

Request for Special Temporary Authorization

Astro Digital US, Inc. (“Astro Digital”) hereby requests from the Federal Communications Commission (the “FCC”) special temporary authority (“STA”) for a period of 30 days,¹ commencing on March 1, 2019 until and including March 31, 2019, to operate its Part 25 licensed UHF Earth Station in Santa Clara California (the “Astro Digital Earth Station”)² to communicate with the Sirion Pathfinder-2 satellite (the “Satellite”), a licensed Australian Space object, and facilitate recovery of the Satellite, as explained below.³

The Satellite is owned by Sirion Global Pty Ltd. (“Sirion Global”), an Australia company that is owned by Helios Wire Corporation, a Canadian company, and will operate under the Australian International Telecommunication Union (“ITU”) filing, SIRION-1, and the Russian Federation ITU filing, AURIGA. The Satellite was manufactured by Astro Digital and launched on a SpaceX Falcon 9 rocket to a sun-synchronous orbit with an altitude of 591 km, on December 3, 2018 as part of the SSOA mission from Vandenberg Air Force Base. The Satellite carries communications payloads in the S, C, and UHF bands, with the UHF band being used for initial telemetry and command operations.

Sirion Global planned for the initial satellite command and telemetry operations to be conducted through a licensed UHF earth station owned and operated by Kongsberg Satellite Services (KSAT) in Tromso, Norway. Astro Digital was commissioned to provide remote operations services through the Astro Digital Mission Control Center in Santa Clara with commands sent via the UHF earth station in Tromso. Shortly after the SSOA launch, the Satellite was observed to be tumbling at an abnormal rate. This tumbling has created communication issues that were amplified by unanticipated ground segment commissioning issues with the new KSAT facility, including ground system interface, compatibility issues between the Mission Control Center and the remote ground station, and local RF

¹ See 47 C.F.R. § 25.120(b)(3). Astro Digital may request renewal of the STA, as necessary to facilitate recovery, but does not expect the aggregate STA term to exceed 180 days.

² See Stamp Grant, Astro Digital US, Inc., SES-AMD-20171227-01389 (granted Jul. 27, 2018). Astro Digital incorporates by reference the antenna parameters specified in its license.

³ To the extent necessary, Astro Digital requests waiver of the Commission’s rules regarding the provision of certain technical information in light of the limited use communications with the satellite. See 47 C.F.R. §§ 25.137 and 25.114; see also, e.g., Stamp Grant, Universal Space Network, Inc., SES-STA-20181008-03145 (granted Dec. 4, 2018).

interference issues.⁴ The Satellite tumble rate must be urgently reduced to avoid mission failure and total loss of the Satellite. Consistent reliable communication must be provided to bring the Satellite under control and ultimately maneuver to its proper orbit.

Accordingly, Astro Digital requests authority to communicate with the Satellite from the Astro Digital Earth Station and raise the Satellite to its proper 650 km orbit. The additional communication attempts or passes from the Astro Digital Earth Station, which will be free of local RF interference and interface issues, will facilitate recovery of the Satellite. Astro Digital believes that it will take no more than a total of 180 days to achieve this through the use of the fully operational Astro Digital Santa Clara earth station. Once these problems are resolved the Satellite's operations will be re-commandeered through the Tromso facility. Because Satellite's health is at risk, Astro Digital requests that the FCC act expeditiously.⁵

Astro Digital submits that grant of this request to facilitate recovery of a satellite from a potential mission ending and uncontrollable state serves the public interest, convenience, and necessity. Astro Digital's operation of the Satellite through the Astro Digital Earth Station should enable Astro Digital to bring the Satellite under control and place it into a safe operating condition in its proper orbit before transferring full telemetry and command functions back to KSAT's licensed earth station in Tromso, Norway.

Earth Station Frequencies:

Astro Digital seeks authority to operate on the following frequencies, consistent with the FCC's grant of its Part 25 Earth station license and its spectrum coordination with relevant federal agencies for uplink. Astro Digital understands that coordination with affected Federal operators in the downlink band has already been initiated.

Link Direction	Frequency Band	Bandwidth Occupied	Max. Data Rate
Uplink (command)	402.88-402.92 MHz	40 kHz	38.4 kbps
Downlink (telemetry)	401.48-401.52 MHz	40 kHz	38.4 kbps

Uplink output power is 40 dBW EIRP. Astro Digital understands that its authorized operations will be on an unprotected, non-harmful interference basis.

Site Address:

⁴ All of these issues are being addressed expeditiously but it is unclear when they will be resolved.

⁵ See 47 C.F.R. § 25.120(b)(3) (no public notice required for grant of STAs of 30 days or less).

3171 Jay St.
Santa Clara, CA 95054

Earth Station coordinates:

Latitude: 37° 22' 48" N

Longitude: 121° 57' 40" W