

**ANNEX  
BETWEEN  
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
AMES RESEARCH CENTER  
AND  
IN ORBIT AEROSPACE  
UNDER SPACE ACT UMBRELLA AGREEMENT NO. 36780  
(ANNEX NUMBER ONE)**

**ARTICLE 1. PURPOSE**

This Annex shall be for the purpose of utilizing NASA's expertise and facilities in supporting thermal protection material selection, design and analysis, manufacturing and advising on machining and integration.

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 ARC will use reasonable efforts to:

1. Provide consultation of Thermal Protection System (TPS) selection including forebody, aftbody, antenna windows, and any coatings.
2. Explore designs of selected TPS material for the forebody aeroshell with conservative sizing to accommodate a range of entry environments.
3. Provide aerothermodynamics analyses of three axisymmetric cases at three points during re-entry.
4. Provide aerothermodynamics analyses of three fully 3-dimensional computational fluid dynamic (CFD) analyses at 3 points during re-entry to validate trajectory.
5. Provide TPS Sizing verification for the estimated partner provided trajectory.
6. Provide designs for Ground Support Equipment (GSE) to support capsule assembly and integration, capsule subsystem testing, and spacecraft assembly and integration and testing.
7. Advise on Mission and spacecraft conceptual design.

B. Partner will use reasonable efforts to:

1. Provide all relevant vehicle and trajectory related information (trajectory, mass, design), so that NASA can verify TPS sizing.
2. Provide NASA TPS preliminary design information: number of units, size(s), weight(s), material properties, layout requirements, and other requirements.
3. Provide relevant mission related requirements (anything that would impact TPS sizing/selection).

**ARTICLE 3. SCHEDULE AND MILESTONES**

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

<b>Milestone</b>	<b>Estimated Completion Date</b>
Complete Review and Assessment of In Orbit Aerospace Aeroshell Design	02 Sept 2022
Selection of TPS for Forebody and Backshell	30 Sept 2022

#### ARTICLE 4. FINANCIAL OBLIGATIONS

- A. Partner agrees to reimburse NASA an estimated cost of \$23,774 for NASA to carry out its responsibilities under this Annex. Each payment shall be marked with Ames Research Center, Annex One, SAA2-403697-1.
- B. NASA will not provide services or incur costs beyond the current funding. Although NASA has made a good faith effort to accurately estimate its costs, it is understood that NASA provides no assurance that the proposed effort under this Annex will be accomplished for the estimated amount. Should the effort cost more than the estimate, Partner will be advised by NASA as soon as possible. Partner shall pay all costs incurred and have the option of canceling the remaining effort, or providing additional funding in order to continue the proposed effort under the revised estimate. Should this Annex be terminated, or the effort completed at a cost less than the agreed-to estimated cost, NASA shall account for any unspent funds within one year after completion of all effort under this Annex, and promptly thereafter, at Partner's option return any unspent funds to Partner or apply any such unspent funds to other activities under the Umbrella Agreement. Return of unspent funds will be processed via Electronic Funds Transfer (EFT) in accordance with 31 C.F.R. Part 208 and, upon request by NASA, Partner agrees to complete the Automated Clearing House (ACH) Vendor/Miscellaneous Payment Enrollment Form (SF 3881).

#### 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 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 one year from the Effective Date, 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.

Management Points of Contact

NASA Ames Research Center  
Nahri Ahn  
Agreement Manager  
Moffett Field, CA 94035  
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In Orbit Aerospace  
Antonio Coelho  
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Technical Points of Contact

NASA Ames Research Center  
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Lead PICA-D/Conformal PICA Project  
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ryan@inorbitaerospace.com

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.

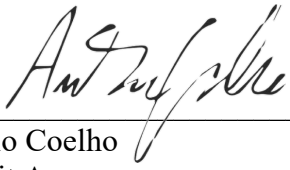
ARTICLE 10. SIGNATORY AUTHORITY

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  
AMES RESEARCH CENTER**

**IN ORBIT AEROSPACE**

BY: \_\_\_\_\_  
Dr. Rupak Biswas  
Director of Exploration Technology

BY:  \_\_\_\_\_  
Antonio Coelho  
In Orbit Aerospace

DATE: \_\_\_\_\_

DATE: 17 June 2022