RF Exposure Calculations

	Model:	V06SVR18 Mk2 ODU	Test Number:	200912			
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 maximum Output power operating at 100% (Watts)			1.0000				
	Percent Duty Cycle operation (%)		100.0		Antenna Gain (dBi)	41.2	
	Output Power for 100% duty Cycle operation (Watts)		1.0000		Antenna Gain (Numeric)	13182.57	
Tx Frequency (MHz)	5740	Calcualtion power (Watts)	1.0000	dBd + 2.17 = dBi	dBi to dBd	2.2	
					Antenna Gain (dBd)	39.03	
Cable Loss (dB)	0.0	Adjusted Power (dBm)	30.00		Antenna minus cable (dBi)	41.20	
	Calculated ERP (mw)	7,998,342.55	7,998.34		EIRP = Po(dBM) + Gain (dB)		
	Calculated EIRP (mw)	13,182,567.39	13,182.57		Radiated (EIRP) dBm	71.200	
					ERP = EIRP - 2.17 dB		
					Radiated (ERP) dBm	69.030	

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	W/m^2	30-300	1	0.2
	General Public Limit	300-1,500	f/300	f/1500
1	mW/cm^2	1,500-10,000	5	1
10	W/m^2			
	Occupational Limit			
$0.6455f^{0.5}$	W/m^2	IC radio frequency radiation exposure limits per RSS-102		
60.9	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	
30.75	W/m^2	48-300		1.291
		300-6,000		$0.02619f^{0.6834}$
		6,000-15,000	50	10

			Canada		FCC
f = Transmit Frequecny (MHz)			f (MHz) =	5,740.0	f (MHz) = 5,740.0
P_T = Power Input to Antenna (mW)			P_T (mW) =	1,000.0000	P_T (mW) = 1,000.0000
Duty cycle (percentage of operation)			% =	100.0	% = 100.0
P_A = Adjusted Power due to Duty cycle or Cable Loss (mW)			P_A (mW) =	1,000.00	P_A (mW) = 1,000.00
G_N = Numeric Gain of the Antenna			GN (numeric) =	13182.57	GN (numeric) = 13182.57
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) =	26225.88	S_{20} (W/m^2) = 26225.88
S_L = Power Density Limit (W/m^2)			S_L (W/m^2)=	30.746	S_L (W/m^2)= 10.000
R_C = Minimum distance to the Radiating Element for Compliance (cm)		$R_C=\sqrt{(P_A G_N/4\pi S_L)}$	R_C (cm) =	584.1	R_C (cm) = 1,024.2
S_C = Power Density of the device at the Compliance Distance R_C (W/m^2)		$S_C=(P_A G_N)/(4\pi R_C)^2$	S_C (W/m^2) =	30.75	S_C (W/m^2) = 10.00
R_{20} = 20cm			R20=	20	R20= 20

For Complaince with Canada General Population Limits, User Manual must indicate a minimum seperation distance of	584.1	cm
Or in Meters for Complaince with Canada General Population Limits, a minimum seperation distance of	5.8	Meters
For Complaince with FCC General Population Limits, User Manual must indicate a minimum seperation distance of	1024.2	cm
Or in Meters for Complaince with FCC General Population Limits, a minimum seperation distance of	10.2	Meters
Occupational Distances		
For Complaince with Canada Occupational Limits, User Manual must indicate a minimum seperation distance of	415.1	cm
Or in Meters for Complaince with Canada Occupational Limits, a minimum seperation distance of	4.2	Meters
For Complaince with FCC Occupational Limits, User Manual must indicate a minimum seperation distance of	458.0	cm
Or in Meters for Complaince with FCC Occupational Limits, a minimum seperation distance of	4.6	Meters