



RF Exposure Analysis

Product: PaxLock US
FCC ID: USE921130

Analysis for FCC standalone SAR evaluation

Standalone SAR test exclusion considerations are defined in KDB 447498D01 (v05r02) Chapter 4.3.1 where the 1-g head or body and 10-g extremity SAR exclusion threshold is defined by the following formula:

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

- f(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

For PaxLock US, the theoretical (worst case) maximum radiated power is 0.4 dBm (1.1 mW) EIRP, including tune-up tolerance. Appendix A (below) shows the cross sectional view of the reader module. The nominal distance between the PCB trace antenna and the front surface of the enclosure is 10.30mm.

Applying the above data to the given formula, the following result for assessment against the ≤ 3.0 mm limit is achieved:

$$(1.1\text{mW} / 10 \text{ mm}) \times \sqrt{2.405 \text{ GHz}} \leq 3.0$$

$$0.11 \times 1.5508 = 0.171$$

Result rounded to 0.2 for comparison.

Therefore the resultant value of 0.2 is <3.0 limit for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, meaning RF exposure exemption (head, body and extremity) is applicable in the use of this product.

Appendix A – Reader module cross-sectional views

