



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Bid Receiving - PWGSC / Réception des
soumissions → TPSGC
10th Floor, 4900 Yonge Street /
10e étage, 4900 rue Yonge
Toronto
Ontario
M2N 6A6

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

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
10th Floor, 4900 Yonge Street
Toronto
Ontario
M2N 6A6

Title - Sujet S-Band Ground Station System	
Solicitation No. - N° de l'invitation W0114-190007/A	Date 2019-09-30
Client Reference No. - N° de référence du client W0114-190007	
GETS Reference No. - N° de référence de SEAG PW-\$TOR-008-7828	
File No. - N° de dossier TOR-9-42044 (008)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2019-10-23	Time Zone Fuseau horaire Eastern Daylight Saving Time EDT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Leslie, Sandra	Buyer Id - Id de l'acheteur tor008
Telephone No. - N° de téléphone (416) 575-8256 ()	FAX No. - N° de FAX () -
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF NATIONAL DEFENCE ILS RCVG 5 SOMME AVE KINGSTON Ontario K7K7B4 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

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

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PART 1 - GENERAL INFORMATION

1.1 Requirement

The requirement is detailed under Article 6.2 of the resulting contract clauses.

1.2 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.

1.3 Trade Agreements

The requirement is subject to the provisions of the Canadian Free Trade Agreement (CFTA).

1.4 epost Connect service

This bid solicitation allows bidders to use the epost Connect service provided by Canada Post Corporation to transmit their bid electronically. Bidders must refer to Part 2 entitled Bidder Instructions, and Part 3 entitled Bid Preparation Instructions, of the bid solicitation, for further information.

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) (<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](#) (2019-03-04) 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: 90 days

2.1.1 SACC Manual Clauses

B1000T (2014-06-26) Condition of Material

2.2 Submission of Bids

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

Courier/Post: Ontario Region – Tendering Office
10th Floor, 4900 Yonge Street
Toronto, Ontario
M2N 6A6

epost: TPSGC.orreceptiondessoumissions-orbidreceiving.PWGSC@tpsgc-pwgsc.gc.ca

Note: Bids will not be accepted if emailed directly to this email address. This email address is to be used to open an epost Connect conversation, as detailed in Standard Instructions [2003](#), or to send bids through an epost Connect message if the bidder is using its own licensing agreement for epost Connect.

Facsimile number: 416-952-1256

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than ten (10) 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

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TOR-9-42044

Buyer ID - Id de l'acheteur
TOR008
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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.

2.4 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.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

- If the Bidder chooses to submit its bid electronically, Canada requests that the Bidder submits its bid in accordance with section 08 of the 2003 standard instructions. The epost Connect system has a limit of 1GB per single message posted and a limit of 20GB per conversation.

The bid must be gathered per section and separated as follows:

Section I: Technical Bid
Section II: Financial Bid
Section III: Certifications
Section IV: Additional Information

- If the Bidder chooses to submit its bid in hard copies, Canada requests that the Bidder submits its bid in separately bound sections as follows:

Section I: Technical Bid (2 hard copies)
Section II: Financial Bid (1 hard copy)
Section III: Certifications (1 hard copy)

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

- If the Bidder is simultaneously providing copies of its bid using multiple acceptable delivery methods, and if there is a discrepancy between the wording of any of these copies and the electronic copy provided through epost Connect service, the wording of the electronic copy provided through epost Connect service will have priority over the wording of the other copies.

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 hard copy 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](https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573) (<https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573>). 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 explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment.

3.1.1 Electronic Payment of Invoices – Bid

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

If Annex “D” 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.

3.1.2 Exchange Rate Fluctuation

C3011T (2013-11-06), Exchange Rate Fluctuation

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 financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

Mandatory technical evaluation criteria are included in Annex C.

4.1.2 Financial Evaluation

The total evaluated price is:

Firm unit price for ITEM 1 + Firm unit price for ITEM 2 + Firm unit price for ITEM 3

SACC Manual Clause [A0220T](#) (2014-06-26), Evaluation of Price-Bid

4.2 Basis of Selection

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

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 declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

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 provided 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 property agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<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](https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#) 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 - RESULTING CONTRACT CLAUSES

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

6.1 Security Requirements

6.1.1 There is no security requirement applicable to the Contract.

6.2 Requirement

The Contractor must provide the items detailed under the "Requirement" at Annex "A".

6.3 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) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

[2010A](#) (2018-06-21), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

2010A (2018-06-21) Intellectual property infringement and royalties

- 1) The Contractor represents and warrants that, to the best of its knowledge, neither it nor Canada will infringe any third party's intellectual property rights in performing or using the Work, and that Canada will have no obligation to pay royalties of any kind to anyone in connection with the Work.
- 2) If anyone makes a claim against Canada or the Contractor concerning intellectual property infringement or royalties related to the Work, that Party agrees to notify the other Party in writing immediately. If anyone brings a claim against Canada, according to [Department of Justice Act](#), R.S. 1985, c. J-2, the Attorney General of Canada must have the regulation and conduct of all litigation for or against Canada, but the Attorney General may request that the Contractor defend Canada against the claim. In either case, the Contractor agrees to participate fully in the defence and any settlement negotiations and to pay all costs, damages and legal costs incurred or payable as a result of the claim, including the amount of any settlement. Both Parties agree not to settle any claim unless the other Party first approves the settlement in writing.
- 3) The Contractor has no obligation regarding claims that were only made because:
 - (a) Canada modified the Work or part of the Work without the Contractor's consent or used the Work or part of the Work without following a requirement of the Contract; or
 - (b) Canada used the Work or part of the Work with a product that the Contractor did not supply under the Contract (unless that use is described in the Contract or the manufacturer's specifications); or
 - (c) the Contractor used equipment, drawings, specifications or other information supplied to the Contractor by Canada (or by someone authorized by Canada); or
 - (d) the Contractor used a specific item of equipment or software that it obtained because of specific instructions from the Contracting Authority; however, this exception only applies if the Contractor has included the following language in its own contract with the supplier of that equipment or software: "[Supplier name] acknowledges that the purchased items will be used by the Government of Canada. If a third party claims that equipment or software supplied under this contract infringes any intellectual property right, [supplier name], if requested to do so by either [Contractor name] or Canada, will defend both [Contractor name] and Canada against that claim at its own expense and will pay all costs, damages and legal fees payable as a result of that infringement." Obtaining this protection from the supplier is the Contractor's responsibility and, if the Contractor does not do so, it will be responsible to Canada for the claim.
- 4) If anyone claims that, as a result of the Work, the Contractor or Canada is infringing its intellectual property rights, the Contractor must immediately do one of the following:

- (a) take whatever steps are necessary to allow Canada to continue to use the allegedly infringing part of the Work; or
- (b) modify or replace the Work to avoid intellectual property infringement, while ensuring that the Work continues to meet all the requirements of the Contract; or
- (c) take back the Work and refund any part of the Contract Price that Canada has already paid.

If the Contractor determines that none of these alternatives can reasonably be achieved, or if the Contractor fails to take any of these steps within a reasonable amount of time, Canada may choose either to require the Contractor to do (c), or to take whatever steps are necessary to acquire the rights to use the allegedly infringing part(s) of the Work itself, in which case the Contractor must reimburse Canada for all the costs it incurs to do so.

6.3.2 Supplemental General Conditions

4001 (2015-04-01) Hardware Purchase, Lease and Maintenance;
4003 (2010-08-16) Licensed Software,

apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is from date of Contract to October 30, 2020 inclusive.

6.4.2 Delivery Date

All the deliverables must be received on or before July 15, 2020.

6.4.3 Delivery Points

Delivery of the requirement will be made to delivery point(s) specified at Annex "B" of the Contract.

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Sandra Leslie
Title: Supply Specialist
Organization: Public Works and Government Services Canada
Acquisitions Branch
Address: 10th Floor, 4900 Yonge Street
Toronto, ON M2N 6A6

Telephone: 416-575-8256

E-mail address: sandra.leslie2@pwgsc-tpsgc.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.

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6.5.2 Project Authority

The Project Authority for the Contract is: (to be inserted at contract award)

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.

6.5.3 Contractor's Representative

The telephone number (with extension if applicable) of the person responsible for:

General enquiries

Delivery Follow-up

Name: _____
Telephone No. _____
Facsimile No. _____
E-mail address: _____

Name: _____
Telephone No. _____
Facsimile No. _____
E-mail address: _____

6.6 Payment

6.6.1 Basis of Payment

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

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.

6.6.2 SACC Manual Clauses

C2000C (2007-11-30) Taxes - Foreign-Based Contractor
H1001C (2008-05-12) Multiple Payments

6.6.3 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)

6.7 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.

6.8 Certifications and Additional Information

6.8.1 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.

6.9 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in _____ (*insert the name of the province or territory as specified by the Bidder in its bid, if applicable*).

6.10 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 supplemental general conditions
4001 (2015-04-01) Hardware Purchase, Lease and Maintenance;
4003 (2010-08-16) Licensed Software;
- (c) the general conditions 2010A (2018-06-21), General Conditions - Goods (Medium Complexity);
- (d) Annex A, Requirement;
- (e) Annex B, Basis of Payment;
- (f) the Contractor's bid dated _____ (*insert date of bid*)

6.11 Defence Contract

SACC Manual clause A9006C (2012-07-16) Defence Contract

6.12 SACC Manual Clauses

A9062C (2011-05-16) Canadian Forces Site Regulations
B7500C (2006-06-16) Excess Goods
G1005C (2016-01-28) Insurance - No Specific Requirement

ANNEX "A" REQUIREMENT

S-Band Ground Station System

1.0 SCOPE

1.1 Objective

Department of National Defence, Royal Military College of Canada (RMC), has a requirement for the supply, delivery, installation and training of one (1) complete S-Band Ground Station system.

1.2 Background

The RMC satellite ground station currently operates in the very high frequency (VHF)/ ultra-high frequency (UHF) band. The addition of an S-band dish antenna, receiver and satellite tracking software will allow greater flexibility for satellite communication. Future CubeSats developed and operated by RMC will benefit with the availability of S-Band as a result of increased data downlink/uplink during satellite passes.

The addition of S-Band will allow RMC to downlink S-Band data from other satellite missions in co-operative efforts with other universities and the RMC undergraduate and graduate programs will benefit from this new capability, particularly in Space Mission Analysis, Space Mission Design and Space Communications. The addition of an S-Band ground station will allow RMC to collaborate with other DND entities, such as Defence Research and Development Canada (DRDC) and Director General (DG) Space with respect to education, research and operations, including the downlinking of satellite data from current and future Canadian Armed Forces space assets.

2.0 MANDATORY TECHNICAL SPECIFICATIONS

The S-Band Ground Station system must meet each of the minimum specification requirements specified below.

The S-Band Ground Station must be a complete turnkey ground station solution, pre-assembled and tested.

2.1 Antenna Characteristics

1. Description: Three-meter parabolic reflector with helix feed and low noise amplifier.
2. Gain: >35 dBi
3. Noise Figure: <1 dBi
4. Polarization: Either Left-hand or right-hand circular polarization
5. Beamwidth: > 2°
6. Operating Temperature: -10° to 50° C
7. Survival Windspeed: 120 km/h
8. Weight: <300 kg
9. Lightning protection system.
10. Sufficient cabling (35 m) for connection to indoor radio.

2.2 Tracking and Control System

- 1) Steerable System: 180° in elevation and 360° in azimuth
- 2) Antenna Rotators: Weather hardened azimuth/elevation rotators fully sealed, with internal heaters
- 3) Rotator Speed: Variable from 0 to 5° (min.) per second
- 4) Pointing Accuracy: <0.3°

2.3 Radio Characteristics

- 1) Receive Frequency Ranges: 2200-2290 MHz and 2400-2450 MHz
- 2) Frequency Stability: ± 2 ppm at 25°
- 3) Signal Modulation Schemes: BPSK, BPSK-G3RUH, AFSK, FSK, FSK-G3RUH
- 4) Data Rate: Selectable with a maximum rate of at least 4 Mbps
- 5) Data link layer protocol: AX.25, CCSDS
- 6) Data Interfaces: IQ data output, Raw bytes output, KISS output, Binary output
- 7) Compact set-up: 12-U 20" rack or smaller

2.4 Software

- 1) Satellite autonomous tracking software with scheduler
- 2) S-Band operation software
- 3) Software to control the rotor

2.5 Installation and Training

- a) On site ground station installation
- b) Three days of on-site training for 4 people for S-Band operations at vendor's expense

2.6 Documentation

The Contractor must provide at the time of delivery, in English, a User Manual containing the latest technical information on parts, service and maintenance related to the S-Band Ground Station system.

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TOR008
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ANNEX "B" BASIS OF PAYMENT

*NOTE: Upon issuance of the Contract, wording that is italicized will be deleted from Annex B.
The bidder must provide a separate firm price for each line listed in this Basis of Payment.*

- 1) Firm Lot Prices must be FOB destination including delivery, offloading, applicable Customs and duties, DDP (delivery duty paid) to the specified "DELIVERY LOCATION" below.
- 2) Firm Lot Prices must not include Applicable taxes. Applicable taxes will be added as a separate line item to any invoice issued as a result of a Contract.
- 3) Firm Lot Prices must be in Canadian Dollars (CAD)

DELIVERY LOCATION

Ground level loading dock at
Royal Military College of Canada
Department of Physics & Space Science
15 Crerar Cres.
Kingston, ON, K7K 7B4

Item No.	DESCRIPTION	Unit of Issue	QUANTITY	FIRM UNIT PRICE
1	S-Band Ground Station System in accordance with Annex "A", Requirement Make: _____ Model: _____	Each	1	\$ _____
2	Installation, commissioning and testing of the S-Band Ground Station	LOT	1	\$ _____
3	Training in accordance with Annex "A", Requirement	LOT	1	\$ _____

TOTAL EVALUATED BID PRICE

Firm unit price for ITEM 1 + Firm unit price for ITEM 2 + Firm unit price for ITEM 3

\$ _____

ANNEX “C” TECHNICAL EVALUATION

MINIMUM MANDATORY PERFORMANCE SPECIFICATIONS

A complete list of the minimum mandatory performance specifications are detailed below. Bidders are to clearly demonstrate compliance with each mandatory specification.

1. Bidders **must** show compliance by addressing each performance specification.
2. It is requested that supporting technical documentation, including but not limited to, specification sheets, technical brochures, photographs or illustrations be provided with the bid at solicitation close and be cross-referenced for each performance specification to outline where in the supporting technical documentation it demonstrates compliance. It is the Bidders responsibility to ensure that the submitted supporting technical documentation provides detail to prove that the proposed product(s) meet the requirements of the Performance Specification. If published supporting technical document is not available, the Bidder should prepare a written narrative complete with a detailed explanation of how its bid demonstrates technical compliance.
3. Bidders must address any concerns with the performance specifications in written detail to the Contracting Authority before bid closing as outlined in the solicitation document.
4. Failure to meet each performance specification will result in the bid being deemed nonresponsive, and be given no further consideration.

	Mandatory Criteria	Cross-reference to documentation provided, Annex, Page No., Item No. etc.
	The S-Ground Station System must have the following minimum specifications:	
M1	Antenna characteristics <ol style="list-style-type: none">1. Three-meter parabolic reflector with helix feed and low noise amplifier2. Gain: >35 dBi3. Noise Figure: <1 dBi4. Polarization: Either Left-hand or right-hand circular polarization5. Beamwidth: > 2°6. Operating Temperature: -10° to 50°7. Survival Windspeed: 120 km/h8. Weight: <300 kg9. Lightning protection system10. Sufficient cabling (20 m) for connection to indoor radio	
M2	Tracking and Contract System <ol style="list-style-type: none">1. Steerable System: 180° in elevation and 360° in azimuth2. Antenna Rotators: Weather hardened azimuth/elevation rotators fully sealed, with internal heaters3. Rotator Speed: Variable from 0 to 5° (min.) per second4. Pointing Accuracy: <0.3°	

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TOR008
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M3	<p>Radio Characteristics</p> <ol style="list-style-type: none">1. Receive Frequency Ranges: 2200-2290 MHz and 2400-2450 MHZ2. Frequency Stability: ± 2 ppm at 25°3. Signal Modulation Schemes: BPSK, BPSK-G3RUH, AFSK, FSK, FSK-G3RUH4. Data Rate: Selectable with a maximum rate of at least 4 Mbps5. Data link layer protocol: AX.25, CCSDS6. Data Interfaces: IQ data output, Raw bytes output, KISS output, Binary output7. Compact set-up: 12-U 20" rack or smaller	
M4	<p>Software. The bidder must supply the following software for antenna operations.</p> <ol style="list-style-type: none">1. Satellite autonomous tracking software with scheduler2. S-Band operation software3. Software to control the rotor	
M5	<p>The bidder must have a space heritage in S-Band ground station installation, with minimum experience of ten systems installed.</p>	

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ANNEX “D” to PART 3 OF THE BID SOLICITATION

ELECTRONIC PAYMENT INSTRUMENTS

As indicated in Part 3, clause 3.1.2, the Bidder must identify which electronic payment instruments they are willing to accept for payment of invoices.

The Bidder accepts 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)

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ANNEX "E" ADDITIONAL CERTIFICATIONS

1. Board of Directors

In accordance with Integrity Provisions –bid, bidders are required to provide a list of their Board of Directors before contract award. Offerors are requested to provide this information in their bid.

Director Name - _____

Director Name - _____

Director Name - _____

Director Name - _____

Director Name - _____

Director Name - _____

Director Name - _____

Director Name - _____

2. Procurement Business Number (PBN)

In accordance with Section 2, Procurement Business Number, of the Standard Instructions, Offerors are required to have a Procurement Business Number (PBN) before Contract award.

Procurement Business Number - _____

Suppliers may register for a PBN online at [Supplier Registration Information](#). For non-Internet registration, suppliers may contact the InfoLine at 1-800-811-1148 to obtain the telephone number of the nearest Supplier Registration Agent.