MPE Calculator	RF Exposure 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				
	Transmitter Output power (mW)	21.4			
	Transmitter Output power (W)	0.021		Antenna Gain (dBi)	-1
Output Power for % duty Cycle operation (Watts)	100	0.021		Antenna Gain (Numeric)	0.79
	Output Power for 100% duty Cycle operation (Watts)	0.021			
Tx Frequency (MHz)	2437	Calculation power (Watts)	0.021	dBd + 2.17 = dBi	dBi to dBd	2.17
				Antenna Gain (dBd)	-3.17
Cable Loss (dB)	0.0	Adjusted Power (dBm)	13.31	Antenna minus cable (dBi)	-1.00
				Antenna Gain (Numeric)	0.79
	Calculated ERP (mw)	10.328		EIRP = Po(dBm) + Gain (dB)	
	Calculated EIRP (mw)	17.022		Radiated (EIRP) dBm	12.310
				ERP = EIRP - 2.17 dB	
				Radiated (ERP) dBm	10.140

$$\text{Power density (S) mW/cm}^2 = \frac{\text{EIRP}}{4 \pi r^2}$$

r (cm)   EIRP (mW)

	Occupational Limit	FCC radio frequency radiation exposure limits per 1.1310		
8.123333333	mW/cm²	Frequency (MHz)	Occupational Limit (mW/cm²)	Public Limit (mW/cm²)
81.2	W/m²	30-300	1	0.2
	General Public Limit	300-1,500	f/300	f/1500
1.624666667	mW/cm²	1,500-10,000	5	1
16.2	W/m²			

	Occupational Limit	IC radio frequency radiation exposure limits per RSS-102		
$0.6455 f^{0.5}$	W/m²	Frequency (MHz)	Occupational Limit (W/m²)	Public Limit (W/m²)
31.9	W/m²	100-6,000	$0.6455 f^{0.5}$	
	General Public Limit	6,000-15,000	50	
$0.02619 f^{0.6834}$	W/m²	48-300		1.291
5.40	W/m²	300-6,000		$0.02619 f^{0.6834}$
		6,000-15,000	50	10

				General Public	Occupational	
f = Transmit Frequency (MHz)			f (MHz) =	2437	2437	MHz
P_T = Power Input to Antenna (mW)			P_T (mW) =	21.4289	21.4289	mW
Duty cycle (percentage of operation)			% =	100	100	%
P_A = Adjusted Power due to Duty cycle or Cable Loss (mW)			P_A (mW) =	21.43	21.43	mW
G_N = Numeric Gain of the Antenna			GN (numeric) =	0.79	0.79	numeric
S_{20} = Power Density of device at 20cm (mW/m²)	$S_{20} = (P_A G_N)/(4\pi R_{20})^2$		S_{20} (mW/m²) =	0.00	0.00	mW/m²
S_{20} = Power Density of device at 20cm (W/m²)	$S_{20} = (P_A G_N)/(4\pi R_{20})^2$		S_{20} (W/m²) =	0.03	0.03	W/m²
S_L = Power Density Limit (W/m²) FCC			S_L (W/m²) =	16.247	81.233	W/m²
S_L = Power Density Limit (W/m²) Canada			S_L (W/m²) =	5.404	31.866	W/m²
R_C = Minimum distance to the Radiating Element for Compliance (cm) FCC	$R_C = \sqrt{(P_A G_N/4\pi s_L)}$		R_C (cm) =	0.9	0.4	cm
R_C = Minimum distance to the Radiating Element for Compliance (cm) Canada	$R_C = \sqrt{(P_A G_N/4\pi s_L)}$		R_C (cm) =	1.6	0.7	cm
S_C = Power Density of the device at the Compliance Distance R_C (W/m²) FCC	$S_C = (P_A G_N)/(4\pi R_C)^2$		S_C (W/m²) =	16.25	81.23	W/m²
S_C = Power Density of the device at the Compliance Distance R_C (W/m²) Canada	$S_C = (P_A G_N)/(4\pi R_C)^2$		S_C (W/m²) =	5.40	31.87	W/m²
R_{20} = 20cm			R20 =	20	20	cm

For Compliance with Canada General Population Limits, User Manual must indicate a minimum separation distance of	1.6	cm
Or in Meters for Compliance with Canada General Population Limits, a minimum separation distance of	0.02	Meters

Summary: Standalone MPE Calculations and Summary

					Public Limit		Public	
	Tx Duty Cycle (%)	Tx Frequency (MHz)	Power Total (mW)	Antenna Gain (numeric)	S_L (W/m²)	S_{20} (W/m²)	R_C (cm)	S_C (W/m²)
FCC	100	2437	21	0.79	16.247	0.03	0.9	16.25
Canada	100	2437	21	0.79	5.404	0.03	1.6	5.40

	Limit		Overall Minimum (cm)	Overall Minimum (inches)
	Public	Occupational		
FCC (cm)	0.9	0.4		
FCC (inches)	1.0	1.0		
Canada (cm)	1.6	0.7		
Canada (inches)	1.0	1.0		

Overall Minimum Limit Public		Overall Minumu Limit Occuppational	
2 cm		1 cm	
1 inches		1 inches	