

RF Exposure Calculation

Mikrotik	Model: R52HnD	Test Number:	160720		
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	dBd + 2.17 = dBi	Antenna Gain (dBi)	27
Tx Frequency (MHz)	2437	Maximum (Watts)	0.095	Antenna Gain (dBd)	24.83
Cable Loss (dB)	0.0	(dBm)	19.8	Antenna minus cable (dBi)	27.00
	Calculated ERP (mw)	28888.408	EIRP = Po(dBm) + Gain (dB)		
	Calculated EIRP (mw)	47612.787		Radiated (EIRP) dBm	46.777
		Power density (S)	ERP = EIRP - 2.17 dB	Radiated (ERP) dBm	44.607
		$\text{EIRP} = \frac{S \cdot 4 \pi r^2}{1000} = \text{mW/cm}^2$			
		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	ƒ/300	ƒ/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			
0.6455ƒ ^{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	0.6455ƒ ^{0.5}		
	General Public Limit	6,000-15,000	50		
0.02619ƒ ^{0.6834}	W/m ²	48-300		1.291	
5.40397	W/m ²	300-6,000		0.02619ƒ ^{0.6834}	
		6,000-15,000	50	10	
EIRP	S	S	Distance	Distance	Distance
milliwatts	mW/cm ²	W/m ²	cm	meter	inches
47612.787	0.09472	0.94723	200.00	2.00	78.74
47612.787	0.16840	1.68396	150.00	1.50	59.06
47612.787	0.24249	2.42490	125.00	1.25	49.21
47612.787	0.26312	2.63118	120.00	1.20	47.24
47612.787	0.28158	2.81577	116.00	1.16	45.67
47612.787	0.29154	2.91544	114.00	1.14	44.88
47612.787	0.31313	3.13133	110.00	1.10	43.31
47612.787	0.37889	3.78891	100.00	1.00	39.37
47612.787	0.46777	4.67766	90.00	0.90	35.43
47612.787	0.53698	5.36976	84.00	0.84	33.07
47612.787	0.77325	7.73246	70.00	0.700	27.56
47612.787	0.98567	9.85667	62.00	0.620	24.41
47612.787	1.51556	15.15562	50.00	0.500	19.69
47612.787	3.09298	30.92984	35.00	0.350	13.78
47612.787	4.20989	42.09895	30.00	0.300	11.81
47612.787	4.83279	48.32787	28.00	0.280	11.02
47612.787	5.19740	51.97401	27.00	0.270	10.63
		Frequency (MHz)	Occupational Limit minimum Distance (meters)	Public Limit minimum distance (meters)	
		47CFR 1.1310	0.28	0.62	
		RSS-102	0.31	0.84	

Note: the output power of the transmitter is reduced based on the antenna gain at time of installation and antenna selection per the regulations.

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Revision 1

Mikrotik SIA
Model: R52HnD
Test #: 160720
Test to: 47CFR, 15.247, 15.407, RSS-247
File: R52HnD DTS RFExp

S/N: 26114
FCC: TV7R52HND
IC: 7442A-R52HND
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