EXHIBIT

By this application, Intelsat LLC seeks an experimental license to test a prototype interface for a satellite system. This license will replace the special temporary authority, 0597-EX-ST-2004, issued under call sign WC9XAE. In support of this request, the following information is provided:

Applicant:

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Purpose of License:

The experimental license is requested to enable Intelsat to test a prototype interface between a satellite modem and an antenna. The antenna to be used — an AL 7104 System manufactured by Orbit CT&T Inc. — is described in the attached materials. The interface program will allow the antenna to track to a desired satellite upon a certain command from the modem based on geographic location coordinates. This feature on the modem can potentially be used for mobile applications.

Place of Operation:

Clarksburg Teleport, Intelsat Global Services Corporation
22021 Comsat Drive
Clarksburg, Maryland 20871

North Latitude 39 deg 12 min 55.0 sec
West Longitude 077 deg 16 min 30.0 sec
Datum: NAD83

Number of Units:

1 fixed base transmit/receive earth station accessing satellites Intelsat 905 and 903 at 325.5 and 335.5 degrees East.

Technical Specifications:

Frequencies:	10950-11200 MHz (Receive) 11450-11700 MHz (Receive) 14000-14500 MHz (Transmit)
Transmit Power Levels:	Effective Isotropic Radiated Power (EIRP): 53.2 dBW - Maximum Transmitter Power Output (TPO): 6 Watts Effective Radiated Power (ERP): 96229.261 Watts – Peak
Necessary Bandwidth:	Not greater than 598 kHz
Modulation:	Digital QPSK
Emission Designator:	598KG7W

Other emission modes may be utilized, but in no event will the emissions extend beyond the frequency bands requested. All power levels will comply with the limits set forth in the FCC's rules, including those relating to human exposure to radiation. See attached report.

Antenna Information:

The antennas will not extend more than 6 meters above the ground or, if mounted on an existing building, will not extend more than 6 meters above the building. If the antennas are mounted on an existing structure other than a building, they will be installed in accordance with FAA and FCC rules and regulations.

Equipment To Be Used:

The development and live-via-satellite testing of this feature will require the use of a transmit/receive antenna that will be installed at Intelsat's teleport at Clarksburg, Maryland, and will have access to two of Intelsat's satellites at orbital locations 325.5 and 335.5 degrees East. The testing and development will be done at Intelsat's facilities and under Intelsat's control.

Restrictions on Operation:

Intelsat recognizes that the operation of any equipment under experimental authority must not cause harmful interference to authorized facilities. It therefore will coordinate its activities with any licensees in the proposed bands in accordance with FCC requirements. Should interference occur, Intelsat will take immediate steps to resolve the interference, including if necessary arranging for the discontinuance of operation.

Intelsat does not propose to market, sell, or lease any prototype equipment to end-users. After the experimentation ceases, Intelsat would recall and recover any device that are not in compliance with FCC regulations. If any different treatment becomes necessary during the course of its experimentation, Intelsat will seek separate and additional authority from the agency.

In addition, Intelsat will advise entities testing the equipment that permission to operate has been granted under experimental authority issued to Intelsat, that such operation is strictly temporary, and that the equipment may not cause harmful interference. Intelsat proposes to label the equipment or associated written information as follows:

FCC STATEMENT

Permission to operate this device has been granted under experimental authority issued by the Federal Communications Commission to Intelsat LLC is strictly temporary and may be cancelled at any time. Operation is subject to the condition that it not cause harmful interference. This device is not, and may not be, offered for sale or sold until the approval of the FCC has been obtained. Thus, the user does not hold a property right in the device and may be required to return the device.

Analysis of Non-Ionizing Radiation for a 1.2-Meter Earth Station System

This report analyzes the non-ionizing radiation levels for a 1.2-meter earth station system. The analysis and calculations performed in this report comply 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 the FCC R&O 96-326. Bulletin No. 65 and the FCC R&O specifies that there are two separate tiers of exposure limits that are dependant 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. The General Population/Uncontrolled MPE is a function of transmit frequency and is for an exposure period of thirty minutes or less. The MPE limits for persons in an Occupational/Controlled environment are shown in Table 2. The Occupational MPE is a function of transmit frequency and is for an exposure period of six 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 (MHz)	Power Density (mW/cm^2)
30-300	0.2
300-1500	Frequency (MHz)*(0.8/1200)
1500-100,000	1.0

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

Frequency Range (MHz)	Power Density (mW/cm^2)
30-300	1.0
300-1500	Frequency (MHz)*(4.0/1200)
1500-100,000	5.0

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

Parameter	Symbol	Formula	Value	Units
Antenna Diameter	D	Input	1.2	m
Antenna Surface Area	$A_{surface}$	$\pi D^2 / 4$	1.13	m^2
Subreflector Diameter	D_{sr}	Input	22.5	cm
Area of Subreflector	A_{sr}	$\pi D_{sr}{}^2/4$	397.61	cm^2
Frequency	F	Input	14250	MHz
Wavelength	λ	$300 / F$	0.021053	m
Transmit Power	P	Input	6.00	W
Antenna Gain (dBi)	G_{es}	Input	44.2	dBi
Antenna Gain (factor)	G	$10^{Ges/10}$	26302.7	n/a
Pi	π	Constant	3.1415927	n/a
Antenna Efficiency	η	$G\lambda^2/(\pi^2D^2)$	0.82	n/a

1. Far Field Distance Calculation

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

Distance to the Far Field Region $R_{ff} = 0.60\ D^2 / \lambda$ (1)
$= 41.0$ m

The maximum main beam power density in the far field can be determined from the following equation:

On-Axis Power Density in the Far Field $S_{ff} = G\ P / (4\ \pi\ R_{ff}^{\ 2})$ (2)
$= 7.456\ W/m^2$
$= 0.746\ mW/cm^2$

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:

Extent of the Near Field $R_{nf} = D^2 / (4\ \lambda)$ (3)
$= 17.1$ m

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

Near Field Power Density $S_{nf} = 16.0\ \eta\ P / (\pi\ D^2)$ (4)
$= 17.406\ W/m^2$
$= 1.741\ mW/cm^2$

3. Transition Region Calculation

The Transition region is located between the Near and Far Field regions. 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 is the highest power density the antenna can produce in any of the regions away from the antenna. The power density at a distance R_t can be determined from the following equation:

Transition Region Power Density $S_t = S_{nf}\ R_{nf} / R_t$ (5)
$= 1.741\ mW/cm^2$

4. Region between the Main Reflector and the 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 can be determined from the following equation:

Power Density at the Subreflector $S_{sr} = 4000\ P / A_{sr}$ (6)
$= 60.361\ mW/cm^2$

5. Main Reflector Region

The power density in the main reflector is determined in the same manner as the power density at the subreflector. The area is now the area of the main reflector aperture and can be determined from the following equation:

Power Density at the Main Reflector Surface $S_{surface} = 4\ P / A_{surface}$ (7)
$= 21.221\ W/m^2$
$= 2.122\ mW/cm^2$

6. Region between the Main Reflector and the Ground

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

Power Density between Reflector and Ground $S_g = P / A_{surface}$ (8)
$= 5.305\ W/m^2$
$= 0.531\ mW/cm^2$

7. Summary of Calculations

Table 4. Summary of Expected Radiation levels for Uncontrolled Environment

Region	**Calculated Maximum Radiation Power Density Level (mW/cm^2)**		**Hazard Assessment**
1. Far Field (R_{ff} = 41.0 m)	S_{ff}	0.746	Satisfies FCC MPE
2. Near Field (R_{nf} = 17.1 m)	S_{nf}	1.741	Potential Hazard
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	1.741	Potential Hazard
4. Between Main Reflector and Subreflector	S_{sr}	60.361	Potential Hazard
5. Main Reflector	$S_{surface}$	2.122	Potential Hazard
6. Between Main Reflector and Ground	S_g	0.531	Satisfies FCC MPE

Table 5. Summary of Expected Radiation levels for Controlled Environment

Region	Calculated Maximum Radiation Power Density Level (mW/cm^2)		Hazard Assessment
1. Far Field (R_{ff} = 41.0 m)	S_{ff}	0.746	Satisfies FCC MPE
2. Near Field (R_{nf} = 17.1 m)	S_{nf}	1.741	Satisfies FCC MPE
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	1.741	Satisfies FCC MPE
4. Between Main Reflector and Subreflector	S_{sr}	60.361	Potential Hazard
5. Main Reflector	$S_{surface}$	2.122	Satisfies FCC MPE
6. Between Main Reflector and Ground	S_g	0.531	Satisfies FCC MPE

It is the applicant's responsibility to ensure that the public and operational personnel are not exposed to harmful levels of radiation.

8. Conclusions

Based on the above analysis it is concluded that the FCC MPE guidelines have been exceeded (or met) in the regions of Table 4 and 5. The applicant proposes to comply with the MPE limits by one or more of the following methods.

Means of Compliance Uncontrolled Areas

This antenna will be located in a fenced area. The fenced are will be sufficient to prohibit the general public from having access the areas that exceed the MPE limits

Since one diameter removed from the main beam of the antenna or ½ diameter removed from the edge of the antenna the RF levels are reduced by a factor of 100 or 20 dB. None of the areas exceeding the MPE levels will be accessible by the general public.

Radiation hazard signs will be posted while this earth station is in operation.

The applicant will ensure that no buildings or other obstacles will be in the areas that exceed the MPE levels.

Means of Compliance Controlled Areas

The earth station’s operational personnel will not have access to the areas that exceed the MPE levels while the earth station is in operation.

The transmitters will be turned off during antenna maintenance.