Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

Amendment to Application of RBC Signals, LLC for an Earth Station License to Operate with NGSO Space Stations	))))	Call Sign: E220185 File No.: SES-AMD-_____

Amendment to Earth Station Application
(6.0m Antenna– Deadhorse, Alaska)

RBC Signals, LLC ("RBC Signals"), pursuant to Section 25.116 of the Commission's rules, 47 C.F.R. § 25.116, respectfully seeks to amend its pending application for authority to operate a 6.0-meter earth station[1] in Deadhorse, Alaska (the "6.0m Earth Station") to conduct telemetry, tracking, and command ("TT&C") operations in a portion of the 2025-2110 MHz (Earth-to-space) and 8025-8400 MHz (space-to-Earth) bands with additional non-geostationary orbit ("NGSO") space stations. Specifically, RBC Signals seeks to remove the following satellite points of communication: Sherpa LTE-1, Vigoride-3, the Rapid Revisit Optical Cloud Imager ("RROCI"), and the Mandrake Able and Baker satellites. At the same time, RBC Signals seeks to add the Vigoride-6 satellite[2], the GHOSt-1 and GHOSt-2 satellites[3], and the Starfish Otter Pup satellite[4] as authorized satellite points of communication, and to include downlink frequencies for Vigoride-5, which is already included in the pending *6.0m Application*.

[1] *See* RBC Signals, LLC, File No. SES-LIC-20221121-01273, call sign E220185 (filed Nov. 21, 2022) (the "*6.0m Application*").

[2] *See* Momentus Space LLC, File No. SAT-LOA-20221009-00131, Call Sign S3154 (granted Feb. 27, 2023).

[3] *See* Orbital Sidekick, Inc., File No. SAT-LOA-20220325-00035, Call Sign S3139 (granted Dec. 7, 2022).

[4] *See* Starfish Space Systems File No. 1117-EX-CN-2022, Call Sign WN2XEL, Filed Oct. 3, 2022, pending authorization.

In addition, RBC Signals is updating the technical characteristics of the 6.0m Earth Station and associated emissions to reflect the full transmit capabilities of the earth station, within which it seeks to communicate with the individual satellite points of communications included in the license. RBC Signals has initiated coordination of these transmissions and the analysis reveals no cases of harmful interference. By coordinating and including the full capabilities of the earth station at its remote Deadhorse, Alaska earth station facility, RBC Signals will establish an operational envelope that will facilitate the addition of new satellite points of communication in the future.

RBC Signals has obtained special temporary authority ("STA") to communicate with some of the foregoing satellites[5] given their launch dates, and herein respectfully seeks longer-term authority to communicate with the satellites for the duration of their missions.[6] RBC Signals will conduct the proposed operations in accordance with the Commission's rules and requirements. As demonstrated herein, grant of the requested earth station license, as amended, will serve the public interest because it will allow RBC Signals to continue seamless, long-term support of multiple satellite operations.

I. DISCUSSION

RBC Signals is a Redmond, Washington-based company providing innovative earth station services in the United States and around the world to both U.S. government and

[5] *See* RBC Signals, LLC, File Nos. SES-STA-20230207-00134, SES-STA-20230302-00244, and SES-STA-INTR2023-01631, Call Sign E220185.

[6] Except for the addition Vigoride-6, Tomorrow-R1, GHOSt-1 and GHOSt-2, and the removal of Vigoride-3, RROCI, Able, and Baker, all other information in the *6.0m Application* remains the same. RBC Signals incorporates by reference the operational specifications included in the authorizations of the subject satellite and requests leave to update the technical or operational data associated with this license modification application should the Commission seek any clarifying or supplemental information in considering this application.

commercial clients. RBC Signals has provided similar ground station support for multiple customer satellites in the 2025-2110 MHz (Earth-to-space) band from the 6.0m Earth Station,[7] as well as from a 4.5-meter earth station[8] located approximately 50 meters away. No harmful interference has resulted from previous uplink/transmit operations, and none is anticipated from those supporting the satellites as requested herein. Indeed, RBC Signals has initiated coordination of these transmissions and the analysis reveals no cases of harmful interference. RBC Signals will submit final coordination reports in the docket of this proceeding as soon as they are available.

The proposed downlink/ receive operations, transmitted by the satellite operator pursuant to the terms and conditions of its authorization, also will not cause interference to other spectrum users. For both uplinks and downlinks, the Commission has determined that operations in the frequencies included in the authorization would be consistent with the public interest. Of course, RBC Signals will independently continue to ensure that its TT&C communications at its Deadhorse, Alaska facility will not cause harmful interference to current or future co-frequency operations and that the interests of the United States are accommodated.

A. Description of Operations

RBC Signals seeks to amend its pending earth station license application for the 6.0m Earth Station to remove no longer needed communications with the Sherpa LTE-1, Vigoride-3, RROCI, Able, and Baker satellites and to provide additional uplink communications in a portion

[7] *See* RBC Signals, LLC, File No. SES-STA-20221014-01134, Call Sign E220185 (granted Dec. 14, 2022) and File No.SES-STA-20220929-01060, Call Sign E220185 (granted Nov. 28, 2022).

[8] *See* RBC Signals, LLC, File No. SES-LIC-20220509-00468, Call Sign E220057 (granted Feb. 16, 2023). *See also* previous grants for operation from RBC Signals' 4.5m earth station, including File Nos. SES-STA-20220415-00412 (granted June 13, 2022), SES-STA-20220509-00469 (granted June 2, 2022), SES-STA-20220509-00470 (granted May 25, 2022), and SES-STA-20220621-00681 (granted Nov. 9, 2022).

of the 2025-2110 MHz (Earth-to-space) band to support the Vigoride-6, GHOSt-1, GHOSt-2, and Starfish Otter Pup satellites as described herein.[9] RBC Signals also seeks to amend its pending earth station license application for the 6.0m Earth Station to provide downlink communications in a portion of the 8025-8400 MHz (space-to-Earth) band to support the Vigoride-5, Vigoride-6, and Starfish Otter Pup satellites as described herein.

In Table 1 below, RBC Signals summarizes the satellite points of communication and frequencies to be used by the 6m Earth Station for communication with each satellite, including those for Sherpa-AC1 and Vigoride-5, which are included in its pending *6.0m Application*.[10]

Table 1 - Summary of Frequency Use

Satellite Point of Contact	**Transmit/ Receive**	**Center Frequency**	**Emission Designator**
GHOSt- 1 and 2	T	2047.5 MHz	5M00G1D
	T	2055 MHz	300KG1D
Sherpa- AC1	T	2046 MHz	300KG1D
	T	2048 MHz	300KG1D
	T	2050 MHz	300KG1D
	T	2053 MHz	300KG1D
	T	2056 MHz	300KG1D
	T	2075 MHz	300KG1D
Starfish Otter Pup	T	2055 MHz	480KF1D
	T	2047.5 MHz	22M1G1D
	R	8200 MHz	90M9G1D
Vigoride- 5 and 6	T	2075 MHz	100KG1D
	T	2075 MHz	32K0F1D
	R	8200 MHz	1M00G1D

B. 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

[9] RBC Signals incorporates by reference the operational specifications included in the authorizations of the subject spacecraft and requests leave to update the technical or operational data associated with this license modification application should the Commission seek any clarifying or supplemental information in considering this application.
[10] *See supra* n. 1.

on a primary basis to non-Federal 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 Service ("EESS") operations, so long as such operations are conducted on a non-interference basis vis-à-vis Federal and non-Federal users of the band.[11] RBC Signals will continue to operate these links on a non-interference basis.

The Table of Allocations also provides that the 2025-2110 MHz band is allocated on a primary basis to space operations, EESS, and space research. In the United States, space operations are limited to Federal operators, and EESS use by commercial operators is subject to conditions as may be applied on a case-by-case basis and the limitation that any use may not cause harmful interference to authorized operations. 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").[12] RBC Signals will continue its coordination efforts with NASA and other government agencies to ensure compatibility of the proposed operations.

In the Table of Allocations, the 8025-8400 MHz band is allocated to uplinks for Federal fixed and mobile-satellite service operations, as well as downlinks for EESS for Federal and non-Federal use.[13] To the extent the Commission has included portions of the 8025-8400 MHz band for downlinks from the subject satellites, it has been concluded that doing so would be consistent with the public interest. Of course, the subject satellite operators are responsible for conducting these downlink transmissions consistent with the terms of their authorizations; the 6.0m Earth Station will only receive these downlink transmissions.

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[11] *See* 47 C.F.R. § 2.106, n. US347.

[12] *See* https://www.ntia.doc.gov/files/ntia/publications/compendium/2025.00-2110.00_01MAR14.pdf.

[13] *See* 47 C.F.R. § 2.106, n. US258.

C. Frequency Coordination

Previous coordination reports which supported the Deadhorse 6.0m and nearby 4.5m earth station show no interference cases for uplink transmissions. RBC Signals proposes herein to operate the 6.0m Earth Station at its maximum transmit capabilities, which are higher than those previously authorized by the Commission pursuant to STA. The more robust power levels are being coordinated with co-frequency users of the spectrum and RBC signals will adjust the parameters included herein, as appropriate, to reflect the outcome of its coordination efforts and harmful interference concerns that may be raised in the future.[14] In addition, RBC Signals understands that the relevant satellite operators have coordinated access to the required uplink and downlink frequencies for their respective operations.

RBC Signals notes that it has operated in the subject spectrum using the 6.0m Earth Station without any harmful interference incidents. Nonetheless, RBC Signals will operate the 6.0m Earth Station on an unprotected, non-interference basis and if RBC Signals learns that its operations are causing harmful interference to other operations, it will suspend or modify its operations immediately to resolve such interference.

The 24/7 point of contact for the proposed operations is:

John Ames
RBC Signals Operations
Email: john.ames@rbcsignals.com
Mobile: 719.502.6206

D. Waiver Request

To the extent the Commission concludes that any of the proposed operations in the 2025-2110 MHz band do not conform to the available non-Federal allocations, RBC Signals requests a

[14] Indeed, RBC Signals has initiated coordination of these transmissions and the analysis reveals no cases of harmful interference. *See* Exhibit 1. RBC Signals will submit final coordination reports in the docket of this proceeding as soon as they are available.

waiver of the Table of Allocations to permit the proposed transmit operations of the 6.0m Earth Station. Similarly, to the extent the Commission concludes that any of the proposed operations in the 8025-8400 MHz band do not conform to the available non-Federal allocations, RBC Signals requests a waiver of the Table of Allocations to permit the proposed receive operations of the 6.0m Earth Station.

The Commission may waive any of its rules for "good cause" shown.[15] In general, a 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.[16] Special circumstances justify grant of the requested waivers and grant will not undermine the policy objectives of the rules and will otherwise serve the public interest.

Given RBC Signals' limited spectrum use, prior use of the same frequencies for the same operations without interference incident, and successful coordination of these frequencies at the full capabilities of the 6.0m Earth Station, the public interest would be served by permitting the 6m Earth Station to support the operations of the identified satellites as described herein. RBC Signals will continue to ensure that its earth station transmit operations do not cause harmful interference into current or future U.S. government or commercial users.

With respect to the 6.0m Earth Station receive operations, RBC Signals notes that they cannot cause interference in the band. The relevant satellite operators have coordinated access to the required downlink frequencies and are responsible for their respective satellite transmit operations.

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[15] *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).

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

Additionally, in all cases, the Commission has authorized the satellites to operate on the frequencies set forth herein, confirming that such operations would be consistent with the public interest. Accordingly, RBC Signals respectfully submits, if a waiver is needed for operation of the 6.0m Earth Station as proposed herein, that it should 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 authority would promote U.S. leadership in innovative satellite technologies and services. Grant of the *6.0m Application*, as amended, will enable the continued realization of these significant benefits and commercial viability of developing novel small satellite communications systems. In addition, grant of this amendment will further the public interest by enabling longer-term and more robust TT&C support for the Vigoride-6, GHOSt-1, GHOSt-2, and Starfish Otter Pup satellite missions.

The operations proposed herein, which reflect the full transmit capabilities of the 6.0m Earth Station, are being coordinated with co-frequency users of the spectrum. RBC Signals will adjust the parameters included herein, as appropriate, to reflect the outcome of its coordination efforts and any harmful interference concerns that may arise. In the meantime, operation of the 6.0m Earth Station will continue pursuant to existing STA authority.

II. CONCLUSION

Based on the foregoing, RBC Signals respectfully requests that the Commission grant this earth station application, as amended, to enable the 6.0m Earth Station to conduct TT&C operations in the spectrum for the satellite points of communication identified herein. There have been no instances of harmful interference from existing TT&C uplink operations in the subject spectrum, coordination of the transmissions proposed herein reveals no interference

cases, and RBC Signals will continue to ensure interference-free operation of the 6.0m Earth Station through appropriate coordination and operational means.

EXHIBIT 1

Micronet Communications, Inc.
812 Lexington Dr
Plano, Texas 75075
972-422-7200

File: N2234305

TECHNICAL CHARACTERISTICS OF TRANSMIT ONLY EARTH STATION

Company:		RBC Signals, LLC	
Site Name, State:		Deadhorse, AK	
Call Sign:			
Latitude	(NAD83)	70 12 42.0 N	
Longitude	(NAD83)	148 24 43.0 W	
Elevation AMSL	(ft/m)	49.21	15.00
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	2025-2110	
Range of Satellite Orbital Long.	(deg W)	0.00	360.00
Range of Azimuths from North	(deg)	0.00	360.00
Antenna Centerline	(ft/m)	13.12	4.00
Antenna Elevation Angles	(deg)	5.00	90.00

Equipment Parameters		Transmit	
Antenna Gain, Main Beam	(dbI)	39.00	
15 DB Half Beamwidth	(deg)	0.50	
Antennas	Transmit: SEATEL TRACKER EO 6000		
Max Transmitter Power	(dBW/4KHz)		0.28
Max EIRP Main Beam	(dBW/4KHz)		39.28
Modulation / Emission Designator	DIGITAL	300KG1D	

Coordination Parameters		Transmit	
Max Greater Circle Distances	(km)	830.34	
Max Rain Scatter Distances	(km)	105.20	
Max Interference Power Long Term	(dBW/MHz)	-140.60	
Max Interference Power Short Term	(dBW/MHz)	-118.40	
Rain Zone / Radio Zone		3	A

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Longitude	(NAD83)	148 24 43.0 W	
Elevation AMSL	(ft/m)	49.21	15.00
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	2025-2110	
Range of Satellite Orbital Long.	(deg W)	0.00	360.00
Range of Azimuths from North	(deg)	0.00	360.00
Antenna Centerline	(ft/m)	13.12	4.00
Antenna Elevation Angles	(deg)	5.00	90.00

Equipment Parameters		Transmit	
Antenna Gain, Main Beam	(dbI)	39.00	
15 DB Half Beamwidth	(deg)	0.50	
Antennas	Transmit: SEATEL TRACKER EO 6000		
Max Transmitter Power	(dBW/4KHz)		-11.94
Max EIRP Main Beam	(dBW/4KHz)		27.06
Modulation / Emission Designator	DIGITAL	5M00G1D	

Coordination Parameters		Transmit	
Max Greater Circle Distances	(km)	664.74	
Max Rain Scatter Distances	(km)	100.00	
Max Interference Power Long Term	(dBW/MHz)	-140.60	
Max Interference Power Short Term	(dBW/MHz)	-118.40	
Rain Zone / Radio Zone		3	A

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Site Name, State:		Deadhorse, AK	
Call Sign:			
Latitude	(NAD83)	70 12 42.0 N	
Longitude	(NAD83)	148 24 43.0 W	
Elevation AMSL	(ft/m)	49.21	15.00
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	2025-2110	
Range of Satellite Orbital Long.	(deg W)	0.00	360.00
Range of Azimuths from North	(deg)	0.00	360.00
Antenna Centerline	(ft/m)	13.12	4.00
Antenna Elevation Angles	(deg)	5.00	90.00

Equipment Parameters		Transmit	
Antenna Gain, Main Beam	(dbI)	39.00	
15 DB Half Beamwidth	(deg)	0.50	
Antennas	Transmit: SEATEL TRACKER EO 6000		
Max Transmitter Power	(dBW/4KHz)		-1.76
Max EIRP Main Beam	(dBW/4KHz)		37.24
Modulation / Emission Designator	DIGITAL	480KF1D	

Coordination Parameters		Transmit	
Max Greater Circle Distances	(km)	796.18	
Max Rain Scatter Distances	(km)	100.00	
Max Interference Power Long Term	(dBW/MHz)	-140.60	
Max Interference Power Short Term	(dBW/MHz)	-118.40	
Rain Zone / Radio Zone		3	A

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Site Name, State:		Deadhorse, AK	
Call Sign:			
Latitude	(NAD83)	70 12 42.0 N	
Longitude	(NAD83)	148 24 43.0 W	
Elevation AMSL	(ft/m)	49.21	15.00
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	2025-2110	
Range of Satellite Orbital Long.	(deg W)	0.00	360.00
Range of Azimuths from North	(deg)	0.00	360.00
Antenna Centerline	(ft/m)	13.12	4.00
Antenna Elevation Angles	(deg)	5.00	90.00

Equipment Parameters		Transmit
Antenna Gain, Main Beam	(dbI)	39.00
15 DB Half Beamwidth	(deg)	0.50

Antennas Transmit: SEATEL TRACKER EO 6000

Max Transmitter Power	(dBW/4KHz)	5.05
Max EIRP Main Beam	(dBW/4KHz)	44.05
Modulation / Emission Designator	DIGITAL	100KG1D

Coordination Parameters		Transmit
Max Greater Circle Distances	(km)	910.21
Max Rain Scatter Distances	(km)	179.22
Max Interference Power Long Term	(dBW/MHz)	-140.60
Max Interference Power Short Term	(dBW/MHz)	-118.40
Rain Zone / Radio Zone		3 A

Micronet Communications, Inc.
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Plano, Texas 75075
972-422-7200

File: T2234305

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Call Sign:			
Latitude	(NAD83)	70 12 42.0 N	
Longitude	(NAD83)	148 24 43.0 W	
Elevation AMSL	(ft/m)	49.21	15.00
Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	2025-2110	
Range of Satellite Orbital Long.	(deg W)	0.00	360.00
Range of Azimuths from North	(deg)	0.00	360.00
Antenna Centerline	(ft/m)	13.12	4.00
Antenna Elevation Angles	(deg)	5.00	90.00

Equipment Parameters		Transmit	
Antenna Gain, Main Beam	(dbI)	39.00	
15 DB Half Beamwidth	(deg)	0.50	
Antennas	Transmit: SEATEL TRACKER EO 6000		
Max Transmitter Power	(dBW/4KHz)		-18.51
Max EIRP Main Beam	(dBW/4KHz)		20.49
Modulation / Emission Designator	DIGITAL	22M7G1D	

Coordination Parameters		Transmit	
Max Greater Circle Distances	(km)	590.16	
Max Rain Scatter Distances	(km)	100.00	
Max Interference Power Long Term	(dBW/MHz)	-140.60	
Max Interference Power Short Term	(dBW/MHz)	-118.40	
Rain Zone / Radio Zone		3	A

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Longitude	(NAD83)	148 24 43.0 W	
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Receive Frequency Range	(MHz)		
Transmit Frequency Range	(MHz)	2025-2110	
Range of Satellite Orbital Long.	(deg W)	0.00	360.00
Range of Azimuths from North	(deg)	0.00	360.00
Antenna Centerline	(ft/m)	13.12	4.00
Antenna Elevation Angles	(deg)	5.00	90.00

Equipment Parameters		Transmit	
Antenna Gain, Main Beam	(dbI)	39.00	
15 DB Half Beamwidth	(deg)	0.50	
Antennas	Transmit: SEATEL TRACKER EO 6000		
Max Transmitter Power	(dBW/4KHz)		10.00
Max EIRP Main Beam	(dBW/4KHz)		49.00
Modulation / Emission Designator	DIGITAL	32K0F1D	

Coordination Parameters		Transmit	
Max Greater Circle Distances	(km)	997.17	
Max Rain Scatter Distances	(km)	278.80	
Max Interference Power Long Term	(dBW/MHz)	-140.60	
Max Interference Power Short Term	(dBW/MHz)	-118.40	
Rain Zone / Radio Zone		3	A