

FCC Test Report

Report No.: AGC01165221101FE10

FCC ID : 2A5K5-MBS5R

APPLICATION PURPOSE Original Equipment

PRODUCT DESIGNATION: Mooas Retro Radio Speaker Wireless Charging Desk Clock

BRAND NAME : N/A

MODEL NAME : MBS5R

APPLICANT: mooas Inc.

DATE OF ISSUE : Dec. 12, 2022

STANDARD(S) : FCC Part 15 Subpart C

REPORT VERSION: V 1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd





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REPORT REVISE RECORD

| Report Version | Revise Time | Issued Date | Valid Version | Notes |
|----------------|-------------|---------------|---------------|-----------------|
| V1.0 | / | Dec. 12, 2022 | Valid | Initial Release |



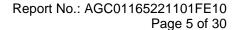
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1. GENERAL INFORMATION

| Applicant | mooas Inc. | |
|------------------------------|---|--|
| Address | C-819-822, Munjeong Hyundai Knowledge Industry Center, 7, Beobwon-ro 11-gil, Songpa-gu, Seoul 05836, Korea | |
| Manufacturer | Shenzhen iHold Technology Co., ltd | |
| Address | 4th Floor, Building D, Huafeng No.1 Technology Park, Sanwei Xixiang, Bao'an, Shenzhen, Guangdong 518102, China. | |
| Factory | Shenzhen iHold Technology Co., ltd | |
| Address | 4th Floor, Building D, Huafeng No.1 Technology Park, Sanwei Xixiang, Bao'an, Shenzhen, Guangdong 518102, China. | |
| Product Designation | Mooas Retro Radio Speaker Wireless Charging Desk Clock | |
| Brand Name | N/A | |
| Test Model | MBS5R | |
| Date of receipt of test item | Nov. 15, 2022 | |
| Date of test | Nov. 15, 2022 to Dec. 10, 2022 | |
| Deviation from Standard | No any deviation from the test method | |
| Test Result | Pass | |
| Test Report Form No | AGCTR-ER-FCC-WPTV1.0 | |

| Prepared By | Alan Duan | |
|-------------|-----------------------------------|---------------|
| | Alan Duan (Project Engineer) | Dec. 12, 2022 |
| Reviewed By | Calvin Lin | |
| | Calvin Liu (Reviewer) | Dec. 12, 2022 |
| Approved By | Max Zhang | |
| | Max Zhang (Authorized Officer) | Dec. 12, 2022 |



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2. PRODUCT INFORMATION

2.1 PRODUCT TECHNICAL DESCRIPTION

| Hardware Version | V3.0 |
|-------------------------------|---|
| Software Version | V1.0 |
| Operation Frequency | 110.5KHz-205KHz |
| Modulation Type | ASK |
| Number of channels | 1 Channel |
| Field Strength of Fundamental | 65.42dBuV/m (Max) |
| Antenna Designation | Coil Antenna |
| Antenna Gain | 0dBi |
| Power Supply | Type-C Input:DC 5V2A, DC 9V2A Wireless Output:5W/10W Capacity:1200mAh/3.7V/4.44Wh |
| Adapter Information | N/A |

2.2 TEST FREQUENCY LIST

| Frequency Band | Channel Number | Frequency |
|-----------------|----------------|-----------|
| 110.5KHz-205KHz | 01 | 124.2 KHz |



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2.3 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2A5K5-MBS5R** filing to comply with Part 2, Part 15 of the Federal Communication Commission rules.

2.4 TEST METHODOLOGY

The tests were performed according to following standards:

| No. | Identity | Document Title | | |
|-----|--------------------|---|--|--|
| 1 | FCC 47 CFR Part 2 | Frequency allocations and radio treaty matters; general rules and regulations | | |
| 2 | FCC 47 CFR Part 15 | Radio Frequency Devices | | |
| 3 | ANSI C63.10-2013 | American National Standard for Testing Unlicensed Wireless Devices | | |

2.5 SPECIAL ACCESSORIES

Not available for this EUT intended for grant.

2.6 EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

2.7 ANTENNA REQUIREMENT

Standard Requirement

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antennathat uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a brokenantenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna is 0 dBi.



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3. TEST ENVIRONMENT

3.1 ADDRESS OF THE TEST LABORATORY

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 TEST FACILITY

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

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842 (CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.



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3.3 ENVIRONMENTAL CONDITIONS

| NORMAL CONDITIONS | EXTREME CONDITIONS |
|-------------------|------------------------|
| 15 - 35 | -20 - 50 |
| 20 % - 75 % | 20 % - 75 % |
| 86 - 106 | 86 - 106 |
| | |
| | 15 - 35 20 % - 75 % |

Note: The Extreme Temperature and Extreme Voltages declared by the manufacturer.

3.4 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

| Item | Measurement Uncertainty |
|---|----------------------------|
| Uncertainty of Conducted Emission for AC Port | $U_c = \pm 2.9 \text{ dB}$ |
| Uncertainty of Radiated Emission below 150kHz | $U_c = \pm 4.2 \text{ dB}$ |
| Uncertainty of Radiated Emission below 30MHz | $U_c = \pm 3.8 \text{ dB}$ |
| Uncertainty of Radiated Emission below 1GHz | $U_c = \pm 4.0 \text{ dB}$ |
| Uncertainty of total RF power, conducted | $U_c = \pm 0.8 \text{ dB}$ |
| Uncertainty of RF power density, conducted | $U_c = \pm 2.6 \text{ dB}$ |
| Uncertainty of spurious emissions, conducted | $U_c = \pm 2.7 \%$ |
| Uncertainty of Occupied Channel Bandwidth | $U_c = \pm 2 \%$ |



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3.5 LIST OF EQUIPMENTS USED

| Equipment | Manufacturer | Model | S/N | Cal. Date | Cal. Due |
|--------------------------------------|--------------|----------|---------------------|---------------|---------------|
| Test Receiver | R&S | ESPI | 101206 | Mar. 28, 2022 | Mar. 27, 2023 |
| Artificial power network | R&S | ESH2-Z5 | 100086 | Jun. 08, 2022 | Jun. 07, 2023 |
| Test Software | FARA | EZ-EMC | Ver. AGC-CON03A1 | N/A | N/A |
| Test Receiver | R&S | ESCI | 10096 | Mar. 28, 2022 | Mar. 27, 2023 |
| EXA Signal Analyzer | Agilent | N9010A | MY53470504 | Aug. 04, 2022 | Aug. 03, 2023 |
| Active Loop Antenna (9K-30Mhz) | ZHINAN | ZN30900C | 18051 | Mar. 12, 2022 | Mar. 11, 2024 |
| Wideband Antenna | SCHWARZBECK | VULB9168 | VULB9168-494 | Jan. 08, 2021 | Jan. 07, 2023 |
| Test Software | FARA | EZ-EMC | Ver.RA-03A | N/A | N/A |



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4.SYSTEM TEST CONFIGURATION

4.1 EUT CONFIGURATION

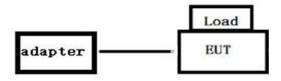
The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT EXERCISE

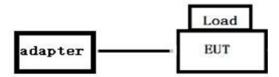
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 CONFIGURATION OF TESTED SYSTEM

Radiated Emission Configure:



Conducted Emission Configure:



4.4 EQUIPMENT USED IN TESTED SYSTEM

The Following Peripheral Devices And Interface Cables Were Connected During The Measurement:

☐ Test Accessories Come From The Laboratory

| Item | Equipment | Model No. | Identifier | Note |
|------|------------------------|--------------|---------------|-------------|
| 1 | Adapter | HW-050200C01 | DC 9V | Accessories |
| 2 | Wireless charging load | N/A | N/A | Accessories |
| 3 | Charger line | N/A | 1.6m shielded | Accessories |
| 4 | Mobile Phone | iPhone12 | N/A | Accessories |

□ Test Accessories Come From The Manufacturer

| Item | Equipment | Model No. | Identifier | Note |
|------|---|-----------|-------------|------|
| 1 | Mooas Retro Radio Speaker Wireless Charging Desk Clock | MBS5R | 2A5K5-MBS5R | EUT |



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4.5 SUMMARY OF TEST RESULTS

| Item | FCC Rules | Description Of Test | Result |
|------|---------------|----------------------------------|--------|
| 1 | §15.203 | Antenna Equipment | Pass |
| 2 | §15.209(a)(f) | Radiated Spurious Emission | Pass |
| 3 | §15.215(c) | 20dB Bandwidth | Pass |
| 4 | §15.205(a) | Restricted Bands of Operation | Pass |
| 5 | §15.207 | AC Power Line Conducted Emission | Pass |



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5. DESCRIPTION OF TEST MODES

| | Summary table of Test Cases |
|-----------------------|---|
| Test Item | Equipment type / Modulation |
| rest item | WPT_(TX:124.2KHz)/ ASK |
| | Mode 1: AC/DC Adapter+EUT+Wireless load(Full load) |
| | Mode 2: AC/DC Adapter+EUT +Wireless load(Half load) |
| Radiated&Conducted | Mode 3: AC/DC Adapter+EUT+ Wireless load(Null load) |
| Test Cases | Mode 4: EUT+ Wireless load(Full load) |
| | Mode 5: EUT+ Wireless load(Half load) |
| | Mode 6: EUT+ Wireless load(Null load) |
| | Mode 1: AC/DC Adapter+EUT+Wireless load(Full load) |
| AC Conducted Emission | Mode 2: AC/DC Adapter+EUT +Wireless load(Half load) |
| | Mode 3: AC/DC Adapter+EUT+ Wireless load(Null load) |

Note:

- 1. Only the result of the worst case was recorded in the report, if no other cases.
- 2. The battery is full-charged during the test.
- 3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.



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6. FIELD STRENGTH OF FUNDAMENTAL

6.1 PROVISIONS APPLICABLE

| Test Requirement: | FCC Part15 C Secti | on 15.209 | | | | | | |
|-----------------------|--------------------|--------------|--------|--------|------------|--|--|--|
| Test Method: | ANSI C63.10:2013 | | | | | | | |
| Test Frequency Range: | 9kHz to 1GHz | 9kHz to 1GHz | | | | | | |
| Test site: | Measurement Dista | nce: 3m | | | | | | |
| | Frequency | Detector | RBW | VBW | Value | | | |
| | 9KHz-150KHz | Quasi-peak | 200Hz | 600Hz | Quasi-peak | | | |
| Receiver setup: | 150KHz-30MHz | Quasi-peak | 9KHz | 30KHz | Quasi-peak | | | |
| ixeceivei setup. | 30MHz-1GHz | Quasi-peak | 100KHz | 300KHz | Quasi-peak | | | |
| | Above 4CLIz | Peak | 1MHz | 3MHz | Peak | | | |
| | Above 1GHz | Peak | 1MHz | 10Hz | Average | | | |
| | | | | | | | | |

Limits for frequency below 30MHz

| Frequency | Limit (uV/m) | Measurement Distance(m) | Remark |
|-------------|--------------|-------------------------|------------------|
| 0.009-0.490 | 2400/F(kHz) | 300 | Quasi-peak Value |
| 0.490-1.705 | 24000/F(kHz) | 30 | Quasi-peak Value |
| 1.705-30 | 30 | 30 | Quasi-peak Value |

Limits for frequency Above 30MHz

| Frequency | Limit (dBuV/m @3m) | Remark |
|---------------|--------------------|------------------|
| 30MHz-88MHz | 40.00 | Quasi-peak Value |
| 88MHz-216MHz | 43.50 | Quasi-peak Value |
| 216MHz-960MHz | 46.00 | Quasi-peak Value |
| 960MHz-1GHz | 54.00 | Quasi-peak Value |
| Above 1GHz | 54.00 | Average Value |
| Above IGHZ | 74.00 | Peak Value |

Remark: (1) Emission level dB μ V = 20 log Emission level μ V/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.



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6.2 MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.



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6.3 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 $FS = Field Strength in dB\mu V/m$

RA = Receiver Amplitude (including preamplifier) in dBµV

CF = Cable Attenuation Factor in dB

AF = Antenna Factor in dB/m 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 $dB\mu V/m$ RR = RA - AG - AV in $dB\mu V$ LF = CF + AF in dB

Assume a receiver reading of $52.0 \text{ dB}\mu\text{V}$ is obtained. The antenna factor of 7.4 dB/m and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dB $\mu\text{V/m}$.

This value in dBµV/m was converted to its corresponding level in µV/m.

 $RA = 52.0 dB\mu V/m$

AF = 7.4 dB/m $RR = 18.0 \text{ dB}\mu\text{V}$ CF = 1.6 dB LF = 9.0 dB

AG = 29.0 dBAV = 5.0 dB

FS = RR + LF

 $FS = 18 + 9 = 27 dB\mu V/m$

Level in μ V/m = Common Antilogarithm [(27 dB μ V/m)/20] = 22.4 μ V/m

Magnetic field strength calculation (9 kHz – 30 MHz)

When the limit is in terms of magnetic field, the following equation applies:

 $H[dB(\mu A/m)] = V[dB(\mu V)] + LC[dB] - GPA[dB] + AFH[dB(S/m)]$

Where,

H is the magnetic field strength (to be compared with the limit),

V is the voltage level measured by the receiver or spectrum analyzer,

LC is the cable loss,

GPA is the gain of the preamplifier (if used), and

AFH is the magnetic antenna factor.

If the "electrical" antenna factor is used instead, the above equation becomes:

 $H[dB(\mu A/m)] = V[dB(\mu V)] + LC[dB] - GPA[dB] + AFE[dB(m-1)] - 51.5[dB\Omega]$

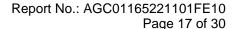
where AFE is the "electric" antenna factor, as provided by the antenna calibration laboratory.

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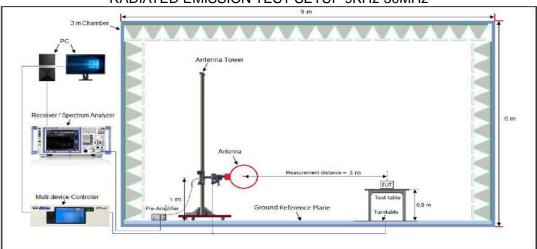
Tel: +86-755 2523 4088 E-mail: agc@agccert.com Web: http://www.agccert.com/



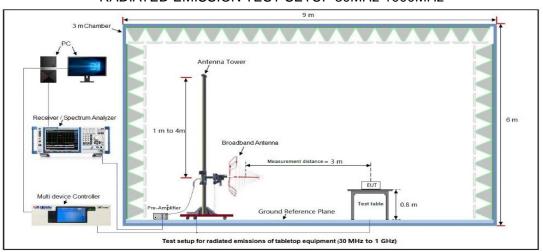


6.4 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)

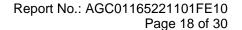
RADIATED EMISSION TEST SETUP 9KHz-30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209 and FCC 15.205 limits.



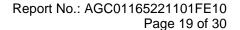


6.5 MEASUREMENT RESULTS

ELECTRIC FIELD TEST IN THE FREQUENCY RANGE 9KHz-150KHz

| | | Monas Retro | Radio Spea | ker | | | z-150KHz | | |
|----------------------|--------|--|--|--|---|--|--|-------------------------|--|
| EUT | | | arging Desk (| | Model Name | | MBS5R | | |
| Temperature | | 21°C | | | Relative Hum | nidity | 52% | | |
| Pressure | | 985hPa | | | Test Voltage | | Normal Voltage | | |
| Test Mode | | Mode 1 | | | Antenna | | Face | | |
| 130.0 d | IBuV/m | | | | | | Limi | it: — rgin: — | |
| \/m\^ 10.0 | ~~~ | and the second of the second s | man de la companya de | ~,~,~,^*\^,^ | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | war and war of the same of the | water trans | |
| | ~with | and the state of t | manus mentioner than the second | (MHz) | | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | Are a second and a | 0.150 | |
| 10.0 | Mk. | ······································ | Reading Level | (MHz) Correct Factor | Measure- ment | Limit | Over | | |
| 10.0 | | Freq. | | Correct | | | | | |
| 10.0 | | | Level | Correct Factor | ment | Limit | Over | 0.150 | |
| 10.0 0.009 No. | | MHz | Level dBuV | Correct Factor | ment dBuV/m | Limit dB/m | Over | 0.150 Detector | |
| 10.0 0.009 No. | | MHz 0.0114 | dBuV 8.43 | Correct Factor dB 28.24 | ment dBuV/m 36.67 | Limit dB/m 125.6 | Over dB -88.98 | 0.150 Detector peak | |
| 10.0 0.009 No. | | MHz 0.0114 0.0240 | dBuV 8.43 9.48 | Correct Factor dB 28.24 27.29 | ment dBuV/m 36.67 36.77 | Limit dB/m 125.6 119.6 | Over dB -88.98 -82.86 | Detector peak peak | |
| 10.0 0.009 No. | | MHz 0.0114 0.0240 0.0328 | BuV 8.43 9.48 12.47 | Correct Factor dB 28.24 27.29 26.64 | ment dBuV/m 36.67 36.77 39.11 | Limit dB/m 125.6 119.6 117.1 | Over dB -88.98 -82.86 -77.99 | Detector peak peak peak | |

RESULT: PASS

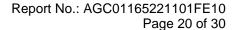




ELECTRIC FIELD TEST IN THE FREQUENCY RANGE 9KHz-150KHz

| | | Mooas Retro | Radio Spea | aker | | | -150KHz | | |
|----------------------|-------|---|--|---|---|--|--|----------------------------------|--|
| EUT | | Wireless Cha | | | Model Name | | MBS5R | | |
| Temperature | | 21°C | | | Relative Hun | nidity | 52% | | |
| Pressure | | 985hPa | | | Test Voltage | | | /oltage | |
| Test Mode | | Mode 1 | | | Antenna | | Side | | |
| 70 | BuV/m | | | | | | Lim | | |
| μ _γ α. | Myom | ~www. | Marketon 3 | elitebergy of profession and | | perhapsial and supple | pradanji kan | lawyer layer | |
| 10.0 0.009 | Myvan | manan de la companya | | (MHz) | | per negacial for some pla | madural man | .w^\u0.150 | |
| 10.0 | Mk. | | Reading Level | | Measure- ment | Limit | Over | | |
| 10.0 | | | Reading | (MHz) | Measure- | | | | |
| 10.0 0.009 | | Freq. | Reading Level | Correct Factor | Measure- ment | Limit | Over | 0.150 | |
| 0.009 | | Freq. | Reading Level dBuV | Correct Factor | Measure- ment dBuV/m | Limit dB/m | Over | 0.150 Detector | |
| 10.0 0.009 No. | | Freq. MHz 0.0100 | Reading Level dBuV 7.53 | Correct Factor dB 28.34 | Measure- ment dBuV/m 35.87 | Limit dB/m 126.7 | Over dB -90.84 | 0.150 Detector peak | |
| No. | | Freq. MHz 0.0100 0.0154 | Reading Level dBuV 7.53 8.01 | Correct Factor dB 28.34 27.94 | Measure- ment dBuV/m 35.87 35.95 | Limit dB/m 126.7 123.2 | Over dB -90.84 -87.27 | Detector peak peak peak | |
| 10.0 0.009 No. | | Freq. MHz 0.0100 0.0154 0.0245 | Reading Level dBuV 7.53 8.01 8.04 | (MHz) Correct Factor dB 28.34 27.94 27.26 | Measure- ment dBuV/m 35.87 35.95 35.30 | Limit dB/m 126.7 123.2 119.4 | Over dB -90.84 -87.27 -84.16 | Detector peak peak peak | |

RESULT: PASS

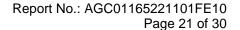




ELECTRIC FIELD TEST IN THE FREQUENCY RANGE 150KHz-30MHz

| | El | | | | QUENCY RANG | GE 150KI | Hz-30MHz | |
|-------------|--|--------------------|------------------------------|---------------------|------------------------------|--|---------------------|----------|
| EUT | | | o Radio Spea narging Desk | | Model Name | | MBS5R | |
| Temperature | • | 21°C | | | Relative Hum | nidity | 52% Normal Voltage | |
| Pressure | | 985hPa | | | Test Voltage | | | |
| Test Mode | | Mode 1 | | | Antenna | | Face | |
| 60 | ************************************** | May to January and | Marine Alfred Mary prings of | Mary Mary Mary Mark | Marine graph of the spectrum | ************************************** | Limi Mary | |
| 0.0 | | | | | | | | |
| 0.15 | 0 | 0. | Reading | Correct | Measure- | | | 30.000 |
| No. | Mk. | Freq. | Level | Factor | ment | Limit | Over | |
| | | MHz | dBuV | dB | dBuV/m | dB/m | dB | Detector |
| 1 | | 0.1737 | 17.80 | 21.48 | 39.28 | 103.4 | -64.15 | peak |
| 2 | | 0.4761 | 18.86 | 20.92 | 39.78 | 94.07 | -54.29 | peak |
| 3 | | 1.2822 | 15.43 | 21.52 | 36.95 | 65.44 | -28.49 | peak |
| 4 | | 3.6417 | 17.80 | 22.61 | 40.41 | 69.54 | -29.13 | peak |
| 5 | * | 8.1483 | 19.15 | 23.88 | 43.03 | 69.54 | -26.51 | peak |
| 6 | | | | | | | | |
| U | | 22.2975 | 17.99 | 24.88 | 42.87 | 69.54 | -26.67 | peak |

RESULT: PASS





| | ELECTRIC FIE | LD TEST IN | THE FREQ | QUENCY RANGE 150KHz-30MHz | | | |
|-------------|---|-------------------------------|---------------------|---|-------|---------------------|----------|
| EUT | | Radio Spea arging Desk | | Model Name | | MBS5R | |
| Temperature | 21°C | | | Relative Hum | idity | 52% | |
| Pressure | 985hPa | | | Test Voltage | | Normal Voltage Side | |
| Test Mode | Mode 1 | | | Antenna | | | |
| 120.0 dBu\ | in a state of the | with the policy that will and | phonology of market | make the graduate and a sign of more at the | 5 | Limit Marg | inc — |
| 0.0 | 0.9 | 5 | (MHz) | 5 | | | 30.000 |
| No. N | | Reading Level | Correct Factor | Measure- ment | Limit | Over | |
| | MHz | dBuV | dB | dBuV/m | dB/m | dB | Detector |
| 1 | 0.1766 | 16.79 | 21.48 | 38.27 | 103.2 | -65.01 | peak |
| 2 | 0.2584 | 18.71 | 21.33 | 40.04 | 99.74 | -59.70 | peak |
| 3 | 0.8991 | 16.48 | 21.21 | 37.69 | 68.53 | -30.84 | peak |
| 4 | 2.7067 | 16.59 | 22.32 | 38.91 | 69.54 | -30.63 | peak |
| 5 | 7.9352 | 17.77 | 23.82 | 41.59 | 69.54 | -27.95 | peak |

RESULT: PASS

NOTES:

1. Quasi-Peak detector is used for frequency below 30MHz.

27.8551

2. Negative value in the margin column shows emission below limit.

20.66

3. All measurements were made with 0.6m loop antenna at 3m distance. All emissions are below the QP limit.

24.32

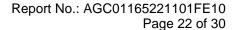
44.98

69.54

-24.56

peak

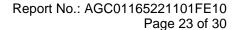
- 4. Corr. Factor= Antenna Factor (dB/m) + Cable Loss (dB)
- 5. Loop antenna is used for the emission under 30MHz.





| | | | | | | | D EMISSION | BELOW 10 | П | | |
|---------------------|--|----------------------------------|---------------------------------------|------|--|---|--|--|---|--|----------------------------------|
| EUT | | | | | | | Speaker Desk Clock | Model Na | ıme | MBS5I | R |
| Temperature | ; | | 21°C | | | | | Relative | Humidity | 52% | |
| Pressure | | | 985h | ıPa | | | | Test Volta | age | Norma | l Voltage |
| Test Mode | | | Mod | e 1 | | | | Antenna | | Horizo | ntal |
| | | | | | | | <u>*</u> | | Number 1 | Limit: Margin | |
| | ingen speech to the construction of the constr | phylin | | · · | en e en | Alexandron A | | | Married A | Way 40 | 44. |
| | | √V+4√V** 50 | | | 80 | Marie Control of the | (MHz) | 300 | 400 | 500 600 700 | 0 1000.000 |
| -8 30.000 | | 50 | | 70 | | | | | | 500 600 700 Over | 0 1000.000 |
| -8 30.000 | 1 40 | 50 Fr | 60 | 70 | 80 Read | el | (MHz) Correct | 300 Measure- | 400 | | Detector |
| -8 30.000 | Mk. | 50 Fr | eq. | 70 | 80 Read Leve | el V | (MHz) Correct Factor | Measure- ment | 400 Limit | Over | |
| -8 30.000 No. | Mk. | 50 Fr M | eq. Hz | 70 F | Read Leve | v 89 | (MHz) Correct Factor dB | Measure- ment | Limit | Over | Detector |
| -8 30.000 No. | Mk. | Fr M | eq. Hz 031 | 70 F | Read Leve | el V 39 96 | Correct Factor dB | Measure- ment dBuV/m 27.77 | Limit dB/m 40.00 | Over dB -12.23 | Detector |
| -8 30.000 No. | Mk. | 50 Fr M 65.80 27.2 | eq. Hz 031 176 695 | 70 F | Read Leve dBu' 12.8 | el V 39 96 72 | Correct Factor dB 14.88 20.20 | Measure- ment dBuV/m 27.77 37.16 | 400 Limit dB/m 40.00 43.50 | Over dB -12.23 -6.34 | Detector peak peak |
| No. | Mk. | 50 Fr MI 65.80 27.2° | eq. Hz 031 176 695 370 | 70 F | Read Leve dBu' 12.8 16.9 | el V 39 96 72 72 | Correct Factor dB 14.88 20.20 18.43 | 300 Measure- ment dBuV/m 27.77 37.16 40.15 | 400 Limit dB/m 40.00 43.50 43.50 | Over dB -12.23 -6.34 -3.35 | Detector peak peak peak |

RESULT: PASS





| | | | | | ATED EMISSION | 1 BLEON 10 | 1 12 | | |
|-------------|--|--------------------------------------|--------------------------------|---------------------------------------|--|---|--|--|--|
| EUT | | | | | Radio Speaker ging Desk Clock | Model Na | ıme | MBS | 5R |
| Temperature |) | 2 | 21°C | | | Relative | Humidity | 52% | |
| Pressure | | (| 985hF | Pa | | Test Volta | age | Norm | nal Voltage |
| Test Mode | | r | Mode | 1 | | Antenna | | Verti | cal |
| 32 | and the same of th | | | | Mary and Mar | Market Mark and a second and a | and the state of t | Limi Mar | |
| 30.000 | 40 | | | | | | | | |
| | | 50 | 60 70 | 0 80 | (MHz) | 300 | 400 | 500 600 | 700 1000.000 |
| No. | Mk. | | 60 70 eq. | Readi Leve | ng Correct | Measure- ment | | 500 600 C | |
| No. | Mk. | | eq. | Readi | ng Correct I Factor | Measure- | | | |
| No. | Mk. | Fre | eq. Hz | Readi Leve | ng Correct Factor | Measure- ment | Limit | Over | Detector |
| No1 | Mk. | Fre | eq. Hz 196 | Readi Leve | ng Correct Factor dB 7 16.93 | Measure- ment dBuV/m | Limit dB/m | Over | Detector Deak |
| 1 | Mk. | Fre MH 42.74 | eq. Hz 196 753 | Readi Leve dBu\ | ng Correct Factor / dB 7 16.93 7 17.03 | Measure- ment dBuV/m 29.10 | Limit dB/m 40.00 | Over | Detector Detector peak peak |
| 1 2 | * | Fre MH 42.74 52.57 | eq. Hz 196 753 | Readi Leve dBu\ 12.1 13.5 | rig Correct Factor / dB 7 16.93 7 17.03 8 16.78 | Measure- ment dBuV/m 29.10 30.60 | Limit dB/m 40.00 40.00 | Over dB -10.90 -9.40 | Detector Detector peak peak peak |
| 1 2 3 | * | Fre MH 42.74 52.57 65.34 | eq. Hz 196 753 132 | Readi Leve dBu\ 12.1 13.5 | rig Correct Factor 7 dB 7 16.93 7 17.03 8 16.78 4 16.51 | Measure- ment dBuV/m 29.10 30.60 31.96 | 40.00 40.00 40.00 | Over dB -10.90 -9.40 -8.04 | Detector O peak O peak O peak O peak O peak O peak |

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Over=Measurement-Limit.

- 2. All test modes had been pre-tested. The mode 1 is the worst case and recorded in the report.
- 3. The "Factor" value can be calculated automatically by software of measurement system.



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7. 20 dB BANDWIDTH

7.1 PROVISIONS APPLICABLE

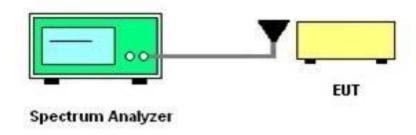
N/A

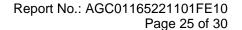
7.2 MEASUREMENT PROCEDURE

Set the parameters of SPA as below:

- The spectrum analyzer connected via a receive antenna placed near the EUT in peak Max hold mode.
- 2. Centre frequency = Operation Frequency
- 3. The resolution bandwidth of 300 Hz and the video bandwidth of 1 kHz were used.
- 4. Span: 3kHz, Sweep time: Auto
- 5. Set the EUT to continue transmitting mode. Allow the trace to stabilize. Use the "N dB down" function of SPA to define the bandwidth.
- 6. Measured the spectrum width with power higher than 20dB below carrier.
- 7. Measured the 99% OBW.
- 8. Record the plots and Reported.

7.3 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)



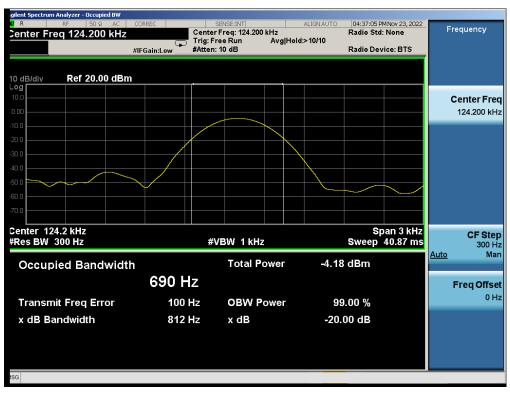


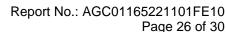


7.4 MEASUREMENT RESULTS

| Test Data of Occupied Bandwidth and -20dB Bandwidth | | | | | |
|---|-----------------------|------------------------------|--------------------------|-----------------|--------------|
| Test Mode | Test Channel (MHz) | 99% Occupied Bandwidth (kHz) | -20dB Bandwidth (kHz) | Limits (MHz) | Pass or Fail |
| ASK | 0.1242 | 0.690 | 0.812 | N/A | Pass |

Test Graphs of Occupied Bandwidth &-20dB Bandwidth







8. AC POWER LINE CONDUCTED EMISSION TEST

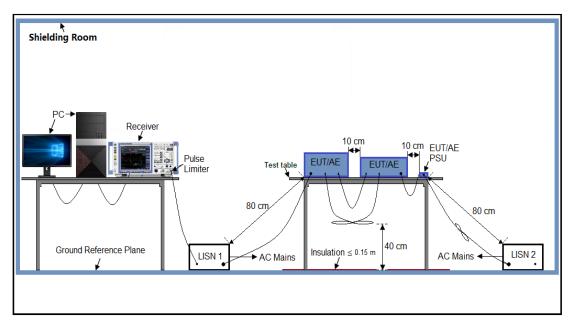
8.1 LIMITS OF LINE CONDUCTED EMISSION TEST

| Francis | Maximum RF Line Voltage | | |
|---------------|-------------------------|----------------|--|
| Frequency | Q.P. (dBμV) | Average (dBμV) | |
| 150kHz~500kHz | 66-56 | 56-46 | |
| 500kHz~5MHz | 56 | 46 | |
| 5MHz~30MHz | 60 | 50 | |

Note: 1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

8.2 MEASUREMENT SETUP (BLOCK DIAGRAM OF CONFIGURATION)





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8.3 PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 9V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

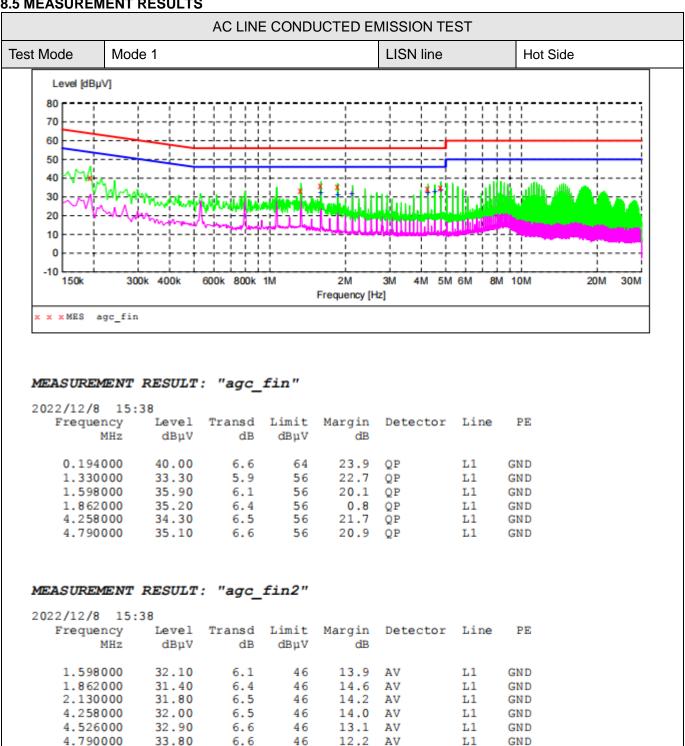
8.4 FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- 2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.



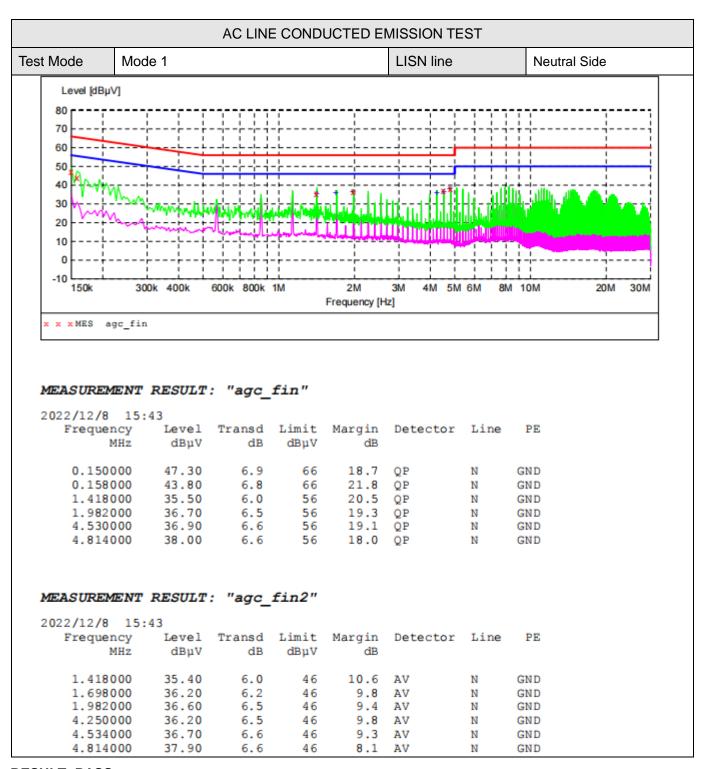


8.5 MEASUREMENT RESULTS



RESULT: PASS





RESULT: PASS



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APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Refer to the Report No.: AGC01165221101AP01

APPENDIX B: PHOTOGRAPHS OF TEST EUT

Refer to the Report No.: AGC01165221101AP02

----END OF REPORT----



Conditions of Issuance of Test Reports

- 1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd. (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").
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- 3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
- 4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
- 5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.
- 6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.
- 7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.
- 8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
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