6.6 Health Hazard EM Radiation Level

Health hazard radiation levels are computed from the measured EIRP value following FCC OET Bulletin 65 as follows, where S is power density,

Power density is formulated as: $S(mW/cm^2) = EIRP(mW)/(4\pi R(cm)^2)$

The highest peak power density in the 10 dB UWB Bandwidth of the DUT recorded with a 1 MHz RBW, as reported in Table 6.1 is -50.8 dBm. Using the UWB bandwidth of the device (1.003 GHz), the maximum EIRP over the emission bandwidth can be computed as:

$$EIRP_{max} = EIRP\ (dBm) + 10\ Log_{10}(BW/1MHz) = -41.9\ dBm + 30.0\ dB = -11.9\ dBm = 64.6\ uW$$

Thus, the maximum power density at a distance of 20 cm is computed as:

$$S(mW/cm^2) = 0.0646\ mW\ /\ (4\pi\ 20(cm)^2) = \mathbf{13\ nW/cm^2}$$