	HVIN: A04266, B04266		Test Number: 220830					
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)	17.7					
		Transmitter Output power (W)	0.018					
Output Power for % duty Cycle operation (Watts)		100	0.018		Antenna Gain (dBi)	1.6		
	Output Power for 100% duty Cycle operation (Watts)		0.018		Antenna Gain (Numeric)	1.45		
Tx Frequency (MHz)	2437	Calculation power (Watts)	0.018	dBd + 2.17 = dBi	dBi to dBd	2.17		
					Antenna Gain (dBd)	-0.57		
Cable Loss (dB)	0.0	Adjusted Power (dBm)	12.48		Antenna minus cable (dBi)	1.60		
					Antenna Gain (Numeric)	1.45		
	Calculated ERP (mw)	15.524			EIRP = Po(dBm) + Gain (dB)			
	Calculated EIRP (mw)	25.586			Radiated (EIRP) dBm	14.080		
					ERP = EIRP - 2.17 dB			
					Radiated (ERP) dBm	11.910		

Power density (S) mW/cm² = EIRP / (4 p r^2)

r (cm) EIRP (mW)

		FCC radio frequency radiation exposure limits per 1.1310		
	Occupational Limit	Frequency (MHz)	Occupational Limit (mW/cm^2)	Public Limit (mW/cm^2)
8.123333333	mW/cm^2	30-300	1	0.2
81.2	W/m^2			
	General Public Limit	300-1,500	f/300	f/1500
1.624666667	mW/cm^2	1,500-10,000	5	1
16.2	W/m^2			

		IC radio frequency radiation exposure limits per RSS-102		
	Occupational Limit			
$0.6455f^{0.5}$	W/m^2	Frequency (MHz)	Occupational Limit (W/m^2)	Public Limit (W/m^2)
31.9	W/m^2			
	General Public Limit	100-6,000	$0.6455f^{0.5}$	
$0.02619f^{0.6834}$	W/m^2	6,000-15,000	50	
5.40	W/m^2	48-300		1.291
		300-6,000		$0.02619f^{0.6834}$
		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) =	17.7011	17.7011	mW
Duty cycle (percentage of operation)			% =	100	100	%
P_A = Adjusted Power due to Duty cycle or Cable Loss (mW)			P_A (mW) =	17.70	17.70	mW
G_N = Numeric Gain of the Antenna			GN (numeric) =	1.45	1.45	numeric
S_{20} = Power Density of device at 20cm (mW/m^2)		$S_{20}=(P_AG_N)/(4\pi R_{20})^2$	S_{20} (mW/m^2) =	0.01	0.01	mW/m^2
S_{20} = Power Density of device at 20cm (W/m^2)		$S_{20}=(P_AG_N)/(4\pi R_{20})^2$	S_{20} (W/m^2) =	0.05	0.05	W/m^2
S_L = Power Density Limit (W/m^2) FCC			S_L (W/m^2)=	16.247	81.233	W/m^2
S_L = Power Density Limit (W/m^2) Canada			S_L (W/m^2)=	5.404	31.866	W/m^2
R_C = Minimum distance to the Radiating Element for Compliance (cm) FCC		$R_C=\sqrt{(P_AG_N/4\pi S_L)}$	R_C (cm) =	1.1	0.5	cm
R_C = Minimum distance to the Radiating Element for Compliance (cm) Canada		$R_C=\sqrt{(P_AG_N/4\pi S_L)}$	R_C (cm) =	1.9	0.8	cm
S_C = Power Density of the device at the Compliance Distance R_C (W/m^2) FCC		$S_C=(P_AG_N)/(4\pi R_C)^2$	S_C (W/m^2) =	16.25	81.23	W/m^2
S_C = Power Density of the device at the Compliance Distance R_C (W/m^2) Canada		$S_C=(P_AG_N)/(4\pi R_C)^2$	S_C (W/m^2) =	5.40	31.87	W/m^2
R_{20} = 20cm			R20=	20	20	cm

For Compliance with Canada General Population Limits, User Manual must indicate a minimum separation distance of 1.9 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/m^2)	S_{20} (W/m^2)	R_C (cm)	S_C (W/m^2)
FCC	100	2437	18	1.45	16.247	0.05	1.1	16.25
Canada	100	2437	18	1.45	5.404	0.05	1.9	5.40

		Limit	Overall Minimum (cm)	Overall Minimum (inches)
	Public	Occupational		
FCC (cm)	1.1	0.5		
FCC (inches)	1.0	1.0		
Canada (cm)	1.9	0.8		
Canada (inches)	1.0	1.0		

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