OMB Approval 2700-0042

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
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2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. *(If applicable)*
0001	Jul 11, 2008		

6. ISSUED BY	CODE	7. ADMINISTERED BY *(If other than Item 6)*	CODE
NASA/Stennis Space Center Office of Procurement, Program Management Support Division Building 1100 Room 251H Stennis Space Center, MS 39529-6000		Same as block #6	

8. NAME AND ADDRESS OF CONTRACTOR *(No. Street, county, State and ZIP: Code)*	( ) / x	9A. AMENDMENT OF SOLICITATION NO. NNS08239009R 9B. DATED *(SEE ITEM 11)* Jun 11, 2008
		10A. MODIFICATION OF CONTRACT/ORDER NO.
CODE / FACILITY CODE		10B. DATED *(SEE ITEM 13)*

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 one (1) copy 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 DATA SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you 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 data specified.

12. ACCOUNTING AND APPROPRIATION DATA *(If required)*

N/A

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

( )	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.
	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).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER Specify type of modification and authority)

E. IMPORTANT: Contractor ☐ is not, ☒ is required to sign this document and return 1 copies to the issuing office.

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

Solicitation No. NNS08239009R for High Speed Data Acquisition System Signal Conditioning Channels, is hereby amended as follows – See attached pages 2 and 3

Except at 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)*	
		James D. Huk, II	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY *(Signature of Contracting Officer)*	7/11/08

a. The following questions and answers are hereby incorporated into the subject solicitation.

1. QUESTION: Is Specification. 200GT-GE01 based on (derived from the performance of) the existing SSC hardware? Or on available COTS hardware? If so, which model(s)?

   ANSWER: The specifications were not derived from any existing or vendor specifications. These specifications are what SSC has determined to be required for SSC testing applications.

2. QUESTION: On the bridge supply noise specifications, will low noise dynamic constant current devices (single gages for example) be used with the signal conditioners? If so, the allowed noise levels will affect the dynamic range.

   ANSWER: The bridge supply (excitation) noise specifications will be used with the supplied signal conditioners. Indeed, the expectation is that they will be integral with the signal conditioners. As far as dynamic range, I do not understand the question.

3. QUESTION: Isolation: Usually the output common, input common, and chassis are linked in standard designs - floating and isolating the earths may be a violation of the safety standards of the Low Voltage Directive - how does NASA suggest we resolve this conflict?

   ANSWER: Because this system will be composed of many chassis, and our requirement for a single point ground, we require that power, output and input common be isolated. On installation all three will be brought a ground "Mecca" within the signal conditioning building.

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1) The statement of work requires a delivery schedule for production hardware. It is not clear if this is for delivery of a 32 channel system following completion of the compliance test at the vendors facility, or for production hardware in quantity sufficient to satisfy the A3 test stand requirements?

QUESTION: What is the quantity and type of signal conditioning channels required for which a production lead time is to be provided.

ANSWER: Production hardware in quantity sufficient to satisfy the A-3 test stand requirements. Approximately 200 channels of production hardware are anticipated for the A-3 Test Stand.

2) Section (B) SCHEDULE item 3. states that all proposals shall provide for equipment fully compliant with NASA Specification 200GT-GE01.

Section (I) ALTERNATE PROPOSALS states that proposals may be submitted which depart from the stated requirements.

QUESTION: Will proposals which are not fully compliant, yet may offer exceptional value, be considered?

ANSWER: Yes, although there are several specifications which are non-negotiable. Therefore, the alternate proposals will be considered provided the non-negotiable requirements are satisfied. The list of non-negotiable requirements is:

- 4.1.1, 4.1.2, 4.1.3, 4.2.1, 4.2.3, 4.3, 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9, 6.0, 7.1, 7.3, 8.1, 8.2, 8.3, 8.4.1, 9.1, 9.2, 10.0, 11.0, 12.0, 13.0, 14.0, 15.1, 15.2.1, 16.0, 17.0 18.0 19.0.

QUESTION: Will proposals, which are not fully compliant to NASA Specification 200GT-GE01, be disqualified from consideration?

ANSWER: Reference the response to the previous question.

Technical Questions;

3) The specification identifies Signal Conditioning requirements for differing types of transducers (vibration/accelerometer, Strain Gage/bridge, dynamic Pressure, etc..), each with unique conditioning requirements.

QUESTION: Is it anticipated (NASA's intention) that a 32 channel conditioner will be able to handled any mix of transducers types (32 channels of Strain, or 32 channels or IEPE, or 32 channels of Charge, etc.) OR, will transducer type specific modules (within specified limit of up to 4 channels per module) be acceptable?

QUESTION: What is the mix of signal conditioning channel transducer types which will be required to meet the initial 32 channel procurement?

ANSWER: Use the following channel mixture (this is a representative percentage of the anticipated 200 channels):

- Twelve (12) bridge completion conditioners (strain gages) – 40%
- Ten (10) IEPE conditioners – 30%
- Ten (10) charge mode devices – 30%

4) Section 5 details Instrumentation Amplifier requirements.

QUESTION: Does section 5 refer to a separate conditioning channel signal type (voltage input instrumentation amplifier) or are these requirements for the amplifier stage of the transducer conditioning types defined in sections 4.1, 4.2, 4.3 and 4.4?

If Section 5 is further description of section 4 amplifier requirements, then which section shall take precedence when stated requirements are in conflict?

ANSWER: Section 5 is a further description of the amplifier requirements. If conflicts are identified, please inform NASA as a correction to the specifications may be required in these instances to provide consistency between the requirements.

5) The following specific technical questions refer to identified section numbers as referenced to NASA technical requirements document 200GT-GE01.

Section 4.1 Reference is made to an 8-wire bridge configuration with shield. (EXC+, EXC-, Signal+, Signal-, plus???). It is not clear as to the what the extra wires will be used for (remote sense, remote shunt, dual shunt, etc.)

QUESTION: What is the desired the 8 wire bridge (full strain gaga) configuration with requirements for each wire lead?

ANSWER:

a) + signal
b) - signal
c) + excitation
d) - excitation
e) + excitation sense (feedback)
f) - excitation sense (feedback)
g) Shunt cal 1
h) Shunt cal 2

Section 4.1.2 Voltage and current regulation requirements are specified at 0.005% of setting. At minimum set range of 0.1 Volts (voltage excitation), this equates to a voltage regulation of 5 uV. Same question with regards to current regulation.

QUESTION: Is it correct that the constant voltage stability requirement is 10 uV for an excitation voltage selection of 0.1 mV (0.01% of 0.1 volt set value)?

QUESTION: Is it correct that the temperature stability requirement is 3 uV per deg.C for an excitation voltage selection of 0.1 Volts (0.003% of 0.1 volt set value)?

ANSWER: 0.005% regulation of excitation is not reasonable for high speed signal conditioning. Therefore, 0.1% is perfectly adequate. As to the other part, whether this required accuracy would be required for the minimum value of 0.1 VDC, yes, provided the required accuracy is changed to 0.1%.

Section 4.2.1 requires a programmable time constant of either "long" of "short" which are not specified.

QUESTION: What are required "long" and "short" time constants for the charge mode.

ANSWER: Programmable time constant (TC) [long or short, dependent upon range; for example: 10 seconds or less for "short" and 1000 seconds or more for "long" TC in the 50pC full-scale range]

Section 4.2.2 requires IEPE sensitivity of 1mV/mv to 10,000mV/V while section 4.4 requires IEPE sensitivity of 0.01mV/mV to 9 V/mV. Which is correct? Same question with regards to bandwidth response, programmable current steps, etc.

ANSWER: IEPE accelerometers typically have an output of 4 to 8 volts at full scale. The sensitivity is set by the choice of accelerometer. If the accelerometer is properly chosen the range of gains (which is what this specification refers to) needn't be so broad. A gain of unity (1mV/mV) to 10 (10,000mV/V) is reasonable. The section in 4.4 that contradicts this will be removed.

QUESTION: What is the required IEPE sensitivity?

ANSWER: Two (2) gain settings: unity and 10

QUESTION: What is required IEPE programmable current step resolution?

ANSWER: We are uncertain as to whether or not we have a requirement for this because all IEPE transducers accept a broad range of current excitation, typically in the 10mA range.

QUESTION: What is required IEPE amplifier frequency response range lower boundary?

ANSWER: The current specification identifies this as 1 Hz.

Section 5.1.5 requires step input settling time of 3 usec to within 1% which is typical of 10 MHz bandwidth type amplifier. Section 5.2 requires minimum bandwidth of 100 KHz defined as –3dB signal attenuation.

QUESTION: Is the bandwidth requirement for a 100 KHz full power amplifier or for an amplifier capable of responding to a step input with no greater then 3 usec settling to 1% of final output?

ANSWER: The latter.