

RF exposure evaluation

According to KDB 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:

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

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

The device was worn on the human hand, and the distance between antennas and human is 5mm.

1. The BLE maximum output power of EUT is 0.83 dBm =1.21 mW, so the calculated result is:

$$\left(\frac{1.21\text{mW}}{5\text{mm}} \right) \cdot [\sqrt{2.48}(\text{GHz})] = 0.38 < 3.0 \text{ for 1-g SAR}$$

2. The 2.4G Transmitter maximum output power of EUT is -0.38 dBm =0.92 mW, so the calculated result is:

$$\left(\frac{0.92\text{mW}}{5\text{mm}} \right) \cdot [\sqrt{2.46}(\text{GHz})] = 0.29 < 3.0 \text{ for 1-g SAR}$$

Then SAR evaluation is not required