



**UNITED STATES OF AMERICA  
FEDERAL COMMUNICATIONS COMMISSION  
RADIO STATION AUTHORIZATION**

Astro Digital US, Inc.

Call Sign: E200948

**Authorization Type:** License  
Non Common Carrier

**File Number:** SES-LIC-20200310-00229

**Grant date:** 06/29/2021      **Expiration Date:** 06/29/2036

**Nature of Service:** Earth Exploration Satellite Service

**Class of Station:** Fixed Earth Stations

**A) Site Location(s)**

#	Site ID	Address	Latitude	Longitude	Elevation (Meters)	Special Provisions NAD (Refer to Section H)
1)	T&C Operations Site	7815 Shaffer Parkway Littleton, Jefferson, CO 80127	39°34'24.0"N	105°8'1.0"W	1773	83

*Subject to the provisions of the Communications Act of 1934, The Communications Satellite Act of 1962, subsequent acts and treaties, and all present and future regulations made by this Commission, and further subject to the conditions and requirements set forth in this license, the grantee is authorized to construct, use and operate the radio facilities described below for radio communications for the term beginning June 29, 2021 (3 AM Eastern Standard Time) and ending June 29, 2036 (3 AM Eastern Standard Time). The required date of completion of construction and commencement of operation is June 29, 2022 (3 AM Eastern Standard Time). Grantee must file with the Commission a certification upon completion of construction and commencement of operation.*

**B) Particulars of Operations**

The General Provision 1010 applies to all receiving frequency bands.

The General Provision 1900 applies to all transmitting frequency bands.

For the text of these provisions, refer to Section H.

#	Frequency (MHz)	Polarization Code	Emission	Tx/Rx Mode	Max EIRP /Carrier (dBW)	Max EIRP Density /Carrier (dBW/4kHz)	Associated Antenna	Special Provisions (Refer to Section H)	Modulation/ Services
1)	402.8800-402.9200	R	40K0F1D	Tx	37.30	1.30	UHF CMD	38.4 kbps GFSK	Command Link
2)	402.8800-402.9200	R	40K0F1D	Tx	37.30	1.30	UHF CMD	38.4 kbps GFSK	Command Link
3)	400.4800-400.5200	R	40K0F1D	Rx	0.00	0.00	UHF TLM	38.4 kbps GFSK	Telemetry Link
4)	400.4800-400.5200	R	40K0F1D	Rx	0.00	0.00	UHF TLM	38.4 kbps GFSK	Telemetry Link



**UNITED STATES OF AMERICA  
FEDERAL COMMUNICATIONS COMMISSION  
RADIO STATION AUTHORIZATION**

Astro Digital US, Inc.

Call Sign: E200948

Authorization Type: License

File Number: SES-LIC-20200310-00229

Non Common Carrier

Grant date: 06/29/2021

Expiration Date: 06/29/2036

**C) Frequency Coordination Limits**

#	Frequency Limits (MHz)	Satellite Arc (Deg. Long.)		Elevation (Degrees)		Azimuth (Degrees)		Max EIRP Density toward Horizon (dBW/4kHz)	Associated Antenna(s)
		East Limit	West Limit	East Limit	West Limit	East Limit	West Limit		
1)	402.8800-402.9200		NGSO		05.0-05.0		180.0-360.0	1	UHF CMD
2)	402.8800-402.9200		NGSO		05.0-05.0		180.0-360.0	1	UHF CMD
3)	400.4800-400.5200		NGSO		05.0-05.0		180.0-360.0	0	UHF TLM
4)	400.4800-400.5200		NGSO		05.0-05.0		180.0-360.0	0	UHF TLM

**D) Points of Communications**

The following stations located in the Satellite orbits consistent with Sections B and C of this Entry:

- 1) T&C Operations Site to Landmapper-BC NGSO (S3014) satellites in the 585 x 585 km @ 98° inclination orbit (U.S.-licensed satellite)

**E) Antenna Facilities**

Site ID	Antenna ID	Units	Diameter (meters)	Manufacturer	Model number	Site Elevation (Meters)	Max Antenna Height (Meters)	Special Provisions (Refer to Section H)
T&C Operations Site	UHF CMD	1	2.7	M2 Antenna Systems, Inc.	402CP42	1773	10.5 AGL/ 1773 AMSL	
	Max Gains(s):	20.0 dBi @	0.4029 GHz					
	Maximum total input power at antenna flange (Watts) =				40.70			
	Maximum aggregate output EIRP for all carriers (dBW) =				37.30			
T&C Operations Site	UHF TLM	1	2.7	M2 Antenna Systems, Inc.	402CP42	1773	10.5 AGL/ 1773 AMSL	
	Max Gains(s):	20.5 dBi @	0.4005 GHz					
	Maximum total input power at antenna flange (Watts) =				.00			
	Maximum aggregate output EIRP for all carriers (dBW) =				.00			

**F) Remote Control Point:**

T&C Operations Site 840 Del Rey ave.

Call Sign: E170192

Sunnyvale, Santa Clara, CA 94085

1-650-919-4032



**UNITED STATES OF AMERICA**  
**FEDERAL COMMUNICATIONS COMMISSION**  

---

**RADIO STATION AUTHORIZATION**

Astro Digital US, Inc.

Call Sign: E200948

**Authorization Type:** License

**File Number:** SES-LIC-20200310-00229

Non Common Carrier

**Grant date:** 06/29/2021

**Expiration Date:** 06/29/2036

**G) Antenna Structure marking and lighting requirements:**

None unless otherwise specified under Special and General Provisions

**H) Special and General Provisions**

A) This RADIO STATION AUTHORIZATION is granted subject to the following special provisions and general conditions:

4 --- Licensee must ensure that a current listing of the name, title, mailing address, email address, and telephone number of the responsible point of contact are on file at the FCC. Any changes must be filed electronically in the International Bureau Filing System (MyIBFS) using the "Pleadings and Comments" link on the MyIBFS homepage within 10 days of the change.

6 --- Licensee must comply with the license modification and notification requirements of 47 CFR § 25.118 to change the coordinates of its authorized earth station.

8 --- Licensee must notify the Commission when all earth stations operating under this authorization are no longer operational or when they have not been used to provide any service during any 6-month operation.

90398 --- Changes to previously authorized transmitting facilities, operations and devices regulated by the Commission that may have significant environmental impact, and are not excluded by §1.1306, require the preparation of an Environmental Assessment (EA) by the licensee. (See 47 C.F.R. §§1.1307, 1.1308 and 1.1311)

90399 --- The licensee shall, at all times, take all necessary measures to ensure that operation of this (these) authorized earth station(s) does not create potential exposure of humans to radiofrequency radiation in excess of the FCC exposure limits defined in 47 CFR §§ 1.1307(b) and 1.1310. Physical measures must be taken to ensure compliance with limits for both occupational/controlled exposure and for general population/uncontrolled exposure, as defined in these rule sections. Compliance can be accomplished in most cases by appropriate restrictions, such as fencing. Requirements for restrictions can be determined by predictions based on calculations, modeling, or by field measurements. The FCC's OET Bulletin 65 (available on-line at [www.fcc.gov/oet/rfsafety](http://www.fcc.gov/oet/rfsafety)) provides information on predicting exposure levels and on methods for ensuring compliance, including the use of warning and alerting signs and protective equipment for workers.

90645 --- To mitigate harmful interference, the Astro Digital satellite downlinks shall maintain a minimum distance of 4000 km from the NASA International Space Station (NORAD Designation 25544 or International spacecraft ID 1998-067A) during its UHF downlink sessions with the Littleton, CO ground station. This condition is applicable to Astro Digital satellites with a satellite (space-to-Earth) frequency of 400.48-400.52 MHz.

90646 --- To mitigate harmful interference, the Astro Digital uplink transmissions at 402.9 MHz shall not occur when the NASA International Space Station (NORAD designator 25544 or International spacecraft ID 1998-067A) is within view (horizon-to-horizon) of the Littleton, CO ground station.

90647 --- 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 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 within 150 kilometers from any Astro Digital earth station in the U.S. during radiosonde flights.



UNITED STATES OF AMERICA  
FEDERAL COMMUNICATIONS COMMISSION  
**RADIO STATION AUTHORIZATION**

Astro Digital US, Inc.

Call Sign: E200948

Authorization Type: License

File Number: SES-LIC-20200310-00229

Non Common Carrier

Grant date: 06/29/2021

Expiration Date: 06/29/2036

## H) Special and General Provisions

A) This RADIO STATION AUTHORIZATION is granted subject to the following special provisions and general conditions:

90648 --- 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 or launch and early orbit phase operations and shall not exceed the long-term interference criteria specified in Table 2 (Type C) of Recommendation of ITU-R RS.1263-2 to protect DoC/NOAA radiosonde operations in the United States and its Possessions.



**UNITED STATES OF AMERICA**  
**FEDERAL COMMUNICATIONS COMMISSION**  

---

**RADIO STATION AUTHORIZATION**

Astro Digital US, Inc.

Call Sign: E200948

**Authorization Type:** License

**File Number:** SES-LIC-20200310-00229

Non Common Carrier

**Grant date:** 06/29/2021

**Expiration Date:** 06/29/2036

**B) This RADIO STATION AUTHORIZATION is granted subject to the additional conditions specified below:**

This authorization is issued on the grantee's representation that the statements contained in the application are true and that the undertakings described will be carried out in good faith.

This authorization shall not be construed in any manner as a finding by the Commission on the question of marking or lighting of the antenna system should future conditions require. The grantee expressly agrees to install such marking or lighting as the Commission may require under the provisions of Section 303(q) of the Communications Act. 47 U.S.C. § 303(q).

Neither this authorization nor the right granted by this authorization shall be assigned or otherwise transferred to any person, firm, company or corporation without the written consent of the Commission. This authorization is subject to the right of use or control by the government of the United States conferred by Section 706 of the Communications Act. 47 U.S.C. § 706. Operation of this station is governed by Part 25 of the Commission's Rules. 47 C.F.R. Part 25.

This authorization shall not vest in the licensee any right to operate this station nor any right in the use of the designated frequencies beyond the term of this license, nor in any other manner than authorized herein.

This authorization is issued on the grantee's representation that the station is in compliance with environmental requirements set forth in Section 1.1307 of the Commission's Rules. 47 C.F.R. § 1.1307.

This authorization is issued on the grantee's representation that the station is in compliance with the Federal Aviation Administration (FAA) requirements as set forth in Section 17.4 of the Commission's Rules. 47 C.F.R. § 17.4.

The following condition applies when this authorization permits construction of or modifies the construction permit of a radio station.

This authorization shall be automatically forfeited if the station is not ready for operation by the required date of completion of construction unless an application for modification of authorization to request additional time to complete construction is filed by that date, together with a showing that failure to complete construction by the required date was due to factors not under control of the grantee.

**Licensees are required to pay annual regulatory fees related to this authorization. The requirement to collect annual regulatory fees from regulatees is contained in Public Law 103-66, "The Omnibus Budget Reconciliation Act of 1993." These regulatory fees, which are likely to change each fiscal year, are used to offset costs associated with the Commission's enforcement, public service, international and policy and rulemaking activities. The Commission issues a Report and Order each year, setting the new regulatory fee rates. Receive only earth stations are exempt from payment of regulatory fees.**