Commercial Space Transportation License

License Number: LLO 14-091 (Rev 2)

ORBITAL SCIENCES CORPORATION

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. Orbital Sciences Corporation is authorized to conduct:

(a) Flights of Antares Configuration 230 launch vehicles from Pad 0A at Wallops Flight Facility (WFF) transporting Cygnus Visiting Vehicles and specified secondary payloads to low Earth orbit; and

(b) Pre-flight ground operations at WFF associated with the flights identified in paragraph (a) of this license, of Antares Configuration 230 launch vehicles.

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: **June 12, 2014**
Rev 2 Issued: **September 28, 2016**
Rev 2 Effective: **September 28, 2016**

Kenneth Wong

Manager, Licensing and Evaluation Division

Revision History:

Original License - Issued June 12, 2014

Revision 1 - Issued April 11, 2016

1) Changed Antares launch vehicle configuration from 130 to 230.

Revision 2 - Issued September 28, 2016

1) Added "and secondary payloads" to low Earth orbit.

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

LAUNCH

AUTHORIZED BY LICENSE NO. LLO 14-091
ISSUED TO

ORBITAL SCIENCES CORPORATION

1. Authority: This Order is issued to Orbital Sciences Corporation, referred to as 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 14-091 originally issued June 12, 2014, by the Federal Aviation Administration's Office of Commercial Space Transportation, authorizing Orbital to conduct launches of Antares Configuration 230 launch vehicles; and prescribes as conditions to License No. LLO 14-091 certain requirements applicable to those launches.

3. Definitions: For purposes of License No. LLO 14-091 and any orders issued by the FAA pertaining to activities covered by License No. LLO 14-091:

   (a) "Flight" shall mean the flight of an Antares Configuration 230 launch vehicle commencing with ignition of the first stage from Wallops Flight Facility (WFF) for the purposes of transporting a Cygnus Visiting Vehicle and any secondary payloads to low Earth orbit. A flight is concluded upon Orbital's last exercise of control over the Antares Configuration 230 launch vehicle, including the safing of Antares Configuration 230 launch vehicle stages or components that reach Earth orbit following separation of the payloads.

   (b) "Pre-flight ground operations" shall mean Orbital's pre-flight preparations of the Antares Configuration 230 launch vehicle at WFF, beginning with the arrival of the Antares Configuration 230 launch vehicle at WFF.

4. Special Reporting Requirements: In addition to all applicable reporting requirements under 14 C.F.R. Ch. III, Orbital must identify any anomaly occurring prior to an Antares launch that could be material to public safety, and notify the FAA no less than 30 days before any flight conducted under this license, unless the requirement of 14 C.F.R. § 417.25(a) had already been satisfied.

5. License Term: The term of License No. LLO 14-091 is five (5) years from June 12, 2014, the original effective date of this license order.

OFFICE OF COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

By: Kenneth Wong

Kenneth Wong, Manager
Licensing and Evaluation Division

Original Issued:	June 12, 2014
Rev 2 Issued:	September 28, 2016
Rev 2 Effective:	September 28, 2016

Revision History:

Original License Order A - Issued June 12, 2014

Revision 1 - Issued April 11, 2016

1) Changed Antares launch vehicle configuration from 130 to 230.

2) Paragraph (2) replaced "issued concurrently" with "originally issued on June 12, 2014".

Revision 2 - Issued September 28, 2016

1) Paragraph 3(a) added "and any secondary payloads" to low Earth orbit.

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

FLIGHT

AUTHORIZED BY LICENSE NO. LLO 14-091
ISSUED TO

ORBITAL SCIENCES CORPORATION

1. Authority: This Order is issued to Orbital Sciences Corporation, referred to as 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 14-091 originally issued on June 12, 2014, by the Federal Aviation Administration's Office of Commercial Space Transportation, and authorizes Orbital to conduct launches of Antares Configuration 230 launch vehicles; and prescribes as conditions to License No. LLO 14-091 certain requirements applicable to the authorization to conduct flights.

3. Authorization: Orbital is authorized to conduct the flights:

   (a) Using Antares Configuration 230 launch vehicles;

   (b) From Wallops Flight Facility (WFF), Virginia;

   (c) On the ground track and trajectory presented in the license application;

   (d) Transporting to low Earth orbit Cygnus Visiting Vehicles and specified secondary payloads; and

   (e) According to the launch vehicle, launch vehicle systems, and safety management program represented in the Orbital application as of the date of this order, and any amendments to the license application approved by the FAA, in writing.

OFFICE OF COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

By: Kenneth Wong
Kenneth Wong, Manager
Licensing and Evaluation Division

Original Issued:	June 12, 2014
Rev 2 Issued:	September 28, 2016
Rev 2 Effective:	September 28, 2016

Revision History:

Original License Order B - Issued June 12, 2014

Revision 1 - Issued April 11, 2016

1) Changed Antares launch vehicle configuration from 130 to 230.

2) Paragraph (2) replaced "issued concurrently" with "originally issued on June 12, 2014".

Revision 2 - Issued September 28, 2016

1) Under 3(d) added, "and specified secondary payloads."

License Order No. LLO 14-091C (Rev 1)

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

PRE-FLIGHT GROUND OPERATIONS

AUTHORIZED BY LICENSE NO. LLO 14-091
ISSUED TO

ORBITAL SCIENCES CORPORATION

1. Authority: This Order is issued to Orbital Sciences Corporation, referred to as 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 14-091 originally issued on June 12, 2014, by the Federal Aviation Administration's Office of Commercial Space Transportation, authorizing Orbital to conduct launches of Antares Configuration 230 launch vehicles; and prescribes as conditions to License No. LLO 14-091 certain requirements applicable to the authorization to conduct pre-flight ground operations.

3. Authorization: Orbital is authorized to conduct pre-flight ground operations at WFF associated with the launches of the Cygnus Visiting Vehicles on Antares Configuration 230 launch vehicles.

OFFICE OF COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

By: Kenneth Wong
Kenneth Wong, Manager
Licensing and Evaluation Division

Original Issued:	June 12, 2014
Rev 2 Issued:	April 11, 2016
Rev 2 Effective:	April 11, 2016

Revision History:

Original License Order C - Issued June 12, 2014

Revision 1 - Issued April 11, 2016

1) Changed Antares launch vehicle configuration from 130 to 230.
2) Paragraph (2) replaced "issued concurrently" with "originally issued on June 12, 2014".

Order No. LLO 14-091D (Rev 1)

OFFICE OF
COMMERCIAL SPACE TRANSPORTATION
LICENSE ORDER REGARDING

FINANCIAL RESPONSIBILITY REQUIREMENTS

UNDER LICENSE NO. LLO 14-091
ISSUED TO

ORBITAL SCIENCES CORPORATION

1. Authority: This Order is issued to Orbital Sciences Corporation, referred to as 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 14-091 originally issued on June 12, 2014, 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: Orbital shall maintain a policy or policies of liability insurance (or otherwise demonstrate financial responsibility) in accordance with 14 C.F.R. § 440.9(b) in the amount of:

   (a) Ninety Million Dollars ($90,000,000) for covered claims resulting from flight of the Antares Configuration 230 launch vehicle from Wallops Flight Facility (WFF).

   (b) Nine Million Dollars ($9,000,000) for covered claims resulting from pre-flight operations performed at WFF.

5. Government Property Insurance: Orbital shall maintain a policy or policies of insurance (or otherwise demonstrate financial responsibility) in accordance with 14 C.F.R § 440.9(d) in the amount of:

   (a) Forty-Four Million Dollars ($44,000,000) for covered claims resulting from flight of the Antares Configuration 230 launch vehicle from WFF.

   (b) Five Million Dollars ($5,000,000) for covered claims resulting from pre-flight operations performed at WFF.

6. 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 WFF.

OFFICE OF COMMERCIAL SPACE TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

By: Kenneth Wong
Kenneth Wong, Manager
Licensing and Evaluation Division

Originally Issued:	June 12, 2014
Rev 1 Issued:	April 11, 2016
Rev 1 Effective:	April 11, 2016

Revision History:

Original License Order D - Issued June 12, 2014

Revision 1 - Issued April 11, 2016

1) Paragraph (2) replaced "issued concurrently" with "originally issued on June 12, 2014"
2) Paragraph 4(a) changed Liability Insurance value for flight from $56,000,000 to $90,000,000.
3) Paragraph 5(b) changed Government Property Insurance value for pre-flight from $1,000,000 to $5,000,000.