

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                            |                                 |                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------|
| <b>Prüfbericht-Nr.:</b><br><i>Test report no.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CN200UK3 001                                                                                                                                                                                                                                                                                                                                                                                              | <b>Auftrags-Nr.:</b><br><i>Order no.:</i>                                                  | 168283798                       | Seite 1 von 28<br><i>Page 1 of 28</i> |
| <b>Kunden-Referenz-Nr.:</b><br><i>Client reference no.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                               | N/A                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Auftragsdatum:</b><br><i>Order date:</i>                                                | 2020-09-24                      |                                       |
| <b>Auftraggeber:</b><br><i>Client:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Premium Surge Promotions, LLC.</b><br>640N. LaSalle St, Suite 540, Chicago, IL 60654, United States                                                                                                                                                                                                                                                                                                    |                                                                                            |                                 |                                       |
| <b>Prüfgegenstand:</b><br><i>Test item:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Alice + Olivia Headphones                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                            |                                 |                                       |
| <b>Bezeichnung / Typ-Nr.:</b><br><i>Identification / Type no.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                        | AAO-FA-004                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                            |                                 |                                       |
| <b>Auftrags-Inhalt:</b><br><i>Order content:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                          | FCC and IC approval                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                            |                                 |                                       |
| <b>Prüfgrundlage:</b><br><i>Test specification:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | CFR47 FCC Part 15: Subpart C Section 15.247<br>CFR47 FCC Part 15: Subpart C Section 15.207<br>CFR47 FCC Part 15: Subpart C Section 15.209<br>CFR47 FCC Part 15: Subpart B Section 15.107<br>CFR47 FCC Part 15: Subpart B Section 15.109<br>CFR47 FCC Part 2: Section 2.1093<br>RSS-247 Issue 2 February 2017<br>RSS-Gen Issue 5 April 2018<br>ICES-003 Issue 6 January 2016<br>RSS-102 Issue 5 March 2015 |                                                                                            |                                 |                                       |
| <b>Wareneingangsdatum:</b><br><i>Date of sample receipt:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                              | 2020-09-28                                                                                                                                                                                                                                                                                                                                                                                                | Please refer to photo documents                                                            |                                 |                                       |
| <b>Prüfmuster-Nr.:</b><br><i>Test sample no.:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                         | A002917770-002, 004, 007                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                            |                                 |                                       |
| <b>Prüfzeitraum:</b><br><i>Testing period:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2020-09-29 - 2020-10-29                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                            |                                 |                                       |
| <b>Ort der Prüfung:</b><br><i>Place of testing:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Refer to section 2.1                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                            |                                 |                                       |
| <b>Prüflaboratorium:</b><br><i>Testing laboratory:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                    | TÜV Rheinland (Shenzhen) Co., Ltd.                                                                                                                                                                                                                                                                                                                                                                        |                                                                                            |                                 |                                       |
| <b>Prüfergebnis*:</b><br><i>Test result*:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Pass                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                            |                                 |                                       |
| <b>geprüft von:</b><br><i>tested by:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <u>Jackson Yang</u><br>Jackson Yang                                                                                                                                                                                                                                                                                                                                                                       | <b>genehmigt von:</b><br><i>authorized by:</i>                                             | <u>Winnie Hou</u><br>Winnie Hou |                                       |
| <b>Datum:</b><br><i>Date:</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2020-11-17                                                                                                                                                                                                                                                                                                                                                                                                | <b>Ausstellungsdatum:</b><br><i>Issue date:</i>                                            | 2020-11-17                      |                                       |
| <b>Stellung / Position</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Project Engineer                                                                                                                                                                                                                                                                                                                                                                                          | <b>Stellung / Position</b>                                                                 | Technical Certifier             |                                       |
| <b>Sonstiges / Other:</b><br>FCC ID: 2ATL4-3FWHSXAX<br>IC: 25105-3FWHSXAX<br>HVIN: AAO-FA-004                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                            |                                 |                                       |
| <b>Zustand des Prüfgegenstandes bei Anlieferung:</b><br><i>Condition of the test item at delivery:</i>                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Prüfmuster vollständig und unbeschädigt</b><br><i>Test item complete and undamaged:</i> |                                 |                                       |
| * Legende: 1 = sehr gut      2 = gut      3 = befriedigend      4 = ausreichend      5 = mangelhaft<br>P(ass) = entspricht o.g. Prüfgrundlage(n)      F(ail) = entspricht nicht o.g. Prüfgrundlage(n)      N/A = nicht anwendbar      N/T = nicht getestet<br>Legend: 1 = very good      2 = good      3 = satisfactory      4 = sufficient      5 = poor<br>P(ass) = passed a.m. test specifications(s)      F(ail) = failed a.m. test specifications(s)      N/A = not applicable      N/T = not tested |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                            |                                 |                                       |
| <b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b><br><i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>                                                |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                            |                                 |                                       |

## ***Test Summary***

**5.1.1 ANTENNA REQUIREMENT**

RESULT: Pass

**5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER**

RESULT: Pass

**5.1.3 99% BANDWIDTH**

RESULT: Pass

**5.1.4 20dB BANDWIDTH**

RESULT: Pass

**5.1.5 CARRIER FREQUENCY SEPARATION**

RESULT: Pass

**5.1.6 NUMBER OF HOPPING FREQUENCY**

RESULT: Pass

**5.1.7 TIME OF OCCUPANCY**

RESULT: Pass

**5.1.8 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH**

RESULT: Pass

**5.1.9 RADIATED SPURIOUS EMISSION**

RESULT: Pass

**5.1.10 CONDUCTED EMISSION ON AC MAINS**

RESULT: Pass

**5.1.11 RADIATED EMISSION**

RESULT: Pass

**6.1.1 ELECTROMAGNETIC FIELDS**

RESULT: Pass

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# 1 General Remarks

## 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results of Bluetooth (BR/EDR) mode

Appendix D: Test Results of FCC Part 15B and ICES-003

# 2 Test Sites

## 2.1 Test Facilities

### 1 TÜV Rheinland (Shenzhen) Co., Ltd.

362 Huanguan Road Middle Longhua District, Shenzhen 518110 People's Republic of China

FCC Registration No.: 694916

ISED wireless device testing laboratory: 25069

### 2 TUV Rheinland/CCIC (Ningbo) Co.,Ltd

1st Floor, Building 11, Scholar Innvation Park,1188th Zhongguan Road, Zhenhai District, Ningbo

FCC Registration No.: 647754

ISED wireless device testing laboratory: 24297-1

## 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

TÜV Rheinland (Shenzhen) Co., Ltd.

| <b>Radio Spectrum Testing (TS8997)</b>       |                     |                      |                   |                   |
|----------------------------------------------|---------------------|----------------------|-------------------|-------------------|
| <b>Equipment</b>                             | <b>Manufacturer</b> | <b>Model</b>         | <b>Serial No.</b> | <b>Cal. until</b> |
| Signal Analyzer                              | R&S                 | FSV 40               | 101441            | 2021-08-10        |
| OSP                                          | R&S                 | OSP 150              | 101017            | 2020-12-17        |
| Control PC                                   | DELL                | OptiPlex 7050        | FTJZ9P2           | N/A               |
| Test Software                                | R&S                 | WMS32<br>(V11.00.00) | N/A               | N/A               |
| Power Meter                                  | R&S                 | NRP2                 | 107105            | 2020-12-17        |
| Wideband Power Sensor                        | R&S                 | NRP-Z81              | 105350            | 2020-12-17        |
| Shielding Room 8#                            | Albatross           | SR8                  | APC17151-SR8      | 2021-07-23        |
| <b>Unwanted Emission Testing (TS9975)</b>    |                     |                      |                   |                   |
| <b>Equipment</b>                             | <b>Manufacturer</b> | <b>Model</b>         | <b>Serial No.</b> | <b>Cal. until</b> |
| EMI Test Receiver                            | R&S                 | ESR 7                | 102021            | 2021-08-11        |
| Signal Analyzer                              | R&S                 | FSV 40               | 101439            | 2021-08-10        |
| System Controller Interface                  | R&S                 | SCI-100              | S10010038         | N/A               |
| Filterbank                                   | R&S                 | Wlan                 | 100759            | 2021-08-10        |
| OSP                                          | R&S                 | OSP 120              | 102040            | N/A               |
| Pre-amplifier                                | R&S                 | SCU08F1              | 08320031          | 2021-08-10        |
| Amplifier                                    | R&S                 | SCU-18F              | 180070            | 2021-08-10        |
| Amplifier                                    | R&S                 | SCU40A               | 100475            | 2021-09-10        |
| Trilog Broadband Antenna<br>(30 MHz - 7 GHz) | Schwarzbeck         | VULB 9162            | 193               | 2022-08-08        |
| Double-Ridged Antenna (1 -18 GHz)            | ETS-LINDGREN        | 3117                 | 00218717          | 2022-08-08        |
| Wideband Ridged Horn Antenna (18-40 GHz)     | Steatite            | QMS-00880            | 19067             | 2022-08-08        |
| Active Loop Antenna                          | Schwarzbeck         | FMZB 1513            | 302               | 2022-09-13        |
| Wideband Ridged Horn Antenna (12-18 GHz)     | Steatite            | QMS-00208            | 18313             | 2021-09-02        |
| Test software                                | R&S                 | EMC32 (V10.60.10)    | N/A               | N/A               |
| Control PC                                   | Dell                | OptiPlex 7050        | 36NV9P2           | N/A               |
| 3m Semi-Anechoic Chamber                     | Albatross           | SAC-3m               | APC17151-SAC      | 2021-07-06        |

## TUV Rheinland/CCIC (Ningbo) Co.,Ltd

| Radiated Emission  |           |            |            |
|--------------------|-----------|------------|------------|
| Equipment          | Model No. | Serial No. | Cal. Until |
| EMI test receiver  | ESR7      | 101929     | 2020-11-24 |
| Spectrum analyzer  | FSV40     | 101412     | 2020-11-24 |
| Bilog Antenna      | CBL6112D  | 49033      | 2021-04-12 |
| Horn antenna       | HF907     | 102653     | 2023-07-21 |
| Pre-amplifier      | SCU-18F   | 180051     | 2020-11-24 |
| Conducted Emission |           |            |            |
| Equipment          | Model No. | Serial No. | Cal. Until |
| EMI test receiver  | ENV216    | 102331     | 2020-11-24 |
| LISN               | ENV432    | 102250     | 2020-11-24 |

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

| Parameter                                              | Uncertainty                   |
|--------------------------------------------------------|-------------------------------|
| Radio Frequency                                        | $\pm 1 \times 10^{-7}$        |
| RF Power (conducted)                                   | $\pm 2.5$ dB                  |
| Radiated Emission of Transmitter, valid up to 26.5 GHz | $\pm 6$ dB                    |
| Radiated Emission of Receiver, valid up to 26.5 GHz    | $\pm 6$ dB                    |
| Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz) | $\pm 3.70$ dB / $\pm 3.30$ dB |
| Radiated Emission (3m SAC), 30MHz to 1000MHz           | $\pm 4.52$ dB                 |
| Radiated Emission (3m SAC), above 1000MHz              | $\pm 4.37$ dB                 |
| Temperature                                            | $\pm 1$ °C                    |
| Humidity                                               | $\pm 5$ %                     |
| Voltage (DC)                                           | $\pm 1$ %                     |
| Voltage (AC, <10kHz)                                   | $\pm 2$ %                     |

## 2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B & C of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at **Error! Reference source not found.** is listed on the US Federal Communications Commission list of facilities approved to perform measurements.



### 3 General Product Information

#### 3.1 Product Function and Intended Use

The EUT is a Alice + Olivia Headphones, which supports Bluetooth (BR/EDR) function.

For details refer to the User Manual, Technical Description and Circuit Diagram.

#### 3.2 Ratings and System Details

Table 2: Technical Specification of EUT

| General Information of EUT                     | Value                                                                                           |
|------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Kind of Equipment                              | Alice + Olivia Headphones                                                                       |
| Type Designation                               | AAO-FA-004                                                                                      |
| FCC ID                                         | 2ATL4-3FWHSXAX                                                                                  |
| IC                                             | 25105-3FWHSXAX                                                                                  |
| HVIN                                           | AAO-FA-004                                                                                      |
| Operating Voltage                              | Via USB port<br>DC 5V@1A via power adapter<br>DC 3.7V via internal rechargeable lithium battery |
| Testing Voltage                                | DC 3.3V from USB port<br>DC 5V from adapter<br>Fully charged battery                            |
| Technical Specification of Bluetooth (BDR/EDR) |                                                                                                 |
| Operating Frequency                            | 2402 MHz to 2480 MHz                                                                            |
| Type of Modulation                             | GFSK(BDR), $\pi/4$ -DQPSK(EDR)                                                                  |
| Channel Number                                 | 79 channels                                                                                     |
| Channel Separation                             | 1MHz                                                                                            |
| Antenna Type                                   | PCB Layout Antenna                                                                              |
| Antenna Gain                                   | 0 dBi                                                                                           |

**Table 3: RF Channel and Frequency of Bluetooth (BDR/EDR)**

| RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) | RF Channel | Frequency (MHz) |
|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|
| <b>0</b>   | <b>2402.00</b>  | 20         | 2422.00         | 40         | 2442.00         | 60         | 2462.00         |
| 1          | 2403.00         | 21         | 2423.00         | 41         | 2443.00         | 61         | 2463.00         |
| 2          | 2404.00         | 22         | 2424.00         | 42         | 2444.00         | 62         | 2464.00         |
| 3          | 2405.00         | 23         | 2425.00         | 43         | 2445.00         | 63         | 2465.00         |
| 4          | 2406.00         | 24         | 2426.00         | 44         | 2446.00         | 64         | 2466.00         |
| 5          | 2407.00         | 25         | 2427.00         | 45         | 2447.00         | 65         | 2467.00         |
| 6          | 2408.00         | 26         | 2428.00         | 46         | 2448.00         | 66         | 2468.00         |
| 7          | 2409.00         | 27         | 2429.00         | 47         | 2449.00         | 67         | 2469.00         |
| 8          | 2410.00         | 28         | 2430.00         | 48         | 2450.00         | 68         | 2470.00         |
| 9          | 2411.00         | 29         | 2431.00         | 49         | 2451.00         | 69         | 2471.00         |
| 10         | 2412.00         | 30         | 2432.00         | 50         | 2452.00         | 70         | 2472.00         |
| 11         | 2413.00         | 31         | 2433.00         | 51         | 2453.00         | 71         | 2473.00         |
| 12         | 2414.00         | 32         | 2434.00         | 52         | 2454.00         | 72         | 2474.00         |
| 13         | 2415.00         | 33         | 2435.00         | 53         | 2455.00         | 73         | 2475.00         |
| 14         | 2416.00         | 34         | 2436.00         | 54         | 2456.00         | 74         | 2476.00         |
| 15         | 2417.00         | 35         | 2437.00         | 55         | 2457.00         | 75         | 2477.00         |
| 16         | 2418.00         | 36         | 2438.00         | 56         | 2458.00         | 76         | 2478.00         |
| 17         | 2419.00         | 37         | 2439.00         | 57         | 2459.00         | 77         | 2479.00         |
| 18         | 2420.00         | 38         | 2440.00         | 58         | 2460.00         | 78         | <b>2480.00</b>  |
| 19         | 2421.00         | 39         | <b>2441.00</b>  | 59         | 2461.00         |            |                 |

**Table 4: Frequency Hopping Information**

| Technical Specification  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hopping Range            | Hereby we declare that the maximum frequency of this device is: 2402-2480MHz. This is according the Bluetooth Core Specification for devices which will be operated in the USA. This was checked during the Bluetooth Qualification tests (Test Case: TRM/CA/04-E).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Hopping Sequence         | Example of a 79 hopping sequence in data mode:<br><br>33,04,21,44,23,42,53,46,55,48,40,59,72,29,76,31,08,73,07,75,09,45,60,39,58,13,47,11,77,52,35,50,65,54,67,56,69,62,71,64, 7,25,27,66,57,70,74,61,78,63,10,41,05,43,15,44,64,68,02,70,06,01,51,03,55,05,03,66,53,49,36,47,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Receiver input bandwidth | <p>The input bandwidth of the receiver is 1MHz. In every connection one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master.</p> <p>Additionally the type of connection is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also the slave of the connection will use these settings.</p> <p>Repeating of a packer has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case.</p> <p>That means a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.</p> |

### 3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Bluetooth transmitting mode
  - 1) Low Channel
  - 2) Middle Channel
  - 3) High Channel
- B. On, Transmitting on Hopping channel
- C. On, BT playing mode
- D. On, Charging mode
- E. On, Aux in playing mode
- F. Off

### 3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

### 3.5 Submitted Documents

- ID Label and Location Info
- User Manual

## 4 Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

**Radio Spectrum:** The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013 and ANSI C63.4: 2014.

According to clause 3.1, all tests were performed on model AAO-FA-004 in this report.

### 4.3 Special Accessories and Auxiliary Equipment

Table 5: Auxiliary Equipment Used during Test

| Description | Manufacturer | Model              | S/N       | Rating                                       |
|-------------|--------------|--------------------|-----------|----------------------------------------------|
| Laptop      | Lenovo       | T480               | PF-16A6N8 | N/A                                          |
| Adapter     | Huazhang     | HZ-<br>G0501000USB | N/A       | Input: 100-240V,<br>50/60Hz<br>Output: 5V@1A |

### 4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

## 4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

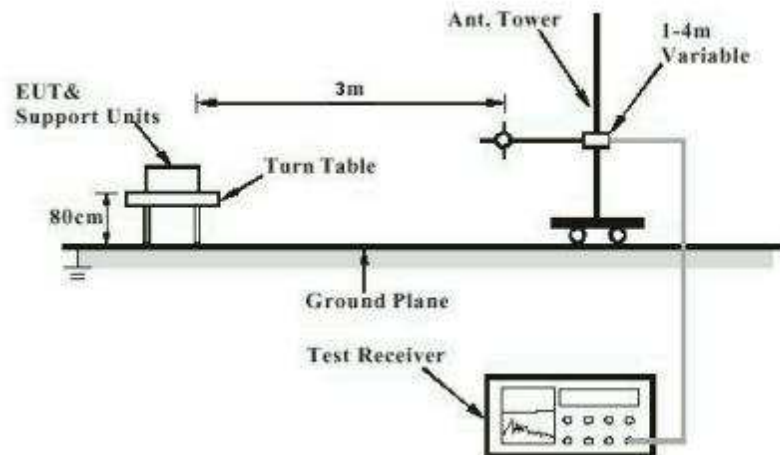
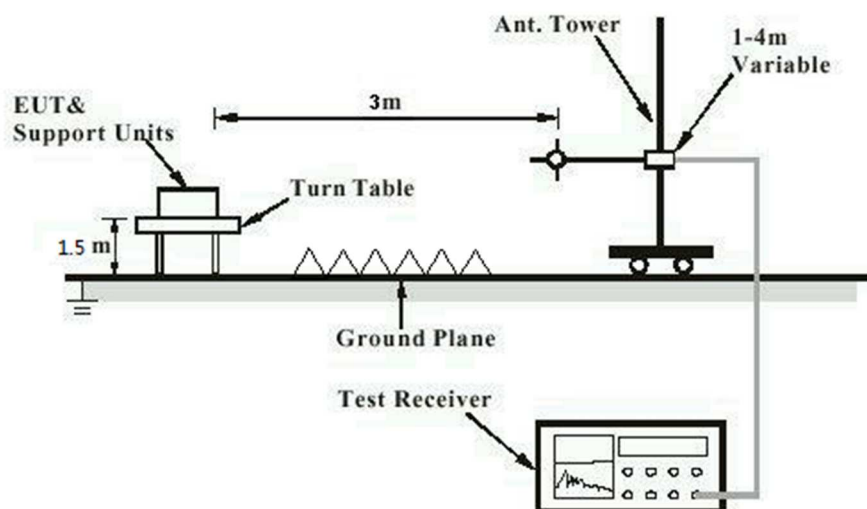
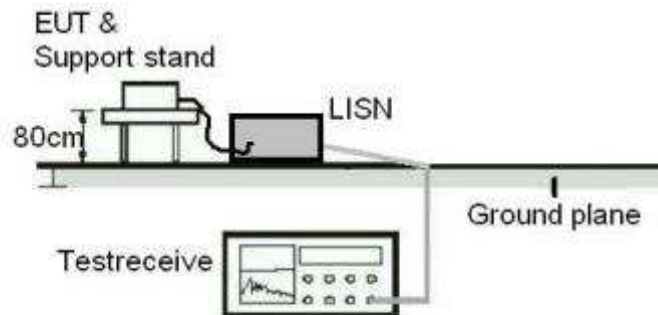


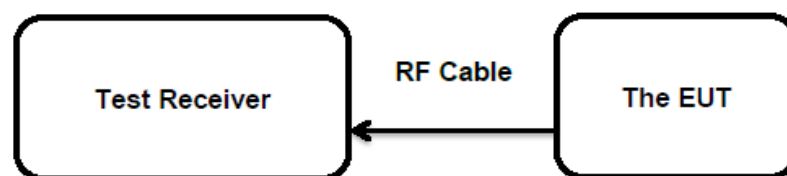
Diagram of Measurement Configuration for Radiation Test (Above 1GHz)



### Diagram of Measurement Configuration for Mains Conduction Measurement



### Diagram of Measurement Configuration for Conducted Transmitter Measurement



## 5 Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

RESULT:

**Pass**

**Test Specification**

Test standard : FCC Part 15.247(b)(4) and Part 15.203  
RSS-Gen Clause 6.8

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.



## 5.1.2 Maximum Peak Conducted Output Power

**RESULT:**
**Pass**
**Test Specification**

|                   |                                                  |
|-------------------|--------------------------------------------------|
| Test standard     | : FCC Part 15.247(b)(1)<br>RSS-247 Clause 5.4(b) |
| Basic standard    | : ANSI C63.10: 2013                              |
| Limits            | : FHSS < 0.125 Watts                             |
| Kind of test site | : Shielded Room                                  |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : 2020-10-29            |
| Input voltage        | : DC 3.3V from USB port |
| Operation mode       | : A                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 23.2 °C               |
| Relative humidity    | : 53 %                  |
| Atmospheric pressure | : 101 kPa               |

Note: This test was carried out on right earphone only.

**Table 6: Test Result of Maximum Peak Conducted Output Power, Bluetooth (BDR/EDR)**

| Test Mode           | Test Channel (MHz) | Measured Peak Power |        | Limit (W) |
|---------------------|--------------------|---------------------|--------|-----------|
|                     |                    | (dBm)               | (W)    |           |
| GFSK (BDR)          | 2402.0             | 3.75                | 0.0024 | < 0.125   |
|                     | 2441.0             | 3.89                | 0.0024 |           |
|                     | 2480.0             | 4.01                | 0.0025 |           |
| π/4-DQPSK (EDR)     | 2402.0             | 4.55                | 0.0029 |           |
|                     | 2441.0             | 4.71                | 0.0030 |           |
|                     | 2480.0             | 4.82                | 0.0030 |           |
| Max. Measured Value |                    | 4.82                | 0.0030 |           |

Note:

- 1) The cable loss is taken into account in results.
- 2) Antenna gain(G) : 0 dBi,  
e.i.r.p.=P<sub>(Av power)</sub>+ G, which is far below the 4 W

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### 5.1.3 99% Bandwidth

**RESULT:**

**Pass**

#### Test Specification

|                   |                      |
|-------------------|----------------------|
| Test standard     | : RSS-Gen Clause 6.6 |
| Basic standard    | : ANSI C63.10: 2013  |
| Kind of test site | : Shielded Room      |

#### Test Setup

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : 2020-10-16            |
| Input voltage        | : DC 3.3V from USB port |
| Operation mode       | : A                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 23.2 °C               |
| Relative humidity    | : 53 %                  |
| Atmospheric pressure | : 101 kPa               |

Note: This test was carried out on right earphone only.

For the measurement records, refer to the appendix B.

## 5.1.4 20dB Bandwidth

**RESULT:**

**Pass**

**Test Specification**

|                   |                                                  |
|-------------------|--------------------------------------------------|
| Test standard     | : FCC Part 15.247(a)(1)<br>RSS-247 Clause 5.1(a) |
| Basic standard    | : ANSI C63.10: 2013                              |
| Kind of test site | : Shielded Room                                  |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : 2020-10-16            |
| Input voltage        | : DC 3.3V from USB port |
| Operation mode       | : A                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 23.2 °C               |
| Relative humidity    | : 53 %                  |
| Atmospheric pressure | : 101 kPa               |

Note: This test was carried out on right earphone only.

For the measurement records, refer to the appendix B.

### 5.1.5 Carrier Frequency Separation

**RESULT:****Pass****Test Specification**

|                   |                                                                      |
|-------------------|----------------------------------------------------------------------|
| Test standard     | : FCC Part 15.247(a)(1)<br>RSS-247 Clause 5.1(b)                     |
| Basic standard    | : ANSI C63.10: 2013                                                  |
| Limits            | : $\geq 25\text{kHz}$ or 2/3 of 20dB bandwidth, whichever is greater |
| Kind of test site | : Shielded Room                                                      |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : 2020-10-16            |
| Input voltage        | : DC 3.3V from USB port |
| Operation mode       | : B                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 23.2 °C               |
| Relative humidity    | : 53 %                  |
| Atmospheric pressure | : 101 kPa               |

Note: This test was carried out on right earphone only.

For the measurement records, refer to the appendix B.

## 5.1.6 Number of Hopping Frequency

**RESULT:**

**Pass**

**Test Specification**

|                   |                                                       |
|-------------------|-------------------------------------------------------|
| Test standard     | : FCC part 15.247(a)(1)(iii)<br>RSS-247 Clause 5.1(d) |
| Basic standard    | : ANSI C63.10: 2013                                   |
| Limits            | : $\geq 15$ non-overlapping channels                  |
| Kind of test site | : Shielded Room                                       |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : 2020-10-16            |
| Input voltage        | : DC 3.3V from USB port |
| Operation mode       | : B                     |
| Ambient temperature  | : 23.2 °C               |
| Relative humidity    | : 53 %                  |
| Atmospheric pressure | : 101 kPa               |

Note: This test was carried out on right earphone only.

For the measurement records, refer to the appendix B.

## 5.1.7 Time of Occupancy

**RESULT:**

**Pass**

**Test Specification**

|                   |                                                       |
|-------------------|-------------------------------------------------------|
| Test standard     | : FCC part 15.247(a)(1)(iii)<br>RSS-247 Clause 5.1(d) |
| Basic standard    | : ANSI C63.10: 2013                                   |
| Limits            | : < 0.4s                                              |
| Kind of test site | : Shielded Room                                       |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : 2020-10-16            |
| Input voltage        | : DC 3.3V from USB port |
| Operation mode       | : B                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 23.2 °C               |
| Relative humidity    | : 53 %                  |
| Atmospheric pressure | : 101 kPa               |

Note: This test was carried out on right earphone only.

For the measurement records, refer to the appendix B.

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Test Report No.Seite 23 von 28  
Page 23 of 28**5.1.8 Conducted Spurious Emissions Measured in 100 kHz Bandwidth****RESULT:****Pass****Test Specification**

|                   |                                                                                                                                                                                                                                                                    |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test standard     | : FCC Part 15.247(d)<br>RSS-247 Clause 5.5                                                                                                                                                                                                                         |
| Basic standard    | : ANSI C63.10: 2013                                                                                                                                                                                                                                                |
| Limits            | : 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power);<br>In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a) |
| Kind of test site | : Shielded Room                                                                                                                                                                                                                                                    |

**Test Setup**

|                      |                         |
|----------------------|-------------------------|
| Date of testing      | : Refer to test result  |
| Input voltage        | : DC 3.3V from USB port |
| Operation mode       | : A                     |
| Test channel         | : Low / Middle / High   |
| Ambient temperature  | : 23.2 °C               |
| Relative humidity    | : 53 %                  |
| Atmospheric pressure | : 101 kPa               |

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

Note: This test was carried out on right earphone only.

For the measurement records, refer to the appendix B.

### 5.1.9 Radiated Spurious Emission

**RESULT:****Pass****Test Specification**

|                   |                                                              |
|-------------------|--------------------------------------------------------------|
| Test standard     | : FCC Part 15.247(d) & FCC Part 15.205<br>RSS-247 Clause 3.3 |
| Basic standard    | : ANSI C63.10: 2013                                          |
| Limits            | : Refer to 15.209(a) of FCC part 15.247(d)                   |
| Kind of test site | : 3m Semi-anechoic Chamber                                   |

**Test Setup**

|                      |                           |
|----------------------|---------------------------|
| Date of testing      | : 2020-09-29 ~ 2020-10-16 |
| Input voltage        | : Fully charged battery   |
| Operation mode       | : A                       |
| Test channel         | : Low / Middle / High     |
| Ambient temperature  | : Refer to test result    |
| Relative humidity    | : Refer to test result    |
| Atmospheric pressure | : 101 kPa                 |

**Remark:**

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix B.



**5.1.10 Conducted Emission on AC Mains****RESULT:****Pass****Test Specification**

|                   |                                                                                 |
|-------------------|---------------------------------------------------------------------------------|
| Test standard     | : FCC Part 15.207(a) & FCC Part 15.107(a)<br>RSS-Gen Clause 8.8 & ICES-003      |
| Basic standard    | : ANSI C63.10: 2013 & ANSI C63.4: 2014                                          |
| Frequency range   | : 0.15 – 30MHz                                                                  |
| Limits            | : FCC Part 15.207(a) & FCC Part 15.107(a)<br>RSS-Gen Table 3 & ICES-003 Table 2 |
| Kind of test site | : Shielded Room                                                                 |

**Test Setup**

|                      |                      |
|----------------------|----------------------|
| Date of testing      | : 2020-10-22         |
| Input voltage        | : DC 5V from adapter |
| Operation mode       | : C, D, E            |
| Earthing             | : Not connected      |
| Ambient temperature  | : 20 °C              |
| Relative humidity    | : 54 %               |
| Atmospheric pressure | : 101 kPa            |

For the measurement records, refer to the appendix B & C.

**5.1.11 Radiated Emission****RESULT:****Pass****Test Specification**

|                   |                                                    |
|-------------------|----------------------------------------------------|
| Test standard     | : FCC Part 15.109(a)<br>ICES-003                   |
| Basic standard    | : ANSI C63.4: 2014                                 |
| Frequency range   | : 30 - 6000MHz                                     |
| Classification    | : Class B                                          |
| Limits            | : FCC Part 15.109(a)<br>ICES-003 Table 5 & Table 7 |
| Kind of test site | : 3m Semi-anechoic Chamber                         |

**Test Setup**

|                      |                                           |
|----------------------|-------------------------------------------|
| Date of testing      | : Refer to test result                    |
| Input voltage        | : DC 5V from adapter<br>DC 3.V by battery |
| Operation mode       | : C, D, E                                 |
| Earthing             | : Not connected                           |
| Ambient temperature  | : Refer to test result                    |
| Relative humidity    | : Refer to test result                    |
| Atmospheric pressure | : 101 kPa                                 |

For the measurement records, refer to the appendix C.

## 6 Safety Human Exposure

### 6.1 Radio Frequency Exposure Compliance

#### 6.1.1 Electromagnetic Fields

**RESULT:****Pass****Test Specification**

Test standard : CFR47 FCC Part 2: Section 2.1093  
FCC KDB Publication 447498 v06  
RSS-102 Issue 5 March 2015

**Measurement Record:**

The minimum distance for the EUT is less than 5mm.

Since maximum peak output power of the transmitter is 4.82 dBm  $\approx 3.03 \text{ mW}$   $< \frac{3 \cdot d}{\sqrt{f}} = 9.52 \text{ mW}$ .

Hence the EUT is excluded from SAR evaluation according to FCC KDB Publication 447498 D01 General RF Exposure Guidance v06.

The maximum peak output power of the transmitter is 4.82 dBm (3.03 mW), which is far below the SAR exclusion threshold level 4 mW  $\approx 6.02 \text{ dBm}$ .

## 7 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

## 8 List of Tables

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