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:

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

Mikrotik	Model: RBSXT sq2nD	1	Test Number:	180209		
MPE Calculator	MPE uses EIRP for calculation	on. 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/cn	n^2				
					Antenna Gain (dBi)	
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2
x Frequency (MHz)	2437	Maximum (Watts)	0.003824	l e e e e e e e e e e e e e e e e e e e	Antenna Gain (dBd)	10.8
Cable Loss (dB)	0.0	(dBm)	5.8		Antenna minus cable (dBi)	13.0
	Calculated ERP (mw) 46.298 Calculated EIRP (mw) 76.307			EIRP = Po(dBM) + Gain (dB)	n II. Lamps In	40.0
	Calculated EIRP (mw)			ERP = EIRP - 2.17 dB	Radiated (EIRP) dBm	18.8
		Power density (S)		ERF - EIRF - 2.17 dB	Radiated (ERP) dBm	16.6
		EIRP			radiated (ERI ) dBiii	10.0
		= mW/cm	r^2			
		4 p r^2				
		EIRP (mW), r (cm)				
	Occupational Limit		FCC radio frequency radiation exposure	limits per 1.1310		
5		Frequency (MHz)	Occupational Limit (mW/cm <sup>2</sup> )	Public Limit (mW/cm <sup>2</sup> )		
50		300-1,500	f/300	f/1500		
	General Public Limit	1,500-10,000	5	1		
1	mW/cm <sup>2</sup>	1,500-10,000		1		
10						
10	W/m <sup>2</sup>					
	Occupational Limit		IC radio frequency radiation exposure lin	nite par DSS 102		
0.5455.05		E AMI)				
$0.6455f^{0.5}$	W/m <sup>2</sup>	Frequency (MHz)	Occupational Limit (W/m²)	Public Limit (W/m²)		
31.86574	W/m <sup>2</sup>	100-6,000	$0.6455f^{0.5}$			
0.6924	General Public Limit	6,000-15,000	50			
$0.02619f^{0.6834}$	W/m <sup>2</sup>	48-300		1.291		
5.40397	W/m <sup>2</sup>	300-6,000		$0.02619f^{0.6834}$		
		6,000-15,000	50	10		
FIDD			D' .	D' :	D' ·	D' ·
EIRP	S	S	Distance	Distance	Distance	Distance
milliwatts	mW/cm <sup>2</sup>	W/m <sup>2</sup>	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 76.307	0.00095 0.00124	0.009 0.012	80.00 70.00	0.80 0.70	31.50 27.56	2.62
76.307	0.00124	0.012	60.00	0.70	23.62	1.97
76.307	0.00169	0.017	50.00	0.60	19.69	1.64
76.307	0.00243	0.024	40.00	0.40	15.75	1.31
76.307	0.00580	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	Public Limit minimum distance (meters)		
			(meters)	` ′		
		47CFR 1.1310	N/A	0.20		
		RSS-102	N/A	0.20		

Rogers Labs, Inc. 4405 W. 259th Terrace Louisburg, KS 66053 Phone/Fax: (913) 837-3214 Revision 1 Mikrotikls SIA S/N: 887D08BEB867/809, 887D081FFA7A/804

Model: RouterBOARD SXTsq 2nD FCC ID: TV7SXTSQ-2ND Test #: 180209 IC: 7442A-SXTSQ2ND Test to: 47CFR 15.247, RSS-247 Date: April 5, 2018

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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	r	Test Number:	180209		
MPE Calculator	MPE uses EIRP for calculation. EIRP is based on TX po		power added to the antenna gain in dBi.			
	dBi = dB gain compared to an isotropic radiator.					
	S = power density in mW/cn	n^2				
					Antenna Gain (dBi)	
		Output Power		dBd + 2.17 = dBi	dBi to dBd	2
Tx Frequency (MHz)	2437	Maximum (Watts)	0.003824	<u> </u>	Antenna Gain (dBd)	7.8
C I I I (ID)	0.0	(dBm)	5.8		11 (10)	10.0
Cable Loss (dB)	0.0	(dbiii)	5.8	5	Antenna minus cable (dBi)	10.
	Calculated ERP (mw) 23.204			EIRP = Po(dBM) + Gain(dB)		
	Calculated EIRP (mw)				Radiated (EIRP) dBm	15.8
		Power density (S)		ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	13.6
		EIRP				
		= mW/cn	r^2			
		4 p r^2				
		EIRP (mW), r (cm)				
	Occupational Limit		FCC radio frequency radiation exposure	limits per 1.1310		
5	-	Frequency (MHz)	Occupational Limit (mW/cm²)	Public Limit (mW/cm <sup>2</sup> )		
50		300-1,500	f/300	f/1500		
30	General Public Limit	1,500-10,000	5	1300		
		1,500-10,000		1		
	mW/cm <sup>2</sup>					
10	W/m <sup>2</sup>					
	Occupational Limit	IC radio frequency radiation exposure limits per RSS-102				
$0.6455f^{0.5}$	5 W/m <sup>2</sup>	Frequency (MHz)	Occupational Limit (W/m <sup>2</sup> )	Public Limit (W/m <sup>2</sup> )		
31.86574	4 W/m <sup>2</sup>	100-6,000	$0.6455f^{0.5}$			
	General Public Limit	6,000-15,000	50			
$0.02619f^{0.6836}$	4 W/m <sup>2</sup>	48-300		1.291		
5.40397	7 W/m <sup>2</sup>	300-6,000		$0.02619 f^{0.6834}$		
		6,000-15,000	50	10		
EIRP	S	S	Distance	Distance	Distance	Distance
milliwatts			cm	meter	inches	Feet
38.244	mW/cm <sup>2</sup> 0.00030	W/m <sup>2</sup> 0.003	100.00	1.00	39.37	3.28
38.244	0.00030	0.003	90.00	0.90	35.43	2.95
38.244	0.00038	0.005	80.00	0.80	31.50	2.62
38.244	0.00048	0.005	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		

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Revision 1

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