

<b>AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT</b>		1. CONTRACT ID CODE	PAGE OF PAGES
2. AMENDMENT/MODIFICATION NO. 0001	3. EFFECTIVE DATE 01/25/2016	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable)
6. ISSUED BY NASA Shared Services Center (NSSC) Building 1111, Jerry Hlass Road Stennis Space, MS 39529-6000	CODE	7. ADMINISTERED BY (If other than Item 6)	CODE
8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)		(X)	9A. AMENDMENT OF SOLICITATION NO. NNX16SBIR/STTR
			9B. DATED (SEE ITEM 11) 11/12/2015
			10A. MODIFICATION OF CONTRACT/ORDER NO.
			10B. DATED (SEE ITEM 13)
CODE	FACILITY CODE		

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers  is extended,  is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing items 8 and 15, and returning \_\_\_\_\_ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
<input type="checkbox"/>	
<input type="checkbox"/>	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
<input type="checkbox"/>	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
<input type="checkbox"/>	D. OTHER (Specify type of modification and authority)

**E. IMPORTANT:** Contractor  is not,  is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

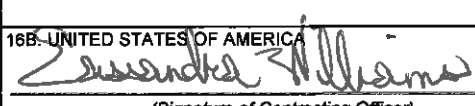
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

This amendment is hereby issued to:

- revise the language and incorporate a link under the Subtopic H9.01 Long Range Optical Telecommunications; and
- include a cut-off date and time in Section 1.9.2. Questions About This Solicitation.

See Summary of Changes on SF30 Continuation page.

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) Cassandra Williams
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	16B. UNITED STATES OF AMERICA  (Signature of Contracting Officer)
15C. DATE SIGNED	16C. DATE SIGNED 01/25/2016

## SECTION SF 30 BLOCK 14 CONTINUATION PAGE

**SUMMARY OF CHANGES**

1. Revise the language and incorporate a link in Subtopic H9.01 Long Range Optical Telecommunications.

**FROM:**

*Waveform signal processing technologies [3] - 100 Mb/s and higher hardware/firmware implementation of the coding and synchronization layer of the proposed Consultative Committee for Space Data Systems (CCSDS) high-photon-efficiency optical signaling waveform, including transmitter and receiver functions. Supported features are to include CCSDS Transfer Frame ingestion and slicing; attached frame sync markers; CRC; serially concatenated convolutional coding with accumulate pulse position modulation (SCPPM), including a constraint length 3 convolutional code of rates 1/3, 1/2, and 2/3, code interleaver, accumulator, and PPM of orders 4, 8, ..., 256; randomizer; 1 s channel interleaver; codeblock sync marker repeat/spreader, and guard slot insertion.*

**TO:**

*Waveform signal processing technologies [3] - **CCSDS White Book, "High Photon Efficiency Optical Communications -- Coding & Modulation," March 2015, <http://www.nasa.gov/directorates/heo/scan/engineering/datastandards/index.html> - 100 Mb/s and higher hardware/firmware implementation of the coding and synchronization layer of the proposed Consultative Committee for Space Data Systems (CCSDS) high-photon-efficiency optical signaling waveform, including transmitter and receiver functions. Supported features are to include CCSDS Transfer Frame ingestion and slicing; attached frame sync markers; CRC; serially concatenated convolutional coding with accumulate pulse position modulation (SCPPM), including a constraint length 3 convolutional code of rates 1/3, 1/2, and 2/3, code interleaver, accumulator, and PPM of orders 4, 8, ..., 256; randomizer; 1 s channel interleaver; codeblock sync marker repeat/spreader, and guard slot insertion.***

2. The cut-off date and time for receipt of solicitation contract questions and answers is 5:00 p.m. Eastern, Thursday, January 28, 2016.

**End of Summary of Changes**