	HVIN: 051120		Test Number: 220516					
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)	4.5					
		Transmitter Output power (W)	0.005					
Output Power for % duty Cycle operation (Watts)	100		0.00		Antenna Gain (dBi)	2		
	Output Power for 100% duty Cycle operation (Watts)		0.005		Antenna Gain (Numeric)	1.58		
Tx Frequency (MHz)	915	Calculation power (Watts)	0.00	dBd + 2.17 = dBi	dBi to dBd	2.17		
					Antenna Gain (dBd)	-0.17		
Cable Loss (dB)	0.0	Adjusted Power (dBm)	6.57		Antenna minus cable (dBi)	2.00		
					Antenna Gain (Numeric)	1.58		
	Calculated ERP (mw)	4.366			EIRP = Po(dBm) + Gain (dB)			
	Calculated EIRP (mw)	7.196			Radiated (EIRP) dBm	8.571		
					ERP = EIRP - 2.17 dB			
					Radiated (ERP) dBm	6.401		

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

r (cm) EIRP (mW)

	FCC 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
	FCC 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			

	ISED Occupational Limit Canada			
$0.6455f^{0.5}$	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)
	ISED General Public Limit Canada	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) =	4.5407	4.5407	mW
Duty cycle (percentage of operation)			% =	100	100	%
P_A = Adjusted Power due to Duty cycle or Cable Loss (mW)			P_A (mW) =	4.54	4.54	mW
G_N = Numeric Gain of the Antenna			GN (numeric) =	1.58	1.58	numeric
S_{20} = Power Density of device at 20cm (mW/m^2)		$S_{20}=(P_A G_N)/(4\pi R_{20})^2$	S_{20} (mW/m^2) =	0.00	0.00	mW/m^2
S_{20} = Power Density of device at 20cm (W/m^2)		$S_{20}=(P_A G_N)/(4\pi R_{20})^2$	S_{20} (W/m^2) =	0.01	0.01	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		$R_C=\sqrt{(P_A G_N/4\pi S_L)}$	R_C (cm) =	1.0	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) =	1.4	0.5	cm
S_C = Power Density of the device at the Compliance Distance R_C (W/m^2) FCC		$S_C=(P_A G_N)/(4\pi R_C)^2$	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		$S_C=(P_A G_N)/(4\pi R_C)^2$	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 1.4 cm

Or in Meters for Compliance with Canada General Population Limits, a minimum separation distance of 0.01 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	5	1.58	6.100	0.01	1.0	6.10
Canada	100	915	5	1.58	2.767	0.01	1.4	2.77

		Limit	Overall Minimum (cm)	Overall Minimum (inches)
	Public	Occupational		
FCC (cm)	1.0	0.4		
FCC (inches)	1.0	1.0		
Canada (cm)	1.4	0.5		
Canada (inches)	1.0	1.0		

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