

Appendix A: FCC Part 1.1307, 1.1310, 2.1091, 2.1093; IC RSS-102: RF Exposure

According to KDB 447498 D01 General RF Exposure Guidance v05 4.3.1 Standalone SAR test exclusion considerations, unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

Limits

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:

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

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

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

EUT RF Exposure

The max conducted peak output power is 9.0 mW at 912 MHz.

The maximum gain of the antenna is 0.9 dBi / 1.23 numeric (from antenna specification)

$$\text{EIRP} = 9.0 \text{ mW} \times 1.23 = 11.1 \text{ mW (rounding to the nearest mW} = 11 \text{ mW)}$$

$$\text{General RF Exposure} = (11 \text{ mW} / 5 \text{ mm}) \times \sqrt{0.912 \text{ GHz}} = 2.1$$

Therefore, SAR test is not required since the result is below the ≤ 3.0 1-g SAR limit.

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Per section 2.5.1 Table 1, this device is exempt from SAR as the output power is less than the Exemption Limits at a separation distance of less than or equal to 5 mm.