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File Number: SES-LIC-INTR2012-00457
Callsign/Satellite ID:

APPLICATION FOR EARTH STATION AUTHORIZATIONS 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:
Fairbanks Earth Station Application

1-8. Legal Name of Applicant

Name:	Skybox Imaging Inc.	Phone Number:	650-316-6661
DBA Name:		Fax Number:	
Street:	1061 Terra Bella Ave.	E-Mail:	jim@skyboximaging.com
City:	Mountain View	State:	CA
Country:	USA	Zipcode:	94043 -
Attention:	Mr. Jim McClelland		

9-16. Name of Contact Representative

Name:	Stephen D. Baruch	Phone Number:	202-416-6782
Company:	Lerman Senter PLLC	Fax Number:	202-429-4626
Street:	2000 K Street, NW Suite 600	E-Mail:	sbaruch@lermansenter.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20006-
Attention:		Relationship:	Legal Counsel

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.

a.
● a1. Earth Station
(N/A) a2. Space Station

b.
● b1. Application for License of New Station
○ b2. Application for Registration of New Domestic Receive-Only Station
(N/A) b3. Amendment to a Pending Application
(N/A) b4. Modification of License or Registration
(N/A) b5. Assignment of License or Registration
(N/A) b6. Transfer of Control of License or Registration
(N/A) 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
○ b10. Other (Please specify)

	○ 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 BAX - Fixed Satellite Transmit/Receive Earth Station

18. If this filing is in reference to an existing station, enter:	19. If this filing is an amendment to a pending application enter:	
(a) Call sign of station:	(a) Date pending application was filed:	(b) File number of pending application:
Not Applicable	Not Applicable	Not Applicable

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:

☐ 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.	22. If earth station applicant, check all that apply.
○ Common Carrier ◉ Non-Common Carrier	☒ Using U.S. licensed satellites ☐ 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) ☐ b. Ku-Band (12/14 GHz)
☒ c.Other (Please specify upper and lower frequencies in MHz.)
Frequency Lower: 2025.0000 Frequency Upper: 8400.0000

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
(N/A) e. Geostationary Space Station
(N/A) f. Non-Geostationary Space Station
○ g. Other (please specify)

26. TYPE OF EARTH STATION FACILITY: Choose only one.
◉ Transmit/Receive ○ Transmit-Only ○ Receive-Only ○ 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.)

Not Applicable

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 Radiation Hazard Rpt

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?

43. Description. (Summarize the nature of the application and the services to be provided). Skybox Imaging, Inc. requests authority to operate an earth station to serve as the ground segment for its proposed Earth Exploration Satellite Service high-resolution imagery satellite system. See Attachment A.Attachment A

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**

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

Jim McClelland	Vice President, Mission Assurance

47. Please supply any need attachments.

Attachment 1:	Attachment 2:	Attachment 3:

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:	RGS-FB	E5. Call Sign:	
E2: Contact Name	Craig Scheffler	E6. Phone Number:	650-472-9063
E3. Street:	c/o GCI Communications Corp.	E7. City:	Fairbanks
	1300 Van Horn Road	E8. County:	Fairbanks North Star
E4. State	AK	E9. Zip Code	99701
E10. Area of Operation:		Fairbanks, Alaska	
E11. Latitude:	64 ° 48 ' 47.4 " N		
E12. Longitude:	147 ° 43 ' 57.3 " W		
E13. Lat/Lon Coordinates are:		○NAD-27	◉NAD-83 ○N/A
E14. Site Elevation (AMSL):		134.11 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 asa 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? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.	○ Yes ◉ No

POINTS OF COMMUNICATION

Satellite Name:ALSAT | ALL AUTHORIZED U.S. | ALSAT If you selected OTHER, please enter the following:	
E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

Satellite Name:OTHER | OTHER | If you selected OTHER, please enter the following:	
E21. Common Name: SkySat-1	E22. ITU Name: TBD
E23. Orbit Location: NGSO	E24. Country: USA

Satellite Name:OTHER | OTHER | If you selected OTHER, please enter the following:	
E21. Common Name: SkySat-2	E22. ITU Name: TBD
E23. Orbit Location: NGSO	E24. Country: USA

POINTS OF COMMUNICATION (Destination Points)

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

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size	E41/42. Antenna GainTransmint and/or Recieve(____dBi at _____GHz)
RGS-FB	ES 1	1	Orbit Communications Systems Ltd.	AL-7208-System 2	2.4	32.5 dBi at 2.1
						43.5 dBi at 8.2

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)
ES 1	2.4/2.4	4.88	134.11	0.0	15.0	0.0	42.5

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)
ES 1	8374.744 8375.256	R	Horizontal and Vertical	256KG1D	0.0	0.0
E50. Modulation and Services Digital/Telemetry						
ES 1	8379.744 8380.256	R	Horizontal and Vertical	256KG1D	0.0	0.0
E50. Modulation and Services Digital/Telemetry						
ES 1	2080.890 2081.110	T	Horizontal and Vertical	110KF1D	42.5	24.8

E50. Modulation and Services Digital/Telecommand						
ES 1	2082.890 2083.110	T	Horizontal and Vertical	110KF1D	42.5	24.8
E50. Modulation and Services Digital/Telecommand						
ES 1	8045.000 8105.000	R	Horizontal and Vertical	60M0G1D	0.0	0.0
E50. Modulation and Services Digital/Data Downlink						
ES 1	8170.000 8230.000	R	Horizontal and Vertical	60M0G1D	0.0	0.0
E50. Modulation and Services Digital/Data Downlink						
ES 1	8295.000 8355.000	R	Horizontal and Vertical	60M0G1D	0.0	0.0
E50. Modulation and Services Digital/Data Downlink						

FREQUENCY COORDINATION

E28. Antenna Id	E51. Satellite Orbit Type	E52/53. Frequency Limits (MHz)	E54/55. Range of Satellite Arc E/W 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)
ES 1	Non-Geostationary	2080.890 2081.110	0.0/ 0.0	0.0	5.0	360.0	5.0	9.8
	Non-Geostationary	2082.890 2083.110	0.0/ 0.0	0.0	5.0	360.0	5.0	9.8
	Non-Geostationary	8045.000 8105.000	0.0/ 0.0	0.0	0.0	360.0	0.0	0.0
	Non-Geostationary	8170.000 8230.000	0.0/ 0.0	0.0	0.0	360.0	0.0	0.0
	Non-Geostationary	8295.000 8355.000	0.0/ 0.0	0.0	0.0	360.0	0.0	0.0
	Non-Geostationary	8374.744 8375.256	0.0/ 0.0	0.0	0.0	360.0	0.0	0.0
	Non-Geostationary	8379.744 8380.256	0.0/ 0.0	0.0	0.0	360.0	0.0	0.0

REMOTE CONTROL POINT LOCATION

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.			E65. Phone Number 650-472-9063
E62. Street Address 1061 Terra Bella Avenue			
E63. City Mountain View	E67. County Santa Clara	E64/68. State/Country CA/ USA	E66. Zip Code 94043

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

The public reporting for this collection of information is estimated to average 0.25 - 24 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERM, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

Remember - You are not required to respond to a collection of information sponsored by the Federal government, and the government may not conduct or sponsor this collection, unless it displays a currently valid OMB control number or if we fail to provide you with this notice. This collection has been assigned an OMB control number of 3060-0678.

THE FOREGOING NOTICE IS REQUIRED BY THE PAPERWORK REDUCTION ACT OF 1995, PUBLIC LAW 104-13, OCTOBER 1, 1995, 44 U.S.C. SECTION 3507.

Description of Request

With this application, Skybox Imaging, Inc. ("Skybox") requests authority to operate a new earth station antenna located in Fairbanks, Alaska, which is intended to serve as the ground segment of its proposed non-geostationary orbit ("NGSO") Earth Exploration Satellite Service ("EESS") high-resolution imagery satellite system. *See* File No. SAT-LOA-20111222-00246. The proposed system's ground segment will send telecommand signals to the SkySat-1 and SkySat-2 NGSO satellites using a primary or back-up channel in the 2025-2110 MHz band, which is authorized in the EESS. The earth station will receive communications from Skybox's SkySat-1 and SkySat-2 satellites via three payload beams and a primary or secondary telemetry beam in the EESS band at 8025-8400 MHz. The Points of Communications specified in this application (SkySat-1 and SkySat-2) are the system space stations for which Skybox seeks Commission approval to launch and operate in File No. SAT-LOA-20111222-00246.

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 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	2.4	m
Antenna Surface Area	$A_{surface}$	$\pi D^2 / 4$	4.52	m^2
Subreflector Diameter	D_{sr}	Input	16.3	cm
Area of Subreflector	A_{sr}	$\pi D_{sr}{}^2/4$	208.67	cm^2
Frequency	F	Input	2083	MHz
Wavelength	λ	300 / F	0.144023	m
Transmit Power	P	Input	15.00	W
Antenna Gain (dBi)	G_{es}	Input	32.5	dBi
Antenna Gain (factor)	G	$10^{Ges/10}$	1778.3	n/a
Pi	π	Constant	3.1415927	n/a
Antenna Efficiency	η	$G\lambda^2/(\pi^2D^2)$	0.65	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

$$R_{ff} = 0.60\ D^2 / \lambda \quad (1)$$
$$= 24.0\ \text{m}$$

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

$$S_{ff} = G\ P / (4\ \pi\ R_{ff}^{\ 2}) \quad (2)$$
$$= 3.686\ \text{W/m}^2$$
$$= 0.369\ \text{mW/cm}^2$$

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

$$R_{nf} = D^2 / (4\ \lambda) \quad (3)$$
$$= 10.0\ \text{m}$$

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

Near Field Power Density

$$S_{nf} = 16.0\ \eta\ P / (\pi\ D^2) \quad (4)$$
$$= 8.606\ \text{W/m}^2$$
$$= 0.861\ \text{mW/cm}^2$$

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

$$S_t = S_{nf}\ R_{nf} / R_t \quad (5)$$
$$= 0.861\ \text{mW/cm}^2$$

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

$$S_{sr} = 4000\ P / A_{sr} = 287.532\ mW/cm^2 \quad (6)$$

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

$$S_{surface} = 4\ P / A_{surface} = 13.263\ W/m^2 = 1.326\ mW/cm^2 \quad (7)$$

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

$$S_g = P / A_{surface} = 3.316\ W/m^2 = 0.332\ mW/cm^2 \quad (8)$$

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} = 24.0 m)	S_{ff}	0.369	Satisfies FCC MPE
2. Near Field (R_{nf} = 10.0 m)	S_{nf}	0.861	Satisfies FCC MPE
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	0.861	Satisfies FCC MPE
4. Between Main Reflector and Subreflector	S_{sr}	287.532	Potential Hazard
5. Main Reflector	$S_{surface}$	1.326	Potential Hazard
6. Between Main Reflector and Ground	S_g	0.332	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} = 24.0 m)	S_{ff}	0.369	Satisfies FCC MPE
2. Near Field (R_{nf} = 10.0 m)	S_{nf}	0.861	Satisfies FCC MPE
3. Transition Region ($R_{nf} < R_t < R_{ff}$)	S_t	0.861	Satisfies FCC MPE
4. Between Main Reflector and Subreflector	S_{sr}	287.532	Potential Hazard
5. Main Reflector	$S_{surface}$	1.326	Satisfies FCC MPE
6. Between Main Reflector and Ground	S_g	0.332	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.

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

The earth station is located in a secured facility with secured access. All individuals having access to the area around the antenna will be aware of the Radiation Hazard from the antenna, thus creating a controlled environment.

Means of Compliance Controlled Areas

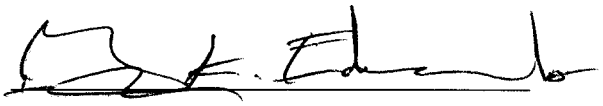
The earth station's operational staff will not have access to the areas that exceed the MPE levels while the earth station is in operation.

The transmitters will be turned off during antenna maintenance

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.*

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE RADIATION HAZARD REPORT, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: _ 

Gary K. Edwards
Senior Manager
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: January 23, 2012

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Skybox Imaging
FAIRBANKS, AK
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
October 31, 2011

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1. CONCLUSIONS

An interference study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the proposed earth station demonstrates that this site will operate satisfactorily with the common carrier microwave environment. Further, there will be no restrictions of its operation due to interference considerations.

2. SUMMARY OF RESULTS

No great circle interference cases were identified during the interference study of the proposed earth station. There are no unresolved interference objections with this proposed earth station antenna.

3. SUPPLEMENTAL SHOWING

Pursuant to Part 25.203(c) of the FCC Rules and Regulations, the satellite earth station proposed in this application was coordinated by Comsearch using computer techniques and in accordance with Part 25 of the FCC Rules and Regulations.

Coordination data for this earth station was sent to the below listed carriers with a letter dated 09/21/2011.

Company

SBE Coordinator – Alaska Entire State – TV
SBE Coordinator – Alaska Entire State – TV Alternate
SBE Coordinator – Alaska Northern Radio
3G Wireless, LLC
Borgeson, Tom R
Broadcast Sports Corp
Broadcast Sports Enterprises Inc.
Casper, John
Citywide News Network, Inc.
Cohen, Elana
CP Communications PA, LLC
Cowboys Stadium LP
DCI II Inc.
FISHMAN BROTHERS ENTERPRISES
GOODYEAR TIRE AND RUBBER COMPANY
Global Microwave Systems Inc.
Heiden Mr, William
Information Super Station LLC
NSM Surveillance
Onboard Images
Production & Satellite Services, Inc.
Randy Hermes Production dba Aerial Video Sys.
Regulus Media Services, Inc.
REMOTE FACILITIES CONSULTING SERVICES
RF Film, Inc
RF Technology, LLC
Total RF Marketing Inc
Universal Satellite Communications Inc.
Village Video Productions Inc
WOLFE AIR AVIATION
Western Technical Services
Wexler Video, Inc.
Winged Vision Inc

4. EARTH STATION COORDINATION DATA

This section presents the data pertinent to frequency coordination of the proposed earth station that was circulated to all carriers within its coordination contours.

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

Date:	10/27/2011
Job Number:	110921COMSGE03

Administrative Information

Status	ENGINEER PROPOSAL
Call Sign	
Licensee Code	SKYBOX
Licensee Name	Skybox Imaging

Site Information — FAIRBANKS, AK

Venue Name	
Latitude (NAD 83)	64° 48' 47.4" N
Longitude (NAD 83)	147° 43' 57.3" W
Climate Zone	A
Rain Zone	2
Ground Elevation (AMSL)	134.11 m / 440.0 ft

Link Information

Satellite Type	Low Earth Orbit
Mode	TO - Transmit-Only
Modulation	Digital
Minimum Elevation Angle	5.0°
Azimuth Range	0.0° to 360°
Antenna Centerline (AGL)	4.88 m / 16.0 ft

Antenna Information — Transmit - FCC32

Manufacturer		Orbit Communication LTD
Model		AL-7208-System2
Gain / Diameter		32.5 dBi / 2.4 m
3-dB / 15-dB Beamwidth		4.20° / 8.40°
Max Available RF Power	(dBW/4 kHz)	-7.7
	(dBW/MHz)	16.3
Maximum EIRP	(dBW/4 kHz)	24.8
	(dBW/MHz)	48.8
Interference Objectives:	Long Term	-154.0 dBW/4 kHz 20%
	Short Term	-131.0 dBW/4 kHz 0.0025%

Frequency Information — Transmit 2.0 GHz

Emission / Frequency Range (MHz)	212KG7D / 2073.5 - 2093.5
Max Great Circle Coordination Distance	251.8 km / 156.4 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
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Coordination Values	**FAIRBANKS, AK**
Licensee Name	Skybox Imaging
Latitude (NAD 83)	64° 48' 47.4" N
Longitude (NAD 83)	147° 43' 57.3" W
Ground Elevation (AMSL)	134.11 m / 440.0 ft
Antenna Centerline (AGL)	4.88 m / 16.0 ft
Antenna Model	Orbit Communication LTD 2.4 Meter
Antenna Mode	Transmit 2.0 GHz
Interference Objectives: Long Term	-154.0 dBW/4 kHz 20%
Short Term	-131.0 dBW/4 kHz 0.0025%
Max Available RF Power	-7.7 (dBW/4 kHz)

			Transmit 2.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	44.01	14.20	251.80
5	0.00	40.52	14.20	251.80
10	0.00	37.30	14.20	251.80
15	0.00	34.45	14.20	251.80
20	0.00	32.06	14.20	251.80
25	0.00	30.24	14.20	251.80
30	0.00	29.10	14.20	251.80
35	0.00	28.72	14.20	251.80
40	0.00	29.13	14.20	251.80
45	0.00	30.29	14.20	251.80
50	0.00	32.14	14.20	251.80
55	0.00	34.55	14.20	251.80
60	0.00	37.42	14.20	251.80
65	0.00	40.64	14.20	251.80
70	0.00	44.14	14.20	251.80
75	0.00	47.86	14.20	251.80
80	0.00	51.75	14.20	251.80
85	0.00	55.76	14.20	251.80
90	0.00	59.88	14.20	251.80
95	0.00	64.07	14.20	251.80
100	0.00	68.32	14.20	251.80
105	0.00	72.62	14.20	251.80
110	0.00	76.96	14.20	251.80
115	0.00	81.32	14.20	251.80
120	0.00	85.70	14.20	251.80
125	0.00	90.08	14.20	251.80
130	0.00	94.46	14.20	251.80
135	0.00	98.84	14.20	251.80
140	0.00	103.20	14.20	251.80
145	0.00	107.54	14.20	251.80
150	0.00	111.83	14.20	251.80
155	0.00	116.09	14.20	251.80
160	0.00	120.28	14.20	251.80
165	0.00	124.39	14.20	251.80
170	0.00	128.40	14.20	251.80
175	0.00	132.28	14.20	251.80
180	0.00	135.99	14.20	251.80
185	0.00	139.48	14.20	251.80

COMSEARCH

Earth Station Data Sheet

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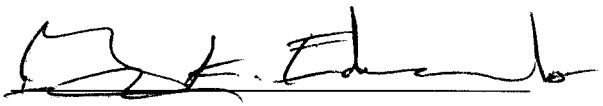
Coordination Values	**FAIRBANKS, AK**
Licensee Name	Skybox Imaging
Latitude (NAD 83)	64° 48' 47.4" N
Longitude (NAD 83)	147° 43' 57.3" W
Ground Elevation (AMSL)	134.11 m / 440.0 ft
Antenna Centerline (AGL)	4.88 m / 16.0 ft
Antenna Model	Orbit Communication LTD 2.4 Meter
Antenna Mode	Transmit 2.0 GHz
Interference Objectives: Long Term	-154.0 dBW/4 kHz 20%
Short Term	-131.0 dBW/4 kHz 0.0025%
Max Available RF Power	-7.7 (dBW/4 kHz)

Transmit 2.0 GHz

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	142.70	14.20	251.80
195	0.00	145.55	14.20	251.80
200	0.00	147.94	14.20	251.80
205	0.00	149.76	14.20	251.80
210	0.00	150.90	14.20	251.80
215	0.00	151.28	14.20	251.80
220	0.00	150.87	14.20	251.80
225	0.00	149.71	14.20	251.80
230	0.00	147.86	14.20	251.80
235	0.00	145.45	14.20	251.80
240	0.00	142.58	14.20	251.80
245	0.00	139.36	14.20	251.80
250	0.00	135.86	14.20	251.80
255	0.00	132.14	14.20	251.80
260	0.00	128.25	14.20	251.80
265	0.00	124.24	14.20	251.80
270	0.00	120.12	14.20	251.80
275	0.00	115.93	14.20	251.80
280	0.00	111.68	14.20	251.80
285	0.00	107.38	14.20	251.80
290	0.00	103.04	14.20	251.80
295	0.00	98.68	14.20	251.80
300	0.00	94.30	14.20	251.80
305	0.00	89.92	14.20	251.80
310	0.00	85.54	14.20	251.80
315	0.00	81.16	14.20	251.80
320	0.00	76.80	14.20	251.80
325	0.00	72.46	14.20	251.80
330	0.00	68.17	14.20	251.80
335	0.00	63.91	14.20	251.80
340	0.00	59.72	14.20	251.80
345	0.00	55.61	14.20	251.80
350	0.00	51.60	14.20	251.80
355	0.00	47.72	14.20	251.80

5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: _ 

Gary K. Edwards
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DATED: October 31, 2011