# MPE Calculations for
# EmulationEngine Model: RCX-EE11ABG3

Systems operating under the provision of 47 CFR 1.1307(b)(1) shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the FCC guidelines.

The EUT will only be used with a separation of 20 centimeters or greater between the antenna and the body of the user or nearby persons and can therefore be considered a mobile transmitter per 47 CFR 2.1091(b). The MPE calculation for this exposure is shown below.

### For the 5 GHz (UNII) bands

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

$EIRP = P + G$

$EIRP = 14.22 \text{ dBm} + 5.00 \text{ dBi}$

$EIRP = 19.22 \text{ dBm } (83.560 \text{ mW})$

Where

P = Power input to the antenna (dBm) – worst case.

G = Power gain of the antenna (dBi) – worst case

### Power density at the specific separation:

$S = PG/(4R^2 \Pi)$

$S = (26.406 \text{ x } 3.162) / (4 \text{ x } 20^2 \text{ x } \Pi)$

**$S = 0.0166 \text{ mW/cm}^2$**

Where

S = Maximum power density (mW/cm$^2$)

P = Power input to the antenna (mW).

G = Numeric power gain of the antenna – worst case

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 1mW/cm$^2$.

The power density at 20 cm does not exceed the 1mW/cm$^2$ limit. Therefore, the exposure condition is compliant with FCC rules.

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

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

$G = Log -1 \text{ (5 dBi}/10)$

$G = 3.162$