

<b>SOLICITATION/CONTRACT/ORDER FOR COMMERCIAL ITEMS</b> <b>OFFEROR TO COMPLETE BLOCKS 12,17,23,24, &amp; 30</b>				1. REQUISITION NUMBER	PAGE OF PAGES 1 17	
2. CONTRACT NO. 80AFRC21D0003	3. AWARD/EFF. DATE See Block 31C.	4. ORDER NUMBER	5. SOLICITATION NUMBER 80AFRC18R0006	6. SOLICITATION ISSUE DATE		
7. FOR SOLICITATION INFORMATION CALL:	a. NAME Andrea Basham		b. TELEPHONE NUMBER (No collect calls) 661-276-6126	8. OFFER DUE DATE/ LOCAL TIME		
9. ISSUED BY  NASA Armstrong Flight Research Center P.O. Box 273, M/S 4811-140 Edwards CA 93523-0273	CODE	10. THIS ACQUISITION IS <input checked="" type="checkbox"/> UNRESTRICTED OR <input type="checkbox"/> SET ASIDE: _____ % FOR:  <input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> WOMAN-OWNED SMALL BUSINESS <input type="checkbox"/> HUBZONE SMALL BUSINESS <input type="checkbox"/> WOSB ELIGIBLE UNDER THE WOMEN-OWNED SMALL BUSINESS PROGRAM      NAICS: 481212 <input type="checkbox"/> SERVICE-DISABLED <input type="checkbox"/> EDWOSB      VETERAN-OWNED      SIZE STANDARD: 1,500 <input type="checkbox"/> SMALL BUSINESS <input type="checkbox"/> 8(A)				
11. DELIVERY FOR FOB DESTINATION UNLESS BLOCK IS MARKED <input checked="" type="checkbox"/> SEE SCHEDULE	12. DISCOUNT TERMS Net 30 days		13a. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) <input type="checkbox"/>	13b. RATING		
15. DELIVER TO	CODE	16. ADMINISTERED BY  NASA Armstrong Flight Research Center P.O. Box 273, M/S 4811-140 Edwards CA 93523-0273		14. METHOD OF SOLICITATION <input type="checkbox"/> RFQ <input type="checkbox"/> IFB <input checked="" type="checkbox"/> RFP		
17a. CONTRACTOR/ OFFEROR  VIRGIN GALACTIC LLC 166 N ROADRUNNER PKWY STE 1C LAS CRUCES NM 88011-3003  TELEPHONE NO.	CODE 6FBD2	FACILITY CODE	18a. PAYMENT WILL BE MADE BY  https://www.nssc.nasa.gov/vendorpayment  NSSC-AccountsPayable@nasa.gov			
<input type="checkbox"/> 17b. CHECK IF REMITTANCE IS DIFFERENT AND PUT SUCH ADDRESS IN OFFER.			18b. SUBMIT INVOICES TO ADDRESS SHOWN IN BLOCK 18a UNLESS BLOCK BELOW IS CHECKED. <input type="checkbox"/> SEE ADDENDUM			
19. ITEM NO.	20. SCHEDULE OF SUPPLIES/SERVICES		21. QUANTITY	22. UNIT	23. UNIT PRICE	24. AMOUNT
	Flight and Payload Integration Services					
25. ACCOUNTING AND APPROPRIATION DATA See Continuation Sheet If Applicable				26. TOTAL AWARD AMOUNT (For Govt Use Only) \$45,000,000.00		
<input type="checkbox"/> 27a. SOLICITATION INCORPORATES BY REFERENCE FAR 52.212-1, 52.212-4. FAR 52.212-3 AND 52.212-5 ARE ATTACHED. ADDENDA <input type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.			<input checked="" type="checkbox"/> 27b. CONTRACT/PURCHASE ORDER INCORPORATES BY REFERENCE FAR 52.212-4. FAR 52.212-5 IS ATTACHED. ADDENDA <input checked="" type="checkbox"/> ARE <input type="checkbox"/> ARE NOT ATTACHED.			
<input type="checkbox"/> 28. CONTRACTOR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN _____ COPIES TO ISSUING OFFICE. CONTRACTOR AGREES TO FURNISH AND DELIVER ALL ITEMS SET FORTH OR OTHERWISE IDENTIFIED ABOVE AND ON ANY ADDITIONAL SHEETS SUBJECT TO THE TERMS AND CONDITIONS SPECIFIED HEREIN.			<input checked="" type="checkbox"/> 29. AWARD OF CONTRACT: REF. _____ OFFER DATED _____ YOUR OFFER ON SOLICITATION (BLOCK 5), INCLUDING ANY ADDITIONS OR CHANGES WHICH ARE SET FORTH HEREIN, IS ACCEPTED AS TO ITEMS: _____			
30a. SIGNATURE OF OFFEROR/CONTRACTOR			31a. UNITED STATES OF AMERICA (SIGNATURE OF CONTRACTING OFFICER) 			
30b. NAME AND TITLE OF SIGNER (TYPE OR PRINT)		30c. DATE SIGNED	31b. NAME OF CONTRACTING OFFICER (TYPE OR PRINT) James Williams		31c. DATE SIGNED 01 Dec 2020	

**CONTINUATION SHEET**REFERENCE NO. OF DOCUMENT BEING CONTINUED  
80AFRC21D0003

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NAME OF OFFEROR OR CONTRACTOR **VIRGIN GALACTIC LLC**

ITEM NO. (A)	SUPPLIES/SERVICES (B)	QUANTITY (C)	UNIT (D)	UNIT PRICE (E)	AMOUNT (F)
0001	<p>Flight and Payload Integration Services</p> <p>The contractor shall support the Flight and Payload Integration services in accordance with Attachment 1, Performance Work Statement (PWS) for Flight and Payload Integration Services. The standard and non-standard services rates are based on the information provided in Attachment 2, Price List for standard and non-standard services.</p> <p>Period of Performance: 01 Dec 2020 - 31 Jul 2023</p> <p>Minimum Guaranteed: \$50,000.00</p>				\$45,000,000.00

## SECTION C: CONTRACT CLAUSES

### **C.1 52.212-4 CONTRACT TERMS AND CONDITIONS—COMMERCIAL ITEMS (OCT 2018)**

### **C.2 ADDENDUM to 52.212-4, CONTRACT TERMS AND CONDITIONS - COMMERCIAL ITEMS**

52.204-4 PRINTED OR COPIED DOUBLE-SIDED ON POSTCONSUMER FIBER CONTENT PAPER. (MAY 2011)

52.204-13 SYSTEM FOR AWARD MANAGEMENT MAINTENANCE (OCT 2018)

52.204-18 COMMERCIAL AND GOVERNMENT ENTITY CODE MAINTENANCE (AUG 2020)

52.204-19 INCORPORATION BY REFERENCE OF REPRESENTATION AND CERTIFICATIONS (DEC 2014)

52.232-40 PROVIDING ACCELERATED PAYMENTS TO SMALL BUSINESS CONTRACTORS (DEVIATION 20-03) (31 U.S.C. 3903 and 10 U.S.C. 2307).

1852.204-76 SECURITY REQUIREMENTS FOR UNCLASSIFIED INFORMATION TECHNOLOGY RESOURCES (JAN 2011)

1852.215-84 OMBUDSMAN (NOV 2011)

1852.223-75 MAJOR BREACH OF SAFETY OR SECURITY (FEB 2002)

1852.237-72 ACCESS TO SENSITIVE INFORMATION (JUN 2005)

1852.237-73 RELEASE OF SENSITIVE INFORMATION (JUN 2005)

### **C.3 52.212-5 CONTRACT TERMS AND CONDITIONS REQUIRED TO IMPLEMENT STATUTES OR EXECUTIVE ORDERS—COMMERCIAL ITEMS (OCT 2020)**

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) clauses, which are incorporated in this contract by reference, to implement provisions of law or Executive orders applicable to acquisitions of commercial items:

- (1) [52.203-19](#), Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements (Jan 2017) (section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions)).

- (2) [52.204-23](#), Prohibition on Contracting for Hardware, Software, and Services Developed or Provided by Kaspersky Lab and Other Covered Entities (Jul 2018) (Section 1634 of Pub. L. 115-91).
- (3) [52.204-25](#), Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment. (Aug 2020) (Section 889(a)(1)(A) of Pub. L. 115-232).
- (4) [52.209-10](#), Prohibition on Contracting with Inverted Domestic Corporations (Nov 2015).
- (5) [52.233-3](#), Protest After Award (Aug 1996) ([31 U.S.C. 3553](#)).
- (6) [52.233-4](#), Applicable Law for Breach of Contract Claim (Oct 2004) (Public Laws 108-77 and 108-78 ( [19 U.S.C. 3805 note](#))).
- (b) The Contractor shall comply with the FAR clauses in this paragraph (b) that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items:
- (1) [52.203-6](#), Restrictions on Subcontractor Sales to the Government (June 2020), with Alternate I (Oct 1995) ([41 U.S.C. 4704](#) and [10 U.S.C. 2402](#)).
  - (2) [52.203-13](#), Contractor Code of Business Ethics and Conduct (Jun 2020) ([41 U.S.C. 3509](#))).
  - (3) [52.203-15](#), Whistleblower Protections under the American Recovery and Reinvestment Act of 2009 (Jun 2010) (Section 1553 of Pub. L. 111-5). (Applies to contracts funded by the American Recovery and Reinvestment Act of 2009.)
  - (4) [52.204-10](#), Reporting Executive Compensation and First-Tier Subcontract Awards (Jun 2020) (Pub. L. 109-282) ( [31 U.S.C. 6101 note](#)).
  - (5) [Reserved].
  - (6) [52.204-14](#), Service Contract Reporting Requirements (Oct 2016) (Pub. L. 111-117, section 743 of Div. C).
  - (7) [52.204-15](#), Service Contract Reporting Requirements for Indefinite-Delivery Contracts (Oct 2016) (Pub. L. 111-117, section 743 of Div. C).
  - (8) [52.209-6](#), Protecting the Government’s Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment. (Jun 2020) ([31 U.S.C. 6101 note](#)).
  - (9) [52.209-9](#), Updates of Publicly Available Information Regarding Responsibility Matters (Oct 2018) ([41 U.S.C. 2313](#)).
  - (10) [Reserved].
  - (11) (i) [52.219-3](#), Notice of HUBZone Set-Aside or Sole-Source Award (Mar 2020) ([15 U.S.C. 657a](#)).
  - (ii) Alternate I (Mar 2020) of [52.219-3](#).
  - (12) (i) [52.219-4](#), Notice of Price Evaluation Preference for HUBZone Small Business Concerns (Mar 2020) (if the offeror elects to waive the preference, it shall so indicate in its offer) ([15 U.S.C. 657a](#)).
  - (ii) Alternate I (Mar 2020) of [52.219-4](#).
  - (13) [Reserved]
  - (14) (i) [52.219-6](#), Notice of Total Small Business Set-Aside (Mar 2020) ([15 U.S.C. 644](#)).
  - (ii) Alternate I (Mar 2020) of [52.219-6](#).

- (15) (i) [52.219-7](#), Notice of Partial Small Business Set-Aside (Mar 2020) ([15 U.S.C. 644](#)).
- (ii) Alternate I (Mar 2020) of [52.219-7](#).
- X (16) [52.219-8](#), Utilization of Small Business Concerns (Oct 2018) ([15 U.S.C. 637\(d\)\(2\)](#) and (3)).
- X (17) (i) [52.219-9](#), Small Business Subcontracting Plan (Jun 2020) ([15 U.S.C. 637\(d\)\(4\)](#)).
- (ii) Alternate I (Nov 2016) of [52.219-9](#).
- (iii) Alternate II (Nov 2016) of [52.219-9](#).
- (iv) Alternate III (Jun 2020) of [52.219-9](#).
- (v) Alternate IV (Jun 2020) of [52.219-9](#)
- (18) (i) [52.219-13](#), Notice of Set-Aside of Orders (Mar 2020) ([15 U.S.C. 644\(r\)](#)).
- (ii) Alternate I (Mar 2020) of [52.219-13](#).
- X (19) [52.219-14](#), Limitations on Subcontracting (Mar 2020) ([15 U.S.C. 637\(a\)\(14\)](#)).
- (20) [52.219-16](#), Liquidated Damages-Subcontracting Plan (Jan 1999) ([15 U.S.C. 637\(d\)\(4\)\(F\)\(i\)](#)).
- (21) [52.219-27](#), Notice of Service-Disabled Veteran-Owned Small Business Set-Aside (Mar 2020) ([15 U.S.C. 657f](#)).
- X (22) (i) [52.219-28](#), Post Award Small Business Program Rerepresentation (May 2020) ([15 U.S.C. 632\(a\)\(2\)](#)).
- (ii) Alternate I (MAR 2020) of [52.219-28](#).
- (23) [52.219-29](#), Notice of Set-Aside for, or Sole Source Award to, Economically Disadvantaged Women-Owned Small Business Concerns (Mar 2020) ([15 U.S.C. 637\(m\)](#)).
- (24) [52.219-30](#), Notice of Set-Aside for, or Sole Source Award to, Women-Owned Small Business Concerns Eligible Under the Women-Owned Small Business Program (Mar2020) ([15 U.S.C. 637\(m\)](#)).
- (25) [52.219-32](#), Orders Issued Directly Under Small Business Reserves (Mar 2020) ([15 U.S.C. 644\(r\)](#)).
- (26) [52.219-33](#), Nonmanufacturer Rule (Mar 2020) ([15U.S.C. 637\(a\)\(17\)](#)).
- X (27) [52.222-3](#), Convict Labor (Jun 2003) (E.O.11755).
- (28) [52.222-19](#), Child Labor-Cooperation with Authorities and Remedies (Jan2020) (E.O.13126).
- X (29) [52.222-21](#), Prohibition of Segregated Facilities (Apr 2015).
- X (30)(i) [52.222-26](#), Equal Opportunity (Sep 2016) (E.O.11246).
- (ii) Alternate I (Feb 1999) of [52.222-26](#).
- X (31) (i) [52.222-35](#), Equal Opportunity for Veterans (Jun 2020) ([38 U.S.C. 4212](#)).
- (ii) Alternate I (Jul 2014) of [52.222-35](#).
- X (32) (i) [52.222-36](#), Equal Opportunity for Workers with Disabilities (Jun 2020) ([29 U.S.C. 793](#)).
- (ii) Alternate I (Jul 2014) of [52.222-36](#).
- X (33) [52.222-37](#), Employment Reports on Veterans (Jun 2020) ([38 U.S.C. 4212](#)).
- X (34) [52.222-40](#), Notification of Employee Rights Under the National Labor Relations Act (Dec 2010) (E.O. 13496).
- X (35) (i) [52.222-50](#), Combating Trafficking in Persons (Oct 2020) ([22 U.S.C. chapter 78](#) and E.O. 13627).

- \_\_\_ (ii) Alternate I (Mar 2015) of [52.222-50](#) ([22 U.S.C. chapter 78](#) and E.O. 13627).
- X (36) [52.222-54](#), Employment Eligibility Verification (Oct 2015). (Executive Order 12989). (Not applicable to the acquisition of commercially available off-the-shelf items or certain other types of commercial items as prescribed in [22.1803](#).)
- \_\_\_ (37) (i) [52.223-9](#), Estimate of Percentage of Recovered Material Content for EPA-Designated Items (May 2008) ( [42 U.S.C. 6962\(c\)\(3\)\(A\)\(ii\)](#)). (Not applicable to the acquisition of commercially available off-the-shelf items.)
- \_\_\_ (ii) Alternate I (May 2008) of [52.223-9](#) ([42 U.S.C. 6962\(i\)\(2\)\(C\)](#)). (Not applicable to the acquisition of commercially available off-the-shelf items.)
- \_\_\_ (38) [52.223-11](#), Ozone-Depleting Substances and High Global Warming Potential Hydrofluorocarbons (Jun 2016) (E.O. 13693).
- \_\_\_ (39) [52.223-12](#), Maintenance, Service, Repair, or Disposal of Refrigeration Equipment and Air Conditioners (Jun 2016) (E.O. 13693).
- \_\_\_ (40) (i) [52.223-13](#), Acquisition of EPEAT®-Registered Imaging Equipment (Jun 2014) (E.O.s 13423 and 13514).
- \_\_\_ (ii) Alternate I (Oct 2015) of [52.223-13](#).
- \_\_\_ (41) (i) [52.223-14](#), Acquisition of EPEAT®-Registered Televisions (Jun 2014) (E.O.s 13423 and 13514).
- \_\_\_ (ii) Alternate I (Jun2014) of [52.223-14](#).
- \_\_\_ (42) [52.223-15](#), Energy Efficiency in Energy-Consuming Products (May 2020) ([42 U.S.C. 8259b](#)).
- \_\_\_ (43) (i) [52.223-16](#), Acquisition of EPEAT®-Registered Personal Computer Products (Oct 2015) (E.O.s 13423 and 13514).
- \_\_\_ (ii) Alternate I (Jun 2014) of [52.223-16](#).
- X (44) [52.223-18](#), Encouraging Contractor Policies to Ban Text Messaging While Driving (Jun 2020) (E.O. 13513).
- \_\_\_ (45) [52.223-20](#), Aerosols (Jun 2016) (E.O. 13693).
- \_\_\_ (46) [52.223-21](#), Foams (Jun2016) (E.O. 13693).
- \_\_\_ (47) (i) [52.224-3](#) Privacy Training (Jan 2017) (5 U.S.C. 552 a).
- \_\_\_ (ii) Alternate I (Jan 2017) of [52.224-3](#).
- \_\_\_ (48) [52.225-1](#), Buy American-Supplies (May 2014) ([41 U.S.C. chapter 83](#)).
- \_\_\_ (49) (i) [52.225-3](#), Buy American-Free Trade Agreements-Israeli Trade Act (May 2014) ([41 U.S.C. chapter 83](#), [19 U.S.C. 3301](#) note, [19 U.S.C. 2112](#) note, [19 U.S.C. 3805](#) note, [19 U.S.C. 4001](#) note, Pub. L. 103-182, 108-77, 108-78, 108-286, 108-302, 109-53, 109-169, 109-283, 110-138, 112-41, 112-42, and 112-43).
- \_\_\_ (ii) Alternate I (May 2014) of [52.225-3](#).
- \_\_\_ (iii) Alternate II (May 2014) of [52.225-3](#).
- \_\_\_ (iv) Alternate III (May 2014) of [52.225-3](#).
- \_\_\_ (50) [52.225-5](#), Trade Agreements (Oct 2019) ([19 U.S.C. 2501](#), et seq., [19 U.S.C. 3301](#) note).
- X (51) [52.225-13](#), Restrictions on Certain Foreign Purchases (Jun 2008) (E.O.'s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).
- \_\_\_ (52) [52.225-26](#), Contractors Performing Private Security Functions Outside the United States (Oct 2016) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; [10 U.S.C. 2302Note](#)).

- (53) [52.226-4](#), Notice of Disaster or Emergency Area Set-Aside (Nov2007) ([42 U.S.C. 5150](#)).
- (54) [52.226-5](#), Restrictions on Subcontracting Outside Disaster or Emergency Area (Nov2007) ([42 U.S.C. 5150](#)).
- (55) [52.229-12](#), Tax on Certain Foreign Procurements (Jun 2020).
- (56) [52.232-29](#), Terms for Financing of Purchases of Commercial Items (Feb 2002) ([41 U.S.C. 4505](#), [10 U.S.C. 2307\(f\)](#)).
- (57) [52.232-30](#), Installment Payments for Commercial Items (Jan2017) ([41 U.S.C. 4505](#), [10 U.S.C. 2307\(f\)](#)).
- X (58) [52.232-33](#), Payment by Electronic Funds Transfer-System for Award Management (Oct2018) ([31 U.S.C. 3332](#)).
- (59) [52.232-34](#), Payment by Electronic Funds Transfer-Other than System for Award Management (Jul 2013) ([31 U.S.C. 3332](#)).
- (60) [52.232-36](#), Payment by Third Party (May 2014) ([31 U.S.C. 3332](#)).
- (61) [52.239-1](#), Privacy or Security Safeguards (Aug 1996) ([5 U.S.C. 552a](#)).
- (62) [52.242-5](#), Payments to Small Business Subcontractors (Jan 2017) ([15 U.S.C. 637\(d\)\(13\)](#)).
- (63) (i) [52.247-64](#), Preference for Privately Owned U.S.-Flag Commercial Vessels (Feb 2006) ([46 U.S.C. Appx. 1241\(b\)](#) and [10 U.S.C. 2631](#)).
  - (ii) Alternate I (Apr 2003) of [52.247-64](#).
  - (iii) Alternate II (Feb 2006) of [52.247-64](#).

(c) The Contractor shall comply with the FAR clauses in this paragraph (c), applicable to commercial services, that the Contracting Officer has indicated as being incorporated in this contract by reference to implement provisions of law or Executive orders applicable to acquisitions of commercial items:

- (1) [52.222-41](#), Service Contract Labor Standards (Aug 2018) ([41 U.S.C. chapter 67](#)).
- (2) [52.222-42](#), Statement of Equivalent Rates for Federal Hires (May 2014) ([29 U.S.C. 206](#) and [41 U.S.C. chapter 67](#)).
- (3) [52.222-43](#), Fair Labor Standards Act and Service Contract Labor Standards-Price Adjustment (Multiple Year and Option Contracts) (Aug 2018) ([29 U.S.C. 206](#) and [41 U.S.C. chapter 67](#)).
- (4) [52.222-44](#), Fair Labor Standards Act and Service Contract Labor Standards-Price Adjustment (May 2014) ([29 U.S.C. 206](#) and [41 U.S.C. chapter 67](#)).
- (5) [52.222-51](#), Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment-Requirements (May 2014) ([41 U.S.C. chapter 67](#)).
- (6) [52.222-53](#), Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Requirements (May 2014) ([41 U.S.C. chapter 67](#)).
- (7) [52.222-55](#), Minimum Wages Under Executive Order 13658 (Dec 2015).
- (8) [52.222-62](#), Paid Sick Leave Under Executive Order 13706 (Jan 2017) (E.O. 13706).

- (9) [52.226-6](#), Promoting Excess Food Donation to Nonprofit Organizations (Jun 2020) ([42 U.S.C. 1792](#)).

(d) Comptroller General Examination of Record. The Contractor shall comply with the provisions of this paragraph (d) if this contract was awarded using other than sealed bid, is in excess of the simplified acquisition threshold, as defined in FAR [2.101](#), on the date of award of this contract, and does not contain the clause at [52.215-2](#), Audit and Records-Negotiation.

- (1) The Comptroller General of the United States, or an authorized representative of the Comptroller General, shall have access to and right to examine any of the Contractor's directly pertinent records involving transactions related to this contract.
- (2) The Contractor shall make available at its offices at all reasonable times the records, materials, and other evidence for examination, audit, or reproduction, until 3 years after final payment under this contract or for any shorter period specified in FAR subpart [4.7](#), Contractor Records Retention, of the other clauses of this contract. If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement. Records relating to appeals under the disputes clause or to litigation or the settlement of claims arising under or relating to this contract shall be made available until such appeals, litigation, or claims are finally resolved.
- (3) As used in this clause, records include books, documents, accounting procedures and practices, and other data, regardless of type and regardless of form. This does not require the Contractor to create or maintain any record that the Contractor does not maintain in the ordinary course of business or pursuant to a provision of law.

(e) (1) Notwithstanding the requirements of the clauses in paragraphs (a), (b), (c), and (d) of this clause, the Contractor is not required to flow down any FAR clause, other than those in this paragraph (e)(1) in a subcontract for commercial items. Unless otherwise indicated below, the extent of the flow down shall be as required by the clause-

- (i) [52.203-13](#), Contractor Code of Business Ethics and Conduct (Jun 2020) ([41 U.S.C. 3509](#)).
- (ii) [52.203-19](#), Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements (Jan 2017) (section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions)).
- (iii) [52.204-23](#), Prohibition on Contracting for Hardware, Software, and Services Developed or Provided by Kaspersky Lab and Other Covered Entities (Jul 2018) (Section 1634 of Pub. L. 115-91).
- (iv) [52.204-25](#), Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment. (Aug 2020) (Section 889(a)(1)(A) of Pub. L. 115-232).
- (v) [52.219-8](#), Utilization of Small Business Concerns (Oct 2018) ([15 U.S.C. 637\(d\)\(2\)](#) and (3)), in all subcontracts that offer further subcontracting opportunities. If the subcontract (except subcontracts to small business concerns) exceeds the applicable threshold specified in



FAR [19.702](#)(a) on the date of subcontract award, the subcontractor must include [52.219-8](#) in lower tier subcontracts that offer subcontracting opportunities.

- (vi) [52.222-21](#), Prohibition of Segregated Facilities (Apr 2015).
- (vii) [52.222-26](#), Equal Opportunity (Sep 2015) (E.O.11246).
- (viii) [52.222-35](#), Equal Opportunity for Veterans (Jun 2020) ([38 U.S.C. 4212](#)).
- (ix) [52.222-36](#), Equal Opportunity for Workers with Disabilities (Jun 2020) ([29 U.S.C. 793](#)).
- (x) [52.222-37](#), Employment Reports on Veterans (Jun 2020) ([38 U.S.C. 4212](#)).
- (xi) [52.222-40](#), Notification of Employee Rights Under the National Labor Relations Act (Dec 2010) (E.O. 13496). Flow down required in accordance with paragraph (f) of FAR clause [52.222-40](#).
- (xii) [52.222-41](#), Service Contract Labor Standards (Aug2018) ([41 U.S.C. chapter 67](#)).
- (xiii) (A) [52.222-50](#), Combating Trafficking in Persons (Oct 2020) ([22 U.S.C. chapter 78](#) and E.O 13627).  
(B) Alternate I (Mar2015) of [52.222-50](#) ([22 U.S.C. chapter 78](#) and E.O. 13627).
- (xiv) [52.222-51](#), Exemption from Application of the Service Contract Labor Standards to Contracts for Maintenance, Calibration, or Repair of Certain Equipment-Requirements (May2014) ([41 U.S.C. chapter 67](#)).
- (xv) [52.222-53](#), Exemption from Application of the Service Contract Labor Standards to Contracts for Certain Services-Requirements (May2014) ([41 U.S.C. chapter 67](#)).
- (xvi) [52.222-54](#), Employment Eligibility Verification (Oct 2015) (E.O. 12989).
- (xvii) [52.222-55](#), Minimum Wages Under Executive Order 13658 (Dec 2015).
- (xviii) [52.222-62](#), Paid Sick Leave Under Executive Order 13706 (Jan 2017) (E.O. 13706).
- (xix) (A) [52.224-3](#), Privacy Training (Jan 2017) ([5 U.S.C. 552a](#)).  
(B) Alternate I (Jan 2017) of [52.224-3](#).
- (xx) [52.225-26](#), Contractors Performing Private Security Functions Outside the United States (Oct 2016) (Section 862, as amended, of the National Defense Authorization Act for Fiscal Year 2008; [10 U.S.C. 2302 Note](#)).
- (xxi) [52.226-6](#), Promoting Excess Food Donation to Nonprofit Organizations (Jun 2020) ([42 U.S.C. 1792](#)). Flow down required in accordance with paragraph (e) of FAR clause 52.226-6.
- (xxii) [52.247-64](#), Preference for Privately Owned U.S.-Flag Commercial Vessels (Feb 2006) ([46 U.S.C. Appx. 1241\(b\)](#) and [10 U.S.C. 2631](#)). Flow down required in accordance with paragraph (d) of FAR clause 52.247-64.

(2) While not required, the Contractor may include in its subcontracts for commercial items a minimal number of additional clauses necessary to satisfy its contractual obligations.

(End of clause)

#### **C.4 52.216-18 ORDERING (AUG 2020)**

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders or task orders by the individuals or activities designated in the Schedule. Such orders may be issued from *contract award* through *31 Jul 2023*.

(b) All delivery orders or task orders are subject to the terms and conditions of this contract. In the event of conflict between a delivery order or task order and this contract, the contract shall control.

(c) A delivery order or task order is considered "issued" when—

- (1) If sent by mail (includes transmittal by U.S. mail or private delivery service), the Government deposits the order in the mail;
- (2) If sent by fax, the Government transmits the order to the Contractor's fax number; or
- (3) If sent electronically, the Government either—
  - (i) Posts a copy of the delivery order or task order to a Government document access system, and notice is sent to the Contractor; or
  - (ii) Distributes the delivery order or task order via email to the Contractor's email address.

(d) Orders may be issued by methods other than those enumerated in this clause only if authorized in the contract.

(End of clause)

#### **C.5 52.216-19 ORDER LIMITATIONS (OCT 1995)**

(a) *Minimum order.* When the Government requires supplies or services covered by this contract in an amount of less than **\$50,000**, the Government is not obligated to purchase, nor is the Contractor obligated to furnish, those supplies or services under the contract.

(b) *Maximum order.* The Contractor is not obligated to honor --

- (1) Any order for a single item in excess of **\$10M**;
- (2) Any order for a combination of items in excess of **\$10M**; or
- (3) A series of orders from the same ordering office within [not applicable] days that together call for quantities exceeding the limitation in subparagraph (b)(1) or (2) of this section. **The total combined ordering limit under this multiple IDIQ is \$45M.**

(c) If this is a requirements contract (*i.e.*, includes the Requirements clause at subsection 52.216-21 of the Federal Acquisition Regulation (FAR)), the Government is not required to order a part of any one requirement from the Contractor if that requirement exceeds the maximum-order limitations in paragraph (b) of this section.

(d) Notwithstanding paragraphs (b) and (c) of this section, the Contractor shall honor any order exceeding the maximum order limitations in paragraph (b), unless that order (or orders) is returned to the ordering office within **7** days after issuance, with written notice stating the

Contractor's intent not to ship the item (or items) called for and the reasons. Upon receiving this notice, the Government may acquire the supplies or services from another source.

**C.6 52.216-22 INDEFINITE QUANTITY (OCT 1995)**

- (a) This is an indefinite-quantity contract for the supplies or services specified, and effective for the period stated, in the Schedule. The quantities of supplies and services specified in the Schedule are estimates only and are not purchased by this contract.
- (b) Delivery or performance shall be made only as authorized by orders issued in accordance with the Ordering clause. The Contractor shall furnish to the Government, when and if ordered, the supplies or services specified in the Schedule up to and including the quantity designated in the Schedule as the *maximum*. The Government shall order at least the quantity of supplies or services designated in the Schedule as the *minimum*.
- (c) Except for any limitations on quantities in the Order Limitations clause or in the Schedule, there is no limit on the number of orders that may be issued. The Government may issue orders requiring delivery to multiple destinations or performance at multiple locations.
- (d) Any order issued during the effective period of this contract and not completed within that period shall be completed by the Contractor within the time specified in the order. The contract shall govern the Contractor's and Government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; *provided*, that the Contractor shall not be required to make any deliveries under this contract after completion of date of all issued task orders.

(End of clause)

**C.7 52.217-8 OPTION TO EXTEND SERVICES (NOV 1999)**

The Government may require continued performance of any services within the limits and at the rates specified in the contract. These rates may be adjusted only as a result of revisions to prevailing labor rates provided by the Secretary of Labor. The option provision may be exercised more than once, but the total extension of performance hereunder shall not exceed 6 months. The Contracting Officer may exercise the option by written notice to the Contractor within 30 days.

(End of clause)

**C.8 52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)**

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these addresses:  
Code of Federal Regulations: [www.ecfr.gov](http://www.ecfr.gov)

Federal Acquisition Regulation (FAR) Clauses: [www.acquisition.gov/browsefar](http://www.acquisition.gov/browsefar)

NASA Far Supplement (NFS) Clauses: <https://www.hq.nasa.gov/office/procurement/regs/NFS.pdf>

(End of clause)

**C.9 1852.216-80 TASK ORDERING PROCEDURE (OCT 1996) ALTERNATE II (APR 2018)**

- (a) Only the Contracting Officer may issue task orders to the Contractor, providing specific authorization or direction to perform work within the scope of the contract and as specified in the schedule. The Contractor may incur costs under this contract in performance of task orders and task order modifications issued in accordance with this clause. No other costs are authorized unless otherwise specified in the contract or expressly authorized by the Contracting Officer.
- (b) Prior to issuing a task order, the Contracting Officer shall provide the Contractor with the following data:
  - (1) A functional description of the work identifying the objectives or results desired from the contemplated task order.
  - (2) Proposed performance standards to be used as criteria for determining whether the work requirements have been met.
  - (3) A request for proposal from the Contractor to include the technical approach, period of performance, appropriate cost information, and any other information required to determine the reasonableness of the Contractor's proposal.
- (c) Within 14 calendar days after receipt of the Contracting Officer's request, the Contractor shall submit a proposal conforming to the request.
- (d) After review and any necessary discussions, the Contracting Officer may issue a task order to the Contractor containing, as a minimum, the following:
  - (1) Date of the order.
  - (2) Contract number and order number.
  - (3) Functional description of the work identifying the objectives or results desired from the task order, including special instructions or other information necessary for performance of the task.
  - (4) Performance standards, and where appropriate, quality assurance standards.
  - (5) Maximum dollar amount authorized (cost and fee or price). This includes allocation of award fee among award fee periods, if applicable.
  - (6) Any other resources (travel, materials, equipment, facilities, etc.) authorized.

- (7) Delivery/performance schedule including start and end dates.
- (8) If contract funding is by individual task order, accounting and appropriation data.
- (e) The Contractor shall provide acknowledgement of receipt to the Contracting Officer within 3 calendar days after receipt of the task order.
- (f) If time constraints do not permit issuance of a fully defined task order in accordance with the procedures described in paragraphs (a) through (d), a task order which includes a ceiling price may be issued.
- (g) The Contracting officer may amend tasks in the same manner in which they are issued.
- (h) In the event of a conflict between the requirements of the task order and the Contractor's approved task plan, the task order shall prevail.
- (i) Contractor shall submit progress reports, as required. When required, the reports shall contain, at a minimum, the following information:
  - (1) Contract number, task order number, and date of the order.
  - (2) Price and billed amounts to date for each task order.
  - (3) Significant issues/problems associated with the task order.
  - (4) Status of all task orders issued under the contract.
  - (5) Invoice number.

(End of clause)

#### **C.10 AWARD OF SUBSEQUENT TASK ORDERS**

All subsequent task order will be competed amongst the awardees within the same flight profile. The evaluation criteria for all subsequent task orders will be based on Lowest Price Technically Acceptable (LPTA), Price Performance Trade-Off (PPTO), or any other options afforded by the best value continuum. Specific evaluation criteria will be determined at the task order level.

#### **C.11 1852.225-70 EXPORT LICENSES (FEB 2000)**

- (a) The Contractor shall comply with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR parts 120-130, and the Export Administration Regulations (EAR), 15 CFR parts 730-799, in the performance of this contract. In the absence of available license exemptions/exceptions, the Contractor shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of hardware, technical data, and software, or for the provision of technical assistance.

- (b) The Contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at [insert name of NASA installation], where the foreign person will have access to export-controlled technical data or software.
- (c) The Contractor shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.
- (d) The Contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.

(End of clause)

**C.12 1852.232-77 LIMITATION OF FUNDS (FIXED-PRICE CONTRACT) (MAR 1989)**

This clause will be completed at the Task Order Level

(a) Of the total price of items **TBD** through **TBD**, the sum of **\$TBD** is presently available for payment and allotted to this contract. It is anticipated that from time to time additional funds will be allocated to the contract in accordance with the following schedule, until the total price of said items is allotted:

<b>SCHEDULE FOR ALLOTMENT OF FUNDS</b>	
<b>Date</b>	<b>Amounts</b>
<b>TBD</b>	<b>TBD</b>

(b) The Contractor agrees to perform or have performed work on the items specified in paragraph (a) of this clause up to the point at which, if this contract is terminated pursuant to the Termination for Convenience of the Government clause of this contract, the total amount payable by the Government (including amounts payable for subcontracts and settlement costs) pursuant to paragraphs (f) and (g) of that clause would, in the exercise of reasonable judgment by the Contractor, approximate the total amount at the time allotted to the contract. The Contractor is not obligated to continue performance of the work beyond that point. The Government is not obligated in any event to pay or reimburse the Contractor more than the amount from time to time allotted to the contract, anything to the contrary in the Termination for Convenience of the Government clause notwithstanding.

(c)(1) It is contemplated that funds presently allotted to this contract will cover the work to be performed until \_\_\_\_.

(2) If funds allotted are considered by the Contractor to be inadequate to cover the work to be performed until that date, or an agreed date substituted for it, the Contractor shall notify the Contracting Officer in writing when within the next 60 days the work will reach a point at which, if the contract is terminated pursuant to the Termination for Convenience of the Government clause of this contract, the total amount payable by the Government (including amounts payable for subcontracts and settlement costs) pursuant to paragraphs (f) and (g) of that clause will approximate 75 percent of the total amount then allotted to the contract.

(3)(i) The notice shall state the estimate when the point referred to in paragraph (c)(2) of this clause will be reached and the estimated amount of additional funds required to

continue performance to the date specified in paragraph (c)(1) of this clause, or an agreed date substituted for it.

(ii) The Contractor shall, 60 days in advance of the date specified in paragraph (c)(1) of this clause, or an agreed date substituted for it, advise the Contracting Officer in writing as to the estimated amount of additional funds required for the timely performance of the contract for a further period as may be specified in the contract or otherwise agreed to by the parties.

(4) If, after the notification referred to in paragraph (c)(3)(ii) of this clause, additional funds are not allotted by the date specified in paragraph (c)(1) of this clause, or an agreed date substituted for it, the Contracting Officer shall, upon the Contractor's written request, terminate this contract on that date or on the date set forth in the request, whichever is later, pursuant to the Termination for Convenience of the Government clause.

(d) When additional funds are allotted from time to time for continued performance of the work under this contract, the parties shall agree on the applicable period of contract performance to be covered by these funds. The provisions of paragraphs (b) and (c) of this clause shall apply to these additional allotted funds and the substituted date pertaining to them, and the contract shall be modified accordingly.

(e) If, solely by reason of the Government's failure to allot additional funds in amounts sufficient for the timely performance of this contract, the Contractor incurs additional costs or is delayed in the performance of the work under this contract, and if additional funds are allotted, an equitable adjustment shall be made in the price or prices (including appropriate target, billing, and ceiling prices where applicable) of the items to be delivered, or in the time of delivery, or both.

(f) The Government may at any time before termination, and, with the consent of the Contractor, after notice of termination, allot additional funds for this contract.

(g) The provisions of this clause with respect to termination shall in no way be deemed to limit the rights of the Government under the default clause of this contract. The provisions of this Limitation of Funds clause are limited to the work on and allotment of funds for the items set forth in paragraph (a) of this clause. This clause shall become inoperative upon the allotment of funds for the total price of said work except for rights and obligations then existing under this clause.

(h) Nothing in this clause shall affect the right of the Government to terminate this contract pursuant to the Termination for Convenience of the Government clause of this contract.

(End of clause)

### **C.13 ON-RAMP OF NEW CONTRACTORS**

#### ***SPECIAL ON-RAMP CLAUSE EXPLANATION AND PURPOSE***

The purpose of the On-Ramp is to create an opportunity for qualified new emerging flight service providers and for incumbent flight service providers to introduce Qualified Vehicles not available at the time of the award of the initial contract.

The Government reserves the right to award additional contracts, i.e., to on-ramp new contractors during the base periods of performance of this solicitation. This provides the Government the necessary flexibility to assess the status of the awarded contractor pool and make adjustments as necessary to ensure that an optimal mix of premier contractors is maintained in order to facilitate adequate competition on orders.

- (a) The minimum IDIQ On-Ramp qualification criteria are identical to those described in the PWS. The Evaluation Criteria for On-Ramp is the same evaluation criteria described in the original solicitation.
- (b) The original solicitation, as revised, shall remain open during the life of the awarded contracts and that at any time the Government may award additional contracts under this solicitation. Each anniversary date during the life of this contract or at any other time established via synopsis, the Government may issue a request for and accept proposals from new flight service providers.
- (c) The evaluation of proposals for the on-ramp opportunities will be conducted using the same evaluation criteria used for the evaluation of the proposal received for the initial award of the contracts under this solicitation.

#### **C.14 EXPANSION OF PERFORMANCE CAPABILITIES**

The Government reserves the right to expand the performance capabilities of the PWS requirement established under this contract, by properly soliciting proposals from all qualified sources capable of meeting the requirements in the expanded performance capabilities.



**SECTION D: CONTRACT DOCUMENTS, EXHIBITS OR ATTACHMENTS****D.1 LIST OF ATTACHMENTS**

<b>No.</b>	<b>Title</b>	<b>Date</b>	<b>Number of Pages</b>
1	Performance Work Statement	10/23/2017	10
2	Price Schedule	10/01/2020	4

## **NASA-AFRC Flight Opportunities Program**

### **Performance Work Statement (PWS) for**

### **Flight and Payload Integration Services**

**10/23/2017 Version 1.0**

#### **1. BACKGROUND**

The Flight Opportunities Program (hereafter FO or “the Program”), part of NASA’s Space Technology Mission Directorate, has worked towards maturing flight readiness of new crosscutting technologies that advance or enable multiple future space missions. FO has provided opportunities to fly technology payloads on flight platforms that provide relevant environments required to test technologies (including, but not limited to, reduced gravity, exposure to the space environment, or free fall) in order to advance their technology readiness.

The Government intends to provide frequent flight opportunities for technology payloads on vehicles that are capable of flying to various altitudes and flight conditions. Technology payloads, which are solicited under separate announcements issued by the Program, are not part of this solicitation.

#### **2. OBJECTIVE**

The Government intends to acquire payload space on commercial flights (“by the slot”), including payload integration services, to fly technology payloads on flight platforms that provide high altitude, reduced gravity, or other relevant environments required to test the technology in order to advance its readiness. The flights and other services solicited are for NASA internal use or for other Government Agencies (OGAs) only.

#### **3. SCOPE**

The Government intends to establish a Provider Pool (“Pool”) by awarding contracts to multiple vendors who are capable of providing flight opportunities to a variety of Program-sponsored payloads on various platforms (including, but not limited to, balloons and suborbital launch vehicles, sLV). The Government prefers to contract for a single payload position (hereafter referred to as a “slot”) and require the vendor to fill the remaining manifest and set the schedule for flights. This does not preclude the possibility for the Government, at its discretion, to purchase an entire manifest, to require multiple payloads be flown together on a single platform, or for the Government to procure multiple payload slots on a single flight.

The contracts shall be for comprehensive services inclusive of flight and payload integration services. Each vendor may propose providing these comprehensive services through in-house or subcontracted means. Each successful vendor will receive an indefinite delivery/indefinite quantity (IDIQ) contract, with the opportunity to propose on Task Orders issued by the Government to fly payloads. A Task Order is defined as a request from the Government to the vendor (hereafter the “Contractor”) to fulfill the requirements of the Manifest Requirements

Document (MRD) for a given payload or payloads. The MRD is defined as the document that establishes the payload operational requirements, mission performance requirements, data delivery requirements, payload access requirements, and the mission exit criteria. The MRD is developed by the Government based on information furnished by the Payload Provider. The MRD will be issued to the Provider Pool as part of a Task Order solicitation. A Task Order solicitation may contain requirements for flying one or more payloads on one or more flights. It is anticipated that the Government will issue multiple Task Orders to the Contractors in the Provider Pool during the period of performance of the contract. Each Contractor awarded a Task Order shall supply comprehensive flight and payload integration services in accordance with the requirements identified in the Task Order. It is anticipated that Task Orders will be issued on a competitive basis in those cases where more than one vendor in the Pool is capable of providing the required services.

The Government intends to periodically provide opportunities for additional contractors and/or Qualified Vehicles to be added to the Provider Pool (“Ramp-On”). The requirements for Ramp-On shall be identical to those used for initially establishing the Provider Pool of Qualified Vehicles, as outlined below. The Government may also consider future expansion of the performance capabilities (“flight profiles”) covered by this contract, by soliciting proposals from all qualified sources capable of meeting the requirements in the expanded flight profiles.

#### **4. GENERAL REQUIREMENTS**

##### **4.1. Qualified Vehicles and Qualified Vehicle Families**

Contractors shall utilize only those flight vehicles or family of flight vehicles that were proposed in response to this solicitation and accepted by the Government as Qualified (Qualified Vehicles - “QVs” or Qualified Vehicle Families – “QVF”) to provide services under this contract. A QVF shall be a group of closely related flight vehicles (closely similar in characteristics with different performance or payload capacities) that fly similar flight profile(s). The Government shall be the sole authority for determining if a Vehicle or Vehicle Family is Qualified.

##### **4.2. Operating Requirements**

###### **4.2.1. Independent Operations**

The Contractor shall operate independently from the Government, except that payloads may be Government-owned or provided.

4.2.1.1. The Contractor may propose the use of unique Government-owned ground and range facilities on a fully-reimbursable basis, but in no way shall that release the Contractor from full responsibility for all aspects of flight and ground operations. All such arrangements shall be the sole responsibility of the Contractor.

4.2.1.2. All end items and services provided through this contract, including

(but not limited to) payload slot(s) on QVs, QV components, subsystems, ground support equipment and facilities, and contracted services shall not be Government provided, owned, or operated.

- 4.2.1.3. The Contractor shall be solely responsible for obtaining appropriate permits, licenses, waivers, and/or flight approvals.
- 4.2.1.4. The Contractor shall be solely responsible for Ground and Flight Safety, Mission Assurance, and Environmental compliance in accordance with local, state, and Federal regulations.
- 4.2.1.5. The Contractor shall provide all QV systems engineering, payload integration, and any other required services.
- 4.2.1.6. Once a task order has been accepted by the Contractor, the Contractor shall be responsible for timely communications of detailed information about the flight and other services to the Government and the Payload Provider, including, but not limited to, changes in vehicle readiness and other changes that affect the flight schedule.

#### 4.2.2. Government Observers

The Contractor shall provide access to Contractor facilities by Government observers, on a non-interference, ad hoc basis.

#### 4.2.3. Commercial Operations

The Contractor shall be capable of providing payload slots on QVs with commercial flight operations, offered to the general public for pay.

#### 4.2.4. Reusability of Qualified Vehicles

It is strongly desired that the Contractor utilize QVs with major components that are reusable to the greatest extent possible with reasonable refurbishment within a reasonable time frame. Rockets and spacecraft should be capable of reuse within 60 days between flights. Balloons and other types of flight vehicles should be fully recoverable and reusable, excepting items that are expended in the normal flight operations of the vehicle.

#### 4.2.5. Security and Recoverability of Payloads

The following requirements shall apply to all flight operations.

- 4.2.5.1. Payloads shall be considered expendable test articles with no NASA mission purpose other than the demonstration of various technologies in relevant environments.
- 4.2.5.2. Notwithstanding section 4.2.5.1, Contractor shall assume complete responsibility for physical security of payloads upon receiving

payloads from the payload provider, until payloads are released back into provider's custody.

- 4.2.5.3. Notwithstanding section 4.2.5.1, payloads have value to the payload providers. The Contractor shall make reasonable effort to return payloads to the payload provider within 10 working days from completion of final flight operation, and with no damage exceeding normal wear-and-tear and exhaustion of expendable items.

4.2.6. Accessibility of Payload and Payload Data

Unless modified within the governing Task Order, the following requirements shall apply to all flight operations.

- 4.2.6.1. Payload providers shall be permitted access to their payloads both before and after hazardous operations and before flights. Detailed requirements for access shall be specified as part of the MRD/MID process.
- 4.2.6.2. The Contractor shall allow the Payload Provider access to payloads between flights for servicing and data recovery in a multi-flight campaign.

## **5. FLIGHT PROFILE REQUIREMENTS**

Flight profile requirements will vary greatly for any given payload. The proposed profile performance of the flight vehicle will be evaluated during the Task Order evaluation process based on the requirements in the Manifest Requirements Document (MRD) for each specific payload. Typical flight profile requirements are listed below. The Government may include additional profiles within the general scope of this effort at a future date by use of the Technology Expansion Provision.

Contractors shall provide one or more of the listed profiles for each QV or QV family. In some cases a QV may be qualified for more than one profile.

All flight vehicles shall be capable of carrying a minimum total payload mass of 5 kg, and accommodating a minimum total payload volume equivalent to 5U CubeSat. The Government may require more or less mass and volume for a particular payload; actual payload requirements will vary and be dependent upon actual QV capabilities and payload mass and volume requirements as specified in each MRD.

Profiles are described from the perspective of the payload, not the flight vehicle. These profiles represent typical minimum requirements for payloads. Actual requirements issued in an MRD may vary from those specified here.

5.1. Profile 1 (P1): Reduced gravity with space environment

Payload is typically an experiment requiring two (2) or more minutes of continuous

microgravity and/or exposure to the space environment. Requirement is to ascend to a minimum of 80km above mean sea level (MSL), desired  $\geq 100\text{km MSL}$ , and expose the payload to a total gravitational vector of less than  $\pm 0.005\text{g}$  (RMS) under stable gravitational conditions in all axes for at least two (2) minutes. Some payloads may also require the simultaneous exposure of the payload to near-vacuum and low temperature. This is typically accomplished by use of a sounding rocket or spacecraft. Vehicles that can achieve the required altitude and reduced gravity but cannot expose the payload to the outside environment may also be qualified for this profile.

5.2. Profile 2 (P2): Exposure to high altitude

Payload is typically a remote sensing package or other system being qualified for use on satellites or other spacecraft. Requirement is to expose payload to the near-space environment at a minimum of 30km MSL with a flight time of 1 hour or greater, followed by a descent to 0 AGL. This is typically accomplished by use of an untethered balloon with parachute descent. The descent portion of this profile may also be utilized to test experimental parachutes or similar atmospheric descent systems.

5.3. Profile 3 (P3): Space environment with free-fall descent

Payload typically involves testing of systems and components such as thermal protection or decelerators for objects reentering a planetary atmosphere. Requirement is to attain a minimum of 80km MSL, typically  $\geq 100\text{km MSL}$ , followed by a rapid free-fall descent of the payload to 0 km AGL. This is typically accomplished by use of a sounding rocket or spacecraft with the payload ejected at apogee.

5.4. Profile 4 (P4): Controlled descent with controlled vertical landing

Payload is typically an experiment to test concepts for planetary landers. Requirement is to descend from a minimum of 250m above ground level (AGL) to 0m AGL, under controlled rocket-powered flight and conduct a controlled vertical landing. Some payloads may require controlled horizontal translation of up to 1 km. Some applications may require allowing the payload to actively control portions of the flight profile. This is typically accomplished by use of a spacecraft or a vertical flight testbed.

5.5. Profile 5 (P5): Controlled high altitude ascent and descent

Payload is typically a remote sensing system for planetary entry, high-altitude atmospheric measurements, or similar applications. Requirement is to ascend to a minimum of 30km MSL along a controlled trajectory, spend 1 or more minutes above 30km MSL, and then descend back to 0 AGL along a controlled trajectory. Payloads may require access to the external environment to make observations. The objective is to provide a predetermined flight path, with capability to loiter at 30KM for short (1 min +/-) durations, while maintaining stable altitude  $\pm 1\text{KM}$ . It would be desirable to have the capability of accepting control inputs from the payload. It would also be desirable to provide the payload a view of the earth below. Landing

should be sufficient to recover the payload intact, which may entail either a soft landing or a parachute recovery. This is typically accomplished by use of a spacecraft. Some payloads may be required to achieve short durations of reduced gravity under this flight profile.

## **6. OTHER REQUIREMENTS**

Unless modified within the governing Task Order, the following requirements shall apply to all contractors.

### **6.1. Reviews and Documents**

#### **6.1.1. Payload User Guide (PUG)**

For each QV or QV family (as necessary), the Contractor shall provide to the Government a Payload User Guide (PUG), to be made available to the Payload Provider. The PUG is the Contractor-provided documentation that defines the payload interfaces of the QV, including, but not limited to, the mechanical, electrical, communication, information/data, and environmental interface requirements.

#### **6.1.2. Mission Implementation Document (MID)**

The Contractor shall develop a Mission Implementation Document (MID) in response to Task Order solicitations to which the Contractor chooses to respond. The MID is defined as the document that establishes the agreement between the Contractor and the Government, and documents how the MRD will be implemented, including deviations from the MRD.

#### **6.1.3. Payload Acceptance and Readiness Review (PRR)**

The Contractor shall accept the payload for integration and flight. The Payload Provider will conduct a Payload Readiness Review (PRR) with the Contractor prior to delivery of the payload. The Contractor can refuse to accept any payload that does not meet the requirements of the MID.

### **6.2. Flight Service Requirements**

The Contractor shall provide flight service on a vehicle that meets the requirements of the MID.

#### **6.2.1. Flight Approvals**

The Contractor shall obtain and provide written evidence of all required flight approvals, including (but not limited to) permits, licenses, or waivers for operation, as applicable, from the Federal Aviation Administration (FAA) or other governing authority for the flight activity.

#### **6.2.2. Flight Operations Responsibility**

The Contractor shall assume total responsibility for all flight operations, which includes provision of the flight range, operational facilities, and all required personnel. This also includes responsibility for mission security, flight safety and mission assurance, environmental compliance, range safety, and personnel safety and health.

### 6.3. Payload Integration

The Contractor shall provide payload integration service on the flight vehicle.

- 6.3.1. The Contractor shall integrate the payload into the flight vehicle system(s).
- 6.3.2. The Contractor shall perform a payload operational readiness and payload safety mitigation review.
- 6.3.3. The Contractor shall ensure that the payload meets the interface requirements of the Payload User's Guide.
- 6.3.4. The Contractor shall provide and operate the appropriate payload facilities and payload support equipment for the payload integration activity.
- 6.3.5. The Contractor shall manage the interface control document (ICD) between the payload and the flight vehicle.
- 6.3.6. The Contractor shall integrate the payload operation, including telemetry and command, into the flight operation.
- 6.3.7. The Contractor shall ensure that the payload, as integrated and while operating, is compatible with the vehicle systems and other payloads.

## **7. SPECIAL PROJECTS**

### 7.1. Special Projects:

The Contractor shall provide reports, plans, studies, or other similar deliverables within the general scope of this contract. The requirements for Special Projects shall be further delineated by the issuance of Task Orders.

### 7.2. Non-Standard Services (NSS):

The Contractor shall perform necessary modifications or additions to payload slots to accommodate unique payload requirements, within the general capabilities of the QV but not within the definition of a Standard Flight Payload Slot. There are some NSS that are frequently requested (termed "common") and others that are infrequent or unusual in nature (termed "uncommon"). Uncommon NSS cannot be anticipated prior to assignment of payloads. The requirements for NSS shall be further delineated by the MRD/MID process.

## **8. GENERAL DELIVERABLES**

The following items shall be general deliverables applicable to services under this contract. There will also be specific deliverables as required by each task order. These deliverables are not applicable to Special Projects (Section 7.1).

### 8.1. Payload User's Guide (PUG)

Contractor shall provide a Payload User's Guide for each Qualified Vehicle or QV Family. The PUG is the documentation that defines the payload interfaces of the QV,



including, but not limited to, mechanical, electrical, communication, information/data, and environmental interfaces. The draft and final submission will be defined in the Task order.

### 8.2. Mission Implementation Document (MID)

Contractor shall provide a Mission Implementation Document (MID) for each Task Order. The MID is the document that establishes the agreement between the Contractor and the Government, and documents how the MRD has been implemented, including any proposed deviations.

### 8.3. Flight Data Report

Contractor shall provide a Flight Data Report for each flight performed under this contract. The Flight Data Report is the summary of the flight operation as related to the requirements of the MID and the Task Order. The Flight Data Report includes formatted data item deliverables as specified in the Task Order. The due date for each report shall be no later than 10 business days after the flight.

## **9. DEFINITIONS**

**Above Ground Level or “AGL”** is defined as a measured distance above nominal ground level for the local area under consideration.

**Contractor** is defined as a business entity who has been awarded a contract under this solicitation and provides both flight and payload integration services.

**Flight** is defined as any contracted flight operation performed under this contract, regardless of type of vehicle or mode of propulsion.

**Flight Data Report** is defined as a summary of the flight operation as related to the requirements of the MID and the Task Order. The Flight Data Report includes formatted data item deliverables as specified in the Task Order.

**Launch Vehicle (LV or Vehicle)** is any means used to fly a payload under this contract, regardless of mode of propulsion (e.g. rocket, spacecraft, balloon).

**Manifest Requirements Document (MRD)** is defined as the document that establishes the payload operational requirements, mission performance requirements, data delivery requirements, payload access requirements, and the mission exit criteria; the MRD is developed by the Government based on information furnished by the Payload Provider. The MRD will be issued to the Contractor(s) as part of a Task Order solicitation.

**Mean Seal Level or “MSL”** is defined as a measured distance above the industry standard datum of globally averaged ocean surface height.

**Microgravity** (for the purposes of this acquisition) is defined as extremely low values of acceleration in all axes of the payload.

**Mission Implementation Document (MID)** is defined as the document that establishes the agreement between the Contractor and the Government, and documents how the MRD has been implemented including deviations.

**Non-standard Services (NSS)** are those services that are not provided as part of the standard priced payload slot. “Common” NSS are those that may be routinely requested by payload providers, and “Uncommon” NSS are those that are unique to an individual payload and are not easily anticipated prior to the assignment of the manifest.

**Payloads** are expendable test articles with no NASA mission purpose other than the demonstration of various technologies in relevant environments.

**Payload Integration** is defined as integration of a payload to the Flight Vehicle, while ensuring that the interfaces to other payloads and to the Flight Vehicle are compatible and that the mission requirements of the Payload Provider are met.

**Payload Provider** is defined as the entity that provides a Program-sponsored payload.

**Payload User’s Guide (“PUG”)** is the Contractor-provided documentation that defines the payload interfaces of the QV or QV Family, including, but not limited to, mechanical, electrical, communication, information/data, and environmental interfaces. The PUG should also list the common NSS that are routinely available.

**Provider Pool** is the list of vendors with QVs accepted by the Government for providing services under this contract.

**Qualified Vehicle (or “QV”)** is a launch vehicle that was proposed in response to this solicitation and accepted by the Government as Qualified to provide services under this contract.

**QV Family (or “QVF”)** is a group of closely related flight vehicles (closely similar in characteristics with different performance or capacities) that fly similar flight profile(s). The Government shall be the sole authority for determining if a Vehicle Family is Qualified.

**Slot** is defined as a single payload space or seat. Vehicles may have one or more slots available for purchase.

**Standard Flight Payload Slot** is the payload space and interfaces on a QV offered as a standard commercial product by the flight services provider.

**Successful Flight** is defined as a flight that has successfully and safely met all of the requirements of the Task Order.

**Task Order** is defined as a contractual agreement by the Vendor(s) to the Government that fulfills the requirements of the MID for a given payload or payloads.

**Vendor** and **Contractor** are synonymous.

**NASA-AFRC Flight Opportunities Program  
Pricing Schedule for  
Flight and Payload Integration Services  
06/15/2020**

**Standard Services for Flight Profile 1 (P1):**

DESCRIPTION	PRICE per "Contract Year"		
	Year 1	Year 2	Year 3
[REDACTED]	(b) (4)		
[REDACTED]	(b) (4)		
[REDACTED]	(b) (4)		

<i>DESCRIPTION</i>	<i>PRICE per "Contract Year"</i>		
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>
	(b) (4)		
	(b) (4)		
	(b) (4)		

**Labor Rates for Non-standard Services and Special Projects:**

<b><i>**Offeror proposed calendar year pricing**</i></b>				
<b><i>LABOR CATEGORY</i></b>	<b><i>2020 Actual</i></b>	<b><i>2021 Projected</i></b>	<b><i>2022 Projected</i></b>	<b><i>2023 Projected</i></b>
(b) (4)				
[Redacted Content]				

**Non-standard Services and Discounts:**

<i>Common and Uncommon non-standard services and Special projects as applicable</i>			
<i>Reflight Pricing-SpaceShip Two:</i>			
<i>DESCRIPTION</i>	<i>PRICE per "Contract Year"</i>		
	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>
[REDACTED]	(b) (4)		
[REDACTED]	(b) (4)		
[REDACTED]	(b) (4)		