

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

In the Matter of

Application of RBC Signals, LLC for a	)	
60-Day Special Temporary Authorization	)	Call Sign:
to Operate with Non-Geostationary Orbit	)	
Spacecraft	)	File No.: SES-STA-_____
	)	

**REQUEST FOR 60-DAY SPECIAL TEMPORARY AUTHORIZATION
(S-band 6m Antenna Uplink – Deadhorse, Alaska)**

RBC Signals, LLC (“RBC Signals”), pursuant to Section 25.120 of the Commission’s rules, 47 C.F.R. § 25.120, respectfully seeks a 60-day special temporary authorization (“STA”) to operate a fixed 6.0 meter S-band earth station in Deadhorse, Alaska to conduct telemetry, tracking, and command (“TT&C”) uplink operations in the 2025-2110 MHz band (Earth-to-space) to support the Vigoride-5 (“VR-5”), a satellite operated by Momentus Space LLC (“Momentus”),¹ and the Rapid Revisit Optical Cloud Imager (“RROCI”) satellite, operated by Orion Space Solutions, LLC (“Orion Space”).² As demonstrated herein, grant of the requested authority will serve the public interest because it will allow RBC Signals to provide necessary TT&C support for VR-5’s and RROCI’s customer and experimental operations.

RBC will conduct all operations in accordance with the Commission’s rules and requirements governing fixed earth station operations in the subject bands. RBC Signals is attaching a draft Form 312 Schedule B with information relating to the proposed earth station

¹ See Momentus Space LLC, *Application for Authority to Deploy and Operate Vigoride-5 as a Non-Geostationary Orbit InSpace Transportation Spacecraft*, File No. SAT-LOA-20220504-00047, Call Sign S3144 (“VR-5 Application”) (Pending).

² See Orion Space Solutions, LLC, *Experimental License*, Call Sign WM2XEU, File No. 0867-EX-CN-2021 (Granted August 2, 2022)..

operations.³ The 6.0 meter antenna is located in an area with restricted access, and meets the requirements of 47 CFR 25.115(p). Grant of this request is therefore consistent with the Commission's rules, and will serve the public interest. RBC Signals respectfully requests that the Commission consider and authorize the proposed operations as soon as practicable.

I. BACKGROUND

RBC Signals is a Seattle, Washington-based company that provides earth station services around the world. RBC Signals has contracts with both Momentus and Orion Space to provide TT&C services to their respective satellites from the 6.0 meter SeaTel Tracker EO 6000 S/X Antenna System at its ground station in Deadhorse, Alaska, and is filing an application for regular authority to support these operations. However, RBC Signals seeks this 60-day STA to allow for operations to start serving VR-5 and RROCI as soon as they are deployed from SpaceX's Transporter 6 rocket, which is expected to be launched in December 2022, while also affording the Commission sufficient time to review and process its application for longer-term authority

II. DISCUSSION

RBC Signals seeks to provide TT&C uplink communications in the 2025-2110 MHz (Earth-to-space) band to support the Momentus VR-5 at a center frequency of 2075 MHz with a 100 kilohertz bandwidth, and the Orion Space RROCI satellite, operating at a 2085 MHz center frequency with a 128 kilohertz bandwidth, using the 6.0 meter earth station as described below.

³ RBC requests leave to update the technical or operational data associated with this STA request should the Commission seek any clarifying or supplemental information in considering this request.

RBC Signals has been operating a 4.5 meter earth station approximately 50 meters from the 6.0 meter earth station described in this application, using the same or almost the same EIRP and the same or similar frequencies. No harmful interference has resulted those operations, and none is anticipated from the proposed operations supporting these satellites at the 6.0 meter earth station. RBC Signals will continue to ensure that its TT&C operations will not cause harmful interference to current or future co-frequency operations and that the interests of the United States are accommodated.

A. Summary of Frequency Use

In Table 1 below, RBC Signals presents information on the frequencies to be used to communicate with the satellites that are the subject of this application.

Table 1 - Summary of Frequency Use

<u>Satellite</u>	<u>Center Frequencies</u>	<u>Emission Designator</u>
<u>VR-5</u>	2075 MHz	100KG1D
<u>RROCI</u>	2085 MHz	128KG1D

B. Overview of Satellite Points of Contact

1. Vigoride-5

The VR-5 is a non-geostationary orbit (“NGSO”) spacecraft designed to transport and deploy customer payloads in low-Earth orbit (“LEO”), as well as to permanently host experimental customer operations. Propelled primarily by a novel microwave electrothermal thruster, a non-toxic and low-pressurized water propellant system capable of providing orbit transfers, VR-5 will transport a total of five (5) third-party payloads. Four of the five payloads are Momentus’s customer cubesats, which will be deployed directly from VR-5 shortly after it is

injected into orbit. The fifth payload is an experimental light-weight flexible phased array system designed by the California Institute of Technology's High-Speed Integrated Circuits Group ("Caltech"). This payload will remain on board the VR-5 satellite and will be operated by Caltech in cooperation with Momentus.

The VR-5 satellite is awaiting Commission action on its application for authority to operate,⁴ and RBC Signals incorporates by reference the VR-5 mission information and payload specifications provided in the *VR-5 Application*.

2. RROCI

RROCI⁵ is a 12U NGSO satellite which has been designed to incorporate multiple cameras with a satellite downlink and an electronic propulsion system. RROCI will be orbiting the earth in a sun-synchronous orbit and capture still imagery at a rapid framerate.

Orion Space currently holds a subcontract to conduct a demonstration for the US Air Force and Space Force of how RROCI can improve in-theater weather imagery over the currently available technologies. RROCI's novel approach to cloud imagery is expected to improve flight safety for DoD personnel. At the end of the mission, Orion Space will send commands to RROCI to begin its deorbit process. Orion Space is initially planning to operate the RROCI satellite for a year after launch in October 2022, but holds a 2-year experimental license to allow for ongoing operations should the Department of Defense ("DoD") choose to extend the contract

⁴ See *supra* n.1. RBC Signals will submit an application for earth station authorization soon after this STA request has been filed. When VR-5 is no longer in operation, RBC Signals will request to remove the satellite from its license. Momentus expects that it will have, as a minimum, between four to five passes per day over the ground stations. Each communication window presents an average of approximately seven minutes contact time.

⁵ See *supra* n. 2.

C. Frequency Allocations and Frequency 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 2025-2110 MHz band is allocated on a primary basis to both federal and non-federal uses. The non-federal primary allocation is for terrestrial fixed and mobile services. Non-federal Earth-to-space transmissions may be authorized on a case-by-case basis for space research and Earth exploration-satellite services, so long as such operations are conducted on a non-interference basis with Federal and non-Federal users of the band.⁶ RBC Signals will operate these links on a non-interference basis, as required by the Table of Allocations, and seeks authorization for its operations under the provisions of 47 C.F.R. § 2.106, fn. US347.

RBC Signals proposes to transmit using the 2075 MHz and 2085 MHz center frequencies (Earth-to-space) to provide TT&C for the satellites discussed above, consistent with the Commission’s Table of Allocations. RBC Signals understands that there are certain U.S. government operations conducted in the 2025-2110 MHz band, including use by the National Aeronautics and Space Administration (“NASA”).⁷ RBC Signals will continue its coordination efforts with NASA and other government agencies to ensure compatibility of the proposed operations.

RBC Signals will transmit without causing any harmful interference to other spectrum users operating in the band. These proposed operations at the 6.0 meter earth station are not expected to create any risk of interference, and RBC Signals has not identified any conflicting federal operations.

⁶ See 47 C.F.R. § 2.106, fn. US347.

⁷ See https://www.ntia.doc.gov/files/ntia/publications/compendium/2025.00-2110.00_01MAR14.pdf

D. Frequency Coordination and Interference

RBC Signals has engaged Micronet to perform a new frequency coordination that considers all existing, proposed, and prior-coordinated terrestrial microwave and other facilities within the contours of the 6.0 meter earth station. The final coordination report from Micronet is pending. Operations previously licensed at the 4.5 meter earth station, only 50 meters away, have been coordinated, and those coordination reports were submitted with RBC Signals' applications for operations at the 4.5 meter earth station. The proximity of the 6.0 meter earth station to the previously-authorized 4.5 meter earth station and the use of the same or similar frequencies should lead to the same result: no potential for harmful interference will result from the proposed operations.

As stated above, RBC Signals will operate its S-band transmitter on an unprotected, non-interference basis and, if it learns that its operations are causing harmful interference to other operations, it will suspend or modify its operations to resolve such interference. RBC Signals is confident that there is no potential for interference between other users of this spectrum and the operations of the 6.0 meter earth station. In addition, RBC Signals understands that the satellite operators have coordinated access to the required frequencies for their respective operations.

E. Waiver Request

To the extent necessary, RBC Signals requests waiver of the Table of Allocations to permit the proposed TT&C transmit operations in the 2025-2110 MHz band. Given the limited spectrum use, RBC Signals' confirming coordination of these frequencies, and the public interest served by RBC Signals' supporting the operations of these satellites, RBC Signals submits that a limited waiver is justified in this instance. RBC Signals will continue to ensure that its Earth-to-

space operations do not increase the potential for interference into current or future government or commercial users.

The Commission may waive any of its rules for “good cause” shown.⁸ In general, waiver is appropriate if (i) special circumstances warrant a deviation from the general rule; and (ii) such deviation would better serve the public interest than would strict adherence to the rule.⁹ As discussed, special circumstances justify grant of the requested waivers and grant will not undermine the policy objectives of the rules and will otherwise be consistent with the public interest. RBC Signals therefore respectfully requests, if a waiver is needed, that it be granted by the Commission.

F. Public Interest Consideration

RBC Signals is at the forefront of reinventing TT&C and earth station support solutions and grant of the requested STA would promote U.S. leadership in innovative satellite technologies and services. Grant of this application will enable the continued realization of the significant benefits and commercial viability of developing novel small satellite communications systems. In addition, grant of this STA application will further the public interest by enabling near-term TT&C support for the specific missions of the VR-5 and RROCI spacecrafts.

III. CONCLUSION

Based on the foregoing, RBC Signals respectfully requests that the Commission grant this 60-day STA application to enable its 6.0 meter earth station to provide TT&C services on S-band frequencies for the Momentus VR-5 and the Orion Space RROCI.

⁸ See 47 C.F.R. § 1.3; *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1164 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).

⁹ See *Northeast Cellular*, 897 F.2d at 1166; see also *WAIT Radio*, 418 F.2d at 1157.