

RF EXPOSURE EVALUATION

1. PRODUCT INFORMATION

Product Description	Bluetooth FM Transmitter
Model Name	BT21L, AHF9-1011-BLK, MHF9-1009-BLK
FCC ID	2AHASBT21L

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

$P_t = 3.292\text{dBm} = 2.13\text{mW}$

The value of the Maximum output power P_t is referred to the test report of the CFR47 §15.247.

The result for RF exposure evaluation $\text{SAR} = (2.13\text{mW} / 5\text{mm}) \cdot [\sqrt{2.402\text{GHz}}] = 0.66 < 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR.

§15.239

FM $P_t = -49.23\text{dBm} = 0.0000119\text{mW}$

The value of the Maximum output power P_t is referred to the test report of the CFR47 For frequencies below 100 MHz and test separation distances ≤ 50 mm, the power threshold determined by the following:

$P_{\text{max}} = 0.5 \cdot 474 \cdot [1 + \log(100/f)]$ mW, where f is MHz

For 88.1MHz, $P_{\text{max}} = 250\text{mW}$. $P_t < P_{\text{max}}$.

For 107.9MHz, $P = 3 \times 5 / 0.1079^{0.5} = 45.7$ mW

$P_{\text{max}} = 45.7\text{mW}$. $P_t < P_{\text{max}}$.

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.

$\text{SAR} = (0.66 + 0.0000007064) / 7.5 = 0.088\text{W/kg} < 1.6\text{W/kg}$

4. CONCLUSION

The SAR evaluation is not required.