

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

In the Matter of

Application of RBC Signals LLC for a	)	
30-Day Special Temporary Authorization	)	Call Sign:
To Operate an Earth Station To Provide	)	
Receive-Only Telemetry Support To	)	File No.: SES-STA-_____
Foreign-Licensed Satellites	)	

*Expedited Consideration Requested*

**REQUEST FOR SPECIAL TEMPORARY AUTHORITY**

RBC Signals LLC (“RBC Signals”), pursuant to Section 25.120 of the Commission’s rules,<sup>1</sup> respectfully seeks a 30-day special temporary authorization (“STA”) to operate currently authorized yagi antennas (the “400 MHz Yagis”) at its existing earth station site in Windham, New York, to provide receive-only telemetry support for certain foreign-licensed, non-geostationary satellite orbit (“NGSO”) cubesats operated by Spacety Co., Ltd. (“Spacety”).<sup>2</sup> RBC Signals seeks to perform receive-only telemetry operations in the 401.5-401.9 MHz band (space-to-Earth), specifically with downlink carriers centered at 401.60625 MHz, 401.69375 MHz and 401.79250 MHz.

This 30-day STA request is limited to the First Tranche Spacety Satellites being launched on October 28, 2018 (TY1-02, TY1-03 and TY4-02). RBC Signals has concurrently filed a

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<sup>1</sup> 47 C.F.R. § 25.120.

<sup>2</sup> The Spacety spacecraft include a total of six 6U cubesats. Three satellites will be launched on October 28, 2018 (the TY1-02, TY1-03 and TY4-02 satellites) (“First Tranche Spacety Satellites”), and three satellites will be launched on December 7, 2018 (the TY1-05, TY3-01 and TY3-02 satellites) (“Second Tranche Spacety Satellites”). This STA is requested to communicate with the First Tranche Spacety Satellites only.

request for 180-day STA to provide telemetry support for all six Spacety spacecraft,<sup>3</sup> which should afford sufficient time for Commission consideration of the longer-term STA request.<sup>4</sup> Grant of this 30-day STA will ensure the timely initiation of receive-only telemetry operations following the First Tranche Spacety Satellites' launch and thus will serve the public interest.

## I. BACKGROUND

RBC Signals seeks to support the Spacety spacecraft using currently installed 400 MHz Yagis (the M2 Antenna Systems Model 400CP30A) at its existing earth station in Windham, New York.<sup>5</sup> RBC Signals currently operates at this site in the 401-402 MHz band with no reported cases of interference, and this request will not increase the potential for interference because the limited, receive-only operations are similar to currently authorized operations.

The First Tranche of satellites is operated by Spacety, a Chinese company developing and deploying a series of 6U cubesats to conduct initial technology demonstrations. Spacety seeks to provide short-cycle, low-cost cubesats and related services to scientists, research institutes, and commercial companies to support science experiments and technology trials. Towards this end,

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<sup>3</sup> The mission life of the Spacety spacecraft, approximately one year from launch, does not warrant long-term commercial earth station license authority for the proposed operations. Consistent with past practice regarding STA authority for time-limited earth station operations, RBC Signals intends to request a single renewal of the proposed 180-day STA to ensure appropriate Commission authority for the life of the mission.

<sup>4</sup> In the event that the 180-day STA is not granted in time for the December 7<sup>th</sup> launch, RBC Signals will file an additional 30-day STA request to cover the launch and initial mission period for the Second Tranche Spacety Satellites. In such an event, RBC Signals understands that the pendency of the 180-day STA request will enable the continued communications with the First Tranche Spacety Satellites (*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).

<sup>5</sup> *See* RBC Signals, File No. SES-STA-20180719-01878 (180-day STA extension to provide TT&C support for the Astranis mission in the 401-402 MHz band).

the First Tranche Spacety Satellites will allow Spacety to test components, software design, and operational concepts of its laser projection, remote sensing, and X-ray detection capabilities.

The following table provides an overview of the First Tranche Spacety Satellites’ missions, launch dates, and associated ITU filings. RBC Signals understands that authority for TT&C operations does not constitute market access to the United States for those satellites and therefore is not providing the full technical information contemplated by Sections 25.114 and 25.137 of the Commission’s rules for U.S. market access requests.<sup>6</sup>

**Table 1. First Tranche Spacety Satellites Overview**

<b>Satellite</b>	<b>Mission</b>	<b>Launch</b>	<b>ITU Filing</b>
TY1-02	Laser Projection Communications Testing	Oct. 28, 2018	TY2D
TY1-03	Optical Remote Sensing Payload Testing – 15m	Oct. 28, 2018	TY2D
TY4-02	X-Ray Polarization Detection Testing	Oct. 28, 2018	TY2D

Nonetheless, RBC Signals notes that the First Tranche Spacety Satellites are being licensed and registered as space objects with the United Nations by China, a WTO-member country. To the extent relevant, there is a presumption in favor of entry for these satellites.<sup>7</sup> The First Tranche Spacety Satellites command (uplink) operations will be conducted from China in the VHF 149.7875 - 149.8125 MHz band spectrum.

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<sup>6</sup> See 47 C.F.R. §§ 25.114 and 25.137. See also SES Americom, Inc., File No. SES-MFS-20160624-00607, Call Sign E050287 (granting authority for an earth station to provide TT&C services to the foreign-licensed ASTRA 3A operating at 86.85° W.L.); Hawaii Pacific Teleport, L.P., File No. SES-MFS-20131030-00913, Call Sign E030115 (granting authority for an earth station to provide TT&C services to ASTRA 3A operating at 176.85° W.L.); SES Americom, Inc., File No. SES-STA-20161110-00884, Call Sign E050287 (granting authority for an earth station to provide TT&C services to ASTRA 3A during drift from 86.85° W.L. to 47.0° W.L.); Hawaii Pacific Teleport, L.P., File No. SES-STA-20131030-00914, Call Sign E030115 (granting authority for an earth station to provide TT&C services to ASTRA 3A operating at 176.85° W.L).

<sup>7</sup> See 47 C.F.R. § 25.137(a)(2).

RBC Signals seeks to provide reliable telemetry support for the Spacety mission from the United States, which is important to maintain effective communications with the satellites during orbit. Spacety has realized the critical important of receiving initial telemetry data for mission optimization and other program-related issues given the satellites lack onboard propulsion. RBC Signals can provide immediate telemetry support using its existing earth stations operating in the 401-402 MHz band at the Windham, New York site given the receive-only nature of this request.

RBC Signals' telemetry operations will be conducted on an unprotected and non-interference basis intermittently and as-needed for telemetry downlink between one and six times per day while the satellites pass over the earth station. RBC Signals provides the attached Technical Appendix, including a draft FCC Form 312 Schedule B, for information relating to the proposed earth station operations and the Spacety spacecraft.<sup>8</sup> In addition, RBC Signals will conduct these operations in accordance with the Commission's rules and interagency requirements governing fixed earth station operations in the subject band. As discussed below, grant of the requested STA will serve the public interest, convenience, and necessity.

## **II. DISCUSSION**

RBC Signals seeks to operate the 400 MHz Yagis with the First Tranche Spacety Satellites in the 401.5-401.9 MHz band (space-to-Earth) to receive telemetry data from the satellites. The data will be used to validate the mission and quality of data collected. Grant of this STA request is critical for the reliability of the Spacety mission and will not increase the potential for interference because they are receive-only operations.

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<sup>8</sup> The Technical Appendix includes an overview of the VHF-band, UHF-band and X-band service links of all of the Spacety spacecraft. The scope of this filing is limited to RBC Signals' receive-only telemetry services in the 401.5-401.9 MHz for the First Tranche Spacety Satellites. To the extent the Commission requires any additional information in connection with this STA request, RBC Signals respectfully reserves the right to supplement the information provided herein.

The Spacety spacecraft satellites conform to the form factor of a 6U cubesat (350mm x 259mm x 132mm in the stowed configuration and 801mm x 430mm x 425mm in the deployed configuration), with a total mass of approximately 10 kg. The First Tranche Spacety Satellites will be launched as secondary payloads aboard a Long March CZ-2C launch vehicle from the JinQuan launch center in China on October 2018. The satellites will be launched into a nominal circular, sun-synchronous orbit at 528 km apogee and 528 km perigee with an inclination from the equator of 97.5°. An orbital lifetime calculation for this orbit estimates that the satellite will remain in orbit for approximately 5.5 years (under worst case conditions), well within the limits set by internationally accepted guidelines.<sup>9</sup>

#### **A. Telemetry 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 (Earth-to-space) and space operations services (space-to-Earth). RBC Signals seeks to perform telemetry downlink operations in specific frequencies from 401.5-401.9 MHz consistent with the co-primary space operations allocation in this band.<sup>10</sup>

RBC Signals acknowledges that there are certain U.S. government meteorological aids and earth exploration operations conducted in the 401-402 MHz band.<sup>11</sup> Moreover, RBC Signals understands that although expanded Federal use of the 401-402 MHz band is anticipated, such plans do not commence until well after the end of the Spacety mission. RBC Signals will continue to work

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<sup>9</sup> See Orbital Debris Assessment Report (attached).

<sup>10</sup> 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.”).

<sup>11</sup> See [https://www.ntia.doc.gov/files/ntia/publications/compendium/0401.00-0402.00\\_01MAR14.pdf](https://www.ntia.doc.gov/files/ntia/publications/compendium/0401.00-0402.00_01MAR14.pdf).

with Commission staff to ensure that these temporary receive-only 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 telemetry operations proposed herein are compatible with government operations and that the interests of the United States are fully accommodated.

The earth station site in Windham, New York currently supports TT&C operations (transmit and receive) in the 401-402 MHz band with no reported cases of interference, and RBC Signals' receive-only telemetry operations in this band will not present an interference risk to other authorized users. In addition, previous operations at these locations suggests that expedited processing and grant of this request would not adversely affect other users of the spectrum.

#### **B. STA Request & Public Interest Considerations**

RBC Signals respectfully seeks this 30-day STA pursuant to Section 25.120 of the Commission's rules, 47 C.F.R. § 25.120. A 30-day STA is appropriate because RBC Signals does not plan to file an application for regular authority for the subject receive-only telemetry operations because the length of the mission (approximately one year) does not warrant a long-term commercial earth station license (i.e., a 15-year term).

Extraordinary circumstances exist to grant this request (i.e., the critical need for western hemisphere telemetry earth stations to support launch and operation of the satellites) consistent with Commission practice, and RBC Signals requests that the Commission grant this STA request with the proposed commencement date at the earliest practicable time. In particular, Spacety has realized the critical important of receiving initial telemetry data for mission optimization and other program-related issues given the satellites lack onboard propulsion. Given the unique circumstances here, including the existing operations in the 401-402 MHz band at the Windham, New York site,

temporary authority for near-term telemetry from this site for the First Tranche Spacety Satellites is warranted.

Grant of this STA request is in the public interest because it will facilitate the safe operation of the First Tranche Spacety Satellites by ensuring reliable telemetry functions in time for the launch of the satellite and providing insight into the commercial viability of Spacety's technology and services via true global ground station support. Grant of this STA request will also promote U.S. leadership in the development of next-generation satellite services by enabling a U.S. company to provide critical NSGO ground station services in the United States and worldwide.

### **III. CONCLUSION**

In view of the foregoing, including the receive-only nature of the proposed operations and the critical nature of initial telemetry data immediately after launch, the public interest would be served by a grant by October 28, 2018 of a 30-day STA to allow RBC Signals to perform telemetry functions for the First Tranche Spacety Satellites using the 400 MHz Yagis from its existing earth station facilities in Windham, New York.