

Applicant: RBC Signals LLC  
Call Sign: None  
File No.: SES-STA-20200303-00212  
Special Temporary Authority (STA)

On March 26, 2020, RBC Signals LLC was granted special temporary authority for 30 day days beginning March 27, 2020 to operate an M2 Antenna Systems Yagi antenna its existing site in Fairbanks, AK with U.S.-licensed, non-geostationary satellite orbit (NGSO) experimental cubesats AprizeSats, 0062-EX-CR-2018, Call Sign WA2XYM in the 145.8-145.92 MHz (Earth-to-space) frequency band to support immediate mission-critical ground station support due the unexpected failure of SpaceQuest's existing ground station in North Star, AK (64° 46' 09 N, 147° 26' 20 W). This authorization was granted on a non-protected and non-interference basis to other stations operating in this band; without prejudice to future FCC actions. Operations must comply with the following conditions:

1. All operations under this grant of STA shall be on an unprotected and non-harmful interference basis. RBC Signals LLC's operations shall not cause harmful interference to and shall not claim protection from interference caused to it by any other lawfully operating radio communication system.
2. In the event of any harmful interference as a result of operations under this grant of special temporary authority, RBC Signals LLC shall cease operations immediately upon notification of such interference and shall immediately inform the Commission, in writing, of such an event.
3. Grant of this STA is without prejudice to any determination that the Commission may make regarding pending or future RBC Signals LLC applications.
4. Any action taken or expense incurred as a result of operations pursuant to this STA is solely at RBC Signals LLC's risk.
5. All operations must comply with the US Table of Frequency Allocations

This grant is issued pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective upon release.

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 Support )  
U.S.-Licensed Experimental Cubesats ) File No.: SES-STA-\_\_\_\_\_

*Expedited Consideration Requested*

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 an M2 Antenna Systems Yagi antenna (the "M2 Yagi") at an existing site in Fairbanks, Alaska, commencing as early as March 6, 2020 or otherwise as soon as possible. RBC Signals seeks to support certain U.S.-licensed, non-geostationary satellite orbit ("NGSO") experimental cubesats – the AprizeSats operated by SpaceQuest, Ltd. ("SpaceQuest").<sup>1</sup> The M2 Yagi will provide data uplink services in the 145.8-145.92 MHz (Earth-to-space) band to support SpaceQuest's experimental operations, and grant of this request will strongly serve the public interest by ensuring immediate mission-critical ground station support following the unexpected failure of SpaceQuest's existing ground station in North Star, Alaska.<sup>2</sup>

I. BACKGROUND

RBC Signals is a Seattle, Washington-based company that provides ground station services around the world. RBC Signals has held multiple STAs to provide similar ground station support for various NGSO satellite missions, including at the Fairbanks location to support another

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<sup>1</sup>See SpaceQuest, Ltd., File No. 0062-EX-CR-2018, Call Sign WA2XYM (the "*AprizeSat License*").

<sup>2</sup> Geographic coordinates: 64° 46' 09" N, 147° 26' 20" W (*see AprizeSat License*).

SpaceQuest mission.<sup>3</sup> Here, RBC Signals seeks to support SpaceQuest in its ongoing development of the AprizeSat experimental satellite program, which provides cost-effective, satellite "M2M" communications solutions for remote tracking and monitoring applications in the oil and gas, transportation and telecommunications industries. The *AprizeSat License* also supports certain Federal experimental operations, including the testing of a payload ship tracking system which collects data for users such as the Naval Research Lab, Homeland Security and the U.S. Coast Guard.

Although SpaceQuest has multiple ground station facilities licensed under the *AprizeSat License* to support the experimental program, the disabled North Star earth station is the primary earth station responsible for critical mission data uplink. This authorization will provide SpaceQuest with identical ground station support from RBC Signals' existing Fairbanks location only miles from the North Star facility. SpaceQuest relies on its North Star ground station to effectively manage and perform the AprizeSat mission, and RBC Signals has the resources to immediately begin providing the same level of support without any material disruption to mission operations.

RBC Signals provides the attached M2 Yagi antenna patterns and radiation hazard analysis for additional information relating to the proposed ground station operations. Moreover, in Table 1 below, RBC Signals provides an overview of the operating parameters of the M2 Yagi. To the extent applicable, RBC Signals incorporates by reference the satellite technical specifications, orbital characteristics and mission overview information in the *AprizeSat License* docket and will perform data uplink operations consistent with the terms and conditions imposed by the Commission.

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<sup>3</sup> See RBC Signals, LLC, File Nos. SES-STA-20181115-03264 and SES-STA-20190129-00055 (providing TT&C support for SpaceQuest's BRIO and THEA satellites).

## II. DISCUSSION

RBC Signals seeks to operate the M2 Yagi with the U.S.-licensed AprizeSat cubesats in the 145.8-145.92 MHz band (Earth-to-space). RBC Signals' data uplink operations will be conducted on an unprotected, non-interference basis and at all times in compliance with the *AprizeSat License*. Below, RBC Signals summarizes the main operating parameters of its M2 Yagi ground station:

**Table 1. M2 Yagi Operating Parameters**

<b><u>Parameter</u></b>	<b>Value</b>
Frequency (MHz)	145.8-145.92
Input Power (W)	25
ERP (W)	500
Gain (dBi)	12.34
Emission	20KOFOD
Modulation	GMSK

The United States Table of Frequency Allocations, Section 2.106 of the Commission's rules, 47 C.F.R. § 2.106, provides that the 144-146 MHz band is shared on a co-primary basis between amateur radio and amateur satellite services with no allocation for Federal or commercial users. Accordingly, RBC Signals will perform uplink operations in the band on a non-conforming use (i.e., on an unprotected, non-interference basis).

Although no Federal users operate in the band, 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 U.S. government agencies to ensure that the limited data uplink operations proposed herein are compatible with any government operations and that the interests of the United States are fully accommodated.

RBC Signals believes its operations in this band will not present a potential for interference into the existing spectrum users given its temporary, intermittent use and low transmit power, and it will operate on an unprotected non-interference basis and immediately cease operations if it learns it is causing interference into other co-frequency amateur service operations. RBC Signals is not aware of any interference cause by previously approved operations at this location, and 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.

#### **A. 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, and seeks to commence operations on March 6, 2020, or at the earliest possible time thereafter. 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 short-term length of the mission does not warrant a long-term commercial earth station license (*i.e.*, a 15-year term). The Fairbanks authorization will be used for a brief, temporary period to ensure ground station support while SpaceQuest repairs its North Star facility. Grant of this STA request is in the public interest because it will allow RBC Signals to provide mission-critical ground station support following the failure of SpaceQuest's primary ground station and deliver sustainable support for the AprizeSat satellites to help SpaceQuest demonstrate the significant benefits of its next-generation M2M technology.

**m. 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 data uplink support for the AprizSat cubesats in the 145.8-145.92 MHz band from Fairbanks, Alaska, commencing on March 6, 2020, or at the earliest possible time thereafter.