Speedcast Communications, Inc.

60-Day Special Temporary Authorization

Technical Appendix

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Analysis of Non-Ionizing Radiation for a 5.6-Meter Earth Station System

This report analyzes the non-ionizing radiation levels for a 5.6-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	5.6	m
Antenna Surface Area	$A_{surface}$	$\pi D^2 / 4$	24.63	m^2
Subreflector Diameter	D_{sr}	Input	56.0	cm
Area of Subreflector	A_{sr}	$\pi D_{sr}^2/4$	2463.01	cm^2
Frequency	F	Input	14250	MHz
Wavelength	λ	300 / F	0.021053	m
Transmit Power	P	Input	750.00	W
Antenna Gain (dBi)	G_{es}	Input	57.1	dBi
Antenna Gain (factor)	G	$10^{Ges/10}$	512861.4	n/a
Pi	π	Constant	3.1415927	n/a
Antenna Efficiency	η	$G\lambda^2/(\pi^2D^2)$	0.73	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

$$R_{ff} = 0.60\ D^2 / \lambda = 893.8\ \text{m} \quad (1)$$

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

$$S_{ff} = G\ P / (4\ \pi\ R_{ff}^{\ 2}) = 38.319\ \text{W/m}^2 = 3.832\ \text{mW/cm}^2 \quad (2)$$

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

$$R_{nf} = D^2 / (4\ \lambda) = 372.4\ \text{m} \quad (3)$$

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

Near Field Power Density

$$S_{nf} = 16.0\ \eta\ P / (\pi\ D^2) = 89.452\ \text{W/m}^2 = 8.945\ \text{mW/cm}^2 \quad (4)$$

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

$$S_t = S_{nf}\ R_{nf} / R_t = 8.945\ \text{mW/cm}^2 \quad (5)$$

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

$$S_{sr} = 4000\ P / A_{sr} \quad (6)$$
$$= 1218.023\ mW/cm^2$$

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

$$S_{surface} = 4\ P / A_{surface} \quad (7)$$
$$= 121.802\ W/m^2$$
$$= 12.180\ mW/cm^2$$

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

$$S_g = P / A_{surface} \quad (8)$$
$$= 30.451\ W/m^2$$
$$= 3.045\ mW/cm^2$$

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} = 893.8 m)	S_{ff}	3.832	Potential Hazard
2. Near Field (R_{nf} = 372.4 m)	S_{nf}	8.945	Potential Hazard
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	8.945	Potential Hazard
4. Between Main Reflector and Subreflector	S_{sr}	1218.023	Potential Hazard
5. Main Reflector	$S_{surface}$	12.180	Potential Hazard
6. Between Main Reflector and Ground	S_g	3.045	Potential Hazard

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} = 893.8 m)	S_{ff}	3.832	Satisfies FCC MPE
2. Near Field (R_{nf} = 372.4 m)	S_{nf}	8.945	Potential Hazard
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	8.945	Potential Hazard
4. Between Main Reflector and Subreflector	S_{sr}	1218.023	Potential Hazard
5. Main Reflector	$S_{surface}$	12.180	Potential Hazard
6. Between Main Reflector and Ground	S_g	3.045	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 harmful levels of radiation may exist in those regions noted for the Uncontrolled (Table 4) and Controlled(Table 5) Environments.

The antenna is installed at Speedcast's teleport facility in Miami, Florida. The teleport is a gated and fenced facility with secured access in and around the existing antenna. The earth station is 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.

The applicant agrees to abide by the conditions specified in Condition 5208 provided below:

> *Condition 5208 - The licensee shall take all necessary measures to ensure that the antenna does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR 1.1307(b) and 1.1310 wherever such exposures might occur. Measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Compliance can be accomplished in most cases by appropriate restrictions such as fencing. Requirements for restrictions can be determined by predictions based on calculations, modeling or by field measurements. The FCC's OET Bulletin 65 (available on-line at www.fcc.gov/oet/rfsafety) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for worker.*

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 Speedcast Communications, 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:

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

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

Speedcast Communications, 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 Speedcast station 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.

Antenna main reflector diameter	6.1	m
Feed flange (or subreflector) diameter	55.9	cm
RF transmit frequency	14.000	GHz
Maximum power into antenna feed-flange	660.00	W
Main-beam gain of antenna (at RF transmit frequency)	57.3	dBi
	538269.8	W
Antenna aperature efficiency	0.55	
Antenna main reflector surface area	29.22	m^2
Feed flange (or subreflector) surface area	2452.46	cm^2
Wavelength of the RF transmit frequency	0.021	m
Distance to beginning of far-field region	1042.58	m
Distance to extent of near-field region	434.41	m

Max. on-axis power density [far-field]	**2.60**	**mW/cm^2**	**SATISFIES MPE LIMITS**
Max. on-axis power density [near-field]	**4.97**	**mW/cm^2**	**SATISFIES MPE LIMITS**
Max. on-axis power density [transition region]	**4.97**	**mW/cm^2**	**SATISFIES MPE LIMITS**
Max. power density [feed-flange or subreflector]	**538.23**	**mW/cm^2**	**POTENTIAL HAZARD**
Max. power density [main reflector region]	**4.52**	**mW/cm^2**	**SATISFIES MPE LIMITS**
Max. power density [between main reflector and ground]	**2.26**	**mW/cm^2**	**SATISFIES MPE LIMITS**

III. Draft Form 312 Schedule B

Approved by OMB
3060-0678

Date & Time Filed:
File Number: ---

FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD - MAIN FORM FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	FCC Use Only

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
Draft form to Support STA for Two Ku Antennas

1-8. Legal Name of Applicant

Name:	Newcom International, Inc.	Phone Number:	305-627-6000
DBA Name:		Fax Number:	305-627-6001
Street:	15590 NW 15th Avenue	E-Mail:	
City:	MIAMI	State:	FL
Country:	USA	Zipcode:	33169 -
Attention:	Ryan King		

9-16. Name of Contact Representative

Name:	Carlos M. Nalda	Phone Number:	571-332-5626
Company:	LMI Advisors LLC	Fax Number:	
Street:	2550 M Street NW Suite 300	E-Mail:	cnalda@lmiadvisors.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20037-
Attention:	Carlos M. Nalda	Relationship:	Other

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.

- (•) a1. Earth Station
- ( ) a2. Space Station

- (N/A) b1. Application for License of New Station
- (N/A) b2. Application for Registration of New Domestic Receive-Only Station
- ( ) b3. Amendment to a Pending Application
- (•) b4. Modification of License or Registration
- b5. Assignment of License or Registration
- b6. Transfer of Control of License or Registration
- ( ) b7. Notification of Minor Modification
- (N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite
- (N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States
- (N/A) b10. Other (Please specify)
- (N/A) b11. Application for Earth Station to Access a Non-U.S.satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States.

17c. Is a fee submitted with this application?

- (•) If Yes, complete and attach FCC Form 159.

If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114).

- ( ) Governmental Entity
- ( ) Noncommercial educational licensee
- ( ) Other(please explain):

17d.
Fee Classification CGX - Fixed Satellite Transmit/Receive Earth Station

18. If this filing is in reference to an existing station, enter:

(a) Call sign of station:
E050018

19. If this filing is an amendment to a pending application enter both fields, if this filing is a modification please enter only the file number:

(a) Date pending application was filed: (b) File number:

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:

- [x] a. Fixed Satellite
- [ ] b. Mobile Satellite
- [ ] c. Radiodetermination Satellite
- [ ] d. Earth Exploration Satellite
- [ ] e. Direct to Home Fixed Satellite
- [ ] f. Digital Audio Radio Service
- [ ] g. Other (please specify)

21. STATUS: Choose the button next to the applicable status. Choose only one.

( ) Common Carrier (•) Non-Common Carrier

22. If earth station applicant, check all that apply.

- [x] Using U.S. licensed satellites
- [x] Using Non-U.S. licensed satellites

23. If applicant is providng INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:

( ) Connected to a Public Switched Network ( ) Not connected to a Public Switched Network (•) N/A

24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s).

- [ ] a. C-Band (4/6 GHz)
- [x] b. Ku-Band (12/14 GHz)
- [ ] c.Other (Please specify upper and lower frequencies in MHz.)

Frequency Lower: Frequency Upper: (Please specify additional frequencies in an attachment)

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

(•) a. Fixed Earth Station
( ) b. Temporary-Fixed Earth Station
( ) c. 12/14 GHz VSAT Network
( ) d. Mobile Earth Station
( ) e. Geostationary Space Station
( ) f. Non-Geostationary Space Station
( ) g. Other (please specify)

26. TYPE OF EARTH STATION FACILITY:

(•) Transmit/Receive ( ) Transmit-Only ( ) Receive-Only ( ) N/A

"For Space Station applications, select N/A."

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)

- [ ] a -- authorization to add new emission designator and related service
- [ ] b -- authorization to change emission designator and related service
- [ ] c -- authorization to increase EIRP and EIRP density
- [ ] d -- authorization to replace antenna
- [x] e -- authorization to add antenna
- [ ] f -- authorization to relocate fixed station
- [ ] g -- authorization to change frequency(ies)
- [ ] h -- authorization to add frequency
- [ ] i -- authorization to add Points of Communication (satellites & countries)
- [ ] j -- authorization to change Points of Communication (satellites & countries)
- [ ] k -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
- [ ] l -- authorization to change orbit location
- [ ] m -- authorization to perform fleet management
- [ ] n -- authorization to extend milestones
- [ ] o -- Other (Please specify)

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. 1.1308 and 1.1311, as an exhibit to this application.A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.

( ) **Yes** (•) **No**

ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government?	○ Yes ◉ No
30. Is the applicant an alien or the representative of an alien?	○ Yes ○ No ◉ N/A
31. Is the applicant a corporation organized under the laws of any foreign government?	○ Yes ○ No ◉ N/A
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	○ Yes ○ No ◉ N/A
33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	○ Yes ○ No ◉ N/A
34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.	

BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	○ Yes ◉ No
36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explination of circumstances.	○ Yes ◉ No
37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explination of circumstances.	○ Yes ◉ No
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attemptiing unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition?If Yes, attach as an exhibit, an explanation of circumstances	○ Yes ◉ No
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhinit, an explanation of the circumstances.	○ Yes ◉ No
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.	
41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for possession or distribution of a controlled substance. *See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.*	◉ Yes ○ No
42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in *47 C.F.R. 25.137, as appropriate*. If No, proceed to question 43.	◉ Yes ○ No
42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?Permitted List	
43. Description. (Summarize the nature of the application and the services to be provided). Adding two (2) new Ku-band antennas to Miami site.	

43a. Geographic Service Rule Certification By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25.	◉ A
By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements.	○ B
By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached.	○ C

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CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- ○ Individual
- ○ Unincorporated Association
- ○ Partnership
- ◉ Corporation
- ○ Governmental Entity
- ○ Other (please specify)

45. Name of Person Signing	46. Title of Person Signing
Ryan King	VP & Head of Legal, Americas

WILLFUL FALSE STATEMENTS MADE ON THIS FORM ARE PUNISHABLE BY FINE AND / OR IMPRISONMENT (U.S. Code, Title 18, Section 1001), AND/OR REVOCATION OF ANY STATION AUTHORIZATION (U.S. Code, Title 47, Section 312(a)(1)), AND/OR FORFEITURE (U.S. Code, Title 47, Section 503).

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

FOR OFFICIAL USE ONLY

Location of Earth Station Site

E1: Site Identifier:	1	E5. Call Sign:	E050018
E2: Contact Name	Victor Pinol	E6. Phone Number:	305-914-1278
E3. Street:	15590 N.W. 15th Ave	E7. City:	Miami
		E8. County:	Dade
E4. State	FL	E9. Zip Code	33169
E10. Area of Operation:		Miami, FL	
E11. Latitude:	25 ° 54 ' 59.3 " N		
E12. Longitude:	80 ° 13 ' 29.2 " W		
E13. Lat/Lon Coordinates are:		○ NAD-27	◉ NAD-83 ○ N/A
E14. Site Elevation (AMSL):		1.83 meters	

E15. 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 measurement? If NO, provide as a technical analysis showing compliance with two-degree spacing policy.	◉ Yes ○ No ○ N/A
E16. 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 ◉ N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	◉ Yes ○ No
E18. Is frequency coordination required? If YES, attach a frequency coordination report as	○ Yes ◉ No
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	○ Yes ◉ No
E20. 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 ◉ No

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

POINTS OF COMMUNICATION

Satellite Name:PERMITTED LIST | | If you selected OTHER, please enter the following:	
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

POINTS OF COMMUNICATION (Destination Points)

E25. Site Identifier: 1	
E26. Common Name:	E27. Country: USA

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size	E41/42. Antenna Gain Transmint and/or Recieve(____dBi at _____GHz)
1	ASC 5.6	1	ASC Signal	5.6m ESA	5.6	55.7 dBi at 12.0
1	ASC 5.6	1	ASC Signal	5.6m ESA	5.6	57.1 dBi at 14.0
1	Vertex 6.1	1	Vertex	6.1 KPK	6.1	55.7 dBi at 11.7
1	Vertex 6.1	1	Vertex	6.1 KPK	6.1	57.3 dBi at 14.0

E28. Antenna Id	E33/34. Diameter Minor/Major(meters)	E35. Above Ground Level(meters)	E36. Above Sea Level(meters)	E37. Building Height Above Ground Level(meters)	E38. Total Input Power at antenna flange(Watts)	E39. Maximum Antenna Height Above Rooftop(meters)	E40. Total EIRP for al carriers(dBW)
ASC 5.6	0.0/0.0	6.0	7.0	0.0	750.0	0.0	85.85
Vertex 6.1	0.0/0.0	7.0	8.0	0.0	660.0	0.0	85.51

FREQUENCY

E28. Antenna Id	E43/44. Frequency Bands(MHz)	E45. T/R Mode	E46. Antenna Polarization(H,V,L,R)	E47. Emission Designator	E48. Maximum EIRP per Carrier(dBW)	E49. Maximum ERIP Density per Carrier(dBW/4kHz)
ASC 5.6	11700 12200	R	Horizontal and Vertical	1M23G7W	0.0	0.0
E50. Modulation and Services Data						
ASC 5.6	11700 12200	R	Horizontal and Vertical	51K2G7W	0.0	0.0
E50. Modulation and Services Data						
ASC 5.6	14000 14500	T	Horizontal and Vertical	1M23G7W	68.0	43.1
E50. Modulation and Services Data						
ASC 5.6	14000 14500	T	Horizontal and Vertical	36M0G7W	82.6	43.1
E50. Modulation and Services Data						
ASC 5.6	14000 14500	T	Horizontal and Vertical	51K2G7W	54.17	43.1
E50. Modulation and Services Data						
ASC 5.6	14000 14500	T	Horizontal and Vertical	578KG7W	64.7	43.1
E50. Modulation and Services Data						
Vertex 6.1	11700 12200	R	Horizontal and Vertical	150KG7D	0.0	0.0
E50. Modulation and Services Data						
Vertex 6.1	11700 12200	R	Horizontal and Vertical	9M75G7D	0.0	0.0
E50. Modulation and Services Data						
Vertex 6.1	14000 14500	T	Horizontal and Vertical	1M20G7D	68.07	43.3
E50. Modulation and Services Data						
Vertex 6.1	14000 14500	T	Horizontal and Vertical	36M0G7D	82.84	43.3

E50. Modulation and Services Data

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits(MHz)	E54/55. Range of Satellite Arc Eastern/Western Limit	E56. Earth Station Azimuth Angle Eastern Limit	E57. Antenna Elevation Angle Eastern Limit	E58. Earth Station Azimuth Angle Western Limit	E59. Antenna Elevation Angle Western Limit	E60. Maximum EIRP Density toward the Horizon(dBW/4kHz)
ASC 5.6	Geostationary	11700 12200	15.0/143.0	101.4	13.7	257.3	15.9	0.0
	Geostationary	14000 14500	15.0/143.0	101.4	13.7	257.3	15.9	-6.2
Vertex 6.1	Geostationary	11700 12200	15.0/143.0	101.4	13.7	257.3	15.9	0.0
	Geostationary	14000 14500	15.0/143.0	101.4	13.7	257.3	15.9	-15.84

REMOTE CONTROL POINT LOCATION

E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.			E66. Phone Number 305−627−6010
E62. Street Address 9427 Fontainebleau Blvd. Suite 206			
E63. City Miami	E68. County Dade	E67/68. State/Country FL/ USA	E64. Zip Code 33172

E61. Call Sign NOTE: Please enter the callsign of the controlling station, not the callsign for which this application is being filed.			E66. Phone Number 305−627−6010
E62. Street Address 6941 W 19 Ct.			
E63. City Hialeah	E68. County Dade	E67/68. State/Country FL/ USA	E64. Zip Code 33014

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