

## MAXIMUM PERMISSIVE EXPOSURE, MPE CALCULATOR 2450 RFID with 5.0 dBi antenna, Intermec PN 203-622-001

MPE Calculator

TX Frequency (MHz) **2450**      Watts **1**      dBi to dBd **2.17**      dBi **5.00**  
 Antenna Gain dBd **2.83**

Cable Losses dB **0**      dBm 30.000000      radiated (ERP) dBm 32.830  
 Calculated ERP (mW) 1918.668741      radiated (EIRP) dBm 35.000  
 radiated (EIRP) watts 3.162

**Occupational Limit**  
**5.0 mW/cm<sup>2</sup>**

**General Public Limit**  
**1.0 mW/cm<sup>2</sup>**

$$\frac{\text{ERP}}{4 \uparrow d^2} = \text{mW/cm}^2$$

d = cm      ERP=mW

TX Frequency (MHz)	
wavelength	
meters	cm
0.12244898	12.245

FCC radiofrequency radiation exposure limits 1.1310			
Freq. MHz	occ.limit		public limit
300-1,500	f/1500		f/300
1,500-10,000	5		1

MPE uses ERP for calculations. ERP is based on TX power added to the antenna gain in dBd.  
 dBd = dB gain compared to an dipole antenna.

ERP (watts)	Distance (cm)	Distance (Meters)	Distance (inches)	mW/cm <sup>2</sup>
1918.669	100.0	1.000	39.37	0.01527
1918.669	75.0	0.750	29.53	0.02714
1918.669	50.0	0.500	19.69	0.06107
1918.669	40.0	0.400	15.75	0.09543
1918.669	30.0	0.300	11.81	0.16965
1918.669	20.0	0.200	7.87	0.38171
1918.669	19.0	0.190	7.48	0.42294
1918.669	18.0	0.180	7.09	0.47124
1918.669	17.0	0.170	6.69	0.52831
1918.669	16.0	0.160	6.30	0.59642
1918.669	15.0	0.150	5.91	0.67859
1918.669	14.0	0.140	5.51	0.77899
1918.669	13.0	0.130	5.12	0.90345
1918.669	12.5	0.125	4.92	0.97717
1918.669	12.0	0.120	4.72	1.06030
1918.669	11.5	0.115	4.53	1.15450
1918.669	11.0	0.110	4.33	1.26184
1918.669	10.5	0.105	4.13	1.38488
1918.669	10.0	0.100	3.94	1.52683