

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

**Bid Receiving
PWGSC
33 City Centre Drive
Suite 480
Mississauga
Ontario
L5B 2N5
Bid Fax: (905) 615-2095**

**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

Title - Sujet Motion Capture Camera	
Solicitation No. - N° de l'invitation W7719-145245/A	Date 2013-10-21
Client Reference No. - N° de référence du client W7719-145245	
GETS Reference No. - N° de référence de SEAG PW-\$TOR-302-6393	
File No. - N° de dossier TOR-3-36090 (302)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2013-12-03	
Time Zone Fuseau horaire Eastern Standard Time EST	
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: Berends, Robert	Buyer Id - Id de l'acheteur tor302
Telephone No. - N° de téléphone (905) 615-2465 ()	FAX No. - N° de FAX (905) 615-2060
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF NATIONAL DEFENCE 1133 SHEPPARD AVE W. TORONTO Ontario M3K2C9 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

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

Delivery Required - Livraison exigée 2013-12-20	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

TABLE OF CONTENTS

PART 1 - GENERAL INFORMATION

1. Introduction
2. Summary
3. Debriefings

PART 2 - BIDDER INSTRUCTIONS

1. Standard Instructions, Clauses and Conditions
2. Submission of Bids
3. Enquiries - Bid Solicitation
4. Applicable Laws

PART 3 - BID PREPARATION INSTRUCTIONS

1. Bid Preparation Instructions

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

1. Evaluation Procedures
2. Basis of Selection

PART 5 - CERTIFICATIONS

1. Mandatory Certifications Required Precedent to Contract Award
2. Additional Certifications Precedent to Contract Award

PART 6 - RESULTING CONTRACT CLAUSES

1. Requirement
2. Standard Clauses and Conditions
3. Security Requirement
4. Term of Contract
5. Authorities
6. Payment
7. Invoicing Instructions
8. Certifications
9. Applicable Laws
10. Priority of Documents
11. Electrical Equipment
12. Insurance

List of Annexes:

Annex A	Requirement
Annex B	Basis of Payment
Annex C	Software Certification Forms
Annex D	Evaluation Scoring Grid

PART 1 - GENERAL INFORMATION

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: includes the certifications 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 Requirement, Basis of Payment, Software Certification Forms and the Evaluation Scoring Grid.

2. Summary

The Department of National Defence (DND), Defence Research and Development Canada (DRDC) in Toronto, Ontario has a requirement for a Motion Capture Camera System to capture and analyze whole-body motion and postures in three-dimension space and visualize complex motions in real-time. The Motion Capture Camera System is required to capture the duration and frequency of common and demanding postures of Royal Canadian Air Force Pilots and Flight Engineers to understand head-supported mass neck strain limits. The system must include a minimum of 8 cameras.

The maximum funding available for the Contract resulting from the bid solicitation is \$120,000.00 (Applicable Taxes extra).

Delivery of the system must be completed by February 28, 2014.

Bidders must provide a list of names, or other related information as needed, pursuant to section 01 of Standard Instructions 2003.

The requirement is subject to the provisions of the North American Free Trade Agreement (NAFTA), and the Agreement on Internal Trade (AIT).

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 of receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

Solicitation No. - N° de l'invitation

W7719-145245/A

Amd. No. - N° de la modif.

File No. - N° du dossier

TOR-3-36090

Buyer ID - Id de l'acheteur

tor302

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

W7719-145245

CCC No./N° CCC - FMS No/ N° VME

PART 2 - BIDDER INSTRUCTIONS

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 (2013-06-01) 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: sixty (60) days

Insert: ninety (90) days

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.

3. Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than 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 such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the questions or may request that the Bidder do so, so that the proprietary nature of the question is eliminated, and the enquiry can be answered with copies to all bidders. Enquiries not submitted in a form that can be distributed to all bidders may not be answered by Canada.

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

1. Bid Preparation Instructions

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

Section I: Technical Bid (4 hard copies)

Section II: Financial Bid (2 hard copies)

Section III: Certifications (2 hard 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 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 and describe their approach 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

- 1.1 Bidders must submit their financial bid in accordance with the Basis of Payment in Annex B. The total amount of Applicable Taxes must be shown separately.

Section III: Certifications

Solicitation No. - N° de l'invitation

W7719-145245/A

Amd. No. - N° de la modif.

File No. - N° du dossier

TOR-3-36090

Buyer ID - Id de l'acheteur

tor302

CCC No./N° CCC - FMS No/ N° VME

W7719-145245

Bidders must submit the certifications required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

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.

1.1 Technical Evaluation

1.1.1 Mandatory Technical Criteria

Bidders must meet all mandatory criteria. Failure to meet any one of the mandatory criteria will result in your bid being declared non-responsive.

- a) The equipment (Motion Capture Camera System) offered must meet all the technical specifications detailed in Annex A, Requirement - Section 3.0.
- b) The Bidder must provide evidence (instrument specification, publications, documented data or discussion points) to support the fact that their system meets a specification, simply stating that the criteria is met is not sufficient. The Bidder must provide such evidence for each of the mandatory requirements detailed at Annex A, Requirement, Section 3.0.

1.1.2 Point Rated Technical Criteria

In this section the Bidder should include all data relevant to the point rating criteria as detailed below. Point rated items not addressed will be given a score of zero. The proposal will be evaluated solely on its content. An evaluation scoring grid is provided in Annex D.

The maximum overall score that can be achieved is 100 points. Proposals must achieve at least 75 points (75%) overall.

A) Cameras (Maximum 40 points)

- 1. Indoor capture in a volume larger than 7m x7m x 3.5m (up to 10 points).
- 2. Indoor capture with various levels of ambient light (up to 10 points).
- 3. Outdoor capture (up to 10 points).
- 4. Compatibility with other models of cameras (e.g., mixing of camera models to capture smaller areas in greater detail within the volume is possible). List the compatible cameras (up to 10 points).

B) Software (Maximum 40 points)

- 1. Desirable features checklist (up to 5 points).
- 2. Quick re-calibration (e.g. in the case of a shifted camera). Indicate the length of time and effort required for re-calibration (up to 5 points).

3. Presentation/reporting of data without 3rd party software (e.g., Can data be presented graphically or by animation directly within the software?) (up to 5 points).
4. Avoidance of marker label swapping (e.g., how does the software deal with swapping of marker labels in the case of rapid rotational motion?) (up to 5 points).
5. Capability of visualizing, analyzing and exporting 3rd party data (i.e., EMG, load cell and accelerometer) (up to 5 points).
6. Raw data export (name the export file formats) (up to 5 points).
7. Compatibility with 3rd party human digital modelling software (name compatible 3rd party software) (up to 5 points).
8. Documentation for analysis tools and techniques (e.g. does the user manual give mathematical descriptions for post-processing tools such as smoothing)? List the post-processing tools and provide user manual excerpts if applicable (up to 5 points).

C) Research (Maximum 20 points)

1. List of Canadian government, academic and industrial users of the system offered (2 points each, up to 10 points).
2. List of scientific literature references of the system offered (2 points each, up to 10 points).

1.2 Financial Evaluation

1.2.1 Mandatory Financial Criteria

- 1.2.1.1** Bidders must submit their financial bid in Canadian funds in accordance with Annex B, Basis of Payment, at the time of bid closing.
- 1.2.1.2** The price used in the evaluation will be the firm price as detailed in Annex B, Basis of Payment.
- 1.2.1.3** The price of the bid will be evaluated in Canadian dollars, the Goods and Services Tax or the Harmonized Sales Tax excluded, FOB destination, Canadian customs duties and excise taxes included.
- 1.2.1.4** The maximum funding available for the Contract resulting from the bid solicitation is \$120,000.00 (Applicable Taxes extra). Bids valued in excess of this amount will be considered non-responsive. This disclosure does not commit Canada to pay the maximum funding available.

2. Basis of Selection

1. To be declared responsive, a bid must:
 - A. comply with all the requirements of the bid solicitation;
 - B. meet all mandatory technical and financial evaluation criteria; and

Solicitation No. - N° de l'invitation

W7719-145245/A

Amd. No. - N° de la modif.

File No. - N° du dossier

TOR-3-36090

Buyer ID - Id de l'acheteur

tor302

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

W7719-145245

CCC No./N° CCC - FMS No/ N° VME

C. obtain the required minimum of 75 percent overall of the points for the technical evaluation criteria which are subject to point rating. The rating is performed on a scale of 100 points.

2. Bids not meeting (a) or (b) or (c) will be declared non responsive. The responsive bid with the highest number of points will be recommended for award of a contract, provided that the total evaluated price does not exceed the budget available for this requirement.

PART 5 - CERTIFICATIONS

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

The certifications provided by bidders to Canada are subject to verification by Canada at all times. 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 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 with this request will also render the bid non-responsive or will constitute a default under the Contract.

1. Mandatory Certifications Required Precedent to Contract Award

1.1 Code of Conduct and Certifications - Related documentation

By submitting a bid, the Bidder certifies that the Bidder and its affiliates are in compliance with the provisions as stated in Section 01 Code of Conduct and Certifications - Bid of Standard Instructions 2003. The related documentation therein required will assist Canada in confirming that the certifications are true.

1.2 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](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list (http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml) available from [Human Resources and Skills Development Canada \(HRSDC\) - Labour's website](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)

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](http://www.labour.gc.ca/eng/standards_equity/eq/emp/fcp/list/inelig.shtml)" list at the time of contract award.

1.3 Software Publisher Certification and Software Publisher Authorization

If the Bidder is the Software Publisher for any of the proprietary software component(s) it bids, Canada requires that the Bidder confirm in writing that it is the Software Publisher.

Any Bidder that is not the Software Publisher of all the proprietary software products or components proposed as part of its bid is required to submit proof of the Software Publisher's authorization, which must be signed by the Software Publisher (not the Bidder). No Contract will be awarded to a Bidder who is not the Software Publisher of all of the proprietary software it proposes to supply to Canada, unless proof of this authorization has been provided to Canada. If the proprietary software proposed by the Bidder originates with multiple Software Publishers, authorization is required from each Software Publisher.

Bidders are requested to use the Software Publisher Authorization Form included with the bid solicitation, in Annex C. Although all the contents of the Software Publisher Authorization Form are required, using the form itself to provide this information is not mandatory. For Bidders/Software Publishers who use an alternate form, it is in Canada's sole discretion to determine whether all the required information has been provided.

Solicitation No. - N° de l'invitation

W7719-145245/A

Amd. No. - N° de la modif.

File No. - N° du dossier

TOR-3-36090

Buyer ID - Id de l'acheteur

tor302

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

W7719-145245

CCC No./N° CCC - FMS No/ N° VME

In this bid solicitation, "Software Publisher" means the owner of the copyright in any software included in the bid, who has the right to license (and authorize others to license/sub-license) its software products.

PART 6 - RESULTING CONTRACT CLAUSES

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

1. Requirement

The Contractor must provide the Motion Capture Camera System in accordance with the Requirement at Annex A.

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.

2.1 General Conditions

2030 (2013-06-27) General Conditions - Higher Complexity - Goods, apply to and form part of the Contract.

2.2 Supplemental General Conditions

4003 (2010-08-16) Licenced Software, apply to and form part of the Contract.

3. Security Requirement

There is no security requirement applicable to this Contract.

4. Term of Contract

4.1 Delivery Date

All the deliverables must be received on or before February 28, 2014.

5. Authorities

5.1 Contracting Authority

The Contracting Authority for the Contract is:

Robert Berends
Supply Specialist
Public Works and Government Services Canada
Acquisitions Branch
33 City Centre Drive, Suite 480C
Mississauga, Ontario
L5B 2N5
Telephone: 905-615-2465
Facsimile: 905-615-2060

E-mail address: robert.berends@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.

5.2 Technical Authority

The Technical Authority for the Contract is:

Name: *(to be provided at time of Contract award)*

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.

5.3 Contractor's Representative

Name: _____

Title: _____

Organization: _____

Address: _____

Telephone: ____-____-_____

Facsimile: ____-____-_____

E-mail address: _____

6. Payment

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 lot price, as specified in Annex B for a cost of \$ _____. 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.

6.2 Single Payment

SACC Manual clause H1000C (2008-05-12) Single Payment

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.

8. Certifications

8.1 Compliance

Compliance with the certifications and related documentation provided by the Contractor in its bid is a condition of the Contract and subject to verification by Canada during the term of the Contract. If the Contractor does not comply with any certification, provide the related documentation or if it is determined that any certification made by the Contractor in its bid is untrue, whether made knowingly or unknowingly, Canada has the right, pursuant to the default provision of the Contract, to terminate the Contract for default.

9. Applicable Laws

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

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 4003 (2010-08-16) Licenced Software;
- (c) the general conditions 2030 (2013-06-27) General Conditions - Higher Complexity - Goods;
- (d) Annex A, Requirement;
- (e) Annex B, Basis of Payment;
- (f) Annex C, Software Certification Forms;
- (g) the Contractor's bid dated _____.

11. Electrical Equipment

SACC Manual clause B1501C (2006-06-16) Electrical Equipment

12. Insurance

SACC Manual clause G1005C (2008-05-12) Insurance

Solicitation No. - N° de l'invitation

W7719-145245/A

Amd. No. - N° de la modif.

File No. - N° du dossier

TOR-3-36090

Buyer ID - Id de l'acheteur

tor302

CCC No./N° CCC - FMS No/ N° VME

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

W7719-145245

ANNEX A

REQUIREMENT

Motion Capture Capability

1.0 Background

Royal Canadian Air Force pilots and flight engineers are subjected to considerable neck strain, largely due to the weight of the helmet and night vision goggles (NVG). To understand head-supported mass neck strain limits, a study is proposed to systematically vary mass and centre of mass (CoM), while capturing common and demanding postures of the crew tasks and associated durations, frequencies, forces, and muscle activation. This study will generate mass and CoM requirements for any new helmet and NVG system that may be procured in the future.

Motion capture capability is required to capture the duration and frequency of common and demanding postures. Force transducers (load cells) will be employed to capture the external forces as crew members interact with their environment. Electromyography (EMG) will be used to capture muscle activation particularly around the shoulder, neck, and head area.

2.0 Objective

To acquire a motion capture camera system to capture and analyze whole-body motion and postures in 3D space and visualize complex motions in real-time.

3.0 Mandatory Minimum Requirements

3.1 Camera System

The Contractor must provide a system of cameras that meets the following minimum mandatory requirements:

- 3.1.1 Must include a minimum of eight cameras.
- 3.1.2 Must capture and record whole-body motion (i.e. link segment and joint motion) from at least two people simultaneously.
- 3.1.3 Must capture and record fine detail motion of the head and neck.
- 3.1.4 Must capture and record motion of rigid objects (e.g., helmets).
- 3.1.5 Must collect data in an indoor laboratory environment with a minimum capture volume of 7m x 7m x 3.5m.
- 3.1.6 Must have positional accuracy of 1 mm or less.
- 3.1.7 Must have rotational accuracy of 1 degree or less.
- 3.1.8 Cameras must have minimum resolution of 1 Megapixel.

-
- 3.1.9** Cameras must have minimum frame rate of 120 frames per second while operating at maximum resolution.
- 3.2 Data acquisition system for 3rd party data input (i.e. EMG) to motion capture system**
- 3.2.1** Must have a minimum of 64 analog input channels.
- 3.2.2** Must have minimum 16-bit resolution per channel.
- 3.2.3** Must have minimum sampling rate of 250 kHz per channel.
- 3.3 One Digital video camera or one Motion capture camera (in addition to the cameras described in Item number 3.1.1)**
- 3.3.1** Must be compatible with the motion capture system for video referencing.
- 3.4 Tripods for camera mounting (Quantity: 1 per motion capture camera and 1 for video camera)**
- 3.5 Motion capture software (Quantity: 1 license)**
- 3.5.1** Must calibrate the motion capture system, acquire, analyze and export motion capture data without use of 3rd party software.
- 3.5.2** Must generate individual templates for each marker set (i.e., link segment and joint motion) in the capture volume.
- 3.5.3** Must provide real-time visualization of whole-body motion trajectories and time-histories.
- 3.5.4** Must have post-processing capability.
- 3.5.5** Must export all raw and post-processed data.
- 3.5.6** Must acquire and provide real-time visualization of EMG, load cell and digital video signals without the use of 3rd party software.
- 3.6 Accessory kit**
- 3.6.1** Must include at least two sizes of on-the-body markers suitable for biomechanics, no larger than 2 cm in diameter (minimum of 50 markers in total).
- 3.6.2** Must include adhesive for attachment of on-the-body markers.
- 3.7 Warranty, maintenance and technical support (Minimum duration: 1 year)**
- 3.8 On-site training (8 hours provided within 3 weeks of delivery)**

Solicitation No. - N° de l'invitation

W7719-145245/A

Amd. No. - N° de la modif.

File No. - N° du dossier

TOR-3-36090

Buyer ID - Id de l'acheteur

tor302

CCC No./N° CCC - FMS No/ N° VME

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

W7719-145245

ANNEX B

BASIS OF PAYMENT

Prices are firm, all inclusive prices in Canadian dollars. Transportation charges are included. Customs duties and Excise taxes are included, and Goods and Services Tax or Harmonized Sales Tax is extra, if applicable.

1) Firm Requirement

Item Number and Description	Qty.	Firm Lot Price
1) Supply and Delivery of a motion camera capture system in accordance with all the specifications in Annex A, Requirement (including shipping to Toronto, Ontario).	1 lot	\$ _____

Manufacturer Name(s) and Model Number(s)

Solicitation No. - N° de l'invitation

W7719-145245/A

Amd. No. - N° de la modif.

File No. - N° du dossier

TOR-3-36090

Buyer ID - Id de l'acheteur

tor302

CCC No./N° CCC - FMS No/ N° VME

ANNEX C

SOFTWARE CERTIFICATION FORMS

Software Publisher Certification Form

(to be used where the Bidder itself is the Software Publisher)

The Bidder certifies that is the software publisher of all the following software products and components and that it has all the rights necessary to license them (and any non-proprietary sub-components incorporated into the software) on a royalty-free basis to Canada:

[bidders should add or remove lines as needed]

Solicitation No. - N° de l'invitation

W7719-145245/A

Amd. No. - N° de la modif.

File No. - N° du dossier

TOR-3-36090

Buyer ID - Id de l'acheteur

tor302

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

W7719-145245

CCC No./N° CCC - FMS No/ N° VME

Software Publisher Authorization Form
(to be used where the Bidder is not the Software Publisher)

This confirms that the software publisher identified below has authorized the Bidder named below to license its proprietary software products under any contract resulting from the bid solicitation identified below.

This authorization applies to the following software products:

[bidders should add or remove lines as needed]

Name of Software Publisher (SP) _____

Signature of authorized signatory of SP _____

Print Name of authorized signatory of SP _____

Print Title of authorized signatory of SP _____

Address for authorized signatory of SP _____

Telephone no. for authorized signatory of SP _____

Fax no. for authorized signatory of SP _____

Date signed _____

Solicitation Number _____

Name of Bidder _____

ANNEX D

EVALUATION SCORING GRID

Motion Capture System

A. Cameras (Max. 40 points)

1. Indoor capture in a volume larger than 7mX7mX3.5m. (Max. 10 pts)

10 points - 30m X 7m X 3.5m

5 points - 20m X 7m X 3.5m

3 points - 10m X 7m X 3.5m

2. Indoor capture with various levels of ambient light. (Max. 10 pts)

10 points - can handle dim lighting, partial outdoor lighting (e.g., inside a warehouse with a garage door open at one end) and partially reflective surfaces (ice, shiny floor)

5 points - can handle two of the three criteria above.

3 points - can handle one of the three criteria above.

3. Outdoor capture (Max. 10 pts)

10 points - yes, with no restrictions (all lighting and weather conditions)

5 points - yes, with some restrictions on lighting and weather conditions

4. Compatibility with other models of cameras (e.g., mixing of camera models to capture smaller areas in greater detail within in the volume is possible). List the compatible cameras. (Max. 10 pts)

10 points - compatible with at least two different camera models than those provided with the current proposal.

5 points - compatible with at least one other camera model than those provided with the current proposal

B. Software (Max. 40 points)**1. Desirable features checklist (yes or no). (Max 5 pts)**

Visualization of capture volume - 1 point if yes, and

Visualization of individual camera field of view - 1 point if yes, and

Visualization of marker trajectories - 1 point if yes, and

Post-processing scripts can be customized - 2 points if yes

2. Quick re-calibration (e.g. in the case of a shifted camera). Indicate the length of time and effort required for re-calibration. (Max. 5 pts)

5 points - Single button press and less than one minute to process

3 points - one minute to less than two minutes to process

1 point - two minutes to five minutes to process

3. Presentation/reporting of data without 3rd party software (e.g., can data be presented graphically or by animation directly within the software). (Max 5pts)

5 points - Motion capture data can be animated, position data can be presented graphically and eletromyography (EMG) data can be presented graphically within the software

3 points - Two of the above features

1 point - One of the above features

4. Avoidance of marker label swapping (e.g., how does the software deal with swapping of marker labels in the case of rapid rotational motion). (Max 5pts)

5 points - Two or more features for marker labeling

3 points - One feature

5. Capability of visualizing, analyzing and exporting 3rd party data (i.e., EMG, load cell and accelerometer). (Max 5pts)

5 points - Real-time graphical presentation of EMG, load cell and accelerometer data, frequency analysis of EMG and accelerometer data, and export of all raw data

3 points - Two of the above features

1 point - One of the above features

6. List of raw data export file formats (position data). (Max 5pts)

One point for each file format, up to 5.

7. List of compatible 3rd party digital human modelling software packages. (Max 5 pts)

One point for each software package, up to 5.

8. Documentation for analysis tools and techniques (e.g. does the user manual give mathematical descriptions for post-processing tools such as smoothing). List the post-processing tools and provide user manual excerpts if applicable. (Max 5 pts)

5 points - 5 or more post-processing tools with mathematical descriptions (e.g., equations) and/or references

3 points - 2 to 4 post-processing tools with mathematical descriptions (e.g., equations) and/or references

1 points - Tools are listed, but not described mathematically or referenced

Solicitation No. - N° de l'invitation

W7719-145245/A

Amd. No. - N° de la modif.

File No. - N° du dossier

TOR-3-36090

Buyer ID - Id de l'acheteur

tor302

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

W7719-145245

CCC No./N° CCC - FMS No/ N° VME

C. Research (Max. 20 points)

1. List of Canadian government, academic and industrial users of the system. (Max 10 pts)

2 points each (up to 10 points)

2. List of scientific literature references citing use of the system. (Max 10 pts)

2 points each (up to 10 points)

MAXIMUM POINTS = 100