

§1.1307 (b) (1) & §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 KDB 447498 D01 General RF Exposure Guidance

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:

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

1. $f(\text{GHz})$ is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

Evaluation data:

The maximum tune-up conducted peak output power is 20 dBm (100 mW) @1928.448 MHz

And

Duty Cycle = $T_{on}/T_p \cdot 100\% = 4.10\%$

Which, $T_{on} = 412 \mu\text{s}$, $T_p = 10.05 \text{ ms}$, please refer to the report RSZ151110830-00 with model number RF1G9V1 (FCC ID: B4HRF1900V1) page 44 and 45 for plot detail.

So, the maximum conducted source-based, time-averaged output power is:
 $100 \cdot 4.10\% \text{ mW} = 4.10 \text{ mW} @ 1928.448 \text{ MHz}$

$(4.10/5) \cdot \sqrt{1.928448} = 1.14 < 3.0$

Result: No SAR test is required