EXHIBIT B

Radiation Hazard Study

RADIATION HAZARD STUDY

When applying for a license to construct and operate, modify, or renew an earth station, it is understood that licensees must certify whether grant of the application will have significant environmental impact as defined in the Federal Communications Commission's (FCC) rules, 47 C.F.R., Section 1.1307.

In this report Americom Government Services, Inc. analyzes the maximum radiofrequency (RF) levels emitted from the satellite communications antenna described below. The reference document for this study is OET Bulletin No. 65, Edition 97-01, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*, August 1997.

I. Antenna Near-Field Power Density Calculation

The extent of the near-field is defined by the following equation:

$$R_{near} = (D_{ant})^2 / (4\lambda)$$

where: R_{near} = extent of the near-field (in meters)
D_{ant} = diameter of the antenna main reflector (in meters)
λ = wavelength of the RF transmit frequency (in meters)

The maximum on-axis power density within near-field is defined by the following equation:

$$S_{near} = \{(16\eta P_{feed}) / [\pi(D_{ant})^2]\} / 10$$

where: S_{near} = maximum on-axis power density within the near-field (in milliwatts per square centimeter)
η = antenna aperature efficiency
P_{feed} = maximum power into antenna feed flange (in watts)
D_{ant} = diameter of the antenna main reflector (in meters)

II. Antenna Far-Field Power Density Calculation

The distance to the beginning of the far-field region is defined by the following equation:

$$R_{far} = [0.6(D_{ant})^2] / \lambda$$

where: R_{far} = distance to beginning of far-field (in meters)
D_{ant} = diameter of the antenna main reflector (in meters)
λ = wavelength of the RF transmit frequency in (meters)

The maximum on-axis power density within the far-field is defined by the following equation:

$$S_{far} = [(P_{feed}\ G_{ant}) / 4\pi(R_{far})^2] / 10$$

where: S_{far} = maximum on-axis power density in the far-field (in milliwatts per square centimeter)
P_{feed} = maximum power into antenna feed flange (in watts)
G_{ant} = antenna main beam gain at RF transmit frequency (in watts)
R_{far} = distance to beginning of far-field (in meters)

III. Antenna Transition Region Power Density Calculation

By definition, the maximum on-axis power densitiy in the transition region will never be greater than the maximum on-axis power densities in the near-field:

$$S_{tr} \leq S_{near}$$

where: S_{tr} = maximum on-axis power density in the transition region (in milliwatts per square centimeter)
S_{near} = maximum on-axis power density in the near-field (in milliwatts per square centimeter)

IV. Antenna Feed-Flange (or Subreflector) Power Density Calculation

The maximum power density at the antenna feed-flange (or subreflector surface) is defined by the following equation:

$$S_{feed(sub)} = 1000\ \{[4(P_{feed})] / \{[\pi(D_{feed(sub)})^2\ ] / 4\}\}$$

where: $S_{feed(sub)}$ = maximum power density at the antenna feed-flange or subreflector surface (in milliwatts per square centimeter)
P_{feed} = maximum power into antenna feed flange (in watts)
$D_{feed(sub)}$ = diameter of the antenna feed-flange or subreflector (in centimeters)

V. Antenna Main Reflector Power Density Calculation

The maximum power density in the main reflector region of the antenna is defined by the following equation:

$$S_{ant} = \{[2(P_{feed})] / \{[\pi(D_{ant})^2\ ] / 4\}\} / 10$$

where: S_{ant} = maximum power density in the antenna main reflector region (in milliwatts per square centimeter)
P_{feed} = maximum power into antenna feed flange (in watts)
D_{ant} = diameter of the antenna main reflector (in meters)

VI. Power Density Calculation between the Antenna Main Reflector and the Ground

The maximum power density between the antenna main reflector and the ground is defined by the following equation:

$$S_{ground} = \{P_{feed} / \{[\pi(D_{ant})^2] / 4\}\} / 10$$

where: S_{ground} = maximum power density between the antenna main reflector and the ground (in milliwatts per square centimeter)
P_{feed} = maximum power into antenna feed flange (in watts)
D_{ant} = diameter of the antenna main reflector (in meters)

VII. Summary of Calculated Radiation Levels

Americom Government Services, Inc. understands the licensee must ensure people are not exposed to harmful levels of radiation.

Maximum permissible exposure (MPE) limits for general population/uncontrolled exposure were not considered in this analysis for several reasons. The main-beam orientation and height above ground of this highly directional antenna significantly limit exposure to the general population. Furthermore, access to SES Americom stations is limited to authorized personnel who have been appropriately briefed and advised.

MPE limits for occupational/controlled exposure, however, were considered in this analysis. It is standard practice for our technical staff to cease transmissions whenever maintenance is performed in close proximity to antenna reflector regions with potentially hazardous power density levels. Based on the results (see next page entitled “Radiation Hazard Calculations”) and our standard practices within our controlled antenna environment, the earth station operators / technicians should not be exposed to radiation levels exceeding 5 mW/cm^2 power density over a six minute averaging time.

VIII. Certification

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this radiation hazard assessment, that I have reviewed the engineering information submitted, and that it is complete and accurate to the best of my knowledge.

Maurice Najarian

Maurice Najarian
Senior Member Technical Staff

Antenna main reflector diameter	11.3	m
Feed flange (or subreflector) diameter	122.0	cm
RF transmit frequency	6.175	GHz
Maximum power into antenna feed-flange	700.00	W
Main-beam gain of antenna (at RF transmit frequency)	55.4	dBi
	346736.9	W
Antenna aperture efficiency	0.70	
Antenna main reflector surface area	100.29	m^2
Feed flange (or subreflector) surface area	11689.87	cm^2
Wavelength of the RF transmit frequency	0.049	m
Distance to beginning of far-field region	1578.02	m
Distance to extent of near-field region	657.51	m

Max. on-axis power density [far-field]	**0.776**	**mW/cm^2**	**SATISFIES MPE LIMITS**
Max. on-axis power density [near-field]	**1.954**	**mW/cm^2**	**SATISFIES MPE LIMITS**
Max. on-axis power density [transition region]	**1.954**	**mW/cm^2**	**SATISFIES MPE LIMITS**
Max. power density [feed-flange or subreflector]	**239.524**	**mW/cm^2**	**POTENTIAL HAZARD**
Max. power density [main reflector region]	**2.792**	**mW/cm^2**	**SATISFIES MPE LIMITS**
Max. power density [between main reflector and ground]	**0.698**	**mW/cm^2**	**SATISFIES MPE LIMITS**