RF Exposure Calculations

Mikrotik	Model: Groove A52HPn		Test Number:	170104		
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)	24
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	2437	Maximum (Watts)	0.619441		Antenna Gain (dBd)	21.83
Cable Loss (dB)	0.0	(dBm)	27.9		Antenna minus cable (dBi)	24.00
	Calculated ERP (mw)	94406.088		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	155596.563			Radiated (EIRP) dBm	51.920
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	49.750

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)
31.86574	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
5.40397	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
155596.563	0.30955	3.09550	200.00	2.00	78.74	6.56
155596.563	0.40431	4.04310	175.00	1.75	68.90	5.74
155596.563	0.53592	5.35924	152.00	1.52	59.84	4.99
155596.563	0.55031	5.50310	150.00	1.50	59.06	4.92
155596.563	1.23820	12.38198	100.00	1.00	39.37	3.28
155596.563	1.52864	15.28640	90.00	0.90	35.43	2.95
155596.563	1.93468	19.34685	80.00	0.80	31.50	2.62
155596.563	2.20124	22.01241	75.00	0.75	29.53	2.46
155596.563	2.52693	25.26935	70.00	0.70	27.56	2.30
155596.563	2.93065	29.30646	65.00	0.65	25.59	2.13
155596.563	3.02294	30.22945	64.00	0.640	25.20	2.10
155596.563	3.11967	31.19673	63.00	0.630	24.80	2.07
155596.563	3.43944	34.39439	60.00	0.600	23.62	1.97
155596.563	4.09322	40.93217	55.00	0.550	21.65	1.80
155596.563	4.95279	49.52792	50.00	0.500	19.69	1.64
155596.563	6.11456	61.14559	45.00	0.450	17.72	1.48
155596.563	7.73874	77.38738	40.00	0.400	15.75	1.31

Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)
47CFR 1.1310	0.63	1.52
RSS-102	0.63	1.52

Mikrotik	Model: Groove A52HPn		Test Number:	170104		
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)	32
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	5785	Maximum (Watts)	0.080724		Antenna Gain (dBd)	29.83
Cable Loss (dB)	0.0	(dBm)	19.1		Antenna minus cable (dBi)	32.00
	Calculated ERP (mw)	77624.712		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	127938.130			Radiated (EIRP) dBm	51.070
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	48.900

Power density (S)

EIRP
------- = mW/cm^2
4 p r^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	1,500-10,000	5	1
1	mW/cm^2			
10	W/m^2			

		IC radio frequency radiation exposure limits per RSS-102		
	Occupational Limit			
$0.6455f^{0.5}$	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
127938.130	0.25452	2.54525	200.00	2.00	78.74	6.56
127938.130	0.28202	2.82022	190.00	1.90	74.80	6.23
127938.130	0.31423	3.14228	180.00	1.80	70.87	5.91
127938.130	0.35228	3.52283	170.00	1.70	66.93	5.58
127938.130	0.39770	3.97695	160.00	1.60	62.99	5.25
127938.130	0.45249	4.52489	150.00	1.50	59.06	4.92
127938.130	0.51944	5.19438	140.00	1.40	55.12	4.59
127938.130	0.60243	6.02426	130.00	1.30	51.18	4.27
127938.130	0.70701	7.07013	120.00	1.20	47.24	3.94
127938.130	0.84140	8.41404	110.00	1.10	43.31	3.61
127938.130	0.95966	9.59656	103.00	1.030	40.55	3.38
127938.130	1.01810	10.18099	100.00	1.000	39.37	3.28
127938.130	1.80995	18.09954	75.00	0.750	29.53	2.46
127938.130	4.07240	40.72397	50.00	0.500	19.69	1.64
127938.130	4.81143	48.11433	46.00	0.460	18.11	1.51
127938.130	5.02765	50.27651	45.00	0.450	17.72	1.48
127938.130	6.36312	63.63121	40.00	0.400	15.75	1.31

Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)
47CFR 1.1310	0.46	1.03
RSS-102	0.46	1.03