

# RF EXPOSURE EVALUATION

## 1. PRODUCT INFORMATION

Product Description	Bluetooth FM Transmitter
Model Name	BH346A, BH346B, BH346C
FCC ID	2AIL4-BH346A

## 2. EVALUATION METHOD

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

## 3. 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)

$$\text{BT } P_t = 1.64 \text{ dBm} = 1.46 \text{ mW}$$

The result for RF exposure evaluation

$$\text{SAR} = (1.46 \text{ mW} / 5 \text{ mm}) \cdot [\sqrt{2.48(\text{GHz})}] = 0.46 < 3.0 \text{ for 1-g SAR}$$

$$\text{FM } P_t = 0.0000031 \text{ mW}$$

The result for RF exposure evaluation

$$\text{SAR} = (0.0000031 \text{ mW} / 5 \text{ mm}) \cdot [\sqrt{0.1079(\text{GHz})}] = 0.00000020 < 3.0 \text{ for 1-g SAR}$$

Simultaneous transmission between Bluetooth and FM transmitter

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})/x}] \text{ W/kg}$ , for test separation distances  $\leq 50$  mm;

where  $x = 7.5$  for 1-g SAR and  $x = 18.75$  for 10-g SAR.

$$\text{SAR} = (0.46 + 0.00000020) / 7.5 = 0.061 \text{ W/kg} < 1.6 \text{ W/kg}$$

## 4. CONCLUSION

The SAR evaluation is not required.