RF RADIATION HAZARD ANALYSIS
Exhibit A

Antenna Dia. (D) = 2.4 Meters (7.874 feet)
Antenna Surface Area (SA) = 4.523893 meters^2
Subreflector Dia. (DS) = 51.435 cm 20.25 inches
Subreflector Surface Area (AS) = 2077.817 cm^2
KU Wavelenght at 14.250 Ghz (.)= 0.0211 meters
Power at output of VPC flange = 28.129 dB
Path Loss to OMT (IL) = 1.1 dB
Power at OMT Flange (P) = 504.561 watts
Antenna Gain at 14.250 Ghz (G) = 49.4 dBi
Antenna Gain given in Power Ratio (GES) = 0.87096E+05
Antenna Aperture Efficiency (N)=0.679

Region	**Radiation Level**	**Hazard Assessment**
Far Field (RF) 163.79 m (537.368 ft)	13.035 mW/cm^2	Potential Hazard
Near Field (WF) 68.24 m (223.917 ft)	30.292 mW/cm^2	Potential Hazard
Transition Region (RT) Ru<Rt<Rf	.30.292 mW/cm^2	Potential Hazard
Between Main Reflector and Subreflector (WS)	485.664 mW/cm^2	Potential Hazard
Main reflector Region (WM)	22.306 mW/cm^2	Potential Hazard
Power Density Between Reflector and ground	11.153 mW/cm^2	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 pointed toward the satellite. The area occupied by the general public will not exceed the ANSI limit of 1.0 mW/cm^2 because the antenna is mounted on top of the truck, which is at lease 10 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. The only access to the roof of the truck, is a stored ladder which will only be used when the transmitter is off. Therefore, the roof is not accessible to the general public. See Page 2 for calculations.

RF RADIATION HAZARD ANALYSIS
Exhibit A
Page 2

Analysis of Non-Ionizing Radiation

Antenna Diameter, (D) =	D = 2.4 meters (7.874 ft)
Antenna Surface Area, (Sa) =	Sa = . $D^2/4$ = 4.524 meters^2
Subreflector Diameter, (Ds) =	Ds = 51.435 cm (20.25 inches)
Area of Subreflector, (As) =	As = . $Ds^2/4$ = 2.078x10^3 cm^2
Center Frequency, (Cf) =	Cf = 14.250 GHz
Wavelength at (Cf), (.) =	. = 0.0211 meters
	C-Band=0.049 Ku-Band=0.0211
Transmit Power at HPA or VPC Flange, (P1) =	P1=650 watts, P2=log(P1) *10 = 28.129 dB
Path Loss from HPA or VPC to OMT, (Loss) =	Loss = 1.1 dB
	P3=P2-Loss, P3=27.029, OMT Pwr in dB
Power at OMN, (P) =	P = $10^{P3/10}$= 504.561, OMT Pwr in watts
Antenna Gain at (Cf), (Gain) =	Gain = 49.4 dBi
Antenna Gain Converted to Power Ratio, (Ges) =	Ges = $10^{Gain/10}$=8.71x10^4, Ratio
Antenna Aperture Efficiency, (n) =	n = 0.679

Far Field (Rf) =	Rf = 0.60 (D^2)/. = 163.791 meters (537.4 ft)
Far Field Pwr Density (Wf) =	Wf = [Ges x P/4. (Rf^2)] x 0.1 = 13.035 mw/cm^2
Near Field (Rn) =	Rn = D^2/4. = 68.246 meters (223.917 ft)
Near Field Pwr Density (Wn) =	Wn = [(16 x n x P)/.D^2]x0.1=30.292 mw/cm^2
Transition Region (Rt) =	Rt . 30.292 mw/cm^2
Pwr Density at Sub Reflector (Ws) =	Ws = [(2 x P)/As] x 1000 = 485.664 mw/cm^2
Main Reflector Region Pwr Density (Wm) =	Wm = [(2 x P)/Sa] x 0.1 = 22.306 mw/cm^2
Pwr Density between main reflector and ground (Wg) =	Wg =[P/Sa] x 0.1 = 11.153 mw/cm^2

FIGURE 1

KTVX(TV)

SALT LAKE CITY, UTAH