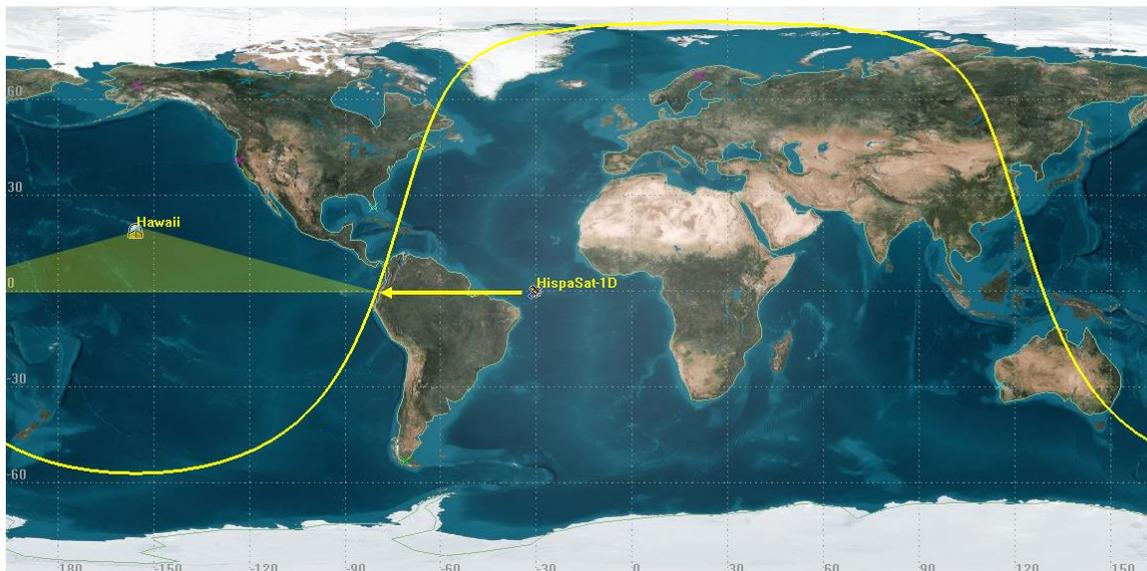


## USN TT&C support for HispaSat-1D from Hawaii

HispaSat-1D is an operational on orbit satellite currently parked at 30 degrees west. The owner will be relocating the spacecraft to 137 degrees west during the months of November thru December. USN will support the spacecraft move when it comes into view of the USN Hawaiian ground station on or about Dec 17<sup>th</sup> 2019 and support in a backup mode sporadically for a period of 30 days.

The uplink = 2072.795 MHz, and has been fully coordinated by Comsearch. The Spacecraft downlink = 2251.000 MHz.

The Hawaiian support could occur at any time during the 24/7 visibility once the spacecraft comes into view (at approximately 80 degrees west) for the duration of the move. It is expected that Hawaii will only conduct a few hours of support in the beginning of the view period for checkout, and then only be used as backup to the customers own assets.



## Flux Density impinging on the ground in Hawaii from HispaSat-1D

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 HispaSat-1D TT&C link is 1.10 dBW. The altitude of the relocation orbit is approximately = 35,500 Km.

Converting 1.10 dBW to scalar watts = 1.288 watts transmitted at 2251.0 MHz

Therefor:

$$\text{Flux density} = 1.288 \div (4 \pi * 35,500,000 \text{ meters}^2)$$

**Flux density =  $8.133 \times 10^{-17}$  Watts/meter<sup>2</sup>**

Or

**Flux density =  $8.133 \times 10^{-18}$  mW/cm<sup>2</sup>**

**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 HispaSat-1D communications satellite owned by Spain.<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 Telemetry, Tracking, and Control ("TT&C") during the orbital relocation from 30 degrees west to 137 degrees west longitude on the geosynchronous belt. USN will support as backup and contingency when the spacecraft is in view of Hawaii, 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 backup 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 backup TT&C support for HispaSat-1D. Thus, any information sought by Section 25.114 that is not relevant to the backup – 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 HispaSat-1D satellites, nor is USN in contractual privity with that operator. Rather, USN has contracted with Swedish Space Corporation, Solna Sweden (SSC) to support the mission during its transition.

As evidenced by the Comsearch report attached to this request, USN has coordinated the backup of the HispaSat-1D satellites with potentially affected terrestrial operators. Moreover, as with any STA, USN will conduct the backup on an unprotected, non-interference basis to government operations.

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<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 backup 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 being relocated. 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 backup support of the HispaSat-1D satellite.

It is USN’s understanding that HispaSat-1D is licensed by Spain. HispaSat-1D. The spacecraft family is primarily meant to serve South America. 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 HispaSat-1D satellite using its U.S. earth station for backup and contingency for a period of up to 30 days while being relocated. Requiring USN to obtain technical and legal information from an unrelated party, where there is no risk of interference would pose undue hardship without serving underlying policy objectives. Given these particular facts, the waiver sought herein is appropriate.

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<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 backup of the HispaSat-1D 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.

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<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