
Commercial Space Transportation License

License Number: LLO 04-069 (Rev 3)

ORBITAL SCIENCES CORPORATION

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

General. Orbital Sciences Corporation is authorized to conduct flights of Pegasus launch vehicles utilizing the L-1011 carrier aircraft from the U.S. Army Garrison Kwajalein Atoll/Ronald Reagan Ballistic Missile Test Site (USAG-KA/ RTS), Marshall Islands, as specified in license orders issued by the Office.

This license is granted subject to the terms, conditions, and limitations set forth in licensing orders A, B, 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 On: July 14, 2004
Rev 3 Issued On: July 12, 2019
Rev 3 Effective On: July 23, 2019

Kenneth Wong

Manager, Licensing and Evaluation Division

Revision History:

Original license - Issued July 14, 2004

Revision 1 - Issued March 19, 2008

- 1) Removed "on flight azimuths and transporting classes of payloads to orbital destinations" as the words are unnecessary. These conditions are specified in the License Order No. LLO 04-069B.
- 2) Removed "and (ii) pre-flight ground operations at RTS associated with the conduct of commercial space flights that require a Federal Aviation Administration license."
- 3) Removed "commercial space" preceding "launches" in first paragraph.

Revision 2 - Issued July 17, 2014

- 1) Re-designated authority to "51 U.S.C. Subtitle V, ch. 509."
- 2) Under General, added "utilizing the L-1011 carrier aircraft" after "Orbital Sciences Corporation is authorized to conduct flights of Pegasus launch vehicles." Changed the "Associate Administrator for Commercial Space Transportation" to "Office of Commercial Space Transportation" in third and fourth paragraphs.
- 4) Deleted license order C in third paragraph because it was deleted on March 19, 2008.

Revision 3 - Issued July 12, 2019

- 1) Re-designated License No. LLO 04-069 (Rev 2) to "(Rev 3)".
- 2) In second paragraph, between "Army" and Kwajalein" inserted "Garrison; and replaced "USAKA" with USAG-KA"

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

LAUNCHES

AUTHORIZED BY LICENSE NO. LLO 04-069 (Rev3)
ISSUED TO

ORBITAL SCIENCES CORPORATION

1. Authority: This Order is issued to Orbital Sciences Corporation (Orbital) under 51 U.S.C. Subtitle V, chapter 509, and 14 C.F.R. Ch. III.
2. Purpose: This Order modifies License No. LLO 04-069 (Rev 3) issued concurrently by the Federal Aviation Administration's Office of Commercial Space Transportation (Office), authorizing Orbital to conduct launches of Pegasus launch vehicles utilizing the L-1011 carrier aircraft from the U.S. Army Garrison Kwajalein Atoll/ Ronald Reagan Ballistic Missile Test Site (USAG-KA/RTS), Marshall Islands; and prescribes as conditions to License No, LLO 04-069 (Rev 3) certain requirements applicable to those launches.
3. Definitions: For purposes of License No. LLO 04-069 (Rev 3) and any orders issued by the Office pertaining to activities covered by License No. LLO 04-069(Rev 3):
 - (a) "Launch" means flight.
 - (b) "Flight" means flight of Pegasus launch vehicle utilizing the L-1011 carrier aircraft to orbital destinations, on Pegasus flight azimuths as specified in License Order No. LLO 04-069B (Rev 3) issued concurrently by the Office, commencing upon take-off of the L-1011 carrier aircraft from the USAG-KA/RTS for carrier aircraft flight to designated release areas for the purpose of releasing a Pegasus launch vehicle. Flight ends upon safing of the Pegasus launch vehicle stages or components that reach earth orbit following separation of the payload from the Pegasus

License Order No. LLO 04-069A (Rev 4)

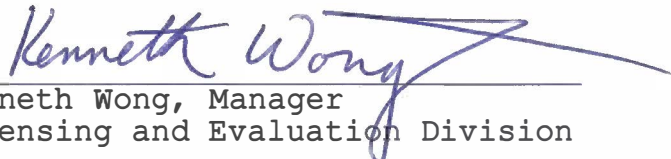
launch vehicle or upon wheels stopping after landing of the L-1011 carrier aircraft at USAG-KA/RTS, whichever occurs later.

(c) For purposes of License No. LLO 04-069 (Rev 3), "take-off" of the L-1011 carrier aircraft is deemed to commence upon roll forward of the carrier aircraft immediately following removal of the Pegasus safe and arm pins.

4. License Term: The term of License No. LLO 04-069 (Rev 3) authorizing Orbital to conduct commercial space launches is five (5) years from July 23, 2019.

OFFICE OF COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

By:


Kenneth Wong, Manager
Licensing and Evaluation Division

Original Issued: July 14, 2004

Rev 4 Issued: July 12, 2019

Rev 4 Effective: July 23, 2019

Revision History:

Original License Order Issued - July 14, 2004

Revision 1 - Issued February 26, 2008

- 1) In paragraph 2, replaced "amends" with "modifies" and "concurrently" with "on July 14, 2004."
- 2) Removed "and (ii) pre-flight ground operations, as defined in this section" from paragraph 3(a) and paragraph 3(c), and renumber paragraph 3(d) is 3(c).
- 3) Eliminate paragraphs 4 through 12.
- 4) Renumber paragraph 13 as paragraph 4 and replace "the effective date of this license" with "July 23, 2004."
- 5) Removed "commercial space" in all instances preceding "launch" or flight.
- 6) Replaced "shall be deemed" with "is" for the sake of plain English.

Revision 2 - Issued July 6, 2009

- 1) Replaced "Associate Administrator for" with "Office of" prior to all

License Order No. LLO 04-069A (Rev 4)

the name Commercial Space Transportation

- 2) Re-designated License Order No. LLO 04-069A (Rev 1) to "(Rev 2)"
- 3) In paragraph 4, replaced "2004" with "2009"

Revision 3 - Issued July 17, 2014

- 1) Re-designated License Order No. LLO 04-069A (Rev 2) to "(Rev 3)".
- 2) In first paragraph, re-designated authority to 51 U.S.C., Subtitle V, chapter 509 and 14 C.F.R. Ch III. Replaced "(OSC)" with "(Orbital)".
- 3) In second paragraph, replaced "LLO 04-069 issued on July 14 2004" with "LLO 04-069 (Rev 2) issued concurrently by the Federal Aviation Administration's Office of Commercial Space Transportation (Office)." Replaced "authorizing OSC to conduct space launches" with "authorizing Orbital to conduct launches of Pegasus launch vehicles utilizing the L-1011 carrier aircraft from the U.S. Army Kwajalein Atoll/Ronald Regan Ballistic Missile Test Site (USAKA/RTS), Marshall Islands."
- 4) In third paragraph, clarified that flight means flight of Pegasus launch vehicles utilizing the L-1011 carrier aircraft and replaced LLO 04-069 (Rev 1) with LLO 04-069 (Rev2.)
- 5) In third paragraph, revised when flight ends by defining it as "Flight ends upon safing of the Pegasus launch vehicle stages or components that reach earth orbit following separation of the payload from the Pegasus launch vehicle or upon wheels stopping after landing of the L-1011 carrier aircraft at USAKA/RTS, whichever occurs later."
- 6) In paragraph 4, replaced LLO 04-069 with LLO 04-069 (Rev2), and "2009" with "2014."

Revision 4 - Issued July 12, 2019

- 1) Re-designated License Order No. LLO 04-069A (Rev 3) to "(Rev 4)".
- 2) In all instances, re-designated License No. LLO 04-069 (Rev 2) to "(Rev 3)"
- 3) In first paragraph, between "Army" and Kwajalein" inserted "Garrison;"
- 4) In all instances, replaced "USAKA" with USAG-KA"
- 5) In paragraph 3(b), re-designated License Order No. LLO 04-069B (Rev 2) to "(Rev 3)"
- 6) In paragraph 4, replaced "2014" with "2019."

License Order No. LLO 04-069B (Rev 3)

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

FLIGHT

AUTHORIZED BY LICENSE NO. LLO 04-069 (Rev3)
ISSUED TO

ORBITAL SCIENCES CORPORATION

1. Authority: This Order is issued to Orbital Sciences Corporation (Orbital) under 51 U.S.C., Subtitle V, Chapter 509, and 14 C.F.R. Ch. III.
2. Purpose: This Order amends License No. LLO 04-069 (Rev 3) issued concurrently by the Federal Aviation Administration's Office of Commercial Space Transportation (Office), authorizing Orbital to conduct launches of Pegasus launch vehicles utilizing the L-1011 carrier aircraft; and prescribes as conditions to License No. LLO 04-069 (Rev 3) certain requirements applicable to the authorization to conduct flights.
3. Authorization: Orbital is authorized to conduct flights:
 - (a) From the U.S. Army Garrison Kwajalein Atoll Ronald Reagan Ballistic Test Site (USAG-KA/RTS), Marshall Islands;
 - (b) On Pegasus flight azimuths from 80 to 165 degrees, inclusive;
 - (c) Using Standard Pegasus, Standard Pegasus with Hydrazine Auxiliary Propulsion System (HAPS), Pegasus XL, and Pegasus XL with HAPS launch vehicles, in combination with the L-1011 carrier aircraft that must hold a valid FAA airworthiness certificate and must operate in accordance with the operating limitations of that certificate and the applicable sections of 14 C.F.R. part 91;

- (d) Transporting (i) U.S. Government payloads to any orbit, and (ii) communications, remote sensing and scientific research, and Celestial payloads designed to operate in low earth orbit (specifically, apogees less than 3,000 nautical miles and perigees between 100 and 500 nautical miles); and
- (e) According to the launch vehicle, launch vehicle systems, and equipment designs and the safety management program including organization, personnel, functions and procedures represented or referenced in the Orbital application as of the date of this Order, and any modifications to the license application approved by the Office, in writing.

OFFICE OF COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

By: 
Kenneth Wong, Manager
Licensing and Evaluation Division

Original Issued: July 14, 2004
Rev 3 Issued: July 12, 2019
Rev 3 Effective: July 23, 2019

Revision History:

Original License Order Issued - July 14, 2004

Revision 1 - Issued March 19, 2008

- 1) In paragraph 2, replaced "amends" with "modifies" and "concurrently" with "on July 14, 2004."
- 2) From paragraph 2 (a), removed "For the Pegasus launch vehicle, a nominal commercial space flight shall be deemed concluded upon safing of Pegasus launch vehicle stages or components that reach earth orbit following separation of the payload. For the L-1011 carrier aircraft, a nominal commercial space flight shall be deemed concluded upon the release of the Pegasus launch vehicle. In the event of an aborted attempt to release the Pegasus launch vehicle following the take-off of the L-1011, a commercial space flight attempt will be deemed completed when the L-1011 aircraft lands at RTS or an emergency divert facility with the Pegasus still attached." This text is redundant with that in paragraph 3(b) of License Order No. LLO 04-069A.

License Order No. LLO 04-069B (Rev 3)

- 3) Corrected the second (c) under paragraph 3 to (d).
- 4) Eliminate paragraphs 4 through 8.
- 5) Removed "commercial space" in all instances preceding "launch" or "flight."
- 6) Replaced "shall be deemed" with "is" for the sake of plain English.
- 7) Reorder (a), (b), and (c) under paragraph 3.

Revision 2 - Issued July 17, 2014

- 1) In title, changed the "Associate Administrator for Commercial Space Transportation" to the "Office of Commercial Space Transportation.\
- 2) In first paragraph, re-designated authority to 51 U.S.C, Subtitle V, chapter 509 and 14 C.F.R. Ch III.
- 3) In second paragraph: (a) replaced "LLO 04-069 issued July 14 2004" with "LLO 04-069 (Rev 2) issued concurrently"; (b) added "utilizing the L-1011 carrier aircraft"; and (c) replaced "Associate Administrator for" with "Office of" and "OSC" with "Orbital."
- 4) In third paragraph, replaced "OSC" with "Orbital". In subparagraph 3(a), corrected designation to USAKA/RTS Marshall Islands. In subparagraph 3(c), replaced "FAA certified L-1011..." with "L-1011 carrier aircraft that must hold a valid FAA airworthiness certificate and must operate in accordance with the operating limitations of that certificate and the applicable sections of 14 C.F.R. part 91."

Revision 3 - Issued July 12, 2019

- 1) Re-designated License Order No. LLO 04-069B (Rev 2) to "(Rev 3)".
- 2) In all instances, re-designated License No. LLO 04-069 (Rev 2) to "(Rev 3)"
- 3) In paragraph 3 (a), between "Army" and Kwajalein" inserted "Garrison; and replaced "USAKA" with USAG-KA"

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

FINANCIAL RESPONSIBILITY REQUIREMENTS

Under License No. LLO 04-069 (Rev 3)
Issued to

ORBITAL SCIENCES CORPORATION

1. Authority: This Order is issued to Orbital Sciences Corporation (Orbital) under 51 U.S.C. Subtitle V, chapter 509, and 14 C.F.R. part 440.
2. Purpose: This Order modifies License No. LLO 04-069 (Rev 3) (the License) issued concurrently by the Federal Aviation Administration's Office of Commercial Space Transportation (Office), by prescribing financial responsibility requirements for licensed launch activities in accordance with 14 C.F.R. part 440.
3. Liability Insurance: Orbital shall maintain a policy or policies of liability insurance (or otherwise demonstrate financial responsibility) in the amount of Fifty-Seven Million Dollars (\$57,000,000) for covered claims resulting from a flight, commencing upon take-off of the L-1011 carrier aircraft from USAKA/RTS in accordance with 14 C.F.R. § 440.9(b).
4. Government Property Insurance: Orbital shall maintain a policy or policies of insurance (or otherwise demonstrate financial responsibility) in the amount of One Million Dollars (\$1,000,000) for covered property claims resulting from a flight, commencing upon take-off of the L-1011 carrier aircraft from USAG-KA/RTS in accordance with 14 C.F.R § 440.9(d).

Covered property includes all property owned, leased, or 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 USAG-KA/RTS.

Office of COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

By:


Kenneth Wong, Manager
Licensing and Evaluation Division

Original Issued: July 14, 2004

Rev 3 Issued: July 12, 2019

Rev 3 Effective: July 23, 2019

Revision History:

Original License Order Issued - July 14, 2004

Revision 1 - Issued March 19, 2008

- 1) For the sake of consistency, replace "Under" with "AUTHORIZED BY" in the title.
- 2) In paragraph 2, replaced "amends" with "modifies" and "concurrently" with "on July 14, 2004."
- 3) Eliminate paragraphs 3, 4, 5, and 8 through 12.
- 4) Replace paragraph 6 with "Liability Insurance: OSC shall maintain a policy or policies of liability insurance (or otherwise demonstrate financial responsibility) in the amount of Fifty Seven Million Dollars (\$57,000,000) for covered claims resulting from a flight, commencing upon take-off of the L-1011 carrier aircraft from RTS in accordance with 14 C.F.R. § 440.9(b)," and renumber as paragraph 3.
- 5) Replace paragraph 7 with "Government Property Insurance: OSC shall maintain a policy or policies of insurance (or otherwise demonstrate financial responsibility) in the amount of One Million Dollars (\$1,000,000) for covered property claims resulting from a flight, commencing upon take-off of the L-1011 carrier aircraft from RTS in accordance with 14 C.F.R § 440.9(d).

Covered property includes all property owned, leased, or 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 RTS," and renumber as paragraph 4.

- 6) Removed "commercial space" in all instances preceding "launch" or flight.

License Order No. LLO 04-069D (Rev 3)

Revision 2 - Issued July 17 2014

- 1) In title, second paragraph and prior to signature, changed the "Associate Administrator for Commercial Space Transportation" to the "Office of Commercial Space Transportation.
- 2) In first paragraph; re-designated authority to 51 U.S.C, Subtitle V, chapter 509 and 14 C.F.R. Ch III.
- 3) In second paragraph; added (Rev 2).
- 4) In fourth paragraph, changed "RTS" to "USAKA/RTS."

Revision 3 - Issued July 12, 2019

- 1) Re-designated License Order No. LLO 04-069D (Rev 2) to "(Rev 3)".
- 2) In all instances, re-designated License No. LLO 04-069 (Rev 2) to "(Rev 3)"
- 3) In all instances, replaced "USAKA" with USAG-KA"