Approved by OMB
3060-0678

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File Number: SAT-MOD-20210319-00036

File # SAT-MOD-20210319-00636

Call Sign S3014 Grant Date May 28, 2021
(or other identifier)

Term Dates
From May 28, 2021 To: January 12, 2033

FCC APPLICATION FOR SPACE AND EARTH STATION:MOD OR AMD - MAIN FORM

FCC 312 MAIN FORM FOR OFFICIAL USE ONLY

FCC Use Only

Approved: Merissa L. Velez
Chief, Satellite Policy Branch

* with conditions

APPLICANT INFORMATION

Enter a description of this application to identify it on the main menu:
Astro Digital - Satellite License Modification 031021

1-8. Legal Name of Applicant

Name:	Astro Digital US, Inc.	Phone Number:	805-234-7300
DBA Name:		Fax Number:	
Street:	3171 Jay Street	E-Mail:	
City:	Santa Clara	State:	CA
Country:	USA	Zipcode:	95054 -
Attention:			

9-16. Name of Contact Representative

Name:	Chris Biddy	Phone Number:	805-234-7300
Company:	Astro Digital US, Inc.	Fax Number:	
Street:	3171 Jay Street	E-Mail:	chris@astrodigital.com
City:	Santa Clara	State:	CA
Country:	USA	Zipcode:	95054-
Attention:		Relationship:	

CLASSIFICATION OF FILING

17. Choose the button next to the classification that applies to this filing for both questions a. and b. Choose only one for 17a and only one for 17b.

- ○ a1. Earth Station
- ◉ a2. Space Station

(N/A) b1. Application for License of New Station
(N/A) b2. Application for Registration of New Domestic Receive-Only Station
- ○ b3. Amendment to a Pending Application
- ◉ b4. Modification of License or Registration

b5. Assignment of License or Registration
b6. Transfer of Control of License or Registration
- ○ b7. Notification of Minor Modification

ATTACHMENT TO GRANT
Astro Digital U.S., Inc.
IBFS File No. SAT-MOD-20210319-00036

IBFS File No(s):	SAT-MOD-20210319-00036[1]	**GRANTED With Conditions** **International Bureau Satellite Division**
Licensee/Grantee:	Astro Digital U.S., Inc. (Astro Digital)	
Call Sign:	S3014	
Satellite Name:	Landmapper Constellation	
Orbital Location: (required station-keeping tolerance)	Non-Geostationary Orbit (NGSO) at altitudes between 475 km and 600 kilometers (see scope of grant and prior grants below), with a local time of ascending node (LTAN) of 13:30.[2]	
Administration:	United States of America	
Nature of Service:	Earth Exploration Satellite Service (EESS)	
Scope of Grant:	Modification of authority to construct, deploy and operate up to five (5) satellites with respect to the conditions of license applicable to two satellites, to be known as Demo8 and Demo9, to be deployed to approximately 550 kilometers, with an inclination between 97 and 98 degrees, including authorization of operations in the 2025-2110 MHz band and extension of a prior deployment deadline from March 31, 2021 to December 31, 2021.[3] *See* conditions 18, 19, and 23, below.	
Prior Grant(s):	Authority to construct, deploy, and operate one Landmapper-BC satellite to provide EESS at orbital altitudes between 475 and 625 km. (grant stamped Dec. 14, 2017). Acceptance of showing that Astro Digital's proposed operations in the 29.9-30.0 GHz band can be conducted on a non-interference basis to co-frequency MSS and FSS operators in the band. *See* condition 5, below. (April 12, 2018). Grant of waiver of the requirement to use ITU software to demonstrate EPFD compliance with the same ITU Article 22 limits applicable to NGSO FSS operations in the 29.9-30.0 GHz band. *See* condition 6, below. (April 12, 2018). Authority to construct, deploy, and operate five Landmapper satellites. (grant stamped Aug. 1, 2018) (August 2018 Grant).	

[1] This application, IBFS File No. SAT-MOD-20210319-00036 (Astro Digital Modification) was placed on public notice on April 9, 2021. *See* Public Notice, Satellite Policy Branch, Report No. SAT-01542 (April 9, 2021). No comments were filed.

[2] Letter to Merissa Velez, Chief, Policy Branch, FCC, from Chris Biddy, CEO, Astro Digital US, Inc. (May 24, 2021).

[3] The Landmapper-Demo is a technology demonstration mission consisting of two separate spacecraft: Demo8 and Demo9. Demo8 will have propulsion capability and will be used to demonstrate rendezvous and proximity operations capability by picking a location in space (a simulated object) calculating a trajectory and conducting associated maneuvers to reach the location. Astro Digital states that all planned propulsive maneuvers will be coordinated with the 18 SPCS and NASA Conjunction Assessment and Risk Analysis and screened for collision avoidance maneuvers. Upon successful demonstration of the objective noted above, Astro Digital states that it will file a modification application to conduct additional operations -- orbital maneuvers to fly-by and image certain objects. *See* Letter to Alyssa Roberts, Attorney, FCC, from Chris Biddy, CEO, Astro Digital US, Inc. (May 19, 2021) (Astro Digital May 19 Letter). These additional operations have not been requested and are not authorized as part of this grant. Demo9 is a technology demonstration of a hyperspectral imaging payload. *See* Astro Digital Modification, Narrative at 4.

	Modification of the license with respect to one satellite, Landmapper BC-5, for operations at orbital altitudes between 450 and 550 km, and an inclination between 97 and 98 degrees, to add the 2025-2210 MHz band. (grant stamped Oct. 9, 2020) (October 9, 2020 grant).
Service Area(s):	Global
Frequencies:	25.5-27.0 GHz (space-to-Earth) (data downlink)[4] 29.9-30.0 GHz (Earth-to-space) (data flow control) 1615-1617.775 MHz (space-to-space) (to Globalstar) 2483-2495 MHz (space-to-space) (from Globalstar) 400.15-401.0 MHz (space-to-Earth) Telemetry, Tracking, and Command (TT&C) frequencies: 400.48-400.52 MHz (space-to-Earth)[5] 402.58-402.62 MHz[6] and 402.88-402.92 MHz (Earth-to-space) 2025-2110 MHz (Earth-to-space)

Unless otherwise specified herein, operations under this grant must comport with the legal and technical specifications set forth by the applicant or petitioner and with the Federal Communications Commission's rules not waived herein. This grant is also subject to the following conditions:

1. Astro Digital must prepare the necessary information, as may be required, for submission to the International Telecommunication Union (ITU) to initiate and complete the advance publication, coordination, due diligence, and notification process for these space stations, in accordance with the ITU Radio Regulations. Astro Digital shall be held responsible for all cost-recovery fees associated with ITU filings. No protection from interference caused by radio stations authorized by other administrations is guaranteed unless coordination and notification procedures are timely completed or, with respect to individual administrations, by successfully completing coordination agreements. Any radio station authorization for which coordination has not been completed may be subject to additional terms and conditions as required to effect coordination with the frequency assignments of other administrations. *See* 47 CFR § 25.111(b).

2. In the 25.5-27.0 GHz band, operations are limited to five (5) satellites in accordance with the coordination agreement reached between Astro Digital and U.S. Federal agencies. Any additional use beyond five satellites shall require additional coordination with U.S. Federal operations and additional authorization from the Federal Communications Commission.

[4] The Demo8 and Demo9 satellites will complete the five satellites authorized under this license. The frequencies identified here include frequencies previously authorized, however, not all five satellites are authorized to operate on all of these frequencies. For example, in this grant we authorize Demo8 to use the following frequencies: 400.48-400.52 MHz (space-to-Earth), 402.88-402.92 MHz (Earth-to-space), and 2025-2110 MHz (Earth-to-space). Demo9 is authorized to use the following frequencies: 400.48-400.52 MHz (space-to-Earth), 402.88-402.92 MHz (Earth-to-space), 1615-1617.5 MHz (space-to-space) (to Globalstar), and 25.2-27.0 GHz. In addition, we note that only the Landmapper BC-5, Demo8, and Demo9 satellites are authorized to use 2025-2110 MHz (Earth-to-space) for TT&C.

[5] Astro Digital is also authorized to utilize the 400.48-400.52 MHz (space-to-Earth) frequency band for limited downlinking of images from the Demo8 satellite in connection with the demonstration mission. *See* Astro Digital Modification, Narrative at 4 & n.13 (stating that the Astro Digital will not be downlinking images other than for test purposes). *See also* condition 11.

[6] This frequency band was previously reflected only in condition 17, *see, e.g.*, October 9, 2020 grant, so as a clarification we add it to the list of frequencies, but it is not authorized for use with the Demo8 or Demo 9 satellites.

3. In the 25.5-27.0 GHz band, power flux-density from operations must not exceed the limits in Section 25.208(p), Table 21-4 of the International Telecommunication Union's (ITU) Radio Regulations, and the limits and guidelines in Recommendation ITU-R SA.1862 must be followed.

4. In the 25.5-27.0 GHz band, operations are subject to footnote US258 of the U.S. Table of Frequency Allocations, 47 CFR § 2.106, which provides that this band is allocated on a primary basis for non-Federal EESS (space-to-Earth), subject to a case-by-case electromagnetic compatibility analysis.

5. In the 29.9-30.0 GHz band, we grant Astro Digital's request to waive the United States Table of Frequency Allocations to permit EESS operations in this band as proposed.[7] Operations, however, must be conducted on a non-interference basis with respect to Mobile Satellite Service (MSS) and Fixed Satellite Service (FSS), including licensees and grantees of U.S. market access in the NGSO FSS processing round.[8] Further, Astro Digital shall not claim protections from systems operating in accordance with the U.S. Table of Frequency Allocations. *See* 47 CFR § 2.106. Astro Digital has submitted a showing that its operations in the 29.9-30.0 GHz band can be conducted on a non-interference basis to co-frequency MSS and FSS operators in the band.[9] In accordance with this showing, Astro Digital must coordinate its operations with MSS and FSS systems in the 29.9-30.0 GHz band to avoid interference to such systems, including licensees and grantees of U.S. market access in the NGSO FSS processing round.

6. Astro Digital's initial authorization to construct, launch, and operate one Landmapper-BC satellite was conditioned on Astro Digital submitting to the Commission its input parameters and the simulation output results, using approved ITU EPFD simulation software, demonstrating EPFD compliance with the same ITU Article 22 limits applicable to NGSO FSS operations in the 29.9-30.0 GHz band.[10] Astro Digital submitted the required information using an alternative methodology which demonstrated that it could meet the EPFD limits in ITU Article 22 by limiting its operational angle to no less than 7 degrees above the horizon when pointing toward the GSO arc.[11] Based on the limited size of its 30-satellite system and its use of a single Ka-band earth station with limited visibility to the geostationary arc, Astro Digital requested a waiver of the requirement to use ITU software to show compliance.[12] We grant Astro Digital's request for a waiver and find that it has demonstrated that its uplink transmissions in the Ka-band frequencies can operate within the limits contained in ITU Article 22 and protect co-frequency GSO satellites. The waiver grant is conditioned on Astro Digital operating its earth station pursuant to the technical demonstration provided in its *January 16 Letter*.

7. Astro Digital's TT&C operations in the space-to-Earth direction are limited to a center frequency of 400.5 MHz, except as necessary for a period immediately following (i) the deployment of the Landmapper BC-3 satellite or (ii) a Landmapper BC-3 satellite software reset, resulting in satellite transmissions returning to the

[7] For Earth-to-space transmissions, the International Table allocates 28.5-30.0 GHz to EESS on a secondary basis in Regions 1, 2, and 3.

[8] Public Notice, Satellite Branch Policy Information, *OneWeb Petition Accepted for Filing IBFS File No. SAT-LOI-20160428-00041 Cut-Off Established for Additional NGSO-like Satellite Applications or Petitions for Operations in the 107-12.7 GHz, 14.0-14.5 GHz, 17.8-18.6 GHz, 18.8-19.3 GH, 27.5-28.35 GHz, 28.35-29.1 GHz, and 29.5-30.0 GHz Bands*, 31 FCC Rcd 7666 (July 15, 2016). Astro Digital filed its application to operate its NGSO system in the 29.9-30 GHz band on May 8, 2017, after the November 15, 2016, cut-off date established for such systems.

[9] Letter to Jose Albuquerque, Chief, Satellite Division, FCC, from Tony Lin, Counsel for Astro Digital U.S. Inc. (March 14, 2018).

[10] Astro Digital U.S. Inc, IBFS File No. SAT-LOA-20170508-00071 (grant stamped Dec. 14, 2017), condition 5. *See also* http://www.itu.int/en/ITU-R/software/Pages/epfd.aspx.

[11] Letter to Jose Albuquerque, Chief, Satellite Division from Tony Lin, Counsel for Astro Digital U.S., Inc. (Jan. 16, 2018). (*January 16 Letter*).

[12] *January 16 Letter* at 14.

default transmission channel, in both cases to allow for the retuning of transmissions from 400.175 MHz to 400.5 MHz.

8. Astro Digital's TT&C operations in the Earth-to-space direction are limited to a UHF center frequency of 402.9 MHz, except as necessary for a period immediately following (i) the deployment of the Landmapper BC-3 satellite or (ii) a Landmapper BC-3 satellite software reset, resulting in the satellite returning to its default channel, in both cases to allow for the retuning of the satellite receive channel from 402.6 MHz to 402.9 MHz.

9. Astro Digital's request for a waiver of the U.S. Table of Frequency Allocations, 47 CFR § 2.106, to operate command links in the 402.88-402.92 MHz (Earth-to-space) frequency band is granted on a non-conforming, non-harmful interference and unprotected basis. Astro Digital must immediately terminate non-conforming operations upon notification of harmful interference. Astro Digital shall tune TT&C UHF links to an agreed frequency range with DoC/NOAA to not cause interference to NOAA GOES Data Collection System (DCS) and radiosonde operations, and continue to work closely with DoC/NOAA to identify and implement any further measures needed to avoid radio frequency interference to these NOAA systems.

10. Astro Digital's TT&C operations in the space-to-Earth direction are limited to the 400.48-400.52 MHz frequency band.

11. Astro Digital's request for waiver of the U.S. Table of Frequency Allocations, 47 CFR § 2.106, to use the 400.48-400.52 MHz frequency band for downlinking limited imagery from the Demo8 satellite is granted on a non-conforming, non-harmful interference and unprotected basis. Astro Digital is authorized to downlink imagery in this frequency band immediately following the deployment of Demo8 for purposes of verifying the health and status of the imaging equipment[13] and imaging the Spaceflight Sherpa-LTE1 deployer immediately following deployment of Demo8.[14]

12. Astro Digital's TT&C operations in the Earth-to-space direction are limited in UHF to the 402.88-402.92 MHz frequency band. To ensure compatibility with NOAA radiosonde systems, Astro Digital earth stations in the U.S. in the Earth-to-space direction must not transmit RF signals during radiosonde synoptic hour (0:00 UTC and 12:00 UTC; synoptic hour typically indicates a 120-minute period of the radiosonde flight time) and must avoid pointing their uplink antennas main beam within a 30 degree horizontal sector in the direction of any radiosonde receiver ground station locations that are within 150 kilometers from any Astro Digital earth station in the U.S. during radiosonde flights.

13. Operations on the 400.48-400.52 MHz band (space-to-Earth) and the 402.88-402.92 MHz band (Earth-to-space) are limited to TT&C and launch and early orbit phase operations, including downlinking limited imagery from Demo8, and shall not exceed the long-term interference criteria specified in Table 2 (Type C) of Recommendation ITU-R RS.1263-2 to protect DoC/NOAA radiosondes operations in the United States and its Possessions. [15]

14. To mitigate harmful interference, the Landmapper satellites' downlink shall maintain a minimum distance of 4000 kilometers from the NASA International Space Station (NORAD Designation 25544 or International spacecraft ID 1998-067A) during its UHF downlink sessions with a cooperating ground station. This condition is applicable to those Landmapper satellites with a satellite (space-to-Earth) frequency of 400.48-400.52 MHz.

15. Astro Digital's request for a waiver of the modified processing round requirements of 47 CFR §§ 25.156 and 25.157 is granted. Astro Digital will able to share spectrum with other EESS systems by time sharing its transmissions over the same geographic area. We grant this waiver given the opportunities for additional entrants

[13] Astro Digital Modification, Narrative at 4 & n.13.

[14] Astro Digital May 19 Letter at 2.

[15] Astro Digital Modification, Narrative at 4 & n.13; Astro Digital May 19 Letter at 2.

to operate in Astro Digital's requested frequency bands. *See* DigitalGlobe, Inc., Order and Authorization, 20 FCC Rcd 15696, 15699 (Sat. Div., Int'l Bur. 2005).

16. Astro Digital must coordinate physical operations of the spacecraft with any operator using similar orbits, for the purpose of eliminating collision risk and minimizing operational impacts. The orbital parameters specified in this grant are subject to change based on such coordination.

17. As of the date of this grant, Astro Digital communicates with the Kongsberg Satellite Services ground station in Svalbard, Norway using the 25.5-27.0 GHz and 29.9-30.0 GHz frequencies, and a U.S. ground station in Santa Clara, California using the 400.155-400.195 MHz, 400.48-400.52 MHz, 402.58-402.62 MHz, 402.88-402.92 MHz frequencies.[16] Transmissions must only be made to Earth stations coordinated with Federal operators. Astro Digital must provide the FCC with a list of such earth stations and any operating condition as a result of coordination with the Federal agencies within ten business days of completing coordination.

18. Operations pursuant to this authorization must not cause harmful interference to stations operating in the 2025-2110 MHz band in accordance with the U.S. Table of Frequency Allocations. 47 CFR § 2.106, Footnote US347.

19. For operations of the Landmapper BC-5, Demo8, and Demo9 satellites, Astro Digital must use a single 300 kHz channel in one of the following frequency bands: 2045.1-2050.9 MHz or 2051.1-2056.8 MHz.[17] Astro Digital must notify the Commission in writing which 300 kHz channel within the 2025-2110 MHz band it selects before commencing operations in the band.

20. Upon receipt of a conjunction analysis from the Joint Space Operations Center (JSpOC) or other source, Astro Digital must review the warning and take all possible steps to assess and, if necessary, to mitigate collision risk, including, but not limited to: contacting the operator of any active spacecraft involved in such warning; sharing ephemeris data and other appropriate operational information with any such operator; and modifying spacecraft attitude and/or operations.

21. Astro Digital has fulfilled milestone and bond obligations imposed as conditions to a previous grant of authority to operate a Landmapper satellite. *See* IBFS File No. SAT-LOA-20170508-00071 (grant stamped Dec. 14, 2017). Because of the need for Astro Digital to continuously replenish its satellite constellation within the duration of its license term, we will not impose additional milestones at this time. We find that warehousing concerns are addressed in this situation through the imposition of condition 22 below.

22. This authorization will become null and void if, after any time during the license term, none of the authorized satellites is operating.

23. Astro Digital must deploy the Demo8 and Demo9 satellites no later than December 31, 2021. No authority is granted to deploy any space station after December 31, 2021.[18]

24. The license term for Astro Digital's constellation expires on January 12, 2033.

Licensee/grantee is afforded thirty (30) days from the date of release of this action to decline the grant as conditioned. Failure to respond within this period will constitute formal acceptance of the grant as conditioned.

[16] IBFS File No. SES-LIC-20171017-01179 (granted July 27, 2018).

[17] Astro Digital states it has precoordinated with Federal operators and proposes to use a single 300 kHz channel centered at 2056 MHz but is able to modify the specific frequency channel if necessary to facilitate coordination. Astro Digital Modification, Narrative at 6.

[18] This condition previously specified an October 31, 2020 deadline, Astro Digital August 2018 Grant, para. 17, and was modified in the October 9, 2020 Grant to specify March 31, 2021 to accommodate the imminent launch of the Landmapper BC-5 satellite. Given the imminent launch of two additional satellites scheduled for June 2021 and to accommodate any potential launch delays, we extend the date to December 31, 2021.

ATTACHMENT TO GRANT
Astro Digital U.S., Inc.
IBFS File No. SAT-MOD-20210319-00036

This action is taken pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 CFR § 0.261, and is effective upon release.

Station licenses are subject to the conditions specified in Section 309(h) of the Communications Act of 1934, as amended, 47 U.S.C. § 309(h).

Action Date:	May 28, 2021	
Term Dates	**From:** May 28, 2021	**To:** January 12, 2033
Approved:	Merissa L. Velez Chief, Satellite Policy Branch	

(N/A) b8. Application for License of New Receive-Only Station Using Non-U.S. Licensed Satellite
(N/A) b9. Letter of Intent to Use Non-U.S. Licensed Satellite to Provide Service in the United States
(N/A) b10. Other (Please specify)
(N/A) b11. Application for Earth Station to Access a Non-U.S.satellite Not Currently Authorized to Provide the Proposed Service in the Proposed Frequencies in the United States
(N/A) b12. Application for Database Entry
○ b13. Amendment to a Pending Database Entry Application
○ b14. Modification of Database Entry

17c. Is a fee submitted with this application?
◉ If Yes, complete and attach FCC Form 159.

If No, indicate reason for fee exemption (see 47 C.F.R.Section 1.1114).
○ Governmental Entity ○ Noncommercial educational licensee
○ Other(please explain):

17d.
Fee Classification CGW - Space Station Modification(Non-Geostationary)

18. If this filing is in reference to an existing station, enter:
(a) Call sign of station:
S3014

19. If this filing is an amendment to a pending application enter both fields, if this filing is a modification please enter only the file number:
(a) Date pending application was filed:
(b) File number:
SATLOA2017050800071

TYPE OF SERVICE

20. NATURE OF SERVICE: This filing is for an authorization to provide or use the following type(s) of service(s): Select all that apply:

☐ a. Fixed Satellite
☐ b. Mobile Satellite
☐ c. Radiodetermination Satellite
☑ d. Earth Exploration Satellite
☐ e. Direct to Home Fixed Satellite
☐ f. Digital Audio Radio Service
☐ g. Other (please specify)

21. STATUS: Choose the button next to the applicable status. Choose only one.
○ Common Carrier ◉ Non-Common Carrier

22. If earth station applicant, check all that apply.
☐ Using U.S. licensed satellites
☐ Using Non-U.S. licensed satellites

23. If applicant is providng INTERNATIONAL COMMON CARRIER service, see instructions regarding Sec. 214 filings. Choose one. Are these facilities:
○ Connected to a Public Switched Network ○ Not connected to a Public Switched Network ◉ N/A

24. FREQUENCY BAND(S): Place an 'X' in the box(es) next to all applicable frequency band(s).

☐ a. C-Band (4/6 GHz) ☐ b. Ku-Band (12/14 GHz)

☑ c.Other (Please specify upper and lower frequencies in MHz.)

Frequency Lower: 400.15 Frequency Upper: 30000 (Please specify additional frequencies in an attachment)

TYPE OF STATION

25. CLASS OF STATION: Choose the button next to the class of station that applies. Choose only one.

- ○ a. Fixed Earth Station
- ○ b. Temporary-Fixed Earth Station
- ○ c. 12/14 GHz VSAT Network
- ○ d. Mobile Earth Station
- ○ e. Geostationary Space Station
- ◉ f. Non-Geostationary Space Station
- ○ g. Other (please specify)

26. TYPE OF EARTH STATION FACILITY:

○ Transmit/Receive ○ Transmit-Only ○ Receive-Only ◉ N/A

"For Space Station applications, select N/A."

PURPOSE OF MODIFICATION

27. The purpose of this proposed modification is to: (Place an 'X' in the box(es) next to all that apply.)

- ☐ a -- authorization to add new emission designator and related service
- ☐ b -- authorization to change emission designator and related service
- ☐ c -- authorization to increase EIRP and EIRP density
- ☐ d -- authorization to replace antenna
- ☐ e -- authorization to add antenna
- ☐ f -- authorization to relocate fixed station
- ☐ g -- authorization to change frequency(ies)
- ☐ h -- authorization to add frequency
- ☐ i -- authorization to add Points of Communication (satellites & countries)
- ☐ j -- authorization to change Points of Communication (satellites & countries)
- ☐ k -- authorization for facilities for which environmental assessment and radiation hazard reporting is required
- ☐ l -- authorization to change orbit location
- ☐ m -- authorization to perform fleet management
- ☐ n -- authorization to extend milestones
- ☑ o -- Other (Please specify)

ENVIRONMENTAL POLICY

28. Would a Commission grant of any proposal in this application or amendment have a significant environmental impact as defined by 47 CFR ○ **Yes** ◉ **No**

1.1307? If YES, submit the statement as required by Sections 1.1308 and 1.1311 of the Commission's rules, 47 C.F.R. 1.1308 and 1.1311, as an exhibit to this application.A Radiation Hazard Study must accompany all applications for new transmitting facilities, major modifications, or major amendments.	**Narrative**

ALIEN OWNERSHIP Earth station applicants not proposing to provide broadcast, common carrier, aeronautical en route or aeronautical fixed radio station services are not required to respond to Items 30-34.

29. Is the applicant a foreign government or the representative of any foreign government?	○ **Yes** ◉ **No**
30. Is the applicant an alien or the representative of an alien?	○ **Yes** ○ **No** ◉ **N/A**
31. Is the applicant a corporation organized under the laws of any foreign government?	○ **Yes** ○ **No** ◉ **N/A**
32. Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	○ **Yes** ○ **No** ◉ **N/A**
33. Is the applicant a corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country?	○ **Yes** ○ **No** ◉ **N/A**
34. If any answer to questions 29, 30, 31, 32 and/or 33 is Yes, attach as an exhibit an identification of the aliens or foreign entities, their nationality, their relationship to the applicant, and the percentage of stock they own or vote.	Foreign Ownership

BASIC QUALIFICATIONS

35. Does the Applicant request any waivers or exemptions from any of the Commission's Rules? If Yes, attach as an exhibit, copies of the requests for waivers or exceptions with supporting documents.	◉ **Yes** ○ **No**
36. Has the applicant or any party to this application or amendment had any FCC station authorization or license revoked or had any application for an initial, modification or renewal of FCC station authorization, license, or construction permit denied by the Commission? If Yes, attach as an exhibit, an explination of circumstances.	○ **Yes** ◉ **No**
37. Has the applicant, or any party to this application or amendment, or any party directly or indirectly controlling the applicant ever been convicted of a felony by any state or federal court? If Yes, attach as an exhibit, an explination of circumstances.	○ **Yes** ◉ **No**
38. Has any court finally adjudged the applicant, or any person directly or indirectly controlling the applicant, guilty of unlawfully monopolizing or attemptiing unlawfully to monopolize radio communication, directly or indirectly, through control of manufacture or sale of radio apparatus, exclusive traffic arrangement or any other means or unfair methods of competition?If Yes, attach as an exhibit, an explanation of circumstances	○ **Yes** ◉ **No**
39. Is the applicant, or any person directly or indirectly controlling the applicant, currently a party in any pending matter referred to in the preceding two items? If yes, attach as an exhinit, an explanation of the circumstances.	○ **Yes** ◉ **No**
40. If the applicant is a corporation and is applying for a space station license, attach as an exhibit the names, address, and citizenship of those stockholders owning a record and/or voting 10 percent or more of the Filer's voting stock and the percentages so held. In the case of fiduciary control, indicate the beneficiary(ies) or class of beneficiaries. Also list the names and addresses of the officers and directors of the Filer.	
41. By checking Yes, the undersigned certifies, that neither applicant nor any other party to the application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Act of 1988, 21 U.S.C. Section 862, because of a conviction for	◉ **Yes** ○ **No**

possession or distribution of a controlled substance. *See 47 CFR 1.2002(b) for the meaning of "party to the application" for these purposes.*

42a. Does the applicant intend to use a non-U.S. licensed satellite to provide service in the United States? If Yes, answer 42b and attach an exhibit providing the information specified in *47 C.F.R. 25.137, as appropriate*. If No, proceed to question 43. ○ **Yes** ◉ **No**

ODAR

42b. What administration has licensed or is in the process of licensing the space station? If no license will be issued, what administration has coordinated or is in the process of coordinating the space station?N/A

43. Description. (Summarize the nature of the application and the services to be provided). Applicant requests modification of its partially granted space station license to permit the launch and operation of two demonstration satellites, Demo8 and Demo9.ODAR

43a. Geographic Service Rule Certification

By selecting A, the undersigned certifies that the applicant is not subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25. ◉ **A**

By selecting B, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will comply with such requirements. ○ **B**

By selecting C, the undersigned certifies that the applicant is subject to the geographic service or geographic coverage requirements specified in 47 C.F.R. Part 25 and will not comply with such requirements because it is not feasible as a technical matter to do so, or that, while technically feasible, such services would require so many compromises in satellite design and operation as to make it economically unreasonable. A narrative description and technical analysis demonstrating this claim are attached. ○ **C**

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CERTIFICATION

The Applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests an authorization in accordance with this application. The applicant certifies that grant of this application would not cause the applicant to be in violation of the spectrum aggregation limit in 47 CFR Part 20. All statements made in exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that all statements made in this application and in all attached exhibits are true, complete and correct to the best of his or her knowledge and belief, and are made in good faith.

44. Applicant is a (an): (Choose the button next to applicable response.)

- ○ Individual
- ○ Unincorporated Association
- ○ Partnership
- ◉ Corporation
- ○ Governmental Entity
- ○ Other (please specify)

45. Name of Person Signing	46. Title of Person Signing
Chris Biddy	Chief Executive Officer

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