

APPLICATION FOR EARTH STATION SPECIAL TEMPORARY AUTHORITY

APPLICANT INFORMATION Enter a description of this application to identify it on the main menu:
STA for use of a 3.8 meter C-band T/R at Ford Island, Hawaii pending license grant

1. Applicant

Name: Incorporated Research Institutions for Seismology **Phone Number:** 202-682-2220 x122
DBA Name: **Fax Number:**
Street: 1200 New York Avenue, NW, Suite 400 **E-Mail:** andyf@iris.edu
City: Washington **State:** DC
Country: USA **Zipcode:** 20005
Attention: Mr Andrew Frassetto

SES-STA-20141121-00869
E140120
Call Sign
(or other identifier)
From 3-30-15 To 3-30-15
Term Dates
Approved: [Signature]

GRANTED
International Bureau

Applicant: Incorporated Research Institutions for Seismology
Call Sign: E140120
File No.: SES-STA-20141121-00869
Special Temporary Authority (STA)

Incorporated Research Institution for Seismology, (IRIS) is granted special temporary authority for 30 days to operate a fixed earth station in Ford Island, HI, to communicate with Permitted List satellite in the 5925 - 5929, 6021 - 6037, 6095 - 6181, 6214 - 6255, AND 6347 - 6366 MHz (Earth-to-space) and 3700-4200, (space-to-Earth) frequency bands under the following conditions.

1. IRIS shall operate its 3.8 meter Prodelin 1383 antenna with Input Power Density into the antenna flange may not to exceed -13.2 dBW/4 kHz.
2. Operation must comply with the technical parameters specified in its underlying application, IBFS File no. SES-LIC-20141121-00867
3. The licensee shall take all necessary measures to ensure that the antenna does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR 1.1307(b) and 1.1310 wherever such exposures might occur. Measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Compliance can be accomplished in most cases by appropriate restrictions such as fencing. Requirements for restrictions can be determined by predictions based on calculations, modeling or by field measurements. The FCC's OET Bulletin 65 (available on-line at www.fcc.gov/oet/rfsafety) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for workers.
4. All operations under this grant of STA shall be on an unprotected and non-harmful interference basis. Incorporated Research Institutions for Seismology E140120 shall not cause harmful interference to, and shall not claim protection from interference caused to it by, any other lawfully operating radio communication system.
5. In the event of any harmful interference as a result of operations under this grant of STA, IRIS shall cease operations immediately upon notification of such interference and shall immediately inform the Commission, in writing, of such an event.
6. Grant of this STA is without prejudice to any determination that the Commission may make regarding pending or future Intelsat License LLC applications.
7. Any action taken or expense incurred as a result of operations pursuant to this STA is solely at Intelsat License LLC's risk.

This grant 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.

COMMUNICATIONS COMMISSION
GRANTED
International Bureau

File # SESS TA 20141121-00869
Call Sign E140120 **Grant Date** 3-30-15
(or other identifier)
From 3-30-15 **Term Dates** 4-29-15
To
Approved: Paul E. Blair

2. Contact

Name: Mr Andrew Frassetto **Phone Number:** 202-682-2220 x1
Company: Incorporated Research Institutions for Seismology
Street: 1200 New York Avenue, NW, Suit E-Mail: andyf@iris.edu
City: Washington **State:** DC
Country: USA **Zipcode:** 20005
Attention: **Relationship:**

(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 IB2014002305

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

12/05/2014

| | |
|--|---|
| 7. CityFord Island | 8. Latitude (dd mm ss.s h) 21 21 57.6 N |
| 9. State HI | 10. Longitude (dd mm ss.s h) 157 57 46.8 W |
| 11. Please supply any need attachments. Attachment 1: Coordination Report Attachment 2: Attachment 3: | |
| 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;">STA for use of pending license grant (Submission ID IB2014002305) of a 3.8 meter C-band T/R earth station. This Satellite Earth Station is located at the Pacific Tsunami Warning Center to provide vital real-time data to allow for NOAA / PTWC to issue a tsunami warning if a potential tsunami is observed following an earthquake.</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. <div style="display: flex; justify-content: space-around;"> Yes <input checked="" type="radio"/> No <input type="radio"/> </div> | |
| 14. Name of Person Signing Robert Woodward | 15. Title of Person Signing Director of Instrumentation Services |
| 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). | |

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FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Incorporated Research Institutions for Seismology
FORD ISLAND, HI
(E020017)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
November 21, 2014

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1. CONCLUSIONS

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

2. SUMMARY OF RESULTS

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.

The following companies reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis. When over-the-horizon losses are considered on the interfering paths, sufficient blockage exists to negate harmful interference from occurring with the proposed transmit-receive earth station.

Company

Hawaii State
Hawaiian Telcom, Inc.
University of Hawaii

No other carriers reported potential interference cases.

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 11/10/2014.

Company

AT&T Corporation
HONOLULU CITY & COUNTY DEPT OF INFO TECH
Harmer Radio and Electronics, Inc.
Hawaii Electric Light Co Inc
Hawaii State
Hawaiian Telcom, Inc.
LIN License Company, LLC
Maui, County of
New Cingular Wireless PCS LLC - Hawaii
Oceanic Time Warner Cable LLC
Servpac, Inc
University of Hawaii

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: 11/18/2014
Job Number: 141110COMSGE01

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign: E020017
Licensee Code: INCRIS
Licensee Name: Incorporated Research Inst. Seismology

Site Information

FORD ISLAND, HI
Venue Name
Latitude (NAD 83): 21° 21' 57.6" N
Longitude (NAD 83): 157° 57' 46.8" W
Climate Zone: B
Rain Zone: 4
Ground Elevation (AMSL): 4.0 m / 13.1 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 180° W to 186° West Longitude
Azimuth Range: 228.0° to 235.6°
Corresponding Elevation Angles: 54.7° / 49.7°
Antenna Centerline (AGL): 17.98 m / 59.0 ft

Antenna Information

| | Receive - FCC32 | Transmit - FCC32 |
|--------------------------|--------------------------|--|
| Manufacturer | Prodelin | Prodelin |
| Model | 1383 | 1383 |
| Gain / Diameter | 41.8 dBi / 3.8 m | 46.2 dBi / 3.8 m |
| 3-dB / 15-dB Beamwidth | 1.40° / 2.80° | 1.00° / 2.00° |
| Max Available RF Power | (dBW/4 kHz) (dBW/MHz) | -13.2 10.8 |
| Maximum EIRP | (dBW/4 kHz) (dBW/MHz) | 33.0 57.0 |
| Interference Objectives: | Long Term Short Term | -156.0 dBW/MHz 20% -146.0 dBW/MHz 0.01% |
| | | -154.0 dBW/4 kHz 20% -131.0 dBW/4 kHz 0.0025% |

Frequency Information

| | Receive 4.0 GHz | Transmit 6.1 GHz |
|--|---------------------------|--|
| Emission / Frequency Range (MHz) | 100KG7D / 3700.0 - 4200.0 | 100KG7D / 5925.0 - 5929.0 100KG7D / 6021.0 - 6037.0 100KG7D / 6095.0 - 6181.0 100KG7D / 6214.0 - 6255.0 100KG7D / 6347.0 - 6366.0 100KG7D / 6384.0 - 6425.0 |
| Max Great Circle Coordination Distance | 412.2 km / 256.1 mi | 149.1 km / 92.6 mi |
| Precipitation Scatter Contour Radius | 100.0 km / 62.1 mi | 100.0 km / 62.1 mi |

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

FORD ISLAND, HI

| | | | |
|--------------------------|--|----------------------|--------------------------|
| Licensee Name | Incorporated Research Inst. Seismology | | |
| Latitude (NAD 83) | 21° 21' 57.6" N | | |
| Longitude (NAD 83) | 157° 57' 46.8" W | | |
| Ground Elevation (AMSL) | 4.0 m / 13.1 ft | | |
| Antenna Centerline (AGL) | 17.98 m / 59.0 ft | | |
| Antenna Model | Prodelin 3.8 meter | | |
| Antenna Mode | Receive 4.0 GHz | | Transmit 6.1 GHz |
| 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% |
| Max Available RF Power | | | -13.2 (dBW/4 kHz) |

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 0 | 1.27 | 112.02 | -10.00 | 237.91 | -10.00 | 100.00 |
| 5 | 1.32 | 114.94 | -10.00 | 234.92 | -10.00 | 100.00 |
| 10 | 1.54 | 117.83 | -10.00 | 222.81 | -10.00 | 100.00 |
| 15 | 1.88 | 120.48 | -10.00 | 205.40 | -10.00 | 100.00 |
| 20 | 1.96 | 122.34 | -10.00 | 201.34 | -10.00 | 100.00 |
| 25 | 2.10 | 124.02 | -10.00 | 195.67 | -10.00 | 100.00 |
| 30 | 2.30 | 125.50 | -10.00 | 188.11 | -10.00 | 100.00 |
| 35 | 2.45 | 126.65 | -10.00 | 182.94 | -10.00 | 100.00 |
| 40 | 2.47 | 127.38 | -10.00 | 182.01 | -10.00 | 100.00 |
| 45 | 2.75 | 128.03 | -10.00 | 172.52 | -10.00 | 100.00 |
| 50 | 1.92 | 127.22 | -10.00 | 203.70 | -10.00 | 100.00 |
| 55 | 2.18 | 127.19 | -10.00 | 192.64 | -10.00 | 100.00 |
| 60 | 2.33 | 126.71 | -10.00 | 187.04 | -10.00 | 100.00 |
| 65 | 2.04 | 125.49 | -10.00 | 198.06 | -10.00 | 100.00 |
| 70 | 1.71 | 123.96 | -10.00 | 214.04 | -10.00 | 100.00 |
| 75 | 1.77 | 122.52 | -10.00 | 210.80 | -10.00 | 100.00 |
| 80 | 1.07 | 120.23 | -10.00 | 249.40 | -10.00 | 100.00 |
| 85 | 1.18 | 118.38 | -10.00 | 242.91 | -10.00 | 100.00 |
| 90 | 1.05 | 116.16 | -10.00 | 250.70 | -10.00 | 100.00 |
| 95 | 0.73 | 113.67 | -10.00 | 287.94 | -10.00 | 108.41 |
| 100 | 0.36 | 111.06 | -10.00 | 360.34 | -10.00 | 130.76 |
| 105 | 0.63 | 108.66 | -10.00 | 301.89 | -10.00 | 113.04 |
| 110 | 0.57 | 105.98 | -10.00 | 311.17 | -10.00 | 115.98 |
| 115 | 0.00 | 103.07 | -10.00 | 412.20 | -10.00 | 149.12 |
| 120 | 0.00 | 100.30 | -10.00 | 412.20 | -10.00 | 149.12 |
| 125 | 0.00 | 97.48 | -10.00 | 412.20 | -10.00 | 149.12 |
| 130 | 0.00 | 94.62 | -10.00 | 412.20 | -10.00 | 149.12 |
| 135 | 0.00 | 91.74 | -10.00 | 412.20 | -10.00 | 149.12 |
| 140 | 0.00 | 88.85 | -10.00 | 412.20 | -10.00 | 149.12 |
| 145 | 0.00 | 85.96 | -10.00 | 412.20 | -10.00 | 149.12 |
| 150 | 0.00 | 83.10 | -10.00 | 412.20 | -10.00 | 149.12 |
| 155 | 0.00 | 80.27 | -10.00 | 412.20 | -10.00 | 149.12 |
| 160 | 0.00 | 77.49 | -10.00 | 412.20 | -10.00 | 149.12 |
| 165 | 0.00 | 74.78 | -10.00 | 412.20 | -10.00 | 149.12 |
| 170 | 0.00 | 72.16 | -10.00 | 412.20 | -10.00 | 149.12 |
| 175 | 0.00 | 69.64 | -10.00 | 412.20 | -10.00 | 149.12 |
| 180 | 0.00 | 67.24 | -10.00 | 412.20 | -10.00 | 149.12 |
| 185 | 0.00 | 64.98 | -10.00 | 412.20 | -10.00 | 149.12 |

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

FORD ISLAND, HI

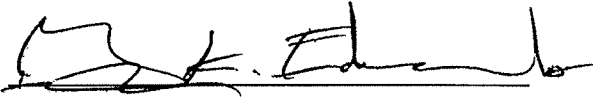
| | | | | | |
|--------------------------|--|----------------|------------------|------------------|-------------------|
| Licensee Name | Incorporated Research Inst. Seismology | | | | |
| Latitude (NAD 83) | 21° 21' 57.6" N | | | | |
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| Antenna Centerline (AGL) | 17.98 m / 59.0 ft | | | | |
| Antenna Model | Prodelin 3.8 meter | | | | |
| Antenna Mode | Receive 4.0 GHz | | Transmit 6.1 GHz | | |
| 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% |
| Max Available RF Power | | | | | -13.2 (dBW/4 kHz) |

| Azimuth (°) | Horizon Elevation (°) | Antenna Discrimination (°) | Receive 4.0 GHz | | Transmit 6.1 GHz | |
|-------------|-----------------------|----------------------------|--------------------|----------------------------|--------------------|----------------------------|
| | | | Horizon Gain (dBi) | Coordination Distance (km) | Horizon Gain (dBi) | Coordination Distance (km) |
| 190 | 0.00 | 62.89 | -10.00 | 412.20 | -10.00 | 149.12 |
| 195 | 0.00 | 60.58 | -10.00 | 412.20 | -10.00 | 149.12 |
| 200 | 0.00 | 58.26 | -10.00 | 412.20 | -10.00 | 149.12 |
| 205 | 0.00 | 56.15 | -10.00 | 412.20 | -10.00 | 149.12 |
| 210 | 0.00 | 54.30 | -10.00 | 412.20 | -10.00 | 149.12 |
| 215 | 0.00 | 52.72 | -10.00 | 412.20 | -10.00 | 149.12 |
| 220 | 0.00 | 51.44 | -10.00 | 412.20 | -10.00 | 149.12 |
| 225 | 0.00 | 50.50 | -10.00 | 412.20 | -10.00 | 149.12 |
| 230 | 0.00 | 49.90 | -10.00 | 412.20 | -10.00 | 149.12 |
| 235 | 0.00 | 49.67 | -10.00 | 412.20 | -10.00 | 149.12 |
| 240 | 0.00 | 49.81 | -10.00 | 412.20 | -10.00 | 149.12 |
| 245 | 0.00 | 50.31 | -10.00 | 412.20 | -10.00 | 149.12 |
| 250 | 0.00 | 51.17 | -10.00 | 412.20 | -10.00 | 149.12 |
| 255 | 0.00 | 52.37 | -10.00 | 412.20 | -10.00 | 149.12 |
| 260 | 0.00 | 53.88 | -10.00 | 412.20 | -10.00 | 149.12 |
| 265 | 0.00 | 55.67 | -10.00 | 412.20 | -10.00 | 149.12 |
| 270 | 0.00 | 57.71 | -10.00 | 412.20 | -10.00 | 149.12 |
| 275 | 0.00 | 59.98 | -10.00 | 412.20 | -10.00 | 149.12 |
| 280 | 0.00 | 62.45 | -10.00 | 412.20 | -10.00 | 149.12 |
| 285 | 0.35 | 64.89 | -10.00 | 363.55 | -10.00 | 131.87 |
| 290 | 0.53 | 67.60 | -10.00 | 316.71 | -10.00 | 115.82 |
| 295 | 0.58 | 70.51 | -10.00 | 309.33 | -10.00 | 115.41 |
| 300 | 0.68 | 73.52 | -10.00 | 294.72 | -10.00 | 110.69 |
| 305 | 0.69 | 76.63 | -10.00 | 292.81 | -10.00 | 110.05 |
| 310 | 0.49 | 79.86 | -10.00 | 323.09 | -10.00 | 117.81 |
| 315 | 0.72 | 83.05 | -10.00 | 288.43 | -10.00 | 108.58 |
| 320 | 0.69 | 86.31 | -10.00 | 293.19 | -10.00 | 110.18 |
| 325 | 0.80 | 89.59 | -10.00 | 277.53 | -10.00 | 104.78 |
| 330 | 0.85 | 92.88 | -10.00 | 271.02 | -10.00 | 102.42 |
| 335 | 0.85 | 96.16 | -10.00 | 271.52 | -10.00 | 102.60 |
| 340 | 1.00 | 99.44 | -10.00 | 254.05 | -10.00 | 100.00 |
| 345 | 1.03 | 102.67 | -10.00 | 252.25 | -10.00 | 100.00 |
| 350 | 1.21 | 105.89 | -10.00 | 241.64 | -10.00 | 100.00 |
| 355 | 1.27 | 109.01 | -10.00 | 238.10 | -10.00 | 100.00 |

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: November 21, 2014