		Model: VPR		Test Number: 230720				
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)	120.0					
		Transmitter Output power (W)	0.12					
Output Power for % duty Cycle operation (Watts)		100	0.12		Antenna Gain (dBi)	1		
	Output Power for 100% duty Cycle operation (Watts)		0.12		Antenna Gain (Numeric)	1.26		
Tx Frequency (MHz)	24125	Calculation power (Watts)	0.12	dBd + 2.17 = dBi	dBi to dBd	2.17		
					Antenna Gain (dBd)	-1.17		
Cable Loss (dB)	0.0	Adjusted Power (dBm)	20.79		Antenna minus cable (dBi)	1.00		
					Antenna Gain (Numeric)	1.26		
	Calculated ERP (mw)	91.660			EIRP = Po(dBm) + Gain (dB)			
	Calculated EIRP (mw)	151.071			Radiated (EIRP) dBm	21.792		
					ERP = EIRP - 2.17 dB			
					Radiated (ERP) dBm	19.622		

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		
5	mW/cm^2	Frequency (MHz)	Occupational Limit (mW/cm^2)	Public Limit (mW/cm^2)
50.0	W/m^2	30-300	1	0.2
	General Public Limit	300-1,500	f/300	f/1500
1	mW/cm^2	1,500-100,000	5	1
10.0	W/m^2			

	Occupational Limit			
50	W/m^2	IC radio frequency radiation exposure limits per RSS-102		
50	W/m^2	Frequency (MHz)	Occupational Limit (W/m^2)	Public Limit (W/m^2)
	General Public Limit	100-6,000	$0.6455f^{0.5}$	
10	W/m^2	6,000-15,000	50	
10	W/m^2	48-300		1.291
		300-6,000		$0.02619f^{0.6834}$
		6,000-15,000	50	10
		15,000-150,000	50	10

					General Public	Occupational	
f = Transmit Frequency (MHz)				f (MHz) =	24125	24125	MHz
P_T = Power Input to Antenna (mW)				P_T (mW) =	120.0000	120.0000	mW
Duty cycle (percentage of operation)				% =	100	100	%
P_A = Adjusted Power due to Duty cycle or Cable Loss (mW)				P_A (mW) =	120.00	120.00	mW
G_N = Numeric Gain of the Antenna				GN (numeric) =	1.26	1.26	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) =	0.03	0.03	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) =	0.30	0.30	W/m^2
S_L = Power Density Limit (W/m^2) FCC				S_L (W/m^2)=	10.000	50.000	W/m^2
S_L = Power Density Limit (W/m^2) Canada				S_L (W/m^2)=	10.000	50.000	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) =	3.5	1.6	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) =	3.5	1.6	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) =	10.00	50.00	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) =	10.00	50.00	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 3.5 cm

Or in Meters for Compliance with Canada General Population Limits, a minimum separation distance of 0.03 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	24125	120	1.26	10.000	0.30	3.5	10.00
Canada	100	24125	120	1.26	10.000	0.30	3.5	10.00

		Limit	Overall Minimum (cm)	Overall Minimum (inches)
	Public	Occupational		
FCC (cm)	3.5	1.6		
FCC (inches)	2.0	1.0		
Canada (cm)	3.5	1.6		
Canada (inches)	2.0	1.0		

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