

**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 a site in Windham, New York, commencing on December 11, 2019.¹ The 400 MHz Yagi will communicate with Analytical Space, Inc.’s (“ASI”) U.S.-licensed 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). The proposed operations will ensure uninterrupted TT&C support for the Meshbed mission when the U.S.-licensed satellite passes over the Earth at latitudes serviceable from the ground station in Windham.

¹ See RBC Signals, LLC, File No. SES-STA-20180816-02235 (expires on December 11, 2019) (“*Windham STA*”). RBC Signals has existing 30-day STA to provide TT&C support from the Windham location.

² See Analytical Space, Inc., File No. 0306-EX-ST-2019, Call Sign WO9XBG (“*Meshbed Experimental License*”). RBC Signals notes that the *Meshbed Experimental License* expires on December 2, 2019, and, following its expiration, the Meshbed cubesat will operate pursuant to File No. 1560-EX-ST-2019 Call Sign WO9XBG (“*Meshbed Renewal Application*”).

I. BACKGROUND

RBC Signals is a Seattle, Washington-based satellite services company that provides earth station services around the world. RBC Signals currently holds multiple STAs to provide similar TT&C support for various non-geostationary satellite orbit (“NGSO”) cubesats using the 400 MHz Yagi (Model 400CP30A),³ including to conduct TT&C operations from Windham to support ASI’s Radix cubesat mission.⁴ The authority sought herein is identical to the TT&C operations in the *Windham STA* and will allow RBC Signals to provide more comprehensive support for ASI’s Meshbed mission.⁵

The *Meshbed Experimental License* authorizes ASI to analyze the technical feasibilities of its next-generation Meshbed experimental cubesat, which was developed by ASI to test and evaluate the capabilities of its innovative wideband phased array antenna system. Although RBC Signals effectively delivers TT&C support under the *Windham STA*, this authorization will provide ASI with ongoing TT&C support in the northwestern the United States, thus ensuring the cubesat can be controlled as comprehensively as possible. 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 provides the attached draft FCC Form 312 Schedule B and radiation hazard analysis for additional information relating to its proposed earth station operations. To the extent

³ See, e.g., RBC Signals, LLC, File No. SES-STA-20180605-00993 (60-Day STA to provide TT&C support for the 3 Diamonds mission from Deadhorse, Alaska).

⁴ See RBC Signals, File No. SES-STA-20180719-01877 (“*Radix STA*”).

⁵ 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.

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 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 Windham 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, and only as-needed to communicate with the Meshbed satellite as it passes over the Windham earth station (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 will be conducted in compliance with the terms and conditions in the *Windham STA*, to the extent applicable. RBC Signals will work with Commission staff to ensure that these temporary operations will 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,⁶ 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.⁷ 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.⁸ Moreover, RBC Signals has not identified any non-federal, co-frequency operations within a 40 km radius of the Windham, New York 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 caused by previously approved operations in the band, it remains in consultation with relevant Federal agencies regarding these issues and will abide by additional post-grant restrictions or 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 December 11, 2019 following the expiration of the *Windham STA*. This should afford sufficient time for public notice and Commission consideration of this application. Due to the short-term nature of the Meshbed

⁶ 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.").

⁷ See https://www.ntia.doc.gov/files/ntia/publications/compendium/0401.00-0402.00_01MAR14.pdf.

⁸ NOAA has 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 remains 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.

mission, RBC Signals does not anticipate filing a regular earth station license application to support Meshbed from the Windham location. 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 Radix mission in the interim.⁹

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. Moreover, the requested STA will continue to 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 support for the Meshbed cubesat from Windham, New York, commencing on December 11, 2019.

⁹ 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).