

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

MPE Calculator			dBi	5.00
			dBi to dBd	2.17
TX Frequency (MHz)	2450	Watts	1	Antenna Gain dBd
				2.83
Cable Losses dB	0	dBm	30.000000	
Calculated ERP (mW)	1918.668741			radiated (ERP) dBm
Calculated EIRP (mW)	3162.277660			radiated (EIRP) dBm
				32.830
				35.000

Occupational Limit
5.0 mW/cm²

General Public Limit
1.0 mW/cm²

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

TX Frequency (MHz)	
wavelength	
meters	cm
0.12244898	12.245

d = cm EIRP=mW

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
3162.278	100.0	1.000	39.37	0.02516
3162.278	75.0	0.750	29.53	0.04474
3162.278	50.0	0.500	19.69	0.10066
3162.278	40.0	0.400	15.75	0.15728
3162.278	30.0	0.300	11.81	0.27961
3162.278	20.0	0.200	7.87	0.62912
3162.278	19.5	0.195	7.68	0.66179
3162.278	19.0	0.190	7.48	0.69708
3162.278	18.5	0.185	7.28	0.73527
3162.278	18.0	0.180	7.09	0.77669
3162.278	17.5	0.175	6.89	0.82170
3162.278	17.0	0.170	6.69	0.87075
3162.278	16.5	0.165	6.50	0.92432
3162.278	16.0	0.160	6.30	0.98299
3162.278	15.5	0.155	6.10	1.04743
3162.278	15.0	0.150	5.91	1.11843
3162.278	14.5	0.145	5.71	1.19689
3162.278	14.0	0.140	5.51	1.28391
3162.278	13.5	0.135	5.31	1.38077
3162.278	13.0	0.130	5.12	1.48903
3162.278	12.5	0.125	4.92	1.61053