EXHIBIT 1

Analysis of Non-Ionizing Radiation For a 2.4 Meter Earth Station System

This report analyzes the non-ionizing radiation levels for a 2.4 meter earth station system. The analysis and calculations performed in this report are in compliance with the methods described in the FCC Office of Engineering and Technology Bulletin, No. 65, first published in 1985 and revised in 1997 in Edition 97-01. The radiation safety limits used in the analysis are in conformance with FCC R&O 96-326. Bulletin No. 65 and FCC R&O 96-236 each specifies that there are two (2) separate tiers of exposure limits that are dependent on the situation in which the exposure takes place and/or the status of the individuals who are subject to the exposure. The Maximum Permissible Exposure ("MPE") limits for persons in a General Population/Uncontrolled Environment are shown in Table 1 below. The General Population/ Uncontrolled MPE is a function of transmit frequency and is for an exposure period of 30 minutes or less. The MPE limits for persons in an Occupational/Controlled environment are shown in Table 2 below. The Occupational MPE is a function of transmit frequency and is for an exposure period of six (6) minutes or less. The purpose of the analysis described in this report is to determine the power flux density levels of the earth station in the far-field, near-field, transition region, between the subreflector or feed and main reflector surface, at the main reflector surface, and between the antenna edge and the ground and to compare these levels to the specified MPEs.

Table 1. Limits for General Population/Uncontrolled Exposure (MPE)

Frequency Range (MH_Z)	Power Density (mWatts/cm**2)
30-300	0.2
300-1500	Frequency ((MH_Z) *(0.8/1200)
1500 – 100,000	1.0

Table 2. Limits for Occupational/Controlled Exposure (MPE)

Frequency Range (MH_Z)	Power Density (mWatts/cm**2)
30-300	1.0
300-1500	Frequency (MH_Z) *(4.0/1200)
1500 – 100,000	5.0

Table 3 contains the parameters that are used to calculate the various power densities for the earth stations.

Table 3. Formulas and Parameters Used for Determining Power Flux Densities

Parameter	Abbreviation	Value	Units
Antenna Diameter	D	2.4	meters
Antenna Surface Area	Sa	II * D**2/4	meters**2
Subreflector Diameter	Ds	19.0	cm
Area of Subreflector	As	II * Ds**2/4	cm**2
Frequency	Frequency	6000	MH_Z
Wavelength	lambda	300/frequency (MH_Z)	meters
Transmit Power	P	50.00	Watts
Antenna Gain	Ges	49.0	dBi
Pi	II	3.1415927	n/a
Antenna Efficiency	n	0.62	n/a

1. Far Field Distance Calculation

The distance to the beginning of the far field can be determined from the following equation: (1)

Distance to the Far Field Region, (Rf) = 0.60 * D**2 / lambda (1)
= 164.2 meters

The maximum main beam power density in the Far Field can be determined from the following equation: (2)

On-Axis Power Density in the Far Field, (Wf) = Ges * P / 4 * II * / Rf**2 (2)
= 3.771 Watts/meters**2
= 0.377 mWatts/cm**2

2. Near Field Calculation

Power flux density is considered to be at a maximum value throughout the entire length of the defined Near Field region. The region is contained within a cylindrical volume having the same diameter as the antenna. Past the boundary of the Near Field region, the power density from the antenna decreases linearly with respect to increasing distance.

The distance to the end of the Near Field can be determined from the following equation: (3)

Extent of the Near Field, (Rn) = D**2 / (4 * lambda) (3)
= 68.4. meters

The maximum power density in the Near Field can be determined from the following equation: (4)

Near Field Power Density, (Wn) = 16.0 * n * P / II * D**2 (4)
= 27.41 Watts/meters**2
= 2.741 mWatts/cm**2

3. Transition Region Calculations

The Transition region is located between the Near and Far Field regions. As stated in Section 2 above, the power density begins to decrease linearly with increasing distance in the Transition region. While the power density decreases inversely with distance in the Transition region, the power density decreases inversely with the square of the distance in the Far Field region. The maximum power density in the Transition region will not exceed that calculated for the Near Field region. The power density calculated in Section 1 above is the highest power density that the antenna can produce in any of the regions away from the antenna. The power density at a distance Rt can be determined from the following equation: (5)

Transition region Power Density, (Tt) = Wn * Rn / Rt (5)

4. Region between Main Reflector and Subreflector

Transmissions from the feed assembly are directed toward the subreflector surface and are reflected back toward the main reflector. The most common feed assemblies are waveguide flanges, horns or subreflectors. The energy between the subreflector and the reflector surfaces can be calculated by determining the power density at the subreflector surface. This calculation can be determined from the following equation: (6)

Power Density at Feed Flange, (Ws) = 4 * P / As (6)
= 44.2 mWatts/cm**2

5. Main Reflector Region

The power density in the main reflector is determined in the same manner as the power density at the subreflector, in Section 4 above, but the area is now the area of the main reflector aperture and can be determined from the following equation: (7)

Power Density at the Main Reflector Surface, (Wm) = 4 * P / Sa (7)
= 14.147 Watts/meters**2
= 1.415 mWatts/cm**2

6. Region between Main Reflector and Ground

Assuming uniform illumination of the reflector surface, the power density between the antenna and ground can be determined from the following equation: (8)

Power Density between Reflector and Ground, (Wg) = P / Sa (8)
= 3.537 Watts/meters**2
= 0.354 mWatts/cm**2

Table 4. Summary of Expected Radiation levels for Uncontrolled Environment

Region	Calculated Maximum Power Density Level	Radiation (mWatts/cm**2)	Hazard Assessment
1. Far Field (Rf)	= 164.2 meters	0.377	Satisfies FCC MPE
2. Near Field (Rn)	= 68.4 meters	2.741	Satisfies FCC MPE
3. Transition Region Rn <Rt < Rf, (Rt)		2.741	Satisfies FCC MPE
4. Between Main Reflector and Subreflector		44.2	Potential Hazard
5. Main Reflector		1.415	Potential Hazard
6. Between Main Reflector and Ground		0.354	Satisfies FCC MPE

Table 5. Summary of Expected Radiation levels for Controlled Environment

Region	Calculated Maximum Power Density Level	Radiation (mWatts/cm**2)	Hazard Assessment
1. Far Field (Rf)	= 164.2 meters	0.377	Satisfies FCC MPE
2. Near Field (Rn)	= 68.4meters	2.741	Satisfies FCC MPE
3. Transition Region Rn < Rt, < Rf, (Rt)		2.741	Satisfies FCC MPE
4. Between Main Reflector and Subreflector		44.1	Potential Hazard
5. Main Reflector		1.415	Satisfies FCC MPE
6. Between Main Reflector and Ground		0.354	Satisfies FCC MPE

It is the responsibility of Schlumberger Technology Corporation to ensure that public and operational personnel are not exposed to harmful levels of radiation.