

ANNEX NO. 7
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LANGLEY RESEARCH CENTER
AND
OLD DOMINION UNIVERSITY
UNDER
NONREIMBURSABLE SPACE ACT UMBRELLA AGREEMENT SAA1-34376
FOR
ENVIRONMENTAL TESTING OF STUDENT DEVELOPED UNIVERSITY CUBESAT
PAYLOADS FOR FUTURE ORBITAL LAUNCH

ARTICLE 1. PURPOSE

This Annex shall be for the purpose of conducting environmental testing at NASA Langley Research Center for the two (2) student-developed payloads. NASA Langley will conduct testing in the Systems Integration and Test Branch Thermal Vacuum and Vibration Labs. This testing will not only give students the opportunity to define test parameters and witness thermal vacuum and vibration testing but will give NASA LaRC the opportunity to demonstrate boom technology in a 3U SmallSat. This opportunity will provide the ability to qualify two spacecraft in two different environmental test labs – vibration and thermal. Both SmallSats utilize deployable booms designed around technology developed at NASA Langley. Although the Advanced Composite Solar Sail System (ACS3) will be bringing boom technology to Technology Readiness Level 9, this will be the first demonstration of the boom technology in a 3U SmallSat.

This Annex aligns with NASA's Strategic Objective 3.1: Innovate and advance transformational space technologies, Strategic Objective 4.1: Attract and develop a talented and diverse workforce, and Strategic Objective 4.3: Build the next generation of explorers.

The legal authority for this Annex, consistent with the Umbrella Agreement, is in accordance with the Space Act, Other Transactions Authority (OTA), 51 U.S.C. § 20113(e).

ARTICLE 2. RESPONSIBILITIES

A. NASA LaRC will use reasonable efforts to:

1. Participate in kickoff meeting with Partner to define test plan and schedule.
2. Conduct environmental testing in the Thermal-Vac and Vibration laboratories located in Building 1250 of two (2) CubeSats within the defined parameters provided by Partner on a non-interference basis.
3. Provide access to Partner personnel (up to a maximum of 10) to observe the testing.
4. Provide test data to Partner.
5. Prepare conference paper documenting test approach and response data collected to be presented at the FY25 SmallSat LEARN Forum.

B. Partner will use reasonable efforts to:

1. Participate in kickoff meeting with NASA LaRC to define test plan and schedule.
2. Provide test parameters, such as temperature, durations, and vibe levels that fall within the current capabilities of the NASA Langley Facilities and as agreed upon by the NASA Langley Technical Point of Contact, at least 30 days prior to testing.
3. Provide the CubeSat hardware for testing at least 15 days prior to the start of testing.
4. Provide the names of personnel observing testing at least 30 days prior to start of testing.
5. Retrieve test hardware no later than 15 days after completion of testing.

ARTICLE 3. SCHEDULE AND MILESTONES

The planned major milestones for the activities for this Annex defined in the "Responsibilities" Article are as follows:

1. Authority to Proceed (ATP).	Upon Effective Date of Annex
2. NASA LaRC and Partner to participate in kickoff meeting to define test plan and schedule.	Within 2 weeks of ATP
3. Partner to define and provide test parameters.	30 days prior to start of testing defined in Milestone 2
4. Partner to deliver CubeSat hardware.	15 days prior to start of testing defined in Milestone 2
5. Partner to provide names/credentials of test observers.	30 days prior to start of testing defined in Milestone 2
6. NASA LaRC to complete environmental testing.	No later than June 20, 2025
7. Partner to retrieve test hardware.	Within 15 days of Milestone 6
8. NASA LaRC to deliver test data.	Within 30 days of Milestone 6
9. NASA LaRC to prepare conference paper to be presented at the FY25 SmallSat LEARN Forum.	No later than September 30, 2025

ARTICLE 4. FINANCIAL OBLIGATIONS

There will be no transfer of funds between the Parties under this Agreement and each Party will fund its own participation. All activities under or pursuant to this Agreement are subject to the availability of funds, and no provision of this Agreement shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, (31 U.S.C. § 1341).

ARTICLE 5. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

A. Data produced under this Annex which is subject to paragraph C. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement will be protected for the period of one (1) year.

B. Under paragraph H. of the Intellectual Property Rights - Data Rights Article of the Umbrella Agreement, Disclosing Party provides the following Data to Receiving Party. The lists below may not be comprehensive, are subject to change, and do not supersede any restrictive notice on the Data provided.

1. Background Data: *The Disclosing Party's Background Data, if any, will be identified in a separate technical document.*
2. Third Party Proprietary Data: *The Disclosing Party's Third Party Proprietary Data, if any, will be identified in a separate technical document.*
3. Controlled Government Data: *The Disclosing Party's Controlled Government Data, if any, will be identified in a separate technical document.*
4. The following software and related Data will be provided to Partner under a separate Software Usage Agreement: *None.*

ARTICLE 6. TERM OF ANNEX

This Annex becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or September 30, 2025, whichever comes first, unless such term exceeds the duration of the Umbrella Agreement. The term of this Annex shall not exceed the term of the Umbrella Agreement. The Annex automatically expires upon the expiration of the Umbrella Agreement.

ARTICLE 7. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Annex by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 8. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Annex.

Technical Points of Contact:

NASA Langley Research Center
Scott Hill
Deputy Director of Projects
Engineering Directorate
Langley Research Center
Hampton, VA 23681
Phone: 757-532-0142
scott.a.hill@nasa.gov

Old Dominion University
David Bowles,
Senior Research Fellow
VISA/OERI
1030 University Blvd
Suffolk, VA 23435
Phone: 757-287-8517
dbowles@odu.edu

ARTICLE 9. MODIFICATIONS

Any modification to this Annex shall be executed, in writing, and signed by an authorized representative of NASA and the Partner. Modification of an Annex does not modify the terms of the Umbrella Agreement.

ARTICLE 10. SIGNATORY AUTHORITY

The signatories to this Annex covenant and warrant that they have authority to execute this Annex. By signing below, the undersigned agrees to the above terms and conditions.

NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION
LANGLEY RESEARCH CENTER

OLD DOMINION UNIVERSITY

BY: _____
Gregory Stover
Director, Space Technology and
Exploration Directorate

Kenneth
BY: Fridley  Digitally signed by Kenneth
Fridley
Date: 2024.10.22 14:46:16
-04'00'
Dr. Kenneth Fridley
Vice President for Research and
Economic Development
Old Dominion University

DATE: _____

DATE: 10/22/2024