

MAXIMUM PERMISSIVE EXPOSURE, MPE CALCULATOR 2450 RFID with 3.5 dBi antenna, Intermec PN 805-576-001

MPE Calculator			dBi	3.50	
			dBi to dBd	2.17	
TX Frequency (MHz)	2450	Watts	1	Antenna Gain dBd	1.33
Cable Losses dB	0	dBm	30.000000		
Calculated ERP (mW)	1358.313447		radiated (ERP) dBm	31.330	
Calculated EIRP (mW)	2238.721139		radiated (EIRP) dBm	33.500	

Occupational Limit
5.0 mW/cm²

General Public Limit
1.0 mW/cm²

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

d = cm EIRP=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 EIRP for calculations. EIRP is based on TX power added to the antenna gain in dBi.
dBi = dB gain compared to an isotropic radiator

EIRP (watts)	Distance (cm)	Distance (Meters)	Distance (inches)	mW/cm ²
2238.721	100.0	1.000	39.37	0.01782
2238.721	75.0	0.750	29.53	0.03167
2238.721	50.0	0.500	19.69	0.07126
2238.721	40.0	0.400	15.75	0.11134
2238.721	30.0	0.300	11.81	0.19795
2238.721	20.0	0.200	7.87	0.44538
2238.721	19.0	0.190	7.48	0.49350
2238.721	18.0	0.180	7.09	0.54985
2238.721	17.0	0.170	6.69	0.61644
2238.721	16.0	0.160	6.30	0.69591
2238.721	15.0	0.150	5.91	0.79179
2238.721	14.5	0.145	5.71	0.84733
2238.721	14.0	0.140	5.51	0.90894
2238.721	13.5	0.135	5.31	0.97751
2238.721	13.0	0.130	5.12	1.05415
2238.721	12.5	0.125	4.92	1.14017
2238.721	12.0	0.120	4.72	1.23717
2238.721	11.5	0.115	4.53	1.34708
2238.721	11.0	0.110	4.33	1.47233
2238.721	10.5	0.105	4.13	1.61589
2238.721	10.0	0.100	3.94	1.78152