



**RETURN BIDS TO:**  
**RETOURNER LES SOUMISSIONS À:**  
**Bid Receiving - PWGSC / Réception des**  
**soumissions - TPSGC**  
11 Laurier St. / 11, rue Laurier  
Place du Portage, Phase III  
Core 0B2 / Noyau 0B2  
Gatineau, Québec K1A 0S5  
Bid Fax: (819) 997-9776

**REQUEST FOR PROPOSAL**  
**DEMANDE DE PROPOSITION**

**Proposal To: Public Works and Government Services Canada**

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

**Proposition aux: Travaux Publics et Services Gouvernementaux Canada**

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

**Comments - Commentaires**

**THIS DOCUMENT CONTAINS A SECURITY REQUIREMENT / DOCUMENT CONTIENT DES EXIGENCES RELATIVES À LA SÉCURITÉ**

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

**Issuing Office - Bureau de distribution**  
Science Procurement Directorate/Direction de l'acquisition de travaux scientifiques  
11C1, Phase III  
Place du Portage  
11 Laurier St. / 11, rue Laurier  
Gatineau, Québec K1A 0S5

<b>Title-Sujet</b>	
<b>Circularly polarized antenna angle of arrival and installed antenna radiation pattern study</b>	
<b>Solicitation No. - N° de l'invitation</b> W7714-186478	<b>Date</b> 2017-11-03
<b>Client Reference No. - N° de référence du client</b> W7714-186478	
<b>GETS Reference No. - N° de référence de SEAG</b>	
<b>File No. - N° de dossier</b> 005sl.W7714-186478	<b>CCC No./N° CC - FMS NO. / N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b>  <b>at - à 2:00 PM</b> <b>on - le 2017-11-20</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Eastern Daylight Time (EDT)
<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> Celeste Clermont	<b>Buyer Id - Id de l'acheteur</b> 005SL
<b>Telephone No. - N° de téléphone</b> 819-420-0747	<b>FAX No. - N° de FAX</b> 819-957-2229
<b>Destination of Goods, Services and Construction:</b> <b>Destinations des biens, services et construction :</b>	
Specified Herein Précisé dans les présentes	

**Instructions : See Herein**

**Instructions : voir aux présentes**

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



## TABLE OF CONTENTS

### **PART 1 - GENERAL INFORMATION**

- 1.1 Introduction
- 1.2 Summary
- 1.3 Debriefings
- 1.4 Communications

### **PART 2 - BIDDER INSTRUCTIONS**

- 2.1 Standard Instructions, Clauses and Conditions
- 2.2 Submission of Bids
- 2.3 Former Public Servant
- 2.4 Enquiries - Bid Solicitation
- 2.5 Applicable Laws
- 2.6 Maximum Funding

### **PART 3 - BID PREPARATION INSTRUCTIONS**

- 3.1 Bid Preparation Instructions

### **PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION**

- 4.1 Evaluation Procedures
- 4.2 Basis of Selection

### **PART 5 - CERTIFICATIONS**

- 5.1 Certifications Required with the Bid
- 5.2 Certifications Precedent to Contract Award and Additional Information

### **PART 6 – SECURITY, FINANCIAL AND OTHER REQUIREMENTS**

- 6.1 Security Requirements

### **PART 7 – RESULTING CONTRACT CLAUSE**

- 7.1 Statement of Work
- 7.2 Standard Clauses and Conditions
- 7.3 Security Requirement
- 7.4 Term of Contract
- 7.5 Authorities
- 7.6 Proactive Disclosure of Contracts with Former Public Servants
- 7.7 Payment
- 7.8 Invoicing Instructions
- 7.9 Certifications
- 7.10 Applicable Laws
- 7.11 Priority of Documents
- 7.12 Foreign Nationals (Canadian Contractor)
- 7.13 Insurance
- 7.14 Government Site Regulations



**List of Annexes:**

- Annex "A" Statement of Requirement
- Annex "B" Security Requirements Check List (SRCL)
- Annex "C" To Part 3 of the Bid Solicitation



## PART 1 - GENERAL INFORMATION

### 1.1 Introduction

The bid solicitation is divided into seven parts plus attachments and annexes, as follows:

- Part 1 General Information: provides a general description of the requirement;
- Part 2 Bidder Instructions: provides the instructions, clauses and conditions applicable to the bid solicitation;
- Part 3 Bid Preparation Instructions: provides Bidders with instructions on how to prepare their bid;
- Part 4 Evaluation Procedures and Basis of Selection: indicates how the evaluation will be conducted, the evaluation criteria that must be addressed in the bid, and the basis of selection;
- Part 5 Certifications and Additional Information: includes the certifications and additional information to be provided;
- Part 6 Security, Financial and Other Requirements: includes specific requirements that must be addressed by Bidders; and
- Part 7 Resulting Contract Clauses: includes the clauses and conditions that will apply to any resulting contract.

The Annexes include the Statement of Work, Security Requirements, the Security Requirements Checklist, the Electronic Payment Instruments, and any other annexes.

### 1.2 Summary

- 1.2.1 Canada intends to award a contract on behalf of the Defence Research and Development Canada for the provision of a theoretical study of spiral polarization antennas.  
More precisely, study on how the aircraft body effect the spiral polarization antenna far field radiation pattern.  
Secondly, on how the polarization properties of the incoming electromagnetic wave changes the angle of arrival measurement performance of a circularly polarized antenna array.

Services are to be provided from date of contract award to June 30, 2019.

The requirement is subject to a preference for Canadian goods and/or services.

The Contractor will own the Intellectual Property Rights in the Foreground Information.

- 1.2.2 There are security requirements associated with this requirement. For additional information, consult Part 6 - Security, Financial and Other Requirements, and Part 7 - Resulting Contract Clauses. For more information on personnel and organization security screening or security clauses, Bidders should refer to the Contract Security Program of



Public Works and Government Services Canada (<http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html>) website”.

### **1.3 Debriefings**

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

### **1.4. Communications**

As a courtesy and in order to coordinate any public announcements pertaining to this contract, the Government of Canada requests that successful Bidders notify the Contracting Authority 5 days in advance of their intention to make public an announcement related to the recommendation of a contract award, or any information related to the contract. The Government of Canada retains the right to make primary contract announcements.



## PART 2 - BIDDER INSTRUCTIONS

### 2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada. Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of 2003, Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days  
Insert: 120 days

### 2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

Due to the nature of the bid solicitation, bids transmitted by facsimile to PWGSC will not be accepted.

### 2.3 Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

#### Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the Financial Administration Act, R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or



- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the Public Service Superannuation Act (PSSA), R.S., 1985, c. P-36, and any increases paid pursuant to the Supplementary Retirement Benefits Act, R.S., 1985, c. S-24 as it affects the PSSA. It does not include pensions payable pursuant to the Canadian Forces Superannuation Act, R.S., 1985, c. C-17, the Defence Services Pension Continuation Act, 1970, c. D-3, the Royal Canadian Mounted Police Pension Continuation Act, 1970, c. R-10, and the Royal Canadian Mounted Police Superannuation Act, R.S., 1985, c. R-11, the Members of Parliament Retiring Allowances Act, R.S. 1985, c. M-5, and that portion of pension payable to the Canada Pension Plan Act, R.S., 1985, c. C-8.

### **Former Public Servant in Receipt of a Pension**

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes ( ) No ( )**

If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with Contracting Policy Notice: 2012-2 and the Guidelines on the Proactive Disclosure of Contracts.

### **Work Force Adjustment Directive**

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes ( ) No ( )**

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;



- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

## **2.4 Enquiries - Bid Solicitation**

All enquiries must be submitted in writing to the Contracting Authority no later than five (5) calendar days before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

## **2.5 Applicable Laws**

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.

## **2.6 Maximum Funding**

The maximum funding available for the contract resulting from the bid solicitation is **\$52,206.00** (Applicable Taxes extra, as appropriate). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.





## PART 3 - BID PREPARATION INSTRUCTIONS

### 3.1 Bid Preparation Instructions

Canada requests that Bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (2 hard copies) and 1 soft copy on CD,

Section II: Financial Bid (2 hard copies) and 1 soft copy on CD,

Section III: Certifications (2 hard copies)

If there is a discrepancy between the wording of the soft copy and the hard copy, the wording of the hard copy will have priority over the wording of the soft copy.

Prices must appear in the financial bid only. No prices must be indicated in any other section of the bid.

Canada requests that Bidders follow the format instructions described below in the preparation of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, Bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

#### Section I: Technical Bid

In their technical bid, Bidders should demonstrate their understanding of the requirements contained in the bid solicitation and explain how they will meet these requirements. Bidders should demonstrate their capability in a thorough, concise and clear manner for carrying out the work.

The technical bid should address clearly and in sufficient depth the points that are subject to the evaluation criteria against which the bid will be evaluated. Simply repeating the statement contained in the bid solicitation is not sufficient. In order to facilitate the evaluation of the bid, Canada requests that Bidders address and present topics in the order of the evaluation criteria under the same headings. To avoid duplication, Bidders may refer to different sections of their bids by identifying the specific paragraph and page number where the subject topic has already been addressed.



## **Section II: Financial Bid**

**3.1.1** Bidders must submit their financial bid in accordance with the following:

- (a) A firm, all-inclusive lot price for the Work, which must not exceed the maximum funding specified in Part 2. The total amount of Applicable Tax is to be shown separately, if applicable.

The firm prices included in the Basis of Payment exclude Travel and Living Expenses.

- (b) For Canadian-based bidders, prices must be in Canadian funds, Applicable Taxes excluded, and Canadian customs duties and excise taxes included.

For foreign-based bidders, prices must be in Canadian funds, Applicable Taxes and Canadian customs duties and excise taxes excluded. Canadian customs duties and excise taxes payable by Canada will be added, for evaluation purposes only, to the rates and prices submitted by foreign-based bidders.

For the purpose of the bid solicitation, bidders with an address in Canada are considered Canadian-based bidders and bidders with an address outside of Canada are considered foreign-based bidders.

### **3.1.2 Electronic Payment of Invoices – Bid**

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Annex “C” Electronic Payment Instruments, to identify which ones are accepted.

If Annex “C” Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

### **3.1.3 SACC Manual Clauses**

## **Section III: Certifications**

Bidders must submit the certifications and additional information required under Part 5.



**PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION**

**4.1 Evaluation Procedures**

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and the financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.
- (c) The evaluation team will determine first if there are two or more bids with a valid Canadian Content certification. In that event, the evaluation process will be limited to the bids with the certification; otherwise, all bids will be evaluated. If some of the bids with a valid certification are declared non-responsive, or are withdrawn, and less than two responsive bids with a valid certification remain, the evaluation will continue among those bids with a valid certification. If all bids with a valid certification are subsequently declared non-responsive, or are withdrawn, then all the other bids received will be evaluated.

**4.1.1 Technical Evaluation**

**4.1.1.1. Mandatory Technical Criteria**

In their proposals, bidders must demonstrate they meet the following mandatory criteria with examples and/or reference work, and technical explanations on how they meet each mandatory criteria. Failure to meet any of the mandatory criteria will render the bid non-compliant and it will be given no further consideration.

	CRITERIA	MET	NOT MET
<b>M1</b>	The bidder must provide resource(s) with proven experience and evidence that the resources worked on circularly polarized spiral antenna and/or wideband feed from 2 to 18 GHz before. The evidence can be contract reports, published papers and hardware designs. At least two evidences within the last fifteen years Research and Development. Please provide hard or soft copies.		
<b>M2</b>	The bidder must provide resource(s) having electromagnetic (EM) numerical computation experience in their researches and/or teachings using at least one of following methods: Method of Moment, Physical Optics (PO), GTD, and GTU-PO methods. The evidences can be contract report, published papers, case studies, project reports, and course notes within the last ten years. Please provide hard or software copies.		
<b>M3</b>	The resource(s) must have a minimum of five months hands-on experience within the last three years using newFASANT software package to input platform 3D solid model for EM calculation.		
<b>M4</b>	The resource(s) must have a minimum of five months hands-on experience within the last three years using newFASANT software package for EM calculation, for example platform radar cross section calculation and 3D data display.		
<b>M5</b>	The resource(s) must have five months hands-on experience within the last three years of EM modeling and calculation using multi-CUP on Windows computer.		
<b>M6</b>	The resource(s) must have proven evidence having RF/microwave and antenna measurement experience. The evidence can be microwave course notes, microwave lab notes, EM numerical course note and published papers.		



## **4.2 Basis of Selection**

### **4.2.1 Mandatory Technical Criteria**

*SACC Manual* Clause A0031T (2010-08-16), Basis of Selection – Mandatory Technical Criteria



## PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue, whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

### 5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

#### 5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the Integrity declaration form available on the Forms for the Integrity Regime website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

##### 5.1.2.1 Canadian Content Certification

This procurement is conditionally limited to Canadian goods and Canadian services.

Subject to the evaluation procedures contained in the bid solicitation, bidders acknowledge that only bids with a certification that the goods and services offered are Canadian goods and Canadian services, as defined in clause A3050T, may be considered.

Failure to provide this certification completed with the bid will result in the goods and services offered being treated as non-Canadian goods and non-Canadian services.

The Bidder certifies that:

( ) a minimum of 80 percent of the total bid price consist of Canadian goods and Canadian services as defined in paragraph 5 of clause A3050T.

For more information on how to determine the Canadian content for a mix of goods, a mix of services or a mix of goods and services, consult Annex 3.6.(9), Example 2, of the Supply Manual.

**5.1.2.1.1** SACC Manual clause A3050T (2014-11-27) Canadian Content Definition

### 5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid but may be submitted afterwards. If any of these required certifications or additional information is not



completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame specified will render the bid non-responsive.

### **5.2.1 Integrity Provisions – Required Documentation**

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the Ineligibility and Suspension Policy (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

### **5.2.2 Federal Contractors Program for Employment Equity - Bid Certification**

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the Employment and Social Development Canada (ESDC) - Labour's website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid list at the time of contract award.



## PART 6 - SECURITY, FINANCIAL AND OTHER REQUIREMENTS

### 6.1 Security Requirements

1. Before award of a contract, the following conditions must be met:
  - (a) the Bidder must hold a valid organization security clearance as indicated in Part 7 - Resulting Contract Clauses;
  - (b) the Bidder's proposed individuals requiring access to classified or protected information, assets or sensitive work sites must meet the security requirements as indicated in Part 7 - Resulting Contract Clauses;
  - (c) the Bidder must provide the name of all individuals who will require access to classified or protected information, assets or sensitive work sites;
2. Bidders are reminded to obtain the required security clearance promptly. Any delay in the award of a contract to allow the successful Bidder to obtain the required clearance will be at the entire discretion of the Contracting Authority.
3. For additional information on security requirements, Bidders should refer to the Contract Security Program of Public Works and Government Services Canada (<http://www.tpsgc-pwgsc.gc.ca/esc-src/introduction-eng.html>) website.



## PART 7 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

### 7.1 Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex "A".

### 7.2 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the Standard Acquisition Clauses and Conditions Manual (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

#### 7.2.1 General Conditions

2040 (2016-04-04), General Conditions - Research & Development, apply to and form part of the Contract.

### 7.3 Security Requirements

7.3.1 The following security requirements (SRCL and related clauses provided by the Contract Security Program) apply and form part of the Contract.

### 7.4 Term of Contract

#### 7.4.1 Period of the Contract

The period of the Contract is from date of Contract to June 30, 2019 inclusive.

### 7.5 Authorities

#### 7.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Celeste Clermont  
Title: Supply Specialist  
Public Works and Government Services Canada  
Acquisitions Branch  
Address: 11 rue Laurier PDPIII 11C1  
Gatineau, QC K1A 0S5  
Telephone: 819-420-0747  
Facsimile: 819-997-2229  
E-mail address: [celeste.clermont@tpsgc-pwgsc.gc.ca](mailto:celeste.clermont@tpsgc-pwgsc.gc.ca)

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.





### 7.5.2 Project Authority

The Project Authority for the Contract is:

Name: \_\_\_\_\_  
Title: \_\_\_\_\_  
Organization: \_\_\_\_\_  
Address: \_\_\_\_\_  
  
Telephone: \_\_\_\_-\_\_\_\_-\_\_\_\_\_  
Facsimile: \_\_\_\_-\_\_\_\_-\_\_\_\_\_  
E-mail address: \_\_\_\_\_

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority; however, the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

### 7.5.3 Contractor's Representative

*\*To be completed at time of contract award*

## 7.6 Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a Public Service Superannuation Act (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with Contracting Policy Notice: 2012-2 of the Treasury Board Secretariat of Canada.

## 7.7 Payment

### 7.7.1 Basis of Payment

**For the Work described in Section 4 and 5 of the Statement of Work in Annex A:**

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract the Contractor will be paid a firm price of \$\_\_\_\_\_ (**insert the amount at contract award**). Customs duties are included and Applicable Taxes are extra.

For the firm price portion of the Work only, Canada will not pay the Contractor for any design changes, modifications or interpretations of the Work unless they have been approved, in writing, by the Contracting Authority before their incorporation into the Work.



**For the Work described in Section 9 of the Statement of Work in Annex A:**

The Contractor will be reimbursed its authorized travel and living expenses reasonably and properly incurred in the performance of the Work, at cost, without any allowance for profit and/or administrative overhead, in accordance with the meal, private vehicle and incidental expenses provided in Appendices B, C and D of the Treasury Board Travel Directive ([http://www.tbs-sct.gc.ca/pubs\\_pol/hrpubs/TBM\\_113/td-dv\\_e.asp](http://www.tbs-sct.gc.ca/pubs_pol/hrpubs/TBM_113/td-dv_e.asp)), and with the other provisions of the directive referring to “travellers”, rather than those referring to “employees” are applicable.

All travel must have prior authorization of the Technical. All payments are subject to government audit.

**Total Estimated Contract Price: \$ \_\_\_\_\_**

**7.7.2 Limitation of Price**

*SACC Manual* clause C6000C (2017-08-17) Limitation of Price

**7.7.3 Milestone Payment**

Canada will make milestone payments in accordance with the Schedule of Milestones detailed in the Contract and the payment provisions of the Contract if:

- (a) an accurate and complete claim for payment using form PWGSC-TPSGC 1111 (<http://www.tpsgc-pwgsc.gc.ca/app-acq/forms/documents/1111.pdf>), Claim for Progress Payment, and any other document required by the Contract have been submitted in accordance with the invoicing instructions provided in the Contract;
- (b) all the certificates appearing on form PWGSC-TPSGC 1111 have been signed by the respective authorized representatives;
- (c) all work associated with the milestone and as applicable any deliverable required has been completed and accepted by Canada.

**7.7.4 Schedule of Milestones**

The schedule of milestones for which payments will be made in accordance with the Contract is as follows:

<b>Milestone No.</b>	<b>Deliverable</b>	<b>Firm Amount</b>	<b>Due Date</b>
1	Progress Report on far field radiation modeling and simulation	20% of total contract value	6 month after contract start
2	Report of the study along with a DVD containing the calculated far field radiation patterns as per Statement of Work	30% of total contract value	12 months after contract start
3	Progress Report of spiral antenna AoA model	20% of total contract value	18 month after contract start



4	Model and Final Report	30% of total contract value	June 30, 2019
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### 7.7.5 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

- a. Visa Acquisition Card;
- b. MasterCard Acquisition Card;
- c. Direct Deposit (Domestic and International);
- d. Electronic Data Interchange (EDI);
- e. Wire Transfer (International Only);
- f. Large Value Transfer System (LVTS) (Over \$25M)

### 7.7.7 Discretionary Audit

SACC Manual Clause C0705C (2010-01-11), Discretionary Audit

## 7.8 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled “Invoice Submission” of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.
2. Invoices must be distributed as follows:
  - (a) The original and one (1) copy must be forwarded to the address shown on page 1 of the Contract for certification and payment.
  - (b) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled “Authorities” of the Contract.

## 7.9 Certifications and Additional Information

### 7.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

## 7.10 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in Ontario.



### 7.11 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) the general conditions 2040 (2016-04-04) – research and development;
- (c) Annex A, Statement of Work;
- (d) Annex B, Security Requirements Check List;
- (e) the Contractor's bid dated \_\_\_\_\_, (*insert date of bid*) (*If the bid was clarified or amended, insert at the time of contract award:*" as clarified on \_\_\_\_\_" **or** ", as amended on \_\_\_\_\_" *and insert date(s) of clarification(s) or amendment(s)*).

### 7.12 Foreign Nationals

SACC Manual clause A2000C (2006-06-16) Foreign Nationals (Canadian Contractor)

### 7.13 Insurance

SACC Manual clause G1005C (2016-01-28) Insurance

### 7.14 Government Site Regulations

The Contractor must comply with all regulations, instructions and directives in force on the site where the Work is performed.



**ANNEX “A”  
STATEMENT OF WORK**

**1. TITLE**

CIRCULARLY POLARIZED ANTENNA ANGLE OF ARRIVAL AND INSTALLED ANTENNA RADIATION PATTERN STUDY

**2. BACKGROUND**

Radar Electronic Warfare Section (REW) in Defense Research and Development Canada – Ottawa Research Centre (DRDC-O) is a leader and center expertise unified and committed to ensuring the Canadian Forces is technologically prepared and operationally relevant on radar electronic warfare. Radio Frequency (RF) Electronic Warfare (EW) System Modeling and Simulation (M&S) with the consideration of Hardware-in-the-Loop (HWIL) has been identified as a key capability development for Royal Canadian Air Force (RCAF).

This contract requires a theoretical study of

1. How the aircraft body effect the spiral polarization antenna far field radiation patterns, and
2. How the polarization properties of the incoming electromagnetic wave changes the angle of arrival measurement performance of a circularly polarized antenna array.

**3. ACRONYMS**

AoA	Angle of Arrival
DRDC	Defence Research and Development Canada
DRDC-O	Defence Research and Development Canada – Ottawa Research Centre
EM	Electromagnetic
EW	Electronic Warfare
HWIL	Hardware-in-the-Loop
M&S	Modeling and Simulation
RCAF	Royal Canadian Air Force
RF	Radio Frequency
REW	Radar Electronic Warfare
SOW	Statement of Work
TA	Technical Authority

**4. TASKS**

**4.1 The aircraft body interference on far field radiation pattern of installed spiral antenna**

Using EM numerical methods and software packages, specifically using newFASANT software package, to study how the aircraft body changes installed spiral antenna far field radiation pattern based on the antenna measured free space radiation pattern at different frequencies, and 3D aircraft model.

DRDC will provide:

1. The aircraft 3D solid model;
2. Free space measured spiral antenna radiation pattern at different frequency and all angles;
3. Computer hardware and software used for the performance of this contract, if the contractor requires. All computer hardware and software will be returned to DRDC



after the contract has finished.

#### **4.2 The spiral antenna array AoA measurement performance study for different kinds of polarization incoming waves**

1. Develop two-element spiral antenna array AoA measurement model based on amplitude-comparison method using the antenna **free space radiation pattern** measured in microwave anechoic chamber (this data will provide by DRDC-O in Task 5.1). The circularly polarized of the these two antenna elements can be
  - a. All Left-hand -polarization
  - b. All right-hand -polarization
  - c. One left- and one right-hand-polarization
2. Then study above arrays AoA measurement accuracy when following waves come in at different incoming angles,
  - a. Vertical-polarization EM wave
  - b. Horizontal-polarization EM wave
  - c. Left-hand -polarization EM wave
  - d. Right-hand -polarization EM wave

#### **5. DELIVERABLES**

##### **5.1 Deliverables for task 5.1**

1. A report of what are found in the study.
2. A DVD that contains the calculated far field radiation patterns of the installed left- and right-hand polarized spiral antennas in the format that is the same as the free space radiation patterns provided by DRDC-O, at the frequencies as given in the DRDC-O free space antenna pattern.

##### **5.2 Deliverables for task 5.2**

1. Two-element spiral antenna AoA model, the model can be configured using
  - a. All Left-hand -polarization
  - b. All right-hand -polarization
  - c. One left- and one right-hand-polarization
2. Report on the findings of the studies in the task.

#### **6. DATE OF DELIVERY**

**Deliverable 6.1:** on or before March 31, 2018

**Deliverable 6.2:** on or before June 30, 2019

#### **7. LANGUAGE OF WORK**

Language of work is English.

#### **8. LOCATION OF WORK**

For theoretical study and Matlab M&S and writings the location of work will be:



School of Electrical Engineering and Computer Science, University of Ottawa  
Colonel By Building, 161, Louis Pasteur, Ottawa, Ontario, Canada, K1N 6N5

And,

For electromagnetic computer simulations, since the software license is only available at:

Defence Research and Development Canada – Ottawa Research Centre  
3701 Carling Av, Ottawa, Ontario, Canada

## **9. TRAVEL**

Travel to IEEE Antenna and Propagation international conference in 2019  
Total estimated \$3,000.00 CAD

## **10. GOVERNMENT SUPPLIED MATERIAL (GSM)**

**GSM 1:** Aircraft 3D models in SAT format

**GSM 2:** measured free space left- and right-hand polarization spiral antenna radiation patterns

**GSM 3:** EM software package used in DRDC-O for EM computers

## **11. GOVERNMENT FURNISHED EQUIPMENT (GFE)**

**GFE 1:** A desk top computer with multi-CUPs and 128 GB memory

## **12. SPECIAL CONSIDERATIONS**

None

## **13. SECURITY**

There is a security requirement, see Security Requirements Checklist (SRCL) for all details.



**ANNEX "B"**  
**SECURITY REQUIREMENTS CHECK LIST**

\*Attached herein





**ANNEX "C to PART 3 OF THE BID SOLICITATION  
ELECTRONIC PAYMENT INSTRUMENTS**

The Bidder accepts to be paid by any of the following Electronic Payment Instrument(s):

- VISA Acquisition Card;
- MasterCard Acquisition Card;
- Direct Deposit (Domestic and International);
- Electronic Data Interchange (EDI);
- Wire Transfer (International Only);
- Large Value Transfer System (LVTS) (Over \$25M)