

## RF Exposure evaluation

Product Description: BLUETOOTH SPEAKER

Model Number: M23

FCC ID: 2AB9SM23

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:  $[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot \sqrt{f(\text{GHz})} \leq 3.0$  for 1-g SAR and  $\leq 7.5$  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 ( $P_t$ ) formula:

$$P_t = (E \times d)^2 / (30 \times g_t)$$

$P_t$ =transmitter output power in watts

$g_t$ =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:

$$E_{\text{max}} = \underline{97.60} \text{ dBuV/m} = \underline{0.076} \text{ V/m}, d = 3\text{m}, g_t = 1.12$$

$$P_t = (E \times d)^2 / (30 \times g_t) = (\underline{0.076} \times 3)^2 / (30 \times 1.12) = \underline{0.00154714} \text{ W} = \underline{1.54} \text{ mW}$$

The result is rounded to one decimal place for comparison

Worse case is as below: [2480MHz -**1.54**mW output power]

$$(\underline{1.54} \text{ mW} / 5\text{mm}) \cdot \sqrt{2.480(\text{GHz})} = \underline{0.48} \text{ mW} < 3.0 \text{ for 1-g SAR}$$

Then SAR evaluation is not required

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