

ANNEX
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
AND BLUE ORIGIN, LLC
UNDER SPACE ACT UMBRELLA AGREEMENT
NO. 40244
(ANNEX NUMBER 1)

ARTICLE 1. PURPOSE

This Annex shall be for the purpose of providing NASA Space Communication and Navigation (SCaN) services to Blue Origin's New Glenn Spacecraft for the EscaPADE mission.

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 GSFC will use reasonable efforts to:

1. Prepare a Mission Interface Definition Document (MIDD), which includes:
 - a. Service Level Agreement (SLA)
 - b. Network Requirements
 - c. Space Link Interface Descriptions
 - d. Terrestrial/Ground Interface Description
2. Receive and review Blue Origin mission specific requirements annex that includes mission specifications, Launch Vehicle configurations, and the anticipated support requirements of the mission.
3. Perform required Network Feasibility Analysis and Dynamic Link Analysis.
4. Attend meetings and reviews to plan for support requested.
5. Participate in Technical Interchange Meetings.
6. Coordination of Interconnection Security Agreement.
7. Prepare a Network Test Plan.
8. Perform validation testing including operational readiness testing and data flow tests utilizing Space Relay (SR) resources.
 - a. New Glenn is a recurring Launch Vehicle, and as such, the Compatibility test is waived

by NASA assuming there are no changes to the radio frequency communications systems or configurations from the previous successful launch support.

9. Provide New Glenn/EscaPADE with SR communications services in accordance with the SLA in the MIDD.

10. Receive ephemeris information from New Glenn/EscaPADE and generate acquisition data via the Flight Dynamics Facility (FDF) for the SR services.

11. Prepare and distribute Post Mission Report package to New Glenn/EscaPADE project.

12. Submit to Blue Origin a mission close out letter.

13. If additional funding is required, NASA will send an invoice to include all subsequent flights.

14. Submit to Blue Origin a “reconciliation cost report” upon mission completion or upon expiration of the agreement in order to obtain additional funding required to support operations that were not forecasted in the estimate such as launch slips or contingency operations.

B. Partner will use reasonable efforts to:

1. Provide a long-range launch manifest that projects future mission planning that will require NASA services.

2. Provide a mission specific requirements annex that includes mission specifications, Launch Vehicle configurations, and the anticipated support requirements of the mission.

3. Ensure accuracy of detailed mission and telecommunications design information, spectrum plans, etc.

4. Provide any other pertinent New Glenn/EscaPADE documentation, technical design information which is required for development of the MIDD.

5. Participate in Network Operations Readiness Review

6. Assure the compatibility of the New Glenn/EscaPADE spacecraft radio frequency interface with the NSN SR systems based on previous New Glenn interfaces/services.

7. Secure the terrestrial data interface required for the data transfer with New Glenn/EscaPADE mission operations center facility.

8. Provide ephemeris information to the FDF for acquisition data generation for the SR systems.

9. Reimburse NASA for all services NASA provides pursuant to this agreement.

10. Ensure Spectrum authorizations/licenses for NSN operations.

ARTICLE 3. SCHEDULE AND MILESTONES

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

Approved MIDD-F (final) (L-4 months, if applicable)
Receipt of Blue Origin Requirements Annex (L-4 months)
Network Operations Readiness Review (L-1 month)
Validation/Launch Readiness Testing Start (L-1 month)
Launch Support (L-0 months)

ARTICLE 4. FINANCIAL OBLIGATIONS

A. Partner agrees to reimburse NASA an estimated cost of \$437,685 for NASA to carry out its responsibilities under this Annex. Each payment shall be marked with Goddard Space Flight Center and Annex number 40245. 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

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 2 years.

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 Goddard Space Flight Center
Kurt Lindstrom
8800 Greenbelt Road
Greenbelt, Maryland 20771

BLUE ORIGIN, LLC
Candy Guerrero
Sr. Manager, Subcontracts
2325 E. Camelback Road
Phoenix, AZ 85016

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
GODDARD SPACE FLIGHT CENTER

BLUE ORIGIN, LLC

BY: _____
Kevin M. Coggins.
Deputy Associate Administrator for
Space Communications and Navigation
(SCaN)
Human Exploration and Operations
Mission Directorate

BY: _____
Candy Guerrero
Sr. Manager, Subcontracts

DATE: _____

DATE: _____