

FCC §1.1307(b) & §2.1093 - RF EXPOSURE

Applicable Standard

According to FCC §2.1093 and §1.1307(b) (1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to FCC OET, KDB 447498 D01 General RF Exposure Guidance v05 section 4.3.1 & 6.1 Push-to-talk (PTT) devices:

RF exposure is evaluated with a duty factor of 50% when the actual operating duty factor is $\leq 50\%$. Devices supporting higher duty factors shall be evaluated at the maximum duty factor; for example, devices supporting operator-assisted PSTN calls. Contact the FCC Laboratory when unable to test a device at the required duty factor due to hardware limitations or other reasons.

Result

According to FCC KDB 447498 D01 General RF Exposure Guidance v05 generic portable criteria

The distance between antenna and head is 40mm

The Maximum tune-up output power: 24 dBm (251.19 mW), for PTT device the duty factor is 50%

The time-averaged output power is: $251.19 \times 0.5 = 125.60$ mW

The exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

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

- $f(\text{GHz})$ 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

So, the exclusion thresholds is 189.0mW @ 403.05MHz (worst case)

Conclusion:

The time-averaged output power is 125.60 mW < the exclusion thresholds is 189.0 mW

Stand-alone SAR evaluation is not required.