

Maximum Public Exposure to RF (MPE) CFR 15.247 (i), CFR 1.1310 (e) & RSS-102, 2.5.2

The maximum exposure level to the public from the RF power of the EUT shall not exceed a power density, **S**, of 1 mW/cm² at a distance, d, of 20 cm from the EUT.

Therefore, for:

Peak Power (dBm) = 18.0 dBm
Peak Power (Watts) = 0.063 W
Gain of Transmit Antenna = 1.6 dBi = 1.45, numeric
d = Distance = 20 cm = 0.2 m

$$\begin{aligned} \mathbf{S} &= (\mathbf{PG} / 4\pi d^2) = \text{EIRP} / 4A = 0.063(1.45) / 4 * \pi * 0.2^2 \\ &= 0.0914 / 0.5030 = 0.1816 \text{ W/m}^2 \\ &= (0.1816 \text{ W/m}^2) (1\text{m}^2/\text{W}) (0.1 \text{ mW/cm}^2) \\ &= 0.0182 \text{ mW/cm}^2 \end{aligned}$$

which is << less than 0.6100 mW/cm²

RSS-102, 2.5.2 Compliance for 902 MHz – 928 MHz band:

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 $1.31 \times 10^{-2} f^{0.6834}$ in Watts (adjusted for tune-up tolerance where applicable), where f = frequency in MHz.

$$1.31 * 10^{-2} * 915^{0.6834} = 1.39 \text{ W}$$

EUT max ERP = 18.0 dBm (0.063W) + 1.6 dBi (0.0014W) = 0.064 Watts << 1.39 Watts

The MPE limits are below the threshold as stated in KDB447498 D01 V06 in Section 4.3. The calculations above are presented to show that the EUT meets the exclusion requirements.