

**RETURN BIDS TO:  
RETOURNER LES SOUMISSIONS À:**

**Bid Receiving  
PWGSC  
33 City Centre Drive  
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Ontario  
L5B 2N5  
Bid Fax: (905) 615-2095**

**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.

**Comments - Commentaires**  
THIS DOCUMENT CONTAINS SECURITY  
REQUIREMENTS.

**Vendor/Firm Name and Address**  
Raison sociale et adresse du  
fournisseur/de l'entrepreneur

**Issuing Office - Bureau de distribution**  
Public Works and Government Services Canada  
Ontario Region  
33 City Centre Drive  
Suite 480  
Mississauga  
Ontario  
L5B 2N5

<b>Title - Sujet</b> Weather Radar Replacement Solution	
<b>Solicitation No. - N° de l'invitation</b> K3D33-141144/B	<b>Amendment No. - N° modif.</b> 004
<b>Client Reference No. - N° de référence du client</b> K3D33-141144	<b>Date</b> 2015-07-09
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$TOR-018-6873	
<b>File No. - N° de dossier</b> TOR-4-37044 (018)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2015-08-31</b>	
<b>F.O.B. - F.A.B.</b> <b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input checked="" type="checkbox"/> <b>Other-Autre:</b> <input type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> Pan, Long	<b>Buyer Id - Id de l'acheteur</b> tor018
<b>Telephone No. - N° de téléphone</b> (905) 615-2076 ( )	<b>FAX No. - N° de FAX</b> (905) 615-2023
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b>	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> Raison sociale et adresse du fournisseur/de l'entrepreneur	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/</b> <b>de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

Solicitation No. - N° de l'invitation

K3D33-141144/B

Client Ref. No. - N° de réf. du client

K3D33-141144

Amd. No. - N° de la modif.

004

File No. - N° du dossier

TOR-4-37044

Buyer ID - Id de l'acheteur

tor018

CCC No./N° CCC - FMS No/ N° VME

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Please see attached document.

**THE SOLICITATION AMENDMENT No. 004 IS RAISED TO MODIFY THE BID SOLICITATION AND ANSWER QUESTIONS FROM THE INDUSTRY.**

**Modification # 002**

**Reference:**

RFP

**Modification #002:**

The following RFP terms and conditions in Standard Acquisition Clauses and Conditions (SACC) Manual are hereby amended to provide the new Integrity Provisions.

**Delete:**

2003 (2014-09-25) Standard Instructions - Goods or Services - Competitive Requirements.

**Insert:**

2003 (2015-07-03) Standard Instructions - Goods or Services - Competitive Requirements.

**Delete:**

2030 (2014-09-25), General Conditions - Higher Complexity – Goods.

**Insert:**

2030 (2015-07-03), General Conditions - Higher Complexity – Goods.

**Delete:**

General Condition (GC) 1 R2810D (2015-02-25) - General Provisions - Construction Services

**Insert:**

General Condition (GC) 1 R2810D (2015-07-03) - General Provisions - Construction Services

**Modification # 003**

**Reference:**

Attachment 2 – Mandatory Evaluation Criteria

**Modification #002:**

The Mandatory Requirement description of M20 listed in Attachment 2 is hereby deleted in its entirety and replaced with the following:

The radar signal processor must produce user-selectable corrected data for at least, but not limited to, the following parameters: Z, Vr, W, SNR, SQI, K<sub>DP</sub>, Z<sub>DR</sub>, ρ<sub>HV</sub>, φ<sub>dp</sub>. The user must be able to configure the processor to apply corrections and adjustments including, but not limited to: Ground clutter rejection, multi-trip suppression, point filter, and attenuation correction. The user must be able to request uncorrected or corrected data, the difference, or all. These moments must be user configurable and available for both polarizations.

## QUESTIONS AND ANSWERS

### Question # 022

**Reference:**

Attachment 4 – Bidder's Pricing Table

**Question #022:**

Pricing Table: In Part 4, Attachment 4- Bidder's Pricing Table, there are only a few simple tables for providing the prices for radar, infrastructure, project management services, training and document deliverables and the same tables for optional deliverables. We'd like to ask whether we just fill in the tables listed in Attachment 4 - Bidder's Pricing Table or must each table be expanded with an additional breakdown of items?

**Answer #022:**

Please refer to section 3.1.1 of Part 3 – Bid Preparation Instructions. Bidders must submit their financial bid in Canadian Dollar and in accordance with Attachment 4 – Bidder's Pricing Table. Bidders must follow the instructions described in the RFP and any extra information must be provided in addition to the materials requested.

### Question # 023

**Reference:**

Annex A – Statement of Work

**Question #023:**

Delivery Schedule: In Annex A - Statement of Work, item 1.7 requires that "The Operational Implementation phase begins after the success of the First Article. By this point, the overall project plan for the Contract and for the related activities of Canada will be finalized and the installation of 3-6 Radar systems per year must begin". Also, in a number of places, it is required that the project be completed by March 31, 2023. However, it is also required in the Appendix A to Annex A - Radar System Deliverables that "1.4 The First Article Radar System delivered by the Contractor must meet the TRL of 8 or better, and 30 months into the Contract period all Radar systems delivered must meet TRL 9". Assuming the contract is signed before the end of this year, 30 months later would only be June 2018, well before March 2023. Please explain this apparent conflict in required schedules.

**Answer #023:**

There is no conflict in delivery schedule. As described in section 1.7 of Annex A – SOW and Part 2 of Annex B – Pricing Schedule, Canada is expecting the following delivery schedule:

- First radar system (TRL of 8) to be delivered in 12 to 18 months after contract award;
- Second radar system (TRL of 8) to be delivered within 30 months after contract award; and
- The rest of 18 radar systems (TRL of 9 or TRL 8 if less than 30 months into contract period ) to be delivered on the basis of 3-6 radar per year until March 31, 2023.

### Question # 024

**Reference:**

Attachment 2 – Mandatory Evaluation Criteria

**Question #024:**

In Attachment 2 Mandatory Evaluation Criteria, for item M26, it is required that "The radar antenna assembly must produce a beam width of 1° or less for a frequency meeting Industry Canada licensing protocols regarding frequency allocation" and in Attachment 3 Point-Rated Evaluation Criteria, for item R4, it is also required that "extra points will be awarded to the beam width of less than 1°". Since the beam width varies with frequency, so that all bidders are judged equally, specific frequencies should be specified for calculating beam width. From the Industry Canada Spectrum Management and Telecommunications-Canadian Table of Frequency Allocations (2014 Edition) with Amendments, note 5.423 states "In the band 2 700-2 900 MHz (Part of "S-Band"), ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the aeronautical radio navigation service" and note 5.452 states "Between 5 600 MHz and 5 650 MHz (part of "C-Band"), ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radio navigation service." Therefore, the radars must operate in one of these two bands so, for calculation or measurement of beam width, it is recommended that the calculation or measurement be performed at 2,800 MHz if the radar is an S-Band radar or 5,625 MHz if the radar is a C-Band radar.

**Answer #024:**

Agreed. For calculation or measurement of beam width, it is recommended that the calculation or measurement be performed at 2,800 MHz if the radar is an S-Band radar or 5,625 MHz if the radar is C-Band radar and the centre frequency of any other acceptable band that may be proposed.

### Question # 025

**Reference:**

Annex A – Statement of Work

**Question #025:**

In the Annex A Statement Of Work on Page 27, requirement No.27 requires that "The transmitter must operate at a minimum of 4 user-selectable frequencies within the identified band for network operations and interference mitigation of adjacent radars. The frequencies will be managed by EC". When, after signing the contract, will the 4 fixed frequencies be provided and how soon before the Factory Acceptance Test of each radar will the operating frequency of that particular radar be assigned? What will be the minimum separation between these 4 frequencies?

**Answer #025:**

It is the Bidder's responsibility to propose the band and the 4 frequencies to meet requirements, including sufficient separation to avoid interference between overlapping radars, but not so much separation that Industry Canada is unwilling to provide licenses. "user-selectable" means that at any time Environment Canada can easily adjust the frequency of any individual radar within an identified frequency range (i.e. at least 4 frequency settings or adjustable within a range that allows for at least 4 distinct and separated operating frequencies).

### Question # 026

**Reference:**

Attachment 2 – Mandatory Evaluation Criteria

**Question #026:**

In Attachment 2 Mandatory Evaluation Criteria, for item M16 (Zdr), the specification is “0 dB with a precision of +/- 0.3 dB or less” but the substantiation requirement says “the variance must be estimated from the PDF of the Zdr”. Is variance the same as precision? That is, does the test pass if the measured variance (the square of the standard deviation) of the PDF of the measured  $Z_{DR}$  is less than 0.3 dB?

**Answer #026:**

Yes.

### Question # 027

**Reference:**

Attachment 2 – Mandatory Evaluation Criteria

**Question #027:**

In Attachment 2 Mandatory Evaluation Criteria, for item M18 (multi-trip echo suppression), the specification is the “system must have ... multi-trip suppression capability for the first-trip echo of at least 50 dB.” It is not clear how to test for 50 dB suppression. Please provide an example of a test that will show 50 dB suppression.

**Answer #027:**

There are several ways of demonstrating this and EC is not specific with the performance. For example: (a) It could be demonstrated by measured phase noise performance and theoretical proof that the system has the technical capability and algorithmic performance to suppress the clutter without damaging the in-trip echo. (b) It could be demonstrated by collecting data at two PRFs (radar operating in single PRF mode). One PRF is for long range and the second PRF is short range. Then look for the weather condition where there is echo 50 dB higher (not dBZ but dB) in the first trip vs the second trip and then demonstrate that the effects of that out of trip echo is suppressed without damaging the in-trip echo.

### Question # 028

**Reference:**

Annex A – Statement of Work, Attachment 3 – Point-Rated Evaluation Criteria

**Question #028:**

In Annex A Statement Of Work on Page 27, requirement No.18 and in Attachment 2 Mandatory Evaluation Criteria, for item M20 the specification is “The user must be able to configure the processor to apply corrections and adjustments including, but not limited to: ... multi-trip recovery.” However, in Attachment 3 Point-Rated Evaluation Criteria, for item R26, it states that “The proposed Radar system will be awarded extra points if it has multi-trip recovery capability.” So, is this requirement mandatory or can a bidder receive extra points compared to other bidders if the feature is provided?

**Answer #028:**

Please refer to Modification # 003 in this amendment.

### Question # 029

Reference:

Attachment 1 – Evaluation Methodology and Basis of Selection

**Question #029:**

Section 5.1.4 of Attachment 1 – Evaluation Methodology and Basis of Selection states: Bidders should note that all contract awards are subject to Canada's internal approvals process, which includes a requirement to approve funding in the amount of any proposed contract. Despite the fact that the Bidder may have been recommended for contract award, a contract will only be awarded if internal approval is granted according to Canada's internal policies. If approval is not granted, no contract will be awarded.

According to Section 5.1.4. of Attachment 1 it is possible that the bidder may be recommended for contract award (i.e. pass Step 1: Technical & Financial Evaluation and Step 2: Verification Process), but the contract may not be awarded if the bidder's offer exceeds the budget available for this project. What happens in this case? Does Canada reject the first ranked bidder and go to the second ranked bidder to conduct the verification process? Or will the solicitation be cancelled and re-issued?

We kindly request more detailed clarification.

**Answer #029:**

Based on the extensive industry consultations undertaken, Canada is confident that the planned budget is sufficient for the Contract requirements. However, Canada reserves the right to cancel or re-issue the solicitation regarding section 5.1.4 of Attachment 1 – Evaluation Methodology and Basis of Selection. If the top ranked bid exceeds the planned budget, Canada will not conduct further verification process for the second ranked bid.

### Question # 030

Reference:

RFP

**Question #030:**

Due to the high weighting of the technical evaluation it is conceivable that a highly priced and possibly over budget bid could be declared top ranked bidder.

We kindly and respectfully ask if Canada can give bidders an indication of the available budget for this project for orientation purposes.

**Answer #030:**

Canada is not releasing the budget info. Please refer to Answer # 29 in this amendment.

### Question # 031

Reference:

Attachment 2 – Mandatory Evaluation Criteria

**Question #031:**

We would like to ask whether it is also allowed to prove the clutter suppression capability required for Mandatory Evaluation Criteria M19 with a delay line.

**Answer #031:**

It is acceptable to demonstrate the clutter suppression capability with a delay line. It is well understood that the clutter target, the weather conditions under which the demonstration, external vibrations and antenna rotation speed affect this demonstration. From an end-user perspective, this is the critical issue.

Aside: Note that our RFP requires both unfiltered and filtered data so that we actually see the clutter performance with a moving antenna.

**Question # 032**

Reference:

Attachment 2 – Mandatory Evaluation Criteria

**Question #032:**

Part 1:

We assume that the given range bin lengths in the related requirements specify also the requested pulse widths via their time equivalent. In consequence M12 should be performed with a pulse width of 1.67usec while R22 and R23 request for pulse widths of 3.3, 6.6, 13.2 and 33.3usec. Is this assumption correct?

Part 2:

Considering that the above assumption is correct: Our reading of R22 is that proposals with tube transmitters are rated equal (no points) no matter if their pulse width range is up to 1.7usec (M12) or up to 4usec as the R22 requirement is an AND combination of range bin sizes. Is this understanding correct?

**Answer #032:**

Answer to Part 1:

The pulse length or range resolution can be stated by length or by time as they are related by the speed of light. To avoid any ambiguities, the terminology should remain as range bin lengths (250m, 5km) as contradictions may arise.

As stated in 2.1.1, under the Note section, parameter performance (M12) is under the conditions that M6 is performed. Demonstration at the longer range bin lengths is not required.

EC expects to operate the radar under the conditions of M6 and the other conditions were stated as future possibilities.

Answer to Part 2:

The assumption is not correct but it does not affect the answer.

The transmitter technology – magnetron, klystron or solid state, is not stated explicitly. However, it is implicit in the radar performance requirements throughout the document. If the vendor is able to meet those requirements, Canada will accept any transmitter technology subject to all the requirements and costs.



### Question # 033

Reference:

Attachment 2 – Mandatory Evaluation Criteria

**Question #033:**

Required is a sensitivity of -5dBZ at 50km range with a range resolution of 250m and equivalent at all ranges according to the inverse square law relationship. Does this imply that the sensitivity requirement for 500m range is -45dBZ (= -5dBZ + 20log(500m/50km) even for a radar with a solid state transmitter?

**Answer #033:**

Yes.

### Question # 034

Reference:

Annex A – Statement of Work

**Question #034:**

In the Annex A Statement Of Work on Page 35, requirement No. 127 requires that "the radar data must contain metadata that describes the site location and must include but not be limited to: ... Radar system description (...lightning protection...)" Please provide an example of "lightning protection" metadata that would be included in the radar data.

**Answer #034:**

The metadata for the lightning detection system would depend on the system and the relevance to processing and managing the radar data. For example: if it is an 'active' system, then the status of system could be reported. If there are differences between the systems at sites, the type of system should be reported. If the lightning protection system can be seen in the data, requiring certain processing, that must be reported.

### Question # 035

Reference:

Appendix A to Annex A - Radar System Deliverables

**Question #035:**

Item 1.6 of Appendix A to Annex A - Radar System Deliverables, states: "at the end of the Contract period, as part of Transition-Out Phase, the Contractor must provide and deliver to the Project Authority sufficient spares to establish an inventory up to the level described as the minimum sparing level based on the information and analysis developed over the period of the Contract."

We can find no definition of the "minimum sparing level" so please provide the definition.

A similar question applies to individual system deliverables of spares related to Item 2.5.1 (i.) of Appendix A to Annex A - Radar System Deliverables, which states: "As individual radars are installed and pass technical performance testing based on the technical requirements in the Contract, the Contractor remains responsible for operational support and maintenance to the applicable performance standards until such time as the Contractor has provided EC staff with the required training, tools, documentation

and equipment (including spares) to accept full responsibility for the radar site.” There is no requirement for the level of spares to be provided for a single system's deliverable.

Lacking a clear definition or requirement for the amount of spares to be provided, EC will receive vastly different spares proposals from the bidders and it will not be feasible for EC to decide which proposal is compliant and which may not be compliant. Therefore, EC should clearly define the spares requirement.

**Answer #035:**

In Appendix A to Annex A (page 25 of the SOW), paragraph 1.5 states that “The Contractor must provide a LCM plan based on the available engineering and experience information.....The LCM plan must be designed to maintain the required Radar system performance over the anticipated 20-25 year design life....” The spares requirements must be based on this LCM plan.

**ALL OTHER TERMS AND CONDITIONS OF THE BID SOLICITATION REMAIN UNCHANGED**