MPE calculation 24 GHz Blind-Spot Radar Sensor

Result

The EUT will only be used with a separation of 20 centimetres 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 = **-35.9 dBm/1MHz** $EIRP_{max}$ = **-7.9 dBm**	Highest peak power density measured with a 1MHz resolution bandwidth EIRP over the hole used bandwidth

$EIRP_{max}$ = EIRP + 10log (BW / 1 MHz)
$EIRP_{max}$ = -35.9 dBm + 10log (637 MHz / 1 MHz)
$EIRP_{max}$ = -35.9 dBm +28 dB = -7.9 dBm = 0.162 mW

Power density at the specific separation:

$S = PG/(4R^2\pi)$ $S = (0.162) / (4 * 20^2 * \pi)$ **$S = 0.032$ 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)

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:

$R = \sqrt{(PG/4л)}$ $R = \sqrt{(0.162/4л)}$ **R = 0.11 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)