Directional correlated antenna MPE calculation (antenna gain 10dBi, and 2 chains). Per KDB 662911 D01 Multiple Transmitter Output v02r01, the directional gain for correlated emissions in-band may be calculated using the following formula:

$$\text{Directional gain} = G_{ANT} + 10\log(N_{ANT})\ \text{dBi}$$

Mikrotik	Model: RBSXT sq2nD		Test Number:	180209		
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)	13
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	2437	Maximum (Watts)	0.003824		Antenna Gain (dBd)	10.83
Cable Loss (dB)	0.0	(dBm)	5.8		Antenna minus cable (dBi)	13.00
	Calculated ERP (mw)	46.298		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	76.307			Radiated (EIRP) dBm	18.826
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	16.656

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
76.307	0.00061	0.006	100.00	1.00	39.37	3.28
76.307	0.00075	0.007	90.00	0.90	35.43	2.95
76.307	0.00095	0.009	80.00	0.80	31.50	2.62
76.307	0.00124	0.012	70.00	0.70	27.56	2.30
76.307	0.00169	0.017	60.00	0.60	23.62	1.97
76.307	0.00243	0.024	50.00	0.50	19.69	1.64
76.307	0.00380	0.038	40.00	0.40	15.75	1.31
76.307	0.00675	0.067	30.00	0.30	11.81	0.98
76.307	0.01518	0.152	20.00	0.20	7.87	0.66
76.307	0.06072	0.607	10.00	0.10	3.94	0.33
76.307	0.07497	0.750	9.00	0.090	3.54	0.30
76.307	0.09488	0.949	8.00	0.080	3.15	0.26
76.307	0.12392	1.239	7.00	0.070	2.76	0.23
76.307	0.16868	1.687	6.00	0.060	2.36	0.20
76.307	0.24289	2.429	5.00	0.050	1.97	0.16
76.307	0.37952	3.795	4.00	0.040	1.57	0.13
76.307	0.67470	6.747	3.00	0.030	1.18	0.10

Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)
47CFR 1.1310	N/A	0.20
RSS-102	N/A	0.20

Per KDB 662911 D01 Multiple Transmitter Output v02r01, the directional gain for completely uncorrelated emissions in-band may be calculated using the following formula:

Directional gain = G_{ANT}

Mikrotik	Model: RBSXT sq2nD		Test Number:	180209		
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)	10
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2.2
Tx Frequency (MHz)	2437	Maximum (Watts)	0.003824		Antenna Gain (dBd)	7.83
Cable Loss (dB)	0.0	(dBm)	5.8		Antenna minus cable (dBi)	10.00
	Calculated ERP (mw)	23.204		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	38.244			Radiated (EIRP) dBm	15.826
				ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	13.656

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
38.244	0.00030	0.003	100.00	1.00	39.37	3.28
38.244	0.00038	0.004	90.00	0.90	35.43	2.95
38.244	0.00048	0.005	80.00	0.80	31.50	2.62
38.244	0.00062	0.006	70.00	0.70	27.56	2.30
38.244	0.00085	0.008	60.00	0.60	23.62	1.97
38.244	0.00122	0.012	50.00	0.50	19.69	1.64
38.244	0.00190	0.019	40.00	0.40	15.75	1.31
38.244	0.00338	0.034	30.00	0.30	11.81	0.98
38.244	0.00761	0.076	20.00	0.20	7.87	0.66
38.244	0.03043	0.304	10.00	0.10	3.94	0.33
38.244	0.03757	0.376	9.00	0.090	3.54	0.30
38.244	0.04755	0.476	8.00	0.080	3.15	0.26
38.244	0.06211	0.621	7.00	0.070	2.76	0.23
38.244	0.08454	0.845	6.00	0.060	2.36	0.20
38.244	0.12173	1.217	5.00	0.050	1.97	0.16
38.244	0.19021	1.902	4.00	0.040	1.57	0.13
38.244	0.33815	3.382	3.00	0.030	1.18	0.10

Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)
47CFR 1.1310	N/A	0.20
RSS-102	N/A	0.20