

RF Exposure evaluation

Product Name : True Wireless Earbuds
FCC ID : 2AHYV-EOPSP
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

Left:

BT:

Ant gain = **-1.86** dBi

MAX output power : [3.815dBm@2480MHz](#)

ERP=3.815-1.86-2.15=-0.195dBm

WORSE CASE:

$10^{0.3815}=2.407\text{mW} < 2.715 \text{ mW}$

Then SAR evaluation is not required

BLE:

Ant gain = **-1.86** dBi

MAX output power : [2.477dBm@2480MHz](#)

ERP=2.477-1.86-2.15=-1.533dBm

WORSE CASE:

$10^{0.2477}=1.769\text{mW} < 2.715 \text{ mW}$

Then SAR evaluation is not required

Right:

BT:

Ant gain = **-1.68** dBi

MAX output power : [4.189dBm@2480MHz](#)

ERP=4.189-1.68-2.15=0.359dBm

WORSE CASE:

$10^{0.4189}=2.624\text{mW} < 2.715 \text{ mW}$

Then SAR evaluation is not required

BLE:

Ant gain = **-1.68** dBi

MAX output power : [2.864dBm@2480MHz](#)

ERP=2.864-1.68-2.15=-0.966dBm

WORSE CASE:

$10^{0.2864}=1.934\text{mW} < 2.715 \text{ mW}$

Then SAR evaluation is not required