

RF Exposure Requirements

Product Description: Wireless Speaker

Model No.: Spring A

FCC ID: 2AP5N-ARTOP

According to the KDB 447498 D01 v06 section 4.3.1, for 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

$$\left[\frac{(\text{max. power of channel, including tune-up tolerance, mW})}{(\text{min. test separation distance, mm})} \right] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz

- Power and distance are rounded to the nearest mW and mm before calculation¹⁷

- The result is rounded to one decimal place for comparison

Calculation Result:

GFSK:

Tx frequency range: 2402 MHz

Min. test separation distance: 5 mm

GFSK: Maximum Conducted Output Power: -1.98 dBm (0.6339 mW)

4QDPSK: Maximum Conducted Output Power: -2.86 dBm (0.5176 mW)

8DPSK: Maximum Conducted Output Power: -2.42 dBm (0.5728 mW)

Tune-Up output power: 0 dBm (1 mW)

RF channel transmit frequency: 2402 MHz

Result: 0.31

Limit: 3.0

Tx frequency range: 2441 MHz

Min. test separation distance: 5 mm

GFSK: Maximum Conducted Output Power: -1.04 dBm (0.787 mW)

4QDPSK: Maximum Conducted Output Power: -1.89 dBm (0.6471 mW)

8DPSK: Maximum Conducted Output Power: -1.71 dBm (0.6745 mW)

Tune-Up output power: 0 dBm (1 mW)

RF channel transmit frequency: 2440 MHz

Result: 0.31

Limit: 3.0

Tx frequency range: 2480 MHz

Min. test separation distance: 5 mm

GFSK: Maximum Conducted Output Power: -0.78 dBm (0.835 mW)

4QDPSK: Maximum Conducted Output Power: -1.59 dBm (0.6934 mW)

8DPSK: Maximum Conducted Output Power: -1.75 dBm (0.6683 mW)

Tune-Up output power: 0 dBm (1 mW)

RF channel transmit frequency: 2480 MHz

Result: 0.31

Limit: 3.0

The exclusion thresholds is $0.31 < 3$, so the transmitter complies with the RF exposure requirements and the SAR is not required.