EXHHIBIT B
RF RADIATION HAZARD ANALYSIS

Antenna Dia. (D) = 1.8 M
Antenna Surface Area (SA) = 2.54 M²
KU Wavelength at 14.250 GHz (λ) = 0.0211 M
Power at output of HPA flange (P2) = 20.97 dB
Path Loss to OMT (IL) = 0.6 dB
Power at OMT Flange (P) = 108.87 watts
Antenna Gain at 14.250 GHz (G) = 46.7 dBi (2 port antenna gain)
Antenna Gain given in Power Ratio (Ges) = 4.677E+04
Antenna Aperture Efficiency (N) = 0.6484

Region	**Distance**	**Radiation Level**	**Hazard Assessment**
Far Field (Wf)	(Rf) 92.13 m	3.97 mw/cm²	Potenial Hazard
Near Field (Wn)	(Rn) 38.4 m	11.1 mw/cm²	Potenial Hazard
Transistion Region	Rn<(Rt)<Rf	≤ 11.1 mw/cm²	Potenial Hazard
Main Reflector (Wm)		8.56 mw/cm²	Potenial Hazard
Power Density between Reflector and Ground (Wg)		4.28 mw/cm²	Potenial Hazard
Far Field Off Axis (WF)		0.0397 mw/cm²	Meets ANSI
Near Field Off Axis (WN)		0.111 mw/cm²	Meets ANSI

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 10 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 (20 dB) 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 insure 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 stored ladder which will only be used 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 OF NON-IONIZING RADIATION

Antenna Diameter (D) = 1.8 M

Anatenna Surface Area (Sa) = $\pi\left[\frac{D^2}{4}\right]$ = 2.54 Sq M

Center Frequency (Cf) = 14.25 GHz

Wavelength at Center Frequency (λ) = 0.0211 M

Maximum Transmit Power in Watts (P1) = 125 W

Maximum Transmit Power in dB (P2) = 10Log(P1) = 20.97 dB

W/G loss from Transmitter to Feed, (IL) = 0.6 dB

Total Feed Input Power in dB (P3) = P2-Loss = 20.369 dB

Total Feed Input Power in Watts (P) = $10^{P3/10}$ = 108.87 W

Antenna Isotropic Gain (G) = 46.7 dBi

Antenna Gain Converted to Power Ratio (Ges) = $10^{G/10}$ = 46773

Antenna Nominal Efficiency (N) = 0.6484

Far Field (Rf) = $\frac{0.6(D^2)}{\lambda}$ = 92.13 M

Far Field Power Density (Wf) = $\frac{Ges(P)}{4\pi(Rf)^2}$ = 3.97 mw/cm²

Near Field (Rn) = $\frac{D^2}{4\lambda}$ = 38.4 M

Near Field Power Density (Wn) = $\left[\frac{16N(P)}{\pi(D^2)}\right]0.1$ = 11.1 mw/cm²

Transistion Region (Rt) = Wn = 11.1 mw/cm²

Main Reflector Region Power Density (Wm) = $\left[\frac{2P}{Sa}\right]0.1$ = 8.56 mw/cm²

Power Density between Main Reflector and Ground (Wg) = $\left[\frac{P}{Sa}\right]0.1$ = 4.28 mw/cm²

Far Field Off Axis (WF) = Wf(0.01) = 0.0397 mw/cm²

Near Field Off Axis (WN) = Wn(0.01) = 0.111 mw/cm²