

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of	)	
	)	Call Sign: E220185
Application of RBC Signals, LLC for a	)	
60-Day Extension of its Special Temporary	)	File No.: SES-STA-_____
Authorization to Operate with Non-	)	
Geostationary Orbit Spacecraft	)	

**REQUEST FOR 60-DAY SPECIAL TEMPORARY AUTHORIZATION
(S-band 6m – Deadhorse, Alaska)**

RBC Signals, LLC (“RBC Signals”), pursuant to Section 25.120 of the Commission’s rules,¹ respectfully requests a 60-day extension of the special temporary authorization (“STA”) previously granted by the Commission to operate a fixed 6.0 meter S-band earth station in Deadhorse, Alaska² (“the 6.0m Earth Station”) to conduct telemetry, tracking, and command (“TT&C”) uplink operations in the 2025-2075.15 MHz band to support the Sherpa-AC1³ and Sherpa-LTE1⁴ spacecraft operated by Spaceflight, Inc. (“Spaceflight”), and the Mandrake spacecrafts Able and Baker⁵ operated by the Defense Advanced Research Projects Agency

¹ See 47 C.F.R. § 25.120.

² See RBC Signals LLC, File No. SES-STA-20220929-01060, Call Sign E220185 (granted November 28, 2022) (the “*Deadhorse S-band STA*”). RBC Signals incorporates by reference all relevant information in this application and requests leave to update any technical or operational data should the Commission seek any clarifying or supplemental information in considering this request.

³ See Spaceflight, Inc., File No. SAT-LOA-20220111-00007, Call Sign S3133 (granted May 10, 2022) (“*Sherpa-AC1 Application*”); see also See RBC Signals, LLC, File No. SES-STA-20220509-00470 (granted May 25, 2022) (the “*RBC Signals Sherpa-AC1 STA*”). To the extent applicable, RBC Signals incorporates by reference relevant satellite technical and operational information provided in the *Sherpa-AC1 Application* and the *RBC Signals Sherpa-AC1 STA*.

⁴ See Spaceflight, Inc., File No. SAT-STA-20210205-00017 (granted May 28, 2021) (“*Spaceflight LTE-1 STA*”); see also RBC Signals, LLC, File Nos. SES-STA-20210420-00724 (granted June 29, 2021) and SES-STA-20210723-01269 (granted October 5, 2022) (the “*Sherpa LTE-1 Earth Station STAs*”). To the extent applicable, RBC Signals incorporates by reference relevant satellite technical and operational information provided in the *Spaceflight LTE-1 STA* and the *Sherpa LTE-1 Earth Station STAs*.

⁵ See RBC Signals, LLC, File No. 0956-EX-ST-2022, Call Sign WT9XYB (granted June 25, 2022); see also <https://www.darpa.mil/news-events/2021-07-07>. RBC Signals authorization to provide TT&C

(“DARPA”). RBC Signals has also requested regular authority to support Sherpa-AC1, Sherpa-LTE1, Able, and Baker in its application for a fixed earth station license.⁶ RBC Signals seeks this 60-day extension to continue providing essential TT&C support to the four spacecrafts while also affording the Commission sufficient time to review and process its application for longer term authority. Grant of this request will serve the public interest because it will allow RBC Signals to continue to provide seamless support for multiple ongoing satellite operations. RBC Signals is attaching a draft Form 312 Schedule B with information relating to the proposed earth station operations. Details of the operations are also included in Exhibit A. RBC Signals respectfully requests that the Commission consider and authorize the proposed operations as soon as practicable.

I. DISCUSSION

RBC Signals is a Seattle, Washington-based company that provides earth station services around the world. With this application, RBC Signals seeks additional temporary authority to provide TT&C uplink communications in the 2025-2075.15 MHz band (Earth-to-space; 300 kilohertz emissions at center frequencies: 2046 MHz, 2048 MHz, 2050 MHz, 2053 MHz, 2056 MHz, and 2075 MHz) to support the Spaceflight satellites Sherpa-LTE1 and Sherpa-AC1, and the Mandrake Able and Baker spacecraft using the 6.0m Earth Station. No harmful interference has been caused by these TT&C operations during the period authorized by the previous STA, and RBC Signals will continue to ensure that they will not cause harmful interference to current or future co-frequency operations and that the interests of the United States are accommodated.

services to Mandrake’s Able and Baker satellites relies on *Deadhorse S-band STA* exclusively. While Able and Baker were originally served under the auspices of an experimental STA, that experimental STA was superseded by the original grant for E220185.

⁶ See RBC Signals, LLC, File No. SES-LIC-20221121-01273, Call Sign E220185 (filed November 21, 2022) (the “*Deadhorse 6m S-band Application*”).

A. Summary of Frequency Use

Table 1 below presents information on the frequencies currently approved by the Commission for the STA operations at the 6.0m Earth Station.⁷ RBC Signals seeks authority to continue to use the same frequencies in this STA extension application.

Table 1- Summary of Frequency Reuse

<u>Satellite</u>	<u>Center Frequencies</u>	<u>Emission Designator</u>
<u>Sherpa-LTE1</u>	2075 MHz	300KG1D
<u>Sherpa-AC1</u>	2046 MHz	300KG1D
	2048 MHz	300KG1D
	2050 MHz	300KG1D
	2053 MHz	300KG1D
	2056 MHz	300KG1D
	2075 MHz	300KG1D
<u>Mandrake Able</u>	2075 MHz	300KF1D
<u>Mandrake Baker</u>	2075 MHz	300KF1D

B. Satellite Points of Contact

1. Sherpa-AC1

Sherpa-AC1 is a non-geostationary orbit (“NGSO”) deployment vehicle operated by Spaceflight. Sherpa-AC1 has already deployed seven spacecraft into Sun-synchronous orbit (“SSO”) and continues to operate two additional permanent payloads. RBC Signals incorporates by reference the Sherpa-AC1 mission information and payload specifications provided in the *Sherpa-AC1 Application*.⁸ In the *Deadhorse S-band STA*, RBC Signals is currently authorized to operate 300 kilohertz carriers with center frequencies at 2046 MHz, 2048 MHz, 2050 MHz, 2053 MHz, 2056 MHz, and 2075 MHz to provide TT&C support for the Sherpa-AC1.⁹ RBC Signals

⁷ See *supra* n. 2.

⁸ See *supra* n. 3.

⁹ See *supra* n. 2

herein requests to continue to communicate with Sherpa AC1 from the 6.0m Earth Station at these same frequencies and with the same Equivalent Isotropic Radiated Power (“EIRP”).

1. Sherpa-LTE1

The Sherpa-LTE1¹⁰ is an NGSO deployment vehicle operated by Spaceflight with a secondary mission to enable two new modular systems to demonstrate control and propulsive elements, rapidly deorbit the vehicle, and collect data for future missions. Sherpa LTE1 is in SSO with nominal orbit altitude of 525 km and an inclination of 97.6°. RBC Signals was authorized in the *Deadhorse S-band STA* to provide critical mission support for Spaceflight’s evaluation of the Sherpa LTE-1’s controlled deorbiting technology by providing a backup link using a 300 kilohertz carrier with a center frequency at 2075 MHz from the 6.0m Earth Station. In this application, RBC Signals seeks to continue these operations at the same frequency and with the same EIRP.

1. Mandrake Able and Baker

RBC Signals is also seeking authority to continue to provide TT&C uplinks for two Mandrake satellites being operated by DARPA as part of the Blackjack program. The Blackjack program is exploring inter-satellite communications using laser links. The Mandrake satellites travel in formation, and they are in the same orbit. RBC Signals was authorized to provide scheduling interface, antenna control and pointing, and radio configuration control for Able and Baker. RBC Signals requests authority to continue TT&C operations using the center frequency of 2075 MHz with the same EIRP as authorized in the *Deadhorse S-band STA*.¹¹

¹⁰ See *supra* n. 4.

¹¹ See *supra* n. 2.

C. Frequency Allocations and Frequency Use

The United States Table of Frequency Allocations (“Table of Allocations”), Section 2.106 of the Commission’s rules,¹² provides that the 2025-2110 MHz band is allocated on a primary basis to Space Operations, Earth-exploration satellite services (“EESS”), Space Research, Fixed Service, and Mobile Service in all ITU regions. In the United States, the 2025-2110 MHz band is also allocated on a primary basis to non-federal terrestrial fixed and mobile services. Space Operations, EESS, and Space Research are limited to federal operators, and use by commercial operators is subject to conditions as may be applied on a case-by-case basis with the limitation that any use may not cause harmful interference to authorized federal or non-federal users of the band.¹³ RBC Signals is continuing to operate these links on a non-interference basis, as required by the Table of Allocations.

RBC Signals seeks to continue to transmit on 300 kilohertz carriers using 2046 MHz, 2048 MHz, 2050 MHz, 2053 MHz, 2056 MHz, and 2075 MHz center frequencies (Earth-to-space) to provide TT&C for all four satellites discussed above on a non-harmful interference basis, consistent with the Commission’s Table of Allocations. RBC Signals understands that there are certain U.S. government operations conducted in the 2025-2110 MHz band, including use by the National Aeronautics and Space Administration (“NASA”).¹⁴ RBC Signals will continue its coordination efforts with NASA and other government agencies to ensure compatibility of the proposed operations.

¹² See 47 C.F.R. § 2.106.

¹³ See 47 C.F.R. § 2.106, fn. US347. See also 47 C.F.R. § 2.1 (defining “space research services” as “a radio communication service in which spacecraft or other objects in space are used for scientific or technologic research.”)

¹⁴ See https://www.ntia.doc.gov/files/ntia/publications/compendium/2025.00-2110.00_01MAR14.pdf.

D. Frequency Coordination and Interference

RBC Signals has been transmitting using a 300 kilohertz carrier bandwidth around each of the designated center frequencies without causing any harmful interference to other spectrum users operating in the band. The 6.0m Earth Station has not created, nor is expected to create any risk of interference and there continues to be no identification of any conflicting federal operations.

RBC Signals will continue to operate its S-band transmitter 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. RBC Signals is confident that there is no potential for interference between other users of this spectrum and the operations of the 6.0m Earth Station. In addition, RBC Signals understands that Spaceflight and DARPA have coordinated access to the subject spectrum as it relates to the operations of their respective spacecraft.

E. Waiver Request

To the extent necessary, RBC Signals requests waiver of the Table of Allocations to permit the proposed TT&C transmit operations in the 2025-2075.15 MHz band. The Commission may waive any of its rules for “good cause” shown.¹⁵ In general, waiver is appropriate if (i) special circumstances warrant a deviation from the general rule; and (ii) such deviation would better serve the public interest than would strict adherence to the rule.¹⁶ Given the operation of 300 kilohertz carriers at six previously authorized center frequencies, RBC Signals’ confirmatory coordination of these frequencies, and the public interest served by

¹⁵ See 47 C.F.R. § 1.3; *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).

¹⁶ See *Northeast Cellular*, 897 F.2d at 1166; see also *WAIT Radio*, 418 F.2d at 1157.

continuing to support the Sherpa-AC1, Sherpa-LTE1, Able, and Baker, RBC Signals submits that a limited waiver is justified in this instance. Operation of the 6.0m Earth Station by RBC Signals to provide TT&C services is consistent with the public interest, and the applicant therefore respectfully requests, if a waiver is needed, that it be granted by the Commission.

F. Public Interest Consideration

RBC Signals is at the forefront of reinventing TT&C and ground station support solutions. Grant of the requested STA extension would further cement the United States' dedication to the advancement of satellite services in the United States and enable the continued realization of the significant benefits and commercial viability of novel small satellite communications systems. In addition, grant of this STA extension will further the public interest by enabling seamless TT&C support for the ongoing missions of the Sherpa-AC1, Sherpa-LTE, and Mandrake Able and Baker spacecraft.

II. CONCLUSION

Based on the foregoing, RBC Signals respectfully requests that the Commission grant this 60-day extension of its STA application to enable its 6.0m Earth Station to provide TT&C services on S-band frequencies for the satellites discussed above during the pendency of its application for long-term authority.