

POWER DENSITY ESTIMATIONS BASED ON POWER OUTPUT, ANTENNA GAIN, AND DISTANCE FROM ANTENNA

$$(P G) / (4 R^2 \pi) = S$$

where:	S =	maximum power density (mW/cm ²)	transmitter operating variables:	↓ must be blank if dB values are entered ↓	
	P =	power input to the antenna ----->>	=	-1.7	(dBm) - or - (mW)
	G =	gain of the antenna - worst case ----->>	=	1.9	(dBi) - or - (numeric gain)
	R =	distance to the center of the radiation of the antenna -->>	=	20	(cm)

$$(P \quad G) / (4 * R^2 * \pi) = S \quad (mW/cm^2)$$

$$\left(\frac{0.67608298}{(mw)} \quad \frac{1.54882}{(gain)} \right) / \left(4 * \frac{20}{(cm)}^2 * \pi \right) = S \quad (mW/cm^2)$$

$$(1.047128548) / (4 * 400 * \pi) = S \quad (mW/cm^2)$$

$$(1.047128548) / (5026.548246) = 0.000208 \quad (mW/cm^2)$$

Power Density Based on 20 separation distance (cm)

916	Frequency (MHz)
-1.7	Power to Antenna (dBm)
1.9	Antenna gain (dBi)

FCC

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

0.000208
 Power Density (mW/cm²)

<u>Canada</u>	<u>FCC</u>	
0.27688	0.61067	Limit (mW/cm ²)
0.27667	0.61046	Margin
0.00075	0.00034	MPE Ratio

(General Population)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

Device FCC ID XQC-GDZW7LR
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Canada

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m ²)	Reference Period (minutes)
0.003-10 ²¹	83	90	-	Instantaneous*
0.1-10	-	0.73/ f	-	6**
1.1-10	87/ f ^{0.5}	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ f ^{0.25}	0.1540/ f ^{0.25}	8.944/ f ^{0.5}	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 f ^{0.3417}	0.008335 f ^{0.3417}	0.02619f ^{0.6834}	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ f ^{1.2}
150000-300000	0.158 f ^{0.5}	4.21 x 10 ⁻⁴ f ^{0.5}	6.67 x 10 ⁻⁵ f	616000/ f ^{1.2}
<p>Note: f is frequency in MHz. *Based on nerve stimulation (NS). ** Based on specific absorption rate (SAR).</p>				