

RF Exposure evaluation
FCC ID: 2BB9C-TW01

According to 447498 D01 General RF Exposure Guidance v06

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 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

The result is rounded to one decimal place for comparison

$$\text{eirp} = \text{pt} \times \text{gt} = (\text{Exd})^2 / 30$$

where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, --- $10^{((\text{dBuV/m})/20)}/10^6$

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

$$\text{So pt} = (\text{Exd})^2 / 30 \times \text{gt}$$

BT

Field strength = 95.69dBuV/m @3m

Ant gain = 1.94dBi ;so Ant numeric gain= 1.56

$$\text{So pt} = \{ [10^{(95.69/20)}/10^6 \times 3]^2 / 30 \times 1.56 \} \times 1000 \text{ mW} = 1.738 \text{ mW}$$

$$\text{So } (1.738/\text{mW}/5\text{mm}) \times \sqrt{2.402\text{GHz}} = 0.539 < 3$$

BLE

Field strength = 95.18dBuV/m @3m

Ant gain = 1.94dBi ;so Ant numeric gain= 1.56

$$\text{So pt} = \{ [10^{(95.18/20)}/10^6 \times 3]^2 / 30 \times 1.56 \} \times 1000 \text{ mW} = 1.546 \text{ mW}$$

$$\text{So } (1.546/\text{mW}/5\text{mm}) \times \sqrt{2.402\text{GHz}} = 0.479 < 3$$

Then SAR evaluation is not required