RF Exposure Calculations

Mikrotik	Model: RB SXT HG5 ac		Test Number:	170511		
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)	20
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	5825	Maximum (Watts)	0.055065		Antenna Gain (dBd)	17.83
Cable Loss (dB)	0.0	(dBm)	17.4		Antenna minus cable (dBi)	20.00
	Calculated ERP (mw)	3340.998		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	5506.506			Radiated (EIRP) dBm	37.409
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	35.239

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)
49.26565	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
9.80254	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
5506.506	0.01095	0.110	200.00	2.00	78.74	6.56
5506.506	0.04382	0.438	100.00	1.00	39.37	3.28
5506.506	0.05410	0.541	90.00	0.90	35.43	2.95
5506.506	0.06847	0.685	80.00	0.80	31.50	2.62
5506.506	0.08943	0.894	70.00	0.70	27.56	2.30
5506.506	0.12172	1.217	60.00	0.60	23.62	1.97
5506.506	0.17528	1.753	50.00	0.50	19.69	1.64
5506.506	0.27387	2.739	40.00	0.40	15.75	1.31
5506.506	0.48688	4.869	30.00	0.30	11.81	0.98
5506.506	0.70111	7.011	25.00	0.25	9.84	0.82
5506.506	0.90536	9.054	22.00	0.220	8.66	0.72
5506.506	1.94753	19.475	15.00	0.150	5.91	0.49
5506.506	2.59286	25.929	13.00	0.130	5.12	0.43
5506.506	4.38194	43.819	10.00	0.100	3.94	0.33
5506.506	4.85533	48.553	9.50	0.095	3.74	0.31
5506.506	6.84678	68.468	8.00	0.080	3.15	0.26
5506.506	8.94273	89.427	7.00	0.070	2.76	0.23

Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)
47CFR 1.1310	0.095	0.22
RSS-102	0.095	0.22