

RF EXPOSURE EVALUATION

1. PRODUCT INFORMATION

Product Description	Bluetooth FM Transmitter
Model Name	BH346A, BH346B, BH346C
FCC ID	2AIL4BH346

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 ≤ 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 ≤ 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 ≤ 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.