RF Exposure Calculations

Mikrotik	Model: RB912UAG-5HPnD-OUT-US		Test Number:	170405		
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)	35
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	5785	Maximum (Watts)	0.550405		Antenna Gain (dBd)	32.83
Cable Loss (dB)	0.0	(dBm)	27.4		Antenna minus cable (dBi)	35.00
	Calculated ERP (mw)	1056045.342		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	1740534.217			Radiated (EIRP) dBm	62.407
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	60.237

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
1740534.217	0.86567	8.657	400.00	4.00	157.48	13.12
1740534.217	0.96937	9.694	378.00	3.78	148.82	12.40
1740534.217	0.98494	9.849	375.00	3.75	147.64	12.30
1740534.217	1.13067	11.307	350.00	3.50	137.80	11.48
1740534.217	1.53897	15.390	300.00	3.00	118.11	9.84
1740534.217	1.83150	18.315	275.00	2.75	108.27	9.02
1740534.217	2.21612	22.161	250.00	2.50	98.43	8.20
1740534.217	2.73595	27.359	225.00	2.25	88.58	7.38
1740534.217	3.46268	34.627	200.00	2.00	78.74	6.56
1740534.217	4.52269	45.227	175.00	1.75	68.90	5.74
1740534.217	4.79264	47.926	170.00	1.700	66.93	5.58
1740534.217	4.90743	49.074	168.00	1.680	66.14	5.51
1740534.217	4.96638	49.664	167.00	1.670	65.75	5.48
1740534.217	5.08750	50.875	165.00	1.650	64.96	5.41
1740534.217	5.41044	54.104	160.00	1.600	62.99	5.25
1740534.217	6.15588	61.559	150.00	1.500	59.06	4.92
1740534.217	7.06670	70.667	140.00	1.400	55.12	4.59

Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)
47CFR 1.1310	1.67	3.75
RSS-102	1.68	3.78