

RF EXPOSURE EVALUATION

Applicant	: Nimbus, Inc.
Applicant Address	: Suit 619 Hanshin S-meca, 1359 Gwanpyeon-dong, Yuseong-gu, Daejeon, Korea
Kind of Product	: 5G-WiFi
Equipment model name	: DNMM-K1
Antenna type	: Chip antenna Gain: 3.94dBi
Frequency Range	: 802.11a/n – Band1 _ 5150MHz ~ 5250MHz Band2 _ 5250MHz ~ 5350MHz Band4 _ 5725MHz ~ 5825MHz
Number of channels	: Band 1 : 2CH Band 2 : 2CH Band 4 : 2CH
Channel Spacing	: 40 MHz

** MPE Calculations **

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user. The MPE calculation for this exposure is shown below.

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

$EIRP = P + G$ $EIRP = 17.66 \text{ dBm}$	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)
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The numeric gain(G) of the antenna with a gain specified in dB is determined by:

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

$$G = \text{Log}^{-1} (3.94 / 10)$$

$$G = 2.48$$

Power density at the specific separation:

$S = PG/(4R^2\pi)$ $S = (23.55 * 2.48 / (4 * 20^2 * \pi))$ $S = 0.0116 \text{ mW/cm}^2$	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 (20cm = limit for MPE)
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The Maximum permissible exposure (MPE) for the general population is 1 mW/cm^2 .
 The power density at 20cm does not exceed the 1 mW/cm^2 limit.

Estimated safe separation:

$R = \sqrt{(PG / 4\pi)}$ $R = \sqrt{(23.55 * 2.48 / 4\pi)}$ $R = 2.16 \text{ cm}$	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 (20cm = limit for MPE)
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