

**United States of America  
FEDERAL COMMUNICATIONS COMMISSION  
EXPERIMENTAL  
RADIO STATION CONSTRUCTION PERMIT  
AND LICENSE**

EXPERIMENTAL

(Nature of Service)

WL2XKS

(Call Sign)

XT    FX MO

(Class of Station)

0773-EX-CN-2020

(File Number)

NAME Space Exploration Holdings, LLC

Subject to the provisions of the Communications Act of 1934, subsequent acts, and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions and requirements set forth in this license, the licensee hereof is hereby authorized to use and operate the radio transmitting facilities hereinafter described for radio communications in accordance with the program of experimentation described by the licensee in its application for license.

Operation: In accordance with Sec. 5.3(j) of the Commission's Rules

Station Locations

- (1) MOBILE: in port and at sea in Atlantic Ocean
- (2) Port Canaveral, FL - NL 28-24-45; WL 80-37-10

Frequency Information

MOBILE: in port and at sea in Atlantic Ocean

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
14000-14500 MHz	MO	60M0D7W	4.06 W (Output Power)	0.001 %

Port Canaveral, FL - NL 28-24-45; WL 80-37-10

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
14000-14500 MHz	FX	60M0D7W	4.06 W (Output Power)	0.001 %

Special Conditions:

- (1) The station identification requirements of Section 5.115 of the Commission's Rules are waived.

This authorization effective February 10, 2021 and will expire 3:00 A.M. EST February 01, 2023

**FEDERAL  
COMMUNICATIONS  
COMMISSION**



**Special Conditions:**

- (2) The occupied bandwidth of the emission shall not extend beyond the band limits set forth above.
- (3) Licensee is authorized to operate ten units of 0.48m flat phased array antenna on-board Vessels (ESVs) at US&P water/sea in the Atlantic Ocean and in the Port Canaveral, FL- NL 28-24-45; WL 80-37-10.
- (4) Points of Communication: Space Exploration Holdings, LLC ("SpaceX")'s non-geostationary orbit ("NGSO") satellites (call sign S2983/S3018) using the 14-14.5 GHz frequency band.
- (5) Operations in the 14-14.5 GHz (Earth-to-space) frequency band are authorized up to the equivalent power flux-density requirements of Article 22 of the ITU Radio Regulations, as well as Resolution 76 (Rev. WRC-15) of the ITU Radio Regulations.
- (6) The 0.48m flat phased array earth station transmitters are authorized to communicate only with those SpaceX satellites that are visible on the horizon above a minimum elevation angle of 25 degrees.
- (7) Operations of the authorized antenna on-board Vessels (ESVs) operating in the 14.14.5 GHz band must comply with the following conditions:
  - a. Licensee's ESV must employ a tracking algorithm that is resistant to capturing and tracking adjacent satellite signals, and each station must be capable of inhibiting its own transmission in the event it detects unintended satellite tracking.
  - b. Licensee's ESV must be monitored and controlled by a ground-based network control and monitoring center. Such stations must be able to receive "enable transmission" and "disable transmission" commands from the network control center and must cease transmission immediately after receiving a "parameter change" command until receiving an "enable transmission" command from the network control center. The network control center must monitor operation of each earth station to determine if it is malfunctioning, and each earth station must self-monitor and automatically cease transmission on detecting an operational fault that could cause harmful interference to a fixed satellite service network.
  - c. Licensee must maintain a point of contact available 24 hours per day, seven days per week, with the authority and ability to terminate operations authorized herein, for discussing interference concerns with other licensees, and must submit a letter to be included in its license file with the name and telephone number of the point of contact prior to commencing operation.
- (8) The Power levels, EIRP and EIRP density from operation of the experimental NGSO ESVs stations in the 14-14.5 GHz band must not exceed the power levels including EIRP and EIRP density operated by the legally authorized GSO Fixed Earth Station (FES) and GSO ESVs unless the GSO satellite operator(s) operating the GSO satellite(s) listed in the point of communications of FES and ESVs' license(s) agrees to transmissions at a higher power.

## Special Conditions:

- (9) Prior to commencing any operations in the 14-14.5 GHz frequency band, experimental licensee must notify licensees of Ku-band GSO FES and ESVs. The notice must include the name and contact information of the stop buzzer personnel that will be available to cease operations in the event of reported interference. The notification should include the testing parameters (specific location(s), antenna gain(s), antenna height(s), antenna orientation, EIRP, EIRP density) and day and times of each test. Please notify the following licensees:

ESVs Call Sign: E100010  
Licensee: UCSD Scripps Institution of Oceanography  
Phone Number: 858-534-2889  
E-Mail: jberger@ucsd.edu  
Attention: Mr. Jonathan Berger

ESVs Call Sign: E120041  
Licensee: GCI Communication Corp.  
Attention: Mr. Peter Malcolm  
Phone Number: 907-868-5615  
E-Mail: gcilicenseemanager@gci.com  
Name: Cindy Lynch  
E-Mail: clynch@gci.com

ESVs Call Sign: E140042  
Licensee: Tampnet Inc.  
Name: AIRTAP COMMUNICATIONS, LLC  
Attention: Mr. Brent Berard  
Phone Number: 337-205-8751  
E-Mail: hex@airtap.com

ESVs Call Sign: E170213  
Licensee: Global Foundation for Ocean Exploration, Inc.  
Phone Number: 860-572-7979  
E-Mail: david.lovalvo@tgfoe.org  
Attention: Mr. David Lovalvo  
Name: Michael Durbin  
Phone Number: 2148017721  
Company: Durbin Consulting LLC  
E-Mail: mike@k5mjd.us  
Attention: Relationship: Engineer

ESVs Call Sign: KA313  
Licensee: Comsat, Inc.  
Name: Airbus DS SatCom Government, Inc.  
Phone Number: 703-466-5873  
E-Mail: rob.swanson@airbus.com  
Attention: Mr. Robert W Swanson  
Phone Number: 703-466-5945  
E-Mail: james.lovelace@astrium.eads-na.com  
Attention: Mr. James G. Lovelace

ESVs Call Sign: E930320  
Licensee: Comsat, Inc.

Special Phone Number: 571-599-3639  
E-Mail: sclatworthy@comsat.com  
Attention: Ms Sandra M Clatworthy  
Phone Number: 571-599-3643  
E-Mail: jlovelace.ctr@comsat.com  
Attention: James G. Lovelace

ESVs Call Sign: E100084  
Licensee: DATA TECHNOLOGY SOLUTIONS LLC  
Name: AIRTAP COMMUNICATIONS, LLC  
Phone Number: 337-332-4347  
E-Mail: jwittig@dtscom.com  
Attention: Mr. JOHN H WITTIG

ESVs Call Sign: E060157  
Licensee: Speedcast Communications, Inc., as a debtor-in-possession  
Phone Number: 832-668-2753  
E-Mail: leanne.young@speedcast.com  
Attention: Ms. Leanne Young

ESVs Call Sign: E070239  
Licensee: ITC Global  
Attention: Ms. EllenAnn Sands  
Phone Number: 281-501-4733  
E-Mail: ellenann.sands@itcglobal.com

ESVs Call Sign: E020205  
Licensee: HNS License Sub, LLC  
Phone Number: 301-428-5893  
E-Mail: jennifer.manner@echostar.com  
Attention: Ms. Jennifer Manner

ESVs Call Sign: E190488  
Licensee: SES Americom, Inc.  
Phone Number: 202-478-7143  
E-Mail: petra.vorwig@ses.com  
Attention: Ms Petra A Vorwig

ESVs Call Sign: E070114  
Licensee: Inmarsat Solutions (US) Inc.  
NAME: Stratos Offshore Services Company  
Phone Number: 301-968-1938  
E-Mail: regan.rishel@inmarsat.com  
Attention: Regan Rishel

ESVs Call Sign: E980235  
Licensee: RigNet SatCom, Inc.  
Phone Number: 281-674-0150  
E-Mail: raul.magallanes@rig.net  
Attention: Mr. Raul Magallanes

ESVs Call Sign: WB36

Specie Licensee: Marlink, Inc.  
Phone Number: 713-910-3352  
E-Mail: Tom.Collins@marlink.com  
Attention: Tom Collins

ESVs Call Sign: E140087  
Licensee: Astronics AeroSat Corporation  
Phone Number: 603-879-0205  
E-Mail: jonathan.epstein@astronics.com  
Attention: Mr. Jonathan Epstein

ESVs Call Sign: E090001  
Licensee: KVH Industries, Inc.  
Phone Number: 4018458148  
E-Mail: ffeingold@kvh.com  
Attention: Felise Feingold

ESVs Call Sign: E170070  
Licensee: Kymeta Corporation  
Phone Number: 425-896-3700  
E-Mail: ryans@kymetacorp.com  
Attention: Mr. Ryan Stevenson

FIXED FL Call Sign: E170092  
Licensee: Kratos RT Logic  
Phone Number: Phone: 719-598-2801  
E-Mail: Mail: tom.zehringer@kratoscomms.com  
Attention: Mr. Tom J Zehringer