


APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATION Enter a description of this application to identify it on the main menu:  
Metop-A ranging Campaign Hawaii

1. Applicant

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

SES-STA-20110823-00998

 RECEIVED  
International Bureau

**Call Signature** Grant Date 9-20-11  
(or other identifier)

**From** 9-20-11 **Term Dates** 10-19-11  
**Appr** Paul E. Greet

with conditions

SES-STA-20110823-00998


No Call Sign

Conditions:

Universal Space Network Inc. is granted Special Temporary Authority to operate the earth station identified in this application on transmit frequency 2053.4583 MHz and receive frequency 2230.0 MHz to support the Swedish Space Corporation, Solona, Sweden (SSC) to conduct Pre-Launch and Early Orbit (LEOP) testing on the non-US licensed space station METOP-A which is licensed by European Space Agency (ESA) on the following conditions:

1. All operations shall be on an unprotected, non-interference basis to both government and non-government operations.
2. All operations shall expire no later than 30 days from beginning of operations.
3. All operations shall be limited to telemetry, tracking, and control (TT&C).
4. Universal Space Network will inform NTIA (Skotler@ntia.doc.gov, 202-482-7983) and the FCC (Paul Blais @ 202-418-7274) at least 24 hours prior to the planned operations if delayed beyond the requested beginning date of 20 September 2011.
5. The Universal Space Network Point of Contact for Operation is Joanne Greet 215-328-9130 or 907-490-3064 and must be available while the frequencies are in use.

SES-STA-20110823-00998



**GRANTED**  
International Bureau

Call Sign None Grant Date 9-20-11  
(or other identifier)

From 9-20-11 Term Dates 9-20-11  
For 10-19-11

Apprv. [Signature]

**2. Contact**

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

- If Yes, complete and attach FCC Form 159. If No, indicate reason for fee exemption (see 47 C.F.R. Section 1.1114).
- Governmental Entity     Noncommercial educational licensee
- Other (please explain):

4b. Fee Classification    CGX – Fixed Satellite Transmit/Receive Earth Station

5. Type Request

- Use Prior to Grant                       Change Station Location                       Other

6. Requested Use Prior Date  
09/01/2011

7. City Naalehu

8. Latitude  
(dd mm ss.s h) 19 0 50.3 N

9. State HI	10. Longitude (dd mm ss.s h) 155 39 46.6 W
11. Please supply any need attachments. Attachment 1: FCC 312 Metop-A HI                      Attachment 2: PCN Metop-A                      Attachment 3: waiver & Analysis	
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; margin: 5px 0;">Metop-A ranging campaign for September 2011.</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. <input checked="" type="radio"/> Yes <input type="radio"/> No	
14. Name of Person Signing Joanne Greet	15. Title of Person Signing Manager, Contracts & 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**

The public reporting for this collection of information is estimated to average 2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the required data, and completing and reviewing the collection of information. If you have any comments on this burden estimate, or how we can improve the collection and reduce the burden it causes you, please write to the Federal Communications Commission, AMD-PERM, Paperwork Reduction Project (3060-0678), Washington, DC 20554. We will also accept your comments regarding the Paperwork Reduction Act aspects of this collection via the Internet if you send them to PRA@fcc.gov. PLEASE DO NOT SEND COMPLETED FORMS TO THIS ADDRESS.

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

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

**FCC 312**  
Main Form

**FEDERAL COMMUNICATIONS COMMISSION**

**APPLICATION FOR SATELLITE SPACE AND EARTH STATION AUTHORIZATIONS**

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

FCC Use Only

File Number:

Call Sign:

Fee Number:

**APPLICANT INFORMATION**

1. Legal Name of Applicant Universal Space Network, Inc.		2. Voice Telephone Number 949-476-3432	
3. Other Name Used for Doing Business (if any)		4. Fax Telephone Number 949-851-9485	
5. Mailing Street Address or P.O. Box 1501 Quail Street, Suite 102 ATTENTION: Joanne Greet 215-328-9130 phone		6. City Newport Beach	
		7. State / Country (if not U.S.A.) CA	8. Zip Code 92660
9. Name of Contact Representative (If other than applicant)		10. Voice Telephone Number	
11. Firm or Company Name		12. Fax Telephone Number	
13. Mailing Street Address or P.O. Box ATTENTION:		14. City	
		15. State / Country (if not U.S.A.)	16. Zip Code

**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

18. 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.

a. Fixed Satellite   
  c. Radiodetermination Satellite   
  e. Direct to Home Fixed Satellite  
 b. Mobile Satellite   
  d. Earth Exploration Satellite   
  f. Digital Audio Radio Service   
 g. Other (please specify) Ranging Compatibility Testing

---

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

a. Common Carrier   
 b. Non-Common Carrier

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

a. Using U.S. licensed satellites   
 b. Using Non-U.S. licensed satellites

---

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

a. Connected to the Public Switched Network   
 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).

a. C-Band (4/6 GHz)  
 b. Ku-Band (12/14 GHz)   
 c. Other (Please specify) S-band

### 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.

a. Fixed Earth Station   
 b. Temporary-Fixed Earth Station   
 c. 12/14 GHz VSAT Network   
 d. Mobile Earth Station   
 e. Space Station   
 f. Other (Specify) \_\_\_\_\_

If space station applicant, go to Question 27.

---

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

a. Transmit/Receive   
 b. Transmit-Only   
 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.

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

### 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?  YES     NO

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.

### 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? <u>International Telecommunication Union</u>		





**FEDERAL COMMUNICATIONS COMMISSION**

**FCC 312 - Schedule A**

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

FCC Use Only

- |  |   |
|--|---|
| <input type="checkbox"/> <b>CONSENT TO TRANSFER OF CONTROL</b>                                   | <input type="checkbox"/> <b>CONSENT TO ASSIGNMENT OF LICENSE</b>                        |
| <input type="checkbox"/> <b>NOTIFICATION OF TRANSFER OF CONTROL OF RECEIVE ONLY REGISTRATION</b> | <input type="checkbox"/> <b>NOTIFICATION OF ASSIGNMENT OF RECEIVE ONLY REGISTRATION</b> |

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? <input type="checkbox"/> YES <input type="checkbox"/> NO 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.					
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**  
**(Technical and Operational Description)**

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

License of New Station     Registration of New Domestic Receive-Only Station     Amendment to a Pending Application     Modification of License/Registration     Notification of Minor Modification

**B1. Location of Earth Station Site.** If temporary-fixed, mobile, or VSAT remote facility, specify area of operation and point of contact. If VSAT hub station, give its location. For VSAT networks attach individual Schedule B, Page 1 sheets for each hub station and each remote station. Individually provide the Location, Points of Communications, and Destination Points for each hub and remote station.

B1a. Station Call Sign	B1b. Site Identifier (HUB, REMOTE1, etc.) USHI01	B1c. Telephone Number 808-929-8069	B1j. Geographic Coordinates Deg. - Min. - Sec. - N/S E/W	B1k. Lat./Lon. Coordinates are:
B1d. Street Address of Station or Area of Operation 93-1704 South Point Road	B1e. Name of Contact Person Joanne Greet		Lat. 19 0 50.3 N Lon. 155 39 46.6 W	<input type="checkbox"/> NAD-27 <input checked="" type="checkbox"/> NAD-83
B1f. City Naalehu	B1g. County Ka'u	B1h. State HI	B1i. Zip Code 96772-0842	B1l. Site Elevation (AMSL) 378.0 meters

**B2. Points of Communications:** List the names and orbit locations of all satellites with which this earth station will communicate. The entry "ALSAT" is sufficient to identify the names and locations of all satellite facilities licensed by the U.S. All non-U.S. licensed satellites must be listed individually.

Satellite Name and Orbit Location	Satellite Name and Orbit Location	Satellite Name and Orbit Location
METOP-A		

**B3. Destination points for communications using non-U.S. licensed satellites.** For each non-U.S. licensed satellite facility identified in section B2 above, specify the destination point(s) (countries) where the services will be provided by this earth station via each non-U.S. licensed satellite system. Use additional sheets as needed.

Satellite Name	List of Destination Points
METOP-A	ESA (Non US spacecraft)







**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 <b>geostationary</b> 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"/>	<b>YES</b>	<input type="checkbox"/>	<b>NO</b>															
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 <b>non-geostationary</b> 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?	<input checked="" type="checkbox"/>	<b>YES</b>	<input type="checkbox"/>	<b>NO</b>															
B10. Is the facility operated by remote control? If YES, provide the location and telephone number of the control point.	<input checked="" type="checkbox"/>	<b>YES</b>	<input type="checkbox"/>	<b>NO</b>															
<b>Remote Control Point Location:</b>																			
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="5" style="padding: 2px;">B10a. Street Address 417 Caredean Drive, Suite A</td> </tr> <tr> <td style="width:33%; padding: 2px;">B10b. City Horsham</td> <td style="width:33%; padding: 2px;">B10c. County Montgomery</td> <td style="width:15%; padding: 2px;">B10d. State / Country PA</td> <td colspan="2" style="padding: 2px;">B10e. Zip Code 19044</td> </tr> <tr> <td colspan="2" style="padding: 2px;">B10f. Telephone Number 215-328-9130</td> <td colspan="3" style="padding: 2px;">B10g. Call Sign of Control Station (if appropriate)</td> </tr> </table>					B10a. Street Address 417 Caredean Drive, Suite A					B10b. City Horsham	B10c. County Montgomery	B10d. State / Country PA	B10e. Zip Code 19044		B10f. Telephone Number 215-328-9130		B10g. Call Sign of Control Station (if appropriate)		
B10a. Street Address 417 Caredean Drive, Suite A																			
B10b. City Horsham	B10c. County Montgomery	B10d. State / Country PA	B10e. Zip Code 19044																
B10f. Telephone Number 215-328-9130		B10g. Call Sign of Control Station (if appropriate)																	
B11. Is frequency coordination required? If YES, attach a frequency coordination report as an exhibit.	<input type="checkbox"/>	<b>YES</b>	<input checked="" type="checkbox"/>	<b>NO</b>															
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"/>	<b>YES</b>	<input checked="" type="checkbox"/>	<b>NO</b>															
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? <b>FAILURE TO COMPLY WITH 47 CFR PARTS 17 AND 25 WILL RESULT IN THE RETURN OF THIS APPLICATION.</b>	<input type="checkbox"/>	<b>YES</b>	<input checked="" type="checkbox"/>	<b>NO</b>															

19700 Janelia Farm Boulevard

Ashburn, VA 20147

(703) 726-5500



Fax (703) 726-5600

COMSEARCH®

<http://www.comsearch.com>

July 24, 2011

\*\*\*\*\*  
\*\*\* CLIENT COPY \*\*\*  
\*\*\* PLEASE MAIL \*\*\*  
\*\*\* TO CUSTOMER \*\*\*

Re: Universal Space Network, Inc.  
Naalehu, Hawaii  
2 GHz Band Transmit/Receive Earth Station  
Job Number: 110724COMSJC03

\*\*\*\*\* EXPEDITED FREQUENCY COORDINATION \*\*\*\*\*  
\*\*\*\*\* RESPONSE REQUESTED BY AUGUST 5, 2011 \*\*\*\*\*

Dear Frequency Coordinator:

This notice is being provided in accordance with Section 25.203(c) of the FCC Rules and Regulations. We are forwarding the attached expedited coordination data on behalf of Universal Space Network, Inc. for the purpose of obtaining a STA to provide support services during the launch and early orbit testing of a new satellite from their existing transmit/receive earth station near Naalehu, Hawaii.

The coordination notice is being circulated to the owners (or their protection agents) of all existing or proposed terrestrial facilities operating in a shared frequency band within the coordination contours of the station(s).

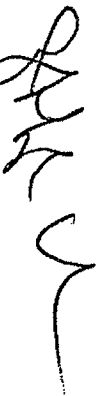
Please update your database with the attached information.

We respectfully request that you examine this data for its interference potential with your system(s). In the event that your analysis identifies potential interference cases that were not previously reported, please contact Comsearch by August 5, 2011.

If there are any questions concerning this coordination notice, please contact Comsearch.

Sincerely,

COMSEARCH



Jeffrey E. Cowles  
Engineer III, Telecommunications  
[jcowles@comsearch.com](mailto:jcowles@comsearch.com)

Enclosure(s)



# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
 (703)726-5660 <http://www.comsearch.com>

Date: 07/24/2011  
 Job Number: 110724COMSJC03

### Administrative Information

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

### Site Information

Venue Name: **NAALEHU, HAWAII**  
 Latitude (NAD 83): 19° 0' 50.3" N  
 Longitude (NAD 83): 155° 39' 46.6" W  
 Climate Zone: C  
 Rain Zone: 4  
 Ground Elevation (AMSL): 378.0 m / 1240.2 ft

### Link Information

Satellite Type: Low Earth Orbit  
 Mode: TR - Transmit/Receive  
 Modulation: Digital  
 Minimum Elevation Angle: 5.0°  
 Azimuth Range: 0.0° to 360°  
 Antenna Centerline (AGL): 8.53 m / 28.0 ft

### Antenna Information

Manufacturer	Datron	Receive	Datron	Transmit
Model	1453		1453	
Gain / Diameter	46.9 dBi / 13.0 m		45.9 dBi / 13.0 m	
3-dB / 15-dB Beamwidth	0.78° / 1.46°		0.76° / 1.46°	

Max Available RF Power (dBW/4 KHz): 4.5  
 (dBW/MHz): 22.1

Maximum EIRP (dBW/4 KHz): 50.4  
 (dBW/MHz): 68.0  
 (dBW): 68.0

Interference Objectives:

Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 KHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 KHz	0.0025%

### Frequency Information

Emission / Frequency Range (MHz)	230KG2D / 2230.0000	Receive 2.2 GHz	230KG2D / 2053.4583	Transmit 2.0 GHz
----------------------------------	---------------------	-----------------	---------------------	------------------

Max Great Circle Coordination Distance: 1050.1 km / 652.4 mi  
 Precipitation Scatter Contour Radius: 100.0 km / 62.1 mi

760.0 km / 472.2 mi  
 176.0 km / 109.3 mi



# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
 (703)726-5660 <http://www.comsearch.com>

### Coordination Values

Licensee Name **NAALEHU, HI**  
 Universal Space Network, Inc.  
 Latitude (NAD 83) 19° 0' 50.3" N  
 Longitude (NAD 83) 155° 39' 46.6" W  
 Ground Elevation (AMSL) 378.0 m / 1240.2 ft  
 Antenna Centerline (AGL) 8.54 m / 28.0 ft  
 Antenna Model Datron 1453

Antenna Mode Receive 2.2 GHz  
 Interference Objectives: Long Term -156.0 dBW/MHz 20%  
 Short Term -146.0 dBW/MHz 0.01%

Max Available RF Power  
 Transmit 2.0 GHz  
 -154.0 dBW/4 KHz 20%  
 -131.0 dBW/4 KHz 0.0025%  
 4.5 (dBW/4 KHz)

Azimuth (°)	Horizon		Antenna Discrimination (°)	Receive 2.2 GHz		Transmit 2.0 GHz	
	Elevation (°)	Gain (dBi)		Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)	
185	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
190	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
195	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
200	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
205	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
210	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
215	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
220	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
225	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
230	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
235	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
240	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
245	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
250	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
255	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
260	0.00	5.0	5.0	4.50	1050.10	4.50	760.00
265	0.34	5.0	5.0	4.50	908.60	4.50	616.80
270	0.54	5.0	5.0	4.50	866.00	4.50	573.30
275	0.79	5.0	5.0	4.50	826.30	4.50	532.80
280	1.04	5.0	5.0	4.50	795.00	4.50	500.90
285	0.98	5.0	5.0	4.50	802.00	4.50	508.00
290	1.14	5.0	5.0	4.50	784.10	4.50	489.70
295	1.30	5.0	5.0	4.50	768.00	4.50	473.20
300	1.42	5.0	5.0	4.50	757.00	4.50	461.80
305	1.68	5.0	5.0	4.50	734.80	4.50	439.30
310	1.86	5.0	5.0	4.50	721.00	4.50	425.20
315	2.05	5.0	5.0	4.50	707.40	4.50	411.30
320	2.17	5.0	5.0	4.50	699.20	4.50	403.00
325	2.35	5.0	5.0	4.50	687.60	4.50	391.10
330	2.46	5.0	5.0	4.50	681.00	4.50	384.10
335	2.59	5.0	5.0	4.50	673.00	4.50	376.20
340	2.68	5.0	5.0	4.50	667.80	4.50	370.80
345	2.73	5.0	5.0	4.50	664.90	4.50	367.90
350	3.10	5.0	5.0	4.50	644.70	4.50	347.30
355	2.96	5.0	5.0	4.50	652.20	4.50	354.90

**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 METOP-A Satellite.<sup>1</sup> 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..."<sup>2</sup> USN seeks authority to support the needed testing ranging calibration campaign using METOP-A in preparation for the 2Q-2012 launch and (LEOP) support of METOP-B, 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.<sup>3</sup> The Commission may grant a waiver for good cause shown.<sup>4</sup> 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 testing (pre-LEOP) support for METOP-A. 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 METOP-A satellite, nor is USN in contractual privity with that operator. Rather, USN has contracted with Swedish Space Corporation, Solona Sweden (SSC) to support the calibration campaign in preparation for the Launch and Early Orbit (LEOP) portion in S-Band of the METOP-B satellite prior to its operation.

As evidenced by the Comsearch report attached to this request, USN has coordinated the test of the METOP-A 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.

<sup>1</sup> FCC Form 312 Section B

<sup>2</sup> 47 C.F.R. § 25.137(a)

<sup>3</sup> 47 C.F.R. §§25.137 and 25.114

<sup>4</sup> 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.<sup>5</sup> 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 4 days of testing support of the METOP-A satellite.

It is USN’s understanding that METOP-A is licensed by ESA (European Space Agency). METOP-A is the first 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 METOP-A satellite using its U.S. earth station for a period of 4 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 4 days would pose undue hardship without serving underlying policy objectives. Given these particular facts, the waiver sought herein is appropriate.

---

<sup>5</sup> 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).<sup>6</sup> 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 testing of the METOP-A satellite in preparation for the LEOP of the METOP-B 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."<sup>7</sup> 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.

---

<sup>6</sup> 47 C.F.R. §2.106

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

## USN ranging campaign using METOP-A from Hawaii

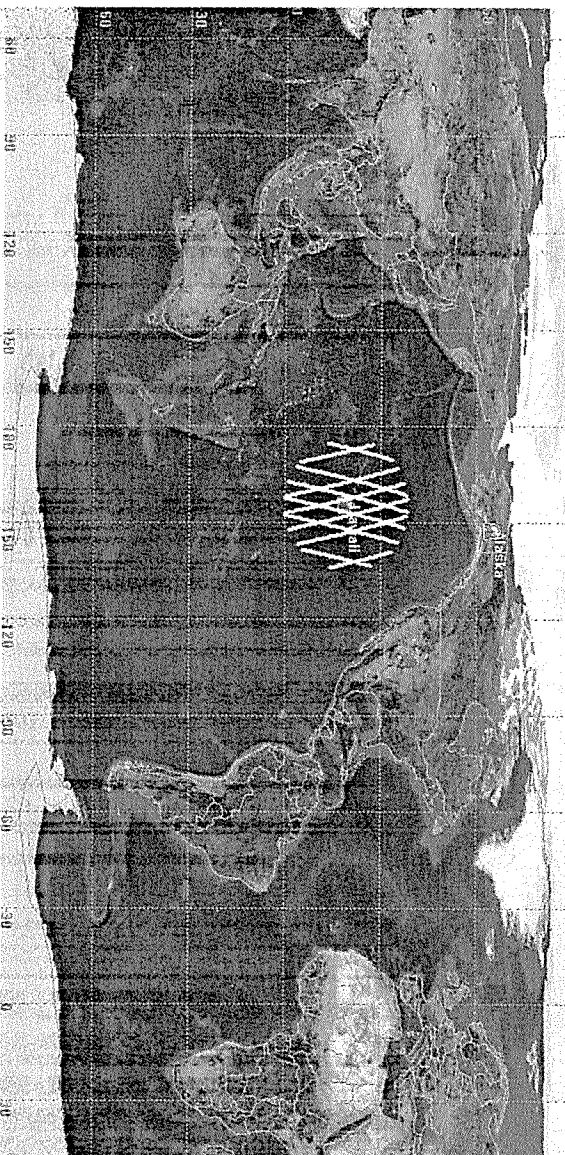
METOP-A is an on-orbit weather satellite for the European Union. The spacecraft is the first of a series with METOP-B to follow 2Q-2012. USN has been contracted to support the METOP-B spacecraft LEOPS when launched in 2012. As part of this LEOP support ESA requires calibration of the USN antenna systems for the production of ranging data. To calibrate the USN systems requires test passes conducted with the on orbit METOP-A spacecraft (Norad ID = 29499). Downlink Frequency = 2230.0 MHz and Uplink = 2053.4583 MHz

The spacecraft is a Low Earth Orbiting (LEO) spacecraft in a polar Sun-synchronous with a near circular orbit of altitude of 820 Km.

The ranging campaign consists of 8 possible passes over a 4 day period at the USN tracking station in Hawaii. The possible passes are shown below.

### METOP-A

1 29499U 06044A 11220.26407016 .00000196 00000-0 10972-3 0 4914  
2 29499 98.6838 278.5347 0000614 127.1035 233.0208 14.21497690249122



### USN Hawaii possible passes 6 Sep 2011 thru 9 Sept 2011 utc

1	6 Sep 2011 08:01:13	6 Sep 2011 08:11:21
2	6 Sep 2011 20:30:30	6 Sep 2011 20:40:21
3	7 Sep 2011 07:40:14	7 Sep 2011 07:50:55
4	7 Sep 2011 20:09:29	7 Sep 2011 20:20:05
5	8 Sep 2011 07:19:37	8 Sep 2011 07:30:10
6	8 Sep 2011 19:48:46	8 Sep 2011 19:59:26
7	9 Sep 2011 06:59:23	9 Sep 2011 07:09:07
8	9 Sep 2011 19:28:21	9 Sep 2011 19:38:24

## **Flux Density impinging on the ground in Hawaii from METOP-A**

The Flux density is calculated as:

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

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 nominal EIRP of METOP-A is 13.8 dBW. The altitude (and thus the closest distance to earth during an overhead pass) is = 820 Km.

Converting 13.8 dBW to scalar watts = 23.9 watts transmitted at 2230.0 MHz

Therefore:

$$\text{Flux density} = 23.9 \div (4\pi * 820,000 \text{ meters}^2)$$

Flux density = 2.828 x 10<sup>-12</sup> Watts/meter<sup>2</sup>

Or

Flux density = 2.828 x 10<sup>-13</sup> mW/cm<sup>2</sup>