

# RF Exposure evaluation

**Product Name** : TWS bluetooth earphone  
**FCC ID** : 2A2BYHE-063C  
**Test Standard** : KDB447498D04 General RF Exposure Guidance v01

According to 447498 D04 Interim General RF Exposure Guidance v01

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

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

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). The 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 |

Ant gain = **2.78** dBi

MAX output power : [3.433dBm@2402MHz](#)

ERP=3.433+2.78-2.15=4.063dBm

WORSE CASE:

$10^{0.4063}=2.549\text{mW} < 2.715 \text{ mW}$

Then SAR evaluation is not required