ANNEX 1
UNDER
INTERAGENCY UMBRELLA AGREEMENT NO. 36363
BETWEEN
THE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LANGLEY RESEARCH CENTER
AND
AIR FORCE RESEARCH LABORATORY
FOR
MEASUREMENTS OF SUPERSONIC FLOW ON AN ELLIPTIC CONE

ARTICLE 1. PURPOSE

The purpose of this Agreement is for AFRL to "piggyback" onto preplanned testing funded by the Hypersonics Technology Project (HTP) in order to install probes onto the models during Hypersonic Testing in the Supersonic Low-Disturbance Tunnel (SLDT) and in order to make measurements of surface flow properties using pre-installed sensors and IR thermography. This activity will give NASA LaRC additional data to analyze and compare the effects of high-speed boundary layer transition on recent flight vehicle geometries.

The legal authority for this Annex, consistent with the Umbrella Agreement, is in accordance with the National Aeronautics and Space Act (51 U.S.C. § 20113(e)).

ARTICLE 2. RESPONSIBILITIES

A. NASA LaRC will use reasonable efforts to:

1. Install the AFRL model in the SLDT facility and make small modifications to connect instrumentation to the data acquisition system.
2. Make measurements of surface flow properties using pre-installed sensors and IR thermography in the SLDT.
3. Perform data analysis.
4. Provide test results to partner.
5. Collaborate with AFRL on any development of technical reports.

B. AFRL will use reasonable efforts to:

1. Send instrumented model and related accessories for testing in the SLDT facility.
2. Provide feedback or guidance on any testing and data analysis.
3. Collaborate in the development of any technical reports.

ARTICLE 3. SCHEDULE AND MILESTONES

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

1. AFRL shall ship the model and all related accessories for testing in the SLDT	By no later than one month upon execution of agreement
2. NASA LaRC will make necessary modifications to the model for installation in the SLDT	By no later than 30 days upon receipt and inspection of the model.
3. NASA LaRC will make measurements of boundary layer transition and surface flow characteristics with the AFRL model.	By no later than 30 days upon completion of Milestone 2.
4. NASA LaRC will perform data analysis	By no later than December 1, 2022
5. NASA LaRC will provide test results to the partner	By no later than February 1, 2023
6. NASA LARC and AFRL will collaborate on the development of any technical reports	By no later than September 15, 2023.

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 - IDENTIFIED INTELLECTUAL PROPERTY

A. Under paragraph C of the Intellectual Property Rights - Data Rights - Handling of Data 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.

1. Third Party Proprietary Data:
The Disclosing Party's Third Party Proprietary Data, if any, will be identified in a separate technical document.

2. Controlled Government Data:
The Disclosing Party's Controlled Government Data, if any, will be identified in a separate technical document.

3. 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 one year and two months from the Effective Date, whichever comes first, unless such term exceeds the duration of the Umbrella IAA. The term of this Annex shall not exceed the term of the Umbrella IAA. The Annex shall automatically expire upon the expiration of the Umbrella IAA.

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.

Management Points of Contact

NASA Langley Research Center
Luther Jenkins
AST, FLUID MECHANICS
Mail Stop: 170
Langley Research Center
Hampton, VA 23681
Phone: 757-864-8026
Luther.n.jenkins@nasa.gov

Air Force Research Laboratory
Joshua A. Laravie
Technology Transfer Lead, Domestic Alliance Program Manager
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Phone: 937-938-4830
joshua.a.laravie@us.af.mil

Technical Points of Contact

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RESEARCH AST, FLUID MECHANICS
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Phone: 937-713-6697
matthew.borg.3@us.af.mil

ARTICLE 9. MODIFICATIONS

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

ARTICLE 10. SIGNATORY AUTHORITY

Approved and authorized on behalf of each Party by:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LANGLEY RESEARCH CENTER

BY: MARY DIJOSEPH Digitally signed by MARY DIJOSEPH Date: 2022.08.23 15:04:15 -04'00'

Mary DiJoseph, Director
Aeronautics Research Directorate

DATE: 23 Aug 2022

AIR FORCE RESEARCH LABORATORY

BY: GREGG.MICHAEL.ROY.1057691162 Digitally signed by GREGG.MICHAEL.ROY.1057691162 Date: 2022.08.18 12:47:58 -04'00'

Michael R. Gregg, PhD, SES
Director, Aerospace Systems Directorate

DATE: 18 Aug 2022