FCC ID: ORI-INT-NODE-HP **ATTACHMENT**

** MPE Calculations **

The MPE calculation for this exposure is shown below.

The peak radiated output power (EIRP) is calculated as follows:

EIRP = P + G EIRP = 21.34dBm + 2.13 dBi EIRP = 23.47 dBm	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)

Power density at the specific separation:

$S = PG/(4R^2\pi)$ $S = (136.14 * 1.63) / (4 * 20^2 * \pi)$ $S = 0.0442$ mW/cm^2	Where, S = Maximum power density (mW/cm^2) P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20 cm = limit for MPE)

The Maximum permissible exposure (MPE) for the general population is 1 mW/cm^2 .

The power density does not exceed the 1 mW/cm^2 limit.

Therefore, the exposure condition is compliant with FCC rules.

Estimated safe separation:

$R = \sqrt{(PG / 4\pi)}$ $R = \sqrt{(136.14*1.63 / 4\pi)}$ R = 4.21 cm	Where, P = Power input to the antenna (mW) G = Numeric power gain of the antenna R = Distance to the center of the radiation of the antenna (20 cm = limit for MPE)

The numeric gain(G) of the antenna with a gain specified in dB is determined by:

$G = Log^{-1}$ (dB antenna gain / 10)

$G = Log^{-1}$ (2.13 / 10)

G = 1.63