

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

Request of RBC Signals LLC for 30-Day)
Special Temporary Authorization To) Call Sign:
Operate an Earth Station To Provide) File No.: SES-STA-_____
Tracking, Telemetry & Command Services)

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 two (2) M2 Antenna Systems Yagi antennas (the “400 MHz Yagi”) at a site in Windham, New York to communicate with a U.S.-licensed low-Earth orbit (“LEO”) satellite – Analytical Space, Inc.’s (“ASI”) Radix experimental cubesat – 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). RBC Signals seeks to commence these short-term TT&C operations on June 1, 2018, the satellite’s scheduled launch date. As discussed below, this STA request is necessitated by RBC Signal’s inability to provide TT&C for the Radix cubesat from its recently authorized site in in Boulder, Colorado¹ due to unexpected complications that has made near-term operations from the facility impossible.

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 LEO non-geostationary orbit satellite (“NGSO”) cubesats using the 400

¹ See RBC Signals, File No. SES-STA-20180307-00202 (granted on April 12, 2018) (“*Boulder STA*”).

MHz Yagi (Model 400CP30A),² including the *Boulder STA* to support ASI'S Radix mission, which was recently authorized by the Commission.³ Although RBC Signals still plans to operate long-term from the Boulder site, it is presently unable to commission the 400 MHz Yagi antennas due to the unexpected unavailability of power at the site. Thus, RBC Signals seeks this 30-day STA to operate from Windham, New York to ensure timely initiation of TT&C for the satellite's launch.⁴

RBC Signals provides the attached draft FCC Form 312 Schedule B and radiation hazard analysis for additional information relating to its proposed ground station operations. To the extent applicable, RBC Signals incorporates by reference the satellite technical specifications and mission overview information previously provided by ASI in the *Radix Experimental License* application, and will perform the proposed TT&C operations consistent with the terms and conditions imposed by the Commission in the *Radix Experimental License* and *Boulder STA*.

II. DISCUSSION

RBC Signals seeks to operate the 400 MHz Yagi with the proposed Radix cubesat in the 401.24-401.36 MHz band (Earth-to-space/space-to-Earth). RBC Signals has examined other operations in the subject bands and confirms that the proposed TT&C operations will not cause interference to current or future U.S. government users of the band.

² See, e.g., RBC Signals, LLC, File Nos. SES-STA-20171213-01333 (60-Day STA to provide TT&C for Planetary Resources Development Corp. cubesats), SES-STA-20180118-00042 (60-Day STA to provide TT&C for Astranis Space Technology Corp. cubesats). The Radix cubesat will demonstrate ASI's optical data relay network technology. The Radix cubesat will be launched into a nominal 400 km circular, sun-synchronous orbit with an inclination of approximately 51.6°.

³ See Analytical Space, Inc., File No. 0044-EX-ST-2017, Call Sign WL9XLY ("Radix Experimental License").

⁴ RBC Signals notes that, although it has a pending request to provide TT&C support for the Radix mission from a facility in Fairbanks, Alaska, the Fairbanks site is a secondary, back-up facility that will only be utilized in the event of primary ground station failure at the Boulder or Windham sites and does not provide the same level of dependability to ensure optimal TT&C communications. See RBC Signals, LLC, File No. SES-STA-20180312-00206.

RBC Signals is working diligently to identify and resolve the power issue at the Boulder site, including trenching conduit throughout the property, but it is unlikely that the problem will be resolved in time for the launch of the Radix cubesat. RBC Signals is filing this 30-day STA request to ensure appropriate ground station support while it addresses issues at the Boulder site. Although situated at a more northerly latitude, RBC Signals believes it can provide reliable TT&C support for the Radix mission from the Windham site. RBC Signals does not seek long-term TT&C authority for the Windham site and hopes to resolve the power issue at Boulder prior to the expiration this 30-day STA term (i.e., prior to June 30, 2018).

A. TT&C Spectrum Use

The United States Table of Frequency Allocations (“Table of 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 and space operations services. RBC Signals seeks to perform TT&C uplink and downlink operations in frequencies from 401.24-401.36 MHz consistent with the co-primary space operations allocation in this band.⁵

RBC Signals understands that there are certain U.S. government meteorological aids and earth exploration operations conducted in the 401-402 MHz band.⁶ 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. RBC Signals has not identified any co-frequency operations within a 40 km radius

⁵ 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.”).

⁶ See https://www.ntia.doc.gov/files/ntia/publications/compendium/0401.00-0402.00_01MAR14.pdf.

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.

B. STA Request and Public Interest Considerations

RBC Signals respectfully requests this 30-day STA pursuant to Section 25.120 of the Commission's rules, 47 C.F.R. § 25.120. Section 25.120(a) provides that STA requests should be filed at least three working days prior to the date of commencement of the proposed operations. Here, RBC Signals seeks a commencement date of June 1, 2018, the planned launch date of the Radix satellite. Additionally, the Commission may grant a 30-day STA if the STA request has not been placed on public notice and the applicant does not plan to file a request for regular authority for the operations. As noted, RBC Signals does not anticipate longer-term operations from the Windham site and plans to operate as soon as possible under the *Boulder STA*.

This STA request is in the public interest because it will ensure that RBC Signals is able to provide TT&C in time for the launch of the Radix satellite and assist ASI in demonstrating the significant benefits of its satellite communication technology. Moreover, this STA will support ASI's experimental authorization and ensure that the Radix cubesat has access to TT&C services prior to the satellite's launch. Further, because the satellite is not scheduled for launch until June 1, 2018, the Commission may impose additional, post-grant restrictions or conditions on the proposed TT&C operations to the extent any unanticipated issues arise. RBC Signals agrees to abide by any such additional conditions.

III. CONCLUSION

In view of the foregoing, the public interest would be served by grant of a 30-day STA to allow RBC Signals to provide TT&C support for the Radix cubesat, commencing on June 1, 2018, from a site in Windham, New York.