

# SAR TEST EXCLUSION EVALUATION REPORT

**Product Name:** active noise-canceling headphones  
**Trade Mark:** heyday  
**Model No. / HVIN:** ANC1  
**Add. Model No. / HVIN:** N/A  
**Report Number:** 200630017RFC-3  
**Test Standards:** FCC 47 CFR Part 2.1093  
**FCC ID:** 2AO23-ANC1  
**Test Result:** PASS  
**Date of Issue:** August 7, 2020

Prepared for:

**Chug, Inc.**

**7157 Shady Oak Road Eden Prairie, Washington Minnesota United States**

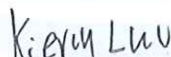
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UTTR-RF-RSS102-V1.0

## Version

| Version No. | Date           | Description |
|-------------|----------------|-------------|
| V1.0        | August 7, 2020 | Original    |



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## 1. GENERAL INFORMATION

### 1.1 CLIENT INFORMATION

|                                 |                                                                                                                   |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------|
| <b>Applicant:</b>               | Chug, Inc..                                                                                                       |
| <b>Address of Applicant:</b>    | 7157 Shady Oak Road Eden Prairie, Washington Minnesota United States                                              |
| <b>Manufacturer:</b>            | Cresyn Hanoi Co., Ltd.                                                                                            |
| <b>Address of Manufacturer:</b> | Dong Tho Industrial complex / Dong Tho Hamlet, Yen Phong District, Bac Ninh, Vietnam, Bac Ninh, Bac Ninh, Vietnam |

### 1.2 EUT INFORMATION

|                                                        |                                   |               |
|--------------------------------------------------------|-----------------------------------|---------------|
| Product Name:                                          | active noise-canceling headphones |               |
| Model No. / HVIN:                                      | ANC1                              |               |
| Add. Model No. / HVIN:                                 | N/A                               |               |
| Trade Mark:                                            | heyday                            |               |
| DUT Stage:                                             | Production Unit                   |               |
| EUT Supports Function:                                 | 2.4 GHz ISM Band                  | Bluetooth 5.0 |
| Software Version:                                      | V 1.0                             |               |
| Hardware Version:                                      | V 1.0                             |               |
| Sample Received Date:                                  | July 7, 2020                      |               |
| Sample Tested Date:                                    | July 8, 2020 to July 14, 2020     |               |
| Note: Interchangeable if PCBA conditions are the same. |                                   |               |

### 1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

| For BT_EDR            |                                         |
|-----------------------|-----------------------------------------|
| Frequency Band:       | 2400 MHz to 2483.5 MHz                  |
| Frequency Range:      | 2402 MHz to 2480 MHz                    |
| Bluetooth Version:    | Bluetooth BR + EDR                      |
| Modulation Technique: | Frequency Hopping Spread Spectrum(FHSS) |
| Type of Modulation:   | GFSK, $\pi/4$ DQPSK, 8DPSK              |
| Number of Channels:   | 79                                      |
| Channel Separation:   | 1 MHz                                   |
| Antenna Type:         | PIFA Antenna                            |
| Antenna Gain:         | -1.2 dBi                                |
| Maximum Peak Power:   | 5.45 dBm                                |

| For BT_LE           |                        |
|---------------------|------------------------|
| Frequency Band:     | 2400 MHz to 2483.5 MHz |
| Frequency Range:    | 2402 MHz to 2480 MHz   |
| Bluetooth Version:  | Bluetooth LE           |
| Type of Modulation: | GFSK                   |
| Number of Channels: | 40                     |
| Channel Separation: | 2 MHz                  |
| Antenna Type:       | PIFA Antenna           |
| Antenna Gain:       | -1.2 dBi               |
| Maximum Peak Power: | -2.06 dBm              |

### 1.4 OTHER INFORMATION

| Test channels for BT_EDR         |                      |                       |            |            |
|----------------------------------|----------------------|-----------------------|------------|------------|
| Mode                             | Tx/Rx Frequency      | Test RF Channel Lists |            |            |
|                                  |                      | Lowest(L)             | Middle(M)  | Highest(H) |
| GFSK<br>(DH1, DH3, DH5)          | 2402 MHz to 2480 MHz | Channel 0             | Channel 39 | Channel 78 |
|                                  |                      | 2402 MHz              | 2441 MHz   | 2480 MHz   |
| $\pi/4$ DQPSK<br>(DH1, DH3, DH5) | 2402 MHz to 2480 MHz | Channel 0             | Channel 39 | Channel 78 |
|                                  |                      | 2402 MHz              | 2441 MHz   | 2480 MHz   |
| 8DPSK<br>(DH1, DH3, DH5)         | 2402 MHz to 2480 MHz | Channel 0             | Channel 39 | Channel 78 |
|                                  |                      | 2402 MHz              | 2441 MHz   | 2480 MHz   |

| Test channels for BT_LE |                      |                       |            |            |
|-------------------------|----------------------|-----------------------|------------|------------|
| Type of Modulation      | Tx/Rx Frequency      | Test RF Channel Lists |            |            |
|                         |                      | Lowest(L)             | Middle(M)  | Highest(H) |
| GFSK                    | 2402 MHz to 2480 MHz | Channel 0             | Channel 19 | Channel 39 |
|                         |                      | 2402 MHz              | 2440 MHz   | 2480 MHz   |

## 1.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

**FCC 47 CFR Part 2.1093**

All test items have been performed and recorded as per the above standards

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## 1.6 DEVIATION FROM STANDARDS

None.

## 1.7 ABNORMALITIES FROM STANDARD CONDITIONS

None.

## 1.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

## 2. EQUIPMENT LIST

Please refer to the RF test report.

### 3. SAR TEST EXCLUSION EVALUATION

#### 3.1 REFERENCE DOCUMENTS FOR EVALUATION

| No. | Identity                                        | Document Title                                                                              |
|-----|-------------------------------------------------|---------------------------------------------------------------------------------------------|
| 1   | FCC 47 CFR Part 2.1093                          | Radiofrequency radiation exposure evaluation: portable devices.                             |
| 2   | KDB 447498 D01 General RF Exposure Guidance v06 | RF EXPOSURE PROCEDURES AND EQUIPMENT AUTHORIZATION POLICIES FOR MOBILE AND PORTABLE DEVICES |

#### 3.2 EXEMPTION LIMITS FOR ROUTINE EVALUATION – SAR EVALUATION

##### 3.2.1 SAR Test Exclusion Threshold

##### 3.2.1.1 KDB 447498 D01 v06

##### Appendix A

##### *SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 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 4.3.1 must be applied to determine SAR test exclusion.

| MHz  | 5  | 10 | 15  | 20  | 25  | mm                                       |
|------|----|----|-----|-----|-----|------------------------------------------|
| 150  | 39 | 77 | 116 | 155 | 194 | <i>SAR Test Exclusion Threshold (mW)</i> |
| 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 (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:** 10-g Extremity SAR Test Exclusion Power Thresholds are 2.5 times higher than the 1-g SAR Test Exclusion Thresholds indicated above. These thresholds do not apply, by extrapolation or other means, to occupational exposure limits.

### 3.2.2 Test Procedure

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

## 3.3 MPE CALCULATION RESULTS

**Note:** For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

### 3.3.1 For BT

For BT\_BR & EDR and BLE function, operating at 2402MHz to 2480 MHz for GFSK,  $\pi/4$  DQPSK, 8DPSK

#### 3.3.1.1 Antenna Type:

PIFA Antenna

#### 3.3.1.2 Antenna Gain:

2402MHz to 2480 MHz: -1.2 dBi

#### 3.3.1.3 Minimum contact distance:

The minimum contact distance is 5mm.

### 3.3.1.4 Results for FCC 47 CFR Part 2.1093

| Operating Mode | Frequency | Tune-up Power (Average) | Tolerance | Maximum Tune-up Power |      | Separation Distance | SAR Test Exclusion Threshold |
|----------------|-----------|-------------------------|-----------|-----------------------|------|---------------------|------------------------------|
|                | (MHz)     | (dBm)                   | (dBm)     | (dBm)                 | (mW) | (mm)                | (mW)                         |
| EDR            | 2402-2480 | 5.8                     | 2         | 7.8                   | 6.03 | 5                   | 10                           |
| BLE            | 2402-2480 | -2.0                    | 2         | 0                     | 1    | 5                   | 10                           |

So the transmitter complies with the RF exposure requirements and the SAR is not required.



## APPENDIX 1 PHOTOS OF TEST SETUP

N/A

## APPENDIX 1 PHOTOS OF EUT CONSTRUCTIONAL DETAILS

Refer to Appendix 2 for EUT external and internal Photos.

\*\*\* End of Report \*\*\*

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