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Callsign/Satellite ID:

APPLICATION FOR EARTH STATION AUTHORIZATIONS FCC 312 MAIN FORM FOR OFFICIAL USE ONLY	FCC Use Only
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APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
CES mobile application (April 2009)

1-8. Legal Name of Applicant			
Name:	TerreStar License Inc.	Phone Number:	703-483-7800
DBA Name:		Fax Number:	
Street:	12010 Sunset Hills Road	E-Mail:	doug.brandon@terrestar.com
City:	Reston	State:	VA
Country:	USA	Zipcode:	20190 -
Attention:	Mr Douglas I Brandon		

9-16. Name of Contact Representative

Name:	Joseph A. Godles, Esq.	Phone Number:	202-429-4900
Company:	Goldberg Godles Wiener & Wright	Fax Number:	202-429-4912
Street:	1229 19th Street, NW	E-Mail:	jgodles@g2w2.com
City:	Washington	State:	DC
Country:	USA	Zipcode:	20036-2413
Attention:		Relationship:	Legal Counsel

CLASSIFICATION OF FILING

<p>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.</p> <p>a.</p> <p><input checked="" type="radio"/> a1. Earth Station (N/A) a2. Space Station</p>	<p>b.</p> <p><input checked="" type="radio"/> b1. Application for License of New Station</p> <p><input type="radio"/> 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</p> <p><input type="radio"/> b10. Other (Please specify)</p> <p><input type="radio"/> 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.</p> <p><input type="radio"/> b12. Application for Database Entry (N/A) b13. Amendment to a Pending Database Entry Application (N/A) b14. Modifiction of Database Entry</p>
<p>17c. Is a fee submitted with this application?</p> <p><input checked="" type="radio"/> If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114).</p> <p><input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee</p> <p><input type="radio"/> Other(please explain):</p>	
<p>17d.</p> <p>Fee Classification BGB – Mobile Satellite Earth Stations Blanket Authorization</p>	

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

<p>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:</p>	
<p><input type="checkbox"/> a. Fixed Satellite</p> <p><input checked="" type="checkbox"/> b. Mobile Satellite</p> <p><input type="checkbox"/> c. Radiodetermination Satellite</p> <p><input type="checkbox"/> d. Earth Exploration Satellite</p> <p><input type="checkbox"/> e. Direct to Home Fixed Satellite</p> <p><input type="checkbox"/> f. Digital Audio Radio Service</p> <p><input type="checkbox"/> g. Other (please specify)</p>	
<p>21. STATUS: Choose the button next to the applicable status. Choose only one.</p> <p><input checked="" type="radio"/> Common Carrier <input checked="" type="radio"/> Non-Common Carrier</p>	<p>22. If earth station applicant, check all that apply.</p> <p><input type="checkbox"/> Using U.S. licensed satellites</p> <p><input checked="" type="checkbox"/> Using Non-U.S. licensed satellites</p>
<p>23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:</p> <p><input checked="" type="radio"/> Connected to a Public Switched Network <input type="radio"/> Not connected to a Public Switched Network <input checked="" type="radio"/> N/A</p>	

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: 2000 Frequency Upper: 2020

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) Calibration earth station for MSS system

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

<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p> <p>Radiation Hazard Rep</p>
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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.

<p>29. Is the applicant a foreign government or the representative of any foreign government?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>30. Is the applicant an alien or the representative of an alien?</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>31. Is the applicant a corporation organized under the laws of any foreign government?</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>

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 explanation 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 explanation 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 attempting 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 exhibit, 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

Response to 42

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?Canada

43. Description. (Summarize the nature of the application and the services to be provided).
(If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

(If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

TerreStar License Inc. (TLI) seeks authority to operate a network of 15 technically identical calibration earth stations, at fixed locations which point to the TerreStar-1 satellite and dynamically calibrate the channel responses of the satellite beams.

Technical Material

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 Douglas I Brandon	46. Title of Person Signing General Counsel and Senior Vice President
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47. Please supply any need attachments.

Attachment 1:	Attachment 2:	Attachment 3:
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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:	CES 2	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	23488 S. Barlow Rd.	E7. City:	Canby
		E8. County:	Clackamas
E4. State	OR	E9. Zip Code	97073
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	45 °15 '58.29 "N		
E12. Longitude:	122 °43 '11.32 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	23.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 2	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	28.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	163.692	36.69887	163.692	36.69887	0.0
	Geostationary	2000 2020	111.0/ 111.0	163.692	36.69887	163.692	36.69887	-18.9545

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 4	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	487 Road U, NE	E7. City:	Warden
		E8. County:	Grant
E4. State	WA	E9. Zip Code	98857
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	47 °5 '35.38 "N		
E12. Longitude:	119 °1 '54.78 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	377.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 4	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	382.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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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)
1	Geostationary	2180 2200	111.0/ 111.0	169.0762	35.41126	169.0762	35.41126	0.0
	Geostationary	2000 2020	111.0/ 111.0	169.0762	35.41126	169.0762	35.41126	-18.5667

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

SATELLITE EARTH STATION AUTHORIZATIONS
 FCC Form 312 – Schedule B:(Technical and Operational Description)
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Location of Earth Station Site

E1. Site Identifier:	CES 5	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	146 Third St.	E7. City:	Austin
		E8. County:	Lander
E4. State	NV	E9. Zip Code	89310
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	39 °29 '31.5 "N		
E12. Longitude:	117 °3 '50.65 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	2069.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 5	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	2074.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	170.4965	43.96988	170.4965	43.96988	0.0
	Geostationary	2000 2020	111.0/ 111.0	170.4965	43.96988	170.4965	43.96988	-20.917

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 6	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	1 Aerojet Way	E7. City:	North Las Vegas
		E8. County:	Clark
E4. State	NV	E9. Zip Code	80930
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	36 °14 '9.63 "N		
E12. Longitude:	115 °6 '58.19 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	580.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 6	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	585.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	173.0422	47.83171	173.0422	47.83171	0.0
	Geostationary	2000 2020	111.0/ 111.0	173.0422	47.83171	173.0422	47.83171	-21.8311

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 7	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	I-15 & Frontage Rd.	E7. City:	Paragohan
		E8. County:	Iron
E4. State	UT	E9. Zip Code	84760
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	38 °3 '2.26 "N		
E12. Longitude:	112 °42 '1.12 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	1777.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 7	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	1782.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	177.2355	45.96553	177.2355	45.96553	0.0
	Geostationary	2000 2020	111.0/ 111.0	177.2355	45.96553	177.2355	45.96553	-21.399

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 8	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	86281 E. Webb Court	E7. City:	San Manuel
		E8. County:	Pinal
E4. State	AZ	E9. Zip Code	85631
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	32 °36 '55.78 "N		
E12. Longitude:	110 °38 '37.38 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	1051.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 8	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	51.5	1058.3	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	179.3387	52.14827	179.3387	52.14827	0.0
	Geostationary	2000 2020	111.0/ 111.0	179.3387	52.14827	179.3387	52.14827	-22.7691

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 10	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	S24 T10S R17E	E7. City:	Tinnie
		E8. County:	Lincoln
E4. State	NM	E9. Zip Code	88351
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	33 °25 '58.04 "N		
E12. Longitude:	105 °13 '45.35 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	1928.4 meters		

<p>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.</p>	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A
<p>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?</p>	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<input checked="" type="radio"/> Yes <input type="radio"/> No

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<input checked="" type="radio"/> Yes <input type="radio"/> No
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<input type="radio"/> Yes <input checked="" type="radio"/> No
<p>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.</p>	<input type="radio"/> Yes <input checked="" type="radio"/> No

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 10	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	1933.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	169.5832	50.7258	169.5832	50.7258	0.0
	Geostationary	2000 2020	111.0/ 111.0	169.5832	50.7258	169.5832	50.7258	-22.4689

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 11	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	52nd St. NE	E7. City:	Devils Lake
		E8. County:	Ramsey
E4. State	ND	E9. Zip Code	58301
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	48 °9 '56.59 "N		
E12. Longitude:	98 °49 '56.5 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	441.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 11	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	446.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	163.8378	33.55513	163.8378	33.55513	0.0
	Geostationary	2000 2020	111.0/ 111.0	163.8378	33.55513	163.8378	33.55513	-21.8311

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 12	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	Highway 377	E7. City:	Junction City
		E8. County:	Kimble
E4. State	TX	E9. Zip Code	76849
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	30 °31 '22.4 "N		
E12. Longitude:	99 °45 '6.6 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	535.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 12	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	540.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	158.5677	52.4519	158.5677	52.4519	0.0
	Geostationary	2000 2020	111.0/ 111.0	158.5677	52.4519	158.5677	52.4519	-22.8322

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 13	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	15712 US 83	E7. City:	North Laredo
		E8. County:	Webb
E4. State	TX	E9. Zip Code	78041
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	27 °45 '57.61 "N		
E12. Longitude:	99 °26 '40.39 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	203.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 13	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	208.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	156.2494	55.22998	156.2494	55.22998	0.0
	Geostationary	2000 2020	111.0/ 111.0	156.2494	55.22998	156.2494	55.22998	-23.3925

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 15	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	1256 W. Old State Road	E7. City:	Austin
		E8. County:	Jackson
E4. State	IN	E9. Zip Code	47102
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	38 °44 '38.58 "N		
E12. Longitude:	85 °49 '25.47 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	158.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 15	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	163.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	143.0342	38.15079	143.0342	38.15079	0.0
	Geostationary	2000 2020	111.0/ 111.0	143.0342	38.15079	143.0342	38.15079	-19.3757

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 16	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	4814 W. Admiral Doyle Dr.	E7. City:	New Iberia
		E8. County:	Iberia
E4. State	LA	E9. Zip Code	70560
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	30 °3 '5.26 "N		
E12. Longitude:	91 °52 '27.7 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	1.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 16	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	6.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	145.2308	49.27414	145.2308	49.27414	0.0
	Geostationary	2000 2020	111.0/ 111.0	145.2308	49.27414	145.2308	49.27414	-22.1536

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 18	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	280 Wolf Hill Lane	E7. City:	Independence
		E8. County:	Grayson
E4. State	VA	E9. Zip Code	24348
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	36 °36 '59.11 "N		
E12. Longitude:	81 °8 '40.51 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	888.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 18	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	893.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	136.0374	37.27685	136.0374	37.27685	0.0
	Geostationary	2000 2020	111.0/ 111.0	136.0374	37.27685	136.0374	37.27685	-19.1241

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 19	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	146 BalGra Road	E7. City:	Merry Hill
		E8. County:	Bertie
E4. State	NC	E9. Zip Code	27957
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	36 °2 '1.39 "N		
E12. Longitude:	76 °43 '57.43 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	0.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
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E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 19	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	4.6	5.0	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	130.7453	34.87499	130.7453	34.87499	0.0
	Geostationary	2000 2020	111.0/ 111.0	130.7453	34.87499	130.7453	34.87499	-18.401

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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:	CES 20	E5. Call Sign:	
E2. Contact Name	Douglas Brandon	E6. Phone Number:	703-483-7800
E3. Street:	8801 SW 177 Avenue	E7. City:	Miami
		E8. County:	Dade
E4. State	FL	E9. Zip Code	33196
E10. Area of Operation:	Area around coordinates identified in E11		
E11. Latitude:	25 °40 '56.35 "N		
E12. Longitude:	80 °28 '53.7 "W		
E13. Lat/Lon Coordinates are:	<input checked="" type="radio"/> NAD-27	<input type="radio"/> NAD-83	<input type="radio"/> N/A
E14. Site Elevation (AMSL):	2.4 meters		

<p>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.</p>	<p><input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> N/A</p>
<p>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?</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> N/A</p>
<p>E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>

<p>E18. Is frequency coordination required? If YES, attach a frequency coordination report as</p>	<p><input checked="" type="radio"/> Yes <input type="radio"/> No</p>
<p>E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>
<p>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.</p>	<p><input type="radio"/> Yes <input checked="" type="radio"/> No</p>

POINTS OF COMMUNICATION

<p>Satellite Name: TERRESTAR 1 CANSAT 24 111.0 W.L. If you selected OTHER, please enter the following:</p>
--

E21. Common Name:	E22. ITU Name:
E23. Orbit Location:	E24. Country:

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<meters>	E41/42. Antenna GainTransmint and/or Recieve (____ dBi at ____ GHz)
CES 20	1	1	Micro Ant	PAS3351R	0.85	22.2 dBi at 2
						22.5 dBi at 2.2

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)
1	0.0/0.0	128.5	130.9	0.0	2.04	0.0	20.7

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)
1	2180 2200	R	Left Hand Circular	50K0G7W	0.0	0.0

E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, Walsh code scrambled by a PN code

1	2000	2020	T	OTHER	62K5G7W	17.7	5.76
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E50. Modulation and Services (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.)

BPSK Modulation, BPSK PN calibration signal

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)
1	Geostationary	2180 2200	111.0/ 111.0	126.2487	44.81667	126.2487	44.81667	0.0
	Geostationary	2000 2020	111.0/ 111.0	126.2487	44.81667	126.2487	44.81667	-21.1241

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 972-535-3100	
E62. Street Address 2703 Telecom Parkway Suite 100			
E63. City Richardson	E67. County Dallas	E64/68. State/Country TX/ USA	E66. Zip Code 75082

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