
Commercial Space Transportation License

License Number: LLO 19-110 (Rev 2)

SPACE EXPLORATION TECHNOLOGIES

is authorized, subject to the provisions of 51 USC Subtitle V, ch. 509, and the orders, rules, and regulations issued under it, to conduct launches.

General. Space Exploration Technologies is authorized to conduct:

(i) Flights of Falcon 9 and Falcon Heavy launch vehicles from Launch Complex 39A at Kennedy Space Center (KSC), each transporting a payload to a low Earth or geosynchronous transfer orbit; and

(ii) pre-flight ground operations at KSC involving the Falcon 9 and Falcon Heavy launch vehicles associated with the conduct of any flights that require a Federal Aviation Administration license.

This license is granted subject to the terms, conditions, and limitations set forth in licensing orders A, B, C, and D and any subsequent orders issued by the Office of Commercial Space Transportation.

The licensee shall at all times conduct its operations in accordance with the regulations prescribed by the Office of Commercial Space Transportation for the activities authorized by this license.



US Department
of Transportation
Federal Aviation
Administration

800 Independence Ave., S.W.
Washington, D.C. 20591

Original Issued: February 15, 2019
Rev 2 Effective: November 8, 2019
Rev 2 Effective: November 8, 2019

Kenneth Wong

Manager, Licensing and Evaluation Division

Revision History:

Original License - Issued February 15, 2019

Revision 1 - Issued April 5, 2019

- 1) Added "Falcon Heavy" to paragraphs (i) and (ii) as a vehicle covered under this license.

Revision 2 - Issued November 8, 2019

- 1) Paragraph (ii) removed condition that pre-flight ground operations is specifically associated with the flights in Paragraph (i) and replaced with the following: "pre-flight ground operations at KSC involving the Falcon 9 and Falcon Heavy launch vehicles associated with the conduct of any flights that require a Federal Aviation Administration license."

License Order No. LLO 19-110A (Rev 2)

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

LAUNCH

AUTHORIZED BY LICENSE NO. LLO 19-110
ISSUED TO

SPACE EXPLORATION TECHNOLOGIES

1. Authority: This Order is issued to Space Exploration Technologies, referred to as SpaceX, under 51 U.S.C. subtitle V, chapter 509, and 14 C.F.R. Ch. III.
2. Purpose: This Order modifies License No. LLO 19-110 originally issued on February 15, 2019, by the Federal Aviation Administration's Office of Commercial Space Transportation, authorizing SpaceX to conduct launches of Falcon 9 and Falcon Heavy launch vehicles; and prescribes as conditions to License No. LLO 19-110 certain requirements applicable to the launches.
3. Definitions: For purposes of License No. LLO 19-110 and any orders issued by the FAA pertaining to activities covered by License No. LLO 19-110:
 - (a) "Flight" shall mean the flight of a Falcon 9 or Falcon Heavy launch vehicle, commencing with ignition of the first stage from Kennedy Space Center (KSC) and transporting a payload to a low Earth or geosynchronous transfer orbit. Flight includes fly back of Falcon 9 or Falcon Heavy first stage boosters for landing at LZ-1, LZ-2, and/or on a droneship or splashdown in the ocean. A flight is concluded upon SpaceX's last exercise of control over the Falcon 9 or Falcon Heavy vehicle, including the safing of the Falcon 9 or Falcon Heavy vehicle stages or components that reach Earth orbit, following separation of the payload, or at the stage's splashdown after a purposeful disposal.
 - (b) "Pre-flight ground operations" shall mean SpaceX's pre-flight preparations of the Falcon 9 or Falcon

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Heavy launch vehicles at KSC, beginning with the arrival of the Falcon 9 and Falcon Heavy vehicles at KSC.

4. Special Reporting Requirements: In addition to all applicable reporting requirements under 14 C.F.R. Ch. III, SpaceX must identify any anomaly occurring on a prior Falcon 9 or Falcon Heavy launch that could be material to public safety no later than 15 days before any flight conducted under this license, unless the requirement of 14 C.F.R. § 417.25(a) has already been satisfied.
5. Compliance Documentation: Any references to LLS 17-100 or LLS 17-101 in compliance documentation will remain valid and equally applicable under LLO 19-110.
6. License Term: The term of License No. LLO 19-110 authorizing SpaceX to conduct launches is five (5) years from February 15, 2019.

OFFICE OF COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

DANIEL P
MURRAY

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MURRAY
Date: 2020.11.06 21:21:38
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By:

Daniel P. Murray, Manager
Safety Authorization Division

Original Issued: February 15, 2019
Rev 2 Issued: November 6, 2020
Rev 2 Effective: November 6, 2020

Revision History:

Original License Order A - Issued February 15, 2019

Revision 1 - Issued April 5, 2019

- 1) Added "Falcon Heavy" to paragraphs (2), (3) and (4) as a vehicle covered under this license.
- 2) Paragraph (2) replaced "issued concurrently" with "originally issued on February 15, 2019"

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3) Paragraph (3) added LZ-2 to list of first stage flyback locations.

Revision 2 - Issued November 6, 2020

1) Added "or at the stage's splashdown after a purposeful disposal" to paragraph (3)(a) to clarify the end of licensed activities.

License Order No. LLO 19-110B (Rev 4)

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

FLIGHT

AUTHORIZED BY LICENSE NO. LLO 19-110
ISSUED TO

SPACE EXPLORATION TECHNOLOGIES

1. Authority: This Order is issued to Space Exploration Technologies, referred to as SpaceX, under 51 U.S.C. subtitle V, chapter 509, and 14 C.F.R. Ch. III.
2. Purpose: This Order modifies License No. LLO 19-110 originally issued on February 15, 2019, by the Federal Aviation Administration's Office of Commercial Space Transportation, authorizing SpaceX to conduct launches of Falcon 9 and Falcon Heavy launch vehicles; and prescribes as conditions to License No. LLO 19-110 certain requirements applicable to the authorization to conduct the flights of these launch vehicles.
3. Authorization: SpaceX is authorized to conduct flights of launch vehicles:
 - (a) Using a Falcon 9 or Falcon Heavy launch vehicle;
 - (b) From Launch Complex 39A at Kennedy Space Center, Florida;
 - (c) Transporting a Dragon 2 capsule for the NASA CCP or CRS missions to low Earth orbit or a payload to a low Earth or geosynchronous transfer orbit; and
 - (d) According to the launch vehicle, launch vehicle systems, and safety management program represented in the SpaceX application as of the date of this order, and any amendments to the license application approved by the FAA, in writing.

License Order No. LLO 19-110B (Rev 4)

OFFICE OF COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

By: _____
Daniel P. Murray, Manager
Safety Authorization Division

Original Issued: February 15, 2019
Rev 4 Issued: December 1, 2020
Rev 4 Effective: December 1, 2020

Revision History:

Original License Order B - Issued February 15, 2019

Revision 1 - Issued April 5, 2019

- 1) Added "Falcon Heavy" to paragraphs (2) and (3)(a) as a vehicle covered under this license.
- 2) Paragraph (2) replaced "issued concurrently" with "originally issued on February 15, 2019"

Revision 2 - Issued February 18, 2020

- 1) Changed launch azimuth in paragraph (3) (c) from 43.7 degrees to "43 to 44 degrees".
- 2) Amended wording in paragraph 3 (d) to state "Transporting a Dragon capsule to low Earth orbit for NASA CRS missions or a payload to a low Earth or geosynchronous transfer orbit".

Revision 3 - **Issued November 6, 2020**

- 1) Paragraph (3) removed "On a nominal launch azimuth of 43 to 44 degrees for missions to low Earth orbit or 90 degrees for missions to geosynchronous transfer orbit".
- 2) Paragraph (3)(c) added "the Dragon 2 NASA CCP-1 mission" and Dragon 1 for the NASA CRS missions.

Revision 4 - **Issued December 1, 2020**

- 1) Paragraph (3)(c) replaced "missions or Dragon 1 capsule for the NASA" with "or".

License Order No. LLO 19-110C (Rev 1)

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

PRE-FLIGHT GROUND OPERATIONS

AUTHORIZED BY LICENSE NO. LLO 19-110
ISSUED TO

SPACE EXPLORATION TECHNOLOGIES

1. Authority: This Order is issued to Space Exploration Technologies, referred to as SpaceX, under 51 U.S.C. subtitle V, chapter 509, and 14 C.F.R. Ch. III.
2. Purpose: This Order modifies License No. LLO 19-110 originally issued on February 15, 2019, by the Federal Aviation Administration's Office of Commercial Space Transportation, authorizing SpaceX to conduct launches of Falcon 9 and Falcon Heavy launch vehicles; and prescribes as conditions to License No. LLO 19-110 certain requirements applicable to the authorization to conduct pre-flight ground operations.
3. Authorization: SpaceX is authorized to conduct pre-flight ground operations at Kennedy Space Center (KSC) associated with launches of Falcon 9 and Falcon Heavy launch vehicles.

OFFICE OF COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

By: 
Kenneth Wong, Manager
Licensing and Evaluation Division

Original Issued: February 15, 2019
Rev 1 Issued: April 5, 2019
Rev 1 Effective: April 5, 2019

License Order No. LLO 19-110C (Rev 1)

Revision History:

Original License Order C - Issued February 15, 2019

Revision 1 - Issued April 5, 2019

- 1) Added "Falcon Heavy" to paragraphs (2) and (3) as a vehicle covered under this license.
- 2) Paragraph (2) replaced "issued concurrently" with "originally issued on February 15, 2019".

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

FINANCIAL RESPONSIBILITY REQUIREMENTS

Under License No. LLO 19-110
Issued to

SPACE EXPLORATION TECHNOLOGIES

1. Authority: This Order is issued to Space Exploration Technologies, referred to as SpaceX, under 51 U.S.C. Subtitle V, chapter 509, and 14 C.F.R. part 440.
2. Purpose: This Order modifies License No. LLO 19-110 originally issued on February 15, 2019, by the Federal Aviation Administration's Office of Commercial Space Transportation, by prescribing financial responsibility requirements for licensed launch activities in accordance with 14 C.F.R. part 440.
3. Definitions: For purposes of this Order, "licensed launch activities" shall mean activities authorized by the License. Other terms used in this Order are defined in accordance with 14 C.F.R. § 440.3.
4. Liability Insurance: SpaceX shall maintain a policy or policies of liability insurance (or otherwise demonstrate financial responsibility) for covered claims in accordance with 14 C.F.R. § 440.9(b) in the amounts below:
 - (a) Flight of Falcon 9 launch vehicle from Kennedy Space Center (KSC)
 - (i) Fifty-Three Million Dollars (\$53,000,000) for geosynchronous transfer orbit (GTO) missions;
 - (ii) Eighty-Six Million Dollars (\$86,000,000) for low Earth orbit (LEO) missions;
 - (iii) One Hundred Sixty Million Dollars (\$160,000,000) for the NROL-108 mission;

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- (iv) Seventy Million Dollars (\$70,000,000) for NASA CCP or CRS missions; or
 - (v) One-Hundred and Eighty Million Dollars (\$180,000,000) for Falcon Heavy geosynchronous transfer orbit (GTO) missions; and
 - (b) Pre-flight operations performed at KSC
 - (i) Twenty-Four Million Dollars (\$24,000,000) for the NROL-108 mission;
 - (ii) Fifty-Four Million Dollars (\$54,000,000) for NASA CRS missions;
 - (iii) Eighty-Seven Million Dollars (\$87,000,000) for NASA CCP missions; or
 - (iv) Twelve Million Dollar (\$12,000,000) for all other missions.
5. Government Property Insurance: SpaceX shall maintain a policy or policies of insurance (or otherwise demonstrate financial responsibility) for covered claims in accordance with 14 C.F.R § 440.9(d) in the amounts below:
- (a) Flight of Falcon 9 launch vehicle from Kennedy Space Center (KSC)
 - (i) Seventy-Two Million Dollars (\$72,000,000) for the NASA CCP or CRS, GTO, or LEO missions; or
 - (ii) One Hundred Million Dollars (\$100,000,000) for the NROL-108 mission, or Falcon Heavy launch vehicle GTO missions; and
 - (b) Pre-flight operations performed at KSC
 - (i) Sixty-Three Million Dollars (\$63,000,000) for Falcon 9 launches; or
 - (ii) Seventy-Two Million Dollars (\$72,000,000) for Falcon Heavy launches.
6. Covered property includes all property owned, leased, or

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occupied by, or within the care, custody, or control of, the United States and its agencies, and its contractors and subcontractors involved in licensed launch activities, at CCAFS.

7. For the purpose of financial responsibility, launch operations covered by this license that include an abort of the Dragon-2 capsule prior to the liftoff of Falcon-9 are considered pre-flight operations.
8. Any documents submitted for compliance with 14 C.F.R. §§ 440.15 and 440.17 under License Nos. LLS 17-100 and LLS 17-101 remain valid for this license.

OFFICE OF COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

By: _____
Daniel P. Murray, Manager
Safety Authorization Division

Original Issued: February 15, 2019
Rev 4 Issued: December 1, 2020
Rev 4 Effective: December 1, 2020

License Order No. LLS 19-110D (Rev 4)

Revision History:

Original License Order D - Issued February 15, 2019

Revision 1 - Issued April 5, 2019

- 1) Paragraph (2) replaced "issued concurrently" with "originally issued on February 15, 2019"
- 2) Added " or One-Hundred and Eighty Million Dollars (\$180,000,000) for covered claims resulting from flight of the Falcon Heavy launch vehicle from Kennedy Space Center (KSC) for geosynchronous transfer orbit (GTO) missions" to paragraph (4)(a) for liability values covering the Falcon Heavy vehicle.
- 3) Added "or One-Hundred Million Dollars (\$100,000,000) for covered claims resulting from flight of the Falcon Heavy launch vehicle from KSC for GTO missions" to paragraph (5)(a) for liability values covering the Falcon Heavy vehicle.
- 4) Added "or Seventy-Two Million Dollars (\$72,000,000) for covered claims resulting from pre-flight operations performed at KSC for Falcon Heavy launches" to paragraph (5)(b).

Revision 2 - Issued February 18, 2020

- 1) Paragraph (4)(a) added "Eighty-Six Million Dollars (\$86,000,000) for Falcon 9 low Earth orbit (LEO) missions"
- 2) Paragraph (5)(a) added "and LEO" to the first sentence.

Revision 3 - Issued November 6, 2020

- 1) Paragraph (4)(a) added "One Hundred Sixty Million Dollars (\$160,000,000) for the Falcon 9 NROL-108 mission" and "Seventy Million Dollars (\$70,000,000) for the Falcon 9 NASA CCP missions".
- 2) Paragraph (4)(b) added "Twenty Four Million Dollars (\$24,000,000) for the Falcon 9 NROL-108 mission" and "One Hundred Twenty-Nine Million Dollars (\$129,000,000) for the Falcon 9 NASA CCP missions".
- 3) Paragraph (5)(a) added "One Hundred Million Dollars (\$100,000,000) for the Falcon 9 NROL-108 mission" and "Seventy-Two Million Dollars (\$72,000,000) for the Falcon 9 NASA CCP missions".
- 4) Added Paragraph 7 to clarify Dragon-2 abort scenario financial responsibility.
- 5) Renumbered paragraphs as a result of the addition of paragraph 7.

Revision 4 - Issued December 1, 2020

- 1) Renumbered paragraphs for clarity.
- 2) Paragraph (4)(a)(iii) removed "NASA CRS missions".
- 3) Paragraph (4)(a)(iv) added "or CRS".
- 4) Paragraph (4)(b)(ii) added "Fifty-Four Million Dollars (\$54,000,000) for NASA CRS missions".
- 5) Paragraph (5)(a)(i) added "or CRS".
- 6) Paragraph (5)(a)(ii) removed "Falcon 9 NASA CRS missions and".