



## RF Exposure Evaluation Declaration

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**FCC ID:** 2AMPLCTPRO2

**APPLICANT:** Dongshun Tech Development Limited

**Application Type:** Certification

**Product:** Wireless Earphone

**Model No.:** CTPRO2

**Serial Model No.:** CTPRO2-WHI, CTPRO2-BLK, CTPRO2 Series,  
NE-972, NE-973

**FCC Classification:** FCC Part 15 Spread Spectrum Transmitter(DSS)

Reviewed By:

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( Sunny Sun )

Approved By:

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( Robin Wu )



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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### Revision History

| Report No.    | Version | Description    | Issue Date | Note  |
|---------------|---------|----------------|------------|-------|
| 1901RSU027-U2 | Rev. 01 | Initial Report | 01-28-2019 | Valid |
|               |         |                |            |       |

## 1. Equipment Description

|                          |   |
|--------------------------|---|
| Product Name:            | Wireless Earphone                                     |
| Model No.:               | CTPRO2  |
| Serial Model No.:        | CTPRO2-WHI, CTPRO2-BLK, CTPRO2 Series, NE-972, NE-973 |
| Bluetooth Specification: | v4.2 (Single mode)                                    |
| Operating Frequency:     | 2402~2480MHz  |
| Channel Number:          | 79  |
| Type of modulation:      | GFSK, Pi/4 DQPSK, 8DPSK                               |
| Data Rate:               | 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK)         |
| Antenna Type:            | PCB Antenna   |
| Antenna Gain:            | 2.24dBi   |

Note: The difference between models is only for different marketing, all the other was the same.

## 2. RF Exposure Evaluation

### 2.1. Limits

#### SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and $\leq 50$ mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in Note 1 must be applied to determine SAR test exclusion.

| MHz  | 5   | 10  | 15  | 20  | 25  | mm   |
|------|-----|-----|-----|-----|-----|--|
| 150  | 39  | 77  | 116 | 155 | 194 | SAR Test<br>Exclusion<br>Threshold<br>(mW) |
| 300  | 27  | 55  | 82  | 110 | 137 |  |
| 450  | 22  | 45  | 67  | 89  | 112 |  |
| 835  | 16  | 33  | 49  | 66  | 82  |  |
| 900  | 16  | 32  | 47  | 63  | 79  |  |
| 1500 | 12  | 24  | 37  | 49  | 61  |  |
| 1900 | 11  | 22  | 33  | 44  | 54  |  |
| 2450 | 10  | 19  | 29  | 38  | 48  |  |
| 3600 | 8   | 16  | 24  | 32  | 40  |  |
| 5200 | 7   | 13  | 20  | 26  | 33  |  |
| 5400 | 6   | 13  | 19  | 26  | 32  |  |
| 5800 | 6   | 12  | 19  | 25  | 31  |  |
| MHz  | 30  | 35  | 40  | 45  | 50  | mm   |
| 150  | 232 | 271 | 310 | 349 | 387 | SAR Test<br>Exclusion<br>Threshold<br>(mW) |
| 300  | 164 | 192 | 219 | 246 | 274 |  |
| 450  | 134 | 157 | 179 | 201 | 224 |  |
| 835  | 98  | 115 | 131 | 148 | 164 |  |
| 900  | 95  | 111 | 126 | 142 | 158 |  |
| 1500 | 73  | 86  | 98  | 110 | 122 |  |
| 1900 | 65  | 76  | 87  | 98  | 109 |  |
| 2450 | 57  | 67  | 77  | 86  | 96  |  |
| 3600 | 47  | 55  | 63  | 71  | 79  |  |
| 5200 | 39  | 46  | 53  | 59  | 66  |  |
| 5400 | 39  | 45  | 52  | 58  | 65  |  |
| 5800 | 37  | 44  | 50  | 56  | 62  |  |

Note: 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:

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

- $f(\text{GHz})$  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
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 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 5) in section 4.1 is applied to determine SAR test exclusion.

## 2.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

### 2.3. Test Result of RF Exposure Evaluation

|           |                        |
|-----------|------------------------|
| Product   | Wireless Earphone      |
| Test Item | RF Exposure Evaluation |

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 2.24dBi for 2.4GHz in logarithm scale.

#### Output Power into Antenna:

| Test Mode | Frequency Band (MHz) | Maximum output power to antenna (mW) | SAR Test Exclusion Threshold (mW) |
|-----------|----------------------|--------------------------------------|-----------------------------------|
| Bluetooth | 2402 ~ 2480          | 3.98                                 | 10                                |

Per FCC KDB 447498 D01v06, the SAR exclusion threshold for distances < 50mm is defined by the following equation:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}] \leq 3.0$$

Based on the maximum conducted power of Bluetooth and the antenna to use separation distance, Bluetooth SAR was not required;

$$[(3.98\text{mW}/5) * \sqrt{2.441}] = 1.24 < 3.0$$

Note: When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

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