The following calculations are based rated power of 5.5 dBm + 1dB maximum tolerance increased in transmit power from the chipset giving 6.5 dBm fed into the antenna

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 = √ (PG/4πS)
>
>> 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 √ (PG/4πS)

P*G = 6.5 dBm + 2.2 dBi = 8.7 dBm or 7.4 mW EIRP

√ (PG/4πS) = 0.77 cm

Safe distance is 20 cm

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The maximum transmit power of the Node including +1/-2 dB tolerance from the Eterna chip is 6.5 dBm.

As per RSS-102 section 2.5.2, the 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 $1.31 \times 10^{-2} \, f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

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

For a Node of transmit power 6.5 dBm and 2.2 dBi antenna gain, the radiated power is 8.7 dBm (0.0074W) EIRP, which is well within the exemption limit of 2.67W so no further evaluation is required.