

RF Exposure evaluation

Product Description: Bluetooth Earphones

Model Number: 40011BT

FCC ID: 2AL9B-40011BT

According to 447498 D01 General RF Exposure Guidance v05 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: $[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation

According to the follow transmitter output power (Pt) formula:

$$Pt = (E \times d) / (30 \times g_t)$$

Pt=transmitter output power in watts

gt=numeric gain of the transmitting antenna (unitless)

E=electric field strength in V/m

d=measurement distance in meters (m)

According to the formula described above:

$$Emax = 88.26 \text{ dBuv/m} = 0.026 \text{ V/m, } d = 3 \text{ m, } g_t = 1$$

$$Pt = (E \times d)^2 / (30 \times g_t) = (0.026 \times 3)^2 / (30 \times 1) = 0.0002028 \text{ W} = 0.20 \text{ mW}$$

The result is rounded to one decimal place for comparison

Worse case is as below: [2480MHz -0.20mW output power]

$$(0.20 \text{ mW} / 5 \text{ mm}) \cdot [\sqrt{2.480(\text{GHz})}] = 0.06 < 3.0 \text{ for 1-g SAR}$$

Then SAR evaluation is not required

NOTE: For the maximum power, you can refer FCC test report.

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