EXHIBIT A

INTELSAT NORTH AMERICA LLC

SPECIAL TEMPORARY AUTHORITY REQUEST

NEW 9.2m KA-BAND EARTH STATION

RIVERSIDE, CALIFORNIA

December 4, 2009

Exhibit A

Response to Form 312, Question 43

Intelsat North America LLC ("Intelsat") requests Special Temporary Authority ("STA") to test a new 9.2m Ka-band antenna that will be located at its existing Riverside, CA teleport. Intelsat requests this STA for a period of 30 days, beginning March 22, 2010.

During testing, the Ka-band antenna will transmit in the band 29500-30000 MHz and receive in the band 19700-20200 MHz. During testing, the antenna will communicate with Galaxy 28 at 89° W.L. Galaxy 28 will be used for antenna gain patterns verification – transmit and receive in both azimuth and elevation in both polarizations (linear and circular) -- and for cross-polarization patterns verification. The relevant technical parameters are captured in FCC Form 312, Schedule B, which is included as Exhibit B.

Representative antenna patterns from the manufacturer are provided as Exhibit C. As demonstrated by the antenna manufacturer's measurements, the antenna complies with the antenna gain patterns specified in Section 25.209(a) and (b). Further, the proposed parameters for testing the new antenna are in compliance with the off-axis EIRP density mask of 25.138.

A new radiation hazard report is included as Exhibit D.

The proposed antenna is exempt from notification to the FAA under Section 17.14(a) of the FCC's rules, 47 C.F.R. § 17.14(a). See also 47 C.F.R. § 25.113(c). The proposed antenna will be located in the existing Riverside, CA teleport and will be shielded by existing structures of a permanent and substantial character. There are several FCC-licensed earth station antennas located in the teleport at the proposed site that are at heights above ground level that are comparable to or greater than the height above ground level of the antenna proposed in the instant application. (*See e.g.,* Call Sign E060384, Call Sign E060388, and Call Sign E020314.) Under these circumstances, it is evident that the proposed antenna will not adversely affect safety in air navigation.

EXHIBIT B

INTELSAT NORTH AMERICA LLC

SPECIAL TEMPORARY AUTHORITY REQUEST

NEW 9.2m KA-BAND EARTH STATION

RIVERSIDE, CALIFORNIA

December 4, 2009

EXHIBIT B

FCC 312
Schedule B

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
(Technical and Operational Description)
(Place an "X" in one of the blocks below)

Page 1: Location

☐ License of New Station ☐ Registration of New Domestic Receive-Only Station ☐ Amendment to a Pending Application ☐ Modification of License/Registration ☐ Notification of Minor Modification

B1. Location of Earth Station Site. If temporary-fixed, mobile, or VSAT remote facility, specify area of operation and point of contact. If VSAT hub station, give its location. For VSAT networks attach individual Schedule B, Page 1 sheets for each hub station and each remote station. Individually provide the Location, Points of Communications, and Destination Points for each hub and remote station.

B1a. Station Call Sign	
B1b. Site Identifier (HUB, REMOTE1, etc.)	
B1c. Telephone Number	951.928.3446
B1d. Street Address of Station or Area of Operation	22401 Juniper Flats Road
B1e. Name of Contact Person	Dennis Nestor
B1f. City	Nuevo
B1g. County	Riverside
B1h. State	CA
B1i. Zip Code	92567
B1l. Site Elevation (AMSL)	561.75 meters

B1j. Geographic Coordinates

	Deg.	Min.	Sec.	N/S, E/W
Lat.	33	47	42.7	N
Lon.	117	05	22.5	W

B1k. Lat./Lon. Coordinates are: ☐ NAD-27 ☒ NAD-83

B2. Points of Communications: List the names and orbit locations of all satellites with which this earth station will communicate. The entry "ALSAT" is sufficient to identify the names and locations of all satellite facilities licensed by the U.S. All non-U.S. licensed satellites must be listed individually.

Satellite Name and Orbit Location	Satellite Name and Orbit Location	Satellite Name and Orbit Location
Galaxy 28 at 89W		

B3. Destination points for communications using non-U.S. licensed satellites. For each non-U.S. licensed satellite facility identified in section B2 above, specify the destination point(s) (countries) where the services will be provided by this earth station via each non-U.S. licensed satellite system. Use additional sheets as needed.

Satellite Name	List of Destination Points

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SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B: (Technical and Operational Description)

B4. Earth Station Antenna Facilities: Use additional pages as needed.

(a) Site ID*	(b) Antenna ID**	(c) Quantity	(d) Manufacturer	(e) Model	(f) Antenna Size (meters)	(g) Antenna Gain Transmit and/or Receive (____ dBi at ____ GHz)
1	1	1	General Dynamics	9.2M KaFMA	9.2	65.4 dBi @ 28.35 GHz
						62.7 dBi @ 18.30 GHz

B5. Antenna Heights and Maximum Power Limits: (The corresponding Antenna ID in tables B4 and B5 applies to the same antenna)

(a) Antenna ID**	(b) Antenna Structure Registration No.	Maximum Antenna Height		(e) Building Height Above Ground Level (meters)***	(f) Maximum Antenna Height Above Rooftop (meters)***	(g) Total Input Power at antenna flange (Watts)	(h) Total EIRP for all carriers (dBW)
		(c) Above Ground Level (meters)	(d) Above Mean Sea Level (meters)				
1		13.2	574.95			400	91.4

Notes: * If this is an application for a VSAT network, identify the site (Item B1b, Schedule B, Page 1) where each antenna is located. Also include this Site-ID on Schedule B, Page 5.
** Identify each antenna in VSAT network or multi-antenna station with a unique identifier, such as HUB, REMOTE1, A1, A2, 10M, 12M, 7M, etc. Use this same antenna ID throughout tables B4, B5, B6, and B7 when referring to the same antenna.
*** Attach sketch of site or exemption, See 47 CFR Part 17.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B: (Technical and Operational Description)

B6. Frequency Coordination Limits: Use additional pages as needed.

(a) Antenna ID*	(b) Frequency Limits (MHz)	(c) Range of Satellite Arc Eastern Limit**	(d) Range of Satellite Arc Western Limit**	(e) Antenna Elevation Angle Eastern Limit	(f) Antenna Elevation Angle Western Limit	(g) Earth Station Azimuth Angle Eastern Limit	(h) Earth Station Azimuth Angle Western Limit	(i) Maximum EIRP Density toward the Horizon (dBW/4kHz)

Notes: * Provide the ANTENNA-ID from table B4 to identify the antenna to which each frequency band and orbital arc range is associated.

** If operating with geostationary satellites, give the orbital arc limits and the associated elevation and azimuth angles. If operating with non-geostationary satellites, give the notation "NON-GEO" for the satellite arc and give the minimum operational elevation angle and the maximum azimuth angle range.

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FCC Form 312 - Schedule B: (Technical and Operational Description)

B7. Particulars of Operation (Full particulars are required for each r.f. carrier): Use additional pages as needed.

(a) Antenna ID*	(b) Frequency Bands (MHz)	(c) T/R Mode **	(d) Antenna Polarization (H,V,L,R)	(e) Emission Designator	(f) Maximum EIRP per Carrier (dBW)	(g) Maximum EIRP Density per Carrier (dBW/4kHz)	(h) Description of Modulation and Services
1	29500-30000	T	H,V,L,R	950KF2D	73	49.24	Test carrier
2	19700-20200	R	H,V,L,R	950KG7D			Test carrier

Notes: * Provide the ANTENNA-ID from table B4 to identify the antenna to which each frequency band and emission is associated. For VSAT networks, include frequencies and emissions for all HUB and REMOTE units.
** Indicate whether the earth station transmits or receives in each frequency band.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 - Schedule B: (Technical and Operational Description)

If VSAT Network, provide the SITE-ID (Item B1b) of the station that B8-B13 are in response to (HUB, REMOTE1, etc.): ____________

B8. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurements? If NO, provide as an exhibit, a technical analysis showing compliance with two-degree spacing policy.	[X] YES	[ ] NO
B9. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed Satellite Service (FSS) with non-geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a2) and (b) as demonstrated by the manufacturer's qualification measurements?	[ ] YES	[ ] NO
B10. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	[ ] YES	[X] NO

Remote Control Point Location:

B10a. Street Address			
B10b. City	B10c. County	B10d. State / Country	B10e. Zip Code
B10f. Telephone Number	B10g. Call Sign of Control Station (if appropriate)		

B11. Is frequency coordination required? If YES, attach a frequency coordination report as an exhibit.	[ ] YES	[X] NO
B12. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as an exhibit.	[ ] YES	[X] NO
B13. FAA Notification - (See 47 CFR Part 17 and 47 CFR Part 25.113(c)) **Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and/or the FAA's study regarding the potential hazard of the structure to aviation?**	[ ] YES	[X] NO

FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.

EXHIBIT C

INTELSAT NORTH AMERICA LLC

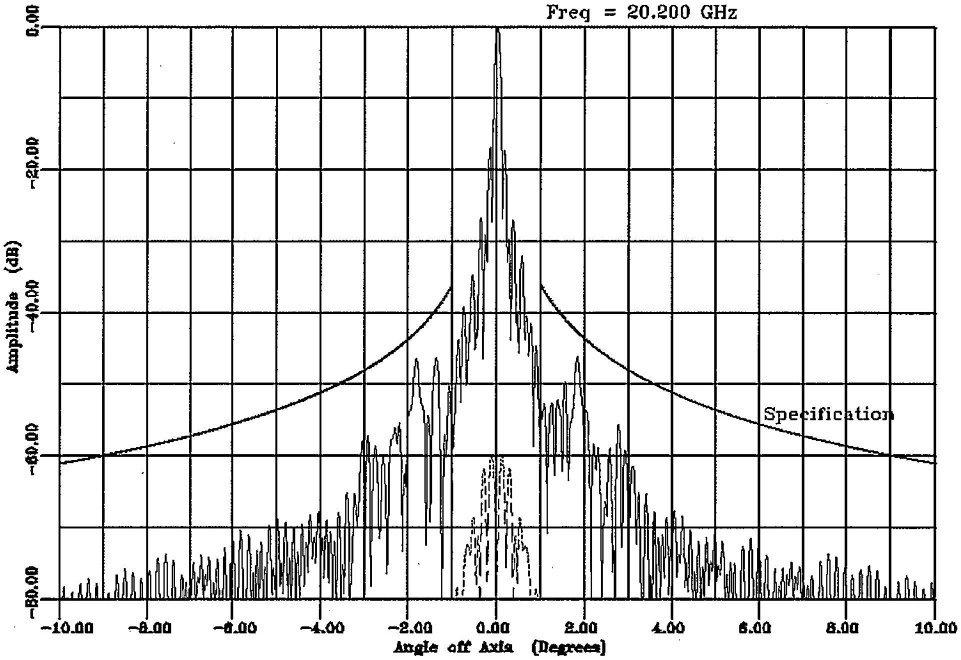
SPECIAL TEMPORARY AUTHORITY REQUEST

NEW 9.2m KA-BAND EARTH STATION

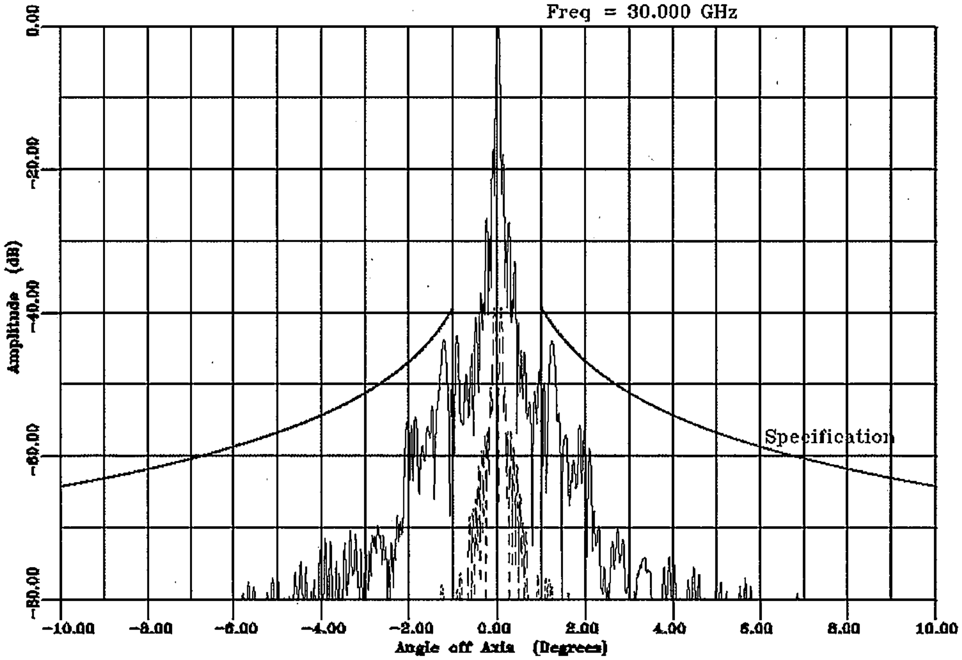
RIVERSIDE, CALIFORNIA

December 4, 2009

9 Meter High Efficiency Ka-Band Antenna
Far Field Pattern
Polarization: Right C.P.
Freq = 20.200 GHz



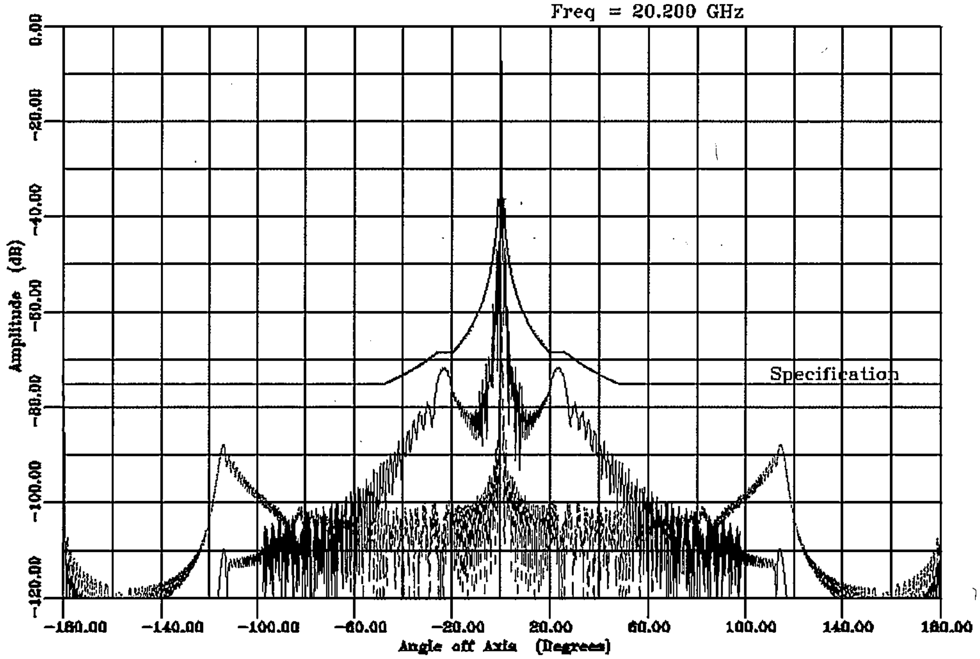
9 Meter High Efficiency Ka-Band Antenna
Far Field Pattern
Polarization: Right C.P.
Freq = 30.000 GHz



9 Meter High Efficiency Ka-Band Antenna

Far Field Pattern

Polarization: Right C.P.
Freq = 20.200 GHz



9 Meter High Efficiency Ka-Band Antenna

Far Field Pattern

Polarization: Right C.P.
Freq = 30.000 GHz

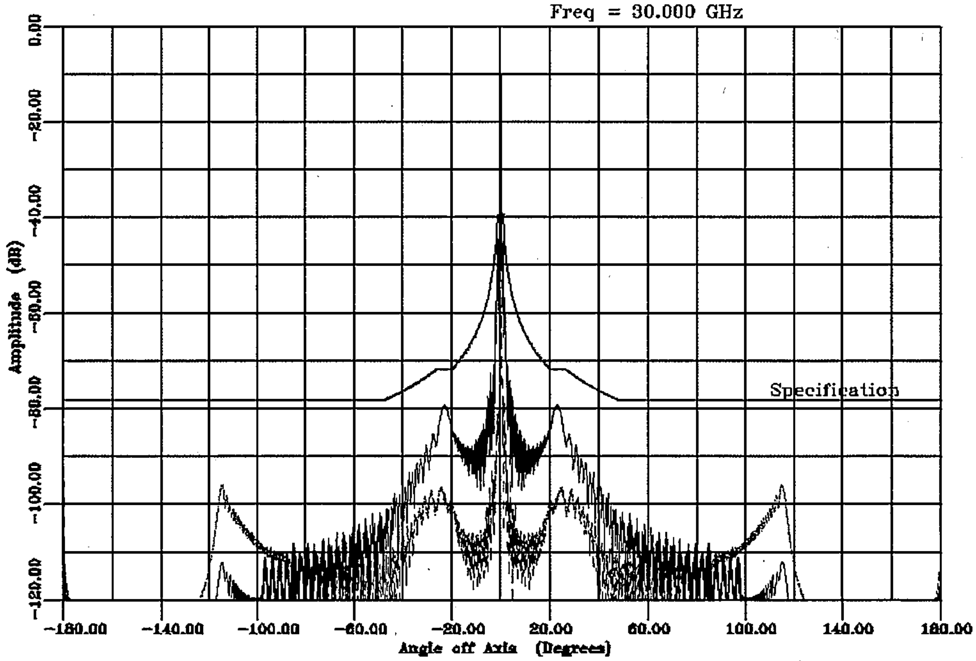


EXHIBIT D

INTELSAT NORTH AMERICA LLC

SPECIAL TEMPORARY AUTHORITY REQUEST

NEW 9.2m KA-BAND EARTH STATION

RIVERSIDE, CALIFORNIA

December 4, 2009

Analysis of Non-Ionizing Radiation for a 9.2-Meter Earth Station System

This report analyzes the non-ionizing radiation levels for a 9.2-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	9.2	m
Antenna Surface Area	$A_{surface}$	$\pi D^2 / 4$	66.48	m^2
Subreflector Diameter	D_{sr}	Input	107.5	cm
Area of Subreflector	A_{sr}	$\pi D_{sr}{}^2/4$	9076.26	cm^2
Frequency	F	Input	29500	MHz
Wavelength	λ	300 / F	0.010169	m
Transmit Power	P	Input	400.00	W
Antenna Gain (dBi)	G_{es}	Input	65.4	dBi
Antenna Gain (factor)	G	$10^{Ges/10}$	3467368.5	n/a
Pi	π	Constant	3.1415927	n/a
Antenna Efficiency	η	$G\lambda^2/(\pi^2D^2)$	0.43	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)
$= 4993.8$ 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)
$= 4.426\ W/m^2$
$= 0.443\ mW/cm^2$

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)
$= 2080.7$ 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)
$= 10.332\ W/m^2$
$= 1.033\ mW/cm^2$

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)
$= 1.033\ mW/cm^2$

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 $$S_{sr} = 4000\ P / A_{sr} = 176.284\ mW/cm^2 \quad (6)$$

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 $$S_{surface} = 4\ P / A_{surface} = 24.069\ W/m^2 = 2.407\ mW/cm^2 \quad (7)$$

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 $$S_g = P / A_{surface} = 6.017\ W/m^2 = 0.602\ mW/cm^2 \quad (8)$$

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} = 4993.8 m)	S_{ff}	0.443	Satisfies FCC MPE
2. Near Field (R_{nf} = 2080.7 m)	S_{nf}	1.033	Potential Hazard
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	1.033	Potential Hazard
4. Between Main Reflector and Subreflector	S_{sr}	176.284	Potential Hazard
5. Main Reflector	$S_{surface}$	2.407	Potential Hazard
6. Between Main Reflector and Ground	S_g	0.602	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} = 4993.8 m)	S_{ff}	0.443	Satisfies FCC MPE
2. Near Field (R_{nf} = 2080.7 m)	S_{nf}	1.033	Satisfies FCC MPE
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	1.033	Satisfies FCC MPE
4. Between Main Reflector and Subreflector	S_{sr}	176.284	Potential Hazard
5. Main Reflector	$S_{surface}$	2.407	Satisfies FCC MPE
6. Between Main Reflector and Ground	S_g	0.602	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 upon the above analysis, it is concluded that FCC RF Guidelines have been exceeded in the specified region(s) of Table 4. The applicant proposes to comply with the Maximum Permissible Exposure (MPE) limits of 1.0 mW/cm**2 for the Uncontrolled Areas, and the MPE limits of 5.0 mW/cm**2 for the Controlled Areas.

The antenna will be installed at the Applicant's teleport facility near Nuevo, California. The facility is surrounded by a fence, which will restrict any public access. The earth station will be marked with the standard radiation hazard warnings, as well as the area in the vicinity of the earth station to inform those in the general population, who might be working or otherwise present in or near the direct path of the main beam.

The applicant will ensure that the main beam of the antenna will be pointed at least one diameter away from any building, or other obstacles in those areas that exceed the MPE levels. Since one diameter removed from the center of the main beam the levels are down at least 20 dB, or by a factor of 100, these potential hazards do not exist for either the public, or for earth station personnel.

Finally, the earth station's operating personnel will not have access to areas that exceed the MPE levels, while the earth station is in operation. The transmitter will be turned off during periods of maintenance, so that the MPE standard of 5.0 mw/cm**2 will be complied with for those regions in close proximity to the main reflector, which could be occupied by operating personnel.