

**** MPE Calculations ****

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

EIRP = P + G EIRP = -13.25 dBm + 3.89 dBi EIRP = -9.36 dBm	Where, P = Power input to the antenna (mW) G = Power gain of the antenna (dBi)
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Power density at the specific separation:

$S = PG / (4R^2 \pi)$ $S = (-13.25 * 2.45) / (4 * 0.14^2 * \pi)$ $S = 0.037 \text{ mW/cm}^2$	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 (0.5cm = limit for MPE)
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The Maximum permissible exposure (MPE) for the general population is 1 mW/cm² .

The power density at 0.5cm does not exceed the 1 mW/cm² limit.

Therefore, the exposure condition is compliant with FCC rules.

Estimated safe separation:

$R = \sqrt{PG / 4 \pi}$ $R = \sqrt{(-13.25 * 2.45 / 4 \pi)}$ $R = 0.10 \text{ Cm}$	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 (0.5cm = limit for MPE)
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The numeric gain(G) of the antenna with a gain specified in dB is determined by:

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

$$G = \text{Log-1} (3.89 / 10)$$

$$G = 2.45$$

ATTACHMENT

FCC ID: TO8-TKR-372MP2

- Min. transmitting frequency = 494.0 MHz
- Min. test separation distance = 5 mm
- Max. Power with tune-up tolerance = 0 dBm = 1 mW
(Measured power -13 dBm \pm 0.5dB)

Step 1)

SAR Test exclusion thresholds for 100MHz to 6GHz at test separation distance \leq 50 mm = **Used**

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] * [\sqrt{f(\text{GHz})}]$
 $= [0.05 / 5] * [\sqrt{0.494}] = 0.007 \leq 3$, for 1g SAR

Thus, SAR for this device is not required.

Step 2)

SAR Test exclusion thresholds for 100MHz to 1500MHz at test separation distance $>$ 50 mm = **N/A**

$[\text{Threshold at 50mm in step 1}] + (\text{test separation distance} - 50 \text{ mm}) * (\sqrt{f(\text{MHz})} / 150) \text{ mW}$

Step 3)

SAR Test exclusion thresholds for 1500MHz to 6GHz at test separation distance $>$ 50 mm = **N/A**

$[\text{Threshold at 50mm in step 1}] + (\text{test separation distance} - 50 \text{ mm}) * 10 \text{ mW}$