RF RADIATION HAZARD ANALYSIS
Exhibit #B

Antenna Dia. (D)=1.2 Meters 3.937 Feet
Antenna Surface Area (SA)=1.131 sq meters
Subreflector Dia. (DS)=N/A (prime focus offset)
Subreflector Surface Area (AS)=N/A (prime focus offset)
KU Wavelength at 14.250 GHz (LAMBDA)=.0211 meters
Power at output of HPA flange=19.294 dB
Path Loss to OMT (IL)=.55 dB
Power at OMT Flange (P)=74.889 watts
Antenna Gain at 14.250 GHz (G)=43.5 dBi
Antenna Gain given in Power Ratio (GES)=2.239E+04
Antenna Aperture Efficiency (N)=.6981

Region	Radiation Level	Hazard Assessment
Far Field (RF) 40.948 m 134.35 ft	7.957 mW/cm sq	Potential Hazard
Near Field (WF) 17.062m 55.979 ft	18.49 mW/cm sq	Potential Hazard
Transition Region (RT) Ru<Rt<Rf	equal to or less than 18.49 mW/cm sq	Potential Hazard
Between Main Reflector and Subreflector (WS)	N/A	
Main Reflector Region (WM)	13.243 mW/cm sq	Potential Hazard
Power Density Between Reflector and Ground	6.622 mW/cm sq	Potential Hazard

Conclusion: Based on the above analysis, harmful areas of Radiation do exist in 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 1 mW cm sq. because 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 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 insure that the antenna path is clear at all times while the transmitter is in operation

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

Exhibit Ba Analysis of Non-Ionizing Radiation

Antenna Diameter, (D)=................................	$D := 1.2$ meters	$D \cdot 3.281 = 3.937$ Feet
Antenna Surface Area, (Sa)=	$Sa := \pi \cdot \frac{D \cdot D}{4}$	$Sa = 1.131$ sq meters
Subreflector Diameter, (Ds)=.........................	$Ds := 0$ cm	$Ds \cdot .3937 = 0$ Inch's
Area of Subreflector, (As)=............................	$As := \pi \cdot \frac{Ds \cdot Ds}{4}$	$As = 0$ sq cm
Center Frequency, (Cf)=................................	$CF := 14.250$ GHz	
Wavelenght at (Cf), (Lambda)=......................	$Lambda := .0211$ meters C-Band=.049 Ku-Band=.0211	
Transmit Power at HPA or VPC Flange, (P1)=..	$P1 := 80$ watts $P2 := \log(P1) \cdot 10$	$P2 = 19.031$dB
Path Loss from HPA or VPC to OMT, (Loss)=..	$Loss := .55$ dB	
Power at OMT, (P)=......................................	$P3 := P2 - Loss$ $P := 10^{\frac{P3}{10}}$	$P3 = 18.481$ OMT Pwr in dB $P = 70.484$ OMT Pwr in watts
Antenna Gain at (Cf), (Gain)=.........................	$Gain := 43.5$ dBi	
Antenna Gain Converted to Power Ratio, (Ges).	$Ges := 10^{\frac{Gain}{10}}$	$Ges = 2.239 \cdot 10^{4}$ Ratio
Antenna Aperture Efficiency, (n)=....................	$n := .6981$	

Far Field (Rf)= $Rf := \frac{.60 \cdot (D \cdot D)}{Lambda}$ $Rf = 40.948$ meters $Rf \cdot 3.281 = 134.35$ Feet

Far Field Pwr Density (Wf)= $Wf := \frac{Ges \cdot P}{4 \cdot \pi \cdot (Rf \cdot Rf)} \cdot .1$ $Wf = 7.489$ mw sq cm

Near Field (Rn)= $Rn := \frac{D \cdot D}{4 \cdot Lambda}$ $Rn = 17.062$ meters $Rn \cdot 3.281 = 55.979$ Feet

Near Field Pwr Density (Wn)= $Wn := \frac{16 \cdot n \cdot P}{\pi \cdot (D \cdot D)} \cdot .1$ $Wn = 17.403$ mw sq cm

Transition Region (Rt)= $Rt := Wn \cdot 1$ $Rt = 17.403$ mw sq cm (Equal to or less then)

Pwr Density at Sub Reflector (Ws)= N/A (no sub reflector) mw sq cm

Main Reflector Region Pwr Density (Wm)= $Wm := \frac{2 \cdot P}{Sa} \cdot .1$ $Wm = 12.464$ mw sq cm

Pwr Density between main reflector and ground (Wg)= $Wg := \frac{P}{Sa} \cdot .1$ $Wg = 6.232$ mw sq cm