

## RF Exposure evaluation

Product Description: Bluetooth 4.0 Module  
Model Number: BB1737-25  
FCC ID: ZKJ-BLEA003

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: [(max. power of channel, including tune-up tolerance, mW)/(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 above test data,

$E_{\text{max}}=93.77\text{dB}\mu\text{V}/\text{m}=0.049\text{V}/\text{m}$ ,  $d=3\text{m}$ ,  $g_t=1.23$

$$P_t = (E \times d)^2 / (30 \times g_t) = (0.049 \times 3)^2 / (30 \times 1.23) = 0.0005856\text{W} = 0.59\text{mW}$$

The result is rounded to one decimal place for comparison

Worse case is as below: [2480MHz -0.59mW output power]

$(0.59\text{mW}/5\text{mm}) \cdot [\sqrt{2.480(\text{GHz})}] = 0.186 < 3.0$  for 1-g SAR

Then SAR evaluation is not required

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