



## Table of Contents

|       |                                                                       |    |
|-------|-----------------------------------------------------------------------|----|
| 1.    | Summary of Test Results .....                                         | 7  |
| 2.    | General Test Information .....                                        | 8  |
| 2.1.  | Description of EUT .....                                              | 8  |
| 2.2.  | Primary function of EUT .....                                         | 8  |
| 2.3.  | Port of EUT .....                                                     | 8  |
| 2.4.  | Accessories of EUT .....                                              | 9  |
| 2.5.  | Block diagram EUT configuration for test .....                        | 9  |
| 2.6.  | Decision of final test mode .....                                     | 9  |
| 2.7.  | Deviations of test standard .....                                     | 9  |
| 2.8.  | Test environment conditions .....                                     | 10 |
| 2.9.  | Test laboratory .....                                                 | 10 |
| 2.10. | Measurement uncertainty .....                                         | 10 |
| 3.    | Conducted Emission Test Report (AC Mains Power Ports) .....           | 11 |
| 3.1.  | General information .....                                             | 11 |
| 3.2.  | Test equipment .....                                                  | 11 |
| 3.3.  | Reference standard .....                                              | 11 |
| 3.4.  | Block diagram of test setup .....                                     | 11 |
| 3.5.  | Limits .....                                                          | 12 |
| 3.6.  | Assistant equipment used for test .....                               | 12 |
| 3.7.  | Test procedure .....                                                  | 13 |
| 3.8.  | Test result .....                                                     | 13 |
| 3.9.  | Test photo .....                                                      | 18 |
| 4.    | Radiated Emissions Test .....                                         | 19 |
| 4.1.  | General information .....                                             | 19 |
| 4.2.  | Test equipment .....                                                  | 19 |
| 4.3.  | Reference standard .....                                              | 19 |
| 4.4.  | Block diagram of test setup .....                                     | 20 |
| 4.5.  | Limits .....                                                          | 22 |
| 4.6.  | Assistant equipment used for test .....                               | 22 |
| 4.7.  | Test procedure .....                                                  | 22 |
| 4.8.  | Test result .....                                                     | 23 |
| 4.9.  | Test photo .....                                                      | 31 |
| 5.    | Harmonic Current and Voltage Fluctuations & Flicker Test Report ..... | 33 |
| 5.1.  | General information .....                                             | 33 |
| 5.2.  | Test equipment .....                                                  | 33 |
| 5.3.  | Test standard .....                                                   | 33 |
| 5.4.  | Block diagram of test setup .....                                     | 33 |

|       |                                                   |    |
|-------|---------------------------------------------------|----|
| 5.5.  | Harmonic current limits .....                     | 34 |
| 5.6.  | Voltage fluctuations & flicker Limit.....         | 35 |
| 5.7.  | Assistant equipment used for test .....           | 35 |
| 5.8.  | Test procedure.....                               | 35 |
| 5.9.  | Test result .....                                 | 35 |
| 5.10. | Test photo.....                                   | 37 |
| 6.    | Electrostatic Discharge Test Report .....         | 38 |
| 6.1.  | General information .....                         | 38 |
| 6.2.  | Test equipment.....                               | 38 |
| 6.3.  | Test and reference standards .....                | 38 |
| 6.4.  | Block diagram of test setup .....                 | 38 |
| 6.5.  | Test levels and performance criterion .....       | 39 |
| 6.6.  | Assistant equipment used for test .....           | 39 |
| 6.7.  | Test procedure.....                               | 39 |
| 6.8.  | Test result .....                                 | 40 |
| 6.9.  | Test photo.....                                   | 42 |
| 7.    | Continuous Radio Frequency Disturbances.....      | 43 |
| 7.1.  | General information .....                         | 43 |
| 7.2.  | Test equipment.....                               | 43 |
| 7.3.  | Test and reference standards .....                | 43 |
| 7.4.  | Block diagram of test setup .....                 | 44 |
| 7.5.  | Test levels and performance criterion .....       | 44 |
| 7.6.  | Assistant equipment used for test .....           | 45 |
| 7.7.  | Test procedure.....                               | 45 |
| 7.8.  | Test result .....                                 | 46 |
| 7.9.  | Test photo.....                                   | 47 |
| 8.    | Electrical Fast Transients (EFT) Test Report..... | 48 |
| 8.1.  | General information .....                         | 48 |
| 8.2.  | Test equipment.....                               | 48 |
| 8.3.  | Test and reference standards .....                | 48 |
| 8.4.  | Block diagram of test setup .....                 | 48 |
| 8.5.  | Test levels and performance criterion .....       | 49 |
| 8.6.  | Assistant equipment used for test .....           | 49 |
| 8.7.  | Test procedure.....                               | 49 |
| 8.8.  | Test result .....                                 | 50 |
| 8.9.  | Test photo.....                                   | 50 |
| 9.    | Surges Test Report.....                           | 51 |
| 9.1.  | General information .....                         | 51 |
| 9.2.  | Test equipment.....                               | 51 |

|       |                                             |    |
|-------|---------------------------------------------|----|
| 9.3.  | Test and reference standards .....          | 51 |
| 9.4.  | Block diagram of test setup .....           | 51 |
| 9.5.  | Test levels and performance criterion ..... | 51 |
| 9.6.  | Assistant equipment used for test .....     | 52 |
| 9.7.  | Test procedure.....                         | 52 |
| 9.8.  | Test result .....                           | 53 |
| 9.9.  | Test photo.....                             | 53 |
| 10.   | Continuous Conducted Disturbances .....     | 54 |
| 10.1. | General information .....                   | 54 |
| 10.2. | Test equipment.....                         | 54 |
| 10.3. | Test and reference standards .....          | 54 |
| 10.4. | Block diagram of test setup .....           | 54 |
| 10.5. | Test levels and performance criterion ..... | 55 |
| 10.6. | Assistant equipment used for test .....     | 56 |
| 10.7. | Test procedure.....                         | 56 |
| 10.8. | Test result .....                           | 57 |
| 10.9. | Test photo.....                             | 57 |
| 11.   | Power-Frequency Magnetic Fields .....       | 58 |
| 11.1. | General information .....                   | 58 |
| 11.2. | Test equipment.....                         | 58 |
| 11.3. | Test and reference standards .....          | 58 |
| 11.4. | Block diagram of test setup .....           | 58 |
| 11.5. | Test levels and performance criterion ..... | 58 |
| 11.6. | Assistant equipment used for test .....     | 59 |
| 11.7. | Test procedure.....                         | 59 |
| 11.8. | Test result .....                           | 59 |
| 11.9. | Test photo.....                             | 60 |
| 12.   | Voltage Dips and Interruptions .....        | 61 |
| 12.1. | General information .....                   | 61 |
| 12.2. | Test equipment.....                         | 61 |
| 12.3. | Test and reference standards .....          | 61 |
| 12.4. | Block diagram of test setup .....           | 61 |
| 12.5. | Test levels and performance criterion ..... | 61 |
| 12.6. | Assistant equipment used for test .....     | 62 |
| 12.7. | Test procedure.....                         | 62 |
| 12.8. | Test result .....                           | 62 |
| 12.9. | Test photo.....                             | 63 |
| 13.   | Photos of the EUT.....                      | 64 |

## Test Report Declare

|                             |   |                                                            |
|-----------------------------|---|------------------------------------------------------------|
| <b>Applicant</b>            | : | Harman International Industries, Inc.                      |
| <b>Address</b>              | : | 8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES |
| <b>Equipment Under Test</b> | : | Portable Bluetooth Speaker                                 |
| <b>Model No.</b>            | : | CHARGE5H                                                   |
| <b>Trade Mark</b>           | : | JBL                                                        |
| <b>Manufacturer</b>         | : | Harman International Industries, Inc.                      |
| <b>Address</b>              | : | 8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES |

### Test Standard Used:

EN 55032:2015, EN 55035:2017, EN IEC 61000-3-2:2019, EN 61000-3-3:2013+A1:2019

### Test Procedure Used:

EN 61000-4-2:2009, EN 61000-4-3:2006+A2:2010, EN 61000-4-4:2012,  
EN 61000-4-5: 2014/A1: 2017, EN 61000-4-6:2014/AC:2015, EN 61000-4-8:2010,  
EN 61000-4-11:2004/A1:2017

### We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

**After test and evaluation, our opinion is that the equipment in accordance with above standards about the electromagnetic compatibility requirements of Directive 2014/30/EU.**

|                         |                   |                      |                               |
|-------------------------|-------------------|----------------------|-------------------------------|
| <b>Report No.:</b>      | DDT-R20070616-1E2 |                      |                               |
| <b>Date of Receipt:</b> | Oct. 15, 2020     | <b>Date of Test:</b> | Oct. 15, 2020 ~ Nov. 03, 2020 |

**Prepared By:**



**Jerry Xue/Engineer**

**Approved By:**



**Damon Hu/EMC Manager**

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

## Revision History

| Rev. | Revisions     | Issue Date    | Revised By |
|------|---------------|---------------|------------|
| ---  | Initial issue | Nov. 03, 2020 |            |
|      |               |               |            |

## 1. Summary of Test Results

| Description of Test Item                          | Standard                                            | Result           |
|---------------------------------------------------|-----------------------------------------------------|------------------|
| Conducted emissions from the AC mains power ports | EN 55032:2015                                       | PASS             |
| Asymmetric mode conducted emissions               | EN 55032:2015                                       | N/A <sup>a</sup> |
| Conducted differential voltage emissions          | EN 55032:2015                                       | N/A <sup>a</sup> |
| Radiated emissions test                           | EN 55032:2015                                       | PASS             |
| Harmonic current emissions                        | EN IEC 61000-3-2:2019                               | N/A <sup>b</sup> |
| Voltage fluctuations & flicker                    | EN 61000-3-3:2013+A1:2019                           | PASS             |
| Electrostatic discharge (ESD)                     | EN 55035:2017; EN 61000-4-2:2009                    | PASS             |
| Continuous RF electromagnetic field disturbances  | EN 55035:2017;<br>EN 61000-4-3:2006+A1:2008+A2:2010 | PASS             |
| Electrical fast transients / burst                | EN 55035:2017; EN 61000-4-4:2012                    | PASS             |
| Surges                                            | EN 55035:2017;<br>EN 61000-4-5: 2014/AC: 2017       | PASS             |
| Continuous induced RF disturbances                | EN 55035:2017;<br>EN 61000-4-6:2014/AC:2015         | PASS             |
| Power-frequency magnetic fields                   | EN 55035:2017; EN 61000-4-8:2010                    | PASS             |
| Voltage dips and interruptions                    | EN 55035:2017;<br>EN 61000-4-11:2004/A1:2017        | PASS             |

Note: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device.

a: This product does not have such a port.

b: This product is not defined as lighting equipment, and has rated power less than 75W, therefore, no limit apply according to EN IEC 61000-3-2 harmonics currents emissions test.





## 2.4. Accessories of EUT

| Description of Accessories | Manufacturer | Model number | Description | Remark                   |
|----------------------------|--------------|--------------|-------------|--------------------------|
| USB cable                  | Harman       | N/A          | N/A         | Length: 1.2m, unshielded |

### Battery information

| Description of Accessories  | Manufacturer                         | Model number | Description                         | Remark |
|-----------------------------|--------------------------------------|--------------|-------------------------------------|--------|
| Rechargeable Li-ion Battery | ICON ENERGY SYSTEM(SHENZHEN)CO., LTD | IAA011NA     | Rated Capacity: 3.6V 7500mAh 27.0Wh | N/A    |

## 2.5. Block diagram EUT configuration for test

Mode 1: Charging + 5V/2A load mode



Mode 2: 5V/2A load mode



## 2.6. Decision of final test mode

|          |                                                  |                                                               |
|----------|--------------------------------------------------|---------------------------------------------------------------|
| Emission | Conducted Emission                               | Mode 1: Charging + 5V/2A load mode                            |
|          | Radiated emission                                | Mode 1: Charging + 5V/2A load mode<br>Mode 2: 5V/2A load mode |
|          | Voltage fluctuation and flicker                  | Mode 1: Charging + 5V/2A load mode                            |
| Immunity | Electrostatic discharge                          | Mode 1: Charging + 5V/2A load mode<br>Mode 2: 5V/2A load mode |
|          | Continuous RF electromagnetic field disturbances | Mode 1: Charging + 5V/2A load mode<br>Mode 2: 5V/2A load mode |
|          | Electrical fast transients / burst               | Mode 1: Charging + 5V/2A load mode                            |
|          | Surges                                           | Mode 1: Charging + 5V/2A load mode                            |
|          | Continuous induced RF disturbances               | Mode 1: Charging + 5V/2A load mode                            |
|          | Power-frequency magnetic fields                  | Mode 1: Charging + 5V/2A load mode<br>Mode 2: 5V/2A load mode |
|          | Voltage dips and interruptions                   | Mode 1: Charging + 5V/2A load mode                            |

## 2.7. Deviations of test standard

No deviation.

## 2.8. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

|                    |           |
|--------------------|-----------|
| Temperature range: | 21-25°C   |
| Humidity range:    | 40-75%    |
| Pressure range:    | 86-106kPa |

## 2.9. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, Http://www.dgddt.com, Email: ddt@dgddt.com

CNAS Accreditation No. L6451; A2LA Accreditation No. 3870.01

FCC Designation Number: CN1182; Test Firm Registration Number: 540522

Industry Canada site registration number: 10288A-1

## 2.10. Measurement uncertainty

| Test Item                                                       | Uncertainty                                                                                                                |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| Conducted disturbance at mains terminals                        | 3.32dB (150KHz-30MHz)                                                                                                      |
| Uncertainty for telecommunication port conduction emission test | AAN with aLCL = 55 ... 40 dB c: 3.64dB<br>AAN with aLCL = 65 ... 50 dB c: 4.08dB<br>AAN with aLCL = 75 ... 60 dB c: 4.56dB |
| Uncertainty for 3m Radiation Emission test (30MHz-1GHz)         | 4.70 dB (Antenna Polarize: V)                                                                                              |
|                                                                 | 4.84 dB (Antenna Polarize: H)                                                                                              |
| Uncertainty for 10m Radiation Emission test (30MHz-1GHz)        | 4.172 dB (Antenna Polarize: V)                                                                                             |
|                                                                 | 4.172 dB (Antenna Polarize: H)                                                                                             |
| Uncertainty for Radiation disturbance test (1GHz to 6GHz)       | 4.10dB(1-6GHz)                                                                                                             |
| Temperature                                                     | 0.4°C                                                                                                                      |
| Humidity                                                        | 2%                                                                                                                         |

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.





### 3.7. Test procedure

- (1) The EUT was placed on a non-metallic table, 80cm above the ground plane.
- (2) Setup the EUT and assistant equipment as shown in section 2.5 and 3.6.
- (3) The EUT's power adapter was connected to the power mains through a line impedance stabilization network (L.I.S.N). which this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted disturbance. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to EN 55032 on conducted disturbance emission test.
- (4) The bandwidth of test receiver is set at 9 kHz.
- (5) The frequency range from 150 kHz to 30MHz is checked.

### 3.8. Test result

#### **PASS. (See below detailed test result)**

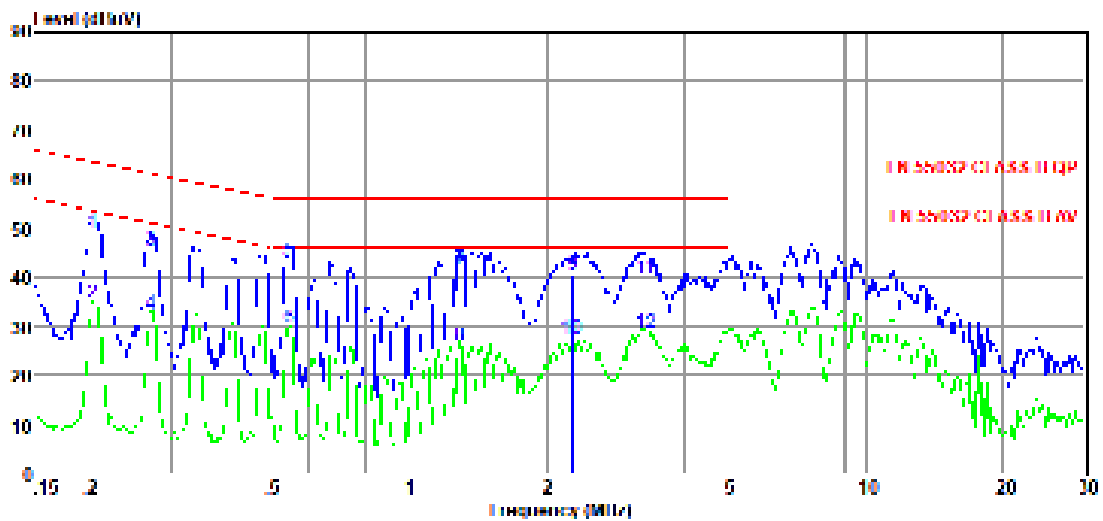
Note 1: All emissions not reported below are too low against the prescribed limits.

Note 2: "-----" means Peak detection; "-----" means Average detection.

## TR-4-E-010 Conducted Emission Test Result

**Test Site** : DDT 1# Shield Room **D:\2020 CE report data\Q20070616-1E\20201024 CE.EM6**  
**Test Date** : 2020-10-24 **Tested By** : Lori Mi  
**EUT** : Portable Bluetooth Speaker **Model Number** : CHARGE5H  
**Power Supply** : AC 240V/50Hz **Test Mode** : Charging + 5V/2A load mode  
**Condition** : TEMP:24.8°C, RH:51.8%, BP:101.4kPa **LISN** : 2019 ENV216 1#/LINE  
**Memo** :

Data: 2



| Item   | Freq. | Read Level | LISN Factor | Cable Loss | Pulse Limiter Factor | Result Level | Limit Line | Over Limit | Detector | Phase |
|--------|-------|------------|-------------|------------|----------------------|--------------|------------|------------|----------|-------|
| (Mark) | (MHz) | (dBμV)     | (dB)        | (dB)       | (dB)                 | (dBμV)       | (dBμV)     | (dB)       |          |       |
| 1      | 0.20  | 29.64      | 9.60        | 0.02       | 9.86                 | 49.12        | 63.49      | -14.37     | QP       | LINE  |
| 2      | 0.20  | 15.18      | 9.60        | 0.02       | 9.86                 | 34.66        | 53.49      | -18.83     | Average  | LINE  |
| 3      | 0.27  | 26.04      | 9.60        | 0.02       | 9.86                 | 45.52        | 61.07      | -15.55     | QP       | LINE  |
| 4      | 0.27  | 13.03      | 9.60        | 0.02       | 9.86                 | 32.51        | 51.07      | -18.56     | Average  | LINE  |
| 5      | 0.54  | 23.85      | 9.60        | 0.02       | 9.86                 | 43.33        | 56.00      | -12.67     | QP       | LINE  |
| 6      | 0.54  | 10.33      | 9.60        | 0.02       | 9.86                 | 29.81        | 46.00      | -16.19     | Average  | LINE  |
| 7      | 1.30  | 22.31      | 9.60        | 0.04       | 9.86                 | 41.81        | 56.00      | -14.19     | QP       | LINE  |
| 8      | 1.30  | 6.60       | 9.60        | 0.04       | 9.86                 | 26.10        | 46.00      | -19.90     | Average  | LINE  |
| 9      | 2.27  | 21.01      | 9.60        | 0.06       | 9.86                 | 40.53        | 56.00      | -15.47     | QP       | LINE  |
| 10     | 2.27  | 8.11       | 9.60        | 0.06       | 9.86                 | 27.63        | 46.00      | -18.37     | Average  | LINE  |
| 11     | 3.29  | 20.10      | 9.60        | 0.07       | 9.87                 | 39.64        | 56.00      | -16.36     | QP       | LINE  |
| 12     | 3.29  | 9.18       | 9.60        | 0.07       | 9.87                 | 28.72        | 46.00      | -17.28     | Average  | LINE  |

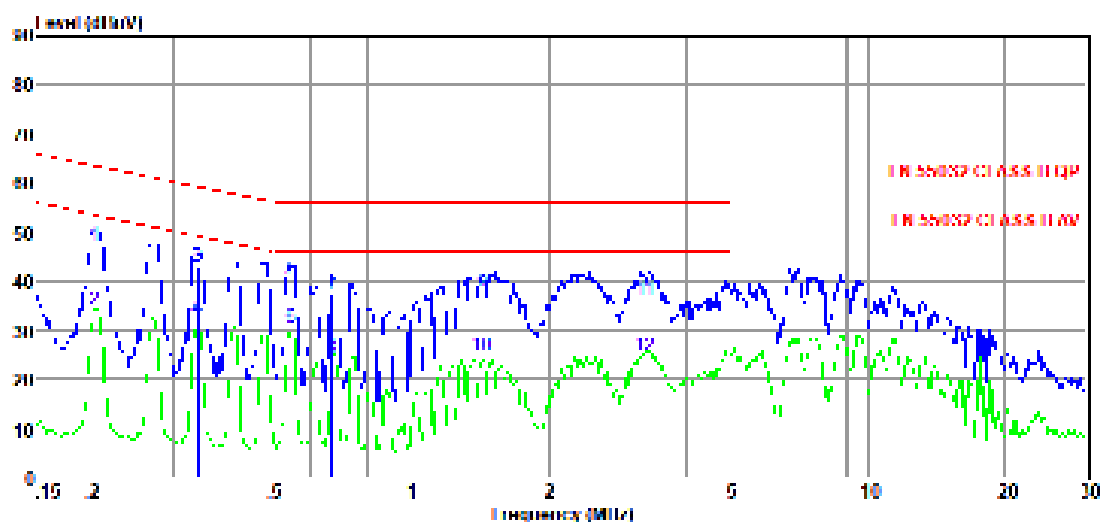
Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

## TR-4-E-010 Conducted Emission Test Result

**Test Site** : DDT 1# Shield Room **D:\2020 CE report data\Q20070616-1E\20201024 CE.EM6**  
**Test Date** : 2020-10-24 **Tested By** : Lori Mi  
**EUT** : Portable Bluetooth Speaker **Model Number** : CHARGE5H  
**Power Supply** : AC 240V/50Hz **Test Mode** : Charging + 5V/2A load mode  
**Condition** : TEMP:24.8°C, RH:51.8%, BP:101.4kPa **LISN** : 2019 ENV216 1#/NEUTRAL  
**Memo** :

Data: 4



| Item   | Freq. | Read Level | LISN Factor | Cable Loss | Pulse Limiter Factor | Result Level | Limit Line | Over Limit | Detector | Phase   |
|--------|-------|------------|-------------|------------|----------------------|--------------|------------|------------|----------|---------|
| (Mark) | (MHz) | (dBμV)     | (dB)        | (dB)       | (dB)                 | (dBμV)       | (dBμV)     | (dB)       |          |         |
| 1      | 0.20  | 27.91      | 9.60        | 0.02       | 9.86                 | 47.39        | 63.49      | -16.10     | QP       | NEUTRAL |
| 2      | 0.20  | 14.47      | 9.60        | 0.02       | 9.86                 | 33.95        | 53.49      | -19.54     | Average  | NEUTRAL |
| 3      | 0.34  | 23.52      | 9.60        | 0.02       | 9.86                 | 43.00        | 59.22      | -16.22     | QP       | NEUTRAL |
| 4      | 0.34  | 13.06      | 9.60        | 0.02       | 9.86                 | 32.54        | 49.22      | -16.68     | Average  | NEUTRAL |
| 5      | 0.54  | 20.85      | 9.60        | 0.02       | 9.86                 | 40.33        | 56.00      | -15.67     | QP       | NEUTRAL |
| 6      | 0.54  | 11.14      | 9.60        | 0.02       | 9.86                 | 30.62        | 46.00      | -15.38     | Average  | NEUTRAL |
| 7      | 0.67  | 17.76      | 9.60        | 0.03       | 9.86                 | 37.25        | 56.00      | -18.75     | QP       | NEUTRAL |
| 8      | 0.67  | 4.82       | 9.60        | 0.03       | 9.86                 | 24.31        | 46.00      | -21.69     | Average  | NEUTRAL |
| 9      | 1.43  | 18.22      | 9.60        | 0.04       | 9.86                 | 37.72        | 56.00      | -18.28     | QP       | NEUTRAL |
| 10     | 1.43  | 5.20       | 9.60        | 0.04       | 9.86                 | 24.70        | 46.00      | -21.30     | Average  | NEUTRAL |
| 11     | 3.26  | 16.78      | 9.60        | 0.07       | 9.87                 | 36.32        | 56.00      | -19.68     | QP       | NEUTRAL |
| 12     | 3.26  | 5.07       | 9.60        | 0.07       | 9.87                 | 24.61        | 46.00      | -21.39     | Average  | NEUTRAL |

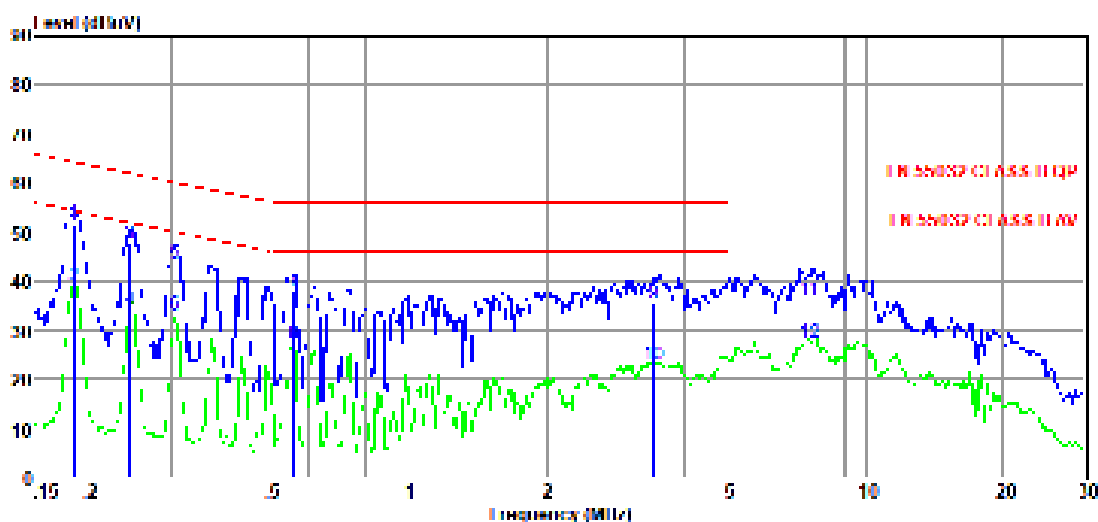
Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

## TR-4-E-010 Conducted Emission Test Result

**Test Site** : DDT 1# Shield Room **D:\2020 CE report data\Q20070616-1E\20201024 CE.EM6**  
**Test Date** : 2020-10-24 **Tested By** : Lori Mi  
**EUT** : Portable Bluetooth Speaker **Model Number** : CHARGE5H  
**Power Supply** : AC 120V/60Hz **Test Mode** : Charging + 5V/2A load mode  
**Condition** : TEMP:24.8°C, RH:51.8%, BP:101.4kPa **LISN** : 2019 ENV216 1#/NEUTRAL  
**Memo** :

Data: 6



| Item   | Freq. | Read Level | LISN Factor | Cable Loss | Pulse Limiter Factor | Result Level | Limit Line | Over Limit | Detector | Phase   |
|--------|-------|------------|-------------|------------|----------------------|--------------|------------|------------|----------|---------|
| (Mark) | (MHz) | (dBμV)     | (dB)        | (dB)       | (dB)                 | (dBμV)       | (dBμV)     | (dB)       |          |         |
| 1      | 0.18  | 32.18      | 9.60        | 0.02       | 9.86                 | 51.66        | 64.33      | -12.67     | QP       | NEUTRAL |
| 2      | 0.18  | 19.51      | 9.60        | 0.02       | 9.86                 | 38.99        | 54.33      | -15.34     | Average  | NEUTRAL |
| 3      | 0.24  | 28.30      | 9.60        | 0.02       | 9.86                 | 47.78        | 62.00      | -14.22     | QP       | NEUTRAL |
| 4      | 0.24  | 14.49      | 9.60        | 0.02       | 9.86                 | 33.97        | 52.00      | -18.03     | Average  | NEUTRAL |
| 5      | 0.31  | 24.23      | 9.60        | 0.02       | 9.86                 | 43.71        | 60.06      | -16.35     | QP       | NEUTRAL |
| 6      | 0.31  | 13.71      | 9.60        | 0.02       | 9.86                 | 33.19        | 50.06      | -16.87     | Average  | NEUTRAL |
| 7      | 0.56  | 18.22      | 9.60        | 0.02       | 9.86                 | 37.70        | 56.00      | -18.30     | QP       | NEUTRAL |
| 8      | 0.56  | 7.86       | 9.60        | 0.02       | 9.86                 | 27.34        | 46.00      | -18.66     | Average  | NEUTRAL |
| 9      | 3.44  | 15.63      | 9.60        | 0.07       | 9.87                 | 35.17        | 56.00      | -20.83     | QP       | NEUTRAL |
| 10     | 3.44  | 3.34       | 9.60        | 0.07       | 9.87                 | 22.88        | 46.00      | -23.12     | Average  | NEUTRAL |
| 11     | 7.53  | 16.21      | 9.60        | 0.10       | 9.88                 | 35.79        | 60.00      | -24.21     | QP       | NEUTRAL |
| 12     | 7.53  | 8.03       | 9.60        | 0.10       | 9.88                 | 27.61        | 50.00      | -22.39     | Average  | NEUTRAL |

Note:

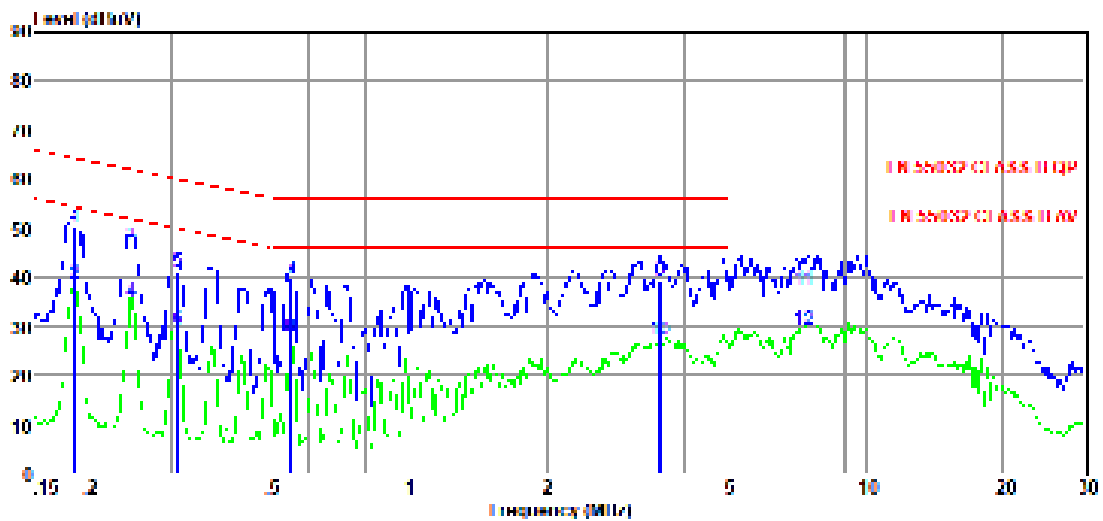
1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.



# TR-4-E-010 Conducted Emission Test Result

**Test Site** : DDT 1# Shield Room **D:\2020 CE report data\Q20070616-1E\20201024 CE.EM6**  
**Test Date** : 2020-10-24 **Tested By** : Lori Mi  
**EUT** : Portable Bluetooth Speaker **Model Number** : CHARGE5H  
**Power Supply** : AC 120V/60Hz **Test Mode** : Charging + 5V/2A load mode  
**Condition** : TEMP:24.8°C, RH:51.8%, BP:101.4kPa **LISN** : 2019 ENV216 1#/LINE  
**Memo** :

Data: 8

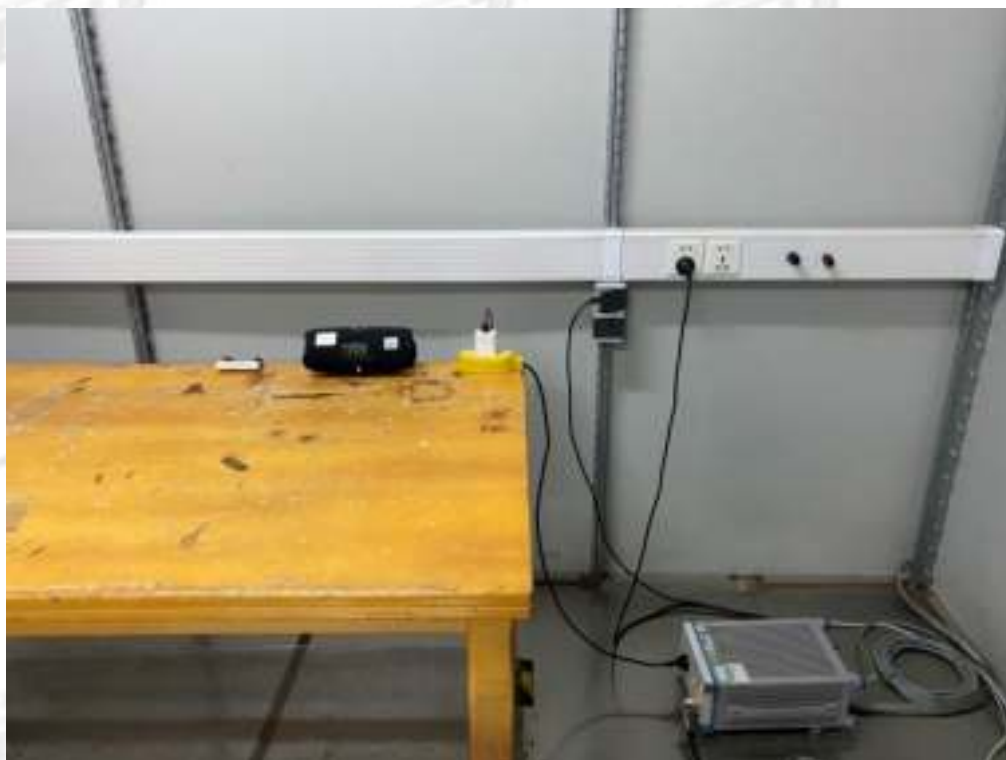


| Item   | Freq. | Read Level | LISN Factor | Cable Loss | Pulse Limiter Factor | Result Level | Limit Line | Over Limit | Detector | Phase |
|--------|-------|------------|-------------|------------|----------------------|--------------|------------|------------|----------|-------|
| (Mark) | (MHz) | (dBμV)     | (dB)        | (dB)       | (dB)                 | (dBμV)       | (dBμV)     | (dB)       |          |       |
| 1      | 0.18  | 30.63      | 9.60        | 0.02       | 9.86                 | 50.11        | 64.28      | -14.17     | QP       | LINE  |
| 2      | 0.18  | 19.04      | 9.60        | 0.02       | 9.86                 | 38.52        | 54.28      | -15.76     | Average  | LINE  |
| 3      | 0.24  | 26.96      | 9.60        | 0.02       | 9.86                 | 46.44        | 61.95      | -15.51     | QP       | LINE  |
| 4      | 0.24  | 15.43      | 9.60        | 0.02       | 9.86                 | 34.91        | 51.95      | -17.04     | Average  | LINE  |
| 5      | 0.31  | 21.76      | 9.60        | 0.02       | 9.86                 | 41.24        | 59.97      | -18.73     | QP       | LINE  |
| 6      | 0.31  | 9.94       | 9.60        | 0.02       | 9.86                 | 29.42        | 49.97      | -20.55     | Average  | LINE  |
| 7      | 0.55  | 20.14      | 9.60        | 0.02       | 9.86                 | 39.62        | 56.00      | -16.38     | QP       | LINE  |
| 8      | 0.55  | 8.28       | 9.60        | 0.02       | 9.86                 | 27.76        | 46.00      | -18.24     | Average  | LINE  |
| 9      | 3.55  | 19.66      | 9.60        | 0.07       | 9.87                 | 39.20        | 56.00      | -16.80     | QP       | LINE  |
| 10     | 3.55  | 7.54       | 9.60        | 0.07       | 9.87                 | 27.08        | 46.00      | -18.92     | Average  | LINE  |
| 11     | 7.33  | 17.91      | 9.60        | 0.10       | 9.88                 | 37.49        | 60.00      | -22.51     | QP       | LINE  |
| 12     | 7.33  | 9.73       | 9.60        | 0.10       | 9.88                 | 29.31        | 50.00      | -20.69     | Average  | LINE  |

Note:

1. Result Level = Read Level + LISN Factor + Pulse Limiter Factor + Cable loss.
2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.
3. Test setup: RBW: 200 Hz (9 kHz—150 kHz), 9 kHz (150 kHz—30 MHz).
4. Step size: 80Hz (0.009MHz-0.15MHz), 4 kHz (0.15MHz-30MHz), Scan time: auto.

### 3.9. Test photo



## 4. Radiated Emissions Test

### 4.1. General information

|                          |                 |
|--------------------------|-----------------|
| Test and report Engineer | : Lori Mi       |
| Test and report Date     | : Oct. 27, 2020 |

### 4.2. Test equipment

| Equipment                                     | Manufacturer    | Model No.                   | Serial No.        | Last Cal.     | Cal. Interval |
|-----------------------------------------------|-----------------|-----------------------------|-------------------|---------------|---------------|
| <b>Radiation DQT 10m 1#chamber (below 1G)</b> |                 |                             |                   |               |               |
| Test Receiver                                 | Rohde & Schwarz | ESU40                       | 100012            | Jan. 12, 2020 | 1 Year        |
| Trilog Broadband Antenna                      | Schwarzbeck     | VULB9163                    | 331               | Mar. 12, 2019 | 3 Year        |
| Test software                                 | Audix           | E3                          | V 6.11111b        | N/A           | N/A           |
| <b>Radiation 1#chamber (above 1G)</b>         |                 |                             |                   |               |               |
| EMI Test Receiver                             | R&S             | ESU8                        | 100316            | Sep. 24, 2020 | 1 Year        |
| Spectrum analyzer                             | Agilent         | E4447A                      | MY50180031        | Jul. 01, 2020 | 1 Year        |
| Double Ridged Horn Antenna                    | R&S             | HF907                       | 100276            | Nov. 15, 2019 | 1 Year        |
| Pre-amplifier                                 | TERA-MW         | TRLA-0040G35                | 101303            | Sep. 28, 2020 | 1 Year        |
| Pre-amplifier                                 | A.H.            | PAM-0118                    | 360               | Sep. 28, 2020 | 1 Year        |
| RF Cable                                      | N/A             | SMAJ-SMAJ-1M+ SMAJ-SMAJ-11M | 17070133+17070131 | Sep. 30, 2020 | 1 Year        |
| Test software                                 | Audix           | E3                          | V 6.11111b        | N/A           | N/A           |
| Notes. N/A means Not applicable.              |                 |                             |                   |               |               |

### 4.3. Reference standard

EN 55032:2015





#### 4.5. Limits

##### Class A

| Equipment         | Frequency         | Field Strengths Limits at 10m measuring distance dB( $\mu$ V)/m | Field Strengths Limits at 3m measuring distance dB( $\mu$ V)/m |
|-------------------|-------------------|-----------------------------------------------------------------|----------------------------------------------------------------|
| Class A Equipment | 30MHz to 230MHz   | 40                                                              | 50                                                             |
|                   | 230MHz to 1000MHz | 47                                                              | 57                                                             |
|                   | 1GHz to 3GHz      | /                                                               | Average:56 ; Peak:76                                           |
|                   | 3GHz to 6GHz      | /                                                               | Average:60 ; Peak:80                                           |

##### Class B

| Equipment         | Frequency         | Field Strengths Limits at 10m measuring distance dB( $\mu$ V)/m | Field Strengths Limits at 3m measuring distance dB( $\mu$ V)/m |
|-------------------|-------------------|-----------------------------------------------------------------|----------------------------------------------------------------|
| Class B Equipment | 30MHz to 230MHz   | 30                                                              | 40                                                             |
|                   | 230MHz to 1000MHz | 37                                                              | 47                                                             |
|                   | 1GHz to 3GHz      | /                                                               | Average:50 ; Peak:70                                           |
|                   | 3GHz to 6GHz      | /                                                               | Average:54 ; Peak:74                                           |
| FM receivers*     | 30MHz to 1000MHz  | Fundamental 50                                                  | Fundamental 60                                                 |
|                   | 30MHz to 300MHz   | Harmonics 42                                                    | Harmonics 52                                                   |
|                   | 300MHz to 1000MHz | Harmonics 46                                                    | Harmonics 56                                                   |

\*: these relaxed limits apply only to emission at the fundamental and harmonic frequencies of the local oscillator signals at all other frequencies shall be compliant with the limits of class B equipment given above.

Note: (1) The smaller limit shall apply at the cross point between two frequency bands.

(2) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

#### 4.6. Assistant equipment used for test

| Assistant equipment | Manufacturer | Model number | Description                                                   | other |
|---------------------|--------------|--------------|---------------------------------------------------------------|-------|
| USB Output Cable    | N/A          | N/A          | Length: 1.00m, unshielded, non-magnetic ring                  | N/A   |
| R load              | N/A          | N/A          | 5V/2A                                                         | N/A   |
| Adapter             | HUAWEI       | HW-050450C00 | Input: 100-240V~ 50/60Hz, Output: 5V/2A or 4.5V/5A or 5V/4.5A | N/A   |

#### 4.7. Test procedure

- (1) The EUT was placed on a non-metallic table, 80 cm above the ground plane inside an semi-anechoic chamber.
- (2) Test antenna was located ☑3m / ☑10m (see note) from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipment and

all of the interface cables were changed according to EN 55032 on radiated emission test.

(3) Spectrum frequency from 30MHz to  $\square$ 1GHz /  $\boxtimes$ 6GHz was investigated.

(4) For final emissions measurements at each frequency of interest, the EUT were rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to EN 55032 on Radiated Emission test.

(5) For emissions from 30MHz to 1GHz, Quasi-Peak values were measured with EMI Receiver and the bandwidth of Receiver is 120 kHz.

(6) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz VBW is set at 3MHz.

Note: This test emissions from 30MHz to 1GHz was subcontracted to Bureau of Quality and Technology Supervision of Dongguan City.

#### 4.8. Test result

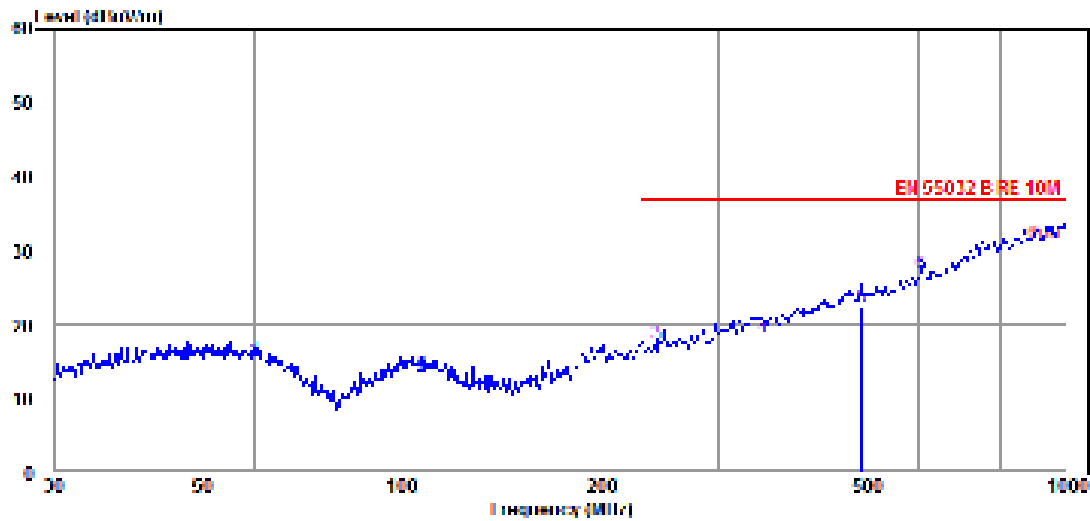
##### **PASS. (See below detailed test result)**

Note: All emissions not reported below are too low against the prescribed limits.

## TR-4-E-009 Radiated Emission Test Result

**Test Site** : DQT 10 m Chamber 1# **D:\2020 Report test data\Q20070616-1E\20201027 10M RE.EM6**  
**Test Date** : 2020-10-27 **Tested By** : Lori Mi  
**EUT** : Portable Bluetooth Speaker **Model Number** : CHARGE5H  
**Power Supply** : Battery **Test Mode** : 5V/2A load mode  
**Condition** : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : DQT FACTOR/10m/HORIZONTAL  
**Memo** :

Data: 25



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Factor<br>(dB/m) | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 60.28          | 0.51                    | 14.45            | 14.96                       | 30.00                     | -15.04                | QP       | HORIZONTAL   |
| 2              | 107.51         | -0.72                   | 13.62            | 12.90                       | 30.00                     | -17.10                | QP       | HORIZONTAL   |
| 3              | 242.53         | 2.13                    | 15.13            | 17.26                       | 37.00                     | -19.74                | QP       | HORIZONTAL   |
| 4              | 350.48         | -0.21                   | 18.35            | 18.14                       | 37.00                     | -18.86                | QP       | HORIZONTAL   |
| 5              | 492.47         | 1.13                    | 21.17            | 22.30                       | 37.00                     | -14.70                | QP       | HORIZONTAL   |
| 6              | 605.66         | 4.31                    | 22.47            | 26.78                       | 37.00                     | -10.22                | QP       | HORIZONTAL   |

Note: 1. Result Level = Read Level + Factor.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

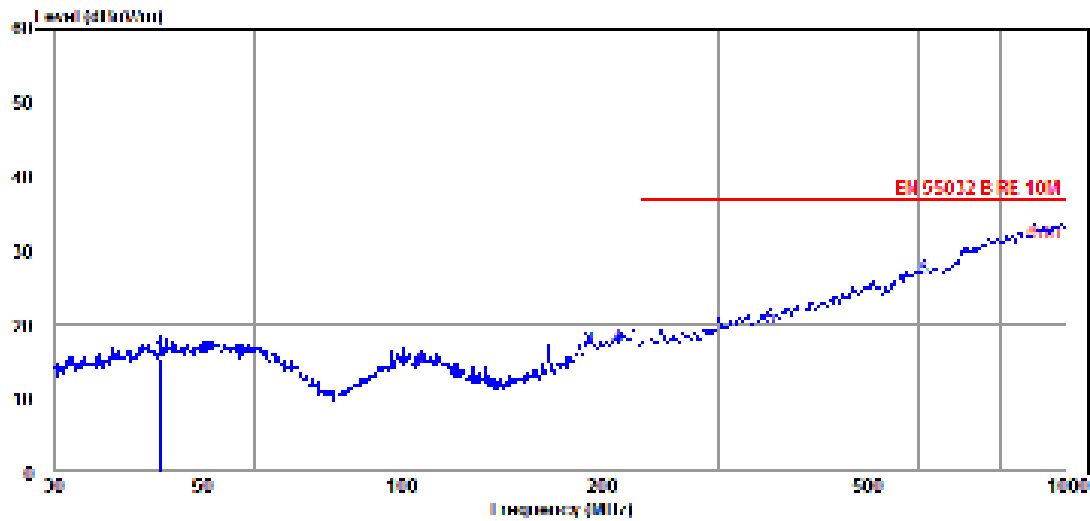
3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.



## TR-4-E-009 Radiated Emission Test Result

**Test Site** : DQT 10 m Chamber 1# **D:\2020 Report test data\Q20070616-1E\20201027 10M RE.EM6**  
**Test Date** : 2020-10-27 **Tested By** : Lori Mi  
**EUT** : Portable Bluetooth Speaker **Model Number** : CHARGE5H  
**Power Supply** : Battery **Test Mode** : 5V/2A load mode  
**Condition** : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : DQT FACTOR/10m/VERTICAL  
**Memo** :

Data: 26



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Factor<br>(dB/m) | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 43.20          | 0.79                    | 14.67            | 15.46                       | 30.00                     | -14.54                | QP       | VERTICAL     |
| 2              | 107.51         | -0.05                   | 13.62            | 13.57                       | 30.00                     | -16.43                | QP       | VERTICAL     |
| 3              | 191.75         | 2.99                    | 13.53            | 16.52                       | 30.00                     | -13.48                | QP       | VERTICAL     |
| 4              | 211.53         | 2.67                    | 13.99            | 16.66                       | 30.00                     | -13.34                | QP       | VERTICAL     |
| 5              | 360.45         | 0.80                    | 18.57            | 19.37                       | 37.00                     | -17.63                | QP       | VERTICAL     |
| 6              | 612.06         | 3.62                    | 22.40            | 26.02                       | 37.00                     | -10.98                | QP       | VERTICAL     |

Note: 1. Result Level = Read Level + Factor.

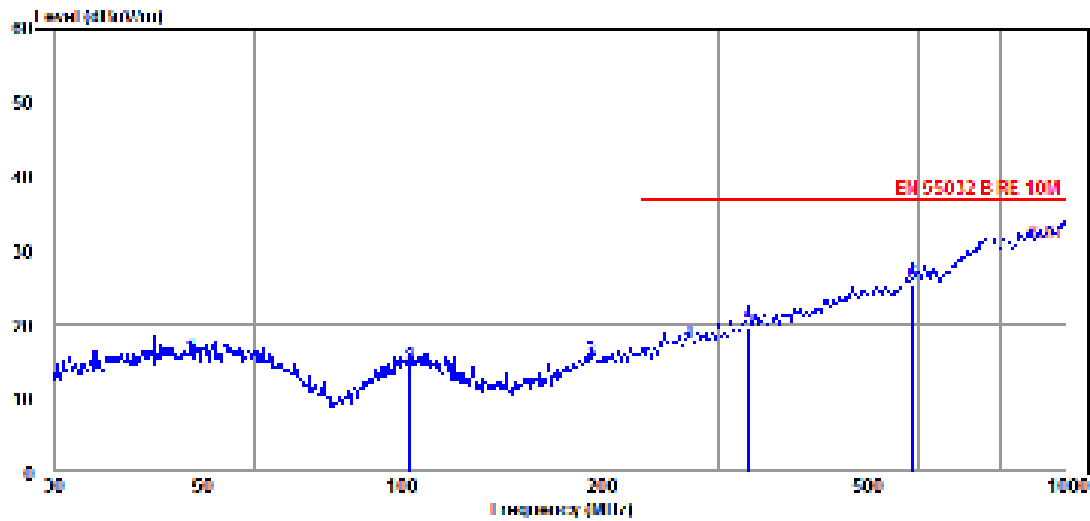
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Site** : DQT 10 m Chamber 1# **D:\2020 Report test data\Q20070616-1E\20201027 10M RE.EM6**  
**Test Date** : 2020-10-27 **Tested By** : Lori Mi  
**EUT** : Portable Bluetooth Speaker **Model Number** : CHARGE5H  
**Power Supply** : AC 120V/60Hz **Test Mode** : Charging + 5V/2A load mode  
**Condition** : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : DQT FACTOR/10m/HORIZONTAL  
**Memo** :

Data: 27



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Factor<br>(dB/m) | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 48.33          | 0.51                    | 14.93            | 15.44                       | 30.00                     | -14.56                | QP       | HORIZONTAL   |
| 2              | 102.72         | 0.32                    | 13.81            | 14.13                       | 30.00                     | -15.87                | QP       | HORIZONTAL   |
| 3              | 192.42         | 1.44                    | 13.53            | 14.97                       | 30.00                     | -15.03                | QP       | HORIZONTAL   |
| 4              | 271.33         | 1.40                    | 15.93            | 17.33                       | 37.00                     | -19.67                | QP       | HORIZONTAL   |
| 5              | 333.69         | 1.63                    | 17.80            | 19.43                       | 37.00                     | -17.57                | QP       | HORIZONTAL   |
| 6              | 588.91         | 3.06                    | 22.21            | 25.27                       | 37.00                     | -11.73                | QP       | HORIZONTAL   |

Note: 1. Result Level = Read Level + Factor.

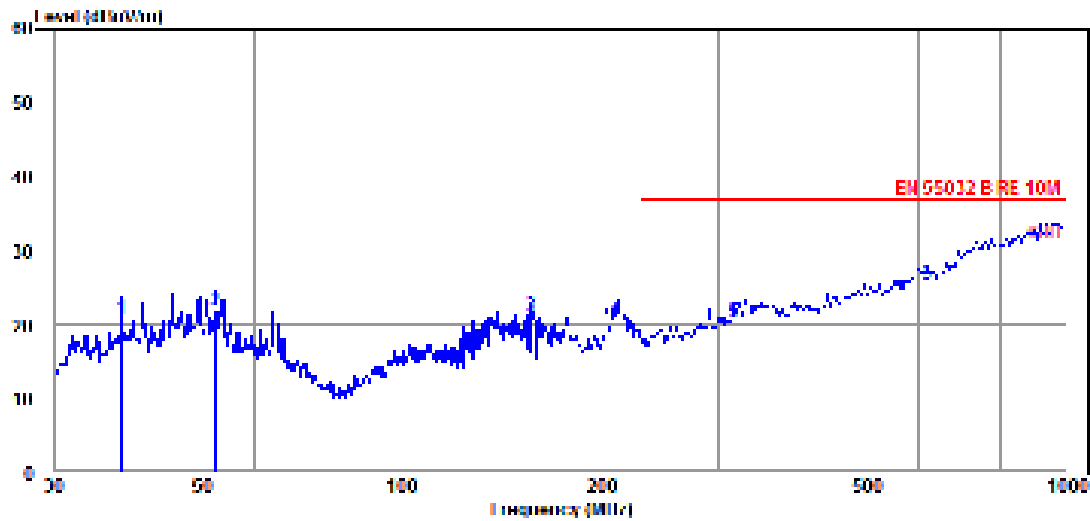
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Site** : DQT 10 m Chamber 1# **D:\2020 Report test data\Q20070616-1E\20201027 10M RE.EM6**  
**Test Date** : 2020-10-27 **Tested By** : Lori Mi  
**EUT** : Portable Bluetooth Speaker **Model Number** : CHARGE5H  
**Power Supply** : AC 120V/60Hz **Test Mode** : Charging + 5V/2A load mode  
**Condition** : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : DQT FACTOR/10m/VERTICAL  
**Memo** :

Data: 28



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Factor<br>(dB/m) | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 37.81          | 6.78                    | 14.04            | 20.82                       | 30.00                     | -9.18                 | QP       | VERTICAL     |
| 2              | 52.21          | 6.91                    | 14.90            | 21.81                       | 30.00                     | -8.19                 | QP       | VERTICAL     |
| 3              | 157.01         | 10.71                   | 10.63            | 21.34                       | 30.00                     | -8.66                 | QP       | VERTICAL     |
| 4              | 210.79         | 6.88                    | 13.97            | 20.85                       | 30.00                     | -9.15                 | QP       | VERTICAL     |
| 5              | 317.70         | 3.21                    | 17.25            | 20.46                       | 37.00                     | -16.54                | QP       | VERTICAL     |
| 6              | 618.54         | 2.99                    | 22.32            | 25.31                       | 37.00                     | -11.69                | QP       | VERTICAL     |

Note: 1. Result Level = Read Level + Factor.

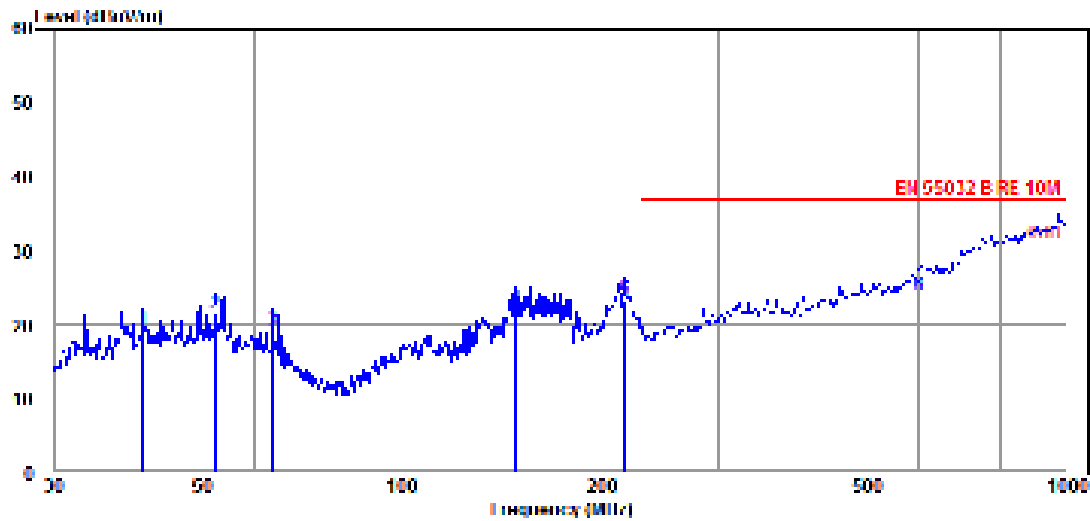
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Site** : DQT 10 m Chamber 1# **D:\2020 Report test data\Q20070616-1E\20201027 10M RE.EM6**  
**Test Date** : 2020-10-27 **Tested By** : Lori Mi  
**EUT** : Portable Bluetooth Speaker **Model Number** : CHARGE5H  
**Power Supply** : AC 240V/50Hz **Test Mode** : Charging + 5V/2A load mode  
**Condition** : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : DQT FACTOR/10m/VERTICAL  
**Memo** :

Data: 29



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Factor<br>(dB/m) | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 40.70          | 4.77                    | 14.53            | 19.30                       | 30.00                     | -10.70                | QP       | VERTICAL     |
| 2              | 52.21          | 6.45                    | 14.90            | 21.35                       | 30.00                     | -8.65                 | QP       | VERTICAL     |
| 3              | 63.98          | 5.88                    | 13.26            | 19.14                       | 30.00                     | -10.86                | QP       | VERTICAL     |
| 4              | 148.44         | 12.03                   | 10.13            | 22.16                       | 30.00                     | -7.84                 | QP       | VERTICAL     |
| 5              | 216.78         | 9.05                    | 14.20            | 23.25                       | 30.00                     | -6.75                 | QP       | VERTICAL     |
| 6              | 603.54         | 1.35                    | 22.49            | 23.84                       | 37.00                     | -13.16                | QP       | VERTICAL     |

Note: 1. Result Level = Read Level + Factor.

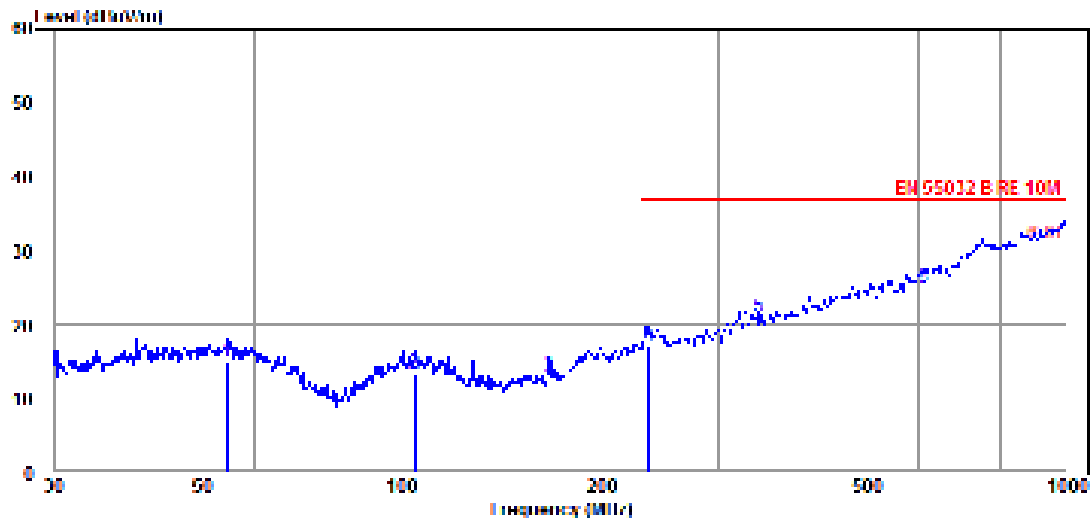
2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

## TR-4-E-009 Radiated Emission Test Result

**Test Site** : DQT 10 m Chamber 1# **D:\2020 Report test data\Q20070616-1E\20201027 10M RE.EM6**  
**Test Date** : 2020-10-27 **Tested By** : Lori Mi  
**EUT** : Portable Bluetooth Speaker **Model Number** : CHARGE5H  
**Power Supply** : AC 240V/50Hz **Test Mode** : Charging + 5V/2A load mode  
**Condition** : Temp:24.5°C,Humi:55%,Press:101.4kPa **Antenna/Distance** : DQT FACTOR/10m/HORIZONTAL  
**Memo** :

Data: 30



| Item<br>(Mark) | Freq.<br>(MHz) | Read<br>Level<br>(dBμV) | Factor<br>(dB/m) | Result<br>Level<br>(dBμV/m) | Limit<br>Line<br>(dBμV/m) | Over<br>Limit<br>(dB) | Detector | Polarization |
|----------------|----------------|-------------------------|------------------|-----------------------------|---------------------------|-----------------------|----------|--------------|
| 1              | 54.45          | 0.05                    | 14.79            | 14.84                       | 30.00                     | -15.16                | QP       | HORIZONTAL   |
| 2              | 104.54         | -0.31                   | 13.73            | 13.42                       | 30.00                     | -16.58                | QP       | HORIZONTAL   |
| 3              | 167.24         | 1.89                    | 11.19            | 13.08                       | 30.00                     | -16.92                | QP       | HORIZONTAL   |
| 4              | 235.82         | 1.96                    | 14.90            | 16.86                       | 37.00                     | -20.14                | QP       | HORIZONTAL   |
| 5              | 345.60         | 2.88                    | 18.20            | 21.08                       | 37.00                     | -15.92                | QP       | HORIZONTAL   |
| 6              | 612.06         | 2.65                    | 22.40            | 25.05                       | 37.00                     | -11.95                | QP       | HORIZONTAL   |

Note: 1. Result Level = Read Level + Factor.

2. If Peak Result complies with QP limit, QP Result is deemed to comply with QP limit.

3. Test setup: RBW: 120 kHz, VBW: 300 kHz, Sweep time: auto.

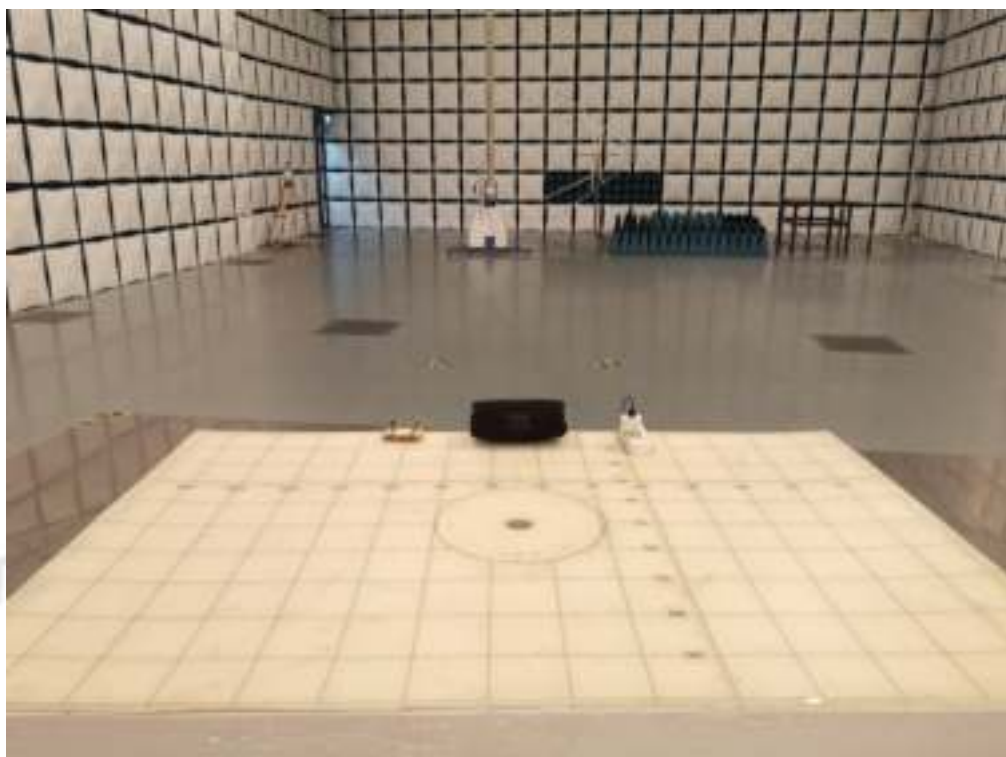
**Radiated emission test (1GHz-6GHz)**

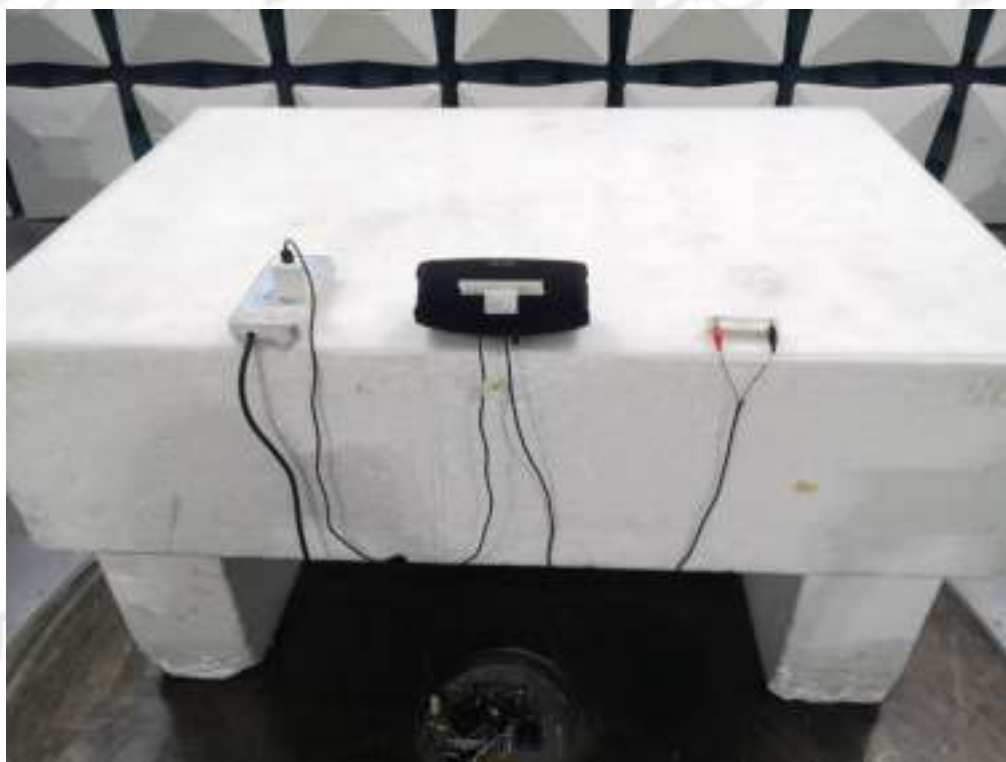
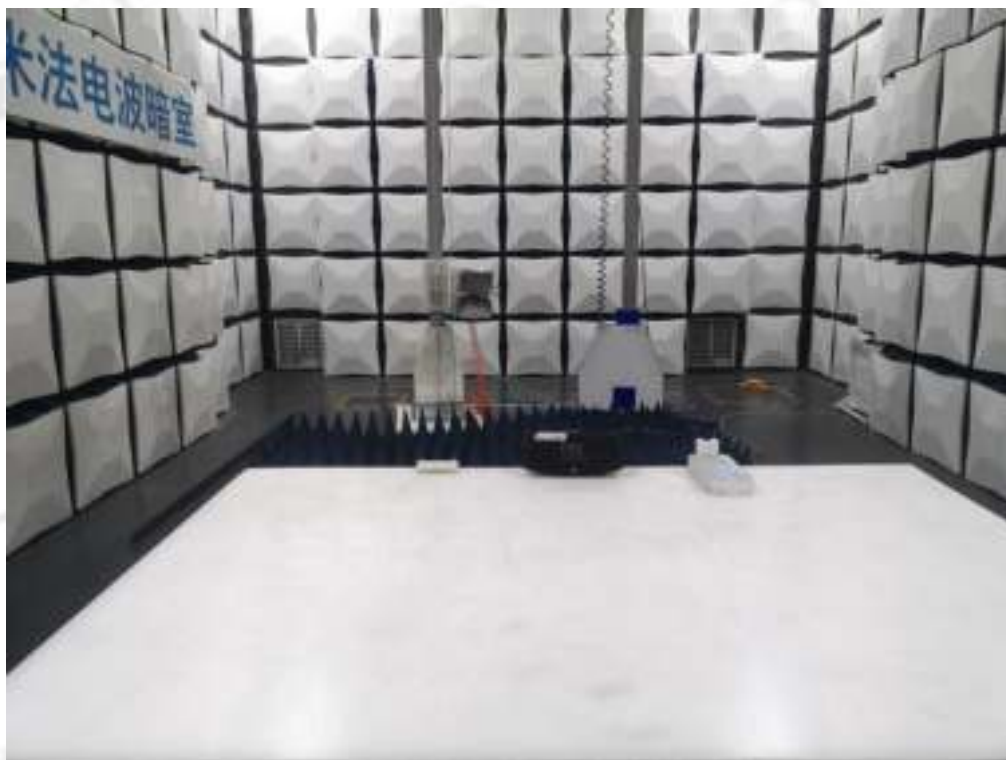
| Freq.<br>(MHz)                                              | Read<br>level<br>(dBμV) | Antenna<br>Factor<br>(dB/m) | PRM<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Result<br>Level<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) | Detector<br>type | Polarization |
|-------------------------------------------------------------|-------------------------|-----------------------------|-----------------------|-----------------------|-----------------------------|-------------------|----------------|------------------|--------------|
| Power Supply: AC 120V/60Hz Test mode: Charging + 5V/2A mode |                         |                             |                       |                       |                             |                   |                |                  |              |
| 2635.00                                                     | 47.69                   | 30.13                       | 43.32                 | 4.58                  | 39.08                       | 70.00             | -30.92         | Peak             | VERTICAL     |
| 3575.00                                                     | 48.75                   | 32.73                       | 43.67                 | 5.75                  | 43.56                       | 74.00             | -30.44         | Peak             | VERTICAL     |
| 3975.00                                                     | 49.45                   | 33.36                       | 43.79                 | 6.27                  | 45.29                       | 74.00             | -28.71         | Peak             | VERTICAL     |
| 4380.00                                                     | 49.57                   | 33.48                       | 43.64                 | 6.54                  | 45.95                       | 74.00             | -28.05         | Peak             | VERTICAL     |
| 4890.00                                                     | 49.25                   | 34.29                       | 43.45                 | 6.84                  | 46.93                       | 74.00             | -27.07         | Peak             | VERTICAL     |
| 5360.00                                                     | 48.65                   | 34.72                       | 43.29                 | 7.17                  | 47.25                       | 74.00             | -26.75         | Peak             | VERTICAL     |
| 3240.00                                                     | 49.25                   | 31.90                       | 43.56                 | 5.27                  | 42.86                       | 74.00             | -31.14         | Peak             | HORIZONTAL   |
| 3655.00                                                     | 49.34                   | 32.86                       | 43.70                 | 5.86                  | 44.36                       | 74.00             | -29.64         | Peak             | HORIZONTAL   |
| 3970.00                                                     | 49.18                   | 33.35                       | 43.79                 | 6.26                  | 45.00                       | 74.00             | -29.00         | Peak             | HORIZONTAL   |
| 4480.00                                                     | 49.13                   | 33.50                       | 43.60                 | 6.60                  | 45.63                       | 74.00             | -28.37         | Peak             | HORIZONTAL   |
| 4950.00                                                     | 48.37                   | 34.40                       | 43.43                 | 6.87                  | 46.21                       | 74.00             | -27.79         | Peak             | HORIZONTAL   |
| 5520.00                                                     | 48.36                   | 34.82                       | 43.24                 | 7.28                  | 47.22                       | 74.00             | -26.78         | Peak             | HORIZONTAL   |
| Power Supply: AC 240V/50Hz Test mode: Charging + 5V/2A mode |                         |                             |                       |                       |                             |                   |                |                  |              |
| 3085.00                                                     | 48.25                   | 31.45                       | 43.50                 | 5.04                  | 41.24                       | 74.00             | -32.76         | Peak             | HORIZONTAL   |
| 3585.00                                                     | 48.97                   | 32.74                       | 43.67                 | 5.77                  | 43.81                       | 74.00             | -30.19         | Peak             | HORIZONTAL   |
| 4335.00                                                     | 49.62                   | 33.47                       | 43.66                 | 6.52                  | 45.95                       | 74.00             | -28.05         | Peak             | HORIZONTAL   |
| 4605.00                                                     | 49.32                   | 33.72                       | 43.56                 | 6.68                  | 46.16                       | 74.00             | -27.84         | Peak             | HORIZONTAL   |
| 5025.00                                                     | 48.96                   | 34.52                       | 43.41                 | 6.92                  | 46.99                       | 74.00             | -27.01         | Peak             | HORIZONTAL   |
| 5335.00                                                     | 48.83                   | 34.70                       | 43.30                 | 7.15                  | 47.38                       | 74.00             | -26.62         | Peak             | HORIZONTAL   |
| 2820.00                                                     | 48.52                   | 30.69                       | 43.40                 | 4.75                  | 40.56                       | 70.00             | -29.44         | Peak             | VERTICAL     |
| 3375.00                                                     | 49.97                   | 32.27                       | 43.60                 | 5.47                  | 44.11                       | 74.00             | -29.89         | Peak             | VERTICAL     |
| 3745.00                                                     | 49.20                   | 33.01                       | 43.72                 | 5.98                  | 44.47                       | 74.00             | -29.53         | Peak             | VERTICAL     |
| 4325.00                                                     | 48.82                   | 33.47                       | 43.67                 | 6.51                  | 45.13                       | 74.00             | -28.87         | Peak             | VERTICAL     |
| 4705.00                                                     | 49.23                   | 33.92                       | 43.52                 | 6.74                  | 46.37                       | 74.00             | -27.63         | Peak             | VERTICAL     |
| 5005.00                                                     | 49.02                   | 34.50                       | 43.41                 | 6.90                  | 47.01                       | 74.00             | -26.99         | Peak             | VERTICAL     |
| Power Supply: Battery Test mode: 5V/2A mode                 |                         |                             |                       |                       |                             |                   |                |                  |              |
| 2545.00                                                     | 48.32                   | 29.85                       | 43.28                 | 4.49                  | 39.38                       | 70.00             | -30.62         | Peak             | VERTICAL     |
| 2935.00                                                     | 48.14                   | 31.02                       | 43.44                 | 4.85                  | 40.57                       | 70.00             | -29.43         | Peak             | VERTICAL     |
| 3325.00                                                     | 47.84                   | 32.13                       | 43.59                 | 5.40                  | 41.78                       | 74.00             | -32.22         | Peak             | VERTICAL     |
| 3945.00                                                     | 48.72                   | 33.32                       | 43.78                 | 6.23                  | 44.49                       | 74.00             | -29.51         | Peak             | VERTICAL     |
| 4695.00                                                     | 48.06                   | 33.90                       | 43.52                 | 6.73                  | 45.17                       | 74.00             | -28.83         | Peak             | VERTICAL     |
| 5335.00                                                     | 48.35                   | 34.70                       | 43.30                 | 7.15                  | 46.90                       | 74.00             | -27.10         | Peak             | VERTICAL     |
| 2935.00                                                     | 48.43                   | 31.02                       | 43.44                 | 4.85                  | 40.86                       | 70.00             | -29.14         | Peak             | HORIZONTAL   |
| 3415.00                                                     | 49.24                   | 32.38                       | 43.62                 | 5.53                  | 43.53                       | 74.00             | -30.47         | Peak             | HORIZONTAL   |
| 4030.00                                                     | 48.51                   | 33.41                       | 43.79                 | 6.32                  | 44.45                       | 74.00             | -29.55         | Peak             | HORIZONTAL   |
| 4655.00                                                     | 48.75                   | 33.82                       | 43.54                 | 6.71                  | 45.74                       | 74.00             | -28.26         | Peak             | HORIZONTAL   |
| 4970.00                                                     | 49.47                   | 34.44                       | 43.43                 | 6.88                  | 47.36                       | 74.00             | -26.64         | Peak             | HORIZONTAL   |
| 5460.00                                                     | 48.39                   | 34.78                       | 43.26                 | 7.24                  | 47.15                       | 74.00             | -26.85         | Peak             | HORIZONTAL   |
| Result: Pass                                                |                         |                             |                       |                       |                             |                   |                |                  |              |

Note: Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.



#### 4.9. Test photo









### 5.5. Harmonic current limits

For Class A equipment

| Harmonic order(n)   | Maximum permissible harmonic current (A) |
|---------------------|------------------------------------------|
| 3                   | 2.30                                     |
| 5                   | 1.14                                     |
| 7                   | 0.77                                     |
| 9                   | 0.40                                     |
| 11                  | 0.33                                     |
| 13                  | 0.21                                     |
| $15 \leq n \leq 39$ | $0.15 \cdot 15/n$                        |
| Even harmonics      |                                          |
| 2                   | 1.08                                     |
| 4                   | 0.43                                     |
| 6                   | 0.30                                     |
| $8 \leq n \leq 40$  | $0.23 \cdot 8/n$                         |

For Class B equipment

The harmonics of the input current shall not exceed the values given in class A equipment limits multiplied by a factor of 1.5.

For Class C equipment

| Harmonic order(n)                            | Maximum permissible harmonic current expressed as a percentage of the input current at the fundamental frequency % |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| 2                                            | 2                                                                                                                  |
| 3                                            | $30 \times \lambda$                                                                                                |
| 5                                            | 10                                                                                                                 |
| 7                                            | 7                                                                                                                  |
| 9                                            | 3                                                                                                                  |
| $11 \leq n \leq 39$<br>(odd harmonic only)   | $0.23 \cdot 8/n$                                                                                                   |
| Note: $\lambda$ is the circuit power factor. |                                                                                                                    |

For Class D equipment

| Harmonic order(n)                          | Maximum permissible harmonic current per watt mA/W | Maximum permissible harmonic current (A) |
|--------------------------------------------|----------------------------------------------------|------------------------------------------|
| 3                                          | 3.4                                                | 2.30                                     |
| 5                                          | 1.9                                                | 1.14                                     |
| 7                                          | 1.0                                                | 0.77                                     |
| 9                                          | 0.5                                                | 0.40                                     |
| 11                                         | 0.35                                               | 0.33                                     |
| $13 \leq n \leq 39$<br>(odd harmonic only) | $3.85/n$                                           | Refer to Class A limit                   |

### 5.6. Voltage fluctuations & flicker Limit

| Test Item | Limit | Note                                           |
|-----------|-------|------------------------------------------------|
| Pst       | 1.0   | Pst means Short-term flicker indicator         |
| Plt       | 0.65  | Plt means long-term flicker indicator          |
| Tdt       | 0.5   | Tdt means maximum time that dt exceeds 3.3%    |
| dmax(%)   | 4%    | dmax means maximum relative voltage change.    |
| dc(%)     | 3.3%  | dc means relative steady-state voltage change. |

### 5.7. Assistant equipment used for test

| Assistant equipment | Manufacturer | Model number | Description                                                   | other |
|---------------------|--------------|--------------|---------------------------------------------------------------|-------|
| USB Output Cable    | N/A          | N/A          | Length: 1.00m, unshielded, non-magnetic ring                  | N/A   |
| R load              | N/A          | N/A          | 5V/2A                                                         | N/A   |
| Adapter             | HUAWEI       | HW-050450C00 | Input: 100-240V~ 50/60Hz, Output: 5V/2A or 4.5V/5A or 5V/4.5A | N/A   |

### 5.8. Test procedure

#### For Harmonic current test:

The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the necessary for the EUT to be exercised.

#### For Voltage fluctuations & flicker

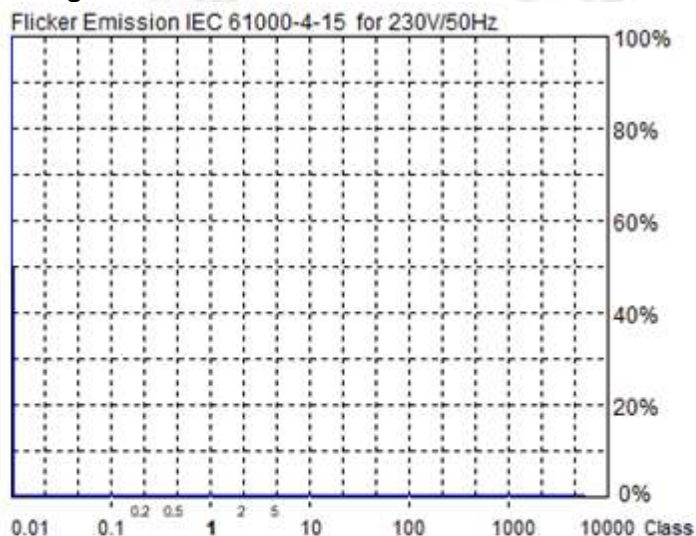
The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal conditions during the flick measurement; the measure time shall include that part of whole operation changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

### 5.9. Test result

#### Harmonic current test result:

Not Applicable

This product is not defined as lighting equipment, and has rated power less than 75W, therefore, no limit apply according to EN IEC 61000-3-2 harmonics currents emissions test.

**Voltage fluctuations & flicker test result:**

Actual Flicker (Fli): 0.00  
Short-term Flicker (Pst): 0.07  
Limit (Pst): 1.00  
Long-term Flicker (Plt): 0.07  
Limit (Plt): 0.65  
Maximum Relative Volt. Change (dmax): OFL  
Limit (dmax): 4.00%  
Relative Steady-state Voltage Change (dc): 0.00%  
Limit (dc): 3.30%  
Tmax 3.30% (dt): 0.00ms  
Limit (dt>Lim): 500ms

**Flicker Emission - IEC 61000-3-3, EN 61000-3-3**

Urms = 231.5 V P = 14.16 W  
Irms = 0.127 A pf = 0.482

Range: 1 A  
V-nom: 230 V  
TestTime: 10 min (100%)

Test completed, Result: PASSED

HAR-1000 EMC Partner

Full Bar : Actual Values  
Empty Bar : Maximum Values  
Circles : Average Values  
Blue : Current , Green : Voltage , Red : Failed

File :

Operator Elosky Liu  
Unit Portable Bluetooth Speaker  
Serial Number CHARGE5H  
Test Mode Charging + 5V/2A load mode

Urms = 231.5V Freq = 49.987 Range: 1 A  
Irms = 0.127A Ipk = 0.513A cf = 4.038  
P = 14.16W S = 29.39VA pf = 0.482  
Test - Time : 1 x 10min = 10min ( 100 %)  
LIN (Line Impedance Network) : L: 0.24ohm +j0.15ohm N: 0.16ohm +j0.10ohm  
Limits : Plt : 0.65 Pst : 1.00  
dmax : 4.00 % dc : 3.30 %  
dtLim: 3.30 % dt>Lim: 500ms

Test completed, Result: PASSED

dmax  
[%]  
1 0.020

### 5.10. Test photo





### 6.5. Test levels and performance criterion

| Test Level        |                                                          | Performance Criteria |
|-------------------|----------------------------------------------------------|----------------------|
| Air Discharge     | $\pm 2\text{kV}$ , $\pm 4\text{kV}$ and $\pm 8\text{kV}$ | <b>B</b>             |
| Contact Discharge | $\pm 4\text{kV}$                                         |                      |

Performance criteria B description: During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended.

### 6.6. Assistant equipment used for test

| Assistant equipment | Manufacturer | Model number | Description                                                   | other |
|---------------------|--------------|--------------|---------------------------------------------------------------|-------|
| USB Output Cable    | N/A          | N/A          | Length: 1.00m, unshielded, non-magnetic ring                  | N/A   |
| R load              | N/A          | N/A          | 5V/2A                                                         | N/A   |
| Adapter             | HUAWEI       | HW-050450C00 | Input: 100-240V~ 50/60Hz, Output: 5V/2A or 4.5V/5A or 5V/4.5A | N/A   |

### 6.7. Test procedure

#### Air Discharge:

The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 20 times for each pre-selected test point. This procedure was repeated until all the air discharge completed.

#### Contact Discharge:

All the procedure was same as air discharge. Except that the generator was re-triggered for a new single discharge. The tip of the discharge electrode was touching the EUT before the discharge switch was operated.

#### Indirect discharge for horizontal coupling plane:

At least 20 single discharges were applied to the horizontal coupling plane, at points on each side of the EUT. The discharge electrode positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.

#### Indirect discharge for vertical coupling plane:

At least 20 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, was placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

**6.8. Test result**

| Ambient Condition : <u>23.5</u> °C <u>50.8</u> %RH <u>101.4</u> kPa                                 |                            |                  |                 |             |             |                       |
|-----------------------------------------------------------------------------------------------------|----------------------------|------------------|-----------------|-------------|-------------|-----------------------|
| Test Site: DDT 3# Shield Room      Power supply: AC 230V/50Hz, Battery                              |                            |                  |                 |             |             |                       |
| Test Times: 20 times at each point for contact discharge; 20 times at each point for air discharge. |                            |                  |                 |             |             |                       |
| Operation Mode                                                                                      | Type of discharge          | Test Level       | Test Point      | Performance |             | Result<br>(Pass/Fail) |
|                                                                                                     |                            |                  |                 | Required    | Observation |                       |
| 5V/2A load mode                                                                                     | Contact to EUT             | ±4kV             | 1,2,3           | B           | A           | Pass                  |
|                                                                                                     | Contact to Coupling Planes | ±4kV             | Coupling Planes | B           | A           | Pass                  |
|                                                                                                     | Air                        | ±2kV, ±4kV, ±8kV | 1,2,4,5,6,7     | B           | A           | Pass                  |
| Charging + 5V/2A load mode                                                                          | Contact to EUT             | ±4kV             | 1,2             | B           | A           | Pass                  |
|                                                                                                     | Contact to Coupling Planes | ±4kV             | Coupling Planes | B           | A           | Pass                  |
|                                                                                                     | Air                        | ±2kV, ±4kV, ±8kV | 1,2,3,4,5,6,7   | B           | A           | Pass                  |
| Test Point:                                                                                         |                            |                  |                 |             |             |                       |
| No.                                                                                                 | Description                | No.              | Description     | No.         | Description |                       |
| 1                                                                                                   | LOGO                       | 4                | USB port        | 7           | LED         |                       |
| 2                                                                                                   | Metal                      | 5                | Key             | 8           | /           |                       |
| 3                                                                                                   | Type-C port                | 6                | Gap             | 9           | /           |                       |
| <b>Observation Description:</b>                                                                     |                            |                  |                 |             |             |                       |
| A: Operation as intend, no loss of function during test and after test.                             |                            |                  |                 |             |             |                       |



Photo of ESD point on EUT:



## 6.9. Test photo



## 7. Continuous Radio Frequency Disturbances

### 7.1. General information

|                          |                 |
|--------------------------|-----------------|
| Test and report Engineer | : Elosky Liu    |
| Test and report Date     | : Oct. 26, 2020 |

### 7.2. Test equipment

| Equipment            | Manufacturer | Model No.          | Serial No. | Last Cal.     | Cal. Interval |
|----------------------|--------------|--------------------|------------|---------------|---------------|
| Signal Generator     | Agilent      | N5172B             | MY53050018 | Sep. 24, 2020 | 1 Year        |
| Amplifier            | Wonder       | HPA80M1000M500     | 101        | Jul. 10, 2020 | 1 Year        |
| Amplifier            | Wonder       | HPA1000M2500M300   | 102        | Jul. 10, 2020 | 1 Year        |
| Amplifier            | Wonder       | HPA2500M6000M200   | 103        | Jul. 10, 2020 | 1 Year        |
| Power meter          | Agilent      | E4417A             | MY45100568 | Sep. 24, 2020 | 1 Year        |
| Power sensor         | Agilent      | E9323              | MY44420907 | Sep. 24, 2020 | 1 Year        |
| Power sensor         | Agilent      | E9323              | US40410405 | Sep. 24, 2020 | 1 Year        |
| Log-periodic antenna | Schwarzbeck  | STLP 9149          | 587        | N/A           | N/A           |
| Log-periodic antenna | Schwarzbeck  | STLP 9128D special | 090        | N/A           | N/A           |
| Field strength probe | PMM          | EP-601             | 611WX80209 | Nov. 08, 2019 | 1 Year        |

### 7.3. Test and reference standards

EN 55035:2017, EN 61000-4-3: 2006+A2: 2010



| Frequency range<br>MHz | Acoustic or<br>electrical<br>interference ratio | Equivalent direct measurement |              |               |
|------------------------|-------------------------------------------------|-------------------------------|--------------|---------------|
|                        |                                                 | dB(SPL)                       | Digital dBm0 | Analogue dBm0 |
| 80 to 1000             | -0 dB                                           | 75                            | -30          | -30           |

Note: At the step in the frequency range, the lower limit shall be applied.

The interference ratio (electrical or acoustic) shall meet the limits in column 2; or,

The acoustic level of the demodulated audio shall be less than the limits in column 3; or

The digitally coded level of demodulated audio shall be less than limits in column 4; or,

The analogue level of the demodulated audio shall be less than the limits in column 5.

Performance criteria A description for other devices: During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended.

#### 7.6. Assistant equipment used for test

| Assistant equipment | Manufacturer | Model number | Description                                                   | other |
|---------------------|--------------|--------------|---------------------------------------------------------------|-------|
| USB Output Cable    | N/A          | N/A          | Length: 1.00m, unshielded, non-magnetic ring                  | N/A   |
| R load              | N/A          | N/A          | 5V/2A                                                         | N/A   |
| Adapter             | HUAWEI       | HW-050450C00 | Input: 100-240V~ 50/60Hz, Output: 5V/2A or 4.5V/5A or 5V/4.5A | N/A   |

#### 7.7. Test procedure

The field sensor is placed on the EUT table (0.8 meter above the ground) which is 3 meters away from the transmitting antenna. Through the signal generator, power amplifier and transmitting antenna to produce a uniformity field strength (3V/m measured by field sensor) around the EUT table from frequency range specified and records the signal generator's output level at the same time for whole measured frequency range. Then, put EUT and its simulators on the EUT turn table and keep them 3 meters away from the transmitting antenna which is mounted on an antenna tower and fixes at 1 meter height above the ground. Using the recorded signal generator's output level to measure the EUT from frequency range specified and both horizontal & vertical polarization of antenna must be set and measured. Each of the four sides of EUT must be faced this transmitting antenna and measures individually.

**7.8. Test result**

| Ambient Condition : <u>23.1</u> °C <u>52.1</u> %RH <u>101.4</u> kPa                                                                                                                                                                                       |                              |                     |             |                   |             |                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------|-------------|-------------------|-------------|-----------------------|
| Power supply: <u>AC 230V/50Hz, Battery</u>                                                                                                                                                                                                                |                              |                     |             |                   |             |                       |
| Field Strength : <input checked="" type="checkbox"/> 3V/m <input type="checkbox"/> 10V/m Steps: <input checked="" type="checkbox"/> 1% <input type="checkbox"/> other: Dwell time: <input checked="" type="checkbox"/> 1s <input type="checkbox"/> other: |                              |                     |             |                   |             |                       |
| Swept Frequency Range: <input checked="" type="checkbox"/> 80MHz---1GHz; <input checked="" type="checkbox"/> 1800MHz, 2600MHz, 3500MHz, 5000MHz;<br><input type="checkbox"/> other:                                                                       |                              |                     |             |                   |             |                       |
| Modulation : <input type="checkbox"/> None <input checked="" type="checkbox"/> AM <input checked="" type="checkbox"/> 1kHz <input type="checkbox"/> 400Hz Modulation depth: <input checked="" type="checkbox"/> 80% <input type="checkbox"/> other:       |                              |                     |             |                   |             |                       |
| Operation Mode                                                                                                                                                                                                                                            | EUT Position towards antenna | Antenna: Horizontal |             | Antenna: Vertical |             | Result<br>(Pass/Fail) |
|                                                                                                                                                                                                                                                           |                              | Required            | Observation | Required          | Observation |                       |
| Charging +<br>5V/2A load mode                                                                                                                                                                                                                             | Front                        | A                   | A           | A                 | A           | Pass                  |
|                                                                                                                                                                                                                                                           | Right                        | A                   | A           | A                 | A           | Pass                  |
|                                                                                                                                                                                                                                                           | Rear                         | A                   | A           | A                 | A           | Pass                  |
|                                                                                                                                                                                                                                                           | Left                         | A                   | A           | A                 | A           | Pass                  |
| 5V/2A load mode                                                                                                                                                                                                                                           | Front                        | A                   | A           | A                 | A           | Pass                  |
|                                                                                                                                                                                                                                                           | Right                        | A                   | A           | A                 | A           | Pass                  |
|                                                                                                                                                                                                                                                           | Rear                         | A                   | A           | A                 | A           | Pass                  |
|                                                                                                                                                                                                                                                           | Left                         | A                   | A           | A                 | A           | Pass                  |
| Observation Description: A: Operation as intend, no loss of function during test and after test.                                                                                                                                                          |                              |                     |             |                   |             |                       |



### 7.9. Test photo







### 8.5. Test levels and performance criterion

| Test Level           |                                    |                                                    | Performance Criteria |
|----------------------|------------------------------------|----------------------------------------------------|----------------------|
| Test voltage         | $\pm 1\text{kV}$ For AC mains Port | $\pm 0.5\text{kV}$ for dc input or signal Port     | B                    |
| Repetition Frequency | 5kHz                               | 5kHz                                               |                      |
| Burst Duration       | 15ms                               | 15ms                                               |                      |
| Burst Period         | 300ms                              | 300ms                                              |                      |
| Inject Time(s)       | 120s                               | 120s                                               |                      |
| Inject Method        | Direct For AC mains port           | Direct For signal port<br>Direct For dc input port |                      |
| Inject Line          | AC Mains of adapter                | DC input of adapter or Capacitive coupling clamp   |                      |

Note: This test shall be additionally performed on analogue/digital data ports, and DC network power ports, of radio equipment and associated ancillary equipment, if the cables may be longer than 3 m.

Performance criteria B description: During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended.

### 8.6. Assistant equipment used for test

| Assistant equipment | Manufacturer | Model number | Description                                                   | other |
|---------------------|--------------|--------------|---------------------------------------------------------------|-------|
| USB Output Cable    | N/A          | N/A          | Length: 1.00m, unshielded, non-magnetic ring                  | N/A   |
| R load              | N/A          | N/A          | 5V/2A                                                         | N/A   |
| Adapter             | HUAWEI       | HW-050450C00 | Input: 100-240V~ 50/60Hz, Output: 5V/2A or 4.5V/5A or 5V/4.5A | N/A   |

### 8.7. Test procedure

The EUT and its simulators were placed on the ground reference plane and were insulated from it by a wood support  $0.1\text{m} \pm 0.01\text{m}$  thick. The ground reference plane was  $1\text{m} \times 1\text{m}$  metallic sheet with 0.65mm minimum thickness. This reference ground plane was project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane was more than 0.5m. All cables to the EUT was placed on the wood support, cables not subject to EFT/B was routed as far as possible from the cable under test to minimize the coupling between the cables.

For DC input and AC power ports:

The EUT was connected to the power mains by using a coupling device that couples the EFT interference signal to AC power lines. Both positive transients and negative transients of test voltage were applied during compliance test and the duration of the test can't less than 2mins.

For signal ports:

The capacitive coupling clamp was connected to the power by using a coupling device that couples the EFT interference signal to capacitive coupling clamp. Both positive transients and negative transients of test voltage were applied during compliance test and the duration of the test can't less than 2mins.

### 8.8. Test result

| Ambient Condition : <u>23.1</u> °C <u>51.3</u> %RH <u>101.4</u> kPa                                                                                                                                            |           |              |                                                                                          |                 |                  |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------|------------------------------------------------------------------------------------------|-----------------|------------------|-----------------------|
| Test Site: DDT 4# Shield Room Power supply: AC 230V/50Hz                                                                                                                                                       |           |              |                                                                                          |                 |                  |                       |
| Port: <input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Supply <input type="checkbox"/> Signal: Burst Period: <input checked="" type="checkbox"/> 300ms <input type="checkbox"/> Other: |           |              |                                                                                          |                 |                  |                       |
| Coupling: <input checked="" type="checkbox"/> Direct <input type="checkbox"/> Capacitive Clamp                                                                                                                 |           |              | Test Time: <input checked="" type="checkbox"/> 120S <input type="checkbox"/> Other:      |                 |                  |                       |
| Repetition Frequency: <input checked="" type="checkbox"/> 5kHz <input type="checkbox"/> 100kHz                                                                                                                 |           |              | Burst Duration: <input checked="" type="checkbox"/> 15ms <input type="checkbox"/> Other: |                 |                  |                       |
| Operation Mode                                                                                                                                                                                                 | Line/port | Test Voltage | Performance                                                                              |                 |                  | Result<br>(Pass/Fail) |
|                                                                                                                                                                                                                |           |              | Required                                                                                 | Observation(+ ) | Observation( - ) |                       |
| Charging + 5V/2A<br>load mode                                                                                                                                                                                  | L         | 1kV          | B                                                                                        | A               | A                | Pass                  |
|                                                                                                                                                                                                                | N         | 1kV          | B                                                                                        | A               | A                | Pass                  |
|                                                                                                                                                                                                                | L-N       | 1kV          | B                                                                                        | A               | A                | Pass                  |
| Observation Description: A: Operation as intend, no loss of function during test and after test.                                                                                                               |           |              |                                                                                          |                 |                  |                       |

### 8.9. Test photo





| Analogue/digital data port, Port type: coaxial or shielded                                                                                                            |                             | Performance Criterion |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------|
| Shield to ground                                                                                                                                                      | 0.5 kV 1.2/50(8/20) $\mu$ s | B                     |
| Note: Applicable only to ports which, according to the manufacturer's specification, the cable lengths greater than 3m.                                               |                             |                       |
| DC network power port                                                                                                                                                 |                             | Performance Criterion |
| Line to reference ground                                                                                                                                              | 0.5 kV 1.2/50(8/20) $\mu$ s | B                     |
| Note: Applicable only to ports which, according to the manufacturer's specification, 1. The cable lengths greater than 3m; 2. May connect directly to outdoor cables. |                             |                       |

Performance criteria B description: During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test. After the test, the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the EUT is used as intended.

### 9.6. Assistant equipment used for test

| Assistant equipment | Manufacturer | Model number | Description                                                   | other |
|---------------------|--------------|--------------|---------------------------------------------------------------|-------|
| USB Output Cable    | N/A          | N/A          | Length: 1.00m, unshielded, non-magnetic ring                  | N/A   |
| R load              | N/A          | N/A          | 5V/2A                                                         | N/A   |
| Adapter             | HUAWEI       | HW-050450C00 | Input: 100-240V~ 50/60Hz, Output: 5V/2A or 4.5V/5A or 5V/4.5A | N/A   |

### 9.7. Test procedure

For line-to-neutral coupling mode, provide a 0.5 kV/1 kV 1.2/50  $\mu$ s voltage surge (at open-circuit condition) and 8/20  $\mu$ s current surge to EUT selected points.

For line-to-ground coupling mode, provide a 0.5 kV/1 kV/2 kV 1.2/50  $\mu$ s voltage surge (at open-circuit condition) and 8/20  $\mu$ s current surge to EUT selected points.

The number of pulses applied shall be as follows:

- Five positive pulses line-to-neutral at 90° phase
- Five negative pulses line-to-neutral at 270° phase

The following additional pulses are required only if the EUT has an earth connection or if the EUT is earthed via any AE.

- Five positive pulses line-to-earth at 90° phase
  - Five negative pulses line-to-earth at 270° phase
  - Five negative pulses neutral-to-earth at 90° phase
  - Five positive pulses neutral-to-earth at 270° phase
- Maximum 1/min repetition rate are applied during test.  
Different phase angles are done individually.

For telecommunication surge test, each line of internet port to ground coupling mode, provide a 1.0kV 10/700 $\mu$ s voltage surge (at open-circuit condition) and 5/320 $\mu$ s current surge to EUT selected points.

At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are applied during test.

Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

### 9.8. Test result

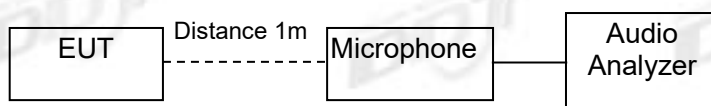
| Ambient Condition :    23.1    °C    50.2    %RH    101.4    kPa                                                                                                                                 |           |             |   |                            |             |   |   |             |   |   |             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------|---|----------------------------|-------------|---|---|-------------|---|---|-------------|
| Test Site: DDT 3# Shield Room                                                                                                                                                                    |           |             |   | Power supply: AC 230V/50Hz |             |   |   |             |   |   |             |
| Line : <input checked="" type="checkbox"/> AC Mains <input type="checkbox"/> DC Supply <input type="checkbox"/> Signal                                                                           |           |             |   |                            |             |   |   |             |   |   |             |
| Wave Type: <input checked="" type="checkbox"/> 1.2/50us-8/20us <input type="checkbox"/> 10/700 us-5/320us                                                                                        |           |             |   |                            |             |   |   |             |   |   |             |
| Pluse times: <input checked="" type="checkbox"/> five positive pluses at 90°phase, five negative pluses at 270°phase.<br><input type="checkbox"/> five positive pluses and five negative pluses. |           |             |   |                            |             |   |   |             |   |   |             |
| Pulse Interval: 60S                                                                                                                                                                              |           |             |   |                            |             |   |   |             |   |   |             |
| Operation Mode                                                                                                                                                                                   | Line/Port | 0.5kV       |   |                            | 1kV         |   |   | 2kV         |   |   | Result      |
|                                                                                                                                                                                                  |           | Performance |   |                            | Performance |   |   | Performance |   |   | (Pass/Fail) |
|                                                                                                                                                                                                  |           | Required    | + | -                          | Required    | + | - | Required    | + | - |             |
| Charging +<br>+5V/2A load<br>mode                                                                                                                                                                | L-N       | B           | A | A                          | B           | A | A | /           | / | / | Pass        |
|                                                                                                                                                                                                  | L-PE      | /           | / | /                          | /           | / | / | /           | / | / | /           |
|                                                                                                                                                                                                  | N-PE      | /           | / | /                          | /           | / | / | /           | / | / | /           |
| Observation Description: A: Operation as intend, no loss of function during test and after test.                                                                                                 |           |             |   |                            |             |   |   |             |   |   |             |

### 9.9. Test photo

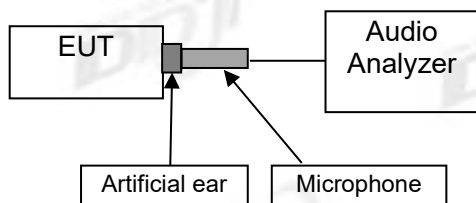




For audio output function (acoustic measurement)



For audio output function (on-ear acoustic measurement)



## 10.5. Test levels and performance criterion

| Test Level                   |                                                                                                                                    | Performance Criteria |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Frequency and Field Strength | 0.15MHz to 10MHz, 3V rms voltage level of the unmodulated signal                                                                   | A                    |
|                              | 10MHz to 30MHz, 3V to 1V rms voltage level of the unmodulated signal                                                               |                      |
|                              | 30MHz to 80MHz, 1V rms voltage level of the unmodulated signal                                                                     |                      |
| Modulation                   | AM modulated to a depth of 80% by a sine wave of <input checked="" type="checkbox"/> 1kHz, <input type="checkbox"/> 400Hz (note 1) |                      |
| Step Size                    | 1% increments                                                                                                                      |                      |
| Dwell time                   | 1 Sec.                                                                                                                             |                      |

Note 1: The 1kHz modulation may be replaced by a different audio modulation frequency more appropriate for a given EUT if, for example, 1kHz is not within the operating audio range of the EUT.

Performance criteria A description for devices with the audio output function: The measured acoustic interference ratio and/or the measured electrical interference ratio during the test shall be -20 dB or better.

☐ The acoustic measurement method was selected according to clause G6.4.1 of EN 55035.

☐ The electrical measurement method was selected according to clause G6.4.2 of EN 55035.

Performance criteria A for devices with the telephony function.

| Frequency range<br>MHz | Acoustic or electrical<br>interference ratio | Equivalent direct measurement |              |               |
|------------------------|----------------------------------------------|-------------------------------|--------------|---------------|
|                        |                                              | dB(SPL)                       | Digital dBm0 | Analogue dBm0 |
| 0.15 to 30             | -20 dB                                       | 55                            | -50          | -50           |
| 30 to 80               | -10 dB                                       | 65                            | -40          | -40           |

Note: At the step in the frequency range, the lower limit shall be applied.

The interference ratio (electrical or acoustic) shall meet the limits in column 2; or,

The acoustic level of the demodulated audio shall be less than the limits in column 3; or

The digitally coded level of demodulated audio shall be less than limits in column 4; or,

The analogue level of the demodulated audio shall be less than the limits in column 5.

Performance criteria A description for other devices: During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended.

**10.6. Assistant equipment used for test**

| Assistant equipment | Manufacturer | Model number | Description                                                   | other |
|---------------------|--------------|--------------|---------------------------------------------------------------|-------|
| USB Output Cable    | N/A          | N/A          | Length: 1.00m, unshielded, non-magnetic ring                  | N/A   |
| R load              | N/A          | N/A          | 5V/2A                                                         | N/A   |
| Adapter             | HUAWEI       | HW-050450C00 | Input: 100-240V~ 50/60Hz, Output: 5V/2A or 4.5V/5A or 5V/4.5A | N/A   |

**10.7. Test procedure**

The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50 mm (where possible).

The disturbance signal described below is injected to EUT through CDN.

The EUT operates within its operational mode(s) under intended climatic conditions after power on. The frequency range is swept from 0.150MHz to ☒80MHz/☐230MHz, the interference signal level according to clause 10.5, and with the disturbance signal 80% amplitude modulated with a ☒1kHz / ☐400Hz sine wave.

The rate of sweep shall not exceed  $1.5 \times 10^{-3}$  decades/s. Where the frequency is swept incrementally; the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.



**10.8. Test result**

|                                                                                                                                                                  |                 |                   |                               |          |             |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------|-------------------------------|----------|-------------|--------------------|
| Ambient Condition :    23.4    °C    51.5    %RH    101.4    kPa                                                                                                 |                 |                   |                               |          |             |                    |
| Test Site: DDT 4# Shield Room                      Power supply: AC 230V/50Hz                                                                                    |                 |                   |                               |          |             |                    |
| Modulation Signal: <input checked="" type="checkbox"/> 1kHz <input type="checkbox"/> 400Hz 80% AM <input type="checkbox"/> Other:                                |                 |                   |                               |          |             |                    |
| Steps: <input checked="" type="checkbox"/> 1% <input type="checkbox"/> other: Dwell time: <input checked="" type="checkbox"/> 1s <input type="checkbox"/> other: |                 |                   |                               |          |             |                    |
| Operation mode                                                                                                                                                   | Frequency Range | Injected Position | Strength(e.m.f) (unmodulated) | Required | Observation | Result (Pass/Fail) |
| Charging + 5V/2A load mode                                                                                                                                       | 0.15MHz-10MHz   | AC port           | 3V                            | A        | A           | Pass               |
|                                                                                                                                                                  | 10MHz-30MHz     |                   | 3V-1V                         | A        | A           | Pass               |
|                                                                                                                                                                  | 30MHz-80MHz     |                   | 1V                            | A        | A           | Pass               |
| Note 1: this row only for the device with audio output function.                                                                                                 |                 |                   |                               |          |             |                    |
| Note 2: this device without the telephony function.                                                                                                              |                 |                   |                               |          |             |                    |
| Observation Description: A: Operation as intend, no loss of function during test and after test.                                                                 |                 |                   |                               |          |             |                    |

**10.9. Test photo**

## 11. Power-Frequency Magnetic Fields

### 11.1. General information

|                          |                 |
|--------------------------|-----------------|
| Test and report Engineer | : Elosky Liu    |
| Test and report Date     | : Oct. 26, 2020 |

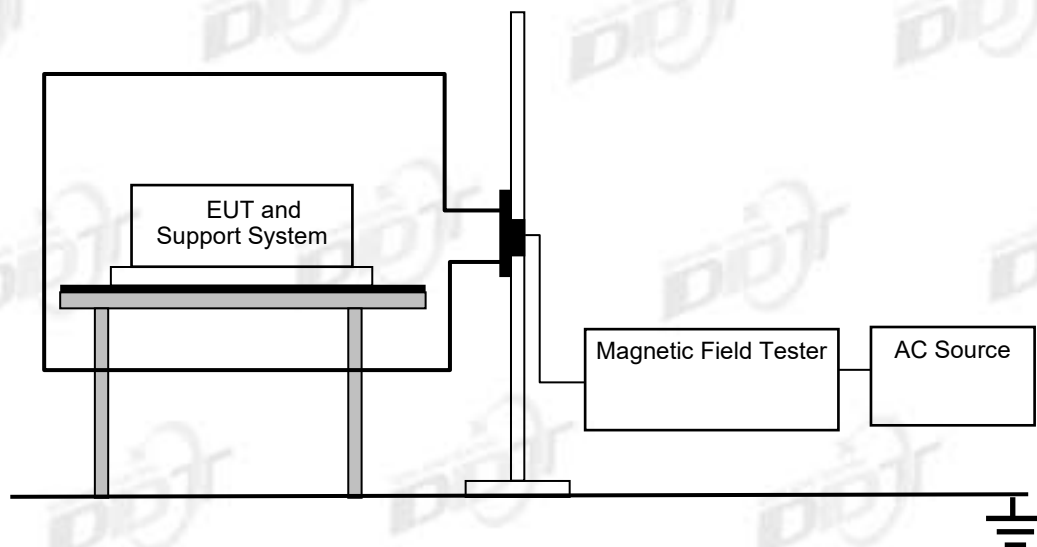
### 11.2. Test equipment

| Equipment             | Manufacturer | Model No. | Serial No.    | Last Cal.     | Cal. Interval |
|-----------------------|--------------|-----------|---------------|---------------|---------------|
| Generator             | EMC PARTNER  | TRA3000F  | TRA3000F-1502 | Jul. 01, 2020 | 1 Year        |
| Magnetic Field Tester | EMC-PARTNER  | MF1000-1  | 207           | Jul. 01, 2020 | 1 Year        |

### 11.3. Test and reference standards

EN 55035:2017, EN 61000-4-8:2010

### 11.4. Block diagram of test setup



### 11.5. Test levels and performance criterion

| Level | Magnetic Field Strength (A/m) | Performance Criterion |
|-------|-------------------------------|-----------------------|
| 1     | 1                             | A                     |

Performance criteria A description: During and after the test the EUT shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a minimum performance level specified by the manufacturer when the EUT is used as intended.

**11.6. Assistant equipment used for test**

| Assistant equipment | Manufacturer | Model number | Description                                                  | other |
|---------------------|--------------|--------------|--------------------------------------------------------------|-------|
| USB Output Cable    | N/A          | N/A          | Length: 1.00m, unshielded, non-magnetic ring                 | N/A   |
| R load              | N/A          | N/A          | 5V/2A                                                        | N/A   |
| Adapter             | HUAWEI       | HW-050450C00 | Input: 100-240V~50/60Hz, Output: 5V/2A or 4.5V/5A or 5V/4.5A | N/A   |

**11.7. Test procedure**

The EUT shall be subjected to the test magnetic field by using the induction coil of standard dimensions (1m\*1m) and shown in Section 11.4 Then induction coil shall then be rotated by 90° in order to expose the EUT to the test field with different orientations.

**11.8. Test result**

| Ambient Condition : <u>22.6</u> °C <u>51.5</u> %RH <u>101.4</u> kPa                                 |            |                  |                  |          |             |                       |
|-----------------------------------------------------------------------------------------------------|------------|------------------|------------------|----------|-------------|-----------------------|
| Test Site: DDT 4# Shield Room Power supply: AC 230V/50Hz, Battery                                   |            |                  |                  |          |             |                       |
| Operation Mode                                                                                      | Test Level | Testing Duration | Coil Orientation | Required | Observation | Result<br>(Pass/Fail) |
| Charging + 5V/2A load mode                                                                          | 1A/m       | 5 min / coil     | X                | A        | A           | Pass                  |
|                                                                                                     | 1A/m       | 5 min / coil     | Y                | A        | A           | Pass                  |
|                                                                                                     | 1A/m       | 5 min / coil     | Z                | A        | A           | Pass                  |
| 5V/2A load mode                                                                                     | 1A/m       | 5 min / coil     | X                | A        | A           | Pass                  |
|                                                                                                     | 1A/m       | 5 min / coil     | Y                | A        | A           | Pass                  |
|                                                                                                     | 1A/m       | 5 min / coil     | Z                | A        | A           | Pass                  |
| Observation Description:<br>A: Operation as intend, no loss of function during test and after test. |            |                  |                  |          |             |                       |

### 11.9. Test photo





**12.6. Assistant equipment used for test**

| Assistant equipment | Manufacturer | Model number | Description                                                   | other |
|---------------------|--------------|--------------|---------------------------------------------------------------|-------|
| USB Output Cable    | N/A          | N/A          | Length: 1.00m, unshielded, non-magnetic ring                  | N/A   |
| R load              | N/A          | N/A          | 5V/2A                                                         | N/A   |
| Adapter             | HUAWEI       | HW-050450C00 | Input: 100-240V~ 50/60Hz, Output: 5V/2A or 4.5V/5A or 5V/4.5A | N/A   |

**12.7. Test procedure**

The EUT and test generator were setup as shown. The interruptions are introduced at selected phase angles with specified duration. Record any degradation of performance.

**12.8. Test result**

| Ambient Condition : <u>24.2</u> °C <u>51.8</u> %RH <u>101.4</u> kPa                                                                                                                                                        |                                  |                      |             |          |             |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------|-------------|----------|-------------|-----------------------|
| Test Site: DDT 4# Shield Room Power supply: <u>AC 100V/60Hz</u>                                                                                                                                                            |                                  |                      |             |          |             |                       |
| Operation Mode                                                                                                                                                                                                             | Voltage Dips & Interruptions %Ur | Duration (in period) | Phase Angle | Required | Observation | Result<br>(Pass/Fail) |
| Charging + 5V/2A load mode                                                                                                                                                                                                 | 0                                | 0.5P                 | 0°, 180°    | B        | A           | Pass                  |
|                                                                                                                                                                                                                            | 70                               | 30P                  | 0°, 180°    | C        | A           | Pass                  |
|                                                                                                                                                                                                                            | 0                                | 300P                 | 0°, 180°    | C        | B           | Pass                  |
| <b>Observation Description:</b><br>A: Operation as intend, no loss of function during test and after test.<br>B: The sample stops charging during the test and automatically resumes charging after the test is completed. |                                  |                      |             |          |             |                       |

| Ambient Condition : <u>24.2</u> °C <u>51.8</u> %RH <u>101.4</u> kPa                                                                                                                                                        |                                  |                      |             |          |             |                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------|-------------|----------|-------------|-----------------------|
| Test Site: DDT 4# Shield Room Power supply: <u>AC 240V/50Hz</u>                                                                                                                                                            |                                  |                      |             |          |             |                       |
| Operation Mode                                                                                                                                                                                                             | Voltage Dips & Interruptions %Ur | Duration (in period) | Phase Angle | Required | Observation | Result<br>(Pass/Fail) |
| Charging + 5V/2A load mode                                                                                                                                                                                                 | 0                                | 0.5P                 | 0°, 180°    | B        | A           | Pass                  |
|                                                                                                                                                                                                                            | 70                               | 25P                  | 0°, 180°    | C        | A           | Pass                  |
|                                                                                                                                                                                                                            | 0                                | 250P                 | 0°, 180°    | C        | B           | Pass                  |
| <b>Observation Description:</b><br>A: Operation as intend, no loss of function during test and after test.<br>B: The sample stops charging during the test and automatically resumes charging after the test is completed. |                                  |                      |             |          |             |                       |

## 12.9. Test photo





### 13. Photos of the EUT



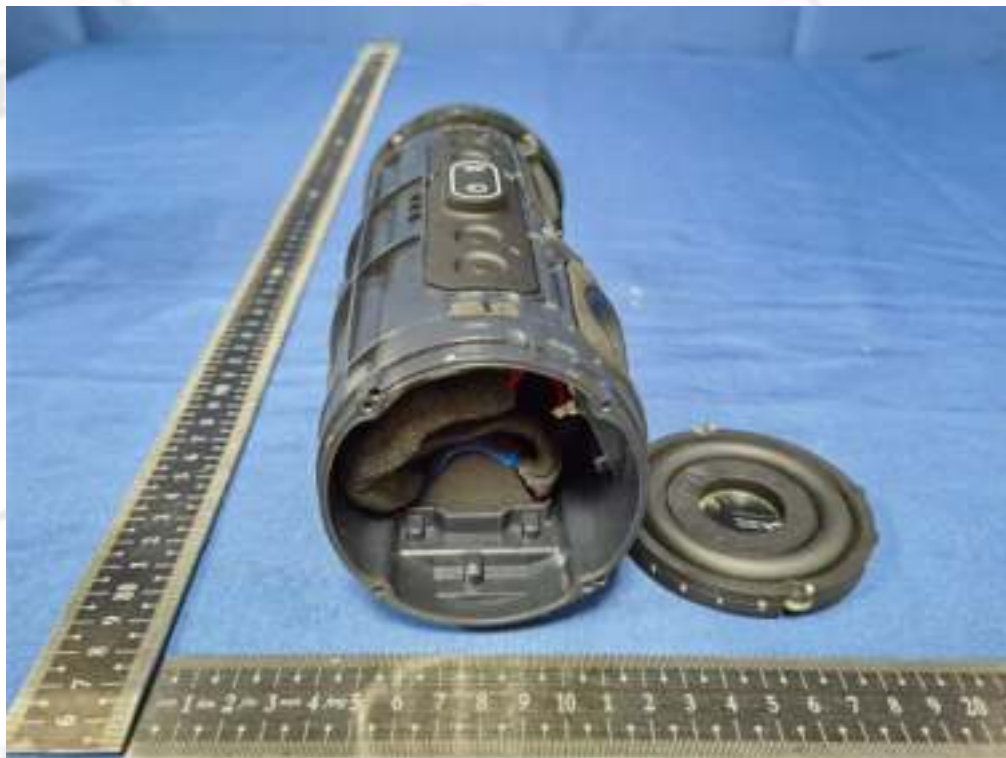






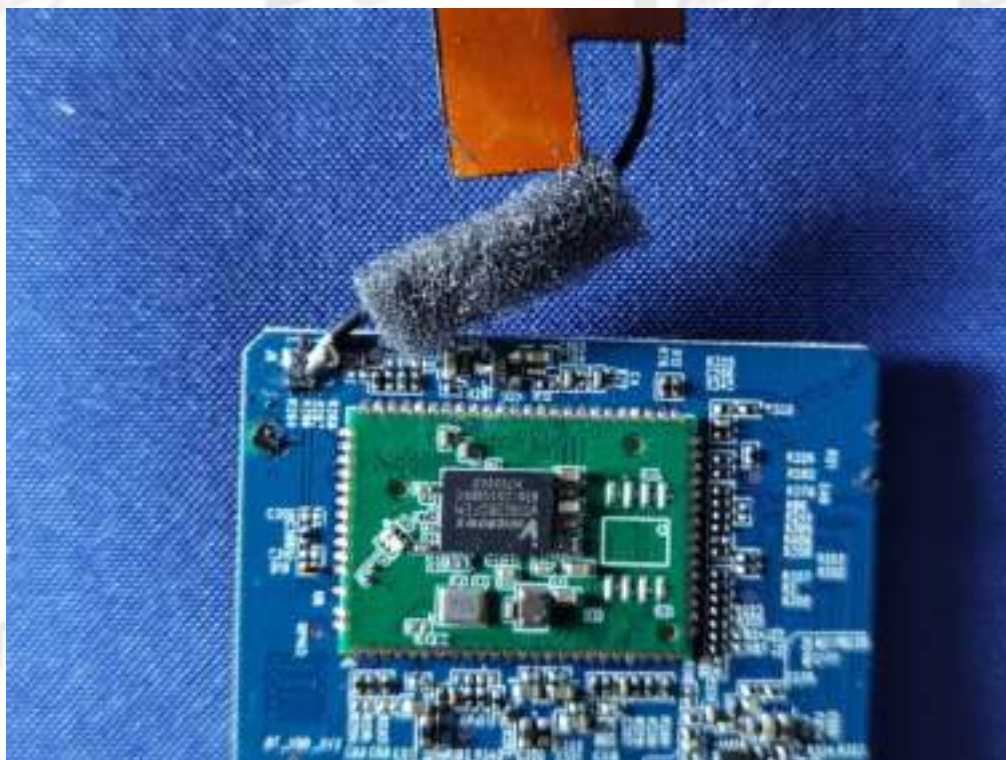


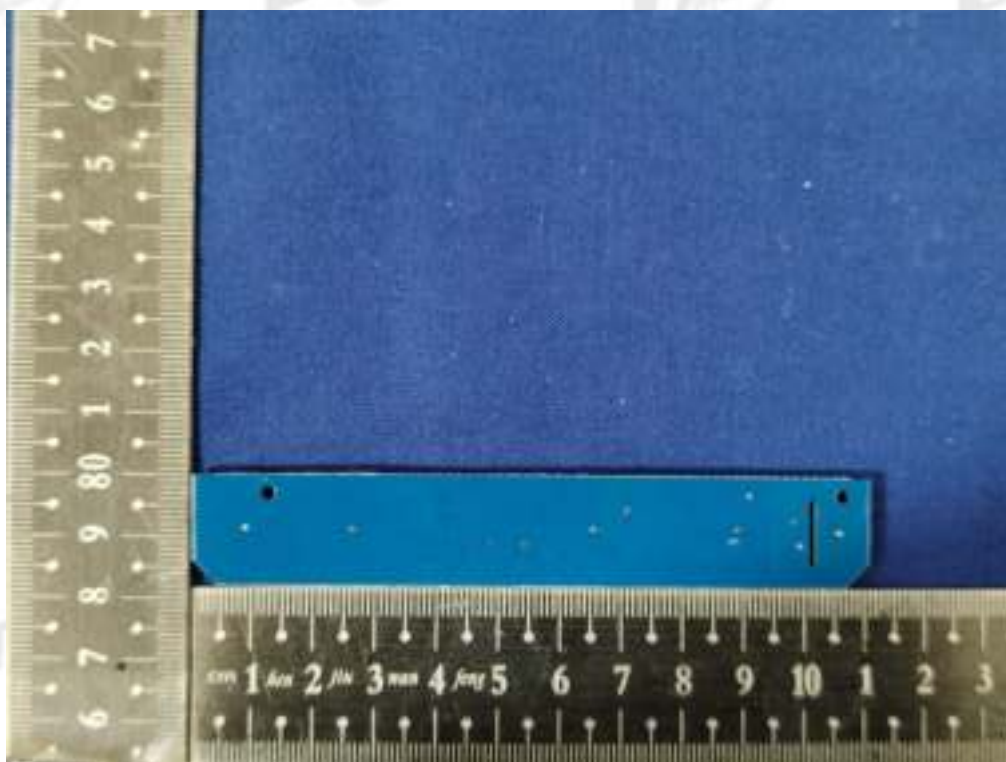
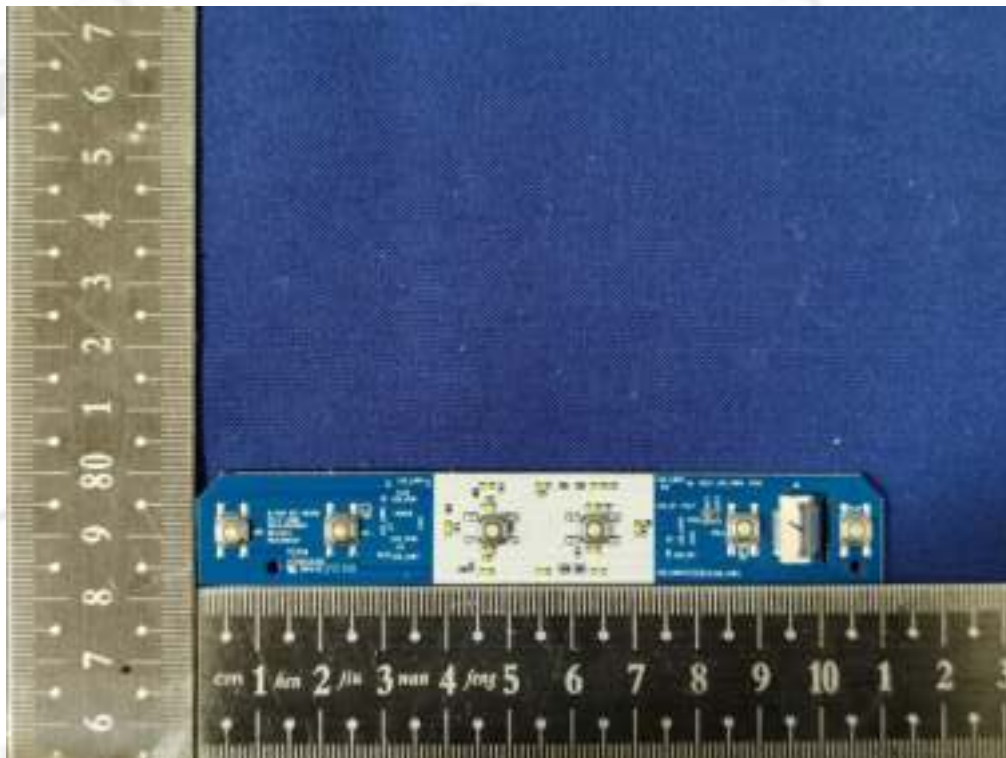




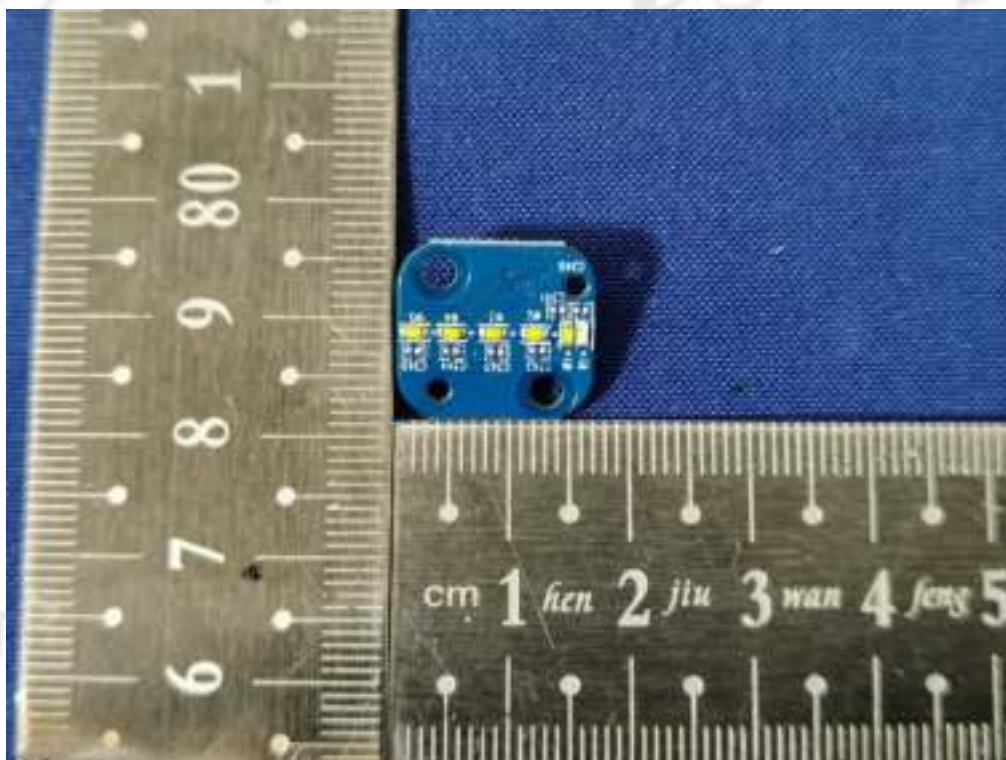
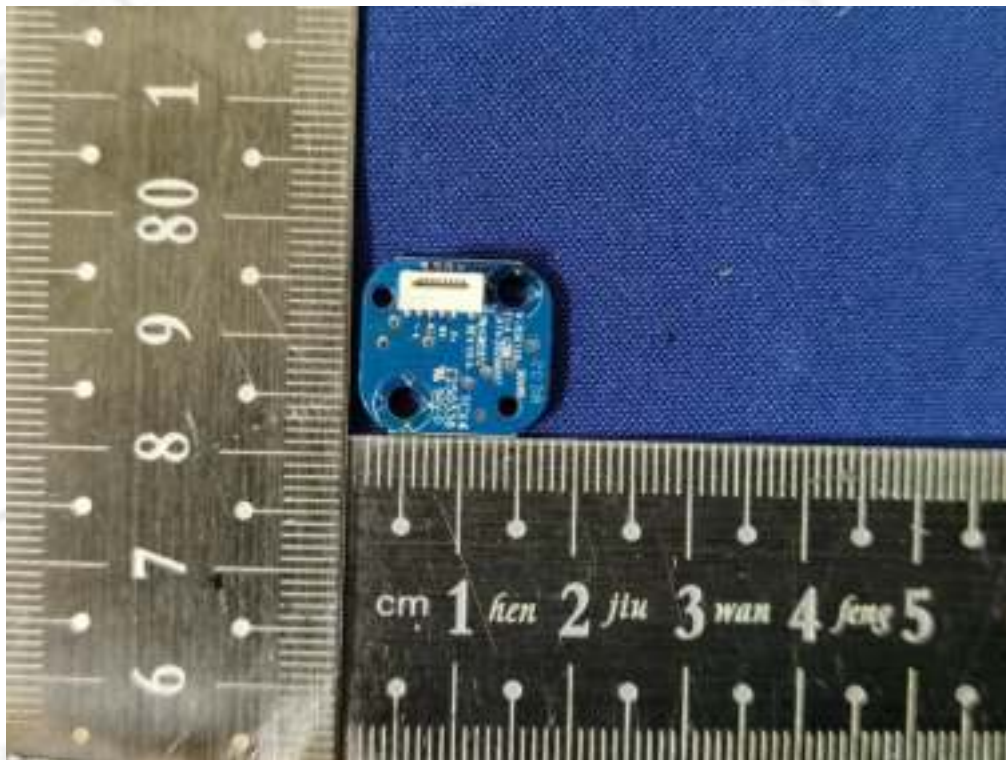




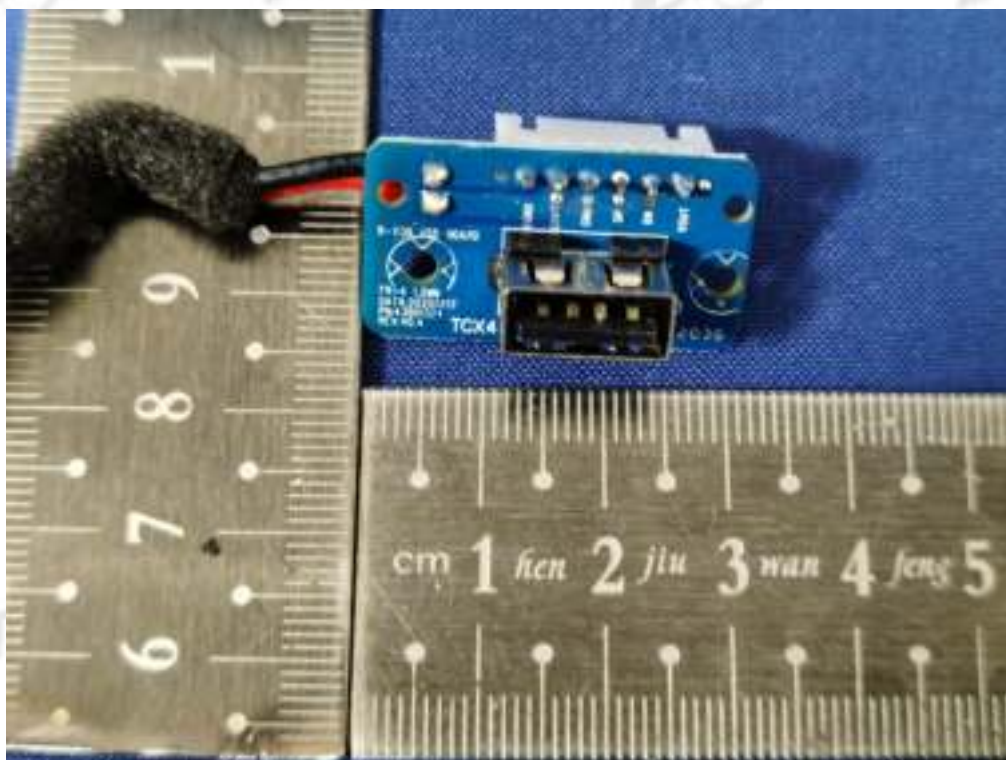
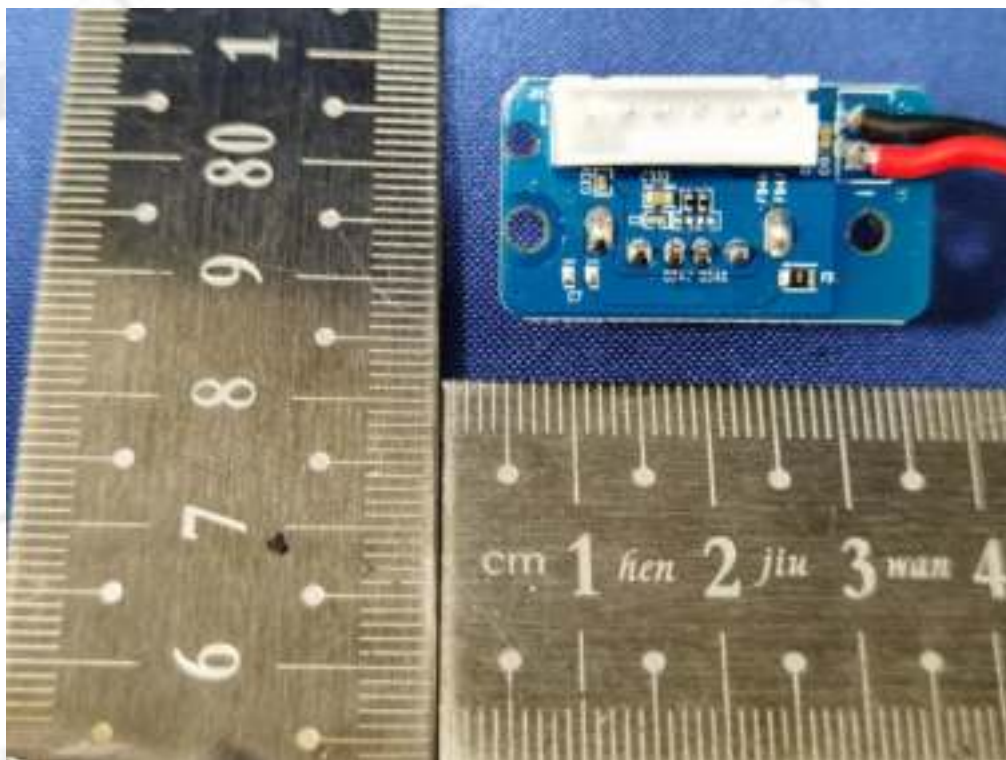


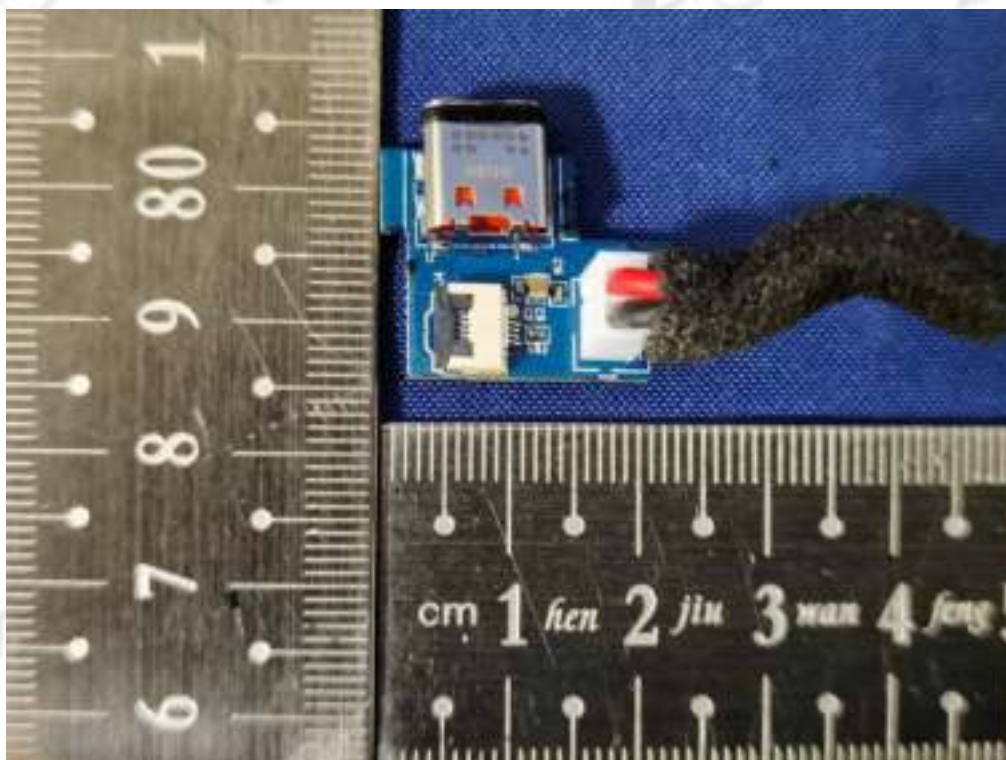
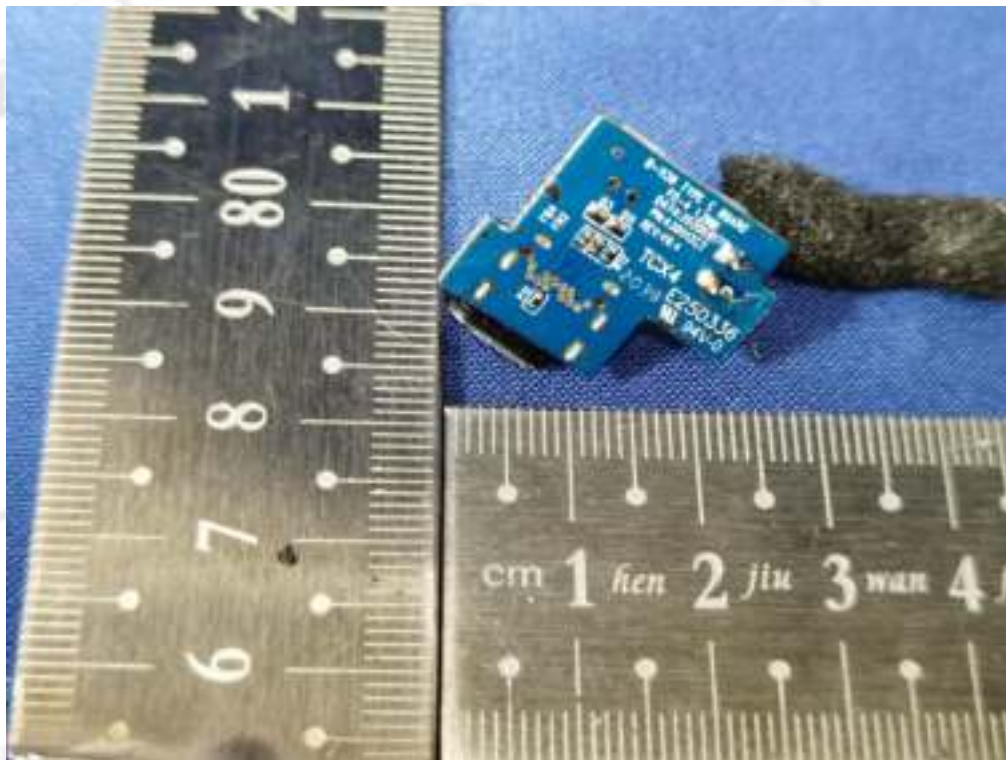




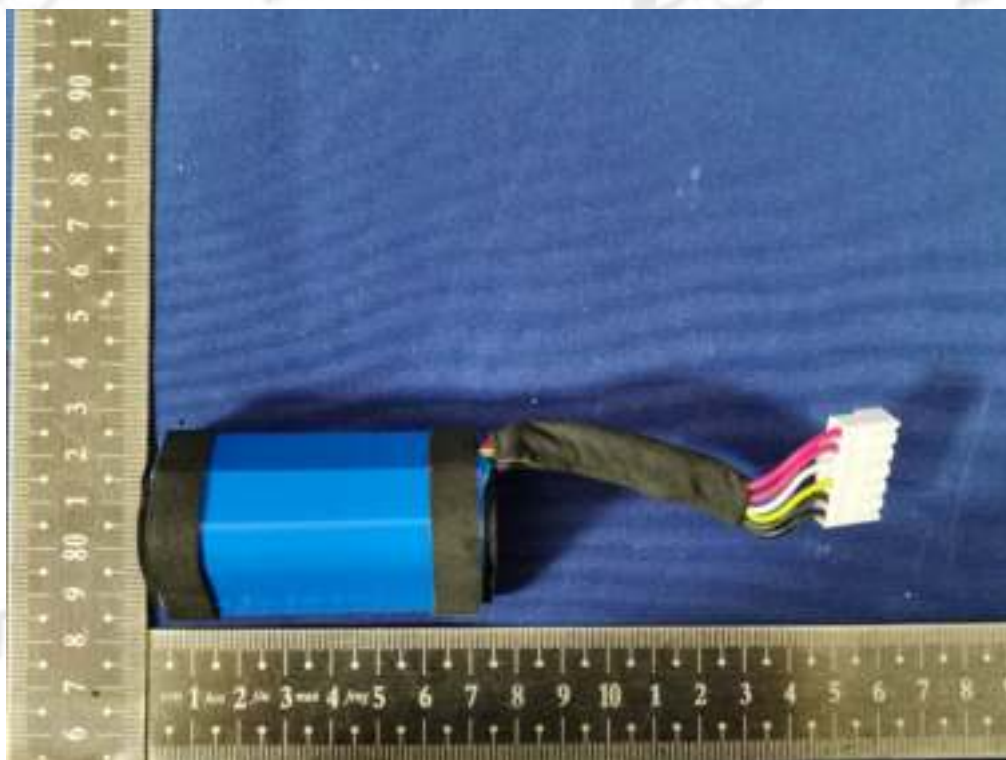


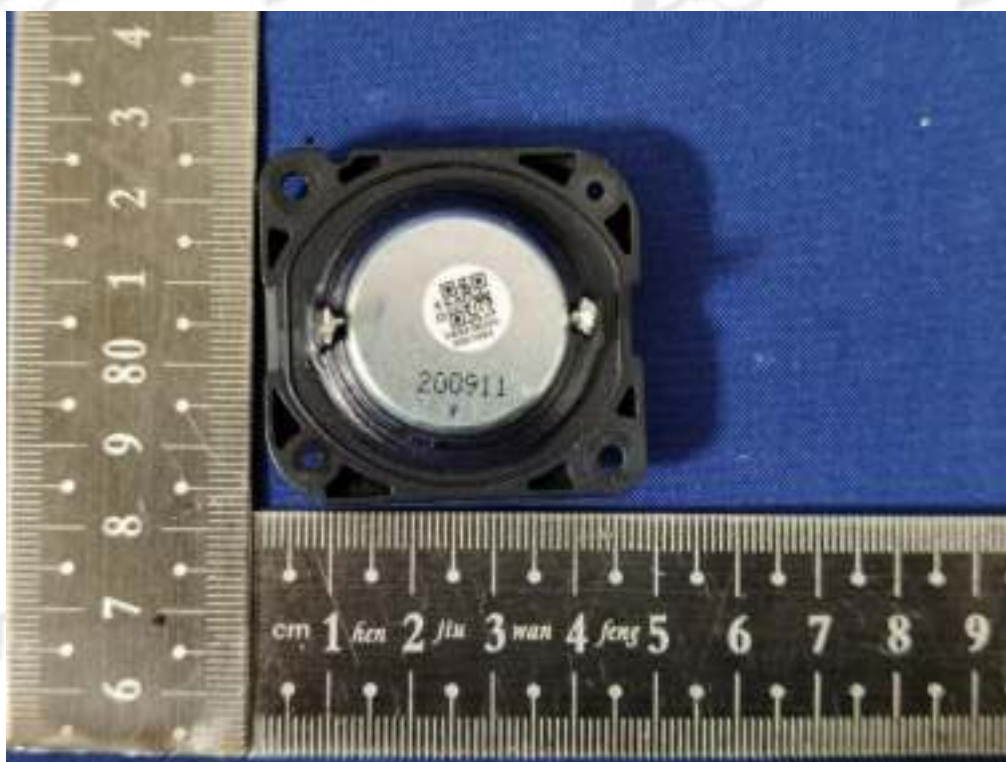
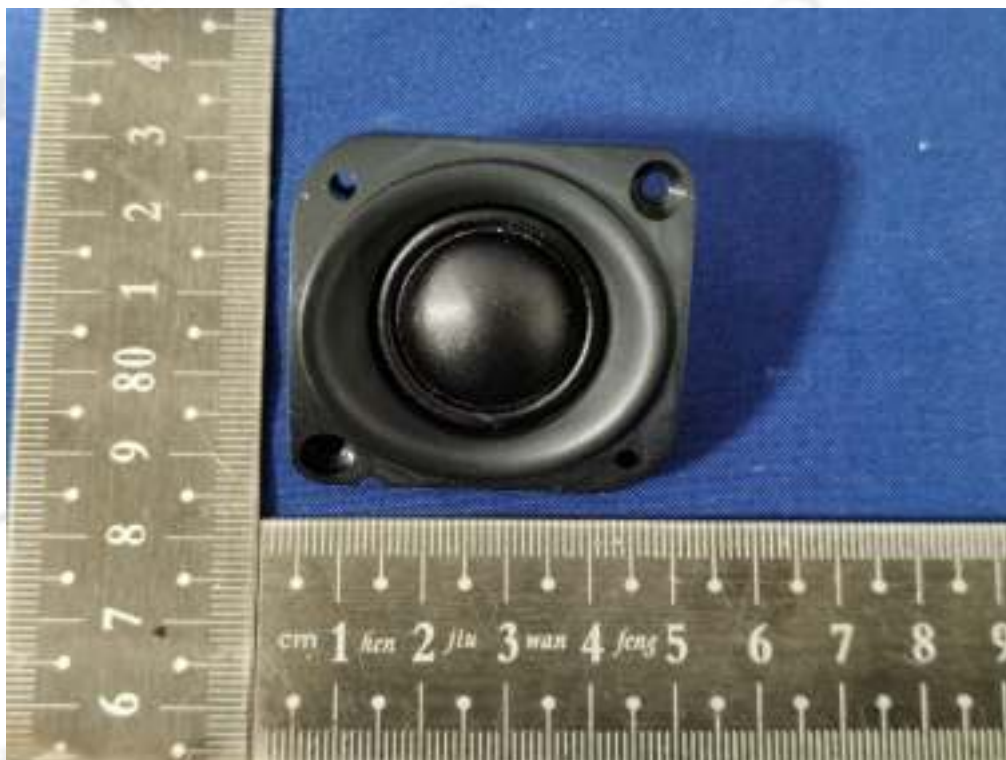


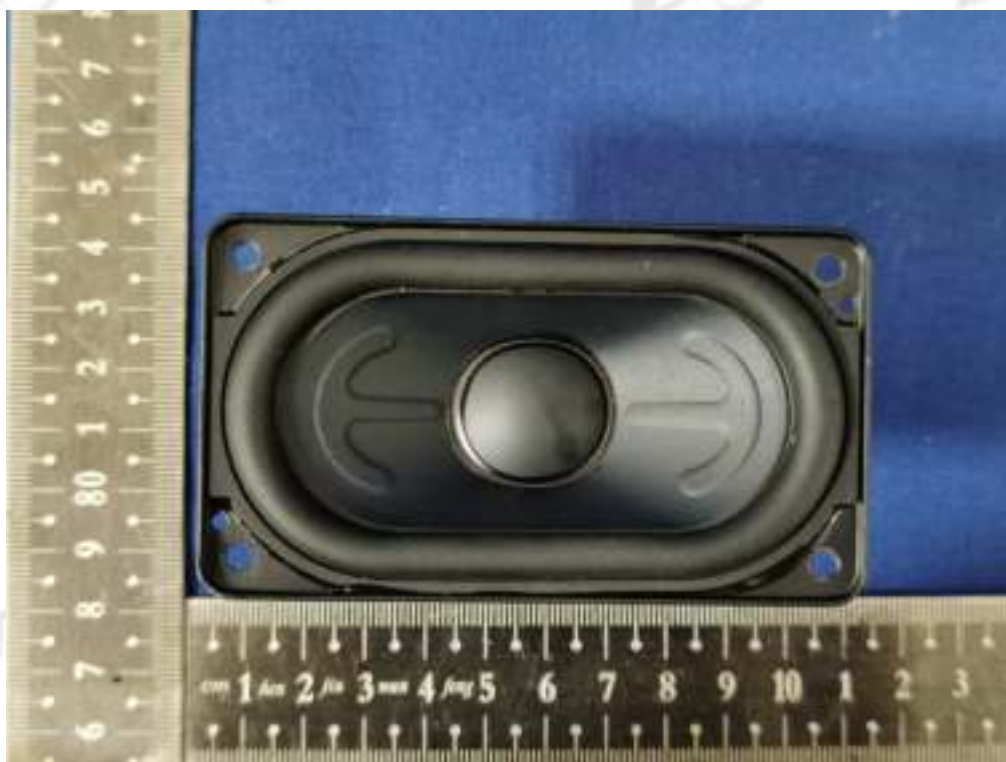
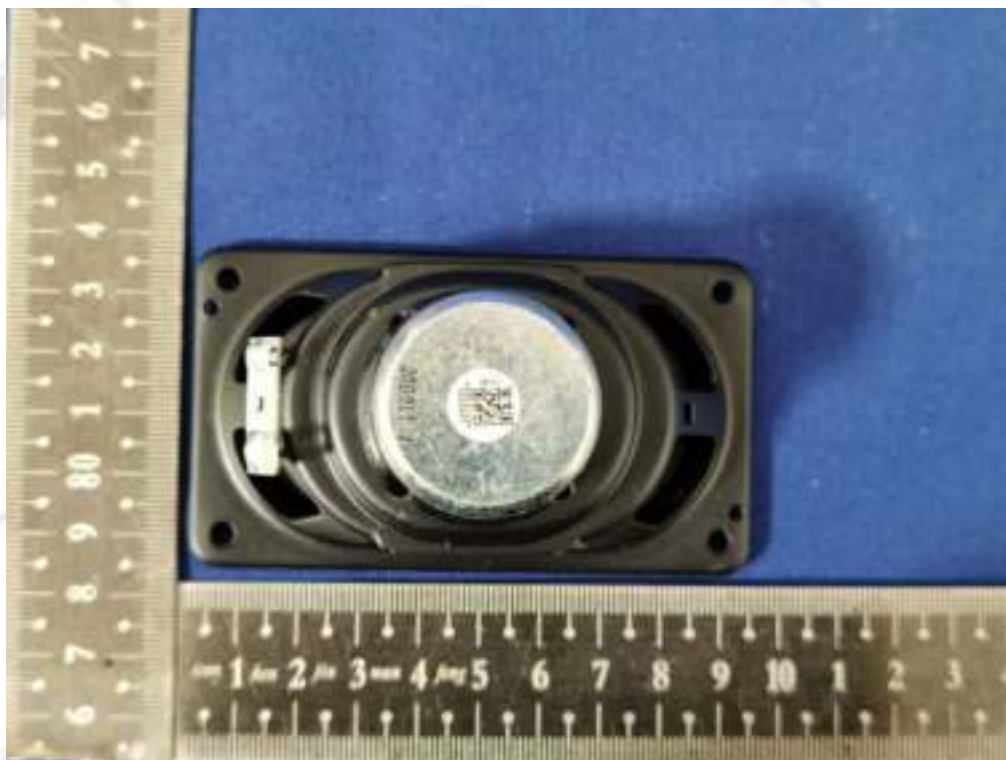












**END OF REPORT**