

Low duty factor analysis report for SAR test exclusion

The Thin Point transmitter (BLE) is used as a portable device operating in 2402 – 2478 MHz band. It is equipped with an internal printed antenna. The smallest distance from antenna to outer surface of the device is 2 mm.

Maximum measured transmitter power derived from section 7.2, Table 7.2.2 of the PIXRAD FCC.28663 BLE measurement test report:

Pout conducted		Maximum antenna gain, dBi	Pout EIRP	
dBm	mW		dBm	mW
8.9	7.8	0	8.9	7.8

SAR test exclusion threshold for 2.48 GHz at test separation distances is as follows:

$$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \times \sqrt{f(\text{GHz})} \leq 3.0$$

According to the manufacturer's declaration the worst case condition is: transmission of 0.5 msec every 100 msec. Within a 6 min period the total transmission time will be 1.8 sec.

The max transmitter duty cycle is $1.8 \text{ s} / 360 \text{ s} = 0.005 = 0.5\%$.

The equivalent averaged conducted power and EIRP is 0.039 mW

$$7.8 \text{ mW} \times \text{duty cycle} = 7.8 \text{ mW} \times 0.005 = 0.039 \text{ mW}$$

$$[0.039 \text{ mW} / 2.0 \text{ mm}] \times \sqrt{2.48} = 0.02 \times 1.575 = 0.032 \leq 3.0,$$

where 2 mm is the smallest distance from antenna to outer surface of the device.

According to KDB 447498 D01 v06 the device is excluded from SAR evaluation.