U.S. Commercial Space Transportation Regulations

Presented to the
United Nations Committee on Peaceful Uses of Outer Space Scientific and Technical Subcommittee

By

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51 U. S. C. Chapter 509 (formerly the Commercial Space Launch Act of 1984, as amended)

• Authorizes the FAA* to license commercial launch and reentry activities and the operation of launch and reentry sites as carried out by U.S. citizens or within the United States.

• Directs the FAA to:

  • Exercise this responsibility consistent with public health and safety, safety of property, and the national security and foreign policy interests of the United States, and

  • Encourage, facilitate, and promote commercial space launches and reentries by the private sector.

* The Secretary of Transportation’s licensing authority has been delegated to the Administrator of the FAA and further assigned to the Associate Administrator for Commercial Space Transportation (AST).
Regulations for Licensing

• An entity must obtain a license:
  • To launch a launch vehicle from the United States;
  • To operate a launch site within the United States;
  • To reenter a reentry vehicle in the United States; or
  • To operate a reentry site within the United States.

• A U.S. citizen or an entity organized under the laws of the United States or any State must obtain a license:
  • To launch a launch vehicle outside the United States;
  • To operate a launch site outside of the United States;
  • To reenter a reentry vehicle outside of the United States; or
  • To operate a reentry site outside of the United States.

• FAA does not license launches or reentries “the Government carries out for the Government”
  • NASA and DOD typically carry out their own launches.
  • US Government has an option to choose commercial launch services
FAA License Process Overview

Pre-application Consultation → Evaluation → Launch/Reentry Ops

- Environmental Review
- Policy Review
- Payload Review
- Financial Responsibility

Public Safety Review → Safety Inspection

National Airspace System (NAS) Integration

FAA has 180 days to respond to a “complete enough” application for a license, 120 days for a permit.
Potential Regulatory Path

Certificates
- Production
- Airworthiness
- Air Carrier
- Pilot
- Instruction
- Mechanic
- Dispatch
- Parts

Moratorium Expires, Industry Standards Developed

Routine Commercial Space Travel

Current FAA Licensing
- Public Safety

Future Licensing of Human Spaceflight
- Public Safety
- Occupant Safety

FAA Certification
- Public Safety
- Occupant Safety
- Mission Assurance

Time
Commercial/Government/Private Active and Proposed Launch Sites

- Pacific Spaceport Complex, Alaska
- Blue Origin Launch Site, Vandenberg AFB, California
- Mojave Air and Space Port, Edwards AFB, California
- White Sands Missile Range, Spaceport America, New Mexico
- Oklahoma Spaceport, Midland Spaceport, McGregor
- Houston Spaceport, Spaceport Florida
- Sea Launch Platform, Equatorial Pacific Ocean
- Reagan Test Site, Kwajalein Atoll, Marshall Islands

Other spaceports have been proposed for: Alabama, Colorado, Georgia, and Hawaii.
Existing and Proposed Global Spaceports

Key
- Existing Orbital Spaceport
- Proposed Orbital Spaceport
- Proposed Suborbital Spaceport
- Existing Suborbital Spaceport

Source: FAA July 2016
FAA-Licensed and Permit Launches 1989 - 2017

- 44 Permit launches 2006 – 2017 (all suborbital)

Includes 58 launches for U.S. Government (NASA [ISS], NOAA, DOD, others)

Source: FAA/AST January 2018
Expanding Commercial Capabilities

Virgin Galactic  
Sierra Nevada Corp  
Boeing  
Rocket Lab USA  

Blue Origin  
Orbital Sciences ATK  
SpaceX  
Bigelow Aerospace
FAA/AST International Goals

• The 2013 National Space Transportation Policy directs the Secretary of Transportation and other appropriate agencies to:
  • “Advocate internationally for the adoption of United States Government safety regulations, standards, and licensing measures to enhance global interoperability and safety of international commercial space transportation activities.”

• The FAA is promoting its commercial space transportation regulations for adoption by other countries—the goals of AST’s outreach are to:

  1) Assist U.S. industry activity outside the United States;

  2) Provide U.S. international leadership;

  3) Establish international relationships; and

  4) Prepare for future interoperability between countries
ICAO / UN OOSA Space Learning Group (SLG)

Background and Milestones

2014
- State letter - “Survey on Suborbital Commercial Space Transportation and Airspace Integration”
- Space Learning Group “SLG” organized

2015
- SLG assessment of mid-term and long-term issues
- *ICAO and UNOOSA establish series of aerospace symposia, and collaborate on SLG
- *1st Symposium - educational forum

2016
- *2nd Symposium - ICAO President identifies pressing issues that need to be addressed in the near term

2017
- SLG establishes Terms of Reference
- Group name changes to: Suborbital Commercial Spaceflight Learning Group (SCSLG)
- *3rd Symposium - UN Report on Commercial Space Transportation
- Global Air Navigation Industry Symposium

2018+
- Deliver “High-level Operational Vision Document” by Q1 or Q2
- 13th Air Navigation Conference

Federal Aviation Administration
AST Commercial Space Transportation
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Future Challenges, Considerations and New Markets

• DOT/FAA may be a logical regulatory authority for:
  • New “non-traditional” commercial space activity in new markets such as: orbital habitats, on-orbit servicing, lunar surface activity, asteroid mining, circumlunar, Mars missions
  • U.S. Space Traffic Management

• Congress passed the “U.S. Commercial Space Launch Competitiveness Act” in 2015 (PL 114-90)
  • Contains requirement for 12 reports from multiple government agencies due to Congress including 6 led by FAA. Report areas include:

• New legislation, protections and authorities may be needed
• Flexibility of government to support this dynamic industry
• Retaining focus on safety and efficiency of ANY transport mode