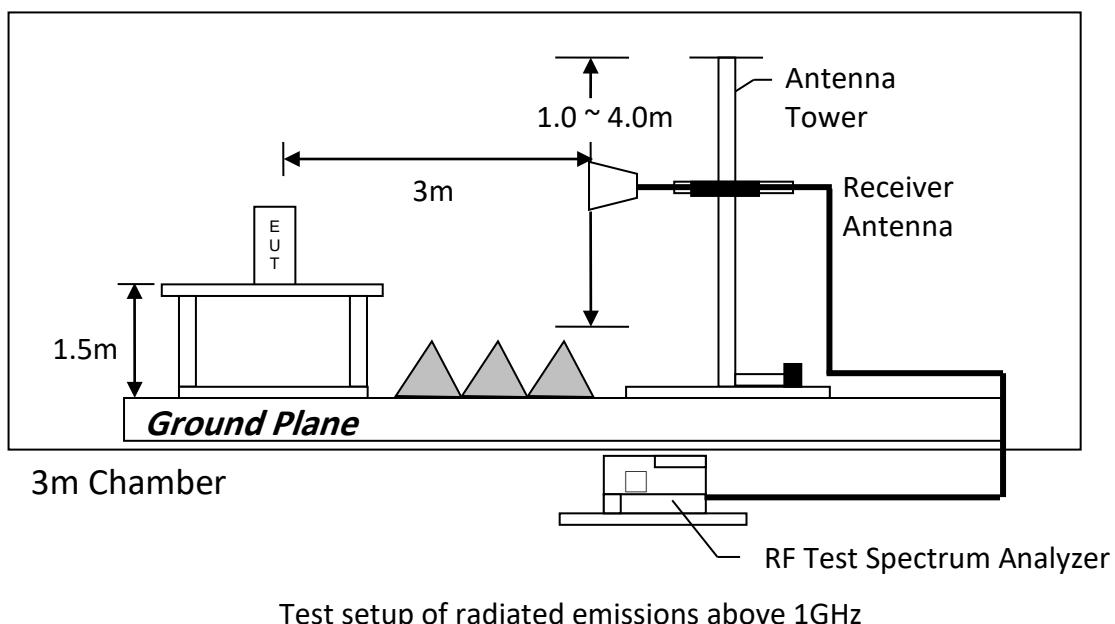
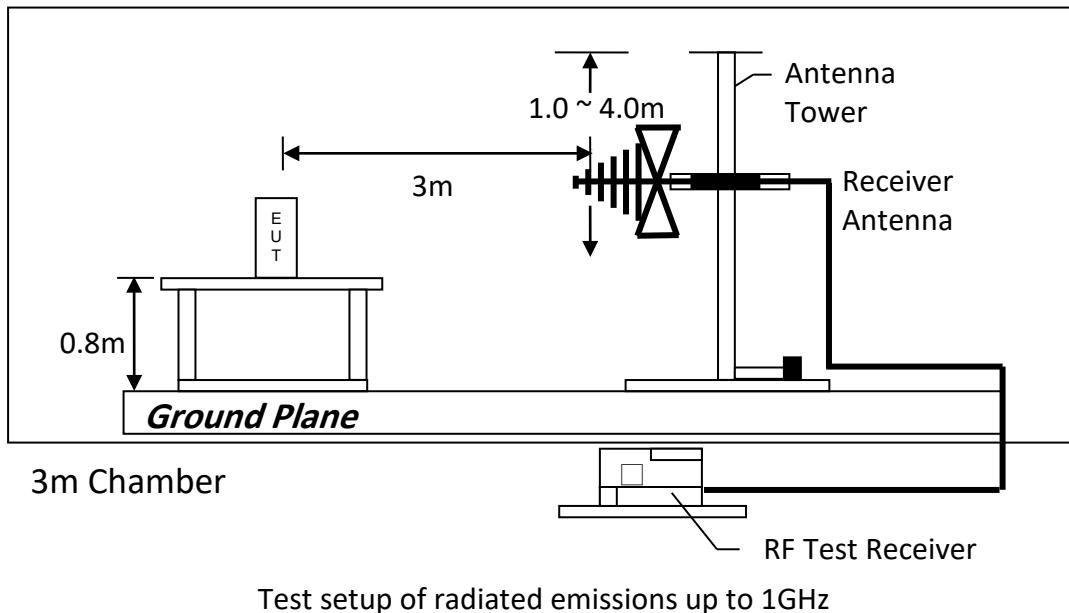
The IF bandwidth used for measurement of radiated signal strength was 100 kHz or greater when frequency is below 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. A discussion of whether pulse desensitivity is applicable to this unit is included in this report (See Exhibit 8.1). Above 1000 MHz, a resolution bandwidth of 1 MHz is used.

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the forbidden bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, unless otherwise reported. Measurements taken at a closer distance are so marked.

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8.4.1 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



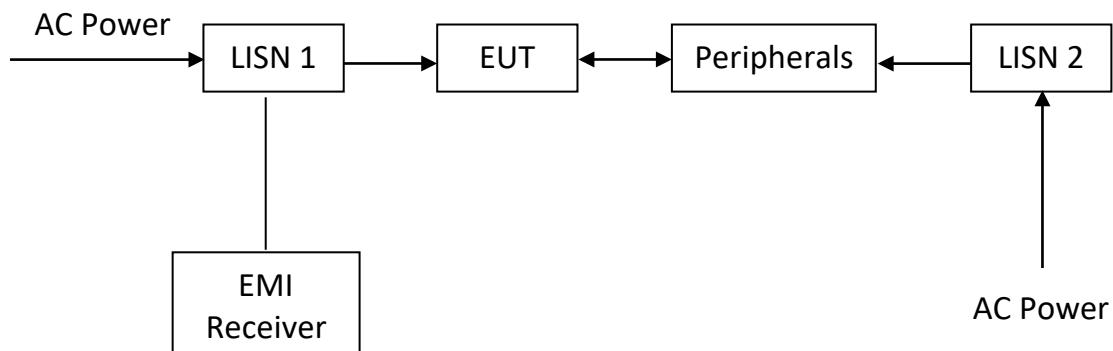
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8.4.2 Conducted Emission Test Procedures

For tabletop equipment, the EUT along with its peripherals were placed on a 1.0m(W)×1.5m(L) and 0.8m in height wooden table. For floor-standing equipment, the EUT and all cables were insulated, if required, from the ground plane by up to 12 mm of insulating material. The EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled.

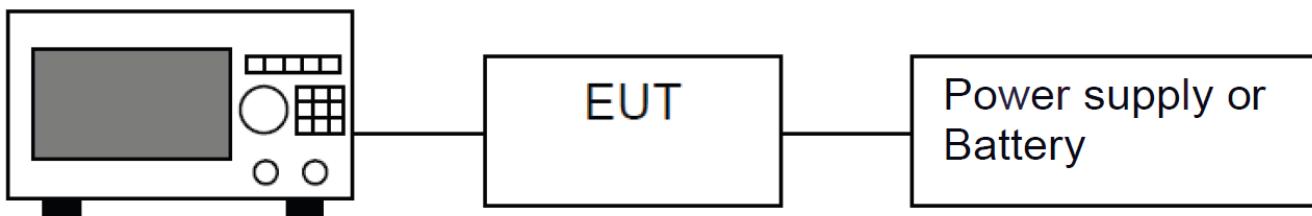
All connecting cables of EUT and peripherals were moved to find the maximum emission.

8.4.3 Conducted Emission Test Setup



TEST REPORT

8.5 Occupied Bandwidth



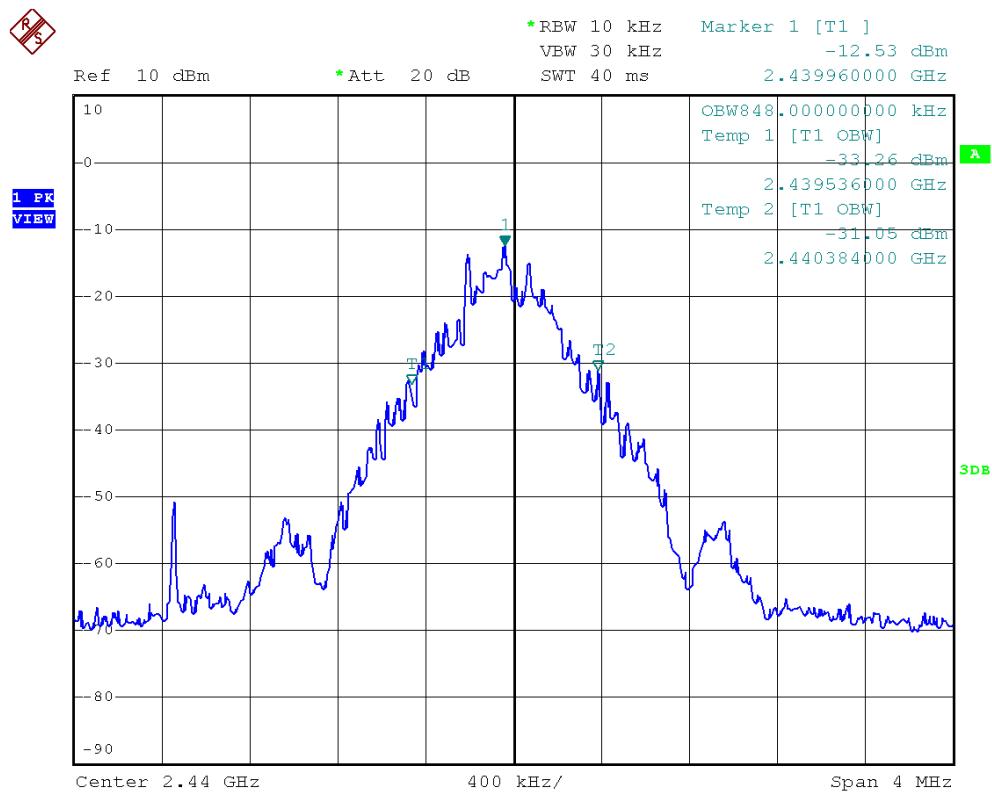
Spectrum Analyzer

Block diagram of Test setup

Occupied Bandwidth Results: (Bluetooth)

| Bluetooth (MHz) | Occupied Bandwidth (kHz) |
|----------------------|--------------------------|
| Low Channel: 2402 | 840 |
| Middle Channel: 2440 | 848 |
| High Channel: 2480 | 840 |

The worst case is shown as below:



TEST REPORT

9.0 CONFIDENTIALITY REQUEST

For electronic filing, a preliminary copy of the confidentiality request is saved with filename: Request.pdf.

10.0 EQUIPMENT LIST

1) Radiated Emissions Test

| Equipment | EMI Test Receiver (9kHz to 26.5GHz) | Biconical Antenna (30MHz to 300MHz) | Log Periodic Antenna |
|----------------------|-------------------------------------|-------------------------------------|----------------------|
| Registration No. | EW-3156 | EW-3242 | EW-3243 |
| Manufacturer | ROHDE SCHWARZ | EMCO | EMCO |
| Model No. | ESR26 | 3110C | 3148B |
| Calibration Date | January 31, 2024 | April 26, 2022 | October 30, 2022 |
| Calibration Due Date | January 31, 2025 | July 26, 2024 | July 30, 2024 |

| Equipment | Double Ridged Guide Antenna (1GHz - 18GHz) | Active Loop Antenna (H-field) (9kHz to 30MHz) | RF Preamplifier (9kHz to 6000MHz) |
|----------------------|--|---|-----------------------------------|
| Registration No. | EW-0194 | EW-3326 | EW-3006b |
| Manufacturer | EMCO | EMCO | SCHWARZBECK |
| Model No. | 3115 | 6502 | BBV9718 |
| Calibration Date | May 10, 2023 | January 05, 2024 | October 20, 2023 |
| Calibration Due Date | November 10, 2024 | July 05, 2025 | October 20, 2024 |

| Equipment | 2.4GHz Notch Filter | 14m Double Shield RF Cable (9kHz - 6GHz) | RF Cable 14m (1GHz to 26.5GHz) |
|----------------------|---------------------|--|--------------------------------|
| Registration No. | EW-3435 | EW-2376 | EW-2781 |
| Manufacturer | MICROWAVE | RADIALL | GREATBILLION |
| Model No. | N0324413 | n m/br56/bnc m 14m | SMA m/SHF5MPU /SMA m ra14m,26G |
| Calibration Date | September 26, 2023 | September 19, 2023 | January 16, 2024 |
| Calibration Due Date | September 26, 2024 | September 19, 2024 | January 16, 2025 |

| Equipment | 12 metre RF Cable (1-40)GHz | Pyramidal Horn Antenna |
|----------------------|-----------------------------|------------------------|
| Registration No. | EW-2774 | EW-0905 |
| Manufacturer | GREATBILLION | EMCO |
| Model No. | SMA m-m ra 12m 40G outdoor | 3160-09 |
| Calibration Date | January 16, 2024 | December 15, 2023 |
| Calibration Due Date | January 16, 2025 | June 15, 2025 |

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2) Conducted Emissions Test

| Equipment | 14m Double Shield RF Cable (9kHz - 6GHz) | Artificial Mains Network | EMI Test Receiver (9kHz to 3GHz) |
|----------------------|--|-----------------------------|-------------------------------------|
| Registration No. | EW-2376 | EW-3360 | EW-3095 |
| Manufacturer | RADIALL | ROHDE SCHWARZ | ROHDE SCHWARZ |
| Model No. | n m/br56/bnc m 14m | ENV-216 | ESCI |
| Calibration Date | September 19, 2023 | April 07, 2024 | January 18, 2024 |
| Calibration Due Date | September 19, 2024 | April 07, 2025 | January 18, 2025 |

3) Bandedge & Bandwidth Measurement

| Equipment | EMI Test Receiver (9kHz to 3GHz) |
|----------------------|-------------------------------------|
| Registration No. | EW-3095 |
| Manufacturer | ROHDE SCHWARZ |
| Model No. | ESCI |
| Calibration Date | January 18, 2024 |
| Calibration Due Date | January 18, 2025 |

4) Control Software for Radiated Emission

| Software Information | |
|----------------------|---------------|
| Software Name | EMC32 |
| Manufacturer | ROHDE SCHWARZ |
| Software version | 10.50.40 |

END OF TEST REPORT