USN TT&C LEOP and Testing Support for Sentinels 3C from its North Pole / Alaska Station Using Antennas USAK01 and USAK03

Sentinel is a mission of the European Space Agency which measures ocean currents in cooperation with the USA. This request is for a period of 30 days commencing May 1st, 2026.

Sentinel-3 is an Earth observation mission including a medium-sized platform, large swath/medium spatial resolution optical instruments and a radar altimeter delivering:
- Sea and land colour data.
- Sea and land surface temperature.
- Sea surface topography data.
- Additional land data applicable to ice topography and hydrology products.

Launch is planned around Sep. 1st, 2026, Sep 1, 2026, then it is planned to fly in parallel with Sentinel 3A and Sentinel 3B during the commissioning phase, tentatively 4 months, after which Sentinel 3A is supposed to be taken out of service and replaced by Sentinel-3C.

Two main types of testing will be conducted (only on USAK01):
- Data Flow Tests between the MCS and the GS (no spacecraft involved), to assess the TM and TC capabilities. TM is generated by the GS and TCs are sent from the MCS and received but not radiated by the GS.
- Tracking passes using Sentinel-3A/B as a target spacecraft to assess the tracking and radiometric measurements of the GS. NOTE: the target spacecraft will also require an RF license

Location of data destination for spacecraft downlink will be European Space Operations Center (ESOC). Robert-Bosch-Straße 5,
64293 Darmstadt, Germany.

Sentinel-3C Uplink.

Beam Designation	Polarization	Center Freq. [MHz]	Occupied BW [kHz]
Error! Reference source not found.	CR	2075.6504	768
Error! Reference source not found.	CL	2075.6504	768

Sentinel-2C Downlink.

Beam Designation	Polarization	Center Freq. [MHz]	Occupied BW [kHz]
Error! Reference source not found.	CR	2254.1	2200
Error! Reference source not found.	CL	2254.1	2200
Error! Reference source not found.	CR	2254.1	2200
Error! Reference source not found.	CL	2254.1	2200

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

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 max. EIRP of the Sentinel-2C spacecraft is.
-12.66 dBW for S-band and the closest distance to earth (perigee) during an overhead pass is 804.8 km.

Converting -12.66 dBW to scalar Watts = 0.0542 Watts transmitted at 2254.100 MHz.
Therefore:
Flux density = 6.65×10^{-15} Watts/meter^2
or
Flux density = 6.65×10^{-16} mW/cm^2

Number of Satellites	1
Number of Orbital Planes	1
Inclination	98.65 °
Apogee	830.8 km
Perigee	804.8 km

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 Sentinel 2C 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 critical events for the Sentinel 3C 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 satellites, 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 with the United States government.

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 Sentinel 3C. 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 Sentinel 3C satellite, nor is USN in contractual privity with that operator. Rather, USN has contracted with Swedish Space Corporation, Solna Sweden (SSC) to support the mission in S of the Sentinel 3C satellite.

---

[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

[5] 47 C.F.R. §25.137(d)(4)

[6] 47 C.F.R. §2.106

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 provided herein. Section 25.137 is designed to ensure that "U.S.-licensed satellites systems have effective competitive opportunities to provide analogous services" in other countries. Here, there is no commercial service being provided by the satellites; USN is providing receive only data collection while the satellites are in a non-geostationary 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 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 to conduct the 180-day critical support of the Sentinel 3C satellite.

It is USN's understanding that Sentinel 3C is licensed by the European Space Agency and France. Sentinel 3C are spacecraft meant to serve Europe, with data shared with the US. Thus, the purpose of Section 25.137 – to ensure that U.S. satellites 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 Sentinel 3C 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.

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 critical support for the Sentinel 3C 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. Tabl

With respect to Space Launch Services

Pursuant to Section 1.3 of the Commission's rules (47 CFR § 1.3), USN respectfully requests a waiver of certain provisions of Part 25 and Part 26 of the Commission's rules to permit the licensing and operation of a satellite earth station using the 2025–2110 MHz and 2200–2290 MHz frequency bands for Part 25, telemetry, tracking, and command (TTC) operations of its low Earth orbit (LEO) satellite constellation.

Under 47 CFR § 1.3, the Commission may waive its rules for good cause shown. USN submits that:

The proposed earth station will support Sentinel-3C TT&C LEOP and testing, which cannot be accommodated in other bands due to technical/operational constraints. Besides these bands have been used in all previous STA applications for this spacecraft, they are also technically suitable due to their propagation characteristics and compatibility with existing ground infrastructure.

These bands have been partially reallocated to space launch services under Part 26.

As per 47 CFR § 25 section 2.106, this application would not comply without a waiver due to limitations on non-federal use or non-space launch service in these bands which currently restrict or limit the use of the referenced bands due to the reallocation referenced above.

USN believe this is in the public interest, technically feasible, non-disruptive to existing services, improves and supporting scientific research.

It is also consistent with the FCC's goals of promoting innovation, efficient use of spectrum and being in line with FCC orders and rulemakings that support flexible use of these bands (e.g., the FCC's 2023 Report and Order on commercial space launch operations 1).

This request is also consistent with prior FCC-authorized STAs, including:

- Lynk Global, Inc. (File No. SES-STA-20220512-00477), which was granted temporary authority for TT&C in both bands;
- Space Telecommunications, Inc. (CTC-0 CubeSat, File Number: 1082-EX-ST-2024) which was granted temporary authority for TT&C in both bands.
- Geometric Energy Corporation, which received STA for TT&C in these bands for a lunar mission via a UK-based earth station.

These precedents demonstrate the FCC's established practice of granting temporary, coordinated use of these bands for TT&C under appropriate conditions.

USN request a waiver to permit temporary earth station operations and continued use of the referenced bands for Part 25 TT&C satellite communications. A waiver is necessary due to the relocation of these bands.

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: TT&C LEOP & Testing
Support for Sentinel 3C

Start Date: 1 May 2026
End Date: 31 May 2026

Location: North Pole, AK
Latitude: 64 deg 48' 15.268" N
Longitude: (NAD-83) 147 deg 30' 00.771" W (NAD-83)

Transmit frequency: 2075.6504 MHz
Polarization: CR/CL
Antenna manufacturer: Viasat
Antenna Size in meter: 5.4m
Antenna model:
Antenna Gain Transmit: 38.3 dBi @ 2.0756504 GHz

Frequency Band MHz	Emissions	Max EiRP per carrier dBW	Max. EIRP Density (dBW/4KHz)
2075.2664-2076.0344	768KG2D--	62.5	39.7

Satellite: Sentinel 3C