

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

In the Matter of

Request of RBC Signals LLC for 180-Day)
Special Temporary Authorization To) Call Sign:
Operate an Earth Station To Provide)
Tracking, Telemetry & Command Services) 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 180-day special temporary authorization (“STA”) to continue to operate two (2) M2 Antenna Systems Yagi antennae (the “400 MHz Yagi”) at an existing site in Deadhorse, Alaska, commencing on January 10, 2020.¹ The 400 MHz Yagi will support operation of Analytical Space, Inc.’s (“ASI”) recently launched U.S.-licensed non-geostationary satellite orbit (“NGSO”) Meshbed experimental cubesat² to perform tracking, telemetry and command (“TT&C”) for housekeeping, orientation and subsystem control in the 401.24-401.36 MHz band (Earth-to-space/space-to-Earth).

This STA will serve the public interest by ensuring uninterrupted TT&C support for Meshbed when the U.S.-licensed satellite passes over the Earth at northern latitudes inaccessible to the existing ground station in Windham, New York.³ RBC Signals also has a pending request

¹ See RBC Signals, LLC, File No. SES-STA-20191127-01599 (“*Deadhorse STA*”) (expires on January 10, 2020). RBC Signals has existing authority to provide identical TT&C support from the Deadhorse location.

² See Analytical Space, Inc., File No. 1560-EX-ST-2019 Call Sign WO9XBG (“*Meshbed Experimental License*”). See also <https://www.analyticalspace.com/meshbed> (Meshbed overview) and <https://www.nasaspaceflight.com/2019/11/indias-pslv-cartosat-3-launch/> (reporting successful launch of the cubesat).

³ See RBC Signals, LLC, File Nos. SES-STA-20180816-02235 & SES-STA-20191121-01543 (“*Windham STA*”).

for 30-day STA to provide back-up TT&C support from its existing site Fairbanks, Alaska, if needed.⁴

I. BACKGROUND

RBC Signals is a Seattle, Washington-based company that provides earth station services around the world. RBC Signals has held multiple STAs to provide similar TT&C support for various NGSO satellite missions using the 400 MHz Yagi (Model 400CP30A), including to conduct the identical TT&C operations from the Deadhorse location to support the Meshbed mission.⁵ RBC Signals also has existing temporary authority for identical operations to support Meshed from a site in Windham, New York.⁶ The authority sought herein is identical to the TT&C operations previously authorized at Deadhorse and will allow RBC Signals to provide continuous mission support for ASI's Meshbed cubesat.⁷

The *Meshbed Experimental License* authorizes ASI to analyze the technical feasibilities of its next-generation Meshbed experimental satellite, which was developed by ASI to test and evaluate the capabilities of its innovative wideband phased array antenna system. Although RBC Signals can effectively deliver TT&C support under the *Windham STA* from a location in upstate New York, this authorization will continue to provide ASI with a reliable TT&C facility in the northwestern the United States, thus ensuring the cubesat can be controlled when it is out of view of the Windham

⁴ See RBC Signals, LLC, File No. SES-STA-20191127-01598 (“*Fairbanks STA*”).

⁵ See *Deadhorse STA*.

⁶ See *Windham STA*.

⁷ The maximum orbital lifetime of the Meshbed cubesat (approximately 24 months), does not warrant regular earth station operating authority (*i.e.*, a 15-year license). RBC Signals reserves the right to request an extension of this STA as necessary to support the Meshbed mission, and acknowledges it can provide TT&C support only for as long as ASI is authorized to operate the Meshbed cubesat.

ground station. As described in the *Meshbed Experimental License* Technical Description, ASI is relying on RBC Signals to provide TT&C support, which is critical to the success of the mission.

RBC Signals re-attaches the draft FCC Form 312 Schedule B and radiation hazard analysis for additional information relating to its proposed earth station operations. To the extent applicable, RBC Signals incorporates by reference the satellite technical specifications and mission overview information in the *Meshbed Experimental License* and pending *Meshbed Renewal Application* and will continue to perform the proposed TT&C operations consistent with the terms and conditions imposed by the Commission.

II. DISCUSSION

Consistent with its existing operations at the Deadhorse site, RBC Signals seeks to operate the 400 MHz Yagi with the Meshbed cubesat in the 401.24-401.36 MHz band (Earth-to-space/space-to-Earth). RBC Signals' TT&C operations will be conducted on an unprotected and non-interference basis. The 400 MHz Yagi will be operated only as needed to communicate with the Meshbed satellite as it passes over the Deadhorse site (between one and six times per day for brief periods of approximately 10 minutes).

The proposed TT&C operations are identical to the TT&C operations currently authorized by the Commission at Windham and Deadhorse and will be conducted in compliance with the terms and conditions in the *Deadhorse STA*, to the extent applicable. Furthermore, RBC has been granted numerous STAs for use of 400 MHz frequencies in Alaska since 2017 and is unaware of any interference incidents related to its limited TT&C support operations.

RBC Signals will work with Commission staff to ensure that these temporary operations do not increase the potential interference to current or future government users, and will coordinate with NASA, NOAA and other U.S. government agencies to ensure that the limited TT&C operations

proposed herein are compatible with government operations and that the interests of the United States are fully accommodated.

A. TT&C Spectrum Use

The United States Table of Frequency Allocations, Section 2.106 of the Commission's rules, 47 C.F.R. § 2.106, provides that the 401-402 MHz band is shared on a co-primary basis between meteorological aids (Earth-to-space) and space operations services (space-to-Earth). RBC Signals seeks to perform TT&C downlink operations in frequencies from 401.24-401.36 MHz consistent with the co-primary space operations allocation in this band,⁸ and TT&C uplink operations in the band as a non-conforming use (*i.e.*, on an unprotected, non-interference basis).

RBC Signals understands that there are certain U.S. government meteorological aids and Earth exploration operations conducted in the 401-402 MHz band.⁹ RBC Signals will operate on an unprotected, non-interference basis to Federal users and, if it learns that its operations are causing harmful interference to other Federal operations, it will suspend or modify its operations to resolve such interference.¹⁰ Moreover, RBC Signals has not identified any non-federal, co-frequency operations within an approximately 500 mile radius of the Deadhorse, Alaska site and believes its TT&C operations in this band will not present a potential for interference into other authorized spectrum users. Although RBC Signals is not aware of any interference cause by previously

⁸ See 47 C.F.R. § 2.1 (defining "space operations" as "a radiocommunication service concerned exclusively with the operation of spacecraft, in particular space tracking, space telemetry, and space telecommand.").

⁹ See https://www.ntia.doc.gov/files/ntia/publications/compendium/0401.00-0402.00_01MAR14.pdf.

¹⁰ NOAA has previously raised concerns regarding potential interference to meteorological satellite operations. Although RBC Signals is not aware of any interference cause by previously approved operations in the band, it will remain in consultation with NOAA regarding these issues and will abide by additional post-grant restrictions or conditions that the Commission imposes to address NOAA's concerns.

approved operations in the band, it will remain in consultation with relevant Federal agencies regarding these issues and will abide by additional conditions that the Commission imposes to address any concerns.

B. STA Request and Public Interest Considerations

RBC Signals respectfully requests this 180-day STA pursuant to Section 25.120 of the Commission's rules, 47 C.F.R. § 25.120, and seeks to commence operations on January 10, 2020 following the expiration of the *Deadhorse STA*. A 180-day STA is appropriate because RBC Signals does not plan to file an application for regular authority for the subject TT&C operations because the short-term length of the mission does not warrant a long-term commercial earth station license (*i.e.*, a 15-year term). Pursuant to Commission rules and precedent, RBC Signals understands that this timely filed extension request will effectively extend its current temporary authority until the Commission acts on the instant request, affording sufficient time for it to be placed on public notice and enabling RBC Signals to continue to support the Meshbed mission in the interim.¹¹

The critical need for TT&C support from a northwestern United States to effectively support Meshbed operations, along with the *de minimis* potential for interference from operations similar or identical to those previously authorized by the Commission, present compelling reasons in support of this 180-day grant. Grant of this STA request is in the public interest because it will ensure that RBC Signals is able to provide uninterrupted TT&C for the Meshbed satellite and assist ASI in demonstrating the significant benefits of its next-generation wideband panel antenna technology.

¹¹ See 47 C.F.R. §§ 25.120 & 25.163(b); Administrative Procedure Act § 9(b). See also 47 C.F.R. §1.955(b); *In the Matter of Marc D. Sobel Application for Consent to Assign the License for Conventional 800 MHz SMR Station KKT934, Montrose, California*, Memorandum Opinion & Order, FCC 05-90, ¶¶ 2 & 6; Intelsat License LLC, File Nos. SAT-STA-20171016-00139 (30-day STA to drift and operate Intelsat 16 in TT&C frequencies) and SAT-STA-20171016-00140 (180-day extension of 30-day STA operations).

Moreover, the requested STA will support ASI's experimental authorization and ensure that the Meshbed cubesat has access to reliable ground station services during the life of the mission.

III. CONCLUSION

In view of the foregoing, the public interest would be served by grant of a 180-day STA to allow RBC Signals to continue to provide TT&C mission support for the Meshbed cubesat from Deadhorse, Alaska, commencing on January 10, 2020.