

RF Exposure calculations

The maximum conducted transmit power at the antenna port is 4.9 dBm with a maximum antenna gain of 3.4 dBi, giving a maximum radiated power of 8.3 dBm or 6.8 mW EIRP.

FCC

FCC Maximum Permissible Exposure (MPE) limits for equipment operating in the frequency range 1500 – 100,000 MHz is 1.0 mW/cm².

Following installation and commissioning, the safe distance from the antenna is the greater of:

20cm

Or

r cm, where $r = \sqrt{(PG/4\pi S)}$

P: power input to antenna(s) in mW

G: numeric gain of antenna relative to isotropic radiator

S: power density in mW/cm² = 1 mW/cm²

The safe distance from the antenna shall be the greater of 20 cm or $\sqrt{(PG/4\pi S)}$

$P \times G = 4.9 \text{ dBm} + 3.4 \text{ dBi} = 8.3 \text{ dBm}$ or 6.8 mW EIRP

$\sqrt{(PG/4\pi S)} = 0.73 \text{ cm}$

Safe distance is 20 cm

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As per RSS-102 section 6.6, the Field reference level exposure exemption limits for Routine Evaluation for RF exposure, are given by:

- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834} \text{ W}$ (adjusted for tune-up tolerance), where f is in MHz;

For 2400 MHz, this limit of $1.31 \times 10^{-2} f^{0.6834} \text{ W} = 2.67 \text{ W EIRP}$

As calculated above, the radiated power is 8.3 dBm (0.0068W) EIRP, which is well within the exemption limit of 2.67W so no further evaluation is required.