

# TEST REPORT

**Product Name** : MeloAudio S12  
**Brand Mark** : MeloAudio  
**Model No.** : MeloAudio S12  
**FCC ID** : 2BA2O-S12  
**Report Number** : BLA-EMC-202308-A0203  
**Date of Sample Receipt** : 2023/8/2  
**Date of Test** : 2023/8/3 to 2023/8/21  
**Date of Issue** : 2023/8/21  
**Test Standard** : 47 CFR Part 15, Part1.1307  
47 CFR Part 15, Part2.1093  
KDB447498D04 General RF Exposure  
Guidance v01  
**Test Result** : Pass

Prepared for:

**Freewings(shenzhen) Technologies.,Ltd**  
**401, No. 461 Laowei, Liguang Community, Guanlan StreetLonghua**  
**District, Shenzhen**

Prepared by:

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Date:

2023/8/21



## REPORT REVISE RECORD

| Version No. | Date      | Description |
|-------------|-----------|-------------|
| 00          | 2023/8/21 | Original    |

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## 1 TEST SUMMARY

| Test item   | Test Requirement                                  | Test Method        | Class/Severity     | Result |
|-------------|---------------------------------------------------|--------------------|--------------------|--------|
| RF Exposure | 47 CFR Part 1.1307,<br>Part 2.1093, KDB<br>447498 | CFR 47 Part 2.1093 | CFR 47 Part 2.1093 | PASS   |

## 2 GENERAL INFORMATION

|                       |                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------|
| <b>Applicant</b>      | Freewings(shenzhen) Technologies.,Ltd                                                    |
| <b>Address</b>        | 401, No. 461 Laowei, Liguang Community, Guanlan StreetLonghua District, Shenzhen         |
| <b>Manufacturer</b>   | Freewings(shenzhen) Technologies.,Ltd                                                    |
| <b>Address</b>        | 401, No. 461 Laowei, Liguang Community, Guanlan StreetLonghua District, Shenzhen         |
| <b>Factory</b>        | Dongguan Lilang Acoustic Technology Co., Ltd                                             |
| <b>Address</b>        | Room 301, No. 2, Fengping Road, Sanzhong, Qingxi Town, Dongguan City, Guangdong Province |
| <b>Product Name</b>   | MeloAudio S12                                                                            |
| <b>Test Model No.</b> | MeloAudio S12                                                                            |

## 3 GENERAL DESCRIPTION OF E.U.T.

|                             |                                  |
|-----------------------------|----------------------------------|
| <b>Hardware Version</b>     | XRX-HJ06-V2                      |
| <b>Software Version</b>     | SDK: V2.3.3                      |
| <b>Operation Frequency:</b> | 2402MHz-2480MHz                  |
| <b>Modulation Type:</b>     | GFSK,pi/4DQPSK                   |
| <b>Channel Spacing:</b>     | 1MHz                             |
| <b>Number of Channels:</b>  | 79                               |
| <b>Antenna Type:</b>        | Chip Antenna                     |
| <b>Antenna Gain:</b>        | 3.5dBi(Provided by the customer) |

#### 4 LABORATORY LOCATION

All tests were performed at:

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.

Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

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No tests were sub-contracted.

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## 5 RF EXPOSURE COMPLIANCE REQUIREMENT

### 5.1 STANDARD REQUIREMENT

According to 447498 D04 Interim General RF Exposure Guidance v01

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.

### 5.2 LIMITS

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

where

$$x = -\log_{10} \left( \frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and  $f$  is in GHz,  $d$  is the separation distance (cm), and  $ERP_{20 \text{ cm}}$  is per Formula (B.1).

Example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

| Frequency (MHz) | Distance (mm) |    |    |     |     |     |     |     |     |     |
|-----------------|---------------|----|----|-----|-----|-----|-----|-----|-----|-----|
|                 | 5             | 10 | 15 | 20  | 25  | 30  | 35  | 40  | 45  | 50  |
| 300             | 39            | 65 | 88 | 110 | 129 | 148 | 166 | 184 | 201 | 217 |
| 450             | 22            | 44 | 67 | 89  | 112 | 135 | 158 | 180 | 203 | 226 |
| 835             | 9             | 25 | 44 | 66  | 90  | 116 | 145 | 175 | 207 | 240 |
| 1900            | 3             | 12 | 26 | 44  | 66  | 92  | 122 | 157 | 195 | 236 |
| 2450            | 3             | 10 | 22 | 38  | 59  | 83  | 111 | 143 | 179 | 219 |
| 3600            | 2             | 8  | 18 | 32  | 49  | 71  | 96  | 125 | 158 | 195 |
| 5800            | 1             | 6  | 14 | 25  | 40  | 58  | 80  | 106 | 136 | 169 |

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

$$EIRP = P_t \times G_t = (E \times d)^{2/30}$$

where:

$P_t$  = transmitter output power in watts,

$G_t$  = numeric gain of the transmitting antenna (unitless),

$E$  = electric field strength in V/m, ---  $10((dBuV/m)/20)/106$

$d$  = measurement distance in meters (m)---3m

$$S_{opt} = (E \times d)^{2/30} \times G_t$$

$$\text{Ant gain} = 3.5 \text{ dBi}$$

$$\text{Max Output power} = -7.943 \text{ dBm @EDR@ } 2441 \text{ MHz}$$

$$ERP = -7.943 \text{ dBm} + 3.5 \text{ dBi} - 2.15 = -6.593 \text{ dBm}$$

So

worse case:

$$10^{-0.6593} = 0.219 \text{ mW} < 2.79 \text{ mW}$$

Comply with RF exposure exemption limit.

**----END OF REPORT----**

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