



National Defence

National Defence Headquarters
Ottawa, Ontario
K1A 0K

Défense nationale

Quartier général de la Défense nationale
Ottawa (Ontario)
K1A 0K2

**REQUEST FOR PROPOSAL
DEMANDE DE PROPOSITION**

**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

Proposal To: National Defence 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 and services listed herein and on any
attached sheets at the price(s) set out therefore

Proposition à : Défense nationale 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
et services énumérés ici et sur toute feuille ci-annexée, au(x)
prix indique(s).

Title/Titre Data Logger	Solicitation No – N° de l'invitation W8486-184402/A	
Date of Solicitation – Date de l'invitation 01 December 2017		
Address Enquiries to – Adresser toutes questions à Julianne Eng Julianne.Eng@forces.gc.ca		
Telephone No. – N° de téléphone 819-939-9078	FAX No – N° de fax 819-994-7659	
Destination See Herein Ci-Joint		

Instructions:

Municipal taxes are not applicable. Unless otherwise specified herein all prices quoted must include all applicable Canadian customs duties, GST/HST, excise taxes and are to be delivered Delivery Duty Paid including all delivery charges to destination(s) as indicated. The amount of the Goods and Services Tax/Harmonized Sales Tax is to be shown as a separate item.

Instructions: Les taxes municipales ne s'appliquent pas. Sauf indication contraire, les prix indiqués doivent comprendre les droits de douane canadiens, la TPS/TVH et la taxe d'accise. Les biens doivent être livrés « rendu droits acquittés », tous frais de livraison compris, à la ou aux destinations indiquées. Le montant de la taxe sur les produits et services/taxe de vente harmonisée doit être indiqué séparément.

Solicitation Closes – L'invitation prend fin At – à : 14 :00 EST On - le : 10 January 2018

Delivery required - Livraison exigée	Delivery offered - Livraison proposée
Vendor Name and Address - Raison sociale et adresse du fournisseur	
Name and title of person authorized to sign on behalf of vendor (type or print) - Nom et titre de la personne autorisée à signer au nom du fournisseur (caractère d'imprimerie)	
Name/Nom _____	Title/Titre _____
Signature _____	Date _____

TABLE OF CONTENTS

PART 1 - GENERAL INFORMATION	4
1.1 SECURITY REQUIREMENTS	4
1.2 STATEMENT OF WORK.....	4
1.3 DEBRIEFINGS	4
1.4 TRADE AGREEMENTS	4
PART 2 - BIDDER INSTRUCTIONS	4
2.1 STANDARD INSTRUCTIONS, CLAUSES AND CONDITIONS.....	4
2.2 SUBMISSION OF BIDS.....	4
2.3 ENQUIRIES - BID SOLICITATION.....	5
2.4 APPLICABLE LAWS.....	5
PART 3 - BID PREPARATION INSTRUCTIONS.....	5
3.1 BID PREPARATION INSTRUCTIONS	5
PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION	7
4.1 EVALUATION PROCEDURES.....	7
4.2 BASIS OF SELECTION.....	7
PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION	7
5.1 CERTIFICATIONS PRECEDENT TO CONTRACT AWARD AND ADDITIONAL INFORMATION	7
PART 6 - RESULTING CONTRACT CLAUSES	8
6.1 SECURITY REQUIREMENTS	8
6.2 STATEMENT OF WORK.....	8
6.3 STANDARD CLAUSES AND CONDITIONS.....	8
6.4 TERM OF CONTRACT	9
6.5 AUTHORITIES	9
6.6 PAYMENT	10
6.7 INVOICING INSTRUCTIONS	10
6.8 CERTIFICATIONS	11
6.9 APPLICABLE LAWS.....	11
6.10 PRIORITY OF DOCUMENTS	11
6.11 DEFENCE CONTRACT	11
6.12 INSURANCE	11
6.13 PACKAGING REQUIREMENT.....	11
6.14 QUALITY ASSURANCE.....	12
6.15 COMPLETE DELIVERY	12
6.16 ELECTRICAL EQUIPMENT.....	12
ANNEX "A"	13
STATEMENT OF WORK	13
ANNEX "B"	26
MANDATORY CRITERIA	26
ANNEX "C"	26
SECURITY REQUIREMENTS CHECKLIST	38

ANNEX "D"	39
ELECTRONIC PAYMENT INSTRUMENTS.....	39
ANNEX "E"	40
PRICING SCHEDULE	40

PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There are no security requirements associated with this requirement.

1.2 Statement of Work

The requirement is detailed in Annex "A".

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 Trade Agreements

The requirement is subject to the provisions of the World Trade Organization Agreement on Government Procurement (WTO-AGP), the North American Free Trade Agreement (NAFTA), the Canada-Chile Free Trade Agreement (CCFTA), the Canadian Free Trade Agreement (CFTA), the Canada-Peru Free Trade Agreement (CPFTA), the Canada-Columbia Free Trade Agreement (CCoIFTA), the Canada-Panama Free Trade Agreement (CPanFTA), the Canada-Honduras Free Trade Agreement (CHFTA), the Canada-Korea Free Trade Agreement (CKFTA), and the Canada-European Trade Agreement (CETA).

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 and Services – Competitive Requirements, are incorporated by reference into and form part of the bid solicitation, with the following modifications:

- a) Section 02, Procurement Business Number is deleted in its entirety.
- b) Section 20(2), Further Information is deleted in its entirety.

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

Delete: 60 days
Insert: 90 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.

2.3 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.

2.4 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

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

Section I: Technical Bid (two (2) hard copies)

Section II: Financial Bid (one (1) hard copies)

Section III: Certifications (one (1) hard copies)

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

Bidders may use Annex E to indicate their prices. If Bidders choose to use Annex E to indicate their prices, Bidders must include Annex E in their financial 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 explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Bidders should explain and provide in detail all cables and connectors necessary to operate the Equipment for its intended purpose must be provided. Cables and connectors must be compatible with the temperature, environmental, and vibration requirements specified in Annex A paragraph 3.1.16.1 and 4.1.14.

Section II: Financial Bid

Bidders must submit their financial bid as follows:

Bidders must submit firm prices, Delivered Duty Paid (DDP) at 45 Sacré-Coeur Blvd, Gatineau, Québec, Canada Incoterms 2010, Applicable Taxes excluded. The total amount of Applicable Taxes must be shown separately.

- a) Bids must be submitted in Canadian dollars.
- b) Blank Prices : Bidders are requested to insert "\$0.00" for any item for which it does not intend to charge or for items that are already included in other prices set out in Annex E. If the Bidder leaves any price blank, Canada will treat the prices as "\$0.00" for evaluation purposes and may request that the Bidder confirm that the price is, in fact, \$0.00. No bidder will be permitted to add or change a price as part of this confirmation. Any bidder who does not confirm that the price for a blank item is \$0.00 will be declared non-responsive.

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

The mandatory technical criteria is listed in Annex B

4.1.2 Financial Evaluation

The price of the bid will be evaluated in Canadian dollars, Delivered Duty Paid (DDP) at 45 Sacré-Coeur Blvd, Gatineau, Québec, Canada Incoterms 2010, Canadian customs duties and excise taxes included, Applicable Taxes excluded.

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 per Annex E- Pricing Schedule will be recommended for contract award.

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 otherwise specified, 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 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.

5.1.1 Integrity Provisions – Required Documentation

In accordance with 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.

5.1.2 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" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969#afed) website (http://www.esdc.gc.ca/en/jobs/workplace/human_rights/employment_equity/federal_contractor_program.page?&_ga=1.229006812.1158694905.1413548969#afed).

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.

5.1.3 Contractor Qualifications

The Contractor must be an approved supplier of Original Equipment Manufacturer (OEM). If the Contractor is not the OEM, then the Contractor must provide a letter from the OEM confirming that the Contractor is an approved supplier.

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 this Contract.

6.2 Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work 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](#) (2016-04-04), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract, with the following modifications:

a. Definition of Minister is modified as follows:

"Canada", "Crown", "Her Majesty" or "the Government" means Her Majesty the Queen in right of Canada as represented by the Minister of National Defence and any other person duly authorized to act on behalf

of that minister or, if applicable, an appropriate minister to whom the Minister of National Defence has delegated his or her powers, duties or functions and any other person duly authorized to act on behalf of that minister.

6.3.2 Supplemental General Conditions

4003 (2010-08-16) Licensed Software

4004 (2013-04-25) Maintenance and Support Services for Licensed Software

6.4 Term of Contract

6.4.1 Delivery Date

All the deliverables must be received on or before 6 weeks after contract award.

6.4.2 Option to Extend the Contract

The Contractor grants to Canada the irrevocable option to acquire the goods, services or both described at _____ of the Contract under the same conditions and at the prices and/or rates stated in the Contract. The option may only be exercised by the Contracting Authority and will be evidenced, for administrative purposes only, through a contract amendment.

The Contracting Authority may exercise the option at any time before the expiry of the Contract by sending a written notice to the Contractor.

6.4.3 Shipping Instructions

Goods must be consigned and delivered to the destination specified in the contract:

1. Incoterms 2010 "DDP Delivered Duty Paid" 45 Sacré-Coeur Blvd, Gatineau, Québec, Canada.
ATTN: QETE Warehouse 819-939-9083

6.4 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Julianne Eng
Title: Material Acquisition and Support Officer
Department of National Defence
Directorate: Director of Land Procurement 7-1-2-1
Address: 101 Colonel By Drive
Ottawa, ON K1A 0K2

Telephone: 819-939-9078
E-mail address: julianne.eng@forces.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.

6.5.2 Technical Authority

The Technical Authority for the Contract is:

Name: _____

Title: _____

Organization: _____

Address: _____

Telephone: _____

Facsimile: _____

E-mail address: _____

The Technical 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 Technical Authority, however the Technical 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

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 firm unit prices as specified in Annex B of the contract 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.

6.6.2 Single Payments

SACC Manual Clause [H1000C](#) (2008-05-12) Single Payment

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);

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.

Invoice must be addressed as follows:

Dept of National Defence
101 Colonel By Dr.
Ottawa ON K1A 0K2
ATTN: Julianne Eng DLP 7-1-2-1

6.8 Certifications

6.8.1 Compliance

The continuous compliance with the certifications provided by the Contractor in its bid and the ongoing cooperation in providing additional information are conditions of the Contract. Certifications are subject to verification by Canada during the entire period of the Contract. If the Contractor does not comply with any certification, fails to provide the additional information, 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.

6.9 Applicable Laws

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

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 4003 (2010-08-16) Licensed Software
- (c) 4004 (2013-04- 25) Maintenance and Support Services for Licensed Software;
- (d) the general conditions 2010A (2016-04-04) General Conditions- Goods (medium Complexity);
- (e) Annex A, Statement of Work;
- (f) Annex C, Security Requirements Check List;
- (g) the Contractor's bid dated _____.

6.11 Defence Contract

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

6.12 Insurance

SACC Manual clause [G1005C](#) (2016-01-28) Insurance

6.13 Packaging Requirement

6.13.1 Packaging Requirement using Specification D-LM-008-036/SF-000

The Contractor must prepare item number(s) _____ for delivery in accordance with the latest issue of the Canadian Forces Packaging Specification *D-LM-008-036/SF-000*, DND Minimum Requirements for Manufacturer's Standard Pack.

The Contractor must package item number(s) _____ in quantities of _____ by package.

6.13.2 Delivery, Acceptance and Inspection

SACC Manual clause [D2000C](#) (2007-11-30), Markings

SACC Manual clause [D2001C](#) (2007-11-30), Labelling

SACC Manual clause [D2025C](#) (2017-08-17), Wood Packing Materials

6.14 Quality Assurance

SACC Manual clause [D5545C](#) (2010-08-16), ISO 9001:2008 – Quality Management Systems Requirement (Quality Assurance Code C)

6.15 Complete Delivery

The Contractor must make the complete delivery within six weeks from the effective date of the Contract.

6.16 Electrical Equipment

SACC Manual clause [B1501C](#) (2006-06-16), Electrical Equipment

ANNEX "A"

STATEMENT OF WORK

1. SCOPE

1.1. Objective

- 1.1.1. The purpose of this Statement of Work (SOW) is to define the technical requirements for a ruggedized portable self-contained data acquisition system. This data acquisition system is to be procured for the Quality Engineering Test Establishment, Electrical Power and Control Systems group.

1.2. Background

- 1.2.1 The Quality Engineering Test Establishment (QETE) is a field unit within the Canadian Armed Forces (CAF) with the mandate to provide the Department of National Defence (DND) and the CAF with specialized, technology-based test and investigative services required to support engineering decisions throughout all phases of materiel acquisition and support. QETE provides technical advice and consultation, material evaluation, investigation and analysis, calibration and measurement, in the domains of mechanical and materials engineering, applied science, electrical engineering, measurement science and imagery.
- 1.2.2 QETE is planning for the Equipment, excluding accessories, to have a minimum design life of ten years. The term "design life" is used to express an expectation of the operational life of the equipment to function within the requirements defined within this SOW and the manufacturer's published specifications, as well as to define the period against which the overall capital and life cycle costs (e.g. maintenance and calibration) will be planned. For the Equipment defined within this SOW, design life conditions include operating for an average of 520 hours per year and in accordance with the manufacturer's specified operating and maintenance instructions.

1.3. Terminology

CAF	Canadian Armed Forces
cd/m ²	Candela per square metre
CSA	Canadian Standards Association
CMOS	Complementary Metal-Oxide Semiconductor
CPU	Central Processing Unit
DC	Direct Current
DND	Department of National Defence
FSR	Factory Service Representative
GPS	Global Positioning System
Hz	Hertz
IEC	International Electrotechnical Commission
IEPE	Integrated electronic piezoelectric
I/O	Input / Output
ISO	International Organization for Standardization
kHz	Kilohertz
kS/s	Kilo samples per second
kV	Kilovolts
LAN	Local Area Network

MIL-STD	Military Standard
MS/s	Million Samples per Second
NPB	National Printing Bureau
PCIE	Peripheral Component Interconnect Express
QETE	Quality Engineering Test Establishment
RS-232	Recommended Standard number 232
SAE	Society of Automotive Engineers
SOW	Statement of Work
TTL	Transistor-Transistor Logic
USB	Universal Serial Bus
V	Volt or Volts
VAC	Volts Alternating Current
VDC	Volts Direct Current
VGA	Video Graphics Array
Wh	Watt-hours
WLAN	Wireless Local Area Network

Table 1-1 Acronyms and Abbreviations

2. REFERENCE DOCUMENTS

- 2.1. The latest issue of the following standards, references and documents apply to this SOW:
- 2.1.1. Canadian Electrical Code.¹
 - 2.1.2. ISO/IEC 17025 – General requirements for the competence of testing and calibration laboratories.
 - 2.1.3. MIL-STD-1275E – Department of Defense Interface Standard: Characteristics of 28 Volt DC Input Power to Utilization Equipment In Military Vehicles.
 - 2.1.4. MIL-STD-1332B – Military Standard: Definitions of Tactical, Prime, Precise, and Utility Terminologies for Classification of the Department of Defense Mobile Electric Power Engine Generator Set Family.
 - 2.1.5. MIL-STD-1399-680 – Department of Defense Interface Standard: Section 680 High Voltage Electrical Power, Alternating Current.
 - 2.1.6. MIL-STD-705C – Military Standard: Generator Sets, Engine Driven Methods of Tests and Instructions.
 - 2.1.7. IEC 60068-2-6 – Environmental Testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal).
 - 2.1.8. IEC 60068-2-27 – Environmental Testing – Part 2-27: Tests – Test Ea and Guidance: Shock.
 - 2.1.9. IEC 60068-3-2 – Basic Environmental Testing Procedures – Part 3-2: Background Information – Combined Temperature/Low Air Pressure Tests.
 - 2.1.10. SAE J1939 – Serial Control and Communications Heavy Duty Vehicle Network
 - 2.1.11. ISO 11898 – Road vehicles -- Controller area network (CAN)

¹ <http://www.csagroup.org/services/codes-and-standards/installation-codes/canadian-electrical-code/>

3. REQUIREMENTS

3.1. Scope of Work

- 3.1.1. QETE has a requirement for a rugged, portable all-in-one data acquisition system with data computing capability that is modular, portable and exchangeable. The scope of work includes delivery of the Equipment and optional services for calibration.
- 3.1.2. The Equipment is defined as including the following components (the term Unit is used to refer to a stand-alone component and the term Module is used to refer to a card that can be inserted into one of the Mainframe Data Collection Units):
 - 3.1.2.1. Mainframe Data Collection Unit 1 with Internal CPU;
 - 3.1.2.2. Mainframe Data Collection Unit 2 with Connection to Portable Rugged Controller Unit;
 - 3.1.2.3. Portable Rugged Controller Units;
 - 3.1.2.4. Isolated High Voltage Modules;
 - 3.1.2.5. Isolated Low Voltage Modules;
 - 3.1.2.6. Isolated Voltage / IEPE Input Modules;
 - 3.1.2.7. Isolated High Speed CAN Interface Module;
 - 3.1.2.8. Timing and Synchronization Module;
 - 3.1.2.9. External UPS Unit;
 - 3.1.2.10. High Precision Thermocouple Units; and
 - 3.1.2.11. Accessories.
- 3.1.3. General Requirements:
 - 3.1.3.1. All electrical components of the Equipment must be certified or approved for use in accordance with the Canadian Electrical Code, Part 1, before delivery, by a certification organization accredited by the Standards Council of Canada.
 - 3.1.3.2. The Equipment must have the capability to be used for, but not limited to, conducting testing in accordance with the latest issue of the following test methods:
 - (a) MIL-STD-1275E – Department of Defense Interface Standard: Characteristics of 28 Volt DC Input Power to Utilization Equipment In Military Vehicles
 - (b) MIL-STD-1332B – Military Standard: Definitions of Tactical, Prime, Precise, and Utility Terminologies for Classification of the Department of Defense Mobile Electric Power Engine Generator Set Family.
 - (c) MIL-STD-1399-680 – Department of Defense Interface Standard: Section 680 High Voltage Electrical Power, Alternating Current.
 - (d) MIL-STD-705C – Military Standard: Generator Sets, Engine Driven Methods of Tests and Instructions.
 - 3.1.3.3. Operation and controlling software must be included with:
 - (a) the Mainframe Data Collection Unit 1 with Internal CPU;
 - (b) the Mainframe Data Collection Unit 2 with Connection to Portable Rugged Controller Unit; and
 - (c) the Portable Rugged Controller Units.

-
- 3.1.3.4. Operation and controlling software must provide the capability to simultaneously view and monitor incoming data while the incoming data is being recorded.
 - 3.1.3.5. Operation and controlling software must be pre-loaded on the Equipment and fully tested by the Contractor, prior to shipment of the Equipment to QETE.
 - 3.1.3.6. The Equipment must meet the more stringent of the technical specifications stated in this Statement of Work or the manufacturer's published specifications.
 - 3.1.3.7. The Equipment must meet the manufacturer's published specifications for any functional or performance parameter not specified in this Statement of Work.
- 3.1.4. Mainframe Data Collection Unit 1 with Internal CPU:
- 3.1.4.1. The Mainframe Data Collection Unit 1 must include a central processing unit (CPU) that is capable of processing data as well as storing sampled data and processed data.
 - 3.1.4.2. The Mainframe Data Collection Unit 1 must include a screen front panel display with a minimum size of 13 inches that has a minimum resolution of 1280 x 800 pixels.
 - 3.1.4.3. The Mainframe Data Collection Unit 1 must include the Microsoft Windows® 7 operating system or the Microsoft Windows® 10 operating system.
 - 3.1.4.4. The Mainframe Data Collection Unit 1 must be capable of being powered by a power source from 11 to 32 VDC.
 - 3.1.4.5. The Mainframe Data Collection Unit 1 must be capable of being powered by a power source from 110 to 240 VAC @ 50/60 Hz.
 - 3.1.4.6. The Mainframe Data Collection Unit 1 must come with a minimum of 4 expansion slots to accommodate multiple expansion modules.
 - 3.1.4.7. The Mainframe Data Collection Unit 1 must be able to synchronize to an external stable clock source.
 - 3.1.4.8. The Mainframe Data Collection Unit 1 must have an internal capability to supply power to the system for up to 2 minutes in the event of the loss of external power.
 - 3.1.4.9. The Mainframe Data Collection Unit 1 must have the following expansion I/O ports:
 - (a) Four (4) USB ports;
 - (b) One (1) LAN port;
 - (c) One (1) WLAN port;
 - (d) One (1) RS-232 port;
 - (e) One (1) video port for connection to an external monitor; and
 - (f) One (1) expansion PCIE port to allow synchronization with other data collection units.
 - 3.1.4.10. The Mainframe Data Collection Unit 1 must include a minimum of 960GB (Gigabytes) hard disk drive for data storage.
- 3.1.5. Mainframe Data Collection Unit 2 with Connection to Portable Rugged Controller Unit:
- 3.1.5.1. An Ethernet cable of approximately 10 metres in length must be provided that will allow for the transfer of data from the Mainframe Data Collection Unit 2 to a Portable Rugged Controller Unit.

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- 3.1.5.2. The Mainframe Data Collection Unit 2 must be capable of being powered by a power source from 11 to 32 VDC.
 - 3.1.5.3. The Mainframe Data Collection Unit 2 must be capable of being powered by a power source from 110 to 240 VAC @ 50/60 Hz.
 - 3.1.5.4. The Mainframe Data Collection Unit 2 must come with a minimum of 2 expansion slots to accommodate multiple expansion modules.
 - 3.1.5.5. The Mainframe Data Collection Unit 2 must be able to synchronize to an external stable clock source.
 - 3.1.5.6. The Mainframe Data Collection Unit 2 must have the following I/O ports:
 - (a) Two (2) USB 3.0 ports; and
 - (b) Two (2) LAN ports (up to 1000BASE-TX Gigabit Ethernet);
 - 3.1.6. Portable Rugged Controller Units:
 - 3.1.6.1. The Portable Controller Units must be ruggedized and capable of meeting all temperature, environmental and vibration requirements specified in this SOW.
 - 3.1.6.2. The Portable Rugged Controller Units must include the same operating system that is provided for the Mainframe Data Collection Unit 1.
 - 3.1.6.3. The Portable Rugged Controller Units must have the following minimum specifications:
 - (a) CPU: Intel i7-6600U, 2.60Ghz
 - (b) AMD FirePro M5100 Graphics Card
 - (c) Display: 14" FHD LCD, with touchscreen (Glove useable); 1000 candela per square metre (cd/m²) brightness
 - (d) Storage: minimum 1TB (terabyte) solid state drive (SSD) and 1TB (terabyte) SSD second drive slot
 - (e) Memory: 16GB (gigabytes)
 - (f) Dual Band Wireless: 802.11 a/b/g/n/ac, Bluetooth 4.1
 - (g) Serial Port: DB 9 pin connector
 - (h) Ruggedness: Mil-Std-810G and IP51 certified.
 - (i) Miscellaneous: I/O, external monitor output, PC card Type II, USB 3.0, SD Card (SDXC), 2 Ethernet ports 1000BASE-TX
 - (j) Battery: Lithium-ion (11.1V, 4200mAh).
 - 3.1.7. Isolated High Voltage Modules:
 - 3.1.7.1. The Isolated High Voltage Modules must be equipped with a minimum of eight (8) separate channels.
 - 3.1.7.2. The Isolated High Voltage Modules must have the capacity to capture positive and negative signals, from a voltage range of 0 V to 1000V.
 - 3.1.7.3. The Isolated High Voltage Modules must have a minimum Simultaneous Sample Rate of 200 kS/s (kilo samples per second) per channel.
 - 3.1.7.4. The Isolated High Voltage Modules must have a sampling resolution of 24 bits.
 - 3.1.7.5. The Isolated High Voltage Modules must have a minimum isolation voltage of 4 KV.

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- 3.1.7.6. The Isolated High Voltage Modules must have a minimum bandwidth of DC to 77 KHz.
 - 3.1.7.7. The Isolated High Voltage Modules must have a digital filter system to a minimum of 8th order Bessel or Butterworth filters.
 - 3.1.7.8. The accuracy of the Isolated High Voltage Modules must be within:
 - (a) $\pm 0.05\%$ of the reading for an input frequency range of 0 to 1 kHz; and
 - (b) $\pm 0.5\%$ of the reading for an input frequency greater than 1 kHz.
- 3.1.8. Isolated Low Voltage Modules:
- 3.1.8.1. The Isolated Low Voltage Modules must be equipped with a minimum of six (6) separate channels.
 - 3.1.8.2. The Isolated Low Voltage Modules must have the capacity to capture positive and negative signals, from a voltage range of 0V to 100V.
 - 3.1.8.3. The Isolated Low Voltage Modules must be equipped with a minimum Simultaneous Sample Rate of 250.0 KS/s per channel.
 - 3.1.8.4. The Isolated Low Voltage Modules must be equipped with a sampling resolution of 16 bits.
 - 3.1.8.5. The Isolated Low Voltage Modules must be equipped with a minimum isolation voltage of 1.5 KV.
 - 3.1.8.6. The Isolated Low Voltage Modules must be equipped with a digital filter system to a minimum of 8th order Bessel or Butterworth filters.
 - 3.1.8.7. The accuracy of the Isolated Low Voltage Modules must be within:
 - (a) $\pm 0.05\%$ of the reading for an input frequency range of 0 to 1 kHz; and
 - (b) $\pm 0.5\%$ of the reading for an input frequency greater than 1 kHz.
- 3.1.9. Isolated Voltage / IEPE Input Modules:
- 3.1.9.1. The Isolated Voltage / IEPE Input Modules must be equipped with a minimum of six (6) separate channels.
 - 3.1.9.2. The Isolated Voltage / IEPE Input Modules must have the capacity to capture positive and negative signals, from a voltage range of 0 V to 100 V.
 - 3.1.9.3. The Isolated Voltage / IEPE Input Modules must be equipped with a minimum Simultaneous Sample Rate of 1MS/s (million samples per second) per channel.
 - 3.1.9.4. The Isolated Voltage / IEPE Input Modules must be equipped with a resolution of 24 bits.
 - 3.1.9.5. The Isolated Voltage / IEPE Input Modules must have a minimum isolation voltage of 1.5 KV.
 - 3.1.9.6. The Isolated Voltage / IEPE Input Modules must be equipped with a digital filter system to a minimum of 8th order Bessel or Butterworth filters.
 - 3.1.9.7. The accuracy of the Isolated Voltage / IEPE Input Modules must be within:
 - (a) $\pm 0.05\%$ of the reading for an input frequency range of 0 to 1 kHz; and
 - (b) $\pm 0.5\%$ of the reading for an input frequency greater than 1 kHz.
- 3.1.10. Isolated High Speed CAN Interface Module:
- 3.1.10.1. The Isolated High Speed controller area network (CAN) Interface Module must be equipped with a minimum of four (4) separate input channels.

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- 3.1.10.2. The Isolated High Speed CAN Interface Module must be capable of interfacing with interface units that are built to CAN2.0A, CAN2.0B and J1939 Specifications.
 - 3.1.10.3. The Isolated High Speed CAN Interface Module must be capable of operating in high speed mode as well as in low speed mode.
 - 3.1.10.4. The Isolated High Speed CAN Interface Module must be capable of operating in listen only mode.
 - 3.1.10.5. The Isolated High Speed CAN Interface Module must have a minimum galvanic isolation of 500Volts.
 - 3.1.10.6. The Isolated High Speed CAN Interface Module must have a bus pin fault protection of +/- 36V.
 - 3.1.11. Timing and Synchronization Module
 - 3.1.11.1. The Timing and Synchronization Module must be capable of receiving GPS satellite signals with a refresh rate of at least 1Hz.
 - 3.1.11.2. The Timing and Synchronization Module must be capable of synchronizing to GPS or IRIG clock sources.
 - 3.1.11.3. The Timing and Synchronization Module must be capable of providing eight channels of digital I/O compatible with CMOS and TTL.
 - 3.1.12. High Precision Thermocouple Units
 - 3.1.12.1. The High Precision Thermocouple Units must be equipped with a minimum of eight (8) separate channels.
 - 3.1.12.2. The High Precision Thermocouple Units must have the capacity to use the following thermocouple types: K, J, T, E, R, S, B, N, C, and U.
 - 3.1.12.3. The High Precision Thermocouple Units must be equipped with a minimum Simultaneous Sample Rate of 12 S/s (samples per second) per channel.
 - 3.1.12.4. The High Precision Thermocouple Units must be equipped with a sampling resolution of 24 bits.
 - 3.1.12.5. The High Precision Thermocouple Units must be equipped with a minimum isolation voltage of 350V.
 - 3.1.12.6. The High Precision Thermocouple Units must have an accuracy of ± 2 °C across full operating temperature range.
 - 3.1.12.7. The High Precision Thermocouple Units must be capable of connecting connect to any host controller or data collection unit.
 - 3.1.12.8. The High Precision Thermocouple Units must be time synchronized with the operating and data collection software.
 - 3.1.13. External UPS Unit:
 - 3.1.13.1. The External UPS Unit must have a maximum output power of 250 Watts.
 - 3.1.13.2. The External UPS Unit must have the capacity to accept power from a DC source of 11 to 32 VDC.
 - 3.1.13.3. The External UPS Unit must have the capability to supply power to the Mainframe Data Collection Unit 1.
 - 3.1.13.4. UPS batteries capable of providing a minimum of 250 Wh of power must be provided.

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- 3.1.13.5. The External UPS Unit must be mechanically compatible with the Mainframe Data Collection Unit 1.
- 3.1.14. Temperature and Environmental Requirements:
- 3.1.14.1. The Equipment must be capable of being stored without damage or degradation at any temperature between -20°C and $+60^{\circ}\text{C}$.
- 3.1.14.2. The Equipment must be capable of being continuously operated within tolerances without damage or degradation at any temperature between 0°C to $+40^{\circ}\text{C}$.
- 3.1.14.3. The Equipment must be capable of being continuously operated within tolerances without damage or degradation in humid environments not exceeding 95% relative humidity, non-condensing.
- 3.1.15. Vibration Requirements:
- 3.1.15.1. The Equipment must be capable of meeting the following International Electrotechnical Commission (IEC) Environmental Testing requirements:
- (a) Sine Vibration (EN 60068-2-6): Acceleration 20 m/s^2
 - (b) Shock (EN 60068-2-27): Acceleration 30 g
 - (c) Random Vibration (EN 60068-3-2): Class 2M3.
- 3.1.16. Accessories – The contractor must provide all accessories necessary to operate the Equipment for its intended design function, including:
- 3.1.16.1. Cables and Connectors – All cables and connectors necessary to operate the Equipment for its intended purpose must be provided. Cables and connectors must be compatible with the temperature, environmental, and vibration requirements specified in this SOW.
- 3.1.16.2. Metal Protective Cases for each the following components:
- (a) Isolated High Voltage Modules;
 - (b) Isolated Low Voltage Modules;
 - (c) Isolated Voltage / IEPE Input Modules;
 - (d) Isolated High Speed CAN Interface Module; and
 - (e) Timing and Synchronization Module.
- 3.1.16.3. Carrying Case 1 – Ruggedized case with handle, hasps for padlock, wheels for transport, and internal custom foam cut-out for storage of the following components:
- (a) Mainframe Data Collection Unit 1 with Internal CPU;
 - (b) Two Metal Protective Cases containing any combination of Modules;
 - (c) External UPS Unit;
 - (d) Two High Precision Thermocouple Units; and
 - (e) Associated Cables and Connectors.
- 3.1.16.4. Carrying Case 2 – Ruggedized case with handle, hasps for padlock, wheels for transport, and internal custom foam cut-out for storage of the following components:
- (a) One Mainframe Data Collection Unit 2;
 - (b) One Portable Rugged Controller Unit;

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- (c) Two Metal Protective Cases containing any combination of Modules;
 - (d) One High Precision Thermocouple Unit; and
 - (e) Associated Cables and Connectors.
- 3.1.16.5. The maximum weight of the Carrying Cases, including all contents must not exceed 31.75 kg (70.00 pounds).
- 3.1.16.6. The maximum dimensions of the Carrying Cases, when totalling length + width + height, must not exceed 203.00 cm (79.92 inches).
- 3.1.17. Training Package:
- 3.1.17.1. A training package must be loaded onto the Equipment to facilitate a self-paced orientation and training program for users.
 - 3.1.17.2. The training package must include an overview of the Equipment, power-up and shut-down procedures, operation, and safety features.

3.2. Tasks

3.2.1. Technical Service Support

3.2.1.1. Availability – The Contractor must:

- (a) ensure that full service support and replacement parts are available for a period of ten years following the date of delivery of the Equipment; and
- (b) without limiting the generality of Section 3.2.1.1.(a), provide Canada with a one year written notification prior to the Equipment parts no longer being available, and failing such notification, the Contractor must provide Canada sufficient notice to ensure that Canada may purchase the parts that are no longer available.

3.2.1.2. Service Desk – A support service desk function must be provided to help Canada in answering questions with respect to the Equipment that includes, at a minimum:

- (a) telephone technical support between the hours of 08:00 and 17:00 (Eastern Time), Monday to Friday, excluding public holidays;
- (b) e-mail technical support with a response within 48 hours excluding weekends and public holidays; and
- (c) on-line help resources, including contact information, product information and documentation downloads (e.g. product brochures, technical manuals).

3.2.1.3. Product Notifications – Canada must be advised in writing as soon as reasonably possible in the event of:

- (a) any safety-related product recalls or advisories, component defects, and other similar events;
- (b) any security vulnerabilities that are subsequently discovered; and
- (c) any hidden or previously unknown defects that are subsequently discovered that may adversely affect product performance and/or functionality.

3.2.1.4. Software Support Period – The Contractor must provide Maintenance Releases for a period of ten (10) years from the Contract Award date.

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- 3.2.1.5. Calibration – Canada may require calibration services for the Equipment in accordance with the manufacturer's recommended calibration schedule during the contract period. This service will be provided as an option, to be exercised at the sole discretion of Canada within a period of five years from Contract Award. The first periodic calibration must be included as part of the original delivery package. If the option is exercised for subsequent calibrations, they will be performed by the Contractor at the Contractor's designated calibration facilities. The Contractor must complete calibration services within four weeks (unless otherwise agreed to in writing from Canada) from the date that the units are received at the calibration centre to the date that they are picked up from the calibration centre for shipping back to the customer.
- 3.2.1.6. The Contractor must place a sticker on the Equipment indicating the date on which any calibration services were performed, or update any existing stickers on the Modules following the performance of calibration services.
- 3.2.2. Equipment Certifications
- 3.2.2.1. Certificate of Calibration – The Contractor must provide a Certificate of Calibration for a Traceable Calibration for all
- (a) Isolated High Voltage Modules;
 - (b) Isolated Low Voltage Modules;
 - (c) Isolated Voltage / IEPE Input Modules;
 - (d) Isolated High Speed CAN Interface Module;
 - (e) Timing and Synchronization Module; and
 - (f) High Precision Thermocouple Units.
- 3.2.2.2. The Traceable Calibration must include:
- a) a verification that the performance of the delivered equipment meets factory specifications;
 - b) traceability to a National Metrology Institute; and
 - c) a compliant Certificate of Calibration containing the information listed in ISO/IEC 17025:2005.
- 3.2.2.3. Certificate of Conformance – The Contractor must provide a Certificate of Conformance to attest that the delivered equipment has been manufactured according to the Contractor's published specifications and has been verified to function as designed. The Certificate must identify the location and date of completion of manufacturing and must be signed by an authorized representative of the manufacturer.
- 3.2.2.4. Statement of Compliance – The Contractor must provide a Statement of Compliance to attest that the delivered equipment meets the requirements of the Contract. The Statement of Compliance may be provided within the Certificate of Conformance or as a separate document.
- 3.2.2.5. Statement of Continued Production and Support – The Contractor must provide a Statement of Continued Production and Support to attest that the equipment is neither manufacturer-discontinued nor is there an intent to discontinue the manufacturing of the Equipment within two (2) years. The Statement must also attest that the Contractor will continue to provide technical support and spare parts supply for a minimum of ten years following delivery of the Equipment.

3.2.3. Equipment Documentation – The Contractor must provide the following documentation in support of the delivered Equipment

- 3.2.3.1. User Operations Manual – provides detailed information about the functionality and operation of the Equipment and the care and maintenance of the Equipment that is normally performed by the user.
- 3.2.3.2. Calibration Instructions – provide step-by-step guidance on how to calibrate the Equipment.

3.3. Constraints

- 3.3.1. None specified.

3.4. Support Provided by Canada

- 3.4.1. None specified.

3.5. Time Frame and Delivery Dates

- 3.5.1. Equipment delivery – six (6) weeks after contract award;
- 3.5.2. Equipment documentation – at the time of Equipment delivery;
- 3.5.3. Certifications – at the time of Equipment delivery.

3.6. Contractor Qualifications

- 3.6.1. The Contractor must be an approved supplier of the Original Equipment Manufacturer. If the Contractor is not the OEM, then the Contractor must provide a letter from the OEM confirming that the Contractor is an approved supplier.
- 3.6.2. Maintenance activities must be performed by qualified factory-trained service representatives.

4. DELIVERABLES

4.1 Equipment. The Contractor must provide the following equipment deliverables:

- 4.1.1 Mainframe Data Collection Unit 1– Quantity of one (1)
- 4.1.2 Mainframe Data Collection Unit 2 – Quantity of two (2)
- 4.1.3 Portable Rugged Controller – Quantity of two (2)
- 4.1.4 Isolated High Voltage Modules – Quantity of four (4)
- 4.1.5 Isolated Low Voltage Modules – Quantity of four (4)
- 4.1.6 Isolated Voltage / IEPE Input Modules – Quantity of four (4)
- 4.1.7 Isolated High Speed CAN Interface Module – Quantity of one (1)
- 4.1.8 Timing and Synchronization Module – Quantity of one (1)
- 4.1.9 External UPS Unit – Quantity of one (1)
- 4.1.10 High Precision Thermocouple Units – Quantity of two (2)
- 4.1.11 Carrying Case 1 – Quantity of one (1)
- 4.1.12 Carrying Case 2 – Quantity of two (2)
- 4.1.13 Metal Protective Cases for Modules – Quantity of fourteen (14) for:
 - (a) Isolated High Voltage Modules – Quantity of four (4)

- (b) Isolated Low Voltage Modules – Quantity of four (4)
- (c) Isolated Voltage / IEPE Input Modules – Quantity of four (4)
- (d) Isolated High Speed CAN Interface Module – Quantity of one (1)
- (e) Timing and Synchronization Module – Quantity of one (1)

4.1.14 Cables and Connectors – Quantities as required by the Contractor's Equipment design

4.1.15 Training Package:

- (a) Quantity of one (1) pre-loaded on the Mainframe Data Collection Unit 1
- (b) Quantity of one (1) pre-loaded on the Portable Rugged Controller Unit 1
- (c) Quantity of one (1) pre-loaded on the Portable Rugged Controller Unit 2

4.2 Services. The Contractor must provide the following service deliverables:

4.2.1 Calibration Services – This service will be provided as an option, to be exercised at the sole discretion of Canada within a period of five years from Contract Award. Quantity to be specified by the Contractor in accordance with the OEM's recommended calibration schedule. For example, if annual calibration is recommended, then quantity equals 5. If calibration is recommended every 18 months, then quantity equals 3. If calibration is recommended every 24 months, then quantity equals 2. Canada may choose to exercise any or all of the recommended calibrations.

4.3 Documentation. The Contractor must provide the following documents:

- 4.3.1 Certificate of Calibration: Quantity of one (1) following each calibration
- 4.3.2 Certificate of Conformance: Quantity of one (1)
- 4.3.3 Statement of Compliance: Quantity of one (1)
- 4.3.4 Statement of Continued Production and Support: Quantity of one (1)
- 4.3.5 User Operations Manual:
 - (a) Quantity of one (1) pre-loaded on the Mainframe Data Collection Unit 1
 - (b) Quantity of one (1) pre-loaded on the Portable Rugged Controller Unit 1
 - (c) Quantity of one (1) pre-loaded on the Portable Rugged Controller Unit 2
- 4.3.6 Calibration Instructions:
 - (d) Quantity of one (1) pre-loaded on the Mainframe Data Collection Unit 1
 - (e) Quantity of one (1) pre-loaded on the Portable Rugged Controller Unit 1
 - (f) Quantity of one (1) pre-loaded on the Portable Rugged Controller Unit 2
- 4.3.7 OEM Confirmation Letter (If the Contractor is not the OEM): Quantity of one (1)

4.4 Format for Documentation

- 4.4.1 Equipment documentation, reports, certificates and compliance statements must be provided in English.
- 4.4.2 Equipment documentation and reports may be provided in Contractor format.
- 4.4.3 Certificates and compliance statements may be provided in Contractor format.
- 4.4.4 Electronic copies of deliverable documents must be delivered loaded on the Equipment.

- 4.4.5 Document files provided in electronic format must provide users with the capability to search documents (e.g. keyword search).
- 4.4.6 Unless otherwise specified, document files must be provided in PDF format.

ANNEX "B"

MANDATORY CRITERIA

MANDATORY TECHNICAL CRITERIA

Data Logger

1. General Instructions

The Bid must meet the mandatory technical criteria specified below. Bidders must provide the necessary documentation to support compliance with the requirements, including technical data sheets, specifications, brochures and/or other relevant technical documentation describing the equipment offered and demonstrating compliancy. Each mandatory technical criterion should be addressed separately and in the order presented below.

2. Mandatory Technical Criteria

No.	Mandatory Technical Criteria	Supporting Evidence Required
M1	<p>Bidders must propose equipment that must not be a prototype or test unit, but standard proven equipment that contains reliable state-of-the-art technology. In order to demonstrate compliance with this requirement, Bidders must provide, a list of at least two (2) valid projects identifying customers who have recently purchased and used the equipment in field trials. For a project to be considered valid, it is necessary that the equipment specified in the project:</p> <p>a) be a similar product as specified in the Statement of Work (SOW) – the product will be considered similar if it:</p> <p>i. meets all the technical requirements for the Mainframe Data Collection Unit 1 with Internal CPU specified in SOW Para. 3.1.4,</p> <p>ii. contained at least two of the Modules that meet the requirements specified in:</p> <ol style="list-style-type: none"> 1. SOW Para. 3.1.7 Isolated High Voltage Module, 2. SOW Para. 3.1.8 Isolated Low Voltage Module, 3. SOW Para. 3.1.9 Isolated Voltage / IEPE Input Module, 4. SOW Para. 3.1.10 Isolated High Speed CAN Interface Module, or 5. SOW Para. 3.1.11 Timing and Synchronization Module, and <p>iii. meets the technical requirements for vibration specified in SOW Para. 3.1.15;</p>	<p>Bidders must submit with their bid, the following information for each project:</p> <ol style="list-style-type: none"> a) the brand name and model of the equipment sold; b) the date of sale; c) technical details of the equipment sold; d) a description of how the equipment sold meets the requirements of Criterion M1; and e) customer contact information, which should include organization name, organization address, contact name, contact telephone number, and contact e-mail address. <p>The provided information may be verified with the Bidder's customer to confirm its accuracy. If the information verification does not match the requirements, then the Bid may be declared non responsive.</p>

No.	Mandatory Technical Criteria	Supporting Evidence Required
	b) was sold in the previous 24 months of the Solicitation closing date; and c) has been successfully used for its intended purpose in a vehicle in a field test environment by the Bidder's customer.	
M2	The proposed Mainframe Data Collection Unit 1 with Internal CPU must have been previously used within the past two years in field tests for the application of test methods specified in at least two of the following Military Standards: (e) MIL-STD-1275E – Department of Defense Interface Standard: Characteristics of 28 Volt DC Input Power to Utilization Equipment In Military Vehicles (f) MIL-STD-1332B – Military Standard: Definitions of Tactical, Prime, Precise, and Utility Terminologies for Classification of the Department of Defense Mobile Electric Power Engine Generator Set Family. (g) MIL-STD-1399-680 – Department of Defense Interface Standard: Section 680 High Voltage Electrical Power, Alternating Current. (h) MIL-STD-705C – Military Standard: Generator Sets, Engine Driven Methods of Tests and Instructions.	Bidders must provide a description of the applications of the proposed equipment that meet the requirements of M2.
M3	Bidders must provide supporting evidence in their proposal to demonstrate that their proposed solution meets the mandatory requirements specified in the Mandatory Requirements Compliancy Matrix.	Bidders must complete the Mandatory Requirements Compliancy Matrix.

3. Mandatory Requirements Compliancy Matrix

Where *Provide Proposal Reference or Description* is indicated for the Bidder's response, Bidders must either provide a reference to their technical proposal where information can be found that clearly shows how the requirement is met by the proposed solution, or provide a description of how the requirement is met. **Where the Bidder's technical documentation does not clearly demonstrate that the equipment offered will meet a specific requirement, the Bidder's proposal must provide additional descriptions of how the requirement will be met by the proposed solution.**

Where *Provide Statement of Compliance* is indicated for the Bidder's response, Bidders must commit to complying with the requirement during the performance of the work. Bidders may indicate "Yes" in the Compliant column, which will be a commitment to comply, or they may provide a statement committing to comply.

No.	Mandatory Technical Criteria	Supporting	Compliant	Proposal
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		Evidence Required	Yes	No	Reference or Description
3.1.	Scope of Work				
3.1.1.	QETE has a requirement for a rugged, portable all-in-one data acquisition system with data computing capability that is modular, portable and exchangeable. The scope of work includes delivery of the Equipment and optional services for calibration.	<i>Provide Statement of Compliance</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.2.	The Equipment is defined as including the following components (the term Unit is used to refer to a stand-alone component and the term Module is used to refer to a card that can be inserted into one of the Mainframe Data Collection Units):	<i>Provide Statement of Compliance</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.2.1.	Mainframe Data Collection Unit 1 with Internal CPU;				
3.1.2.2.	Mainframe Data Collection Unit 2 with Connection to Portable Rugged Controller Unit;				
3.1.2.3.	Portable Rugged Controller Units;				
3.1.2.4.	Isolated High Voltage Modules;				
3.1.2.5.	Isolated Low Voltage Modules;				
3.1.2.6.	Isolated Voltage / IEPE Input Modules;				
3.1.2.7.	Isolated High Speed CAN Interface Module;				
3.1.2.8.	Timing and Synchronization Module;				
3.1.2.9.	External UPS Unit;				
3.1.2.10.	High Precision Thermocouple Units; and				
3.1.2.11.	Accessories.				
3.1.3.	General Requirements:				
3.1.3.1.	All electrical components of the Equipment must be certified or approved for use in accordance with the Canadian Electrical Code, Part 1, before delivery, by a certification organization accredited by the Standards Council of Canada.	<i>Provide Statement of Compliance</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.3.2.	The Equipment must have the capability to be used for, but not limited to, conducting testing in accordance with the latest issue of the following test methods:		<input type="checkbox"/>	<input type="checkbox"/>	
(a)	MIL-STD-1275E – Department of Defense Interface Standard: Characteristics of 28 Volt DC Input Power to Utilization Equipment In Military Vehicles	<i>Provide Statement of Compliance</i>	<input type="checkbox"/>	<input type="checkbox"/>	
(b)	MIL-STD-1332B – Military Standard: Definitions of Tactical, Prime, Precise, and Utility Terminologies for		<input type="checkbox"/>	<input type="checkbox"/>	

No.	Mandatory Technical Criteria	Supporting Evidence Required	Compliant		Proposal Reference or Description
			Yes	No	
	Classification of the Department of Defense Mobile Electric Power Engine Generator Set Family.				
(c)	MIL-STD-1399-680 – Department of Defense Interface Standard: Section 680 High Voltage Electrical Power, Alternating Current.		<input type="checkbox"/>	<input type="checkbox"/>	
(d)	MIL-STD-705C – Military Standard: Generator Sets, Engine Driven Methods of Tests and Instructions.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.3.3.	Operation and controlling software must be included with:	<i>Provide Statement of Compliance</i>	<input type="checkbox"/>	<input type="checkbox"/>	
(a)	the Mainframe Data Collection Unit 1 with Internal CPU;		<input type="checkbox"/>	<input type="checkbox"/>	
(b)	the Mainframe Data Collection Unit 2 with Connection to Portable Rugged Controller Unit; and		<input type="checkbox"/>	<input type="checkbox"/>	
(c)	the Portable Rugged Controller Units.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.3.4.	Operation and controlling software must provide the capability to simultaneously view and monitor incoming data while the incoming data is being recorded.	<i>Provide Statement of Compliance</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.3.5.	Operation and controlling software must be pre-loaded on the Equipment and fully tested by the Contractor, prior to shipment of the Equipment to QETE.	<i>Provide Statement of Compliance</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.4.	Mainframe Data Collection Unit 1 with Internal CPU:	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.4.1.	The Mainframe Data Collection Unit 1 must include a central processing unit (CPU) that is capable of processing data as well as storing sampled data and processed data.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.4.2.	The Mainframe Data Collection Unit 1 must include a screen front panel display with a minimum size of 13 inches that has a minimum resolution of 1280 x 800 pixels.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.4.3.	The Mainframe Data Collection Unit 1 must include the Microsoft Windows® 7 operating system or the Microsoft Windows® 10 operating system.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.4.4.	The Mainframe Data Collection Unit 1 must be capable of being powered by a power source from 11 to 32 VDC.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.4.5.	The Mainframe Data Collection Unit 1 must be capable of being powered by a power source from 110 to 240 VAC @ 50/60 Hz.		<input type="checkbox"/>	<input type="checkbox"/>	

No.	Mandatory Technical Criteria	Supporting Evidence Required	Compliant		Proposal Reference or Description
			Yes	No	
3.1.4.6.	The Mainframe Data Collection Unit 1 must come with a minimum of 4 expansion slots to accommodate multiple expansion modules.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.4.7.	The Mainframe Data Collection Unit 1 must be able to synchronize to an external stable clock source.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.4.8.	The Mainframe Data Collection Unit 1 must have an internal capability to supply power to the system for up to 2 minutes in the event of the loss of external power.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.4.9.	The Mainframe Data Collection Unit 1 must have the following expansion I/O ports:		<input type="checkbox"/>	<input type="checkbox"/>	
(a)	Four (4) USB ports;		<input type="checkbox"/>	<input type="checkbox"/>	
(b)	One (1) LAN port;		<input type="checkbox"/>	<input type="checkbox"/>	
(c)	One (1) WLAN port;		<input type="checkbox"/>	<input type="checkbox"/>	
(d)	One (1) RS-232 port;		<input type="checkbox"/>	<input type="checkbox"/>	
(e)	One (1) video port for connection to an external monitor; and		<input type="checkbox"/>	<input type="checkbox"/>	
(f)	One (1) expansion PCIE port to allow synchronization with other data collection units.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.4.10.	The Mainframe Data Collection Unit 1 must include a minimum of 960GB (Gigabytes) hard disk drive for data storage.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.5.	Mainframe Data Collection Unit 2 with Connection to Portable Rugged Controller Unit:	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.5.1.	An Ethernet cable of approximately 10 metres in length must be provided that will allow for the transfer of data from the Mainframe Data Collection Unit 2 to a Portable Rugged Controller Unit.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.5.2.	The Mainframe Data Collection Unit 2 must be capable of being powered by a power source from 11 to 32 VDC.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.5.3.	The Mainframe Data Collection Unit 2 must be capable of being powered by a power source from 110 to 240 VAC @ 50/60 Hz.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.5.4.	The Mainframe Data Collection Unit 2 must come with a minimum of 2 expansion slots to accommodate multiple expansion modules.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.5.5.	The Mainframe Data Collection Unit 2 must be able to synchronize to an		<input type="checkbox"/>	<input type="checkbox"/>	

No.	Mandatory Technical Criteria	Supporting Evidence Required	Compliant		Proposal Reference or Description
			Yes	No	
	external stable clock source.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.5.6.	The Mainframe Data Collection Unit 2 must have the following I/O ports:		<input type="checkbox"/>	<input type="checkbox"/>	
(a)	Two (2) USB 3.0 ports; and		<input type="checkbox"/>	<input type="checkbox"/>	
(b)	Two (2) LAN ports (up to 1000BASE-TX Gigabit Ethernet);		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.6.	Portable Rugged Controller Units:		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.6.1.	The Portable Controller Units must be ruggedized and capable of meeting all temperature, environmental and vibration requirements specified in this SOW.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.6.2.	The Portable Rugged Controller Units must include the same operating system that is provided for the Mainframe Data Collection Unit 1.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.6.3.	The Portable Rugged Controller Units must have the following minimum specifications:		<input type="checkbox"/>	<input type="checkbox"/>	
(a)	CPU: Intel i7-6600U, 2.60Ghz	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
(b)	AMD FirePro M5100 Graphics Card		<input type="checkbox"/>	<input type="checkbox"/>	
(c)	Display: 14" FHD LCD, with touchscreen (Glove useable); 1000 candela per square metre (cd/m ²) brightness		<input type="checkbox"/>	<input type="checkbox"/>	
(d)	Storage: minimum 1TB (terabyte) solid state drive (SSD) and 1TB (terabyte) SSD second drive slot		<input type="checkbox"/>	<input type="checkbox"/>	
(e)	Memory: 16GB (gigabytes)		<input type="checkbox"/>	<input type="checkbox"/>	
(f)	Dual Band Wireless: 802.11 a/b/g/n/ac, Bluetooth 4.1		<input type="checkbox"/>	<input type="checkbox"/>	
(g)	Serial Port: DB 9 pin connector		<input type="checkbox"/>	<input type="checkbox"/>	
(h)	Ruggedness: Mil-Std-810G and IP51 certified.		<input type="checkbox"/>	<input type="checkbox"/>	
(i)	Miscellaneous: I/O, external monitor output, PC card Type II, USB 3.0, SD Card (SDXC), 2 Ethernet ports 1000BASE-TX		<input type="checkbox"/>	<input type="checkbox"/>	
(j)	Battery: Lithium-ion (11.1V, 4200mAh).		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.7.	Isolated High Voltage Modules:		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.7.1.	The Isolated High Voltage Modules must be equipped with a minimum of eight (8) separate channels.	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.7.2.	The Isolated High Voltage Modules must have the capacity to capture positive and negative signals, from a voltage range of 0 V to 1000V.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.7.3.	The Isolated High Voltage Modules must		<input type="checkbox"/>	<input type="checkbox"/>	

No.	Mandatory Technical Criteria	Supporting Evidence Required	Compliant		Proposal Reference or Description
			Yes	No	
	have a minimum Simultaneous Sample Rate of 200 kS/s (kilo samples per second) per channel.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.7.4.	The Isolated High Voltage Modules must have a sampling resolution of 24 bits.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.7.5.	The Isolated High Voltage Modules must have a minimum isolation voltage of 4 KV.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.7.6.	The Isolated High Voltage Modules must have a minimum bandwidth of DC to 77 KHz.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.7.7.	The Isolated High Voltage Modules must have a digital filter system to a minimum of 8th order Bessel or Butterworth filters.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.7.8.	The accuracy of the Isolated High Voltage Modules must be within:		<input type="checkbox"/>	<input type="checkbox"/>	
(a)	±0.05% of the reading for an input frequency range of 0 to 1 kHz; and		<input type="checkbox"/>	<input type="checkbox"/>	
(b)	±0.5% of the reading for an input frequency greater than 1 kHz.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.8.	Isolated Low Voltage Modules:		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.8.1.	The Isolated Low Voltage Modules must be equipped with a minimum of six (6) separate channels.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.8.2.	The Isolated Low Voltage Modules must have the capacity to capture positive and negative signals, from a voltage range of 0V to 100V.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.8.3.	The Isolated Low Voltage Modules must be equipped with a minimum Simultaneous Sample Rate of 250.0 KS/s per channel.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.8.4.	The Isolated Low Voltage Modules must be equipped with a sampling resolution of 16 bits.	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.8.5.	The Isolated Low Voltage Modules must be equipped with a minimum isolation voltage of 1.5 KV.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.8.6.	The Isolated Low Voltage Modules must be equipped with a digital filter system to a minimum of 8th order Bessel or Butterworth filters.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.8.7.	The accuracy of the Isolated Low Voltage Modules must be within:		<input type="checkbox"/>	<input type="checkbox"/>	
(a)	±0.05% of the reading for an input frequency range of 0 to 1 kHz; and		<input type="checkbox"/>	<input type="checkbox"/>	
(b)	±0.5% of the reading for an input frequency greater than 1 kHz.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.9.	Isolated Voltage / IEPE Input Modules:	<i>Provide</i>	<input type="checkbox"/>	<input type="checkbox"/>	

No.	Mandatory Technical Criteria	Supporting Evidence Required	Compliant		Proposal Reference or Description
			Yes	No	
3.1.9.1.	The Isolated Voltage / IEPE Input Modules must be equipped with a minimum of six (6) separate channels.	<i>Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.9.2.	The Isolated Voltage / IEPE Input Modules must have the capacity to capture positive and negative signals, from a voltage range of 0 V to 100 V.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.9.3.	The Isolated Voltage / IEPE Input Modules must be equipped with a minimum Simultaneous Sample Rate of 1MS/s (million samples per second) per channel.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.9.4.	The Isolated Voltage / IEPE Input Modules must be equipped with a resolution of 24 bits.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.9.5.	The Isolated Voltage / IEPE Input Modules must have a minimum isolation voltage of 1.5 KV.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.9.6.	The Isolated Voltage / IEPE Input Modules must be equipped with a digital filter system to a minimum of 8th order Bessel or Butterworth filters.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.9.7.	The accuracy of the Isolated Voltage / IEPE Input Modules must be within:		<input type="checkbox"/>	<input type="checkbox"/>	
(a)	±0.05% of the reading for an input frequency range of 0 to 1 kHz; and		<input type="checkbox"/>	<input type="checkbox"/>	
(b)	±0.5% of the reading for an input frequency greater than 1 kHz.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.10.	Isolated High Speed CAN Interface Module:		<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>
3.1.10.1.	The Isolated High Speed controller area network (CAN) Interface Module must be equipped with a minimum of four (4) separate input channels.	<input type="checkbox"/>		<input type="checkbox"/>	
3.1.10.2.	The Isolated High Speed CAN Interface Module must be capable of interfacing with interface units that are built to CAN2.0A, CAN2.0B and J1939 Specifications.	<input type="checkbox"/>		<input type="checkbox"/>	
3.1.10.3.	The Isolated High Speed CAN Interface Module must be capable of operating in high speed mode as well as in low speed mode.	<input type="checkbox"/>		<input type="checkbox"/>	
3.1.10.4.	The Isolated High Speed CAN Interface Module must be capable of operating in listen only mode.	<input type="checkbox"/>		<input type="checkbox"/>	
3.1.10.5.	The Isolated High Speed CAN Interface Module must have a minimum galvanic isolation of 500Volts.	<input type="checkbox"/>		<input type="checkbox"/>	
3.1.10.6.	The Isolated High Speed CAN Interface	<input type="checkbox"/>		<input type="checkbox"/>	

No.	Mandatory Technical Criteria	Supporting Evidence Required	Compliant		Proposal Reference or Description
			Yes	No	
	Module must have a bus pin fault protection of +/- 36V.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.11.	Timing and Synchronization Module	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.11.1.	The Timing and Synchronization Module must be capable of receiving GPS satellite signals with a refresh rate of at least 1Hz.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.11.2.	The Timing and Synchronization Module must be capable of synchronizing to GPS or IRIG clock sources.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.11.3.	The Timing and Synchronization Module must be capable of providing eight channels of digital I/O compatible with CMOS and TTL.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.12.	High Precision Thermocouple Units	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.12.1.	The High Precision Thermocouple Units must be equipped with a minimum of eight (8) separate channels.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.12.2.	The High Precision Thermocouple Units must have the capacity to use the following thermocouple types: K, J, T, E, R, S, B, N, C, and U.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.12.3.	The High Precision Thermocouple Units must be equipped with a minimum Simultaneous Sample Rate of 12 S/s (samples per second) per channel.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.12.4.	The High Precision Thermocouple Units must be equipped with a sampling resolution of 24 bits.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.12.5.	The High Precision Thermocouple Units must be equipped with a minimum isolation voltage of 350V.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.12.6.	The High Precision Thermocouple Units must have an accuracy of ±2 °C across full operating temperature range.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.12.7.	The High Precision Thermocouple Units must be capable of connecting connect to any host controller or data collection unit.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.12.8.	The High Precision Thermocouple Units must be time synchronized with the operating and data collection software.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.13.	External UPS Unit:	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.13.1.	The External UPS Unit must have a maximum output power of 250 Watts.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.13.2.	The External UPS Unit must have the capacity to accept power from a DC source of 11 to 32 VDC.		<input type="checkbox"/>	<input type="checkbox"/>	

No.	Mandatory Technical Criteria	Supporting Evidence Required	Compliant		Proposal Reference or Description
			Yes	No	
3.1.13.3.	The External UPS Unit must have the capability to supply power to the Mainframe Data Collection Unit 1.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.13.4.	UPS batteries capable of providing a minimum of 250 Wh of power must be provided.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.13.5.	The External UPS Unit must be mechanically compatible with the Mainframe Data Collection Unit 1.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.14.	Temperature and Environmental Requirements:		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.14.1.	The Equipment must be capable of being stored without damage or degradation at any temperature between -20°C and +60°C.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.14.2.	The Equipment must be capable of being continuously operated within tolerances without damage or degradation at any temperature between 0°C to +40°C.	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.14.3.	The Equipment must be capable of being continuously operated within tolerances without damage or degradation in humid environments not exceeding 95% relative humidity, non-condensing.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.15.	Vibration Requirements:		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.15.1.	The Equipment must be capable of meeting the following International Electrotechnical Commission (IEC) Environmental Testing requirements:		<input type="checkbox"/>	<input type="checkbox"/>	
(a)	Sine Vibration (EN 60068-2-6): Acceleration 20 m/s ²	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
(b)	Shock (EN 60068-2-27): Acceleration 30 g		<input type="checkbox"/>	<input type="checkbox"/>	
(c)	Random Vibration (EN 60068-3-2): Class 2M3.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.16.	Accessories – The contractor must provide all accessories necessary to operate the Equipment for its intended design function, including:	<i>Provide Statement of Compliance</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.16.1.	Cables and Connectors – All cables and connectors necessary to operate the Equipment for its intended purpose must be provided. Cables and connectors must be compatible with the temperature, environmental, and vibration requirements specified in this SOW.	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.16.2.	Metal Protective Cases for each the following components:	<i>Provide Proposal</i>	<input type="checkbox"/>	<input type="checkbox"/>	

No.	Mandatory Technical Criteria	Supporting Evidence Required	Compliant		Proposal Reference or Description
			Yes	No	
(a)	Isolated High Voltage Modules;	<i>Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
(b)	Isolated Low Voltage Modules;		<input type="checkbox"/>	<input type="checkbox"/>	
(c)	Isolated Voltage / IEPE Input Modules;		<input type="checkbox"/>	<input type="checkbox"/>	
(d)	Isolated High Speed CAN Interface Module; and		<input type="checkbox"/>	<input type="checkbox"/>	
(e)	Timing and Synchronization Module.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.16.3.	Carrying Case 1 – Ruggedized case with handle, hasps for padlock, wheels for transport, and internal custom foam cut-out for storage of the following components:	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
(a)	Mainframe Data Collection Unit 1 with Internal CPU;		<input type="checkbox"/>	<input type="checkbox"/>	
(b)	Two Metal Protective Cases containing any combination of Modules;		<input type="checkbox"/>	<input type="checkbox"/>	
(c)	External UPS Unit;		<input type="checkbox"/>	<input type="checkbox"/>	
(d)	Two High Precision Thermocouple Units; and		<input type="checkbox"/>	<input type="checkbox"/>	
(e)	Associated Cables and Connectors.	<input type="checkbox"/>	<input type="checkbox"/>		
3.1.16.4.	Carrying Case 2 – Ruggedized case with handle, hasps for padlock, wheels for transport, and internal custom foam cut-out for storage of the following components:	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
(a)	One Mainframe Data Collection Unit 2;		<input type="checkbox"/>	<input type="checkbox"/>	
(b)	One Portable Rugged Controller Unit;		<input type="checkbox"/>	<input type="checkbox"/>	
(c)	Two Metal Protective Cases containing any combination of Modules;		<input type="checkbox"/>	<input type="checkbox"/>	
(d)	One High Precision Thermocouple Unit; and		<input type="checkbox"/>	<input type="checkbox"/>	
(e)	Associated Cables and Connectors.	<input type="checkbox"/>	<input type="checkbox"/>		
3.1.16.5.	The maximum weight of the Carrying Cases, including all contents must not exceed 31.75 kg (70.00 pounds).	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.16.6.	The maximum dimensions of the Carrying Cases, when totalling length + width + height, must not exceed 203.00 cm (79.92 inches).	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.17.	Training Package:	<i>Provide Proposal Reference or Description</i>	<input type="checkbox"/>	<input type="checkbox"/>	
3.1.17.1.	A training package must be loaded onto the Equipment to facilitate a self-paced orientation and training program for users.		<input type="checkbox"/>	<input type="checkbox"/>	
3.1.17.2.	The training package must include an		<input type="checkbox"/>	<input type="checkbox"/>	

No.	Mandatory Technical Criteria	Supporting Evidence Required	Compliant		Proposal Reference or Description
			Yes	No	
	overview of the Equipment, power-up and shut-down procedures, operation, and safety features.				

ANNEX "C"

SECURITY REQUIREMENTS CHECKLIST

There are no security requirements.

ANNEX "D"

ELECTRONIC PAYMENT INSTRUMENTS

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);

ANNEX “E”

PRICING SCHEDULE

Bidders may use Attachment 1 to Part 3 to indicate their prices. If Bidders choose to use Attachment 1 to Part 3 to indicate their prices, Bidders must include Attachment 1 to Part 3 in their financial bid.

Deliverables Item / Goods and Services	Qty	Firm Unit Price Applicable Taxes Extra	Total Price Applicable Taxes Extra
1) Operation and controlling software (SOW para 3.1.3.3)		\$	\$
a) Mainframe data Collection Unit 1 with Internal CPU	1	\$	\$
b) the Mainframe Data Collection Unit 2 with Connection to Portable Rugged Controller Unit	1	\$	\$
c) Portable Rugged Controller Units	1	\$	\$
2) Operation and controlling software must be pre-loaded on the Equipment (SOW Para 3.1.3.5)	1	\$	\$
3) Mainframe Data Collection Unit 1 with Internal CPU (SOW Para 3.1.4)	1	\$	\$
4) Mainframe Data Collection Unit 2 with Connection to Portable Rugged Controller Unit (SOW Para 3.1.5)	2	\$	\$
a. An Ethernet cable of approximately 10 metres in length must be provided that will allow for the transfer of data from the Mainframe Data Collection Unit 2 to a Portable Rugged Controller Unit (SOW Para 3.1.5.1)	2	\$	\$
5) Portable Rugged Controller Units (SOW Para 3.1.6)	2	\$	\$
6) Isolated High Voltage Modules (SOW Para 3.1.7)	4	\$	\$
7) Isolated Low Voltage Modules (SOW Para 3.1.8)	4	\$	\$
8) Isolated Voltage / IEPE Input Modules (SOW Para 3.1.9)	4	\$	\$
9) Isolated High Speed CAN Interface Module (SOW Para 3.1.10)	1	\$	\$
10) Timing and Synchronization Module (SOW Para 3.1.11)	1	\$	\$
11) High Precision Thermocouple Units (SOW Para 3.1.12)	2	\$	\$
12) External UPS Unit (SOW Para 3.1.13)	1	\$	\$
13) Accessories (SOW Para 3.1.16)		\$	\$
a. Cables and Connectors for all equipment necessary to operate the equipment for its intended purpose must be provided (SOW Para 3.1.16.1)	1 Lot	\$	\$
b. Metal Protective Cases (SOW Para 3.1.16.2)			

i.	Isolated High Voltage Modules	4	\$	\$
ii.	Isolated Low Voltage Modules	4	\$	\$
iii.	Isolated Voltage / IEPE Input Modules	4	\$	\$
iv.	Isolated High Speed CAN Interface Module	1	\$	\$
v.	Timing and Synchronization Module	1	\$	\$
c.	Carrying Case 1 (SOW Para 3.1.16.3)	1	\$	\$
d.	Carrying Case 2 (SOW Para 3.1.16.4)	2	\$	\$
14) Training Package (SOW Para 3.1.17)			\$	\$
a.	A training package must be loaded onto the Equipment (SOW Para 3.1.17.1). Training must be pre-loaded on the Mainframe Data Collection Unit 1 and the Portable Controller Units (SOW Para 4.1.15)	3	\$	\$
15) Technical Service Support (SOW Para 3.2.1)				
a.	Availability (SOW Para 3.2.1.1)	1	\$	\$
b.	Service Desk (SOW Para 3.2.1.2)	1	\$	\$
c.	Product Notification (SOW Para 3.2.1.3)	1	\$	\$
d.	Software Support Period (SOW Para 3.2.1.4)	1	\$	\$
e.	Calibration (SOW Para 3.2.1.5) The first periodic calibration must be included as part of the original delivery package. Calibration Service Options are priced in item 18)	1	\$	\$
16) Equipment Certification (SOW Para 3.2.2)				
a.	Certificate of Calibration (SOW 3.2.2.1)		\$	\$
i.	Isolated High Voltage Modules	1	\$	\$
ii.	Isolated Low Voltage Modules	1	\$	\$
iii.	Isolated Voltage / IEPE Input Modules	1	\$	\$
iv.	Isolated High Speed CAN Interface Module	1	\$	\$
v.	Timing and Synchronization Module	1	\$	\$
vi.	High Precision Thermocouple Units	1	\$	\$
b.	Traceable Calibration (SOW Para 3.2.2.2)	1	\$	\$
c.	Certificate of Conformance (SOW Para 3.2.2.3)	1	\$	\$
d.	Statement of Compliance (SOW Para 3.2.2.4)	1	\$	\$
e.	Statement of Continued Production and	1	\$	\$

Support (SOW Para 3.2.2.5)			
17) Equipment Documentation (SOW Para 3.2.3)			
a. User Operations Manual (SOW Para 3.2.3.1, SOW Para 4.3.5)	3	\$	\$
b. Calibration Instructions (SOW Para 3.2.3.2, SOW Para 4.3.6)	3	\$	\$
18) Calibration Services (SOW Para 3.2.1.5, SOW Para 4.2). Bidder to provide pricing for recommended number of calibrations for five years (e.g. if annual calibration is recommended, then enter quantity "1" for First to Fifth Calibration Service Options and enter quantity "0" for Sixth to Tenth Calibration Service Options). Canada will pay for shipping units to calibration centre. Contractor to pay for shipping units back to customer.			
a. First Calibration Service Option (SOW 4.2.1)		\$	\$
b. Second Calibration Service Option (SOW 4.2.1)		\$	\$
c. Third Calibration Service Option (SOW 4.2.1)		\$	\$
d. Fourth Calibration Service Option (SOW 4.2.1)		\$	\$
e. Fifth Calibration Service Option (SOW 4.2.1)		\$	\$
f. Sixth Calibration Service Option (SOW 4.2.1)		\$	\$
g. Seventh Calibration Service Option (SOW 4.2.1)		\$	\$
h. Eighth Calibration Service Option (SOW 4.2.1)		\$	\$
i. Ninth Calibration Service Option (SOW 4.2.1)		\$	\$
j. Tenth Calibration Service Option (SOW 4.2.1)		\$	\$
Total Estimated Cost			\$