

RF Exposure Calculations

Mikrotik	Model: RBMetal-5SHPn-US	Test Number:	170719			
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					
		Output Power	dBi + 2.17 = dBi		Antenna Gain (dBi)	32
		Maximum (Watts)	0.499000		dBi to dBd	2.2
Tx Frequency (MHz)	5785				Antenna Gain (dBd)	29.83
Cable Loss (dB)	0.0	(dBm)	27.0		Antenna minus cable (dBi)	32.00
	Calculated ERP (mw)	479844.527	EIRP = Po(dBm) + Gain (dB)			
	Calculated EIRP (mw)	790861.703	ERP = EIRP - 2.17 dB		Radiated (EIRP) dBm	58.981
		Power density (S)			Radiated (ERP) dBm	56.811
		$\text{EIRP} \text{ ----- } = \text{mW/cm}^2$ $4 \rho r^2$				
		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	ƒ300	ƒ1500		
	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				
0.6455 ƒ ^{-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	0.6455 ƒ ^{-0.5}			
	General Public Limit	6,000-15,000	50	1.291		
0.02619 ƒ ^{0.6834}	W/m ²	48-300		0.02619 ƒ ^{0.6834}		
9.75649	W/m ²	300-6,000		10		
		6,000-15,000	50	10		
EIRP	S	S	Distance	Distance	Distance	Distance
milliwatts	mW/cm ²	W/m ²	cm	meter	inches	Feet
790861.703	0.69928	6.993	300.00	3.00	118.11	9.84
790861.703	0.96786	9.679	255.00	2.55	100.39	8.37
790861.703	1.00696	10.070	250.00	2.50	98.43	8.20
790861.703	1.24316	12.432	225.00	2.25	88.58	7.38
790861.703	1.57337	15.734	200.00	2.00	78.74	6.56
790861.703	2.05501	20.550	175.00	1.75	68.90	5.74
790861.703	2.79710	27.971	150.00	1.50	59.06	4.92
790861.703	4.02783	40.278	125.00	1.25	49.21	4.10
790861.703	4.37047	43.705	120.00	1.20	47.24	3.94
790861.703	4.75877	47.588	115.00	1.15	45.28	3.77
790861.703	5.20122	52.012	110.00	1.100	43.31	3.61
790861.703	6.29348	62.935	100.00	1.000	39.37	3.28
790861.703	7.76973	77.697	90.00	0.900	35.43	2.95
790861.703	9.83356	98.336	80.00	0.800	31.50	2.62
790861.703	12.84383	128.438	70.00	0.700	27.56	2.30
790861.703	17.48188	174.819	60.00	0.600	23.62	1.97
790861.703	25.17391	251.739	50.00	0.500	19.69	1.64
		Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)		
		47CFR 1.1310	1.15	2.55		
		RSS-102	1.15	2.55		

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Revision 1

Mikrotiks SIA
Model: RBMetal5SHPn-US
Test #: 170719
Test to: 47CFR, 15.407, RSS-247
File: RBMetal5SHPnUS MPE

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