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# RF Exposure Evaluation Report

**Report No. :** CQASZ20200400310E-02  
**Applicant:** Wonders Technology Co.,Ltd  
**Address of Applicant:** 4/F, Tower A, 3rd Building, Tian'an Cloud Park, Bantian Avenue, Longgang District, Shenzhen 518129, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Wireless Bluetooth Speaker  
**Model No.:** Cannonball MAX, WB-206  
**Test Model No.:** Cannonball MAX  
**Brand Name:** N/A  
**FCC ID:** WC2-WB206  
**Standards:** 47 CFR Part 1.1307  
47 CFR Part 2.1093  
KDB447498D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2020-04-27  
**Date of Test:** 2020-04-27 to 2020-05-06  
**Date of Issue:** 2020-05-06  
**Test Result :** PASS\*

\*In the configuration tested, the EUT complied with the standards specified above

**Tested By:**

Tom Chen

(Tom Chen)

**Reviewed By:**

Sheek Luo

(Sheek Luo)

**Approved By:**

Jack Ai

(Jack Ai)



## 1 Version

### Revision History Of Report

| Report No.           | Version | Description    | Issue Date |
|----------------------|---------|----------------|------------|
| CQASZ20200400310E-02 | Rev.01  | Initial report | 2020-05-06 |

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### 3 General Information

#### 3.1 Client Information

|                          |                                                                                                           |
|--------------------------|-----------------------------------------------------------------------------------------------------------|
| Applicant:               | Wonders Technology Co.,Ltd                                                                                |
| Address of Applicant:    | 4/F, Tower A, 3rd Building, Tian'an Cloud Park, Bantian Avenue, Longgang District, Shenzhen 518129, China |
| Manufacturer:            | Wonders Technology Co.,Ltd                                                                                |
| Address of Manufacturer: | 4/F, Tower A, 3rd Building, Tian'an Cloud Park, Bantian Avenue, Longgang District, Shenzhen 518129, China |

#### 3.2 General Description of EUT

|                       |                                                                                                                    |
|-----------------------|--------------------------------------------------------------------------------------------------------------------|
| Product Name:         | Wireless Bluetooth Speaker                                                                                         |
| Model No.:            | Cannonball MAX, WB-206                                                                                             |
| Test Model No.:       | Cannonball MAX                                                                                                     |
| Trade Mark:           | N/A                                                                                                                |
| Hardware Version:     | V1.0                                                                                                               |
| Software Version:     | VER:1.2                                                                                                            |
| Operation Frequency:  | 2402MHz~2480MHz                                                                                                    |
| Modulation Technique: | Frequency Hopping Spread Spectrum(FHSS)                                                                            |
| Modulation Type:      | GFSK, $\pi/4$ DQPSK                                                                                                |
| Number of Channel:    | 79                                                                                                                 |
| Transfer Rate:        | 1Mbps/2Mbps                                                                                                        |
| Hopping Channel Type: | Adaptive Frequency Hopping systems                                                                                 |
| Sample Type:          | <input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location |
| Test Software of EUT: | FCCAssist 2.4 (manufacturer declare)                                                                               |
| Antenna Type:         | PCB antenna                                                                                                        |
| Antenna Gain:         | -0.58dBi                                                                                                           |
| Power Supply:         | lithium battery: DC 3.7V, 2200mAh, Charge by DC 5.0V                                                               |

Model No.: Cannonball MAX, WB-206

Only the model Cannonball MAX was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance and model name.

## 4 SAR Evaluation

### 4.1 RF Exposure Compliance Requirement

#### 4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

##### 4.3.1. Standalone SAR test exclusion considerations

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 Exclusion Threshold condition, listed below, is satisfied.

#### 4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

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

$f(\text{GHz})$  is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup>

The result is rounded to one decimal place for comparison

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 is applied to determine SAR test exclusion

### 4.1.3 EUT RF Exposure

#### Measurement Data

| GFSK mode        |                            |                            |                       |       |
|------------------|----------------------------|----------------------------|-----------------------|-------|
| Test channel     | Peak Output Power<br>(dBm) | Tune up tolerance<br>(dBm) | Maximum tune-up Power |       |
|                  |                            |                            | (dBm)                 | (mW)  |
| Lowest(2402MHz)  | -4.770                     | -5.5±1                     | -4.5                  | 0.355 |
| Middle(2441MHz)  | -4.220                     | -5.0±1                     | -4.0                  | 0.398 |
| Highest(2480MHz) | -4.180                     | -5.0±1                     | -4.0                  | 0.398 |
| π/4DQPSK mode    |                            |                            |                       |       |
| Test channel     | Peak Output Power<br>(dBm) | Tune up tolerance<br>(dBm) | Maximum tune-up Power |       |
|                  |                            |                            | (dBm)                 | (mW)  |
| Lowest(2402MHz)  | -4.150                     | -5.0±1                     | -4.0                  | 0.398 |
| Middle(2441MHz)  | -3.610                     | -4.5±1                     | -3.5                  | 0.447 |
| Highest(2480MHz) | -3.600                     | -4.5±1                     | -3.5                  | 0.447 |

| Worst case: $\pi/4$ DQPSK                                      |                                           |                         |                       |       |                  |                     |
|----------------------------------------------------------------|-------------------------------------------|-------------------------|-----------------------|-------|------------------|---------------------|
| Channel                                                        | Maximum Peak Conducted Output Power (dBm) | Tune up tolerance (dBm) | Maximum tune-up Power |       | Calculated value | Exclusion threshold |
|                                                                |                                           |                         | (dBm)                 | (mW)  |                  |                     |
| Lowest (2402MHz)                                               | -4.150                                    | -5.0±1                  | -4.0                  | 0.398 | 0.123            | 3.0                 |
| Middle (2441MHz)                                               | -3.610                                    | -4.5±1                  | -3.5                  | 0.447 | 0.140            |                     |
| Highest (2480MHz)                                              | -3.600                                    | -4.5±1                  | -3.5                  | 0.447 | 0.141            |                     |
| Conclusion: the calculated value $\leq 3.0$ , SAR is exempted. |                                           |                         |                       |       |                  |                     |

Remark: The Max Conducted Peak Output Power data refer to report Report No.: CQASZ20200400310E-01