MPE Calculation page

SAF Tehnika	Model: Integral-GS-24		Test Number: 160318			
MPE Calculator	MPE uses EIRP for calculation. EIRP is based on TX power added to the antenna gain in dBi.					
	dBi = dB gain compared to an isotropic radiator.					
	S = power density in mW/cm^2					
					Antenna Gain (dBi)	47.1
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	24,148	Maximum (Watts)	0.001000		Antenna Gain (dBd)	44.93
Cable Loss (dB)	0.0	(dBm)	0.0		Antenna minus cable (dBi)	47.10
	Calculated ERP (mw)	31117.163		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	51286.138			Radiated (EIRP) dBm	47.100
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	44.930

Power density (S)

$$\frac{EIRP}{4\pi r^2} = mW/cm^2$$

EIRP (mW), r (cm)

		FCC radio frequency radiation exposure limits per 1.1310		
	Occupational Limit			
5	mW/cm^2	Frequency (MHz)	Occupational Limit (mW/cm^2)	Public Limit (mW/cm^2)
50	W/m^2	300-1,500	f/300	f/1500
	General Public Limit	1,500-100,000	5	1
1	mW/cm^2			
10	W/m^2			

		IC radio frequency radiation exposure limits per RSS-102		
	Occupational Limit			
50	W/m^2	Frequency (MHz)	Occupational Limit (W/m^2)	Public Limit (W/m^2)
50	W/m^2	100-6,000	$0.6455f^{0.5}$	
	General Public Limit	6,000-15,000	50	
10	W/m^2	48-300		1.291
10	W/m^2	300-6,000		$0.02619f^{0.6834}$
		15000-150000	50	10

EIRP	S	S	Distance	Distance	Distance	Distance
milliwatts	mW/cm^2	W/m^2	cm	meter	inches	Feet
51286.138	0.50385	5.03854	90.00	0.90	35.43	2.95
51286.138	0.63769	6.37691	80.00	0.80	31.50	2.62
51286.138	0.83290	8.32902	70.00	0.70	27.56	2.30
51286.138	0.99639	9.96392	64.00	0.64	25.20	2.10
51286.138	1.13367	11.33673	60.00	0.60	23.62	1.97
51286.138	2.55076	25.50763	40.00	0.40	15.75	1.31
51286.138	4.53469	45.34690	30.00	0.30	11.81	0.98
51286.138	4.85282	48.52820	29.00	0.29	11.42	0.95
51286.138	6.52995	65.29954	25.00	0.25	9.84	0.82
51286.138	10.20305	102.03053	20.00	0.20	7.87	0.66
51286.138	18.13876	181.38761	15.00	0.150	5.91	0.49
51286.138	40.81221	408.12212	10.00	0.100	3.94	0.33
51286.138	163.24885	1632.48849	5.00	0.050	1.97	0.16
51286.138	255.07633	2550.76326	4.00	0.040	1.57	0.13
51286.138	453.46902	4534.69024	3.00	0.030	1.18	0.10
51286.138	1020.30530	10203.05305	2.00	0.020	0.79	0.07
51286.138	4081.22122	40812.21219	1.00	0.010	0.39	0.03

Requirement	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)
47CFR 1.1310	0.29	0.64
RSS-102	0.29	0.64