

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATION Enter a description of this application to identify it on the main menu:
Sentinels 3B LEOP

1. Applicant

Name: Universal Space Network, Inc. **Phone Number:** 215-328-9130
DBA Name: **Fax Number:** 215-328-9132
Street: 417 Caredean Drive **E-Mail:** jgreet@uspacenet.com
Suite A
City: Horsham **State:** PA
Country: USA **Zipcode:** 19044
Attention: Joanne Greet



File # SES-STA-20180305-00189
Call Sign 4P5K Grant Date 4-19-18
(or other identifier)
Term Dates From: 4-25-18 To: 5-4-18
Approved: [Signature]

Applicant: Universal Space Network, Inc.
No Call Sign
File No.: SES-STA-20180305-00189
Special Temporary Authority (STA)

Universal Space Network Inc. ("USN") is granted STA, beginning April 25, 2018 until May 4, 2018, to operate USN's ground station located at 64° 48' 15.3"N, 147° 30' 0.8"W in North Pole, Alaska to assist the European Space Agency ("ESA") and the Swedish Space Corporation ("SSC") with the launch and early orbit phase (LEOP) operation of the Sentinels-3B spacecraft. The launch is expected to be on April 25, 2018.

1. USN must coordinate with the Naval Surface Warfare Center, Dahlgren Division (NSWCDD), Mr. James Moneyhon, (540) 653-3477, or james.moneyhon@navy.mil, a minimum of 2 weeks prior to any operations, to mitigate harmful interference to Navy and Marine Corps operations.
2. Operations will be conducted on 2075.65 MHz (Earth-to-space) and 2254.099 MHz (space-to-Earth).
3. Operations will be with the coordinated 400KG1D emission and will not exceed the coordinated power limit.
4. All operations shall be on an unprotected, non-interference basis to both government and non-government operations. In the event of any harmful interference as a result of operations under this grant of STA, USN shall cease operations immediately upon notification of such interference and shall immediately inform the Commission, in writing, of such an event.
5. Any action taken or expense incurred as a result of operations pursuant to this STA is solely at USN's own risk.
6. Grant of this STA is without prejudice to any determination that the Commission may make regarding pending or future USN's applications.

This action is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. §0.261, and is effective upon release.



File # SES-STA-20180305-00189
Call Sign _____ Grant Date 4-19-18
(or other identifier)
From: 4-25-18 Term Dates To: 5-4-18
Approved: [Signature] [Signature]

2. Contact	
Name:	Universal Space Network, Inc. Phone Number: 215-328-9130
Company:	Fax Number: 215-328-9132
Street:	E-Mail: jgreet@uspacenet.com
417 Caredean Drive Suite A	
City: Horsham	State: PA
Country: USA	Zipcode: 19044 -
Attention:	Relationship: Same
(If your application is related to an application filed with the Commission, enter either the file number or the IB Submission ID of the related application. Please enter only one.)	
3. Reference File Number or Submission ID	
4a. Is a fee submitted with this application?	
<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).	
<input type="radio"/> Governmental Entity <input type="radio"/> Noncommercial educational licensee	
<input type="radio"/> Other (please explain):	
4b. Fee Classification CGX – Fixed Satellite Transmit/Receive Earth Station	
5. Type Request	
<input checked="" type="radio"/> Use Prior to Grant <input type="radio"/> Change Station Location <input type="radio"/> Other	
6. Requested Use Prior Date	
04/25/2018	
7. City North Pole	
8. Latitude (dd mm ss.s h) 64 48 15.3 N	

9. State AK	10. Longitude (dd mm ss.s h) 147 30 0.8 W
11. Please supply any need attachments. Attachment 1: FCC312 Attachment 2: Waiver and Analysis Attachment 3: Comsearch	
12. Description. (If the complete description does not appear in this box, please go to the end of the form to view it in its entirety.) <div style="border: 1px solid black; padding: 5px;"> <p>Universal Space Network (USN) will be used to assist the European Space Agency (ESA) and the Swedish Space Corporation (SSC) with the launch and early orbit (LEOP) support of the Sentinel-3B spacecraft in April 2018. The duration of the LEOP will nominally consist of 3 days, with an addition 4 days if anomalies occur beginning 25 April 2018</p> </div>	
13. 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. <p style="text-align: center;">Yes <input checked="" type="radio"/> No <input type="radio"/></p>	
14. Name of Person Signing Joanne Greet	15. Title of Person Signing Manager of Compliance
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).	

FCC NOTICE REQUIRED BY THE PAPERWORK REDUCTION ACT

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

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Universal Space Network, Inc.
NORTH POLE, AK
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
February 07, 2018

TABLE OF CONTENTS

1. CONCLUSIONS.....	3
2. SUMMARY OF RESULTS.....	4
3. SUPPLEMENTAL SHOWING.....	5
4. EARTH STATION COORDINATION DATA.....	7
5. CERTIFICATION.....	11

1. CONCLUSIONS

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

2. SUMMARY OF RESULTS

A number of great circle interference cases were identified during the interference study of the proposed earth station. Each of the cases, which exceeded the interference objective on a line-of-sight basis, was profiled and the propagation losses estimated using NBS TN101 (Revised) techniques. The losses were found to be sufficient to reduce the signal levels to acceptable magnitudes in every case.

3. SUPPLEMENTAL SHOWING

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

Coordination data for this earth station was sent to the below listed carriers with a letter dated 01/02/2018.

Company

3G Wireless, LLC
AERIAL VIDEO SYSTEMS
Alascom Inc
Ascent Media Network Services, LLC
Bellsouth Telecommunications, Inc.
Borgeson, Tom R.
Broadcast Sports Inc.
Carolina Telephone and Telegraph Co
Casper, John
CenturyTel of the Southwest, Inc.
Chicago Comnet Corp
Cincinnati Bell Wireless LLC
Citywide News Network, Inc.
Cohen, Elena
Cowboys Stadium LP
DCI II, INC.
Direct Broadcast Services, Inc.
Frontier California Inc.
Global Telecom & Technology Americas, In
Goodyear Tire & Rubber Company
Gray Televisions Licensee, LLC (KTVF)
HF Enterprises, Inc
Hallco Unlimited, Inc.
Hawaiian Telcom, Inc.
Heiden, William
Illinois Bell Telephone Company
Indiana Bell Telephone Company
Information & Display Systems, Inc.
Information Super Station, LLC
International Communications Group, Inc.
Kentucky RSA #3 Cellular General Partner
Kentucky RSA #4 Cellular General Partner
MERCURY COMMUNICATIONS
Michigan Bell Telephone Company
Moreen, Steven K
NEW ENGLAND DIGITAL DISTRIBUTION, INC.
NEW ENGLAND SATELLITE SYSTEMS INC
NSM Surveillance
Navajo Communications Company
NorthWest Suburbs Community Access Corp

Ohio Bell Telephone Company
Onboard Images
Pacific Bell Tel Com dba AT&T California
Penn Service Microwave Co., Inc.
Plateau Telecommunications, Inc.
Plum TV, LLC
Production & Satellite Services, Inc.
Quick Link Connections Inc.
Qwest Corporation
RCC Minnesota Inc. - MN NE ND SD
REMOTE FACILITIES CONSULTING SERVICES
RF Central, LLC
RF Film, Inc
Radiofone, Inc.
Randy Hermes Production
Remote Broadcasts, Inc.
SBE Coordinator
Southwestern Bell Telephone L.P.
Speedshotz, Inc
TTWN Networks, LLC
Unisat, Inc.
United Telephone - Southeast
VERIZON SOUTH INC.
Verizon Maryland, Inc.
Verizon New England Inc.
Verizon New Jersey, Inc.
Verizon New York, Inc.
Verizon North Inc.
Verizon Northwest Inc.
Verizon Pennsylvania, Inc.
Verizon Virginia, Inc.
Verizon Washington DC, Inc.
Village Video Productions Inc
Vyvx, LLC
Westar Satellite Services LP
Western Technical Services
Wexler Video, Inc.
Winged Vision Inc
Wisconsin Bell Telephone Company
Wolfe Air Aviation

4. EARTH STATION COORDINATION DATA

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

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147

(703)726-5500 <http://www.comsearch.com>

Date: 02/07/2018
Job Number: 180102COMSGE08

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code UNSPNE
Licensee Name Universal Space Network, Inc.

Site Information

NORTH POLE, AK
Venue Name SENTINELS-3B
Latitude (NAD 83) 64° 48' 15.3" N
Longitude (NAD 83) 147° 30' 0.8" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 149.4 m / 490.2 ft

Link Information

Satellite Type Low Earth Orbit
Mode TO - Transmit-Only
Modulation Digital
Minimum Elevation Angle 5.0°
Azimuth Range 0.0° to 360°
Antenna Centerline (AGL) 8.54 m / 28.0 ft

Antenna Information

Transmit - FCC32
Manufacturer Datron
Model 1453
Gain / Diameter 46.3 dBi / 13.0 m
3-dB / 15-dB Beamwidth 0.76° / 1.46°

Max Available RF Power (dBW/4 kHz) 1.7
(dBW/MHz) 25.7

Maximum EIRP (dBW/4 kHz) 48.0
(dBW/MHz) 72.0
(dBW) 68.0

Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%

Frequency Information

Transmit 2.0 GHz
Emission / Frequency Range (MHz) 400KG1D / 2075.65

Max Great Circle Coordination Distance 293.2 km / 182.2 mi
Precipitation Scatter Contour Radius 179.8 km / 111.7 mi

COMSEARCH

Earth Station Data Sheet

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

Coordination Values		NORTH POLE, AK	
Licensee Name		Universal Space Network, Inc.	
Latitude (NAD 83)		64° 48' 15.3" N	
Longitude (NAD 83)		147° 30' 0.8" W	
Ground Elevation (AMSL)		149.4 m / 490.2 ft	
Antenna Centerline (AGL)		8.54 m / 28.0 ft	
Antenna Model		Datron 13 meter	
Antenna Mode		Transmit 2.0 GHz	
Interference Objectives:	Long Term	-154.0 dBW/4 kHz	20%
	Short Term	-131.0 dBW/4 kHz	0.0025%
Max Available RF Power		1.7 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 2.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	0.23	44.29	4.50	293.20
5	0.00	40.65	4.50	293.20
10	0.00	37.42	4.50	293.20
15	0.28	34.76	4.50	293.20
20	0.69	32.72	4.50	293.20
25	0.33	30.58	4.50	293.20
30	0.00	29.09	4.50	293.20
35	0.00	28.67	4.50	293.20
40	0.00	29.04	4.50	293.20
45	0.00	30.18	4.50	293.20
50	0.00	31.99	4.50	293.20
55	0.00	34.38	4.50	293.20
60	0.00	37.23	4.50	293.20
65	0.00	40.45	4.50	293.20
70	0.00	43.94	4.50	293.20
75	0.00	47.65	4.50	293.20
80	0.00	51.53	4.50	293.20
85	0.00	55.55	4.50	293.20
90	0.00	59.66	4.50	293.20
95	0.00	63.85	4.50	293.20
100	0.00	68.11	4.50	293.20
105	0.00	72.41	4.50	293.20
110	0.00	76.74	4.50	293.20
115	0.00	81.10	4.50	293.20
120	0.00	85.48	4.50	293.20
125	0.00	89.87	4.50	293.20
130	0.00	94.25	4.50	293.20
135	0.00	98.63	4.50	293.20
140	0.00	102.99	4.50	293.20
145	0.00	107.33	4.50	293.20
150	0.00	111.64	4.50	293.20
155	0.00	115.89	4.50	293.20
160	0.00	120.09	4.50	293.20
165	0.00	124.21	4.50	293.20
170	0.00	128.23	4.50	293.20
175	0.00	132.12	4.50	293.20
180	0.00	135.84	4.50	293.20
185	0.00	139.35	4.50	293.20

COMSEARCH

Earth Station Data Sheet

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

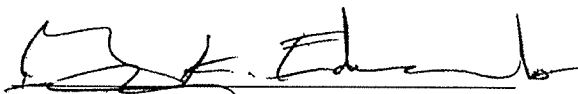
Coordination Values		NORTH POLE, AK	
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Antenna Mode		Transmit 2.0 GHz	
Interference Objectives: Long Term		-154.0 dBW/4 kHz	20%
Short Term		-131.0 dBW/4 kHz	0.0025%
Max Available RF Power		1.7 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 2.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	142.58	4.50	293.20
195	0.00	145.46	4.50	293.20
200	0.00	147.88	4.50	293.20
205	0.00	149.73	4.50	293.20
210	0.00	150.91	4.50	293.20
215	0.00	151.33	4.50	293.20
220	0.00	150.96	4.50	293.20
225	0.00	149.82	4.50	293.20
230	0.00	148.01	4.50	293.20
235	0.00	145.62	4.50	293.20
240	0.00	142.77	4.50	293.20
245	0.00	139.55	4.50	293.20
250	0.00	136.06	4.50	293.20
255	0.00	132.35	4.50	293.20
260	0.00	128.47	4.50	293.20
265	0.00	124.45	4.50	293.20
270	0.00	120.34	4.50	293.20
275	0.00	116.15	4.50	293.20
280	0.00	111.89	4.50	293.20
285	0.00	107.59	4.50	293.20
290	0.00	103.26	4.50	293.20
295	0.00	98.90	4.50	293.20
300	0.00	94.52	4.50	293.20
305	0.00	90.13	4.50	293.20
310	0.00	85.75	4.50	293.20
315	0.00	81.37	4.50	293.20
320	0.00	77.01	4.50	293.20
325	0.00	72.67	4.50	293.20
330	0.43	68.46	4.50	293.20
335	0.58	64.26	4.50	293.20
340	0.52	60.08	4.50	293.20
345	0.41	55.94	4.50	293.20
350	0.58	52.02	4.50	293.20
355	0.53	48.14	4.50	293.20

5. CERTIFICATION

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

BY: _



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

DATED: February 07, 2018

FCC 312
Main Form

Approved by OMB
3060-0678
Est. Avg. Burden Hours
Per Response: 11 Hrs.

FEDERAL COMMUNICATIONS COMMISSION

APPLICATION FOR SATELLITE SPACE AND EARTH STATION AUTHORIZATIONS

FCC Use Only
File Number:

Call Sign:

Fee Number:

APPLICANT INFORMATION

1. Legal Name of Applicant Universal Space Network, Inc.		2. Voice Telephone Number 215-328-9130	
3. Other Name Used for Doing Business (if any)		4. Fax Telephone Number 215-328-9132	
5. Mailing Street Address or P.O. Box 417 Caredean Drive, Suite A ATTENTION: Joanne Greet 215-328-9130 phone		6. City Horsham	8. Zip Code 19044
9. Name of Contact Representative (if other than applicant)		7. State / Country (if not U.S.A.) PA	
11. Firm or Company Name		10. Voice Telephone Number	
13. Mailing Street Address or P.O. Box		12. Fax Telephone Number	
ATTENTION:		14. City	16. Zip Code
		15. State / Country (if not U.S.A)	

CLASSIFICATION OF FILING

17. Place an "X" in the box next to the classification that applies to this filing for both questions a. and b. Mark only one box for 17a and only one box for 17b.

<input checked="" type="checkbox"/> a1. Earth Station	<input type="checkbox"/> b1. Application for License of New Station	<input type="checkbox"/> b6. Transfer of Control of License or Registration
<input type="checkbox"/> a2. Space Station	<input type="checkbox"/> b2. Application for Registration of New Domestic Receive-Only Station	<input type="checkbox"/> b7. Notification of Minor Modification
	<input type="checkbox"/> b3. Amendment to a Pending Application	<input type="checkbox"/> b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite
	<input type="checkbox"/> b4. Modification of License or Registration	<input type="checkbox"/> b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States
	<input type="checkbox"/> b5. Assignment of License or Registration	<input checked="" type="checkbox"/> b10. Other (Please Specify): Application to request Special Temporary Authority

19. If this filing is in reference to an existing station, enter:
Call sign of station: N/A

19. If this filing is an amendment to a pending application enter:
(a) Date pending application was filed:
(b) File number of pending application:

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s). Place an "X" in the box(es) next to all that apply.

<input type="checkbox"/> a. Fixed Satellite	<input type="checkbox"/> c. Radiodetermination Satellite	<input type="checkbox"/> e. Direct to Home Fixed Satellite
<input type="checkbox"/> b. Mobile Satellite	<input type="checkbox"/> d. Earth Exploration Satellite	<input checked="" type="checkbox"/> f. Digital Audio Radio Service
		<input checked="" type="checkbox"/> g. Other (please specify) <u>LEOP</u>

21. STATUS: Place an "X" in the box next to the applicable status. Mark only one box.

<input type="checkbox"/> a. Common Carrier	<input checked="" type="checkbox"/> b. Non-Common Carrier
--	---

22. If earth station applicant, place an "X" in the box(es) next to all that apply.

<input type="checkbox"/> a. Using U.S. licensed satellites	<input checked="" type="checkbox"/> b. Using Non-U.S. licensed satellites
<input type="checkbox"/> a. Connected to the Public Switched Network	<input type="checkbox"/> b. Not connected to the Public Switched Network

23. If applicant is providing INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Mark only one box. Are these facilities:

<input type="checkbox"/> a. Connected to the Public Switched Network	<input type="checkbox"/> b. Not connected to the Public Switched Network
--	--

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

<input type="checkbox"/> a. C-Band (4/6 GHz)	<input type="checkbox"/> b. Ku-Band (12/14 GHz)	<input checked="" type="checkbox"/> c. Other (Please specify) <u>S-band</u>
--	---	---

TYPE OF STATION

25. CLASS OF STATION: Place an "X" in the box next to the class of station that applies. Mark only one box.

<input checked="" type="checkbox"/> a. Fixed Earth Station	<input type="checkbox"/> b. Temporary-Fixed Earth Station	<input type="checkbox"/> c. 12/14 GHz VSAT Network	<input type="checkbox"/> d. Mobile Earth Station	<input type="checkbox"/> e. Space Station	<input type="checkbox"/> f. Other (Specify)
--	---	--	--	---	---

If space station applicant, go to Question 27.

26. TYPE OF EARTH STATION FACILITY. Mark only one box.

<input checked="" type="checkbox"/> a. Transmit/Receive	<input type="checkbox"/> b. Transmit-Only	<input type="checkbox"/> c. Receive-Only
---	---	--

PURPOSE OF MODIFICATION OR AMENDMENT

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

<input type="checkbox"/> a -- authorization to add new emission designator and related service	<input type="checkbox"/> b -- authorization to change emission designator and related service
<input type="checkbox"/> c -- authorization to increase EIRP and EIRP density	<input type="checkbox"/> d -- authorization to replace antenna
<input type="checkbox"/> e -- authorization to add antenna	<input type="checkbox"/> f -- authorization to relocate fixed station
<input type="checkbox"/> g -- authorization to change assigned frequency(ies)	<input type="checkbox"/> h -- authorization to add Points of Communication (satellites & countries)
<input type="checkbox"/> i -- authorization to change Points of Communication (satellites & countries)	<input type="checkbox"/> j -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
<input checked="" type="checkbox"/> k -- Other (Please Specify) <u>N/A</u>	

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR 1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. §§ 1.1308 and 1.1311, as an exhibit to this application.

A Radiation Hazard Study must accompany all applications as an exhibit for new transmitting facilities, major modifications, or major amendments. Refer to OET Bulletin 65.

YES NO

ALIEN OWNERSHIP

29. Is the applicant a foreign government or the representative of any foreign government?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
30. Is the applicant an alien or the representative of an alien?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
31. Is the applicant a corporation organized under the laws of any foreign government?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
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?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
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?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit, the 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.	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
36. Has the applicant or any party to this application 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 the circumstances.	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
37. Has the applicant, or any party to this application, 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 the circumstances.	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> 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 the circumstances.	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> 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.	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, addresses, and citizenship of those stockholders owning of 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 the 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.	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> 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.	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?		International Telecommunication Union

FEDERAL COMMUNICATIONS COMMISSION

FCC 312 - Schedule A

(Place an "X" in one of the blocks below)

CONSENT TO TRANSFER OF CONTROL CONSENT TO ASSIGNMENT OF LICENSE

NOTIFICATION OF TRANSFER OF CONTROL NOTIFICATION OF ASSIGNMENT OF RECEIVE ONLY REGISTRATION

OF RECEIVE ONLY REGISTRATION

FCC Use Only

A1. Name of Licensee or Registrant

A2. Voice Telephone Number

A3. Mailing Street Address or P.O. Box

A4. Fax Telephone Number

ATTENTION:

A5. City

A6. State / Country (if not U.S.A.)

A7. Zip Code

A8. List Call Sign(s) of station(s) being assigned or transferred

A9. No. of station(s) listed

A10. Name of Transferor/Assignor (if different than licensee or registrant)

A15. Name of Transferee/Assignee

A11. Mailing Street Address or P.O. Box

A16. Mailing Street Address or P.O. Box

A12. City

A13. State/Country

A14. Zip Code

A17. City

A18. State/Country

A19. Zip Code

A20. If these facilities are licensed, is the transferee/assignee directly or indirectly controlled by any other entity?

If Yes, attach as an exhibit, a statement (including organizational diagrams where appropriate) which fully and completely identifies the nature and extent of control including: (1) the name, address, citizenship, and primary business of the controlling entity and any intermediate subsidiaries or parties; and (2) the names, addresses, citizenship, and the percentages of voting and equity stock of those stockholders holding 10 percent or more of the controlling corporation's voting stock.

YES NO

A21. If these facilities are licensed, attach as an exhibit, a complete statement setting forth the facts which show how the assignment or transfer will serve the public interest.

CERTIFICATION

1. The undersigned, individually and for licensee, certifies that all attached exhibits pertinent to Schedule A and all statements made in Schedule A of this application are true, complete and correct to the best of his/her knowledge and belief. The undersigned also certifies that any contracts or other instruments submitted herewith are complete and constitute the full agreement.

2. The undersigned represents that stock will not be delivered and that control will not be transferred until the Commission's consent has been received, but that transfer of control or assignment of license will be completed within 60 days of Commission consent. The undersigned also acknowledges that the Commission must be notified by letter within 30 days of consummation.

A22. Printed Name of Licensee (Must agree with A1)

A23. Signature

A24. Title (Office Held by Person Signing)

A25. Date

A26. Printed Name of License Transferor/Assignor (if different than licensee. Must agree with A10)

A27. Signature

A28. Title (Office Held by Person Signing)

A29. Date

A30. Printed Name of License Transferee/Assignee (Must agree with A15)

A31. Signature

A32. Title (Office Held by Person Signing)

A33. Date

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

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

(a) Antenna ID*	(b) Frequency Bands (MHz)	(c) T/R Mode **	(d) Antenna Polarization (H, V, L, R)	(e) Emission Designator	(f) Maximum EIRP per Carrier (dBW)	(g) Maximum EIRP Density per Carrier (dBW/4kHz)	(h) Description of Modulation and Services
AK-13M	2254.099 MHz	R	R, L	400K0G1D	68	48	200 KHz range tones with 4Kbit/sec Telemetry on subcarrier
AK-13M	2075.650 MHz	T	R, L	400K0G1D			200KHz ranging tones plus 2Kbit/sec modulated onto 16KHz subcarrier telecommand

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

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

If VSAT Network, provide the SITE-ID (Item B1b) of the station that B8-B13 are in response to (HUB, REMOTE1, etc.): N/A -not VSAT network

B8. If the proposed antenna(s) operate in the Fixed Satellite Service (FSS) with geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurements? If NO, provide as an exhibit, a technical analysis showing compliance with two-degree spacing policy.	<input type="checkbox"/> YES	<input type="checkbox"/> NO
B9. If the proposed antenna(s) do not operate in the Fixed Satellite Service (FSS), or if they operate in the Fixed Satellite Service (FSS) with non-geostationary satellites, do(es) the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a2) and (b) as demonstrated by the manufacturer's qualification measurements?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
B10. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
Remote Control Point Location:		
B10a. Street Address 417 Catedean Drive, Suite A		
B10b. City Horsham	B10c. County Montgomery	B10d. State / Country PA
B10f. Telephone Number 215-328-9130	B10e. Zip Code 19044	
B10g. Call Sign of Control Station (if appropriate)		
B11. Is frequency coordination required? If YES, attach a frequency coordination report as an exhibit.	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
B12. Is coordination with another country required? If YES, attach the name of the country(ies) and plot of coordination contours as an exhibit.	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
B13. FAA Notification - (See 47 CFR Part 17 and 47 CFR Part 25.113(c)) Where FAA notification is required, have you attached a copy of a completed FCC Form 854 and/or the FAA's study regarding the potential hazard of the structure to aviation? FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.		

Exhibit C
PETITION FOR WAIVER OF SECTION 25.137 AND 25.114 AND OF
THE U.S. TABLE OF FREQUENCY ALLOCATIONS

I. TO THE EXTENT THEY APPLY, GOOD CAUSE EXISTS FOR A WAIVER OF CERTAIN PORTIONS OF SECTIONS 25.137 AND 25.114

Universal Space Network, Inc. (USN) is provided limited legal and technical information for the Sentinels-3B Satellite.¹ Pursuant to Section 25.137 of the Federal Communications Commission's ("Commission" or "FCC") rules, the same technical information required by Section 25.114 for U.S.-licensed space station, and certain legal information, must be submitted by earth station applicants "requesting authority to operate with a non-U.S. licensed space station to serve the United States..."² USN seeks authority to support the Launch and Early Orbit (LEOP) support of Sentinels-3B, not commercial service to the United States, and thus believes that Section 25.137 does not apply.

To the extent the Commission determines, however, that USN's request for authority to provide LEOP on a special temporary basis is a request to serve the United States with a non-U.S.-licensed satellite, USN respectfully requests a waiver of Sections 25.137 and 25.114 of the Commission's rules, to the extent that USN has not herein provided the information required by these rules.³ The Commission may grant a waiver for good cause shown.⁴ A waiver is therefore appropriate if special circumstances warrant a deviation from the general rule, and such a deviation will serve the public interest.

In this case, good cause for a waiver of portions of Section 25.114 exists. USN seeks authority only to conduct LEOP support for Sentinels-3B. Thus, any information sought by Section 25.114 that is not relevant to the LEOP – e.g., antenna patterns, energy and propulsion and orbital debris - USN does not have. In addition, USN would not easily be able to obtain such information because USN is not the operator of the Sentinels-3B satellite, nor is USN in contractual privity with that operator. Rather, USN has contracted with Swedish Space Corporation, Solna Sweden (SSC) to support the LEOP portion in S-Band of the Sentinels-3B satellite.

As evidenced by the Comsearch report attached to this request, USN has coordinated the LEOP of the Sentinels-3B satellite with potentially affected terrestrial operators. Moreover, as with any STA, USN will conduct the test on an unprotected, non-interference basis to government operations.

¹ FCC Form 312 Section B

² 47 C.F.R. § 25.137(a)

³ 47 C.F.R. §§25.137 and 25.114

⁴ 47 C.F.R. §1.3

Because it is not relevant to the service for which USN seeks authorization, and because obtaining the information would be a hardship, USN seeks a waiver of all the technical and legal information required by Section 25.114, to the extent it is not provided herein. As noted above, USN has provided the required information to the extent that it is relevant to the LEOP service for which USN seeks authorization.

Good cause also exists to waive portions of Section 25.137, to the extent the information required is not herein provided. Section 25.137 is designed to ensure that “U.S.-licensed satellite systems have effective competitive opportunities to provide analogous services” in other countries. Here, there is no service being provided by the satellite; USN is providing TT&C while the satellite is on the way to its low earth orbit. Thus, the purpose of the information required by Section 25.137 is not implicated here. For example, Section 25.137(d) requires earth station applicants requesting authority to operate with a non-U.S.-licensed space station that is not in orbit and operating to post a bond.⁵ The underlying purpose in having to post a bond – i.e., to prevent warehousing of orbital locations by operators seeking to serve the United States – would not be served by requiring USN to post a bond in order to conduct the 7 days of LEOP support of the Sentinels-3B satellite.

It is USN’s understanding that Sentinels-3B is licensed by ESA (European Space Agency). Sentinels-3B is the sixth of the series spacecraft meant to serve the EU. Thus, the purpose of Section 25.137 – to ensure that U.S. satellite operators enjoy “effective competitive opportunities” to serve foreign markets and to prevent warehousing of orbital locations service the United States – will not be undermined by grant of this waiver request.

Finally, USN notes that it expects to communicate with the Sentinels-3B satellite using its U.S. earth station for a period of 7 days. Requiring USN to obtain technical and legal information from an unrelated party, where there is no risk of interference and the operation will cease within 7 days would pose undue hardship without serving underlying policy objectives. Given these particular facts, the waiver sought herein is appropriate.

⁵ 47 C.F.R. §25.137(d)(4)

II. GOOD CAUSE EXISTS FOR A WAIVER OF THE UNITED STATES TABLE OF FREQUENCY ALLOCATIONS

USN further requests a waiver of the United States Table of Frequency Allocations ("U.S. Table") as described in section 2.106 of the rules for the frequency bands 2025 – 2110 MHz (Earth-to-Space) and 2200 – 2290 MHz (Space-to-Earth).⁶ Section footnotes allow for non-federal Government use of these bands in the United States on a case-by-case non-interference basis. Such use by USN necessitates a waiver of the U.S. Table.

Good cause exists to grant USN a limited waiver of the U.S. Table to allow LEOP support of the Sentinels-3B satellite. In considering request for case-by-case spectrum uses, the Commission has indicated that it would generally grant such waivers "where there is little potential for interference into any service authorized under the Table of Frequency Allocations and when the case-by-case operator accepts any interference from authorized services."⁷ USN will coordinate with other parties operating communication systems in compliance with the Table of Frequency Allocations to ensure that no harmful interference is caused. USN seeks to operate only pursuant to special temporary authorization and thus agrees to accept any interference from authorized services. In summary, USN's operation on a non-interference, non-protected basis support waiver of the U.S. Table.

⁶ 47 C.F.R. §2.106

⁷ Previously approved STA's for Universal Space Network SES-STA-20020725-01174; SES-STA-20021112-02008; SES-STA-20040315-00475

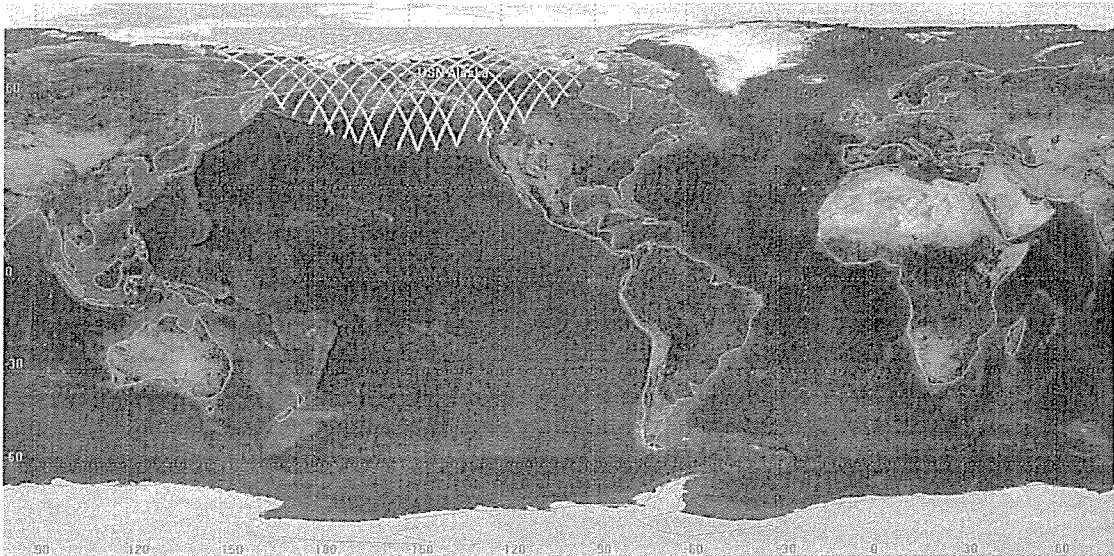
USN LEOP support for Sentinels-3B from Alaska

Sentinels-3B is the sixth in a series of Synthetic Aperture Radar (SAR) earth observation science satellites launched by ESA to serve the European Union. Sentinels-3B will be launched from the Plestesk Russia space center on April 25th, 2018 at a nominal liftoff time of 17:58:34 UTC. The Sentinels-3B spacecraft will be supported by the USN Alaska ground station using a downlink frequency = 2254.099 MHz and uplink = 2075.650 MHz, and has been fully coordinated by Comsearch.

The LEOP support is scheduled to be conducted for 3 days with contingency to extend an additional 4 days for a total of up to 7 days at the USN tracking station in Alaska. All visible passes will not be supported, but for planning purposes it should be assumed that all the passes visible from Alaska could be supported for the first 3 days of the LEOP as shown below.

SENTINELS-3B

```
1 90005U 00000A 18115.80379630 .00000000 00000+0 84593-2 0 00010  
2 90005 98.6290 183.7781 0001306 91.9967 262.6689 14.23757839 04
```



USN Alaska coverage of Sentinels LEOP from 25 April thru 28 April 2018

USN Alaska possible passes for Sentinels-3B 25 April thru 28 April 2018 UTC

Pass	Start Time (UTCG)	Stop Time (UTCG)
1	25 Apr 2018 19:45:21	25 Apr 2018 19:57:36
2	25 Apr 2018 21:25:26	25 Apr 2018 21:38:09
3	25 Apr 2018 23:05:29	25 Apr 2018 23:16:44
4	26 Apr 2018 00:45:00	26 Apr 2018 00:54:27
5	26 Apr 2018 02:23:21	26 Apr 2018 02:32:25
6	26 Apr 2018 04:00:56	26 Apr 2018 04:11:43
7	26 Apr 2018 05:39:11	26 Apr 2018 05:51:42
8	26 Apr 2018 07:19:14	26 Apr 2018 07:31:49
9	26 Apr 2018 09:01:58	26 Apr 2018 09:11:33
10	26 Apr 2018 17:43:24	26 Apr 2018 17:49:29
11	26 Apr 2018 19:22:24	26 Apr 2018 19:34:08
12	26 Apr 2018 21:02:26	26 Apr 2018 21:15:15
13	26 Apr 2018 22:42:32	26 Apr 2018 22:54:13
14	27 Apr 2018 00:22:13	27 Apr 2018 00:31:55
15	27 Apr 2018 02:00:52	27 Apr 2018 02:09:46
16	27 Apr 2018 03:38:30	27 Apr 2018 03:48:48
17	27 Apr 2018 05:16:28	27 Apr 2018 05:28:41
18	27 Apr 2018 06:56:02	27 Apr 2018 07:08:49
19	27 Apr 2018 08:38:02	27 Apr 2018 08:48:42
20	27 Apr 2018 17:21:47	27 Apr 2018 17:23:52
21	27 Apr 2018 18:59:27	27 Apr 2018 19:10:27
22	27 Apr 2018 20:39:23	27 Apr 2018 20:52:12
23	27 Apr 2018 22:19:31	27 Apr 2018 22:31:36
24	27 Apr 2018 23:59:20	28 Apr 2018 00:09:29
25	28 Apr 2018 01:38:17	28 Apr 2018 01:47:09
26	28 Apr 2018 03:16:03	28 Apr 2018 03:25:54
27	28 Apr 2018 04:53:48	28 Apr 2018 05:05:39
28	28 Apr 2018 06:32:55	28 Apr 2018 06:45:45
29	28 Apr 2018 08:14:16	28 Apr 2018 08:25:45
30	28 Apr 2018 09:59:27	28 Apr 2018 10:04:27
31	28 Apr 2018 18:36:32	28 Apr 2018 18:46:33
32	28 Apr 2018 20:16:19	28 Apr 2018 20:29:00
33	28 Apr 2018 21:56:26	28 Apr 2018 22:08:51
34	28 Apr 2018 23:36:23	28 Apr 2018 23:46:59

Flux Density impinging on the ground in Alaska from Sentinels-3B

The Flux density is calculated as:

$$\text{Flux density} = \text{EIRP} \div (4 \pi Rse^2)$$

Where *Rse* is the distance from spacecraft to the ground.

Where *EIRP* is the Effective Isotropic Radiated Power of the Spacecraft.

Data from the spacecraft vendor indicates that the maximum EIRP of Sentinels-3B is -8.83 dBW. The altitude (and thus the closest distance to earth during an overhead pass) is = 692 Km.

Converting -8.83 dBW to scalar watts = 0.130 watts transmitted at 2254.099 MHz

Therefor:

$$\text{Flux density} = 0.13 \div (4 \pi * 692,000 \text{ meters}^2)$$

Flux density = 2.160×10^{-14} Watts/meter²

Or

Flux density = 2.160×10^{-15} mW/cm²