	HVIN: MPRX5		Test Number: 220330				
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)	1999.9				
		Transmitter Output power (W)	2.00				
Output Power for % duty Cycle operation (Watts)	100		2.00		Antenna Gain (dBi)	14	
	Output Power for 100% duty Cycle operation (Watts)		2.00		Antenna Gain (Numeric)	25.12	
Tx Frequency (MHz)	915	Calculation power (Watts)	2.00	dBd + 2.17 = dBi	dBi to dBd	2.17	
					Antenna Gain (dBd)	11.83	
Cable Loss (dB)	0.0	Adjusted Power (dBm)	33.01		Antenna minus cable (dBi)	14.00	
					Antenna Gain (Numeric)	25.12	
	Calculated ERP (mw)	30478.950			EIRP = Po(dBm) + Gain (dB)		
	Calculated EIRP (mw)	50234.259			Radiated (EIRP) dBm	47.010	
					ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	44.840	

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

r (cm) EIRP (mW)

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

	Occupational Limit			
$0.6455f^{0.5}$	W/m^2	IC radio frequency radiation exposure limits per RSS-102		
19.5	W/m^2	Frequency (MHz)	Occupational Limit (W/m^2)	Public Limit (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	
2.77	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) =	915	915	MHz
P_T = Power Input to Antenna (mW)			P_T (mW) =	1,999.8619	1,999.8619	mW
Duty cycle (percentage of operation)			% =	100	100	%
P_A = Adjusted Power due to Duty cycle or Cable Loss (mW)			P_A (mW) =	1,999.86	1,999.86	mW
G_N = Numeric Gain of the Antenna			GN (numeric) =	25.12	25.12	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) =	9.99	9.99	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) =	99.94	99.94	W/m^2
S_L = Power Density Limit (W/m^2) FCC			S_L (W/m^2)=	6.100	30.500	W/m^2
S_L = Power Density Limit (W/m^2) Canada			S_L (W/m^2)=	2.767	19.526	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) =	81.0	36.2	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) =	120.2	45.2	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) =	6.10	30.50	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) =	2.77	19.53	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 120.2 cm

Or in Meters for Compliance with Canada General Population Limits, a minimum separation distance of 1.20 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	915	2,000	25.12	6.100	99.94	81.0	6.10
Canada	100	915	2,000	25.12	2.767	99.94	120.2	2.77

		Limit	Overall Minimum (cm)	Overall Minimum (inches)
	Public	Occupational		
FCC (cm)	81.0	36.2		
FCC (inches)	32.0	15.0		
Canada (cm)	120.2	45.2		
Canada (inches)	48.0	18.0		

Overall Minimum Limit Public	Overall Minumu Limit Occuppational
121 cm	46 cm
48 inches	19 inches