Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

Request of RBC Signals LLC for a 30-Day Special Temporary Authorization to Operate an Earth Station to Provide Backup Link Services	))))	Call Sign: File No.: SES-STA-_____

REQUEST FOR SPECIAL TEMPORARY AUTHORIZATION

RBC Signals LLC ("RBC Signals"), pursuant to Section 25.120 of the Commission's rules, 47 C.F.R. § 25.120, respectfully seeks a 30-day special temporary authorization ("STA") to operate a 4.5m Orbit Gaia-100 earth station (the "4.5m") at an existing site in Deadhorse, Alaska in the 2025-2110 MHz band (Earth-to-space) to provide data uplink support for a non-geostationary satellite orbit ("NGSO") satellite operated by Spaceflight, Inc. ("Spaceflight") – the Sherpa-LTC1.[1] The proposed operations are nearly identical to the ground station support RBC Signals provided for the Sherpa-LTE1 mission,[2] and grant of this STA will allow RBC Signals to provide data and command uplink services for Spaceflight's evaluation of the Sherpa-LTC1 chemical propulsion technology. RBC Signals' will communicate with the satellite once per day as the satellite passes over the Earth at latitudes serviceable from the earth station in Deadhorse.

The expected launch window for the Sherpa-LTC1 is December 1, 2021, to January 31, 2022,[3] as a secondary payload aboard a SpaceX Falcon 9 launch vehicle. RBC Signals

[1] *See* Spaceflight Inc., File No. SAT-STA-20210812-00098 ("*Sherpa-LTC1 STA*"). The Sherpa-LTC1 was granted 180-day STA on September 30, 2021. To the extent applicable, RBC Signals incorporates by reference all relevant satellite technical and operational information provided in the *Sherpa LTC-1 STA* application docket.

[2] *See* Spaceflight Inc., File No. SAT-STA-20210420-00724 ("*Sherpa-LTE1 STA*").

[3] The mission life of the Sherpa-LTC1 spacecraft, approximately less six (6) months from launch, does not warrant long-term commercial earth station license authority for the proposed operations. If needed, RBC Signals intends to request renewal of the proposed 30-day STA, as necessary, to ensure appropriate

respectfully requests that the Commission consider and authorize the proposed operations (as appropriately conditioned) as soon as practicable to permit ground station support that corresponds to the launch and mission life of the satellite. RBC Signals will update the Commission with the final launch date once the launch schedule is finalized.

I. BACKGROUND

RBC Signals seeks to provide S-band uplink support for the Sherpa-LTC1 using an existing 4.5m earth station located at its facility in Deadhorse, Alaska, where RBC Signals performed near-identical ground station support under the *Sherpa-LTE1 STA*.[4] There have been no reported cases of interference from the Deadhorse facility to-date, and this request will not create the potential for interference given that the power levels and operational parameters proposed hereunder are identical to the previous Sherpa-LTE1 operations. In addition, RBC Signals has fully coordinated its 4.5m earth station operations in the 2025-2110 MHz band to ensure no interference into existing authorized spectrum users.

With the support of RBC Signals, Spaceflight seeks to perform the demonstration mission phase of the Sherpa-LTC1, whereby Spaceflight will demonstrate and evaluate chemical propulsion technology for future implementation. During the mission, RBC Signals' operations will be conducted on an unprotected and non-interference basis intermittently when the satellites pass over the earth station (once per day) to support the mission. In addition, RBC Signals will conduct these operations in accordance with the Commission's rules and interagency requirements governing fixed earth station operations in the subject band. RBC Signals provides the attached Technical Appendix, which includes a radiation hazard analysis, frequency coordination report and draft FCC Form 312

Commission authority for the life of the mission. RBC expressly acknowledges that grant of an initial STA or renewal will in no way affect the Commission's consideration of subsequent renewal requests.

[4] *Supra* n.2.

Schedule B, for information relating to the proposed earth station operations.[5] As discussed below, grant of the requested STA will serve the public interest, convenience, and necessity.

II. DISCUSSION

RBC Signals seeks to provide data uplink services in up to 5 MHz of bandwidth in the 2025-2110 MHz band. Operations will be conducted as-needed to communicate with the Sherpa-LTC1 satellite as it passes over the Deadhorse earth station (one time per day for brief periods of approximately 8 minutes). The 5 MHz uplink channel will allow RBC Signals and Spaceflight to update the Sherpa-LTC1 flight software more efficiently than can be achieved using the lower data rate (*e.g.,* the 300 kHz bandwidth used for the Sherpa-LTE1 mission). The power levels will not increase as a result of this bandwidth change, and operations using the 5 MHz uplink are expected to be brief and infrequent. Although these frequency operations have been authorized under the *Sherpa-LTC1 STA*, RBC Signals will work with Commission staff and other U.S. government agencies as needed to ensure that these temporary operations will not increase the potential interference to current or future government users and that the interests of the United States are fully accommodated.

A. 2025-2110 MHz Band (Earth-to-Space)

The Table of Allocations provides that the 2025-2110 MHz band is allocated on a primary basis to non-Federal terrestrial fixed and mobile services. Non-federal Earth-to-space transmissions may be authorized on a case-by-case basis for space research and Earth exploration-satellite services, so long as such operations are conducted on a non-interference basis with Federal and non-Federal users of the band.[6] RBC Signals proposes to operate the 4.5m in the 2025-2110 MHz band (Earth-

[5] RBC respectfully requests leave to update the technical or operational data associated with this STA request should the Commission seek any clarifying or supplemental information in considering this request.

[6] *See* 47 C.F.R. § 2.106, fn. US347.

to-space) to provide a data link for the Spaceflight spacecraft consistent with the Commission's Table of Allocations.[7]

RBC Signals understands that there are certain U.S. government operations conducted in the 2025-2110 MHz band, including use by National Aeronautics and Space Administration ("NASA").[8] RBC Signals will coordinate with NASA and other government agencies as appropriate to ensure compatibility of the proposed operations. Given that: (i) RBC Signals only seeks to perform transmit operations in 5 megahertz of spectrum from 2025-2110 MHz, (ii) these operations were authorized under the *Sherpa-LTC1 STA* and (iii) the remote location of the Deadhorse facility in the North Slope of Alaska, RBC Signals has not identified any conflicting Federal operations and the proposed operations will not present a potential for interference to other spectrum users of the band. RBC Signals will operate on an unprotected, non-interference basis and, if it learns that its operations are causing harmful interference to other operations, it will suspend or modify its operations to resolve such interference.

a. Frequency Coordination

RBC Signals engaged Micronet to perform frequency coordination analysis for the 4.5m earth station at the Deadhorse facility. Pursuant to Sections 25.115(c)(2)(ii) and 25.203 of the Commission's rules, 47 C.F.R. §§ 25.115(c)(2)(ii) and 25.203, Micronet has conducted a coordination analysis on behalf of RBC Signals that considers all existing, proposed and prior coordinated terrestrial microwave facilities within the contours of the 4.5m earth station at the Deadhorse facility.

[7] *See* 47 C.F.R. § 2.1 (defining "space research services" as "a radiocommunication service in which spacecraft or other objects in space are used for scientific or technological research purposes.").

[8] *See* https://www.ntia.doc.gov/files/ntia/publications/compendium/2025.00-2110.00_01MAR14.pdf

As demonstrated in the attached frequency coordination report, there is no potential for interference between other users of the S-band spectrum and the operations of the 4.5m earth station at the Deadhorse facility,[9] and RBC Signal's proposed operations are fully compatible with other FCC-licensed operations in the band. There are no unresolved interference objections and Micronet has concluded that no unacceptable interference will result with other operations in the band.

B. STA Request and Public Interest Considerations

RBC Signals respectfully seeks this 30-day STA pursuant to Section 25.120 of the Commission's rules, 47 C.F.R. § 25.120. A 30-day STA is appropriate because RBC Signals does not plan to file an application for regular authority for the subject operations because the Sherpa-LTC1 mission length (approximately six months) does not warrant a long-term commercial earth station license (*i.e.*, a 15-year term). As noted, RBC Signals intends to request renewal of the proposed 30-day STA, as necessary, to ensure appropriate Commission authority for the life of the mission. RBC expressly acknowledges that grant of an initial STA or renewal will in no way affect the Commission's consideration of subsequent renewal requests.

Reliable data links are crucial to ensure the successful demonstration mission phase for the Sherpa-LTC1, and RBC Signals can provide established and proven ground station support from an existing teleport facility without increasing the potential for interference into other commercial or Federal users. Moreover, grant of this STA request is in the public interest because it will facilitate the successful operation of the Sherpa-LTC1 and ensure that the Sherpa-LTC1 has access to uninterrupted ground station services during the life of the mission. With RBC Signals' support, Spaceflight will be able to conduct key performance evaluations of its novel altitude control and chemical propulsion technology for future implementation.

[9] Out of an abundance of caution, RBC Signals coordinated worst-case scenario power levels. In reality, RBC Signals will operate at significantly lower power levels within a 5 MHz frequency range.

III. CONCLUSION

Based on the foregoing, the public interest would be served by a grant of this 30-day STA request to allow RBC Signals to operate in the 2025-2110 MHz band (Earth-to-space) to support the Sherpa-LTC1 from its existing earth station facility in Deadhorse, Alaska.