

21. MPE Calculations

900 MHz Transceiver Module MPE Calculation based on the highest gain antenna configuration

Configuration	Antenna MFG	Model	Gain
1	Antenna Factor	ANT-916-CW-RH	2.5 dBi
2	Antenna Factor	ANT-916-MHW-RPS	2.0 dBi
3	"Generic Wire Whip"	8 cm long, 22 AWG	4.1 dBi ^(Note 1)

Notes:

1) The antenna gain was calculated based on empirical electric field intensity measurements above a conductive ground plane. The antenna gain figure listed is not free-space antenna gain.

Prediction of MPE limit at a 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

Maximum peak output power at antenna input terminal:	22.80 (dBm)
Maximum peak output power at antenna input terminal:	190.546 (mW)
Antenna gain(typical):	4.1 (dBi)
Maximum antenna gain:	2.570 (numeric)
Prediction distance:	20 (cm)
Prediction frequency:	915 (MHz)
MPE limit for uncontrolled exposure at prediction frequency:	0.62 (mW/cm ²)
Power density at prediction frequency:	0.097438 (mW/cm ²)
Maximum allowable antenna gain:	12.1 (dBi)
Margin of Compliance at 20 cm =	8.0 dB