

RF RADIATION HAZARD ANALYSIS

Exhibit #B

Antenna Diameter, (D) =	1.5 meters /	4.9215 Feet
Antenna Surface Area (Sa) =	1.7671 sq meters	
Subreflector Diameter (Ds) =	0.0000 centimeters	
Ku Wavelength at 14.250 GHz (LAMBDA) =	0.0211 meters	
Power output of VPC Flange=	20.969 dB	
Path Loss to OMT (IL) =	0.6 dB	
Power at OMT, (P) =	108.87 Watts	
Antenna Gain at 14.250GHz (G) =	45.90 dBi (2 port antenna gain)	
Antenna Gain given in Power Ration, (Ges) =	3.89E+04	
Antenna Aperture Efficiency (N) =	0.650	

<u>Region</u>			<u>Radition Level</u>		<u>Hazard Assessment</u>
Far Field, (Rf) =	63.981 meters /	209.92 Feet	8.234	mW/cm sq	Potential Hazard
Near Field, (Wf) =	26.659 meters /	87.467 Feet	16.018	mW/cm sq	Potential Hazard
Transition Region (Rt)			equal to or less than		
Ru<Rt<Rf			16.018	mW/cm sq	Potential Hazard
Between Main Reflector and Subreflector (Ws)			N/A (no subreflector)		
Main Reflector Region (Wm)			12.322	mW/cm sq	Potential Hazard
Power Density Between Reflector and Ground			6.161	mW/cm sq	Potential Hazard
Far Field Off Axis (WF)			0.082	mW/cm sq	Meets ANSI Requirements
Near Field Off Axis (WN)			0.160	mW/cm sq	Potential Hazard

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. 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 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 is not accessible by the general public.

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