RF Exposure Calculations

Mikrotik	Model: RB922UAGS-5HPacT-US		Test Number:	170310		
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)	36.8
		Average Output Power		dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	5785	Maximum (Watts)	0.134949		Antenna Gain (dBd)	34.63
Cable Loss (dB)	0.0	(dBm)	21.3		Antenna minus cable (dBi)	36.80
	Calculated ERP (mw)	391896.158		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	645908.509			Radiated (EIRP) dBm	58.102
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	55.932

Power density (S)

EIRP
------- = mW/cm^2
4 p r^2

EIRP (mW), r (cm)

	Occupational Limit	FCC radio frequency radiation exposure limits per 1.1310		
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	1,500-10,000	5	1
1	mW/cm^2			
10	W/m^2			

	Occupational Limit	IC radio frequency radiation exposure limits per RSS-102		
$0.6455f^{0.5}$	W/m^2	Frequency (MHz)	Occupational Limit (W/m^2)	Public Limit (W/m^2)
49.09621	W/m^2	100-6,000	$0.6455f^{0.5}$	
	General Public Limit	6,000-15,000	50	
$0.02619f^{0.6834}$	W/m^2	48-300		1.291
9.75649	W/m^2	300-6,000		$0.02619f^{0.6834}$
		6,000-15,000	50	10

EIRP	S	S	Distance	Distance	Distance	Distance
milliwatts	mW/cm^2	W/m^2	cm	meter	inches	Feet
645908.509	0.57111	5.711	300.00	3.00	118.11	9.84
645908.509	0.82240	8.224	250.00	2.50	98.43	8.20
645908.509	0.89236	8.924	240.00	2.40	94.49	7.87
645908.509	1.28499	12.850	200.00	2.00	78.74	6.56
645908.509	2.28443	22.844	150.00	1.50	59.06	4.92
645908.509	2.62244	26.224	140.00	1.40	55.12	4.59
645908.509	2.82029	28.203	135.00	1.35	53.15	4.43
645908.509	3.04141	30.414	130.00	1.30	51.18	4.27
645908.509	3.28959	32.896	125.00	1.25	49.21	4.10
645908.509	4.84492	48.449	103.00	1.03	40.55	3.38
645908.509	6.34565	63.457	90.00	0.900	35.43	2.95
645908.509	8.03121	80.312	80.00	0.800	31.50	2.62
645908.509	10.48975	104.897	70.00	0.700	27.56	2.30
645908.509	14.27771	142.777	60.00	0.600	23.62	1.97
645908.509	14.76580	147.658	59.00	0.590	23.23	1.94
645908.509	16.99166	169.917	55.00	0.550	21.65	1.80
645908.509	20.55991	205.599	50.00	0.500	19.69	1.64

Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)
47CFR 1.1310	1.03	2.40
RSS-102	1.03	2.40