Approved by OMB 3060–0678

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

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:

Swarm Brewster WA Gateway Earth Station Application

1–8. Lega	l Name of App	plicant		
	Name:	Swarm Technologies, Inc.	Phone Number:	608–225–3173
	DBA Name:		Fax Number:	
	Street:	845 Madonna Way	E-Mail:	sara@swarm.space
	City: Country: Attention:	Los Altos USA Dr. Sara Spangelo	State: Zipcode:	CA 94024 –

Name:	Kalpak Gude	Phone Number:	202-437-4484
Company:	Swarm Technologies, Inc.	Fax Number:	
Street:	845 Madonna Way	E-Mail:	kalpak@swarm.space
City:	Los Altos	State:	CA
Country:	USA	Zipcode:	94024-
Attention:	Kalpak Gude	Relationship:	Same

CLASSIFICATION OF FILING

17. Choose the button next to the	b.	
classification that applies to this filing for	b1. Application for License of New Station	
both questions a. and b. Choose only one for 17a and only one for 17b.	 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 	
a. al. Earth Station (N/A) a2. Space Station	 (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. b12. Application for Database Entry	
	(N/A) b13. Amendment to a Pending Database Entry Application (N/A) b14. Modifiction of Database Entry	
17c. Is a fee submitted with this applicati		
If Yes, complete and attach FCC Form	159. If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114).	
O Governmental Entity O Noncomme	rcial educational licensee	
• Other(please explain):		
17d.		
Fee Classification BAX – Fixed Satellite Transmit/Receive Earth Station		

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

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide	e or use the following type(s) of service(s): Select all that apply:
A Fired Setellite	
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	22. If earth station applicant, check all that apply.
only one.	Using U.S. licensed satellites
	Using Non–U.S. licensed satellites
23. If applicant is providng INTERNATIONAL COMMON CARRIER s	ervice, 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)
<u>ן</u>	c.Other (Please specify upper and lower frequencies in MHz.)
-	Frequency Lower: 137.00 Frequency Upper: 149.95

TYPE OF STATION

a. Fixed Earth Station		
b. Temporary–Fixed Eart	n Station	
c. 12/14 GHz VSAT Netw	vork	
d. Mobile Earth Station		
J/A) e. Geostationary Space		
V/A) f. Non–Geostationary S	pace Station	
g. Other (please specify)		
PE OF EARTH STATION	FACILITY: Choose only one.	

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 O Yes 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 RadHaz Report application. A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.

No No

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

29. Is the applicant a foreign government or the representative of any foreign government?	O Yes	● No
30. Is the applicant an alien or the representative of an alien?	O Yes	O No ⊚ N/A
31. Is the applicant a corporation organized under the laws of any foreign government?	O Yes	O 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?	O Yes	O 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?

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.	O ^{Yes}	No No
36. Has the applicant or any party to this application or amendment had any FCC station authorization or revoked or had any application for an initial, modification or renewal of FCC station authorization, lice construction permit denied by the Commission? If Yes, attach as an exhibit, an explination of circumstation	nse, or nces.) No
	Question 36	

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	O 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.	O 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.

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.



O No

Yes

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

Swarm seeks authority for a new gateway earth station located in Brewster, WA to communicate with its non-geostationary, non-voice mobile-satellite service system.

Narrative

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.	О ^В
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.	O 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 bu	tton next to applicable response	e.)		
O Individual				
• Unincorporated Association				
• Partnership				
• Corporation				
• Governmental Entity				
Other (please specify)				
-				
45. Name of Person Signing		46. Title of Person	Signing	
Dr. Sara Spangelo		CEO		
47. Please supply any need attachment	S.			
Attachment 1:	Attachment 2:		Attachment 3:	
	I		I	
	MENTS MADE ON THIS FOR			
				DN
(U.S. Code, Ittle	47, Section 512(a)(1)), AND/O	K FUKFEITUKE (U.S	. Code, 110e 47, Section 503).	
47. Please supply any need attachment Attachment 1: WILLFUL FALSE STATE (U.S. Code, Tit	Attachment 2:	RM ARE PUNISHABL REVOCATION OF AN	E BY FINE AND / OR IMPRIS	

SATELLITE EARTH STATION AUTHORIZATIONS FCC Form 312 – Schedule B:(Technical and Operational Description) FOR OFFICIAL USE ONLY

Location of Earth St	ation Site				
E1: Site Identifier:	Brewster WA Gateway	E5. Call Sign:			
E2: Contact Name	Benjamin Longmier	E6. Phone Number:	608-225-3173		
E3. Street:	66C Teleport Drive	E7. City:	Brewster		
		E8. County:	Okanogan		
E4. State	WA	E9. Zip Code	98812		
E10. Area of Operat	tion:	Brewster, WA			
E11. Latitude:	48 °8 '49.2 "N				
E12. Longitude:	119 °41 '45.6 "W				
E13. Lat/Lon Coord	linates are:	ONAD-27	NAD-83	O ^{N/A}	
E14. Site Elevation	(AMSL):	380.0 meters			

E15. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurement? If NO, provide as a technical analysis showing compliance with two-degree spacing policy.	O 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?	O Yes	O ^{No}	● N/A
E17. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	• Yes	0	No

E18. Is frequency coordination required? If YES, attach a frequency coordination report as	0	Yes	● ^N	10
E19. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as	0	Yes	● ^N	10
E20. FAA Notification – (See 47 CFR Part 17 and 47 CFR part 25.113(c)) Where FAA notification is required, hav 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.	0	Yes	() N	10

Satellite Name:OTHER | OTHER | If you selected OTHER, please enter the following:

E21. Common Name: Swarm 1	E22. ITU Name: USASAT–NGSO–7
E23. Orbit Location: NGSO	E24. Country: USA
POINTS OF COMMUNICATION (Destination Points)	
E25. Site Identifier: Brewster WA Gateway	
E26. Common Name:	E27. Country:USA

ANTENNA

Site ID	E28. Antenna Id	E29. Quantity	E30. Manufacturer	E31. Model	E32. Antenna Size <meters></meters>	E41/42. Antenna GainTransmint and/or Recieve (dBi at GHz)
Brewster WA Gateway	W1/2	1	Swarm	001	1.1	2.0 dBi at 0.138
						2.0 dBi at 0.148
	COLINEAR			002	3.0	5.5 dBi at 0.138
						5.5 dBi at 0.148
	QFH			003	1.6	0.0 dBi at 0.138
						0.0 dBi at 0.148
	YAGI			004	1.7	11.0 dBi at 0.138
						11.0 dBi at 0.148
	W1/4			005	0.55	2.0 dBi at 0.138
						2.0 dBi at 0.148

E28. Antenna Id	E33/34. Diameter Minor/M (meters)	ajor Lev	. Above und el ters)	E36. A Level< (meter	BR>	E37. Buil Height A Ground Level <bh (meters)</bh 	bove	E38. Total Input Power antenna flange (Watts)	r at	E39. Maximum Antenna Heigl Above Rooftop (meters)	E40. Total EIRP for al carriers (dBW)
W1/2	0.0/0.0	7.1		387.1		6.0		10.0		1.1	12.0
COLINEAR	0.0/0.0	9.0		389.0		6.0		10.0		3.0	15.5
QFH	0.0/0.0	7.6		387.6		6.0		10.0		1.6	10.0
YAGI	0.0/0.0	7.7		387.7		6.0		10.0		1.7	21.0
W1/4	0.0/0.0	6.6		386.6		6.0		10.0		0.6	12.0
FREQUENCY	FREQUENCY										
E28. Antenna Id		ncy Bands	E45. T/R M	ode	E46. Ante Polarizat		E47. E Design			Maximum P per Carrier	E49. Maximum ERIP Density per

	Frequency (MHz)	v Bands		Polarization(H,V, L,R)	Designator		ERIP Density per Carrier (dBW/4kHz)
W1/2	137	138	R	Vertical	125KF1D	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.)

FSK / data (non-voice)									
1/2	137	138	R	Vertical	7K80F1D	0.0	0.0		

E50. Modulation	and Services (If t	he complete descripti	on does not appear in	this box, please go t	o the end of the form	to view it in its
entirety.)						
FSK / data	(non-voice)					
W1/2	148 149.95	Т	Vertical	250KF1D	12.0	-6.0
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear in	this box, please go t	o the end of the form	to view it in its
FSK / data	(non-voice)					
W1/2	148 149.95	Т	Vertical	7K80F1D	12.0	9.1
E50. Modulation entirety.)	and Services (If t	he complete descripti	on does not appear in	this box, please go t	o the end of the form	to view it in its
FSK / data	(non-voice)					
COLINEAR	137 138	R	Vertical	125KF1D	0.0	0.0

E50. Modulation	and Services (If the	ne complete description	on does not appear in	this box, please go t	o the end of the form	to view it in its			
entirety.)									
FSK / data	(non-voice)								
COLINEAR	137 138	R	Vertical	7K80F1D	0.0	0.0			
E50. Modulation entirety.)	and Services (If the	ne complete description	on does not appear in	this box, please go to	o the end of the form	to view it in its			
FSK / data	FSK / data (non-voice)								
COLINEAR	148 149.95	Т	Vertical	250KF1D	15.5	-2.5			
E50. Modulation entirety.)	and Services (If th	ne complete description	on does not appear in	this box, please go t	o the end of the form	to view it in its			
FSK / data (non-voice)									
COLINEAR	148 149.95	Т	Vertical	7K80F1D	15.5	12.6			

E50. Modulation	and Services	(If the complete descr	iption does not appear in	this box, please go t	to the end of the form	to view it in its		
entirety.)								
FSK / data	(non-voice)						
QFH	137 138	B R	Left Hand Circular	125KF1D	0.0	0.0		
E50. Modulation entirety.)	and Services	(If the complete descr	iption does not appear in	this box, please go t	to the end of the form	to view it in its		
FSK / data	(non-voice)						
QFH	137 138	3 R	Left Hand Circular	7K80F1D	0.0	0.0		
E50. Modulation entirety.)	and Services	(If the complete descr	iption does not appear in	this box, please go t	to the end of the form	to view it in its		
FSK / data (non-voice)								
QFH	148 149	9.95 T	Left Hand Circular	250KF1D	10.0	-8.0		

E50. Modulation	and Services	(If th	ne complete description	on does not appear in	this box, please go t	o the end of the form	to view it in its
entirety.)							
FSK / data	(non-voi	ce)					
QFH	148 1	149.95	Т	Left Hand Circular	7K80F1D	10.0	7.1
E50. Modulation entirety.)	and Services	(If th	ne complete description	on does not appear in	this box, please go t	o the end of the form	to view it in its
FSK / data	(non-voi	ce)					
YAGI	137 1	138	R	Vertical	125KF1D	0.0	0.0
E50. Modulation entirety.)	and Services	(If th	ne complete description	on does not appear in	this box, please go t	o the end of the form	to view it in its
FSK / data	(non-voi	ce)					
YAGI	137 1	138	R	Vertical	7K80F1D	0.0	0.0

E50. Modulation	and Services	(If th	e complete descriptio	on does not appear in	this box, please go to	the end of the form	to view it in its
entirety.)							
FSK / data	(non-voice	e)					
YAGI	148 14	9.95	Т	Vertical	250KF1D	21.0	3.0
E50. Modulation entirety.)	and Services	(If th	e complete descriptio	on does not appear in	this box, please go to	the end of the form	to view it in its
FSK / data	(non-voice	e)					
YAGI	148 14	9.95	Т	Vertical	7K80F1D	21.0	18.1
E50. Modulation entirety.)	and Services	(If th	e complete descriptio	on does not appear in	this box, please go to	the end of the form	to view it in its
FSK / data	(non-voice	e)					
W1/4	137 13	8	R	Vertical	125KF1D	0.0	0.0

E50. Modulation	and Services	(If th	ne complete description	on does not appear in	this box, please go t	o the end of the form	to view it in its
entirety.)							
FSK / data	(non-voic	2e)					
W1/4	137 1	38	R	Vertical	7K80F1D	0.0	0.0
E50. Modulation entirety.)	and Services	(If th	ne complete descriptio	on does not appear in	this box, please go t	o the end of the form	to view it in its
FSK / data	. (non-voic	ce)					
W1/4	148 1	49.95	Т	Vertical	250KF1D	12.0	-6.0
E50. Modulation entirety.)	and Services	(If th	ne complete description	on does not appear in	this box, please go t	o the end of the form	to view it in its
FSK / data	(non-voic	ce)					
W1/4	148 1	49.95	Т	Vertical	7K80F1D	12.0	9.1

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.)

FSK / data (non-voice)

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)
W1/2	Non– Geostationary	137 138	0.0/ 0.0	0.0	5.0	0.0	5.0	0.0
	Non– Geostationary	148 149.95	0.0/ 0.0	0.0	5.0	0.0	5.0	-39.9
COLINEAR	Non– Geostationary	137 138	0.0/ 0.0	0.0	5.0	0.0	5.0	0.0
	Non– Geostationary	148 149.95	0.0/ 0.0	0.0	5.0	0.0	5.0	-44.9
QFH	Non– Geostationary	137 138	0.0/ 0.0	0.0	5.0	0.0	5.0	0.0

	Non– Geostationary	148 149.95	0.0/ 0.0	0.0	5.0	0.0	5.0	-35.9
YAGI	Non– Geostationary	137 138	0.0/ 0.0	0.0	5.0	0.0	5.0	0.0
	Non– Geostationary	148 149.95	0.0/ 0.0	0.0	5.0	0.0	5.0	-47.9
W1/4	Non– Geostationary	137 138	0.0/ 0.0	0.0	5.0	0.0	5.0	0.0
	Non– Geostationary	148 149.95	0.0/ 0.0	0.0	5.0	0.0	5.0	-39.9
REMOTE	L CONTROL POIN	L T LOCATIO	ON					
				not the	E65. Phone Nu 608–225–3173			
	eet Address hisman Road Ste. 1	00			L			
E63. City Mountair			E67. Cou Santa Cla			E64/64 State/Cou CA/		E66. Zip Code 94043

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