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**SOLICITATION AMENDMENT
MODIFICATION DE L'INVITATION**

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Solicitation remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'invitation demeurent les mêmes.

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Title - Sujet Development of enabling space technologies - Développement des technologies spatiales habitantes	
Solicitation No. - N° de l'invitation 9F063-190729/A	Amendment No. - N° modif. 011
Client Reference No. - N° de référence du client 9F063-190729	Date 2020-12-23
GETS Reference No. - N° de référence de SEAG PW-SMTB-575-15907	
File No. - N° de dossier MTB-0-43149 (575)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM Eastern Standard Time EST on - le 2021-01-05 Heure Normale de l'Est HNE	
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PROJECT TITLE: Development of enabling space technologies

The purpose of this amendment is to answer questions received.

Questions and answers:

For Priority Technology 5: SAR High Speed On-Board Processing

Question 1:

Within the context of PT-5, where would the engineering model (EM) sit or be expected to sit in the SAR processing chain?

Answer 1:

The on-board processor receives digitized data from the radar electronics front-end, processes the data and sends it to the mass memory.

Question 2:

Within respect to PT-5, would you please provide more details as to what constitutes a 'representative environment' in the context of testing the EM according to the RFP?

Answer 2:

The bidder should demonstrate that the OBP is able to operate in a space environment. Test campaign should include operational test in temperature under vacuum, vibration testing and radiative testing. A specification document providing typical environment tests for LEO and a Mars mission will be provided at the kick-off meeting.

Question 3:

Is the specified mandatory lifespan of three (3) years for operation in the space environment or on the ground? How does CSA currently determine the lifespan of an electronic device in a LEO environment?

Answer 3:

The mandatory lifespan is for operation in the specified space environment. The assessment of the unit lifetime using standard approaches, including analysis and tests, should be described by the bidder in the proposal.

Question 4:

Within the context of PT-5, how does CSA specifically define range oversampling and integration time?

Answer 4:

Range oversampling is defined as extra sampling over the Nyquist sampling frequency to minimize aliasing effects in the digitized signal; integration time (per look) is the synthetic aperture integration time, which spans several hundred to several thousand pulses. The values can be deduced from the specification.

Question 5:

How are raw data typically stored in a SAR system such as that on-board the RCM? What type of storage is used and how would the EM be expected to access it?

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File No. - N° du dossier

MTB-0-43149

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Answer 5:

On RCM, raw data are stored in a mass memory unit, using its own software to manage memory and downlink. As per HSP-20, the EM is expected to interface with a SpaceWire interface (or other high speed interface) for data input and output.

Question 6:

Are there specific command and telemetry standards for SAR systems that the EM would have to accommodate as part of PT-5?

Answer 6:

As per HSP-21, the OBP is required to comply to the SpaceWire interface, although other standard interface may be acceptable.

Question 7:

The RFP references a 'Standard mechanism to allow transfer of software/firmware'. What specific protocols would need to be supported in this regard?

Answer 7:

HSP-22 does not mention any specific protocol. However, the OBP must demonstrate flexibility and demonstrate a methodology that would enable an external algorithm to be used with the processing hardware.

Question 8:

Please provide more details as to how CSA has determined that processing algorithms can cause peak side lobe ratio degradation and impulse response broadening and how the associated limits for these parameters were defined.

Answer 8:

Peak side lobe ratio degradation and impulse response broadening requirements are based on experience on previous SAR programs and user experience.

Question 9:

Does the CSA currently have documented criteria for the selection of candidate algorithms, evaluating algorithm trade-offs, and defining selection criteria? If so, would you please provide the related details?

Answer 9:

The Bidder can propose any algorithm that can provide the required performance. There are no specific criteria for the selection.

ALL OTHER TERMS AND CONDITIONS OF THE RFP REMAIN UNCHANGED