

BEFORE THE  
**Federal Communications Commission**  
WASHINGTON, D.C. 20554

In re the Matter of )  
 )  
**Kinéis** ) File No. \_\_\_\_\_  
 )  
Petition for Declaratory Ruling Pursuant to ) Call Sign \_\_\_\_\_  
Section 25.137 of the Commission’s Rules )  
Requesting Access to the U.S. Market for a )  
Non-Voice, Non-Geostationary Satellite )  
Network )

**PETITION FOR DECLARATORY RULING**

Kinéis,<sup>1</sup> pursuant to Section 25.137 of the Commission’s Rules,<sup>2</sup> petitions the Commission for a declaratory ruling granting it access to the U.S. market for its planned non-voice, non-geostationary Mobile-Satellite Service (“NVNG MSS”) system. This Petition for Declaratory Ruling (“Petition”) is being submitted in response to the FCC Public Notice issued August 15, 2019, pursuant to Section 25.157 of the Commission’s Rules,<sup>3</sup> announcing the establishment of an October 15, 2019 cut-off date for the submission of “applications and petitions for operations in the 399.9-400.05 MHz and 400.15-401 MHz frequency bands by NVNG MSS systems.”<sup>4</sup> The planned network will be authorized under the laws of France, which has submitted advance publication and coordination information to the International

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<sup>1</sup> Kinéis is a joint stock company established under the laws of France. Its sole shareholder is Collecte Localisation Satellites.

<sup>2</sup> See 47 C.F.R. § 25.137.

<sup>3</sup> See 47 C.F.R. § 25.157.

<sup>4</sup> See Satellite Policy Branch Information: Myriota Pty. Ltd. Petition Accepted for Filing, IBFS File No. SAT-PDR-20190328-00020; Cut-Off Established for Additional NVNG MSS Applications or Petitions for Operations in the 399.9-400.05 MHz and 400.15-401 MHz Bands, Report No. SPB-277, DA 19-779 (rel. Aug. 15, 2019). See also 47 C.F.R. § 25.137(c).

Telecommunication Union (“ITU”).<sup>5</sup> As shown herein, Kinéis is legally, technically and otherwise qualified to be granted the access requested, the proposed facilities and operations comply with all applicable rules, regulations, and policies, except to the extent that fully-supported waivers of FCC Rules are requested herein, and grant of the application will serve the public interest, convenience and necessity.<sup>6</sup> Accordingly, Kinéis respectfully requests that the Commission expeditiously grant this Petition.

## **I. GENERAL DESCRIPTION AND SERVICES TO BE PROVIDED**

### **A. About Kinéis and Its Planned Internet of Things Services**

Kinéis is an independent, private satellite operator established in 2018, but leveraging the substantial expertise of its parent company, Collecte Localisation Satellites (“CLS”), which has 40 years of experience in geo-location and data collection, including provision of satellite data collection services via the established ARGOS system. The new company proposes an innovative global data connectivity platform for Internet of Things (“IoT”) applications. Kinéis will locate and collect data all over the globe, and it aims to work closely with terrestrial IoT operators and connected object manufacturers to develop new applications. It will offer universal, simple, low-power-consuming, reliable connectivity at a cost that is affordable for a broad array of potential users. Consistent with the Commission’s Rules, no voice services will be provided.<sup>7</sup>

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<sup>5</sup> The subject NVNG satellite network has been published by the administration of France through the International Telecommunication Union (“ITU”) under the designations A4MSSNG, A4NG and A4NG-C. Details of these filings can be found in Section 8 of the Technical Annex. These submissions meet the criterion set forth in Section 25.137(c)(3) of the Commission’s Rules that a petitioner seeking access to the U.S. market for a non-U.S.-licensed satellite system has submitted coordination information for its network to the ITU. *See* 47 C.F.R. §25.137(c)(3).

<sup>6</sup> *See* 47 C.F.R. §§ 25.142(a) & 25.156(a).

<sup>7</sup> *See* 47 C.F.R. § 25.142(b).

The satellite network is an innovative constellation of twenty-five (25) nanosatellites developed for IoT, including in-orbit spares able to deploy quickly to cover any potential gaps in coverage due to space station anomalies. Among the 25 satellites, 10 satellites will include a secondary payload enabling AIS signal processing. The complete Kinéis IoT constellation is expected to be in orbit by the second half of 2022.

With the ARGOS system, established in 1986, CLS and CNES, the French space agency (which is an investor in CLS), were forerunners in the collection of data using tracked mobile and remote data-generating devices. CLS was locating satellite-connected objects before the advent of the Global Positioning System and Galileo, enabling new scientific studies and resources monitoring. Seven ARGOS 2<sup>nd</sup> and 3<sup>rd</sup> generation satellites are currently in orbit, enabling IoT project initiators to test their prototype devices and applications. Kinéis will add three new payloads to the ARGOS system in 2020 and 2021: Two ARGOS 4<sup>th</sup> generation payloads onboard partner satellites (the Hops project with the National Oceanographic and Atmospheric Administration and Oceansat 3 with the Indian Space Research Organization) and one demonstration nano-satellite as a precursor for the Kinéis constellation.

Kinéis will implement the next generation of the ARGOS-based technology in cooperation with multiple strategic partners, including Thales Alenia Space for project management, Hemeria (formerly Nexeya) for platform development and manufacturing, and Syrlinks for payload construction. All of these companies are significant players in the space industry and recognized for their cutting-edge technology and reliable delivery of advanced space system components.

Any object that generates data or can have its position tracked will benefit from the IoT connectivity that Kinéis will offer. As detailed below, users will enjoy a variety of applications for use in the maritime, agricultural, logistics, outdoor sports, security, and scientific sectors.

## **B. Markets to be Served**

Maritime: Fishing. Due to significant environmental issues such as overfishing, pollution and climate change, there is an expanding need for marine resource monitoring. For example, traditional, small-scale fishermen are working in increasingly difficult conditions to find adequate piscine populations and to maintain them at sustainable levels while continuing to harvest a consistent catch. The decline in the number of fish in easily reached coastal areas forces fishing vessels to travel further out to sea, which leaves them unable to contact people back home for longer periods of time. Kinéis will connect traditional fishing boats throughout their expeditions and enable small-scale fisheries to:

- sustainably manage fish stocks (by monitoring fishing zones, tracking fleets, etc.);
- optimize the sale of the catch (providing information on the appropriate markets to sell fish at the best price);
- keep in touch with those on land (to reassure families, shipowners, etc.); and
- make a high-risk activity safer (by enabling fishermen to transmit distress calls and receive weather warnings, etc.).

Maritime: Recreational and Charter Vessels. Despite the idyllic image of a white sailboat on a calm, turquoise sea, when an engine fails or the weather suddenly turns stormy, that dream can quickly turn into a nightmare. Even when a voyage proceeds under optimal conditions, sailors and pleasure boaters are often too far away from traditional networks to be able to communicate easily and share their experience online. As with any recreational

activity, whether on the open sea or out in the wild, far off the beaten track, there is an increasing need to be able to be located, to share with the community and, above all, to transmit a distress call.

Kinéis connectivity, combined with the international COSPAS SARSAT search-and-rescue program, will enable both professional and amateur ship captains to:

- send calls for assistance;
- share their position with friends and family;
- publish their trip on social networks;
- stay in contact with those on land;
- receive weather warnings; and
- know which boats are nearby.

Transportation and Logistics. Worldwide, most goods are transported in shipping containers, whether by sea, rail, truck or air. Movement of goods in international commerce is steadily increasing, but it is difficult for manufacturers and exporters to know exactly where their goods are at any given time during transport between designated ports, sorting facilities and other checkpoints. Kinéis will connect shipping containers to shippers so that goods in transit can be tracked during the entirety of transit, from dispatch to arrival. It will enable freight shipping companies to:

- know exactly where containers (fitted with a tracker) are at all times;
- optimize fleet management and container rotation;
- guarantee delivery times; and
- ensure the security and quality of transport.

Agriculture. Livestock ranches are important resources for many people. Nomadic African tribesmen, the Yakut peoples, and Western cattle farmers alike depend on their herds. These herds must be monitored for food security, preserving the farmers' economic investment. Kinéis will enable livestock farmers, health authorities and local governments to:

- track animal migrations, transhumance and animal transport;
- optimize location and use of infrastructure sites essential for livestock farming (water tanks, slaughterhouses, etc.);
- ensure traceability of products intended for food;
- contain emerging epidemics; and
- fight poaching.

Outdoor Sports and Recreation. Trekkers, hikers and extreme sports enthusiasts all have one thing in common: they sometimes pursue their passion to isolated or even hostile territories. These areas are often outside the coverage zones of existing connectivity solutions. These activities are risky because participants may get lost or encounter adverse weather, terrain challenges or accidents. Fortunately, most of these adventures work out well, and people may want to share their experience in real time. With safety issues and people's desire to share their sporting experiences, there is an increasing need to remain connected and trackable, whatever we're doing. Kinéis will develop hybrid COSPAS SARSAT search-and-rescue system / Kinéis tracking beacons, which will allow outdoor sports enthusiasts to:

- send calls for assistance;
- share their position with friends and family;
- publish their trip on social networks; and
- remain in contact with their base camp.

Scientific Community. There are countless scientific programs in fields such as oceanography, climatology, meteorology, biology, hydrology and even volcanology that observe and monitor our planet, its environment and its biodiversity. Scientists have been studying the Earth for hundreds of years; and technology now gives us the capability to connect the multitude of sensors in use to better understand and protect our planet. The ARGOS system has been supporting this mission since the 1980s. Today, Kinéis builds on this experience and takes it to the next level by offering vastly increased performance (lower power consumption, lower revisit delays).

Kinéis's connectivity will enable the international scientific community to:

- connect all types of sensors;
- monitor any platform fitted with a modem—whether a float, a drifting or anchored buoy, a sounding balloon, a seismic platform, an animal tracking transmitter, or other;
- access information in their offices collected by these platforms in real time; and
- interact with transmitters.

Service in each of these markets will leverage and expand upon the long, very successful legacy of ARGOS services provided to these markets and communities.

### **C. Technical Summary of the Kinéis NVNG MSS Network**

The Kinéis NVNG MSS network will transmit in the 400.15-401 MHz band (space-to-Earth) and receive in the 399-400.05 MHz (Earth-to-space) frequency bands. These bands are both allocated under Part 2 of the Commission's Rules to the NVNG MSS on a primary basis for use by non-Federal entities.<sup>8</sup> In addition, the constellation will employ spectrum in the Earth Exploration-Satellite Service bands at 401-403 MHz (Earth-to-space) and 2200-2290

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<sup>8</sup> See 47 C.F.R. §§ 2.106 and 25.202(a)(3).

MHz (space-to-Earth), and the Mobile-Satellite Service frequencies at 156.762-162.038 MHz (Earth-to-space).

The space and ground segment components of the satellite network are described generally in the sections below. More detailed information is provided in the Technical Annex to the application and in Schedule S to FCC Form 312.

### **1. Space Segment**

The Kinéis constellation of satellites will ultimately comprise twenty-five (25) nanosatellites including in-orbit spares operating in five orbital planes at an altitude of 650 kilometers with an inclination angle of 98 degrees. The satellites will circle the Earth approximately every 97 minutes in a sun synchronous orbit. The nominal operational lifetime of a Kinéis satellite will be eight (8) years with an orbital lifetime of less than sixteen (16) from launch, which complies with international best practices.

Initial system operations are expected to begin with the launch of the prototype ANGELS (an acronym for ARGOS Néo on a Generic Economical and Light Satellite) nanosatellite before the end of 2019. The miniaturized ARGOS Néo instrument is ten times smaller than the previous-generation on-board element and will enable collection and location of low-power signals and messages from ARGOS transmitters currently deployed around the world.

### **2. Ground Segment**

Kinéis will use a mobile radio chipset to provide satellite network connectivity to any portable or mobile device. It integrates seamlessly into existing platforms, enabling geo-localization of any object worldwide. With the Kinéis chipset, data is collected from the linked sensors. The approach provides several critical advantages, including small size

(7mm x 7mm), low power consumption, ease of integration, ultra-competitive price and compatibility with a broad variety of other systems and equipment. These devices, referred to as “beacons,” will transmit at low duty cycle to visible Kinéis satellites. Transmission may occur in the 399.9-400.05 MHz band or in the 401-403 MHz band, depending on the nature of the data.

Kinéis also expects to employ approximately twenty (20) ground stations located at diverse locations on Earth. The locations selected will be intended to provide low latency service to most areas in the world. Each of the ground stations will include “system beacons” that will provide telecommand for the system as well as any communications to the customer beacons (*e.g.* control or upgrades). At least three of these earth stations would be located in the United States, with one station each on the East Coast, the West Coast and in Hawaii. Kinéis has not yet sought authorization for these facilities but seeks via this application Commission approval in principle for these operations, permitting Kinéis to request Earth Station authorizations at a later date once the precise locations for these ground stations has been determined.

### **3. General Description of System Operations**

Kinéis is designed to collect data on a worldwide basis from the small form factor, low-power devices described above. Once collected, the data are sent back to Earth using the 2200-2290 MHz band to the first available ground station in view of the receiving satellite. With twenty such stations deployed worldwide, data will be quickly delivered to the Kinéis customers through online interfaces. This downlink data flow in the S-band will also include the satellite payload and platform telemetry.

The satellites have the capability to calculate the beacon position from the signal characteristics, thus enriching the data transmitted by the beacon, and avoiding loading the uplinks messages with positioning information. This feature will also minimize beacon battery drain during operations.

Through the downlink at 400.15-401 MHz, the satellite may request a beacon to retransmit all or part of a message not properly received. Beacon control and updates will also be executed in that band.

The Kinéis constellation will also be able to support the ARGOS legacy beacons. This will provide continuity of service to the many environmental, meteorological and governmental organizations that continue to rely on the ARGOS service.

## **II. PUBLIC INTEREST CONSIDERATIONS SUPPORT GRANT OF THIS PETITION**

The Commission has established a framework for considering requests for non-U.S. licensed space stations to access the U.S. market. In order to be approved, the applicant must demonstrate that grant of its request would serve the public interest. In making that public interest determination, the Commission considers several factors: (1) the effect on competition in the United States; (2) spectrum availability; (3) national security, law enforcement, foreign policy, and trade considerations; and (4) eligibility and operational requirements. Each of these considerations is addressed below, wherein Kinéis demonstrates that granting this Petition will conclusively serve the public interest.

### **A. Pro-Competitive Impact on the United States Market**

The FCC's Rules provide that the requirement that an applicant make a particularized showing that competitive opportunities are available for U.S.-licensed providers in its home

market does not “apply with respect to requests for authority to operate using a non-U.S. licensed satellite that is licensed by or seeking a license from a country that is a member of the World Trade Organization [(“WTO”)] for services covered under the World Trade Organization Basic Telecommunications Agreement” (“WTO Agreement”).<sup>9</sup> As stated at the outset, the Kinéis NVNG MSS system will be authorized by the administration of France, which is a WTO member. Moreover, the company seeks authority to provide satellite services that are explicitly covered by the WTO Agreement.<sup>10</sup> Accordingly, Kinéis is entitled to the presumption that its entry into the U.S. market to provide the proposed IoT services is pro-competitive and therefore consistent with the public interest.

## **B. Spectrum Availability**

Spectrum availability is also a factor in determining whether authorizing a foreign-licensed satellite system to serve the U.S. market is in the public interest. The Commission evaluates whether grant of access would create the potential for harmful interference with U.S.-licensed satellite and terrestrial systems.

Kinéis proposes to operate its NVNG system in a manner consistent with the U.S. Table of Frequency Allocations and FCC Rules. It will comply with all applicable Commission and ITU technical limits and sharing requirements. In particular, the power flux-density (“PFD”) produced by its system at the Earth’s surface in the 400.15-401 MHz band shows that no further coordination with terrestrial systems is necessary. Moreover, pursuant to Section 25.260 of the FCC’s Rules, Kinéis will abide to the requirements related to time-

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<sup>9</sup> 47 C.F.R. § 25.137(a)(2). *See also Amendment of the Commission’s Regulatory Policies to Allow Non-U.S. Licensed Satellites Providing Domestic and International Service in the United States*, Report and Order, 12 FCC Rcd 24094, 24107-17 (¶¶ 30-49) (1997) (“DISCO I”).

<sup>10</sup> *See, e.g., DISCO II*, 12 FCC Rcd at 24107 (¶ 30) (MSS is a WTO-covered service).

sharing the downlink spectrum with the DoD Meteorological-Satellite systems in the 400.15-401 MHz band.<sup>11</sup>

The Kinéis system also has the flexibility and spectral efficiency to operate harmoniously with other NVNG MSS systems in this band, both those previously licensed and those with applications pending. Kinéis specific requirements for downlink bandwidth in the 400.15-401 MHz band is related to traffic flow control and may be used occasionally to direct or update beacons. Thanks to optimized protocols, this requirement can be met with a single 4 kHz carrier. The carrier frequency is not fixed at this stage and can be selected to minimize the potential for interference with the transmissions of other co-primary systems. In addition, the high flexibility of the Kinéis payload will permit it to tune the carrier frequency as required. If required, the satellites will also be able to cease emissions to avoid harmful interference. Accordingly, Kinéis is confident that its very limited bandwidth requirement can easily be coordinated with other systems in the band.

A complete showing with respect to spectrum sharing issues is provided in Section 7 of the Technical Annex.

### **C. National Security, Law Enforcement, and Public Safety Matters**

Grant of this Petition is consistent with U.S. national security, law enforcement and public safety considerations. Kinéis will own and control the satellite network to provide service to customers, including those in North America. CLS, the direct parent of Kinéis has a long history of providing to U.S. government agencies the same type of satellite data collection services proposed here. Moreover, the administration responsible for the network's

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<sup>11</sup> See 47 C.F.R. § 25.260.

regulation and ITU coordination filings is the administration of France, one of the oldest and closest U.S. allies.

### **III. LEGAL AND TECHNICAL INFORMATION – 47 C.F.R. § 25.137(b)**

#### **A. Legal Qualifications**

Kinéis' legal qualifications are set forth in this Petition and in the attached FCC Form 312, including the associated exhibits. Although Kinéis is a recently-established company, as noted above, its parent, CLS, has a long history working with and providing critical geo-location and data information to the U.S. government. Together the referenced documents provide all of the qualification information required for space station applicants in Section 25.114 of the Commission's rules.<sup>12</sup>

#### **B. Technical Qualifications**

A complete Technical Annex and Schedule S for the Kinéis network is provided as part of this application. The attachments include a separate orbital debris mitigation showing required under Section 25.114(d)(14) of the Commission's Rules.<sup>13</sup>

### **IV. OTHER U.S. REGULATORY REQUIREMENTS – 47 C.F.R. § 25.137(d)**

#### **A. Implementation Milestones**

Kinéis acknowledges the requirement to launch space stations that it is ultimately authorized to operate, place them in their assigned orbits, and operate them in accordance with the station authorization pursuant to the timetable set forth in Section 25.164(b) of the Commission's Rules, unless a different schedule is established by law or by the

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<sup>12</sup> See 47 C.F.R. § 25.114.

<sup>13</sup> See 47 C.F.R. § 25.114(d)(14).

Commission.<sup>14</sup> Kinéis plans to implement its satellite network on a timetable consistent with these requirements.

### **B. Reporting Requirements**

Kinéis will comply with all FCC reporting requirements that apply to it or may ultimately be adopted with respect to the specific services it plans to provide.<sup>15</sup>

### **C. Compliance with FCC Technical Regulations**

The Kinéis NVNG MSS network proposal is fully compliant with the Commission's Rules, except where it has submitted an appropriately-justified request for waiver, and it will not cause harmful interference to any other authorized user of the spectrum. Specific showings as to the applicable elements are contained in this application and the included attachments hereto, including a separate exhibit containing the requests for waiver of the Commission's Rules.

### **D. Posting of Performance Bond**

Kinéis acknowledges that because the NVNG MSS satellite network for which a spectrum reservation is requested in this Petition has not yet been implemented, it will be required to post a performance bond pursuant to Section 25.165 of the Commission's Rules upon grant of this Petition.<sup>16</sup>

### **E. Spectrum Access Limits**

Because Kinéis does not have any other application on file with the Commission for an NGSO-like satellite system license or spectrum reservation in any frequency band involved

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<sup>14</sup> See 47 C.F.R. § 25.164(b).

<sup>15</sup> See, e.g., 47 C.F.R. §§ 25.270 & 25.172.

<sup>16</sup> See 47 C.F.R. § 25.165.

in this application, nor any licensed-but-unbuilt NGSO-like system in these bands, this Petition is consistent with the Commission's Rule with respect to Limits on pending applications and unbuilt satellite systems.<sup>17</sup>

**V. CONCLUSION**

In summary, the proposed Kinéis NVNG MSS satellite network is fully compliant with FCC rules, system performance, flexibility, service quality, and spectrum efficiency, and will create a platform capable of offering more advanced IoT services. For these reasons, Kinéis urges the Commission to conclude that the grant of the petition permitting its NVNG MSS satellite network to access the U.S. market is fully consistent with the public interest. Kinéis respectfully requests that the Commission expeditiously grant this Petition.

Respectfully submitted,

**KINÉIS**



By: \_\_\_\_\_

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<sup>17</sup> See 47 C.F.R. § 25.159(b).