

RF RADIATION HAZARD ANALYSIS

Exhibit #B

Antenna Diameter, (D) = 2.4 meters / 7.874 Feet
Antenna Surface Area, (Sa) = 4.524 sq meters
Subreflector Diameter, (Ds) = 0 centimeters
KU Wavelength at 14.25 GHz (LAMBDA) = 0.0211 meters
Power at output of VPC flange = 27.44 dB
Path Loss to OMT (IL) = 0.6 dB
Power at OMT, (P) = 480.84 Watts
Antenna Gain at 14.250 GHz, (G)= 49.2 dBi (2 port antenna gain)
Antenna Gain given in Power Ratio, (Ges) = 8.318E+04
Antenna Aperture Efficiency (N) = 0.698

Region	Radiation Level	Hazard Assessment
Far Field, (Rf) = 163.791 meters / 537.4 Feet	11.863 mW/cm sq	Potential Hazard
Near Field, (Wf) = 68.246 meters / 223.917 Feet	29.685 mW/cm sq	Potential Hazard
Transition Region (Rt) Ru<Rt<Rf	equal to or less than 29.685 mW/cm sq	Potential Hazard
Between Main Reflector and Subreflector (Ws)	N/A (no subreflector)	
Main Reflector Region (Wm)	21.258 mW/cm sq	Potential Hazard
Power Density Between Reflector and Ground	10.629 mW/cm sq	Potential Hazard
Far Field Off Axis (WF)	0.119 mW/cm sq	Meets ANSI Requirements
Near Field Off Axis (WN)	0.297 mW/cm sq	Meets ANSI Requirements

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 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 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.