RF RADIATION HAZARD ANALYSIS
Exhibit #B

Antenna Diameter, (D) =	1.35	meters /	4.42935 Feet
Antenna Surface Area (Sa) =	1.4314	sq meters	
Subreflector Diameter (Ds) =	0.0000	centimeters	
Ku Wavelength at 14.250 GHz (LAMBDA) =	0.0211	meters	
Power output of VPC Flange=	23.010	dB	
Path Loss to OMT (IL) =	0.6	dB	
Power at OMT, (P) =	174.19	Watts	
Antenna Gain at 14.250GHz (G) =	44.10	dBi (2 port antenna gain)	
Antenna Gain given in Power Ration, (Ges) =	2.57E+04		
Antenna Aperture Efficiency (N) =	0.650		

Region					Radition Level		Controlled/Uncontrolled Hazard Assessment
Far Field, (Rf) =	51.825	meters /	170.04	Feet	13.266	mW/cm sq	Potential Hazard
Near Field, (Wf) =	21.594	meters /	70.849	Feet	31.641	mW/cm sq	Potential Hazard
Transition Region (Rt) Ru<Rt<Rf					equal to or less than 31.641	mW/cm sq	Potential Hazard
Between Main Reflector and Subreflector (Ws)					N/A (no subreflector)		
Main Reflector Region (Wm)					24.339	mW/cm sq	Potential Hazard
Power Density Between Reflector and Ground					12.169	mW/cm sq	Potential Hazard
Far Field Off Axis (WF)					0.133	mW/cm sq	Meets ANSI Requirements
Near Field Off Axis (WN)					0.316	mW/cm sq	Meets ANSI Requirements

Conclusion: Based on the above analysis, harmful areas of Radiation do exist in the areas around the antenna and in the path of the antenna toward the satellite that it is pointed at. The Area occupied by the general public will not exceed the ANSI limit of 1mW cm sq. becuase the antenna is mounted on top of the truck, which is at least 8 feet above the ground, and safety increases with look angles used by the Satellites in the United States on Dom. Sat. arch. The areas on the ground and behind the antenna are 100 times less power (20dB) when at a min. of the dia. of the reflector. This is reflected in the Off Axis figures as seen above (WF) & (WN). The SNG will be marked with the standard radiation hazard warnings, and on the antenna itself. The warning signs will warn personnel to avoid the area around and in front of the reflector when the transmitter is operating. To ensure compliance with safety limits, the earth station transmitter will be turned off and marked to remain off whenever maintenance and repair personnel are required to work in the areas of potential hazard as defined in the above study. Additionally, the earth station personnel will be trained to ensure that the antenna path is clear at all times while the transmitter is in operation. The only access to the roof of the truck is a ladder that will be protected by a padlocked cover, which will only be unlocked when the transmitter is off, and not accessible by the general public.

Note: See Exhibit #Ba for how the above calculations were made.

Exhibit Ba Analysis on Non-Ionizing Radiation

Antenna Diameter, (D) =	D: = 1.35 meters	D*3.281 =	4.429	Feet
Antenna Surface Area, (Sa) =	Sa: = $\pi * \frac{D*D}{4}$	Sa =	1.431	sq meters
Subreflector Diameter, (Ds) =	Ds: = 0 cm	Ds*.3937	0.000	Inches
Area of Subreflector, (As) =	As: = $\pi * \frac{Ds*Ds}{4}$	As=	0.000	sq meters
Center Frequency, (Cf) =	Cf: = 14.250 GHz			
Wavelength at (Cf), (Lambda) =	Lambda = 0.021 meters C-Band = .049 Ku-Band = .0211			
Tansmit Power at HPA or VPC Flange, (P1) =	P1= 200.00 watts			
	P2:=log(p1)*10	P2=	23.010	dB
Path Loss from HPA or VPC to OMT, (IL) =	Loss: = 0.6			
	P3:= P2-Loss	P3=	22.410	OMT Pwr in dB
	P:= $10^{\frac{P3}{10}}$	P=	174.193	OMT Pwr in watts
Antenna Gain at (Cf), (Gain) =	Gain: = 44.10 dBi			
Antenna Gain Converted to Power Ratio (Ges)=	Ges: = $10^{\frac{Gain}{10}}$	Ges =	2.57E+04	Ratio
Antenna Aperture Efficiency, (n) =	n: = 0.6500			

Far Field (Rf) =	Rf= $\frac{.60 * (D*D)}{Lambda}$	Rf = Rf*3.281=	51.825 170.037	meters feet
Far Field Power Density (Wf) =	Wf= $\frac{Ges*P}{4* \pi * (Rf*Rf)}$ * .1	Wf =	13.266	mw sq cm
Near Field (Rn) =	Rn= $\frac{(D*D)}{4*Lambda}$	Rn= Rf*3.281=	21.594 70.849	meters feet
Near Field Power Density (Wn) =	Wn= $\frac{16*n*P}{\pi * (D*D)}$ * .1	Wn =	31.641	mw sq cm
Transition Region (Rt) =	Rt = Wn*1	Rt=	31.641	mw sq cm (Equal to or less than)
Pwr Density at Sub Reflector (Ws) =	Ws= $\frac{2*P}{As}$ *1000	Ws =	N/A	
Main Reflector Region Pwr Density (Wm) =	Wm= $\frac{2*P}{Sa}$ *.1	Wm =	24.339	mw sq cm
Pwr Density between main reflector and ground (Wg) =	Wg= $\frac{P}{Sa}$ *.1	Wg =	12.169	mw sq cm
Far Field Off Axis (WF) =	WF:= Wf*.01	WF =	0.133	mw sq cm
Near Field Off Axis (WN) =	WN:= Wn*.01	WN =	0.316	mw sq cm