

# RF EXPOSURE Test Report

**Product:** Wireless Speaker

**Trade Mark:** ELECZON

**Model Number:** EC07

**FCC ID:** 2A8RS-EC07

**Prepared for**

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Building 7, No. 177, Zhuzhou Road, Laoshan District, Qingdao City,  
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**Prepared by**

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## TEST RESULT CERTIFICATION

**Applicant's Name**..... : Qingdao Hengrun Yuantong Trading Co., Ltd.  
**Address** ..... : Building 7, No. 177, Zhuzhou Road, Laoshan District,  
Qingdao City, Shandong Province, China  
**Manufacturer's Name** ..... : Qingdao Hengrun Yuantong Trading Co., Ltd.  
**Address** ..... : Building 7, No. 177, Zhuzhou Road, Laoshan District,  
Qingdao City, Shandong Province, China

### Product description

**Product name** ..... : Wireless Speaker  
**Model Number** ..... : EC07

**Standards**..... : FCC CFR 47 PART 1 , 1.1310

**Test procedure**..... : KDB 447498 D01 v06

This device described above has been tested by Shenzhen HongBiao Certification& Testing Co., Ltd and the test results show that the equipment under test (EUT) is in compliance with the EMC requirements. And it is applicable only to the tested sample identified in the report.

**Date of Test**..... :

**Date (s) of performance of tests**..... : December 08, 2023 ~ December 27, 2023

**Test Result**..... : **Pass**

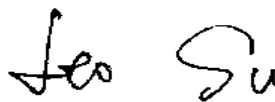
**Testing Engineer** :

  
( Z o e S u )

**Technical Manager** :

  
( G a r y L u )

**Authorized Signatory** :

  
( L e o S u )

[illegible]

# 1 General Description

## 1.1 Description of EUT

|                            |                                                                                                                                                                                               |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product name:              | Wireless Speaker                                                                                                                                                                              |
| Model name:                | EC07                                                                                                                                                                                          |
| Series Model:              | EC17, EC27, EC37, EC77, EC107, EC67, EC57                                                                                                                                                     |
| Different of series model: | The color of appearance and model name of series models listed are different from the main model, but the circuit and the electronic construction are the same, declared by the manufacturer. |
| Operation frequency:       | 2402-2480MHz                                                                                                                                                                                  |
| Modulation type:           | GFSK, $\pi/4$ -DQPSK                                                                                                                                                                          |
| Bit Rate of transmitter:   | 1 Mbps, 2Mbps                                                                                                                                                                                 |
| Antenna type:              | PCB Antenna                                                                                                                                                                                   |
| Antenna gain:              | -0.61dBi                                                                                                                                                                                      |
| Max. output power:         | 1.21dBm                                                                                                                                                                                       |
| Hardware version:          | V1.0                                                                                                                                                                                          |
| Software version:          | V1.0                                                                                                                                                                                          |
| Battery:                   | DC 3.7V/1500mAh                                                                                                                                                                               |
| Power supply:              | DC 3.7V by battery, USB 5V charging                                                                                                                                                           |
| Adapter information:       | N/A                                                                                                                                                                                           |

## 1.2 Test Mode

| Pretest Test Mode | Description of Mode |
|-------------------|---------------------|
| 1                 | TX                  |
| 2                 | /                   |

## 1.3 Ancillary Equipment

| Equipment | Model | S/N | Manufacturer |
|-----------|-------|-----|--------------|
| /         | /     | /   | /            |

## 2 Test Facilities and Accreditations

### 2.1 Test Laboratory

|                       |                                                                                                                                                   |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Site             | Shenzhen HongBiao Certification& Testing Co., Ltd                                                                                                 |
| Test Site Location    | Room 102, 201, Building 2, Yuanwanggu RFID Industrial Park, Tongguan Road, Tianliao Community, Yutang Street, Guangming District, Shenzhen, China |
| Telephone:            | (86-755) 2998 9321                                                                                                                                |
| Fax:                  | (86-755) 2998 5110                                                                                                                                |
| FCC Registration No.: | CN1341                                                                                                                                            |
| A2LA Certificate No.: | 6765.01                                                                                                                                           |

### 2.2 Environmental Conditions

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

|                    |              |
|--------------------|--------------|
| Temperature:       | 15°C~35°C    |
| Relative Humidity: | 20%~75%      |
| Air Pressure:      | 98kPa~101kPa |

### 2.3 Measurement Uncertainty

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

| Measurement Frequency Range      | $U$ , (dB)         | Note |
|----------------------------------|--------------------|------|
| RF frequency                     | $2 \times 10^{-5}$ |      |
| RF power, conducted              | $\pm 0.57$ dB      |      |
| Conducted emission(150kHz~30MHz) | $\pm 2.5$ dB       |      |
| Radiated emission(30MHz~1GHz)    | $\pm 4.2$ dB       |      |
| Radiated emission (above 1GHz)   | $\pm 4.7$ dB       |      |
| Temperature                      | $\pm 1$ degree     |      |
| Humidity                         | $\pm 5$ %          |      |

### 2.4 Test Software

| Software name         | Manufacturer | Model    | Version |
|-----------------------|--------------|----------|---------|
| Conducted test system | MWRF-test    | MTS 8310 | V2.0.0  |

### 3 List of Test Equipment

| RF   |               |                                              |              |                |            |                  |            |
|------|---------------|----------------------------------------------|--------------|----------------|------------|------------------|------------|
| Item | Equipment No. | Equipment name                               | Manufacturer | Model          | Serial No. | Calibration date | Due date   |
| 1    | HB-E041       | MXG Anaio<br>Signal Generator                | Agilent      | N5181A         | MY47070421 | 2023-05-11       | 2024-05-10 |
| 2    | HB-E042       | WIDEBAND<br>RADIO<br>COMMUNICATION<br>TESTER | R&S          | CMW500         | 132108     | 2023-05-11       | 2024-05-10 |
| 3    | HB-E043       | MXG Anaio<br>Signal Generator                | Agilent      | N5182A         | US46240335 | 2023-05-11       | 2024-05-10 |
| 4    | HB-E044       | Signal &<br>spectrum<br>Analyzer             | R&S          | FSV3044        | 101264     | 2023-05-11       | 2024-05-10 |
| 5    | HB-E045       | RF Control<br>Box                            | Noyetec      | NY100-R<br>FCB | N/A        | /                | /          |
| 6    | HB-E058       | Thermometer<br>Clock<br>Humidity<br>Monitor  | N/A          | HTC-1          | N/A        | /                | /          |

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

## 4 RF Exposure

### 4.1 Standalone SAR test exclusion considerations

#### 4.1.1. Limit

3.0 for 1g SAR.

#### 4.1.2. Test Procedures

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition(s), listed below, is (are) satisfied.

These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions.

The minimum test separation distance defined in 4.1 f) is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander.

To qualify for SAR test exclusion, the test separation distances applied must be fully explained and justified, typically in the SAR measurement or SAR analysis report, by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, according to the required published RF exposure KDB procedures.

When no other RF exposure testing or reporting are required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for SAR test exclusion.

When required, the device specific conditions described in the other published RF exposure KDB procedures must be satisfied before applying these SAR test exclusion provisions.

- a) For 100 MHz to 6 GHz and test separation distances  $\leq 50$  mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- $f_{(\text{GHz})}$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as *numeric thresholds* in step b) below

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

- b) For 100 MHz to 6 GHz and test separation distances  $> 50$  mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following (also illustrated in Appendix B):

1)  $\{[\text{Power allowed at } \textit{numeric threshold} \text{ for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\}$  mW, for 100 MHz to 1500 MHz

2)  $\{[\text{Power allowed at } \textit{numeric threshold} \text{ for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$  mW, for  $> 1500$  MHz and  $\leq 6$  GHz

- c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C):



- 1) For test separation distances  $> 50$  mm and  $< 200$  mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by  $[1 + \log(100/f(\text{MHz}))]$
- 2) For test separation distances  $\leq 50$  mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by  $\frac{1}{2}$
- 3) SAR measurement procedures are not established below 100 MHz.

When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any SAR test results below 100 MHz to be acceptable.

#### 4.1.3. Test Result

We use 5mm as separation distance to calculated.

Bluetooth DSS:

| Transmit Frequency (GHz) | Mode           | Measured Power (dBm) | Tune-up power (dBm) | Max tune-up power(dBm) | Result calculation | 1g SAR |
|--------------------------|----------------|----------------------|---------------------|------------------------|--------------------|--------|
| 2.480                    | $\pi/4$ -DQPSK | 1.21                 | 1±1                 | 2                      | 0.497637           | 3      |

#### Conclusion:

For the max result:  $0.497637 \leq 3.0$  for 1g SAR, No SAR is required.

\*\*\*\*\* END OF REPORT \*\*\*\*\*