Prediction of Maximum Permissible Exposure (MPE) limit at given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4 \pi R^2}$$

where:
S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest
relative to an isotropic radiator
R = distance to the center of radiation of the antenna

The table below is an excerpted from Table 1B of 47 CFR 1.1310 titled Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure:

Frequency Range (MHz)	Power Density (mW/cm^2)	Averaging Time (minutes)
300 – 1500	f/1500	30
1500 – 100.000	1.0	30

Health Hazard EM Radiation Level of the EUT

The highest peak power density of the EUT recorded with a 1 MHz RBW is -35.0 dBm for the TILT beam (c.f. plot 2 on page 20 in the test report/Exhibit 6).
With the 603 MHz UWB bandwidth of the device (c.f. 2 on page 20 in the test report/Exhibit 6) the maximum EIRP over the whole bandwidth can be computed as:

$EIRP_{max}$ = EIRP (dBm) + 10 log10(BW/1MHz) = -35 dBm + 27,8 dB = -7.2 dBm = 190,5 µW
Thus, the maximum power density at a distance of 20 cm is computed as:

$S(mW/cm^2) = 0.1905 \text{ mW} / (4\pi (20cm)^2)$ = **37 nW/cm²**

This value of 37 nW/cm^2 is fare below the MPE limit of 1 mW/cm^2.