Narrative
USN LEOP Support for VIASAT 3-F1 from Hawaii

VIASAT 3-F1 is a LEOP mission of Boeing. VIASAT 3-F1 was launched on May 1st 2023. Renewd support from SSC is for a new period of 30 days.

VIASAT 3-F1 typical coverage from Hawaii

The below analysis covers all possible visibilities from USN Hawaii.

	Downlink	Uplink
VIASAT 3-F1	11700,25 MHz	14499,0 MHz
VIASAT 3-F1	12199,5 MHz	14001,0 MHz
VIASAT 3-F1	11701.75 MHz	
VIASAT 3-F1	12197.75 MHz	

VIASAT 3-F1

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1 00001U 00000A 23066.87500000 .00000000 00000-0 00000-0 0 12
2 00001 000.5231 003.5951 0019448 002.4672 028.1314 01.00277848 11
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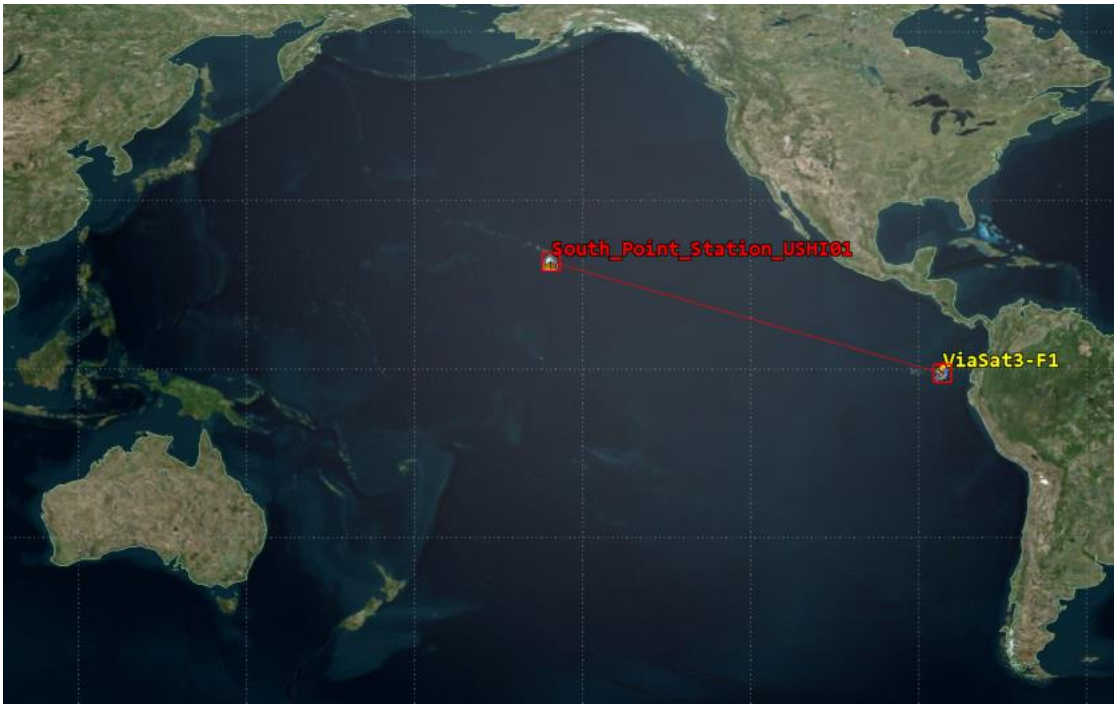


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                                                                    11 May 2023 12:04:33
Facility-South_Point_Station_USHI01-To-Satellite-ViaSat3-F1:  Access Summary Report


South_Point_Station_USHI01-To-ViaSat3-F1
----------------------------------------
                 Access        Start Time (UTCG)           Stop Time (UTCG)        Duration (sec)
                 ------    ------------------------    ------------------------    --------------
                      1    25 May 2023 10:00:00.000    24 Jun 2023 10:00:00.000      2592000.000

Global Statistics
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Min Duration          1    25 May 2023 10:00:00.000    24 Jun 2023 10:00:00.000      2592000.000
Max Duration          1    25 May 2023 10:00:00.000    24 Jun 2023 10:00:00.000      2592000.000
Mean Duration                                                                        2592000.000
Total Duration                                                                       2592000.000
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Flux Density impinging on the ground in Hawaii from VIASAT 3-F1

The Flux density is calculated as:

$flux\ density = EIRP/(4\pi RSE^2)$

where RSE is the distance from spacecraft to the ground,
and EIRP is the Effective Isotropic Radiated Power of the spacecraft.

Data from the spacecraft vendor indicates that the nominal EIRP of the VIASAT 3-F1 spacecraft is 2.05 dBW. The closest distance to earth during an overhead pass is = 34,615.2 km.

Converting 2.05 dBW to scalar watts = $\mathbf{10^{0.205}}$ watts transmitted at 12199,5 MHz.

Therefore:
$flux\ density = \mathbf{10^{0.205}}\ /(4\pi 35281000^2)$

Flux density = $\mathbf{1.025 \times 10^{-16}}$ Watts/meter^2
Or
Flux density = $\mathbf{1.025 \times 10^{-17}}$ mW/cm^2

Inclination: 0.088 degrees
Apogee: 34652.2 km
Perigee: 34615.2 km
Number of Orbital Planes: 1

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

I 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 Viasat-3 F1 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 a LEOP TT&C for the Viasat-3 F1 spacecraft, and 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 critical spacecraft risk mitigation support 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. The US public interest is supported by the sharing of collected data.

In this case, good cause for a waiver of portions of Section 25.114 exists. USN seeks authority to conduct data collection testing support for Viasat-3 F1. Thus, any information sought by Section 25.114 that is not relevant to the critical support – 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 Viasat-3 F1 satellite, nor is USN in contractual privity with that operator. Rather, USN has contracted with Swedish Space Corporation, Solna Sweden (SSC) to support the satellite in Ku-Band.

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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 testing 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 commercial service being provided by the satellite. 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 30 days critical support of the Viasat-3 F1 satellite.

It is USN's understanding that Viasat-3 F1 is licensed by Intelsat of the company of Boeing . Viasat-3 F1 is spacecraft meant to serve the United States. 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 Viasat-3 F1 satellite using its U.S. earth station for a period of 30 days. Requiring USN to obtain technical and legal information from an unrelated party, where there is no risk of interference. Given these particular facts, the waiver sought herein is appropriate.

5 47 C.F.R. §25.137(d)(4)

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; SES-STA-20220512-00477

Summary of Technical Information
For Coordination with NTIA/FAS/IRAC

Applicant: Universal Space Network, Inc.

File No.: _____
Call Sign: No Call Sign
Special Temporary Authority ("STA")

Purpose of operation: Renewed LEOP Support to extend the previous STA expiring on May 24th 2023

Start Date: 25 May 2023 End Date: 24 June 2023

Site Location: Naalehu, HI

Latitude: 19 deg 00' 50.3" N (NAD-83)
Longitude: 155 deg 39' 46.6" W (NAD-83)

Transmit frequency: 14499 / 14001 MHz
Polarization: R / RHCP
Antenna manufacturer: Datron
Antenna Size in meter: 13m
Antenna model: 1453
Antenna Gain Transmit: 46.3 dBi @ 14499 MHz

Frequency Band (MHz)	Emissions	Max.EIRP (dBW)	Max.EIRP Density (dBW/4KHz)
14498,5 - 14499,5	1MF2D	68	42.25
14000,5 – 14001,5	1MF2D	68	42.25

Satellite: Viasat 3-F1