CETECOM™

Prediction of MPE limit at given distance

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

$S = PG / 4\pi R^2$

where: S = Power density
  P = Power input to the antenna
  G = Antenna gain
  R = Distance to the center of radiation of the antenna

The table below is 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/cm²)	Averaging Time (minutes)
300 -1500	f/1500	30
1500 - 100000	1.0	30

where f = Frequency (MHz)

Based on the above table the limits are for
Part 24 device: 1 mW/cm²
Part 22 device: 0.567 mW/cm²
EIRP peak power limit according to §24.232(b): 2 W
ERP power limit according to §22.913(a):   7 W

Prediction for Part 24:
P   Max power: 0.96 W EIRP
R   Distance: 20 cm
S   MPE limit for uncontrolled exposure: 1 mW/cm²

$S = PG / 4\pi R^2$ = 0.19 mW/cm²

Result: Device complies with the requirements

Prediction for Part 22:
P   Max power: 0.89 W ERP
R   Distance: 20 cm
S   MPE limit for uncontrolled exposure: 0.567 mW/cm²

$S = PG / 4\pi R^2$ = 0.29 mW/cm²

Result: Device complies with the requirements