

RF Exposure evaluation

Product Description: Bluetooth LED Light

Model Number: BLE001

FCC ID: 2AC2HBLE001

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:

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

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:

$E_{\text{max}} = 95.34 \text{ dBuV/m} = 0.039 \text{ V/m}$, $d = 3 \text{ m}$, $g_t = 0.79$

$P_t = (E \times d)^2 / (30 \times g_t) = (0.059 \times 3)^2 / (30 \times 0.79) = 0.0013218 \text{ W} = 1.3 \text{ mW}$

The result is rounded to one decimal place for comparison

Worse case is as below: [2480MHz -1.3mW output power]

$(1.3 \text{ mW} / 5 \text{ mm}) \cdot [\sqrt{2.480 \text{ GHz}}] = 0.16 < 3.0 \text{ for 1-g SAR}$

Then SAR evaluation is not required

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