

ANNEX H

TECHNICAL BID EVALUATION

INSTRUCTIONS TO BIDDERS AND EVALUATION PROCEDURES

LASER RANGE FINDER - HAND-HELD THERMAL IMAGER - LONG  
RANGE (LRF HHTI-LR)



NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document must continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

## TABLE OF CONTENTS

1	Introduction .....	4
1.1	Purpose .....	4
1.2	Overview of Technical Bid Requirements and Evaluation Processes .....	4
1.3	Schedule .....	4
2	Technical Bid Document Evaluation – Gate 1.....	5
2.1	Overview – Technical Bid Document .....	5
2.2	Instructions to Bidders – Technical Bid Document .....	5
2.2.1	General .....	5
2.2.1	Management Approach – Acquisition Contract .....	5
2.2.2	Management Approach – In-Service Support.....	6
2.2.3	Proposed System / System Design Description .....	7
2.2.4	SRS Compliance Matrix (SRSCM).....	7
2.3	Gate 1 – Technical Bid Document Evaluation – Evaluation Procedures .....	11
3	Delivery of Systems Subject to Test .....	12
3.1	Overview .....	12
3.2	Instructions to Bidders – Delivery of Systems Subject to Test .....	12
3.2.1	System Subject to Test (SST) for Gate 2A – Lab Testing .....	12
3.2.2	System Subject to Test (SST) for Gate 2B & Gate 3 – Field Testing.....	13
4	Capability Performance Evaluation – Lab Testing – Gate 2A .....	15
4.1	Overview –Capability Performance Evaluation – Lab Testing .....	15
4.2	Instructions to Bidders –Capability Performance Evaluation – Lab Testing – Gate 2A.....	15
4.3	Evaluation – Capability Performance Evaluation – Lab Testing – Gate 2A.....	15
5	Capability Performance Evaluation – Field Testing – Gate 2B.....	16
5.1	Overview –Capability Performance Evaluation – Field Testing .....	16
5.2	Instructions to Bidders –Capability Performance Evaluation – Field Testing – Gate 2B .....	16
5.2.1	General Requirements .....	16
5.2.2	FSR Skillset Requirements .....	17
5.2.3	Field Testing Requirements.....	17
5.2.4	Administrative Requirements .....	17
5.3	Evaluation – Capability Performance Evaluation – Field Testing – Gate 2B .....	18
6	User Acceptance Performance Evaluation – Gate 3.....	19
6.1	Overview – User Acceptance Performance Evaluation (UAPE).....	19
6.2	Instructions to Bidders – User Acceptance Performance Evaluation – Gate 3 .....	19
6.2.1	General Requirements .....	19
6.2.2	FSR Skillset Requirements .....	20
6.2.3	UAPE Requirements.....	20
6.2.4	Administrative Requirements .....	20
6.3	Evaluation – User Acceptance Performance Evaluation – Gate 3 .....	21
7	Technical Evaluation Scoring Summary .....	22

Solicitation No. - N° de l'invitation  
W8476-226536  
Client Ref. No. - N° de réf. du client  
W8476-226536

Amd. No. - N° de la modif.  
File No. - N° du dossier  
036QD.W8476-226536

Buyer ID - Id de l'acheteur  
036QD  
Part – Partie  
Annex H

---

7.1	Overall Points Allocation .....	22
7.2	Technical Evaluation Breakdown by Gate .....	22
7.3	Scoring Methodology .....	22
8	List of Appendices .....	23

## **1 Introduction**

### **1.1 Purpose**

This Annex details how the Bidders are to prepare their Technical Bid and provides an overview of how the LRF HHTI-LR Technical Bid will be evaluated.

### **1.2 Overview of Technical Bid Requirements and Evaluation Processes**

The Technical Bid and associated technical evaluation processes has the following distinct components:

- Submission of a Technical Bid document by the Bidder no later than bid closing, to be evaluated as part of Gate 1 – Technical Bid Document Evaluation (see Section 2 of this document)
- Delivery of three LRF HHTI-LR systems after bid closing that will be subjected to lab and field testing described below (see Sections 4-6)
- Lab testing to evaluate Detection, Recognition and Identification (DRI) performance, cold temperature performance, performance following shocks, and battery performance, as evaluated during Gate 2A - Technical Capability Performance Evaluation – Lab Testing (see Section 4)
- Field testing to evaluate holistic system Recognition and Identification performance under operational conditions, as evaluated during Gate 2B - Technical Capability Performance Evaluation – Field Testing (see Section 5)
- Field testing to evaluate user acceptance of the system in terms of human factors, simplicity and functionality and ease of use under operational conditions as evaluated during Gate 3 - User Acceptance Performance Evaluation (UAPE) Field Testing (see Section 6)

At the completion of each gate, the results of test and evaluation activities are provided to the technical bid evaluation team at the Gate Review. The technical bid evaluation team at each Gate Review will comprise three technical evaluators. Consensus is required to determine the results of the technical evaluation at each gate.

Evaluation activities undertaken by the technical bid evaluation team at the Gate review will be administered by Canada's Procurement Authority (PA) assigned to the procurement. Consensus of results at the Gate Review is confirmed by the PA.

A finding of non-compliance at a Gate Review will result in the bid being found non-compliant.

The process of determining the technical score from the technical bid evaluation is described in Section 7 Technical Evaluation Scoring Summary.

The technical evaluation process will be monitored and reviewed by the Fairness Monitor assigned to the procurement.

### **1.3 Schedule**

It is expected that the technical bid evaluation process will be complete within three months of bid closing.

It is intended that Gates 1, 2A, 2B and 3 occur generally in sequence, however resource constraints may require a change in order or otherwise parallel activity.

## **2 Technical Bid Document Evaluation – Gate 1**

### **2.1 Overview – Technical Bid Document**

There are four components to the Technical Bid Document:

- Management Bid – Acquisition Contract
- Management Bid – In-Service Support Contract
- Proposed System / System Design Document
- System Requirements Specification Compliance Matrix

Canada's Phased Bid Compliance policy is applicable to all mandatory requirements specified in Section 2 of this document. For clarity, all mandatory requirements presented in Section 2 of this document are considered "eligible requirements" in the context of this policy.

### **2.2 Instructions to Bidders – Technical Bid Document**

#### **2.2.1 General**

The Bidder must prepare and submit a Technical Bid document.

The content of the Technical bid document must be presented in the order that the requirements for the Technical Bid document are presented below.

#### **2.2.1 Management Approach – Acquisition Contract**

##### **2.2.1.1 Overview**

The Bidder's management approach to the acquisition contract will comprise four draft versions of deliverable documents under the acquisition contract:

- Project Management Plan
- Master Project Schedule
- Quality Plan
- System Engineering Management Plan

##### **2.2.1.2 Project Management Plan (Draft)**

The Bidder must include a draft Project Management Plan (PMP) in their Technical Bid document.

The draft PMP must conform to Data Item Description (DID) PM-01 PMP in Appendix 2 to Annex B1, Resulting Acquisition Contract.

The draft PMP must include sufficient detail to demonstrate an understanding of the scope of work described in the Statement of Work (SOW) – Acquisition at Annex B1, Resulting Acquisition Contract.

The draft PMP must include sufficient detail for Canada to understand the Bidder's project management approach for the Acquisition Contract.

##### **2.2.1.3 Master Project Schedule (Draft)**

The Bidder must include a draft Master Project Schedule (MPS) in their Technical Bid document.

The draft MPS must conform to DID PM-02 MPS in Appendix 2 to Annex B1, Resulting Acquisition Contract.

The draft MPS must include sufficient detail to demonstrate an understanding of the scope of work described in the Statement of Work (SOW) – Acquisition at Annex B1, Resulting Acquisition Contract.

The draft MPS must include sufficient detail for Canada to understand the Bidder's schedule approach for the Acquisition Contract.

#### **2.2.1.4 Quality Plan (Draft)**

The Bidder must include a draft Quality Plan in their Technical Bid document.

The draft Quality Plan must conform to DID PM-07 Quality Plan in Appendix 2 to Annex B1, Resulting Acquisition Contract.

The draft Quality Plan must include sufficient detail to demonstrate compliance with the quality management requirements specified in Section 7.1 of SOW – Acquisition at Annex B1, Resulting Contract - Acquisition.

The draft Quality Plan must include sufficient detail for Canada to understand the Bidder's quality management approach for the Acquisition Contract.

#### **2.2.1.5 Systems Engineering Management Plan (Draft)**

The Bidder must include a draft Systems Engineering Management Plan (SEMP) in their Technical Bid document.

The draft SEMP must conform to DID SE-01 SEMP in Appendix 2 to Annex B1, Resulting Acquisition Contract.

The draft SEMP must include sufficient detail to demonstrate an understanding of the scope of work described in the Statement of Work (SOW) – Acquisition at Annex B1, Resulting Acquisition Contract.

The draft SEMP must include sufficient for Canada to understand the Bidder's system engineering management approach for the Acquisition Contract.

#### **2.2.1.6 Evaluation – Management Approach – Acquisition**

The Bidder's response to the requirements associated with the Bidder's Management Approach – Acquisition will be evaluated on a pass/fail basis and will not be scored. A Bidder's response will be considered a pass if the response contains acceptable and adequate explanation with sufficient detail to demonstrate an understanding of the details contained within the DID's stated in the sections above. Refer to Section 2.3 Gate 1 – Technical Bid Document Evaluation – Evaluation Procedures.

### **2.2.2 Management Approach – In-Service Support**

#### **2.2.2.1 Overview**

The Bidder's management approach to the in-service support contract will comprise one draft version of the In-Service Support Plan deliverable document under the in-service support contract.

#### **2.2.2.2 In-Service Support Plan (Draft)**

The Bidder must include a draft In-Service Support Plan (ISSP) in their Technical Bid document.

The draft ISSP must conform to Data Item Description (DID) LS-30 ISSP in Appendix 2 to Annex B1, Resulting Acquisition Contract.

The draft ISSP must include sufficient detail to demonstrate an understanding of the scope of work described in the Statement of Work (SOW) – In-Service Support at Annex B2 Resulting Contract – In-Service Support.

The draft ISSP must include sufficient detail for Canada to understand the Bidder's management approach for the In-Service Support Contract.

### **2.2.2.3 Evaluation**

The Bidder's response to the requirements associated with the Bidder's Management Approach – In-Service Support will be evaluated on a pass/fail basis and will not be scored. A Bidder's response will be considered a pass if the response contains acceptable and adequate explanation with sufficient detail to demonstrate an understanding of the details contained within the DID's stated in the sections above. Refer to Section 2.3 Gate 1 – Technical Bid Document Evaluation – Evaluation Procedures.

### **2.2.3 Proposed System / System Design Description**

#### **2.2.3.1 Overview**

The Bidder's description of their proposed system will be presented in the form of a draft System Design Description Document (SDD) that is deliverable document under the acquisition contract.

#### **2.2.3.2 Proposed System / SDD Requirements**

The Bidder must include a description of their proposed system in their Technical Bid document.

The description of the Bidder's proposed system must be provided in the form of a draft System Design Description (SDD).

The draft SDD must conform to Data Item Description (DID) SE-02 SDD in Appendix 2 to Annex B1, Resulting Acquisition Contract.

Approval of the Technical Authority is not required for the Bidder to tailor the SDD for the purposes of inclusion in the Technical Bid. The use of existing system documentation included as appendices and referenced from the main body of the SDD is acceptable.

The Bidder is advised to review the content of the Section 4.3 System Realization of the of the Acquisition SOW at Annex B1, Resulting Acquisition Contract during the preparation of the draft SDD.

The draft SDD must include sufficient detail for Canada to understand the functionality, performance, configuration, and standards applied to the Bidder's proposed system.

Detailed content in the SDD is not required in the following Sections of the SDD as described in DID SE-02 SDD:

- 6.6.2 Interface Design
- 6.7 Requirements Traceability

The SDD must include the identification of Special Tools and Test Equipment (STTE) to be installed in the 202 Workshop Depot clean room as described in Section 8.10 Establishment of Second Level Maintenance Capability at 202 Workshop Depot in Annex B1 Acquisition Statement of Work.

The SDD should include the identification and description of additional components over and above those identified in the Acquisition SOW that may benefit Canada in operational use or to support the in-service systems. The inclusion of these additional components in the Acquisition Contract will be discussed during contract negotiations. Examples of possible additional components are:

- System cut-aways for use as training aids
- Diagnostic tools for use in the field to identify faults and required maintenance actions
- Tools that may be required for the updating of embedded software

#### **2.2.3.3 Evaluation**

The Bidder's response to the requirements associated with the Bidder's Proposed System / SDD will be evaluated on a pass/fail basis and will not be scored. Refer to Section 2.3 Gate 1 – Technical Bid Document Evaluation – Evaluation Procedures.

### **2.2.4 SRS Compliance Matrix (SRSCM)**

#### **2.2.4.1 Overview**

The SRSCM provides Canada with a commitment by the bidder to deliver a system that is fully compliant with the LRF HHTI-LR System Requirements Specification. The bidder's statement of compliance to each requirement specified in the SRS provides Canada confidence that the bidder has reviewed and analyzed each requirement as necessary to determine compliance.

#### **2.2.4.2 IBM Rational Doors Requirements Software**

The NVSM project team currently uses the IBM Rational Doors electronic software tool for tracking, traceability and maintenance of this procurement's requirements/requirements matrix. Rational Dynamic Object Oriented Requirements System (DOORS) is an electronic requirement management tool that is common in industry. More detailed information is available online if required.

#### **2.2.4.3 SRSCM Summary Requirements**

The Bidder must include the Systems Requirements Specification Compliance Matrix (SRSCM) provided in this RFP, duly filled, in their Technical Bid.

Bidders must use the SRSCM to establish full and unreserved compliance with all the mandatory requirements specified in the SRS.

The SRSCM must be provided in the Technical Bid in pdf format. Only the PDF copy of SRSCM will be used in the assessment of the bid.

The SRSCM must also be provided as a Microsoft® Excel® workbook file compatible with Microsoft® Excel® for Microsoft Office 365. The MS Excel file will assist the bid evaluation team in managing and documenting the bid assessment process. The PDF copy is deemed to be the formal technical bid submission and any discrepancies from the PDF document found within the excel documentation will not be assessed.

The Bidder must use the SRSCM template provided in the form of a Microsoft Excel workbook in the Request for Proposal (RFP) documentation published on Canada Buys to complete the SRSCM.

Explanations and directions for each column in the SRSCM are provided below.

#### **2.2.4.4 Objects and Attributes**

The SRSCM is created as an export from the full SRS data set that is stored in the IBM Rational DOORS database for the LRF HHTI-LR procurement.

Each row in the SRSCM is an object. Each column in the SRSCM contains the fields of a particular attribute of the object.

#### **2.2.4.5 Object Number – Column 1**

The Object Number is a unique identifier for the object that is generated by the position of the object in the object hierarchy. While the Object Number for an object may change when the hierarchy changes, the object number is consistent across the following documents:

- SRSCM (Appendix 2 to Annex H)
- System Requirements Specification (Appendix 3 to Annex B1)
- Requirements Verification Matrix (Appendix 5 to Annex B1)

Object Number data is exported from DOORS and provided in the SRSCM template. The Bidder must not modify Object Number data when completing the SRSCM.

#### **2.2.4.6 Object Text – Column 2**

The content of the Object Text attribute varies depending on the value of the Object Type attribute. The Object Text content may be:

- *A Heading* to group related information and requirements in the SRS hierarchy
- *Information* to provide contextual information to enable a better understanding of the requirements
- *A Requirement*, which may be further classed as either mandatory or desirable, and can also be rated

Object Text data is exported from DOORS and provided in the SRSCM template. The Bidder must not modify Object Text data when completing the SRSCM.

#### 2.2.4.7 Object Type – Column 3

The Object Type identifies the class to which the Object Text belongs. There are six Object Types:

- Heading. A heading is used to group related information and requirements in the SRS hierarchy.
- Information. Information provides contextual information to enable a better understanding of related requirements.
- Mandatory Requirement. A mandatory requirement is a requirement that must be met by the system. If not met, it renders the bid non-compliant.
- Mandatory Requirement (rated). A rated mandatory requirement is a requirement that has a specific performance level that must be met by the system. During technical bid evaluation, the Bidder may gain points for achieving a performance level that exceeds the specified performance level.
- Desirable Requirement. A desirable requirement is a requirement that does not need to be met by the system. Canada is interested to know whether or not the system meets the requirement.
- Desirable Requirement (rated). A rated desirable requirement is a requirement that does not need to be met by the system. However, the performance of the Bidders system related to the requirement will be evaluated during the technical bid evaluation, and points will be awarded based on the performance of the Bidder's system. There are no minimum performance levels associated with this class of requirement.

Object Type data is exported from DOORS and provided in the SRSCM template. The Bidder must not modify Object Type data when completing the SRSCM.

#### 2.2.4.8 Compliance Required at Bid Closing – Column 4

The Bidder should note that mandatory requirements in the SRS fall in two classes:

- Mandatory requirements that must be met at the time of bid closure, as well as at the time of the System Acceptance Test (SAT) and First Article Acceptance Test (FAAT). These requirements are generally related to the Military-Off-The-Shelf (MOTS) components of the system.
- Mandatory requirements that do not have to be met at the time of bid closure but must be met at the time of SAT and FAAT. These requirements are generally related to those components of the system that may require some modification from the Bidder's current system or be subject to prototyping.

The Bidder should review Section 4.3 System Realization of the Acquisition SOW (Annex B1) for background on this subject.

For objects classed as mandatory requirements, there are two possible values for the Compliance:

- Yes. A mandatory requirement must be met by the Bidder's proposed system at the time of bid closing, and at the time of the SAT and FAAT.
- No. A mandatory requirement does not need to be met by the Bidder's proposed system at the time of bid closing but does need to be met at the time of the SAT and FAAT.

For objects classed as desirable requirements, the value for this attribute will be Not Applicable.

Compliance Required at Bid Closing data are exported from DOORS and provided in the SRSCM template. The Bidder must not modify this data when completing the SRSCM.

#### **2.2.4.9 Instructions to Bidder – Column 5**

For those objects that are classed as one of the four different Requirement object types, the Bidder must follow the instructions in the Instructions to Bidder field.

The Instructions to Bidder field may contain instructions that includes the text listed below.

State Compliance. When the Instructions to Bidder field contains “State Compliance”, the Bidder must complete the Bidder’s Statement of Compliance Field, in accordance with instructions in Section 2.2.4.10.

Provide Evidence. When the Instructions to Bidder field contains “Provide evidence” followed by supporting text, the Bidder must provide evidence in their Technical Bid that the requirement is met by the Bidder’s proposed system, and indicate where in the Technical Bid the evidence is located, in accordance with instructions in Section 2.2.4.11.

Provide LRF HHTI-LR System to Canada for Evaluation. When the Instructions to Bidder field contains the “Provide System to Canada for Evaluation”, followed by supporting text, this is an indication that the satisfaction of the requirement will be evaluated by Canada during lab or field testing.

#### **2.2.4.10 Bidder’s Statement of Compliance – Column 6**

The requirements in this Section 2.2.4.10 apply to those objects in the SRSCM where:

- The Object Type attribute (Column 3) is one of the four “Requirement” types, and
- The Instructions to Bidder attribute (Column 4) includes the statement “State Compliance”

The bidder should note that where a requirement includes the terminology “must be acceptable to the user”, the bidder is not required to state compliance. Compliance to these requirements can only be determined by representatives of Canada’s users of the system.

For those mandatory requirements where the Compliance Required at Bid Closing (Column 4) is “Yes”, the bidder must assess the forecast compliance of their proposed system to the requirement at time of bid closing.

For those mandatory requirements where the Compliance Required at Bid Closing (Column 4) is “Yes”, the bidder must enter one of the following compliance statements in the Bidder’s Statement of Compliance field:

- Compliant at Bid Closing
- Not compliant at Bid Closing

For those mandatory requirements where the Compliance Required at Bid Closing (Column 4) is “No”, the bidder must assess the forecast compliance of their proposed system to the requirement at time of the SAT and FAAT.

For those mandatory requirements where the Compliance Required at Bid Closing (Column 4) is “No”, the bidder must enter one of the following compliance statements in the Bidder’s Statement of Compliance field:

- Compliant at SAT and FAAT
- Not compliant at SAT and FAAT

For desirable requirements, Canada is interested in and in specific cases will rate the performance of, the compliance of the bidder’s proposed system. The Bidder should follow the direction as for mandatory requirements above but may also respond “Not Provided”. Not Provided indicates that the Bidder’s proposed system does not provide a solution to meet the desirable requirement.

#### **2.2.4.11 Location of Evidence in Technical Bid / Comments**

The requirements in this Section 2.2.4.11 apply to those objects in the SRSCM where the Instructions to Bidder attribute (Column 4) includes the statement “Provide evidence...”

For each requirement where the Instructions to Bidder attribute (Column 4) includes the statement “Provide evidence...”, the Bidder must provide a description or electronic link in the Location of Evidence in Technical Bid / Comments field.

The evidence provided may include:

- Technical specifications
- Test reports
- Certifications
- User or maintenance manuals
- Bespoke analysis or argument to substantiate compliance

The description or electronic link must provide the evaluator with a means to quickly locate and review the evidence provided.

The bidder must include all evidence directly within their Technical Bid. The bidder must not use external links to websites as a source of evidence.

#### **2.2.4.12 Evaluation**

The Bidder's SRSCM will be evaluated primarily on a pass/fail basis.

A non-compliance for any mandatory requirement in the SRSCM will result in the bid being found non-responsive.

The Bidders should note that the evidence provided related to the requirement for the maximum mass of the LRF HHTI-LR specified in SRS 4.9.1.1 Mass will also be rated. In addition, there are rated components also attributed to the Laser Pointer (SRS 4.3.5), See-Spot capability (SRS 4.3.6), Image Processing (SRS 4.3.7) and Display Functionality (SRS 4.3.8).

Refer to Section 2.3 Gate 1 – Technical Bid Document Evaluation – Evaluation Procedures for further information.

### **2.3 Gate 1 – Technical Bid Document Evaluation – Evaluation Procedures**

The Bidder's Technical Bid document will be evaluated by Canada's Technical Evaluation Team, comprising three technical evaluators, whose evaluation activities are coordinated and overseen by Canada's Contracting Authority (CA).

The evaluation of all requirements related to the evaluation of the Technical Bid Document are subject to the Phased Bid Compliance Process.

At the completion of Phase II of the Phased Bid Compliance Process, a non-compliance for any mandatory requirement in Section 2 of this document will result in the bid being found non-compliant.

At the completion of Phase II of the Phased Bid Compliance Process, a non-compliance for any mandatory requirement in the SRSCM will result in the bid being found non-compliant.

The Gate 1 Review of the results of the technical evaluation of the Technical Bid Document will be administered and confirmed by Canada's Contracting Authority (CA) assigned to the procurement.

Summary Results of the evaluation will be entered into the Technical Evaluation Scoresheet on the Gate 1 Results tab.

Substantiating detail for non-compliance will be included with the Summary Results.

### 3 Delivery of Systems Subject to Test

#### 3.1 Overview

The Bidder's proposed system will be subject to three administratively separate test events to be conducted by Canada:

- Gate 2A - Technical Capability Performance Evaluation – Lab Testing. Gate 2A will evaluate Detection, Recognition and Identification (DRI) performance, cold temperature performance, performance following shocks, and battery performance.
- Gate 2B - Technical Capability Performance Evaluation – Field Testing. Gate 2B will evaluate holistic system Recognition and Identification performance under operational field conditions
- Gate 3 - User Acceptance Performance Evaluation (UAPE) – Field Testing. Gate 3 will evaluate user acceptance of the system in terms of human factors, simplicity and functionality and ease of use under operational field conditions.

The order and timing for these test events to occur will depend on resource availabilities at the time of bid closing. For that reason, Canada is requesting that each Bidder be prepared to provide a total quantity of three (3) Systems Subject to Test (SST) throughout different Gates within the Technical Bid Evaluation Process. Canada has determined that it will logistically be easier for all stakeholders if the initial system subject to test (Quantity 1) is delivered after bid closing to a central location where the initial Gate 2A Lab Testing will occur. Canada will be responsible for the equipment throughout the Gate 2A Lab Testing. The other systems subject to test (Quantity 2) will be the responsibility of the Bidder to arrive at the respective field trials with all equipment as described in the sections following. This equipment to be tested in Gates 2B and Gate 3 will be the responsibility of the Bidder throughout the testing as the Bidder's Field Service Representative (FSR) will also be present for the aforementioned gates. More details can be found in the following sections within this document and the Appendices for Gates 2B and Gate 3.

#### 3.2 Instructions to Bidders – Delivery of Systems Subject to Test

##### 3.2.1 System Subject to Test (SST) for Gate 2A – Lab Testing

The Bidder must deliver **one (1) complete LRF HHTI-LR System Subject to Test (SST)** to Canada no later than seven calendar days after Bid Closing.

The configuration of the LRF HHTI-LR Systems subject to test should conform to the Initial Baseline System configuration as described in Section 4.3.2 of the Acquisition SOW, at Annex B1.

Each LRF HHTI-LR System must include:

- Field Kit Storage and Transport Case(s), with locks and two sets of keys for each lock
- LRF HHTI-LR
- Field Pouches for the transport of the LRF HHTI-LR System components in operational field conditions
- Internal Rechargeable Batteries sufficient for 24 hours of operation
- Internal Low Temperature Batteries sufficient for 48 hours of operation
- Battery Recharger
- Tripod
- AC Power Cable Assembly with 110 V, 60 Hz capability
- Operator Manual (English and French)
- Quick Reference Guide (English and French)

Each LRF HHTI-LR System should include:

- Lens Cleaning Kit with consumables sufficient for testing
- Operator tool kit, if applicable
- Field maintenance tool kit, if applicable

The LRF HHTI-LR SST must be delivered to:

National Printing Bureau Bldg.

45 Sacré-Coeur Blvd.

Gatineau, QC J8X 1C6

Canada

Attention: DSSPM 7 / PMO NVSM

The SST must be delivered between the hours of 08:00 to 12:00 on a working day.

The Bidder's Field Service Representative (FSR) must accompany the SST at delivery for the In-inspection as well as a basic features tutorial training session to be provided to the lab testing staff. It is expected that each FSR will be prepared to spend up to one half day (4 hours) completing both activities.

#### **3.2.1.1 In-Inspection of SST**

Immediately following delivery, the Bidder's FSR must conduct, in the presence of Canada's representative, an In-Inspection of the SST at the National Printing Bureau (NPB).

The Bidder's FSR must verify that the SST are complete, serviceable, and ready for test.

The Bidder's FSR must store the SST in the Transport and Storage Case(s). lock the cases and provide a key to Canada's representative.

The Bidder's FSR must provide an email confirmation to Canada that the SST are complete, serviceable and ready for test.

Canada will then accept delivery of the SST. This should not take more than 1-2 hours total.

#### **3.2.1.2 Basic Features Tutorial/Training Session**

Immediately following the In-inspection and confirmation that the SST is ready for test, the Bidder's FSR must demonstrate basic features/functions and answer any questions from the Lab testing staff on the SST that will enable lab testing staff to perform the lab testing indicated in Appendix 3 to Annex H. This session should not take more than 1-2 hours total.

#### **3.2.1.3 Storage, Security and Transport of SST**

From the time of acceptance of the SST at delivery to the return of SST back to the NPB on completion of testing, Canada will be responsible for the storage, security, and transportation of SST.

#### **3.2.1.4 Return of Systems Subject to Test**

At the completion of testing, Canada will transport all SST back to the NPB in Gatineau, QC and make them available for the Bidder to accept their return.

Shipping of SST from NPB back to the Bidder's premises is the responsibility of the Bidder.

#### **3.2.2 System Subject to Test (SST) for Gate 2B & Gate 3 – Field Testing**

The Bidder must deliver **two (2) complete LRF HHTI-LR Systems Subject to Test (SST)** to Canada for the planned Gate 2B and Gate 3 Field Trial dates currently planned for April/ May 2024 at the locations

defined in Appendices 4 & 5 to this document. The OEM/FSR are responsible for arriving on the day of the testing with two SST's ready for the pre-defined testing. Schedules and arrival dates to be provided to Bidders following bid closure. It is currently planned to have Gate 2B and Gate 3 occurring directly in series with Gate 3 commencing within less than 1 week of Gate 2B completion.

The configuration of the LRF HHTI-LR Systems subject to test should conform to the Initial Baseline System configuration as described in Section 4.3.2 of the Acquisition SOW, at Annex B1.

Each LRF HHTI-LR System must include:

- Field Kit Storage and Transport Case(s), with locks and two sets of keys for each lock
- LRF HHTI-LR
- Field Pouches for the transport of the LRF HHTI-LR System components in operational field conditions
- Internal Rechargeable Batteries sufficient for 24 hours of operation
- Internal Low Temperature Batteries sufficient for 48 hours of operation
- Battery Recharger
- Tripod
- AC Power Cable Assembly with 110 V, 60 Hz capability
- Operator Manual (English and French)
- Quick Reference Guide (English and French)

Each LRF HHTI-LR System should include:

- Lens Cleaning Kit with consumables sufficient for testing
- Operator tool kit, if applicable
- Field maintenance tool kit, if applicable

### **3.2.2.1 Readiness of SST**

The Bidders FSR team is responsible for any pre-testing inspections of their equipment to ensure all devices are functioning as intended and are prepared to perform in the field testing. Canada or its representatives will not be verifying the equipment prior to the commencement of testing.

### **3.2.2.2 Training Sessions during Testing**

The Bidders FSR team will be provided with the opportunity to provide training to the test participants/users at various points of the testing sequences for both the Gate 2B and Gate 3 field trials. These details can be found in the specific Appendices 4 & 5 to Annex H related to the Gate 2B and Gate 3 test phases.

### **3.2.2.3 Storage, Security and Transport of SST**

The FSR team will be responsible for the storage, security and transport of the SST for the entirety of the Gate 2B and Gate 3 testing phases. FSR teams will be responsible to ensure the equipment is prepared and ready for all testing sequences and is responsible for the security of the equipment at all times outside of the testing windows. Canada will provide a staging/setup area within a tent fitted with tables and chairs as well as heating while in the field during testing to enable Bidders to prepare equipment.

## **4 Capability Performance Evaluation – Lab Testing – Gate 2A**

### **4.1 Overview –Capability Performance Evaluation – Lab Testing**

Capability Performance Evaluation – Lab Testing will consist of the evaluation of key performance requirements in a laboratory setting. Testing will be conducted by Canada's Quality Engineering Test Establishment (QETE) at lab facilities located at the National Printing Bureau building in Gatineau, Quebec and at Defence Research and Development Centre Valcartier. It is anticipated that the Gate 2A lab testing will be spread out over a period of six to eight weeks.

The scope of testing comprises:

- Determining the thermal channel static detection, recognition, and identification ranges for vehicle and person sized targets derived from the measurement of Minimum Resolvable Temperature Difference (MRDT) in accordance with STANAG 4349E
- Determining the secondary channel static detection, recognition and identification ranges for vehicle and person sized targets using Minimum Resolvable Tests (MRT) using USAF 1951 resolution targets
- Verifying low temperature operation of the LRF HHTI-LR at minus 32 degrees Celsius
- Determining battery life of the LRF HHTI-LR using internal rechargeable batteries at ambient temperature using a standard mission profile

Details related to this testing can be found in Appendix 3 to Annex H - Gate 2A – Capability Performance Testing Evaluation – Lab Testing (QETE) Test Plan and Procedures document.

Representatives of the Bidder will not be present for testing undertaken during Gate 2A.

### **4.2 Instructions to Bidders –Capability Performance Evaluation – Lab Testing – Gate 2A**

The timing of each test is dependent on availability of test personnel and testing facilities at QETE, and at the cold chamber located at DRDC Valcartier.

Following the acceptance of SST, Canada will provide the Bidder with 48 hours notice of the start and estimated duration of each Test.

The Bidder must provide on-call remote FSR support as requested to assist in resolving any issues that may be encountered before or during testing. Remote FSR support will normally be provided through email for simple requests or through Microsoft Teams for more complex requests.

The Bidder must provide the requested remote FSR support within 24 hours of a request for FSR support.

### **4.3 Evaluation – Capability Performance Evaluation – Lab Testing – Gate 2A**

The results of each Gate 2A test undertaken by QETE will be provided to Canada's technical evaluation team.

QETE's Gate 2A test results will be evaluated by a team of three technical evaluators, including a representative of QETE, against the requirements associated with each test. Consensus is required to determine compliance or non-compliance with each requirement.

The Gate 2A Review of the results of the QETE lab testing will be administered and confirmed by Canada's Procurement Authority (PA) assigned to the procurement.

A non-compliance for any mandatory requirement verified by test in Gate 2A will result in the bid being found non-compliant. Summary Results of the evaluation will be entered into the Technical Evaluation Scoresheet on the Gate 2A Results tab.

## **5 Capability Performance Evaluation – Field Testing – Gate 2B**

### **5.1 Overview –Capability Performance Evaluation – Field Testing**

Capability Performance Evaluation – Field Testing will consist of the evaluation of key performance requirements in a field setting. Testing will be conducted by the NVSM PMO Technical Evaluation Team with support from the Canadian Army Test and Evaluation Unit (CATEU) at Canadian Forces field locations within CFB Gagetown, NB, Canada. The user community will primarily be represented by specialists drawn from the Infantry sniper and reconnaissance occupational specialties; The duration of Gate 2B field testing will be approximately one week. Testing is currently planned to occur in May 2024. Exact schedules will be provided to bidders following bid closure.

The scope of testing comprises:

- Determining holistic system performance in terms of the recognition and identification of static person-sized targets under operational conditions at night
- Determining holistic system performance in terms of the recognition and identification of static person-sized targets under operational conditions during periods of dusk and dawn
- Determining holistic system performance in terms of the recognition and identification of static person-sized targets under operational conditions during daytime

Testing will consist of the repetition of a test procedure in which:

- A target is indicated to the Bidder's FSR
- The Bidder's FSR optimizes the configuration of the SST to maximize the probability of recognition or identification of the target as appropriate
- Representatives of Canada's user community determine if they can recognize or identify the target
- Where required, the Bidder's FSR coaches the user on fine adjustments (such as diopter settings) or supporting functionality (switching from black-hot to white-hot, use of fusion functionality, adjustment of automatic gain control parameters, etc.) as required to maximize the probability of recognition or identification

Holistic system performance that is achieved during these tests will be dependent on:

- The inherent performance capabilities of the SST
- The ability of the Bidder's FSR team to optimize holistic system performance based on the environmental conditions that are present each time the performance of the SST is evaluated
- The ease of use inherent in the SST to allow a user to maximize performance

Details related to this testing can be found in Appendix 4 to Annex H - Gate 2B – Capability Performance Testing Evaluation – Field Testing Test Plan and Procedures document.

### **5.2 Instructions to Bidders –Capability Performance Evaluation – Field Testing – Gate 2B**

#### **5.2.1 General Requirements**

It is anticipated that field testing related to Gate 2B will start no earlier than four weeks after the date of Bid Closing. Canada will confirm the dates and location of the field testing related to Gate 2B no later than two weeks prior to the start of testing. Canada will provide a field testing schedule at that time.

The Bidder should review the contents of this Section 5 Capability Performance Evaluation – Field Testing – Gate 2B, as well as the contents of the related Test Plan and Test Procedures at Appendix 4 to Annex H to determine the composition of the FSR team that will be provided by the Bidder to support this testing.

The Bidder must provide an FSR team to support field testing associated with Gate 2B for the duration of testing communicated to the Bidder by Canada, and for any extensions of the duration of testing that may occur after testing starts. The Bidder should note that parts of the field testing may be delayed due to environmental conditions or other factors.

The Bidder's involvement in the field testing will be limited to the Bidder's FSR team. Visitors and VIPs will not be provided access to the field testing.

### **5.2.2 FSR Skillset Requirements**

For any environmental condition that may occur during testing, the Bidder's FSR team must have the knowledge, skill and experience to optimize holistic system performance related to the recognition and identification of person-size targets.

The Bidder's FSR team must have the knowledge, skill, and experience to conduct user and first level field maintenance on SST under operational conditions.

The Bidder's FSR team must be prepared to and capable of delivering informal training in the field to small groups of users on the general operation of the SST and on functionality specifically related to holistic system recognition and identification procedures.

The Bidder's FSR team must be prepared to and capable of coaching users in the field to make fine adjustments or implement advanced procedures specifically related to holistic system recognition and identification procedures.

The Bidder's FSR team must be capable of delivering the training and coaching described above in the English and French languages as required.

### **5.2.3 Field Testing Requirements**

The Bidder's FSR team must be familiar with the contents of the Test Plan and Procedures at Appendix 4 to Annex H.

The Bidder's FSR team must attend all range safety and other briefings conducted by the Canadian Army or CATEU test staff.

The Bidder's FSR team must adhere to range standing orders as briefed by the Canadian Army or CATEU test staff.

The Bidder's FSR team must follow directions of the Test Director or designate while on test ranges.

### **5.2.4 Administrative Requirements**

#### **5.2.4.1 Visit Requests**

The Bidder must include the following information on members their FSR team in the Technical Bid:

- Full name
- Date of birth
- Nationality
- Passport Number

#### **5.2.4.2 Transportation**

The Bidder must provide transportation for the Bidder's FSR team during the Gate 2B field testing. The Bidder's transportation must be suitable for gravel and dirt roads during inclement weather that may occur during the period of testing. Four-wheel drive vehicles are recommended.

#### **5.2.4.3 Accommodation**

The Bidder must provide accommodation for the Bidder's FSR team during the Gate 2B field testing.

#### **5.2.4.4 Meals**

Canada will provide meals to the Bidder's FSR team during field testing. Canada is not able to provide specific meals in response to dietary requirements.

#### **5.2.4.5 Environmental Protection**

The bidder should note that during most of the field testing the SST, the Bidder's FSR team, Canada's users and test staff will be generally protected from precipitation and wind, but not from temperature. The Bidder must ensure that the Bidder's FST team is clothed in a way that protects them from extended periods of adverse weather conditions.

#### **5.2.4.6 Communications**

The Bidder's FSR team may use cellular telephones during field testing. The Bidder should note that cellular coverage may not exist at all test sites.

#### **5.2.4.7 Workspaces**

Canada will provide the Bidder's FSR team with an area sheltered from precipitation and wind at the test range. The sheltered area will have, as a minimum, tables, chairs, lighting, and 110V 60Hz AC power.

### **5.3 Evaluation – Capability Performance Evaluation – Field Testing – Gate 2B**

The results of each Gate 2B field test procedure will be recorded by PMO NVSM Technical Evaluation team support staff with the support of CATEU test staff. Test results will be reviewed at the Test Completion Review held on-site at the completion of testing.

Test results of Gate 2B field testing undertaken by the PMO NVSM Technical Evaluation Team Support Staff and CATEU will be provided to Canada's technical evaluation team for verification and for the purpose of determining scores in the context of the technical bid evaluation.

All requirements involved in Gate 2B field testing are rated and are not subject to a determination of compliance or non-compliance.

The Gate 2B test result data will be processed and analyzed by a team of three technical evaluators, against the requirements associated with each test. Consensus is required to determine the rating achieved by the Bidder for each requirement.

The Gate 2B Review of the field test results will be administered and confirmed by Canada's Procurement Authority (PA) assigned to the procurement.

Summary Results of the evaluation will be entered into the Technical Evaluation Scoresheet on the Gate 2B Results tab.

## **6 User Acceptance Performance Evaluation – Gate 3**

### **6.1 Overview – User Acceptance Performance Evaluation (UAPE)**

The UAPE will consist of the evaluation of key performance requirements in a field setting. Testing will be conducted by the NVSM PMO Technical Evaluation Team with support from the Canadian Army Test and Evaluation Unit (CATEU) at Canadian Forces field locations within CFB Gagetown, NB, Canada. The user community will primarily be represented by specialists drawn from the Infantry sniper and reconnaissance occupational specialties. The duration of Gate 3 UAPE will be approximately one week. Testing is currently planned to occur in May 2024. Exact schedules will be provided to bidders following bid closure. It is expected that Gate 3 will commence immediately following Gate 2B and FSR teams can expect a reasonable transition without requiring any additional accommodations or travel away from the testing area/base.

Evaluation of the SST during the UAPE will occur in the context of user specialists conducting typical mission-related tasks using the SST in a simulated operational environment.

The scope of the UAPE comprises:

- Functionality and Ease of Use:
  - Overall situational awareness, holistic system performance in terms of speed of target detection, recognition and identification
  - Detection, recognition and identification of targets using the thermal channel
  - Detection, recognition and identification of targets using the secondary channel
  - Geolocation of targets using the Laser Range Finder
- Bullet swirl observation
- Simplicity
- Human Factors
  - Compatibility with clothing and equipment
  - Use under conditions of darkness
  - Human-machine interface – physical controls

Details related to this testing can be found in Appendix 5 to Annex H - Gate 3 – User Acceptance Performance Evaluation – Test Plan and Procedures document.

### **6.2 Instructions to Bidders – User Acceptance Performance Evaluation – Gate 3**

#### **6.2.1 General Requirements**

It is anticipated that UAPE testing related to Gate 3 will take place after the field testing related to Gate 2B. Canada will confirm the dates and location of the field testing related to Gate 3 no later than two weeks prior to the start of testing. Canada will provide a UAPE schedule at that time.

The Bidder should review the contents of this Section 6 User Acceptance Performance Evaluation – Gate 3, as well as the contents of the related Test Plan and Test Procedures at Appendix 5 to Annex H to determine the composition of the FSR team that will be provided by the Bidder to support this testing.

The Bidder must provide an FSR team to support the Gate 3 UAPE for the duration of testing communicated to the Bidder by Canada, and for any extensions of the duration of testing that may occur after testing starts. The Bidder should note that parts of the UAPE may be delayed due to environmental conditions or other factors.

The Bidder's involvement in the UAPE will be limited to the Bidder's FSR team. Visitors and VIPs will not be provided access to the field testing.

### **6.2.2 FSR Skillset Requirements**

The Bidder's FSR team must have the knowledge, skill and experience to optimize holistic system performance related to all of the major functions of the SST.

The Bidder's FSR team must have the knowledge, skill, and experience to conduct user and first level field maintenance on SST under operational conditions.

The Bidder's FSR team must be prepared to and capable of delivering informal training in the field to small groups of users on the general operation of the SST and on functionality specifically related to each major function.

The Bidder's FSR team must be prepared to and capable of coaching users in the field to make fine adjustments or implement advanced procedures specifically related to major system functions.

The Bidder's FSR team must be capable of delivering the training and coaching described above in the English and French languages as required.

### **6.2.3 UAPE Requirements**

The Bidder's FSR team must be familiar with the contents of the Test Plan and Procedures at Appendix 5 to Annex H.

The Bidder's FSR team must attend all range safety and other briefings conducted by CATEU test staff.

The Bidder's FSR team must adhere to range standing orders as briefed by CATEU test staff.

The Bidder's FSR team must follow directions of Test Director or designate while on test ranges.

### **6.2.4 Administrative Requirements**

#### **6.2.4.1 Visit Requests**

The Bidder must include the following information on members their FSR team in the Technical Bid:

- Full name
- Date of birth
- Nationality
- Passport Number

#### **6.2.4.2 Transportation**

The Bidder must provide transportation for the Bidder's FSR team during the Gate 3 field testing. The Bidder's transportation must be suitable for gravel and dirt roads during inclement weather that may occur during the period of testing. Four-wheel drive vehicles are recommended.

#### **6.2.4.3 Accommodation**

The Bidder must provide accommodation for the Bidder's FSR team during the Gate 3 field testing.

#### **6.2.4.4 Meals**

Canada will provide meals to the Bidder's FSR team during field testing. Canada is not able to provide specific meals in response to dietary requirements.

#### **6.2.4.5 Environmental Protection**

The bidder should note that during most of the field testing the SST, the Bidder's FSR team, Canada's users and test staff will be generally protected from precipitation and wind, but not from temperature. However, at times, the Bidder's FSR team may be fully subjected to all environmental conditions. The

Bidder must ensure that the Bidder's FST team is clothed in a way that protects them from extended periods of adverse weather conditions.

#### **6.2.4.6 Communications**

The Bidder's FSR team may use cellular telephones during field testing. The Bidder should note that cellular coverage may not exist at all test sites.

#### **6.2.4.7 Workspaces**

Canada will provide the Bidder's FSR team with an area sheltered from precipitation and wind at the test range. The sheltered area will have, as a minimum, tables, chairs, lighting, and 110V 60Hz AC power.

### **6.3 Evaluation – User Acceptance Performance Evaluation – Gate 3**

The results of each Gate 3 field test procedure will be recorded under the direction of the Test Director.

Test results of Gate 3 field testing will be provided to Canada's technical evaluation team.

The Gate 3 test result data will be processed and analyzed by a team of three technical evaluators, including a representative of CATEU, against the requirements associated with each test. Consensus is required to determine the compliance or rating achieved by the Bidder for each requirement.

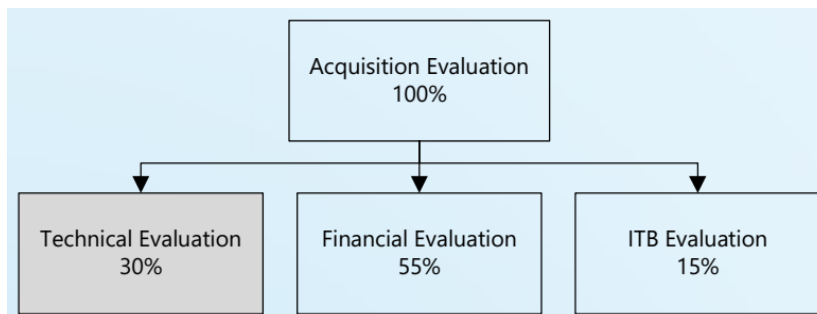
The Gate 3 Review of the UAPE results will be administered and confirmed by Canada's Procurement Authority (PA) assigned to the procurement.

Summary Results of the evaluation will be entered into the Technical Evaluation Scoresheet on the Gate 3 Results tab.

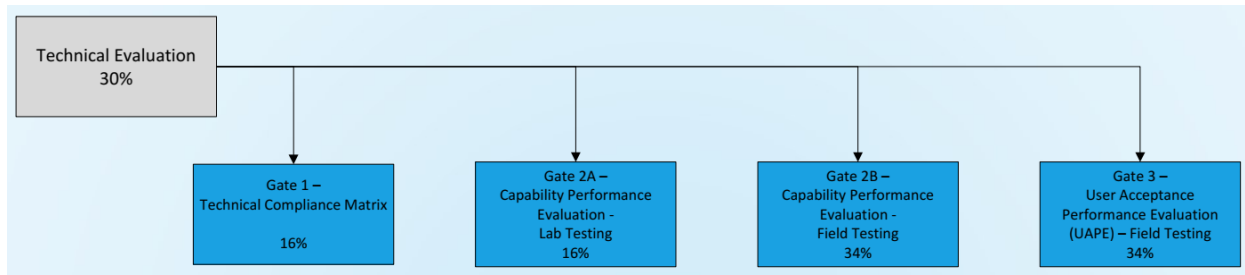
## 7 Technical Evaluation Scoring Summary

### 7.1 Overall Points Allocation

The technical evaluation contributes 30% to the overall bid evaluation score for the LRF HHTI-LR procurement. The final technical evaluation score is therefore calculated in such a way as the maximum Technical Evaluation Score will attribute 30% to the Acquisition Evaluation Assessment.



### 7.2 Technical Evaluation Breakdown by Gate



### 7.3 Scoring Methodology

<<Scoring Methodology can be seen in Appendix 1B document – Technical Bid Evaluation Scoresheet>>

## **8 List of Appendices**

The following documents are appended to this Technical Bid Evaluation Instructions to Bidders and Evaluation Procedures document:

- Appendix 1 Technical Bid Evaluation Scoresheet
- Appendix 2 System Requirements Specification Compliance Matrix (SRSCM)
- Appendix 3 Capability Performance Evaluation – Lab Testing (Gate 2A) – Test Plan and Procedures
- Appendix 4 Capability Performance Evaluation – Field Testing (Gate 2B) – Test Plan and Procedures
- Appendix 5 User Acceptance Performance Evaluation (Gate 3) – Field Testing – Test Plan and Procedures

## APPENDIX 1 TO ANNEX H

### TECHNICAL BID EVALUATION

### TECHNICAL BID EVALUATION SCORESHEET

## LASER RANGE FINDER - HAND-HELD THERMAL IMAGER - LONG RANGE (LRF HHTI-LR)



#### NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document must continue to apply.

#### AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

<b>Bidder</b>	< Insert Bidder Name here >
<b>System Name</b>	< Instert name of Bidder's Proposed System here >

Bidder		< Insert Bidder Name here >													
System Name		< Insert name of Bidder's Proposed System here >													
Serial	SRS Spec. Sec.	Technical Evaluation Results - Gate 1	Compliance	Value	Score	Maximum Points Possible	Score Calculation	Comparative Bidder Value Used in Calculation	Notes						
1	Multiple	SRSCM - Mandatory Compliance Line Items	Not yet assessed	N/A	N/A	N/A									
2	Multiple	SRSCM - Mandatory Compliance Line Items with Evidence	Not yet assessed	N/A	N/A	N/A									
3		Management Bid – Acquisition Contract	Not yet assessed	N/A	N/A	N/A									
4		Management Bid – In-Service Support Contract	Not yet assessed	N/A	N/A	N/A									
5		Proposed System / System Design Document	Not yet assessed	N/A	N/A	N/A									
6	4.9.1.1	LRF HHTI-LR Mass (value in kg)													
7	4.9.1.1	Maximum LRF HHTI-LR Mass 2.75 Kg	Not yet assessed	N/A	#DIV/0!	50	= (Lowest Bidder Weight / Bidder being assessed Weight) * 50 Points								
8	4.3.5.0-5	Laser Pointer - Class 3B	YES/NO	If YES = 30 If No = 0		30	Points are awarded for having the capability described.								
9	4.3.5.0-6	Laser Pointer - Class 3B able to be attenuated/operated to be Class 1	YES/NO	If YES = 20 If No = 0		20	Points are awarded for having the capability described.								
10	4.3.6.0-1	SeeSpot Capability - Visualization of Laser Pointers (810-850 nm)	YES/NO	If YES = 20 If No = 0		20	Points are awarded for having the capability described.								
11	4.3.6.0-2	SeeSpot Capability - Visualization of Laser Designators (1064 nm)	YES/NO	If YES = 20 If No = 0		20	Points are awarded for having the capability described.								
12	4.3.7.3-2	Image Fusion Mode (increasing probability of DRI)	YES/NO	If YES = 7 If No = 0		7	Points are awarded for having the capability described.								
12	4.3.7.3-3	Image Fusion Mode (Image more intuitive to interpret)	YES/NO	If YES = 7 If No = 0		7	Points are awarded for having the capability described.								
13	4.3.8.1-5	The LRF HHTI-LR <u>should</u> have a split screen display	YES/NO	If YES = 14 If No = 0		14	Points are awarded for having the capability described.								
TOTAL Bid Pts Scored - Gate 1					#DIV/0!	168	TOTAL Maximum Pts available - Gate 1								

**Substantiating Detail - Non-Compliance(s)**  
Any Serial found to be Non-Compliant will result in a Non-Compliant Bid

Bidder		< Insert Bidder Name here >							
System Name		< Insert name of Bidder's Proposed System here >							
Serial	SRS Spec. Sec.	Technical Evaluation Results - Gate 2A	Compliance	Value	Score	Maximum Points Possible	Score Calculation	Comparative Bidder Value Used in Calculation	Notes
1	4.3.3.2.1	<b>Test QETE 01: Thermal Channel Static Range Performance – Vehicle Sized Targets</b>							
1.1		Static Detection Range (km)		<input type="text"/>	#DIV/0!	10	= (Bidder being assessed Range / Longest Bid Range) * 10 Points	<input type="text"/>	Sample: Bidder XYZ has longest Range for serial. That range will be assessed against all other bids for the same serial.
1.2		Minimum Static Detection Range: 10.0 Km	Not yet assessed	<input type="text"/>	#DIV/0!	10	Same as above	<input type="text"/>	
1.3		Static Recognition Range		<input type="text"/>	#DIV/0!	10	Same as above	<input type="text"/>	
1.4		Minimum Static Recognition Range: 3.5 km	Not yet assessed	<input type="text"/>	#DIV/0!	10	Same as above	<input type="text"/>	
1.5		Static Identification Range		<input type="text"/>	#DIV/0!	10	Same as above	<input type="text"/>	
1.6		Minimum Static Identification Range: 1.8 km	Not yet assessed	<input type="text"/>	#DIV/0!	10	Same as above	<input type="text"/>	
2	4.3.3.2.2	<b>Test QETE 02: Thermal Channel Static Range Performance – Person Sized Targets</b>							
2.1		Static Detection Range (km)		<input type="text"/>	#DIV/0!	10	= (Bidder being assessed Range / Longest Bid Range) * 10 Points	<input type="text"/>	
2.2		Minimum Static Detection Range: 5.5 Km	Not yet assessed	<input type="text"/>	#DIV/0!	10	Same as above	<input type="text"/>	
2.3		Static Recognition Range		<input type="text"/>	#DIV/0!	10	Same as above	<input type="text"/>	
2.4		Minimum Static Recognition Range: 2.0 km	Not yet assessed	<input type="text"/>	#DIV/0!	10	Same as above	<input type="text"/>	
2.5		Static Identification Range		<input type="text"/>	#DIV/0!	10	Same as above	<input type="text"/>	
2.6		Minimum Static Identification Range: 1.0 km	Not yet assessed	<input type="text"/>	#DIV/0!	10	Same as above	<input type="text"/>	
3	4.3.4.2.1	<b>Test QETE 03: Secondary Channel Static Range Performance – Vehicle Sized Targets</b>							
3.1		Static Detection Range (km)		<input type="text"/>	#DIV/0!	8	= (Bidder being assessed Range / Longest Bid Range) * 8 Points	<input type="text"/>	
3.2		Minimum Static Detection Range: 7.0 Km	Not yet assessed	<input type="text"/>	#DIV/0!	8	Same as above	<input type="text"/>	
3.3		Static Recognition Range		<input type="text"/>	#DIV/0!	8	Same as above	<input type="text"/>	
3.4		Minimum Static Recognition Range: 3.5 km	Not yet assessed	<input type="text"/>	#DIV/0!	8	Same as above	<input type="text"/>	
3.5		Static Identification Range		<input type="text"/>	#DIV/0!	8	Same as above	<input type="text"/>	
3.6		Minimum Static Identification Range: 1.8 km	Not yet assessed	<input type="text"/>	#DIV/0!	8	Same as above	<input type="text"/>	
4	4.3.4.2.2	<b>Test QETE 04: Secondary Channel Static Range Performance – Person Sized Targets</b>							
4.1		Static Detection Range (km)		<input type="text"/>	#DIV/0!	8	= (Bidder being assessed Range / Longest Bid Range) * 8 Points	<input type="text"/>	
4.2		Minimum Static Detection Range: 3.8 Km	Not yet assessed	<input type="text"/>	#DIV/0!	8	Same as above	<input type="text"/>	
4.3		Static Recognition Range		<input type="text"/>	#DIV/0!	8	Same as above	<input type="text"/>	
4.4		Minimum Static Recognition Range: 2.0 km	Not yet assessed	<input type="text"/>	#DIV/0!	8	Same as above	<input type="text"/>	
4.5		Static Identification Range		<input type="text"/>	#DIV/0!	8	Same as above	<input type="text"/>	
4.6		Minimum Static Identification Range: 1.0 km	Not yet assessed	<input type="text"/>	#DIV/0!	8	Same as above	<input type="text"/>	
5	4.3.14.1.1	<b>Test QETE 05: Rechargeable Battery Performance</b>							
5.1		Continuous operation in the Operational Mode at 20 degrees Celsius. Operation time of battery (mins)		<input type="text"/>	#DIV/0!	60	= (Bidder being assessed Battery Life / Longest Bid Battery Life) * 60 Points	<input type="text"/>	
5.2		Minimum operation time of 2.5 hours	Not yet assessed	<input type="text"/>	#DIV/0!	60	Same as above	<input type="text"/>	
6	6.3.2.3	<b>Test QETE 07: Low Temperature Operation</b>							
6.1		Operation without physical damage and without degradation of performance in all low temperature environments associated with the C0 and C1 (-32°C min) climatic regions		<input type="text"/>	N/A				
			Not yet assessed	<input type="text"/>	N/A				
TOTAL Bid Pts Scored - Gate 2A					#DIV/0!	168	TOTAL Maximum Pts - Gate 2A		

<b>Bidder</b>		< Insert Bidder Name here >							
<b>System Name</b>		< Insert name of Bidder's Proposed System here >							
Serial	SRS Spec. Sec.	Technical Evaluation Results - Gate 2B	Compliance	Value	Score	Maximum Points Possible	Score Calculation	Comparative Bidder Value Used in Calculation	Notes
1		<b>Gate 2B Test 01: Static Range Performance – Person Sized Targets - Nighttime Environment</b>							
1.1	4.3.2.1				#DIV/0!	60	= (Bidder being assessed Range / Longest Bid Range) * 80 Points		Final Bid Ranges Used in Bid Scoring will be based on acceptance criteria stated in test plan.
1.2		Static Recognition Range Static Identification Range			#DIV/0!	60	Same as above		
2		<b>Gate 2B Test 02: Static Range Performance – Person Sized Targets - Dawn/Dusk Environment</b>							
2.1	4.3.2.2				#DIV/0!	60	= (Bidder being assessed Range / Longest Bid Range) * 80 Points		
2.2		Static Recognition Range Static Identification Range			#DIV/0!	60	Same as above		
3		<b>Gate 2B Test 03: Static Range Performance – Person Sized Targets - Daytime Environment</b>							
3.1	4.3.2.2				#DIV/0!	60	= (Bidder being assessed Range / Longest Bid Range) * 80 Points		
3.2		Static Recognition Range Static Identification Range			#DIV/0!	60	Same as above		
TOTAL Bid Pts Scored - Gate 2B					#DIV/0!	360	TOTAL Maximum Pts - Gate 2B		

<b>Bidder System Name</b>		< Insert Bidder Name here > < Insert name of Bidder's Proposed System here >							
Serial	SRS Spec. Sec.	Technical Evaluation Results - Gate 3	Compliance	Value	Score	Maximum Points Possible	Score Calculation	Comparative Bidder Value Used in Calculation	Notes
<b>1</b>		<b>Gate 3 Test 01: Functionality and Ease of Use - Primary Functions</b>							
1.1	4.10.4.1 (-1 to -3, -6)	Functionality and Ease of Use - User Questionnaires			#DIV/0!	300	= (Bidder being assessed User Questionnaire Score / Highest Bid User Questionnaire Score) * 300 Points		
<b>2</b>		<b>Gate 3 Test 02: Bullet Swirl</b>							
2.1	4.10.4.1 -4	Observation of bullet swirls from a 7.62x51mm NATO non-tracer round traversing from 300 to 800 meters - offset no more than 1m from axis of barrel	Not yet assessed		#DIV/0!	30			
2.2	4.10.4.1 -4	Observation of bullet swirls from a 7.62x51mm NATO non-tracer round traversing from 300 to 800 meters - offset no more than 1m from axis of barrel			#DIV/0!	30			
2.2	4.10.4.1 -5	Observation of bullet swirls from a 7.62x51mm NATO non-tracer round traversing from 300 to 800 meters - offset of 5m from axis of barrel			#DIV/0!	15			
2.3	4.10.4.1 -5	Observation of bullet swirls from a 7.62x51mm NATO non-tracer round traversing from 300 to 800 meters - offset of 10m from axis of barrel			#DIV/0!	15			
<b>3</b>		<b>Gate 3 Test 03: Human Factors Engineering (HFE) Requirements</b>							
3.1	4.10.2.1	HFE Requirements - Gloves	Not yet assessed						
3.2	4.10.2.2	HFE - CM735 Ballistic Helmet	Not yet assessed						
3.3	4.10.2.3	HFE - Ballistic Eyewear	Not yet assessed						
3.5	4.10.3	Compatibility with Use under Conditions of Darkness	Not yet assessed						
3.6	4.10.5	Human Machine Interface (HMI)	Not yet assessed						
TOTAL Bid Pts Scored - Gate 3					#DIV/0!	360	TOTAL Maximum Pts - Gate 3		

Bidder		< Insert Bidder Name here >				
System Name		< Insert name of Bidder's Proposed System here >				
Serial		Compliance with full Gate Assessment	Score Summary	Maximum Score Possible	% by Gate	Notes
Gate						
1	Total Gate 1 Score	Not yet assessed	#DIV/0!	168	16%	
2A	Total Gate 2A Score	Not yet assessed	#DIV/0!	168	16%	
2B	Total Gate 2B Score	Not yet assessed	#DIV/0!	360	34%	
3	Total Gate 3 Score	Not yet assessed	#DIV/0!	360	34%	
	Total Technical Evaluation Score	Total		1056	100%	

APPENDIX 2 TO ANNEX H

TECHNICAL BID EVALUATION

SYSTEM REQUIREMENTS SPECIFICATION COMPLIANCE  
MATRIX (SRSCM)

LASER RANGE FINDER - HAND-HELD THERMAL IMAGER - LONG  
RANGE (LRF HHTI-LR)



NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document must continue to apply.

AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
1	Scope	Heading				
1.1	Identification	Heading				
1.1.0-1	This System Requirements Specification (SRS) details the technical and performance requirements for a Laser Range Finder - Hand Held Thermal Imager - Long Range (LRF HHTI-LR) System for use by the Canadian Army and Royal Canadian Navy.	Information				
1.2	System Overview	Heading				
1.2.0-1	The main component of the LRF HHTI-LR System is the Laser Range Finder Handheld Thermal Imager- Long Range (LRF HHTI-LR). The LRF HHTI-LR is a hand-held binocular device with a Laser Range Finder, cooled Thermal Channel and Secondary Channel for day and low light conditions. It is used by soldiers and sailors to enable the timely detection, recognition and identification of objects of interest under varying conditions of light and visibility. The LRF HHTI-LR System provides a capability for the accurate geolocation of targets, and the onwards transmission of target data to other systems. Imagery produced by the LRF HHTI-LR System can be saved and transferred for analysis. The LRF HHTI-LR System will be used by the Canadian Army in the combat arms leader, sniper, reconnaissance and other similar roles. It will be used by the Royal Canadian Navy to enhance general situational awareness, by boarding parties, and for security surveillance when in port.	Information				
1.2.0-2	The LRF HHTI-LR is supported by a number of other components that are required to provide the full functionality of the system. Other equipment components include batteries, a tripod, various accessories to interface The LRF HHTI-LR to other systems and external power sources, pouches for carriage in the field, and containers for storage and logistic transport.	Information				
1.2.0-3	The LRF HHTI-LR System also includes a bespoke software application that provides the functionality that supports the interface between the LRF HHTI-LR and the Integrated Soldier System.	Information				
1.3	Document Overview	Heading				
1.3.0-1	This document specifies the requirements for each component that together comprise the LRF HHTI-LR System.	Information				
1.3.0-2	Section 1 describes the scope of the document, and provides a high-level system overview of the LRF HHTI-LR System.	Information				
1.3.0-3	Section 2 identifies that documents that are referenced in this SRS for the LRF HHTI-LR System.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
1.3.0-4	Section 3 describes the conceptual configuration of the LRF HHTI-LR System based on a typical equipment breakdown structure of a system that could meet the requirements specified in this document. It should be noted that the requirements of the LRF HHTI-LR System could be satisfied by a system with a different equipment breakdown structure.	Information				
1.3.0-5	Section 4 specifies the requirements associated with the LRF HHTI-LR, the primary component of the system.	Information				
1.3.0-6	Section 5 specifies the requirements of all the other components of the LRF HHTI-LR System that together with The LRF HHTI-LR provide the full functionality of the system.	Information				
1.3.0-7	Section 6 specifies requirements that may be applicable to more than one component of the LRF HHTI-LR System.	Information				
1.3.0-8	Section 7 describes the structure of the SRS in terms of the two primary views in which the SRS is presented, the aim of each view, and the attributes associated with each view.	Information				
1.3.0-9	This document is unclassified, and does not contain Controlled Goods. There are no restrictions related to its use.	Information				
2	Referenced Documents	Heading				
2.1	Canadian Government Documents	Heading				
2.1.0-1	A. Health Canada Safety Code 6 (2015) - Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz	Information				
2.1.0-2	B. RSS-102 Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands), Issue 5, 2015.	Information				
2.2	Canadian Armed Forces (CAF) / Department of National (DND) Defence Documents	Heading				
2.2.0-1	C. D-02-002-001/SG-001 - Identification Marking of Canadian Military Property	Information				
2.2.0-2	D. D-80-001-055/SF-001 - Specification for Label, Clothing and Equipment	Information				
2.3	United States Department of Defense (DoD) Documents	Heading				
2.3.0-1	E. MIL-PRF-62122E - Performance Specification: Cable Assembly, Inter-vehicle Power: Plug, Receptacle, and Adapter	Information				
2.3.0-2	F. MIL-STD-461G - Interface Standard: Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment	Information				
2.3.0-3	G. MIL-STD-810H - Test Method Standard: Environmental Engineering Considerations and Laboratory Tests	Information				
2.3.0-4	H. MIL-STD-1275E - Interface Standard: Characteristics of 28 Volt DC Input Power to Utilization Equipment in Military Vehicles	Information				
2.3.0-5	I. MIL-STD-1472H - Design Criteria Standard: Human Engineering	Information				
2.3.0-6	J. MIL-STD-1474E - Design Criteria Standard: Noise Limits	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
2.3.0-7	K. MIL-STD-2500C W/CHANGE 1 National Imagery Transmission Format (NITF) Version 2.1.	Information				
2.3.0-8	L. NWPAN-WP-01112013 - Nett Warrior Interconnect Architecture White Paper, Version 6	Information				
2.4	NATO Standardization Agreements and Standards	Heading				
2.4.0-1	M. AECTP-230 (Edition 1) - Climatic Conditions	Information				
2.4.0-2	N. AECTP 300 (Edition D, Version 1) Climatic Environmental Tests	Information				
2.4.0-3	O. STANAG 4370 Environmental Testing	Information				
2.4.0-4	P. STANAG 4347 LAND (Edition 1) - Definition of Nominal Static Range Performance for Thermal Imaging Systems	Information				
2.4.0-5	Q. STANAG 4609 NATO Digital Motion Imagery Standard	Information				
2.4.0-6	R. Standard AAITP-08 NATO Unique Identification of Items	Information				
2.5	European Union Documents	Heading				
2.5.0-1	S. The Low Voltage Directive (LVD) (2014/35/EU)	Information				
2.6	Industry Standards and Other References	Heading				
2.6.0-1	T. ANSI Z136.1-2014 - American National Standard for Safe Use of Lasers	Information				
2.6.0-2	U. Bluetooth v4.1 Specification	Information				
2.6.0-3	V. IEEE 802.3-2018 - IEEE Standard for Ethernet	Information				
2.6.0-4	W. IEEE 802.11-2020 - IEEE Standard for Information Technology-- Telecommunications and Information Exchange Between Systems - Local and Metropolitan Area Networks--Specific Requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications	Information				
2.6.0-5	X. MISB 0902 Motion Imagery Sensor Minimum Metadata Set	Information				
2.6.0-6	Y. WGS-84 - World Geodetic System - 1984	Information				
3	Conceptual Configuration	Heading				
3.1	Aim	Heading				
3.1.0-1	The conceptual configuration presents an assumed equipment breakdown structure for the LRF HHTI-LR System. It also includes the identification of LRF HHTI-LR System specific software applications that may be installed on external devices that are required to satisfy external interface requirements. It is understood that a compliant system may meet all the mandatory requirements of this specification with a different equipment breakdown structure.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
3.2	Identification of Components	Heading				
3.2.1	Hardware	Heading				
3.2.1.0-1	The assumed Equipment Breakdown Structure for the LRF HHTI-LR System comprises the following components: <ul style="list-style-type: none"><li>• Laser Range Finder - Hand-held Thermal Imager - Long Range (LRF HHTI-LR) (see Section 4)</li><li>• Field Kit Storage and Transport Case (see Section 5.1)</li><li>• Support Kit Storage and Transport Case (see Section 5.2)</li><li>• Field Pouch (see Section 5.4)</li><li>• Tripod Pouch (see Section 5.5)</li><li>• Accessories Pouch (see Section 5.6)</li><li>• External Battery Pack Pouch (see Section 5.7)</li><li>• Rechargeable Batteries (see Section 5.9)</li><li>• Low Temperature Batteries (see Section 5.10)</li><li>• Battery Charger (see Section 5.11)</li><li>• Tripod (see Section 5.12)</li><li>• Defense Advanced GPS Receiver (DAGR) Interface Cable (see Section 5.13)</li><li>• Integrated Soldier System (ISS) Interface Cable (see Section 5.14)</li><li>• LRF-LRF HHTI-LR / ISS Battle Management System Interface ATAK Plugins (LIBI AP) (see Section 5.15)</li><li>• Ruggedized Tactical Laptop (RTL) Interface Cable (see Section 5.16)</li><li>• Ruggedized Flash Drive (see Section 5.17)</li><li>• DC Power Cable Assembly (See Section 5.18)</li><li>• AC Power Cable Assembly (See Section 5.19)</li><li>• External Battery Pack (EBP) (Section 5.20)</li><li>• Lens Cleaning Kit (See Section 5.21)</li><li>• Operator Manual (See Section 5.22)</li><li>• Quick Reference Guide (See Section 5.23)</li></ul>	Information				
3.2.2	Software	Heading				
3.2.2.0-1	The LRF HHTI-LR is considered to be a "black box" component of the LRF HHTI-LR System. The requirements related to LRF HHTI-LR software are specified as part of the general performance requirements. (See Section 4)	Information				
3.2.2.0-2	The LRF HHTI-LR System includes the following bespoke (developmental) software that is required to implement the functionality for the interface between the LRF HHTI-LR and the ISS, and will be installed on the ISS End User Device (EUD) and on the ISS Commander's Tablet: LRF-LRF HHTI-LR / ISS BMS Interface ATAK Plugins (LIBI AP) (see Section 5.15)	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
3.2.2.0-3	This specification is written with the assumption that the LIBI AP functionality will be implemented through the development of one or more ATAK Plugins. An alternative and acceptable solution is to implement LIBI functionality within the LRF HHTI-LR embedded software.	Information				
3.3	Identification of Interfaces	Heading				
3.3.0-1	The LRF HHTI-LR System requires the following interfaces to achieve full system functionality: <ul style="list-style-type: none"><li>• Defense Advanced GPS Receiver Interface (see Section 4.4.2)</li><li>• Integrated Soldier System Interface (see Section 4.4.3)</li><li>• Ruggedized Tactical Laptop Interface (see Section 4.4.4)</li><li>• Ruggedized Flash Drive Interface (see Section 4.4.5)</li><li>• Generic Interfaces - Bluetooth Connectivity (see Section 4.4.6)</li><li>• Generic Interfaces - Wireless Connectivity (see Section 4.4.7)</li><li>• External DC Power Source Interface (see Section 4.4.8)</li><li>• AC Power Source Interface (see Section 4.4.9)</li><li>• Tripod Interface (see Section 4.4.10)</li></ul>	Information				
4	LRF HHTI-LR Requirements	Heading				
4.1	Required States and Modes	Heading				
4.1.1	Operational Mode	Heading				
4.1.1.0-1	The operational mode is the normal mode of operation of the LRF HHTI-LR. The operational mode is entered once all start-up routines are complete.	Information				
4.1.1.0-2	The LRF HHTI-LR must have an Operational Mode, in which full functionality is available in response to user input.	Mandatory Requirement	Yes	State compliance.		
4.1.1.0-3	The LRF HHTI-LR must enter the Operational Mode within six minutes of turning it on at a temperature of 20 degrees Celsius, starting with the LRF HHTI-LR at ambient temperature.	Mandatory Requirement	Yes	State compliance.		
4.1.2	Standby Mode	Heading				
4.1.2.0-1	The Standby Mode allows the LRF HHTI-LR to conserve power when not being actively used by the operator.	Information				
4.1.2.0-2	The LRF HHTI-LR must have a Standby Mode.	Mandatory Requirement	Yes	State compliance.		
4.1.2.0-3	The LRF HHTI-LR must transition from the Operational Mode to the Standby Mode in response to user input.	Mandatory Requirement	Yes	State compliance.		
4.1.2.0-4	The LRF HHTI-LR must transition from the Standby Mode to the Operational Mode in response to user input.	Mandatory Requirement	Yes	State compliance.		
4.1.2.0-5	The LRF HHTI-LR must transition to a fully functional state in the Operational Mode from the Standby Mode within 30 seconds of the user input.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.1.3	Emergency Mode	Heading				
4.1.3.0-1	The Emergency Mode allows the operator to transition the LRF HHTI-LR from the Field Carriage Mode, as described in Section 6.1.2, to The Emergency Mode where it can be used as quickly as possible. In the Emergency Mode, start-up routines may be skipped, and full performance may not be available to the user.	Information				
4.1.3.0-2	The LRF HHTI-LR must have an Emergency Mode.	Mandatory Requirement	Yes	State compliance.		
4.1.3.0-3	When in the Emergency Mode, the LRF HHTI-LR must provide the user with display functionality using the Secondary Channel within thirty-seconds of initiating start-up at a nominal temperature of 20 degrees Celsius.	Mandatory Requirement	Yes	State compliance.		
4.2	System Maturity Requirements	Heading				
4.2.1	Application	Heading				
4.2.1.0-1	System maturity requirements are applicable to the LRF HHTI-LR, with the exception of those parts of the LRF HHTI-LR that are replaceable as a first level maintenance task and that do not require the seal of the LRF HHTI-LR to be broken, such as eye-cups, lens covers, shoulder strap and hand straps.	Information				
4.2.2	Intent	Heading				
4.2.2.0-1	It is Canada's intent to procure a Military Off-the-Shelf LRF HHTI-LR that is proven and in-service with another military force. Canada will not require any changes to the hardware components that comprise the LRF HHTI-LR. However, due to language and interface requirements, a Canada-specific version of some LRF HHTI-LR software modules may be required.	Information				
4.2.3	System Maturity	Heading				
4.2.3.0-1	System maturity is measured in terms of Technology Readiness Level (TRL). TRLs are defined by Innovation, Science and Economic Development Canada (ISED).	Information				
4.2.3.0-2	On or before the closing date and time identified in the formal RFP solicitation on the CanadaBuys website, the LRF HHTI-LR must have reached Technological Readiness Level (TRL) 8: Actual technology completed and qualified through tests and demonstrations, as defined by ISED.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3	Capability Requirements	Heading				
4.3.1	Geolocation of User and Targets	Heading				
4.3.1.1	Geolocation of User	Heading				
4.3.1.1.0-1	The LRF HHTI-LR must have an Internal GPS receiver.	Mandatory Requirement	Yes	State compliance.		
4.3.1.1.0-2	The Internal GPS must have a localization accuracy (CEP 50) of 5 metres or less under open skies.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.1.1.0-3	When not interfaced to an external GPS receiver, the LRF HHTI-LR must determine the geolocation of the user from geolocation data sourced from the internal GPS receiver.	Mandatory Requirement	Yes	State compliance.		
4.3.1.1.0-4	When interfaced to an external GPS receiver, The LRF HHTI-LR must determine the geolocation of the user from geolocation data sourced from the external GPS receiver.	Mandatory Requirement	Yes	State compliance.		
4.3.1.1.0-5	The LRF HHTI-LR geolocation data of the user must include grid coordinates and elevation above sea level.	Mandatory Requirement	Yes	State compliance.		
4.3.1.2	Geolocation of Targets	Heading				
4.3.1.2.0-1	The LRF HHTI-LR must measure the azimuth of the target determined by the axis defined by the reticle with a one sigma accuracy of twenty five NATO mils or better.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3.1.2.0-2	The LRF HHTI-LR must measure the angle of sight between horizontal and the target determined by the axis defined by the reticle with a one sigma accuracy of ten NATO mils or better.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3.1.3	Laser Range Finder	Heading				
4.3.1.3.0-1	The LRF HHTI-LR must have a Laser Range Finder (LRF).	Mandatory Requirement	Yes	State compliance.		
4.3.1.3.0-2	The LRF HHTI-LR LRF must be rated as a Class 1 Laser at the output aperture, determined in accordance with ANSI Z136.1 - 2014, American National Standard for Safe Use of Lasers.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3.1.3.0-3	The LRF HHTI-LR must, using the LRF, measure the range to a target in response to user input.	Mandatory Requirement	Yes	State compliance.		
4.3.1.3.0-4	The LRF HHTI-LR must, using the Thermal Channel and LRF, measure ranges to a static 2.3 metres by 2.3 metres target with an albedo of R=0.2 positioned perpendicular to the line of sight with a one sigma accuracy of 1.5 metres for ranges between 50 metres and up to 6,000 metres under conditions with an atmospheric extinction rate of 0.11/km.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3.1.3.0-5	The LRF HHTI-LR must, using the Secondary Channel and LRF, measure ranges to a static 2.3 metres by 2.3 metres target with an albedo of R=0.2 positioned perpendicular to the line of sight with a one sigma accuracy of 1.5 metres for ranges between 50 metres and up to 6,000 metres under conditions with an atmospheric extinction rate of 0.11/km.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3.1.3.0-6	The LRF HHTI-LR LRF should have a range gating function to prevent the display of an anomalous range resulting from an intervening crest or other feature between the user and target.	Desirable Requirement	Not Applicable	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.1.3.0-7	The LRF HHTI-LR geolocation data of the target must include grid coordinates and elevation.	Mandatory Requirement	Yes	State compliance.		
4.3.1.3.0-8	The LRF HHTI-LR LRF must have a rate of fire of at least six laser range measurements per minute.	Mandatory Requirement	Yes	State compliance.		
4.3.1.3.0-9	When the LRF HHTI-LR is fired, the LRF HHTI-LR must create a Lased Target file containing target geolocation data.	Mandatory Requirement	Yes	State compliance.		
4.3.1.3.0-10	The Lased Target file must be compatible with the Cursor on Target (CoT) schema.	Mandatory Requirement	No	State compliance.		
4.3.1.3.0-11	When the LRF HHTI-LR is fired, the LRF HHTI-LR must create a still image of the display in accordance with Section 4.3.9 Saving of Images.	Mandatory Requirement	No	State compliance.		
4.3.1.3.0-12	The LRF HHTI-LR must store at least the last five target files obtained by the LRF in onboard memory for recall by the user and for exporting to other devices.	Mandatory Requirement	Yes	State compliance.		
4.3.2	Holistic System Performance - Detection, Recognition and Identification (DRI)	Heading				
4.3.2.0-1	The terms Detection, Recognition, and Identification are used as defined in NATO AAP-6 NATO Glossary of Terms and Definitions (English and French):	Information				
4.3.2.0-1.0-1	Detection: The discovery by any means of the presence of a person, object or phenomenon of potential military significance.	Information				
4.3.2.0-1.0-2	Recognition: The determination of the nature or a detected person, object or phenomenon, and possibly its class or type. This may include the determination of an individual within a particular class or type.	Information				
4.3.2.0-1.0-3	Identification: The process of attaining an accurate characterization of a detected entity by any act or means so that high confidence real-time decisions, including weapons engagement, can be made.	Information				
4.3.2.1	DRI in Operational Environments at Night	Heading				
4.3.2.1.0-1	Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of detection under operational conditions at night.	Desirable Requirement	Not Applicable	State compliance.		
4.3.2.1.0-2	Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of recognition under operational conditions at night. < rated >	Desirable Requirement (rated)	Not Applicable	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Field Testing (Gate 2B) - Test Plan and Procedures.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.2.1.0-3	Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of identification under operational conditions at night. < rated >	Desirable Requirement (rated)	Not Applicable	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Field Testing (Gate 2B) - Test Plan and Procedures.		
4.3.2.2	DRI in Operational Environments at Dusk / Dawn	Heading				
4.3.2.2.0-1	Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of detection under operational conditions during periods of dusk and dawn.	Desirable Requirement	Not Applicable	State compliance.		
4.3.2.2.0-2	Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of recognition under operational conditions during periods of dusk and dawn. < rated >	Desirable Requirement (rated)	Not Applicable	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Field Testing (Gate 2B) - Test Plan and Procedures.		
4.3.2.2.0-3	Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of identification under operational conditions during periods of dusk and dawn. < rated >	Desirable Requirement (rated)	Not Applicable	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Field Testing (Gate 2B) - Test Plan and Procedures.		
4.3.2.3	DRI in Operational Environments during Day-time	Heading				
4.3.2.3.0-1	Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of detection under operational conditions between sunrise and sunset.	Desirable Requirement	Not Applicable	State compliance.		
4.3.2.3.0-2	Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of recognition under operational conditions between sunrise and sunset. < rated >	Desirable Requirement (rated)	Not Applicable	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Field Testing (Gate 2B) - Test Plan and Procedures.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.2.3.0-3	Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of identification under operational conditions between sunrise and sunset. < rated >	Desirable Requirement (rated)	Not Applicable	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Field Testing (Gate 2B) - Test Plan and Procedures.		
4.3.3	Thermal Channel	Heading				
4.3.3.1	General	Heading				
4.3.3.1.0-1	The LRF HHTI-LR must include a Thermal Channel.	Mandatory Requirement	Yes	State compliance.		
4.3.3.1.0-2	The LRF HHTI-LR Thermal Channel must operate in the 3 micrometre to 5 micrometre Medium Wave Infrared spectral band.	Mandatory Requirement	Yes	State compliance.		
4.3.3.2	Detection, Recognition and Identification (DRI)	Heading				
4.3.3.2.1	Static Range Performance - Vehicle Sized Targets - STANAG 4347 - Quality Engineering Test Establishment (QETE) Testing	Heading				
4.3.3.2.1.0-1	The Thermal Channel of the LRF HHTI-LR must have a static detection range for vehicle sized targets of at least 10.0 kilometres, as derived from the Minimum Resolvable Temperature Difference (MRTD) measured in accordance with STANAG 4347 at QETE. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.3.2.1.0-2	The Thermal Channel of the LRF HHTI-LR must have a static recognition range for vehicle sized targets of at least 3.5 kilometres, as derived from the MRTD measured in accordance with STANAG 4347 at QETE. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.3.2.1.0-3	The Thermal Channel of the LRF HHTI-LR must have a static identification range for vehicle sized targets of at least 1.8 kilometres, as derived from MRTD measured in accordance with STANAG 4347 at QETE. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.3.2.2	Static Range Performance - Person Sized Targets -STANAG 4347 - QETE Testing	Heading				
4.3.3.2.2.0-1	The Thermal Channel of the LRF HHTI-LR must have a static detection range for person sized targets of at least 5.5 kilometres, as derived from MRTD measured in accordance with STANAG 4347 at QETE. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.3.2.2.0-2	The Thermal Channel of the LRF HHTI-LR must have a static recognition range for person sized targets of at least 2.0 kilometres, as derived from MRTD measured in accordance with STANAG 4347 at QETE. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.3.2.2.0-3	The Thermal Channel of the LRF HHTI-LR must have a static identification range for person sized targets of at least 1.0 kilometres, as derived from MRTD measured in accordance with STANAG 4347 at QETE. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.3.3	Detection of Bullet Swirls	Heading				
4.3.3.3.0-1	As a bullet passes through the atmosphere, it produces a temporary curved cylinder of heated air that follows the trajectory of the bullet. The differences in air temperature are detected and displayed the standard way that differences in temperature are detected and displayed using the LRF HHTI-LR Thermal Channel. While the heated air disipates quickly, the resultant "bullet swirl" on the display can be used by a spotter to direct the fire of a sniper.	Information				
4.3.3.3.0-2	The LRF HHTI-LR Thermal Channel, when offset no more than one metre from the axis of the barrel of the sniper rifle, must detect the bullet swirl of a non-tracer 7.62 x 51mm NATO round as it traverses through the range of 300 metres to 800 metres, such that the thermal signature of the bullet swirl on the display is visible to the user.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3.3.4	Focus	Heading				
4.3.3.4.0-1	The LRF HHTI-LR Thermal Channel must adjust the focus within a range from 50 metres to infinity in response to input from the user.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.3.5	Magnification and Field of View	Heading				
4.3.3.5.0-1	The LRF HHTI-LR Thermal Channel must have adjustable magnification and Field of View (FOV) that is integral to the optical path.	Mandatory Requirement	Yes	State compliance.		
4.3.3.5.0-2	The LRF HHTI-LR Thermal Channel magnification and field of view settings must be adjustable to balance the achievement of detection, recognition and identification requirements with providing a field of view that provides the user with maximum situational awareness.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3.3.5.0-3	The LRF HHTI-LR Thermal Channel FOV must be adjustable to display an FOV equal to or greater than fourteen degrees in the horizontal direction and ten degrees in the vertical direction.	Mandatory Requirement	Yes	State compliance.		
4.3.3.6	Image Processing and Enhancement	Heading				
4.3.3.6.1	Refresh Rate	Heading				
4.3.3.6.1.0-1	The LRF HHTI-LR Thermal Channel must have a frame refresh rate of 25 hertz or greater.	Mandatory Requirement	Yes	State compliance.		
4.3.3.6.2	Image Polarity	Heading				
4.3.3.6.2.0-1	The LRF HHTI-LR must display the thermal image using white-hot / black-cold image polarity.	Mandatory Requirement	Yes	State compliance.		
4.3.3.6.2.0-2	The LRF HHTI-LR must display the thermal image using black-hot / white-cold image polarity.	Mandatory Requirement	Yes	State compliance.		
4.3.3.6.2.0-3	The LRF HHTI-LR must toggle between white-hot / black cold image polarity and black-hot / white-cold image polarity and vice-versa in response to user input.	Mandatory Requirement	Yes	State compliance.		
4.3.3.6.3	Contrast and Gain Settings	Heading				
4.3.3.6.3.0-1	The LRF HHTI-LR must have automatic gain control (AGC) mode.	Mandatory Requirement	Yes	State compliance.		
4.3.3.6.3.0-2	In AGC mode, the LRF HHTI-LR must adjust the contrast and brightness in response to user input on a sliding scale emphasizing the background or emphasizing small targets.	Mandatory Requirement	Yes	State compliance.		
4.3.3.6.4	Thermal Pulses in Field of View	Heading				
4.3.3.6.4.0-1	The LRF HHTI-LR must regain full display functionality within five-seconds of exposure to sudden thermal pulses such as muzzle flashes and explosions.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.4	Secondary Channel	Heading				
4.3.4.0-1	There are three main performance goals of the Secondary Channel: <ul style="list-style-type: none"><li>• to provide the user with increased situational awareness by presenting a field of view where the contents are better intuitively understood than presented using just a Thermal Channel</li><li>• to enhance the performance of the LRF HHTI-LR in terms of DRI over and above the capability provided by the Thermal Channel alone</li><li>• to allow the user to aim the LRF HHTI-LR before using the Laser Range Finder during daytime, low light or other conditions where the Secondary Channel provides a superior situational awareness compared to the Thermal Channel.</li></ul> Requirements related to the secondary channel may be satisfied by a single channel or a combination of channels that exclude the thermal channel.	Information				
4.3.4.1	General	Heading				
4.3.4.1.0-1	The LRF HHTI-LR must have a Secondary Channel.	Mandatory Requirement	Yes	State compliance.		
4.3.4.1.0-2	The operating spectrum of the Secondary Channel must include the visible spectrum.	Mandatory Requirement	Yes	State compliance.		
4.3.4.2	Detection, Recognition and Identification	Heading				
4.3.4.2.1	Static Range Performance - Vehicle Sized Targets - QETE Testing	Heading				
4.3.4.2.1.0-1	The Secondary Channel of the LRF HHTI-LR must have a static detection range for vehicle sized targets of at least 7.0 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.4.2.1.0-2	The Secondary Channel of the LRF HHTI-LR must have a static recognition range for vehicle sized targets of at least 3.5 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.4.2.1.0-3	The Secondary Channel of the LRF HHTI-LR must have a static identification range for vehicle sized targets of at least 1.8 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.4.2.2	Static Range Performance - Person Sized Targets - QETE Testing	Heading				
4.3.4.2.2.0-1	The Secondary Channel of the LRF HHTI-LR must have a static detection range for person sized targets of at least 3.8 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.4.2.2.0-2	The Secondary Channel of the LRF HHTI-LR must have a static recognition range for person sized targets of at least 2.0 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.4.2.2.0-3	The Secondary Channel of the LRF HHTI-LR must have a static identification range for person sized targets of at least 1.0 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.5	Laser Pointer	Heading				
4.3.5.0-1	The Laser Pointer is used to indicate targets to soldiers and sailors equipped with night vision devices that use image intensification technologies under low light conditions. There is no intent to use the Laser Pointer as a designator for smart munitions, or as an area illuminator.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.5.0-2	The LRF HHTI-LR must have a Laser Pointer (LP).	Mandatory Requirement	No	State compliance.  If the LRF HHTI-LR LP is rated as a Class 1 Laser at the output aperture, provide documentation that the laser pointer is Class 1 in accordance with ANSI Z136.1 - 2014, American National Standard for Safe Use of Lasers. If the LRF HHTI-LR LP is rated as a Class 3B Laser at the output aperture, provide documentation that the laser pointer is Class 3B in accordance with ANSI Z136.1 - 2014, American National Standard for Safe Use of Lasers.		
4.3.5.0-3	The LRF HHTI-LR LP must emit in the wavelength range from 810 nanometres to 850 nanometres.	Mandatory Requirement	No	State compliance.		
4.3.5.0-4	The LRF HHTI-LR LP must have a beam divergence that is 0.8 NATO mils or less.	Mandatory Requirement	No	State compliance.		
4.3.5.0-5	The LRF HHTI-LR LP should be rated as a Class 3B Laser at the output aperture, determined in accordance with ANSI Z136.1 - 2014.	Desirable Requirement (rated)	Not Applicable	State compliance.		
4.3.5.0-6	If the LRF HHTI-LR LP is rated as a Class 3B Laser at the output aperture, is should include a means of attenuating the output of the laser such that it can be operated as a Class 1 Laser.	Desirable Requirement (rated)	Not Applicable	State compliance.  If the LRF HHTI-LR LP is rated as a Class 3B Laser and can be attenuated to operate as a Class 1 Laser, provide documentation that the laser pointer when used in conjunction with the removable filter is Class 1 in accordance with ANSI Z136.1 - 2014, American National Standard for Safe Use of Lasers.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.5.0-7	If the LRF HHTI-LR LP is rated as a Class 3B Laser at the output aperture, determined in accordance with ANSI Z136.1 - 2014, and cannot be attenuated to operate as a Class 1 laser, it must have a means of disabling the Laser Pointer in a manner that cannot be overridden by the user.	Mandatory Requirement	No	State compliance.  If compliant, provide evidence of how this requirement has or will be satisfied.		
4.3.6	SeeSpot Capability	Heading				
4.3.6.0-1	The LRF HHITI-LR should detect reflections from Laser Aiming Devices and Laser Pointers that operate at wavelengths between 810 nanometres and 850 nanometres.	Desirable Requirement (rated)	Not Applicable	State compliance.		
4.3.6.0-2	The LRF HHITI-LR should detect reflections from Laser Designators for Guided Munitions that operate at 1064 nanometres.	Desirable Requirement (rated)	Not Applicable	State compliance.		
4.3.7	Image Processing	Heading				
4.3.7.1	Image Stability	Heading				
4.3.7.1.0-1	The LRF HHTI-LR must stabilize the image to be displayed electronically to reduce blur caused by shaking or vibration.	Mandatory Requirement	Yes	State compliance.		
4.3.7.2	Image Magnification	Heading				
4.3.7.2.0-1	The LRF HHTI-LR must magnify the processed image by a factor of two or more in response to user input.	Mandatory Requirement	Yes	State compliance.		
4.3.7.3	Image Fusion Mode	Heading				
4.3.7.3.0-1	The LRF HHTI-LR must have an image fusion mode.	Mandatory Requirement	Yes	State compliance.		
4.3.7.3.0-2	When in image fusion mode, the LRF HHTI-LR should combine the images of the Thermal Channel and Secondary channel in a way that the user perceives as increasing the probability of target detection, recognition and identification compared to the use of the Thermal Channel and Secondary Channel separately.	Desirable Requirement (rated)	Not Applicable	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3.7.3.0-3	When in image fusion mode, the LRF HHTI-LR should combine the images of the Thermal Channel and Secondary Channel in a way that the user perceives as providing an image that is more intuitive to interpret compared to the use of the Thermal Channel alone.	Desirable Requirement (rated)	Not Applicable	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3.8	Display Functionality	Heading				
4.3.8.1	Display Characteristics	Heading				
4.3.8.1.0-1	The LRF HHTI-LR must have an integral display for direct viewing by the user.	Mandatory Requirement	Yes	State compliance.		
4.3.8.1.0-2	The LRF HHTI-LR must display the processed image from the Thermal Channel on the display using the full screen in response to user input.	Mandatory Requirement	Yes	State compliance.		
4.3.8.1.0-3	The LRF HHTI-LR must display the processed image from the Secondary Channel on the display using the full screen in response to user input.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.8.1.0-4	The LRF HHTI-LR must display the processed image from the Image Fusion Mode on the display using the full screen in response to user input.	Mandatory Requirement	Yes	State compliance.		
4.3.8.1.0-5	The LRF HHTI-LR should have a split screen display.	Desirable Requirement	Not Applicable	State compliance.		
4.3.8.1.0-6	The LRF HHTI-LR should display the processed image from the Thermal Channel on one half of the display and the processed image from the Secondary Channel on the other half of the display in response to user input.	Desirable Requirement (rated)	Not Applicable	State compliance.		
4.3.8.1.0-7	The LRF HHTI-LR must have a binocular display for the user to view the display with both eyes simultaneously.	Mandatory Requirement	Yes	State compliance.		
4.3.8.1.0-8	The LRF HHTI-LR must have a colour display.	Mandatory Requirement	Yes	State compliance.		
4.3.8.2	Reticle Overlay	Heading				
4.3.8.2.0-1	The LRF HHTI-LR must electronically generate a viewing reticle that is overlaid on the displayed image.	Mandatory Requirement	Yes	State compliance.		
4.3.8.2.0-2	The viewing reticle must indicate the line of sight of the LRF.	Mandatory Requirement	Yes	State compliance.		
4.3.8.2.0-3	The viewing reticle must be centred in the display.	Mandatory Requirement	Yes	State compliance.		
4.3.8.2.0-4	The viewing reticle must be in the form of a mil dot or micrometric pattern in azimuth and angle of sight.	Mandatory Requirement	No	State compliance.		
4.3.8.2.0-5	The calibration of the viewing reticle mil dot or micrometric pattern must be indicated on the display to the user, in terms of mils between dots or hash marks.	Mandatory Requirement	No	State compliance.		
4.3.8.2.0-6	The LRF HHTI-LR must toggle the displayed viewing reticle off and on in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.8.2.0-7	The displayed viewing reticle must be adjustable for brightness in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.8.2.0-8	On activation of the laser range finder or laser pointer, the LRF HHTI-LR should change the attributes of the viewing reticle to give the user an indication of the applicable activation.	Desirable Requirement	Not Applicable	State compliance.  Provide evidence that the requirement has been satisfied.		
4.3.8.2.0-9	The requirements specified above in this section are not applicable to a direct optical view secondary channel, should the LRF HHTI-LR be equipped with a direct optical view.	Information				
4.3.8.3	Text and Icon Overlay	Heading				
4.3.8.3.1	Language	Heading				
4.3.8.3.1.0-1	The LRF HHTI-LR must display all text in the language configured by the user, as specified in Section 4.5.1 User Language.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.8.3.2	System Status	Heading				
4.3.8.3.2.0-1	The LRF HHTI-LR display must indicate the state of charge of the internal battery.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.2.0-2	The LRF HHTI-LR display must indicate whether or not the internal batteries are charging.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.2.0-3	The LRF HHTI-LR display must indicate whether or not Bluetooth Connectivity is activated.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.2.0-4	The LRF HHTI-LR display must indicate whether or not Wireless Connectivity is activated.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.2.0-5	The LRF HHTI-LR display must indicate whether or not DAGR Connectivity is activated.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.2.0-6	The LRF HHTI-LR display must indicate whether or not the interface to an ISS BMS is active.	Mandatory Requirement	No	State compliance.		
4.3.8.3.3	System Configuration	Heading				
4.3.8.3.3.0-1	The LRF HHTI-LR display must indicate the magnification level of the original image, i.e. 2x, 4x etc.	Mandatory Requirement	No	State compliance.		
4.3.8.3.4	Geolocation of User	Heading				
4.3.8.3.4.0-1	The LRF HHTI-LR must display the geolocation grid coordinates of the user using the configured grid system, as specified in Section 4.5.2 Grid System.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.4.0-2	The LRF HHTI-LR must display the geolocation elevation of the user using the configured distance and elevation notation, as specified in Section 4.5.4 Distance and Elevation Notation.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.4.0-3	The LRF HHTI-LR must stop the display of the geolocation of the user in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.8.3.4.0-4	The LRF HHTI-LR must restore the display of the geolocation of the user in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.8.3.5	Geolocation of Observed Targets	Heading				
4.3.8.3.5.0-1	The LRF HHTI-LR must continuously display the azimuth of the reticle, using the configured directional notation, as specified in Section 4.5.3 Directional Notation.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.5.0-2	The LRF HHTI-LR must continuously display the angle of sight of the reticle, using the configured directional notation, as specified in Section 4.5.3 Directional Notation.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.6	Geolocation of LRF Targets	Heading				
4.3.8.3.6.0-1	Geolocation data of LRF targets consists of range, azimuth and angle of sight of the target relative to the user, and grid coordinates and elevation of the target.	Information				
4.3.8.3.6.0-2	The LRF HHTI-LR must display the geolocation data of the LRF target immediately after the target is subject to the laser pulse.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.8.3.6.0-3	The LRF HHTI-LR must display the range of the LRF target, using the configured distance and elevation notation, as specified in Section 4.5.4 Distance and Elevation Notation.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.6.0-4	The LRF HHTI-LR must display the geolocation grid coordinates of the LRF target using the configured grid system, as specified in Section 4.5.2 Grid System.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.6.0-5	The LRF HHTI-LR must display the geolocation elevation of the LRF target, using the configured distance and elevation notation, as specified in Section 4.5.4 Distance and Elevation Notation.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.6.0-6	The LRF HHTI-LR must display the azimuth of the LRF target, as determined by the centre of the LRF reticle, using the configured directional notation, as specified in Section 4.5.3 Directional Notation.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.6.0-7	The LRF HHTI-LR must display the angle of sight of the LRF target, as determined by the centre of the LRF reticle, using the configured directional notation, as specified in Section 4.5.3 Directional Notation.	Mandatory Requirement	Yes	State compliance.		
4.3.8.3.6.0-8	The LRF HHTI-LR must stop the display of geolocation data of the LRF target in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.8.3.6.0-9	The LRF HHTI-LR must display the geolocation data for the five most recent LRF targets in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.8.3.6.0-10	The LRF HHTI-LR must stop the display of the geolocation data for all but the most recent LRF target in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.9	Saving of Images	Heading				
4.3.9.0-1	The LRF HHTI-LR must save a still image of the display, including all overlaid data, icons and reticles, to an image file in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.9.0-2	Images saved by the LRF HHTI-LR must be compliant with MIL-STD-2500C W/CHANGE 1 National Imagery Transmission Format (NITF) Version 2.1.	Mandatory Requirement	No	State compliance.		
4.3.9.0-3	Images saved by the LRF HHTI-LR in the NITF format must be compatible with ATAK.	Mandatory Requirement	No	State compliance.		
4.3.9.0-4	The intent of the requirement for compliance with MIL-STD-2500C is limited to: Providing a file in a format that can be ingested to NATO Imagery Systems for exploitation Providing sufficient metadata to support cataloguing of the file and providing information related to time stamp and sensor location, direction and field of view	Information				
4.3.9.0-5	The image subheader segment of the NITF image file must include an approximate geographic location for the purposes of cataloguing, based on sensor location, direction and field of view.	Mandatory Requirement	No	State compliance.		
4.3.9.0-6	The LRF HHTI-LR must download image files selected by the user to an external device in response to user input.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.10	<b>Saving of Video</b>	Heading				
4.3.10.0-1	The LRF HHTI-LR must save a video file of the display, including all overlaid data, icons and reticles, in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.10.0-2	Video saved by the LRF HHTI-LR must be compliant with STANAG 4609 Digital Motion Imagery Standard.	Mandatory Requirement	No	State compliance.		
4.3.10.0-3	Video saved by the LRF HHTI-LR must be compliant with MISB 0902 Motion Imagery Sensor Minimum Metadata Set.	Mandatory Requirement	No	State compliance.		
4.3.10.0-4	The intent of the requirement for compliance with STANAG 4609 and MISB 0902 is limited to: <ul style="list-style-type: none"><li>• Providing a file in a format that can be ingested to NATO Motion Imagery Systems for exploitation</li><li>• Providing sufficient metadata in the KLV Tags to support cataloguing of the file and providing information related to time stamp and sensor location, direction and field of view</li></ul>	Information				
4.3.10.0-5	Video saved by the LRF HHTI-LR must be compatible with ATAK.	Mandatory Requirement	No	State compliance.		
4.3.10.0-6	The LRF HHTI-LR must download video files selected by the user to an external device in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.11	<b>Video Streaming of Display Content</b>	Heading				
4.3.11.0-1	The LRF HHTI-LR must provide a real-time digital video stream to an external device in response to user input.	Mandatory Requirement	No	State compliance.		
4.3.11.0-2	The LRF HHTI-LR must provide a real time digital video stream that does not affect the ability of the user to exercise full device functionality.	Mandatory Requirement	No	State compliance. satisfied.		
4.3.11.0-3	The LRF HHTI-LR real-time video stream must be in a format that is compatible with ATAK streaming video functionality.	Mandatory Requirement	No	State compliance.		
4.3.12	<b>Remote Control</b>	Heading				
4.3.12.0-1	The LRF HHTI-LR must be remotely controllable by a third-party device.	Mandatory Requirement	No	State compliance.		
4.3.12.0-2	When remotely controlled by a third-party device, full functionality of the LRF HHTI-LR must be available to the user through the third-party device.	Mandatory Requirement	No	State compliance.		
4.3.13	<b>Picatinny Rail</b>	Heading				
4.3.13.0-1	Requirement Deleted	Information				
4.3.14	<b>Power Sources</b>	Heading				
4.3.14.0-1	The normal power source for the LRF HHTI-LR will be Internal Batteries. To provide the user with options for power management, especially during operations in the cold, the user may choose to power the LRF HHTI-LR from an external power source.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.14.1	Internal Batteries	Heading				
4.3.14.1.1	Rechargeable Battery Power Source	Heading				
4.3.14.1.1.0-1	The LRF HHTI-LR must operate using power from Rechargeable Batteries that are housed within the LRF HHTI-LR.	Mandatory Requirement	Yes	State compliance.		
4.3.14.1.1.0-2	The LRF HHTI-LR must continuously operate for a minimum of two hours and thirty minutes in the Operational Mode at 20 degrees Celsius using power only from the installed Rechargeable Batteries, with no battery change, and with no recharging of the batteries, while being operated in accordance with the LRF HHTI-LR Mission Profile - Battery Life. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		
4.3.14.1.2	Low Temperature Battery Power Source	Heading				
4.3.14.1.2.0-1	In order to meet requirements for operation at low temperatures, a Low Temperature Battery, different from the Rechargeable Battery described above, may be required. The internal Low Temperature Batteries may be either rechargeable or non-rechargeable.	Information				
4.3.14.1.2.0-2	The LRF HHTI-LR should operate using power from Low Temperature Batteries that are housed within the LRF HHTI-LR.	Desirable Requirement	Not Applicable	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.14.1.2.0-3	The LRF HHTI-LR should continuously operate for a minimum of two hours and thirty minutes in the Operational Mode at minus 32 degrees Celsius using power only from installed Low Temperature Batteries, with no battery change, and with no recharging of the batteries, while being operated in accordance with the LRF HHTI-LR Mission Profile - Battery Life.	Desirable Requirement	Not Applicable	State compliance.  Provide analysis that predicts how long the LRF HHTI-LR will operate at minus 32 degrees Celcius using power only from installed Low Temperature Batteries, with no battery change, and with no recharging of the batteries, while being operated in accordance with the LRF HHTI-LR Mission Profile - Battery Life. Provide analysis for two use cases: Batteries are at minus 32 degrees Celcius when inserted into the LRF HHTI-LR at minus 32 degrees Celcius Batteries are at plus 20 degrees when inserted into the LRF HHTI-LR at minus 32 degrees Celcius. Provide supporting Test Reports if available.		
4.3.14.1.3	Internal Recharging Capability	Heading				
4.3.14.1.3.0-1	The LRF HHTI-LR must recharge the Internal Batteries if they are Rechargeable Batteries and the LRF HHTI-LR is connected to an exterior power source.	Mandatory Requirement	Yes	State compliance.		
4.3.14.1.3.0-2	The LRF HHTI-LR must not attempt to recharge the Internal Batteries if they are Non-Rechargeable Batteries and the LRF HHTI-LR is connected to an exterior power source.	Mandatory Requirement	Yes	State compliance.		
4.3.14.1.4	Battery Housing and Internal Connection	Heading				
4.3.14.1.4.0-1	The LRF HHTI-LR battery housing must allow the user to change batteries without using tools.	Mandatory Requirement	Yes	State compliance.		
4.3.14.1.4.0-2	The LRF HHTI-LR battery housing must allow the user to change batteries under conditions of total darkness.	Mandatory Requirement	Yes	State compliance.		
4.3.14.1.4.0-3	The LRF HHTI-LR must include protection against batteries that are installed incorrectly by the user.	Mandatory Requirement	Yes	State compliance.		
4.3.14.1.4.0-4	The LRF HHTI-LR must determine the state of charge of the Internal Batteries.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.3.14.2	External Power Sources	Heading				
4.3.14.2.1	External Power Sources - Common Requirements	Heading				
4.3.14.2.1.0-1	When connected to an external power source, the LRF HHTI-LR must not draw current from Internal Batteries.	Mandatory Requirement	Yes	State compliance.		
4.3.14.2.2	External DC Power Sources	Heading				
4.3.14.2.2.0-1	The LRF HHTI-LR must operate using power from a military vehicle 24 V DC electrical system.	Mandatory Requirement	Yes	State compliance.		
4.3.14.2.2.0-2	The LRF HHTI-LR must operate using power from a commercial vehicle 12 V DC electrical system.	Mandatory Requirement	Yes	State compliance.		
4.3.14.2.2.0-3	The LRF HHTI-LR must operate using power from an external Conformal Wearable Battery (CWB).	Mandatory Requirement	Yes	State compliance.		
4.3.14.2.2.0-4	The LRF HHTI-LR must operate using power from the LRF HHTI-LR EBP as specified in Section 5.20 External Battery Pack.	Mandatory Requirement	No	State compliance.		
4.3.14.2.2.0-5	Requirements related to the LRF HHTI-LR / External DC Power Sources Interface are specified in Section 4.4.8 External DC Power Source Interface.	Information				
4.3.14.2.3	AC Power Source	Heading				
4.3.14.2.3.0-1	The LRF HHTI-LR must operate using power from North American 110/120 VAC 60 hertz power source.	Mandatory Requirement	Yes	State compliance.		
4.3.14.2.3.0-2	The LRF HHTI-LR must operate using power from a European 220/240 VAC 50 hertz power source.	Mandatory Requirement	Yes	State compliance.		
4.3.14.2.3.0-3	Requirements related to the AC Power Source Interface are specified in Section 4.4.9 AC Power Source Interface.	Information				
4.4	External Interface Requirements	Heading				
4.4.1	Interface Identification	Heading				
4.4.1.0-1	See Section 3.3 Identification of Interfaces.	Information				
4.4.2	Defense Advanced GPS Receiver (DAGR) Interface	Heading				
4.4.2.1	DAGR Description	Heading				
4.4.2.1.0-1	The AN/PSN-13A Defense Advanced GPS Receiver (DAGR), NSN 5825-01-526-4783, is a hand-held GPS receiver in-service with the Canadian Army.	Information				
4.4.2.1.0-2	The DAGR has fixed interface characteristics. The DAGR will not be modified to support the achievement of DAGR Interface requirements.	Information				
4.4.2.2	LRF HHTI-LR / DAGR Interface Functional Requirements	Heading				
4.4.2.2.0-1	The LRF HHTI-LR must be compatible with the DAGR.	Mandatory Requirement	No	State compliance.		
4.4.2.2.0-2	The LRF HHTI-LR must interface with the DAGR using the DAGR Interface Cable.	Mandatory Requirement	No	State compliance.		
4.4.2.2.0-3	Requirements for the DAGR Interface Cable are specified in Section 5.13 DAGR Interface Cable.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.4.2.2.0-4	When a DAGR is connected to the LRF HHTI-LR, the LRF HHTI-LR must continually update user geolocation data using geolocation data received from the DAGR.	Mandatory Requirement	No	State compliance.		
4.4.2.2.0-5	When a DAGR is connected to the LRF HHTI-LR, the LRF HHTI-LR must update current time and date data using time and date data received from the DAGR.	Mandatory Requirement	No	State compliance.		
4.4.3	Integrated Soldier System (ISS) Interface	Heading				
4.4.3.1	ISS Overview	Heading				
4.4.3.1.0-1	The Integrated Soldier System (ISS) is a collection of soldier-worn devices that provides integrated functionality to the soldier related to tactical radio, situational awareness and battle planning. Devices are networked using a data and power distribution hub. Connected devices may include: <ul style="list-style-type: none"><li>• Multichannel Handheld Radio</li><li>• Secure Radio</li><li>• End User Device (EUD) (Smartphone)</li><li>• Commander's Tablet</li><li>• DAGR</li><li>• Land Warrior Battery</li><li>• Auxiliary Power or second Land Warrior Battery</li><li>• LRF HHTI-LR</li></ul>	Information				
4.4.3.1.0-2	The ISS in a basic configuration is in-service with the Canadian Army. The ISS is being incrementally upgraded to take advantage of technological advances and to increase the level of integration between what have previously been independent devices.	Information				
4.4.3.1.0-3	The EUD and Commander's Tablet are Android devices that use the Android Team Awareness Kit (ATAK). A soldier will be equipped with either an EUD or Commander's Tablet, but not both.	Information				
4.4.3.1.0-4	The ATAK-based software resident on the ISS EUD or Commander's tablet to which the LRF HHTI-LR will interface is referred to as the ISS Battle Management Software (BMS).	Information				
4.4.3.1.0-5	The specific ATAK plugins that will reside on the ISS EUD or Commander's tablet that are required to provide the functionality to support the interface between the LRF HHTI-LR and the ISS BMS are referred to as the LRF HHTI-LR / ISS BMS Interface ATAK Plugins (LIBI AP).	Information				
4.4.3.1.0-6	The devices that comprise the ISS are connected through the ISS Hub. The connectors on the ISS hub comply with NWPAN-WP-01112013 Version 6. The two in-service hubs are the Glenair STAR-PAN™ II Hub and the Glenair STAR-PAN™ VI Hub.	Information				
4.4.3.1.0-7	The ISS configuration to which the LRF HHTI-LR will interface is evolving. The requirements listed in this section are therefore expected to evolve.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.4.3.2	LRF HHTI-LR / ISS Interface - Intent	Heading				
4.4.3.2.0-1	The intent of the LRF HHTI-LR / ISS Interface is to provide the following functionality:	Information				
4.4.3.2.0-1.0-1	• The ISS can provide user geolocation data to the LRF HHTI-LR, via the EUD or Commander's Tablet, sourced from a connected radio;	Information				
4.4.3.2.0-1.0-2	• The ISS can provide user geolocation data to the LRF HHTI-LR, via the EUD or Commander's Tablet, sourced from the connected AN/PSN-13A DAGR;	Information				
4.4.3.2.0-1.0-3	• Realtime geo-orientation data related to the LRF HHTI-LR can be displayed on the EUD or Commander's Tablet, including range bearing line, field of view and maximum detection ranges for vehicle and person-sized targets;	Information				
4.4.3.2.0-1.0-4	• Image and video files can be downloaded from the LRF HHTI-LR to the ISS BMS for viewing on the EUD or Commander's Tablet;	Information				
4.4.3.2.0-1.0-5	• The content of the LRF HHTI-LR display can be streamed to the EUD or Commander's tablet in real-time;	Information				
4.4.3.2.0-1.0-6	• The LRF HHTI-LR can be manipulated remotely by the user using an application on the EUD or Commander's tablet; and	Information				
4.4.3.2.0-1.0-7	• When a target is subject to the Laser Range Finder pulse functionality of the LRF HHTI-LR, target geolocation data can be passed to the ISS BMS to be further used in generating contract reports, fire missions, etc.	Information				
4.4.3.2.0-2	The functionality of the interface will be provided through a collection of LRF HHTI-LR / ISS BMS Interface ATAK Plugins (LIBI AP), resident on the ISS EUD. The LIBI AP will be developed by the LRF HHTI-LR contractor, and may comprise bespoke or exiting ATAK plug-ins, or a combination thereof.	Information				
4.4.3.2.0-3	The functionality of the LIBI AP will be determined by this specification, and through the cooperative development of an ICD led by the LRF HHTI-LR contractor with the participation of the DND ISS ATAK team. Requirements for the LIBI AP are in Section 5.15 LRF HHTI-LR / ISS BMS Interface ATAK Plugins (LIBI AP).	Information				
4.4.3.3	LRF HHTI-LR / ISS Interface Connectivity Requirements	Heading				
4.4.3.3.0-1	The LRF HHTI-LR must be compatible with the ISS.	Mandatory Requirement	No	State compliance.		
4.4.3.3.0-2	The LRF HHTI-LR must interface with the ISS BMS using the ISS Interface Cable.	Mandatory Requirement	No	State compliance.		
4.4.3.3.0-3	Requirements for the ISS Interface Cable are specified in Section 5.14 ISS Interface Cable.	Information				
4.4.3.3.0-4	The LRF HHTI-LR must interface with the ISS BMS using a Wireless connection.	Mandatory Requirement	No	State compliance.		
4.4.3.3.0-5	Data passed from the LRF HHTI-LR to the ISS BMS must be compliant with the Cursor on Target (CoT) schema.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.4.3.4	LRF HHTI-LR / ISS Interface Functional Requirements	Heading				
4.4.3.4.0-1	Requirements for the LRF HHTI-LR / ISS BMS Interface application (LIBI AP) are specified in Section 5.15 LRF HHTI-LR / ISS BMS Interface ATAK Plugins (LIBI AP)	Information				
4.4.3.4.1	Configurable Attributes of LRF HHTI-LR	Heading				
4.4.3.4.1.0-1	When connected to the ISS, the LRF HHTI-LR must provide configurable attributes of the LRF HHTI-LR to the ISS BMS / LIBI AP as described in Section 4.5.5.1 ISS BMS Interface - Configurable Attributes.	Mandatory Requirement	No	State compliance.		
4.4.3.4.2	Geo-orientation of LRF HHTI-LR	Heading				
4.4.3.4.2.0-1	When connected to the ISS, the LRF HHTI-LR must provide continuous update of geo-orientation data to the ISS BMS / LIBI AP in accordance with the configured interface behaviour, as specified in Section 4.5.5.2 ISS BMS Interface - Configured Behaviours.	Mandatory Requirement	No	State compliance.		
4.4.3.4.2.0-2	LRF HHTI-LR Geo-orientation data must include: <ul style="list-style-type: none"><li>• Location in Longitude and Latitude;</li><li>• Elevation;</li><li>• Azimuth;</li><li>• Angle of sight; and</li><li>• Field of view of active channel.</li></ul>	Mandatory Requirement	No	State compliance.		
4.4.3.4.3	Images	Heading				
4.4.3.4.3.0-1	When connected to the ISS and an image is saved, the LRF HHTI-LR must send the image to the ISS BMS / LIBI AP in accordance with the configured interface behaviour, as specified in Section 4.5.5.2 ISS BMS Interface - Configured Behaviours.	Mandatory Requirement	No	State compliance.		
4.4.3.4.4	Video	Heading				
4.4.3.4.4.0-1	When connected to the ISS and a video is saved, the LRF HHTI-LR must send the video to the ISS BMS / LIBI AP in accordance with the configured interface behaviour, as specified in Section 4.5.5.2 ISS BMS Interface - Configured Behaviours.	Mandatory Requirement	No	State compliance.		
4.4.3.4.5	Lased Target Geolocation Data	Heading				
4.4.3.4.5.0-1	When connected to the ISS and a lased target geolocation data is saved, the LRF HHTI-LR must send the lased target geolocation data to the ISS BMS / LIBI AP in accordance with the configured interface behaviour, as specified in Section 4.5.5.2 ISS BMS Interface - Configured Behaviours.	Mandatory Requirement	No	State compliance.		
4.4.3.4.6	Streaming Video	Heading				
4.4.3.4.6.0-1	When connected to the ISS, the LRF HHTI-LR must start streaming video to the ISS BMS / LIBI AP in response to user action on the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
4.4.3.4.6.0-2	When connected to the ISS, the LRF HHTI-LR must stop streaming video to the ISS BMS / LIBI AP in response to user action on the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.4.3.4.6.0-3	When connected to the ISS, the LRF HHTI-LR must stream video to the ISS BMS / LIBI AP in response to a start streaming video request from the LIBI AP.	Mandatory Requirement	No	State compliance.		
4.4.3.4.6.0-4	When connected to the ISS, the LRF HHTI-LR must stop streaming video to the LIBI AP in response to a stop streaming video request from the LIBI AP.	Mandatory Requirement	No	State compliance.		
4.4.3.4.7	Remote Control	Heading				
4.4.3.4.7.0-1	When connected to the ISS, the LRF HHTI-LR must be remotely controllable in response to user actions on the LIBI AP.	Mandatory Requirement	No	State compliance.		
4.4.3.4.7.0-2	When connected to the ISS, full functionality of the LRF HHTI-LR must be available to the user through user actions on the LIBI AP.	Mandatory Requirement	No	State compliance.		
4.4.3.4.8	File Management	Heading				
4.4.3.4.8.0-1	When connected to the ISS, the LRF HHTI-LR must download imagery files from the LRF HHTI-LR to the LIBI AP in response to a file download command from the LIBI AP.	Mandatory Requirement	No	State compliance.		
4.4.3.4.8.0-2	When connected to the ISS, the LRF HHTI-LR must delete imagery files resident on the LRF HHTI-LR in response to a file deletion command from the LIBI AP.	Mandatory Requirement	No	State compliance.		
4.4.3.4.8.0-3	When connected to the ISS, the LRF HHTI-LR must download target data files from the LRF HHTI-LR to the LIBI AP in response to a file download command from the LIBI AP.	Mandatory Requirement	No	State compliance.		
4.4.3.4.8.0-4	When connected to the ISS, the LRF HHTI-LR must delete target geolocation files resident on the LRF HHTI-LR in response to a file deletion command initiated by the LIBI AP.	Mandatory Requirement	No	State compliance.		
4.4.4	Ruggedized Tactical Laptop (RTL) Interface	Heading				
4.4.4.1	RTL Description	Heading				
4.4.4.1.0-1	The current in-service RTL is the CF33 Mk2 Panasonic Toughbook. The CF33 uses the Windows 10 Pro (64 bit) operating system. The CF33 has the following characteristics: <ul style="list-style-type: none"><li>• USB 3.0 (x 3) and USB 2.0 (x 1) ports</li><li>• Bluetooth v4.1 + EDR (Class 1)</li><li>• Intel Dual band Wireless – AC 8265 802.11a/b/g/n/ac</li><li>• SD card (SDXC) and Nano-SIM</li><li>• HDMI Type A port</li></ul> The CF33 is used operationally in an unclassified domain.	Information				
4.4.4.1.0-2	The RTL has fixed interface characteristics. The RTL hardware will not be modified to support the achievement of RTL Interface requirements. Additional COTS software applications that are required to satisfy the interface requirements may be added RTL application software baseline.	Information				
4.4.4.2	LRF HHTI-LR / RTL Interface Functional Requirements	Heading				
4.4.4.2.0-1	The LRF HHTI-LR must be compatible with the RTL.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.4.4.2.0-2	The LRF HHTI-LR must interface with the RTL using the RTL Interface Cable.	Mandatory Requirement	No	State compliance.		
4.4.4.2.0-3	Requirements for the RTL Interface Cable are specified in Section 5.16 RTL Interface Cable.	Information				
4.4.4.2.0-4	The LRF HHTI-LR must download image files selected by the user from the LRF HHTI-LR to the RTL in response to user input.	Mandatory Requirement	No	State compliance.		
4.4.4.2.0-5	The LRF HHTI-LR must download video files selected by the user from the LRF HHTI-LR to the RTL in response to user input.	Mandatory Requirement	No	State compliance.		
4.4.4.2.0-6	The LRF HHTI-LR must stream live video output of the LRF HHTI-LR display for display on the RTL display.	Mandatory Requirement	No	State compliance.		
4.4.4.3	LRF HHTI-LR / RTL Interface - Bluetooth Proof of Concept	Heading				
4.4.4.3.0-1	The LRF HHTI-LR must interface with the RTL using Bluetooth.	Mandatory Requirement	No	State compliance.		
4.4.4.3.0-2	The LRF HHTI-LR must download an image file selected by the user from the LRF HHTI-LR to the RTL over Bluetooth in response to user input.	Mandatory Requirement	No	State compliance.		
4.4.5	Ruggedized Flash Drive (RFD) Interface	Heading				
4.4.5.1	LRF HHTI-LR / RFD Interface Functional Requirements	Heading				
4.4.5.1.0-1	The RFD is described in Section 5.17 Ruggedized Flash Drive (RFD).	Information				
4.4.5.1.0-2	The LRF HHTI-LR must be compatible with the RFD.	Mandatory Requirement	No	State compliance.		
4.4.5.1.0-3	The LRF HHTI-LR must download image files selected by the user from the LRF HHTI-LR to the RFD in response to user input on the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
4.4.5.1.0-4	The LRF HHTI-LR must download video files selected by the user from the LRF HHTI-LR to the RFD in response to user input on the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
4.4.5.1.0-5	The LRF HHTI-LR must delete all files stored on the RFD in response to user input on the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
4.4.5.1.0-6	The LRF HHTI-LR must delete files selected by the user that are stored on the RFD in response to user input on the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
4.4.5.2	LRF HHTI-LR / RFD Interface Physical Requirements	Heading				
4.4.5.2.0-1	The LRF HHTI-LR must physically connect to the RFD using a USB 2.0 compliant connection.	Mandatory Requirement	No	State compliance.		
4.4.5.2.0-2	The LRF HHTI-LR must include all hardware components required to physically connect the LRF HHTI-LR to the RFD.	Mandatory Requirement	No	State compliance.		
4.4.5.2.0-3	If a cable is required to connect the LRF HHTI-LR to the RFD, then the LRF HHTI-LR RFD Interface Cable must support the interface functionality described in Section 4.4.5.1 LRF HHTI-LR / RFD Interface Functional Requirements.	Mandatory Requirement	No	State compliance.		
4.4.5.2.0-4	If a cable is required to connect the LRF HHTI-LR to the RFD, then the LRF HHTI-LR RFD Interface Cable must meet the cabling requirements specified in Section 6.2 Common Cable Requirements.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.4.5.3	RFD / RTL Interface Functional Requirements	Heading				
4.4.5.3.0-1	The RFD must download image files selected by the user from the RFD to the RTL in response to user input on the RTL.	Mandatory Requirement	No	State compliance.		
4.4.5.3.0-2	The RFD must download video files selected by the user from the RFD to the RTL in response to user input on the RTL.	Mandatory Requirement	No	State compliance.		
4.4.5.3.0-3	The RFD must delete all files stored on the RFD in response to user input on the RTL.	Mandatory Requirement	No	State compliance.		
4.4.5.3.0-4	The RFD must delete files selected by the user that are stored on the RFD in response to user input on the RTL.	Mandatory Requirement	No	State compliance.		
4.4.6	Generic Interfaces - Bluetooth Connectivity	Heading				
4.4.6.1	Bluetooth Connectivity Description	Heading				
4.4.6.1.0-1	The CA is developing policies related to the use of Bluetooth connectivity between devices in an operational environment. LRF HHTI-LR Bluetooth connectivity provides flexibility for future use. For proof-of-concept purposes, requirements for Bluetooth connectivity will use the RTL described in Section 4.4.4 Ruggedized Tactical Laptop (RTL) Interface.	Information				
4.4.6.2	Bluetooth Connectivity Functional Requirements	Heading				
4.4.6.2.0-1	The LRF HHTI-LR must include Bluetooth connectivity.	Mandatory Requirement	No	State compliance.		
4.4.6.2.0-2	The LRF HHTI-LR Bluetooth connectivity must be compatible with devices that implement Bluetooth Version 4.1, as described in the Bluetooth V4.1 Specification.	Mandatory Requirement	No	State compliance.		
4.4.6.2.0-3	When the LRF HHTI-LR is turned on, Bluetooth connectivity must be fully deactivated as a default state in all modes.	Mandatory Requirement	No	State compliance.		
4.4.6.2.0-4	The LRF HHTI-LR must activate Bluetooth connectivity in response to user input.	Mandatory Requirement	No	State compliance.		
4.4.6.2.0-5	The LRF HHTI-LR must fully deactivate Bluetooth connectivity in response to user input.	Mandatory Requirement	No	State compliance.		
4.4.6.3	Bluetooth Connectivity Interface Requirements	Heading				
4.4.6.3.0-1	The LRF HHTI-LR must connect to the RTL using a Bluetooth connection.	Mandatory Requirement	No	State compliance.		
4.4.6.3.0-2	The LRF HHTI-LR Bluetooth connectivity must support the functional requirements specified in Section 4.4.4.3 LRF HHTI-LR / RTL Interface - Bluetooth Proof of Concept.	Mandatory Requirement	No	State compliance.		
4.4.7	Generic Interfaces - Wireless Connectivity	Heading				
4.4.7.1	Wireless Connectivity Description	Heading				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.4.7.1.0-1	The CA is developing policies related to the use of wireless connectivity between devices in an operational environment. LRF HHTI-LR wireless connectivity provides flexibility for future use. For proof-of-concept purposes, requirements for wireless connectivity will use the RTL described in Section 4.4.3 Integrated Soldier System (ISS) Interface.	Information				
4.4.7.2	Wireless Connectivity Functional Requirements	Heading				
4.4.7.2.0-1	The LRF HHTI-LR must include wireless connectivity.	Mandatory Requirement	No	State compliance.		
4.4.7.2.0-2	The LRF HHTI-LR wireless connectivity must be compatible with devices that implement the IEEE 802.11ac protocol.	Mandatory Requirement	No	State compliance.		
4.4.7.2.0-3	When the LRF HHTI-LR is turned on, Wireless connectivity must be fully deactivated as a default state in all modes.	Mandatory Requirement	No	State compliance.		
4.4.7.2.0-4	The LRF HHTI-LR must activate wireless connectivity in response to user input.	Mandatory Requirement	No	State compliance.		
4.4.7.2.0-5	The LRF HHTI-LR must fully deactivate wireless connectivity in response to user input.	Mandatory Requirement	No	State compliance.		
4.4.7.3	Wireless Connectivity Interface Requirements	Heading				
4.4.7.3.0-1	The LRF HHTI-LR must connect to the ISS using a Wireless connection.	Mandatory Requirement	No	State compliance.		
4.4.7.3.0-2	The LRF HHTI-LR Wireless connectivity must support the LRF HHTI-LR / ISS Interface functional requirements specified in Section 4.4.3.4.2 Geo-orientation of LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
4.4.7.3.0-3	The LRF HHTI-LR Wireless connectivity must support the LRF HHTI-LR / ISS Interface functional requirements specified in Section 4.4.3.4.3 Images.	Mandatory Requirement	No	State compliance.		
4.4.7.3.0-4	The LRF HHTI-LR Wireless connectivity must support the LRF HHTI-LR / ISS Interface functional requirements specified in Section 4.4.3.4.4 Video.	Mandatory Requirement	No	State compliance.		
4.4.7.3.0-5	The LRF HHTI-LR Wireless connectivity must support the LRF HHTI-LR / ISS Interface functional requirements specified in Section 4.4.3.4.5 Lased Target Geolocation Data.	Mandatory Requirement	No	State compliance.		
4.4.7.3.0-6	The LRF HHTI-LR Wireless connectivity must support the LRF HHTI-LR / ISS Interface functional requirements specified in Section 4.4.3.4.6 Streaming Video.	Mandatory Requirement	No	State compliance.		
4.4.7.3.0-7	The LRF HHTI-LR Wireless connectivity must support the LRF HHTI-LR / ISS Interface functional requirements specified in Section 4.4.3.4.7 Remote Control.	Mandatory Requirement	No	State compliance.		
4.4.7.3.0-8	The LRF HHTI-LR Wireless connectivity must support the LRF HHTI-LR / ISS Interface functional requirements specified in Section 4.4.3.4.8 File Management.	Mandatory Requirement	No	State compliance.		
4.4.8	External DC Power Source Interface	Heading				
4.4.8.0-1	The LRF HHTI-LR must be compatible with 24 V DC military vehicle electrical systems that are compliant with MIL-STD-1275E when powered through the DC Power Cable Assembly.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.4.8.0-2	The LRF HHTI-LR must connect to a 24 V DC military vehicle electrical system using the DC Power Cable Assembly.	Mandatory Requirement	No	State compliance.		
4.4.8.0-3	The LRF HHTI-LR must be compatible with 12 V DC commercial vehicle electrical systems when powered through the DC Power Cable Assembly.	Mandatory Requirement	No	State compliance.		
4.4.8.0-4	The LRF HHTI-LR must connect to a 12 V DC commercial vehicle electrical system using the DC Power Cable Assembly.	Mandatory Requirement	No	State compliance.		
4.4.8.0-5	The LRF HHTI-LR must be compatible with CWBs when powered through the DC Power Cable Assembly.	Mandatory Requirement	No	State compliance.		
4.4.8.0-6	The LRF HHTI-LR must connect to a CWB using the DC Power Cable Assembly.	Mandatory Requirement	No	State compliance.		
4.4.8.0-7	Requirements related to the DC Power Cable Assembly are specified in Section 5.18 DC Power Cable Assembly.	Information				
4.4.9	AC Power Source Interface	Heading				
4.4.9.0-1	The LRF HHTI-LR must be compatible with a North American 110/120 VAC 60 hertz power source, when powered through the AC Power Cable Assembly.	Mandatory Requirement	Yes	State compliance.		
4.4.9.0-2	The LRF HHTI-LR must connect to a North American 110/120 VAC 60 hertz power source using the AC Power Cable Assembly.	Mandatory Requirement	Yes	State compliance.		
4.4.9.0-3	The LRF HHTI-LR must be compatible with a European 220/240 VAC 50 hertz power source, when powered through the AC Power Cable Assembly.	Mandatory Requirement	Yes	State compliance.		
4.4.9.0-4	The LRF HHTI-LR must connect to a European 220/240 VAC 50 hertz power source using the AC Power Cable Assembly.	Mandatory Requirement	Yes	State compliance.		
4.4.9.0-5	Requirements related to the AC Power Cable Assembly are specified in Section 5.19 AC Power Cable Assembly.	Information				
4.4.10	Tripod Interface	Heading				
4.4.10.1	LRF HHTI-LR Tripod	Heading				
4.4.10.1.0-1	The LRF HHTI-LR must include a physical interface for mounting the LRF HHTI-LR on the LRF HHTI-LR Tripod specified in Section 5.12 Tripod.	Mandatory Requirement	Yes	State compliance.		
4.4.10.1.0-2	The LRF HHTI-LR must be compatible with the LRF HHTI-LR Tripod.	Mandatory Requirement	Yes	State compliance.		
4.4.10.2	SAFRAN Vectronix SST3-1 Mini-tripod	Heading				
4.4.10.2.0-1	The SAFRAN Vectronix SST3-1 Mini-tripod 664868, NSN 1290-01-455-9410, is in-service with the Canadian Army and is used as a tripod supporting the in-service SAFRAN Vector binoculars.	Information				
4.4.10.2.0-2	The LRF HHTI-LR must include a physical interface for mounting the LRF HHTI-LR on a SAFRAN Vectronix SST3-1 Mini-tripod.	Mandatory Requirement	No	State compliance.		
4.4.10.2.0-3	The LRF HHTI-LR must be compatible with the Vectronix SST3-1 Mini-tripod.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.5	Adaptation Requirements	Heading				
4.5.1	User Language	Heading				
4.5.1.0-1	The LRF HHTI-LR must display all textual information to the user in the English language in response to user input.	Mandatory Requirement	Yes	State compliance.		
4.5.1.0-2	The LRF HHTI-LR must display all textual information to the user in the French language in response to user input.	Mandatory Requirement	No	State compliance.		
4.5.1.0-3	The LRF HHTI-LR must automatically save the language of display of textual information selected by the user and display all textual information using the same language the next time the LRF HHTI-LR is turned on.	Mandatory Requirement	No	State compliance.		
4.5.2	Grid System	Heading				
4.5.2.0-1	The LRF HHTI-LR must be configurable to display geolocation data using different grids defined in accordance with the World Geodetic System 1984 (WGS-84) datum.	Mandatory Requirement	Yes	State compliance.		
4.5.2.0-2	The LRF HHTI-LR must be configurable by the user to display geolocation data using the WGS-84 Universal Transverse Mercator (UTM) grid system.	Mandatory Requirement	Yes	State compliance.		
4.5.2.0-3	The LRF HHTI-LR must be configurable by the user to display geolocation data using the WGS-84 Military Grid Reference System (MGRS) grid system.	Mandatory Requirement	Yes	State compliance.		
4.5.2.0-4	The LRF HHTI-LR must be configurable by the user to display geolocation data using the WGS-84 Latitude and Longitude grid system.	Mandatory Requirement	Yes	State compliance.		
4.5.2.0-5	The LRF HHTI-LR must use the grid system configured by the user for displaying user and target geolocation data.	Mandatory Requirement	Yes	State compliance.		
4.5.2.0-6	The LRF HHTI-LR must save the grid system selected by the user and present geolocation data using the same grid system the next time the LRF HHTI-LR is turned on.	Mandatory Requirement	Yes	State compliance.		
4.5.3	Directional Notation	Heading				
4.5.3.0-1	The LRF HHTI-LR must be configurable to display directional data (azimuth and angle of sight) in accordance with different directional notations.	Mandatory Requirement	Yes	State compliance.		
4.5.3.0-2	The LRF HHTI-LR must be configurable by the user to display directional data using the NATO mils system, where a circle is divided into 6,400 mils.	Mandatory Requirement	Yes	State compliance.		
4.5.3.0-3	The LRF HHTI-LR must be configurable by the user to display directional data using the degrees / minutes / seconds (DMS) system.	Mandatory Requirement	No	State compliance.		
4.5.3.0-4	The LRF HHTI-LR must use the same directional notation selected by the user to display azimuth and angle of sight data.	Mandatory Requirement	Yes	State compliance.		
4.5.3.0-5	The LRF HHTI-LR must save the directional notation system selected by the user and display directional data using the same directional notation system the next time the LRF HHTI-LR is turned on.	Mandatory Requirement	Yes	State compliance.		
4.5.4	Distance and Elevation Notation	Heading				
4.5.4.0-1	The LRF HHTI-LR must be configurable to display distance and elevation data in accordance with different distance notations.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.5.4.0-2	The LRF HHTI-LR must be configurable to display distance and elevation data in metres.	Mandatory Requirement	Yes	State compliance.		
4.5.4.0-3	The LRF HHTI-LR must be configurable to display distance and elevation data in feet.	Mandatory Requirement	No	State compliance.		
4.5.4.0-4	The LRF HHTI-LR must save the last distance and elevation notation system selected by the user and display distance and elevation data using the same distance and elevation notation system the next time the LRF HHTI-LR is turned on.	Mandatory Requirement	Yes	State compliance.		
4.5.5	ISS BMS Interface	Heading				
4.5.5.1	ISS BMS Interface - Configurable Attributes	Heading				
4.5.5.1.0-1	The LRF HHTI-LR must be configurable to store a local identifier used in the Sensor Name.	Mandatory Requirement	No	State compliance.		
4.5.5.1.0-2	The LRF HHTI-LR must be configurable to store the Sensor Range Length corresponding to the maximum detection range of a vehicle-sized target using the Thermal Channel.	Mandatory Requirement	No	State compliance.		
4.5.5.1.0-3	The LRF HHTI-LR must be configurable to store the Sensor Range Length corresponding to the maximum detection range of a person-sized target using the Thermal Channel.	Mandatory Requirement	No	State compliance.		
4.5.5.2	ISS BMS Interface - Configurable Behaviours	Heading				
4.5.5.2.0-1	The LRF HHTI-LR must be configurable to automate the initiation of sending streamed geo-orientation data to the ISS BMS in terms of always send, send after user confirmation or don't send.	Mandatory Requirement	No	State compliance.		
4.5.5.2.0-2	The LRF HHTI-LR must be configurable to automate the sending of saved images to the ISS BMS in terms of always send, send after user confirmation or don't send.	Mandatory Requirement	No	State compliance.		
4.5.5.2.0-3	The LRF HHTI-LR must be configurable to automate the sending of saved video to the ISS BMS in terms of always send, send after user confirmation or don't send.	Mandatory Requirement	No	State compliance.		
4.6	Environment, Health and Safety Requirements	Heading				
4.6.1	General Hazards	Heading				
4.6.1.0-1	The LRF HHTI-LR, excluding the LRF HHTI-LR Internal Batteries, must not present any environmental, health or system safety hazards of a Catastrophic or Critical mishap severity.	Mandatory Requirement	Yes	State compliance.		
4.6.1.0-2	The LRF HHTI-LR, excluding the LRF HHTI-LR Internal Batteries, must not present a Catastrophic or Critical hazard to the operator and surrounding environment even when so damaged that it allows the ingress of water or egress of internal substances.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.6.1.0-3	Mitigation against general hazards involving Internal Batteries is implemented through specifications in Section 5.9 Rechargeable Batteries and Section 5.10 Low Temperature Batteries.	Information				
4.6.1.0-3.0-1	Requirements related to the mitigation of battery hazards are embedded in the specifications for Internal Batteries in Section 4.3.14.1 Internal Batteries.	Information				
4.6.2	Thermal Contact Hazards	Heading				
4.6.2.0-1	The LRF HHTI-LR must not expose operators during normal operation to surface temperatures greater than those identified in MIL-STD-1472H Section 5.7.5.9 Thermal contact hazards for prolonged contact.	Mandatory Requirement	Yes	State compliance.		
4.6.3	Dangerous Material Hazards	Heading				
4.6.3.0-1	The LRF HHTI-LR must not contain any Polychlorinated Biphenyls (PCBs), halocarbons or asbestos.	Mandatory Requirement	Yes	State compliance.		
4.6.4	Handling Hazards	Heading				
4.6.4.0-1	The LRF HHTI-LR must bear no sharp, raw, or rough edges that present a risk of cuts or abrasions to the operator.	Mandatory Requirement	Yes	State compliance.		
4.6.5	Radio Frequency Hazards	Heading				
4.6.5.0-1	The HHTI-LR must comply with the Specific Absorption Rate (SAR) requirements for the Controlled Environment of Health Canada Safety Code 6 2015, for the protection against the Effects of Electromagnetic Radiation to Personnel (HERP).	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.  The evidence must include a Test Report that demonstrates compliance with Safety Code 6. An RF Exposure Technical Brief prepared in accordance with RSS-102 Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands), Issue 5 would be acceptable evidence.		
4.7	Security and Privacy Requirements	Heading				
4.7.1	Visibility	Heading				
4.7.1.0-1	The LRF HHTI-LR must prevent emission of light from the eyepieces when the LRF HHTI-LR is operational.	Mandatory Requirement	Yes	State compliance.		
4.7.1.0-2	The LRF HHTI-LR must not emit any light from external surfaces during operation.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.7.2	<b>Audibility</b>	Heading				
4.7.2.0-1	The LRF HHTI-LR must, when in the Operational Mode and after cool-down has been completed, be inaudible at a distance of 30 metres, tested in accordance with MIL-STD-1474E at the Level I aural non-detectability limits.	Mandatory Requirement	Yes	Test IAW MIL-STD-1474E, Appendix C using: - Limit Category of Level I aural non-detectability limits - A minimum distance of 30 metres at which non-detectability is required - LRF HHTI-LR in the Operational Mode (tripod) after cool down has been completed		
4.7.2.0-2	The LRF HHTI-LR must have no audible alarms.	Mandatory Requirement	Yes	State compliance.		
4.7.2.0-3	The LRF HHTI-LR must have no audible indicators.	Mandatory Requirement	Yes	State compliance.		
4.7.3	<b>Deletion of Imagery Files and LRF Target Data</b>	Heading				
4.7.3.0-1	There may be situations where the user is forced to abandon the LRF HHTI-LR or where it may fall into enemy hands.	Information				
4.7.3.0-2	The LRF HHTI-LR must delete, without potential for recovery, all image files, all video files, all data related to LRF targets, and all other data that is generated during use of the LRF HHTI-LR in response to user input.	Mandatory Requirement	Yes	State compliance.		
4.8	<b>System Quality Factors</b>	Heading				
4.8.1	<b>Reliability</b>	Heading				
4.8.1.0-1	The LRF HHTI-LR must have a mission Mean Time Between Critical Failures (MTBCF) of at least 1,200 hours when used in ambient air temperatures of 18 degrees Celsius to 28 degrees Celsius.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied. Provide estimated, lab measured or field measured values of MTBCF. Describe the methods used to determine and verify MTBCF.		
4.8.2	<b>Maintainability</b>	Heading				
4.8.2.0-1	The support and maintenance concept for the LRF HHTI-LR System is described in LRF HHTI-LR Support and Maintenance Concept document.	Information				
4.8.2.1	<b>Modularity</b>	Heading				
4.8.2.1.0-1	The LRF HHTI-LR must be designed for the modular replacement of components.	Mandatory Requirement	Yes	Provide evidence that the requirement has been satisfied.		
4.8.2.2	<b>Built-In Test Function</b>	Heading				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.8.2.2.0-1	The LRF HHTI-LR must have a Built-In Test (BIT) function.	Mandatory Requirement	Yes	State compliance.		
4.8.2.2.0-2	The BIT function must operate continuously while the LRF HHTI-LR is transitioning from the off state to the Operational State.	Mandatory Requirement	Yes	State compliance.		
4.8.2.2.0-3	The BIT function must operate continuously while the LRF HHTI-LR is in the Operational Mode.	Mandatory Requirement	Yes	State compliance.		
4.8.2.2.0-4	The BIT function must detect and display faults.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.8.2.2.0-5	The fault information displayed by the BIT function must provide the user with information on the associated loss of functionality.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.8.2.2.0-6	The fault information displayed by the BIT function must provide the user and maintainer with an indication of required maintenance actions.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
4.8.2.3	User Maintenance	Heading				
4.8.2.3.0-1	In accordance with the LRF HHTI-LR Support and Maintenance Concept, it is expected that user maintenance tasks will include activities such as: <ul style="list-style-type: none"><li>• Changing Internal Batteries</li><li>• Cleaning of optical surfaces using the Lens Cleaning Kit</li><li>• Cleaning of exterior surfaces of the HHTI-LR</li></ul>	Information				
4.8.2.3.0-2	LRF HHTI-LR user maintenance tasks must not require Special Tools and Test Equipment (STTE), other than the Lens Cleaning Kit.	Mandatory Requirement	Yes	State compliance.		
4.8.2.3.0-3	LRF HHTI-LR user maintenance tasks must be carried out by a user wearing Cold Wet Weather Gloves.	Mandatory Requirement	Yes	State compliance.		
4.8.2.3.0-4	LRF HHTI-LR user maintenance tasks must be carried out by a user with bare hands.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.8.2.4	First Level Maintenance	Heading				
4.8.2.4.0-1	In accordance with the LRF HHTI-LR Support and Maintenance Concept, first level maintenance tasks will include user maintenance task plus: <ul style="list-style-type: none"><li>• servicing and cleaning</li><li>• nitrogen purging</li><li>• preliminary diagnosis of faults</li><li>• corrective maintenance tasks of a minor nature</li><li>• replacement of broken eyecups, straps, and lens covers</li></ul> The term “minor nature” infers short duration (less than four hours to return the equipment to service) and relatively simple repairs. Level one maintenance tasks are generally performed without Special Tools and Test Equipment (STTE) and require no special facilities.	Information				
4.8.2.4.0-2	LRF HHTI-LR first level maintenance tasks must not require Special Tools and Test Equipment (STTE), other than the Lens Cleaning Kit, or nitrogen purging equipment.	Mandatory Requirement	Yes	State compliance.		
4.8.2.4.0-3	LRF HHTI-LR first level maintenance tasks must be feasible under field conditions.	Mandatory Requirement	Yes	State compliance.		
4.8.2.5	Second Level Maintenance - Second Line Maintenance Organization	Heading				
4.8.2.5.0-1	In accordance with the LRF HHTI-LR Support and Maintenance Concept, second line maintenance organizations will conduct user maintenance tasks, first level maintenance tasks and the following second level tasks: <ul style="list-style-type: none"><li>• nitrogen purging</li><li>• fault diagnosis</li><li>• software updates</li></ul>	Information				
4.8.2.5.0-2	LRF HHTI-LR second level maintenance tasks undertaken by second line maintenance organizations must be feasible under field conditions.	Mandatory Requirement	Yes	State compliance.		
4.8.2.5.0-3	LRF HHTI-LR software must be updateable as a first level maintenance activity.	Mandatory Requirement	Yes	State compliance.		
4.9	Design and Construction Constraints	Heading				
4.9.1	Physical Characteristics	Heading				
4.9.1.1	Mass	Heading				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.9.1.1.0-1	The LRF HHTI-LR, including Internal Batteries, must have a mass of less than 2.75 kilograms. < rated >	Mandatory Requirement (rated)	Yes	State compliance.  Provide evidence that the requirement has been satisfied. Describe the configuration of the LRF HHTI-LR at the time of measurement of mass. Configuration of the LRF HHTI-LR at the time of measurement of mass must include: - All internal components required to satisfy the LRF HHTI-LR Capability Requirements (Section 4.3) - Internal batteries (Section 4.3.14.1) - Lens Covers (Section 4.9.1.4) - Eye Cups (Section 4.9.1.5) - Hand Straps (Section 4.9.1.7) - No external interface cabling - If applicable, an add-on Afocal lens that increases system DRI performance where the afocal lens is used during any technical bid evaluation activity - Any removable component that is necessary for the bidder to claim compliance against a mandatory requirement - Any removable component that is necessary for the bidder to claim compliance against a rated desirable requirement and the bidder chooses to claim compliance		
4.9.1.2	Colour and Finish	Heading				
4.9.1.2.0-1	The LRF HHTI-LR must have an external colour of NATO Coyote Brown or similar colour approved by the TA prior to production.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.9.1.2.0-2	The LRF HHTI-LR must have a finish that is dull or flat without shine.	Mandatory Requirement	No	State compliance.		
<b>4.9.1.3</b>	<b>Moisture Seal</b>	Heading				
4.9.1.3.0-1	The LRF HHTI-LR must be sealed to prevent infiltration of moisture.	Mandatory Requirement	Yes	State compliance.		
4.9.1.3.0-2	The LRF HHTI-LR must have a means of purging the interior of the device with an inert gas to remove moisture.	Mandatory Requirement	Yes	State compliance.		
<b>4.9.1.4</b>	<b>Lens Covers</b>	Heading				
4.9.1.4.0-1	The LRF HHTI-LR must have Lens Covers that protect the objective optical surfaces when the LRF HHTI-LR is not in use.	Mandatory Requirement	Yes	State compliance.		
4.9.1.4.0-2	When the Lens Covers are removed from the objective optical surfaces when the LRF HHTI-LR is in use, the Lens Covers must remain attached to the LRF HHTI-LR.	Mandatory Requirement	Yes	State compliance.		
4.9.1.4.0-3	The lens covers must be replaceable as a first level maintenance task.	Mandatory Requirement	Yes	State compliance.		
<b>4.9.1.5</b>	<b>Eye Cups</b>	Heading				
4.9.1.5.0-1	The LRF HHTI-LR must have Eye Cups.	Mandatory Requirement	Yes	State compliance.		
4.9.1.5.0-2	The Eye Cups must minimize the escape of light from the display when the user is looking at the display and the user is in contact with the Eye Cups.	Mandatory Requirement	Yes	State compliance.		
4.9.1.5.0-3	The Eye Cups must prevent the escape of light from the display when the LRF HHTI-LR is operating, but the user is not in contact with the Eye Cups.	Mandatory Requirement	No	State compliance.		
4.9.1.5.0-4	The Eye Cups must be compatible with a user wearing ballistic eyewear, NSN 8465-20-001-4355.	Mandatory Requirement	No	State compliance.		
4.9.1.5.0-5	The Eye Cups must be compatible with a user wearing the C5 AirBoss Low Burden Mask, NSNs 4240-20-011-8190, -8191, -8192, -8193 and 4240-20-012-6039, -6040, 6041, -6042.	Mandatory Requirement	No	State compliance.		
4.9.1.5.0-6	The Eye Cups must have a feel and texture that is soft, flexible and comfortable to the user.	Mandatory Requirement	Yes	State compliance.		
<b>4.9.1.6</b>	<b>Shoulder Strap</b>	Heading				
4.9.1.6.0-1	The LRF HHTI-LR must have an adjustable Shoulder Strap.	Mandatory Requirement	Yes	State compliance.		
4.9.1.6.0-2	The Shoulder Strap must be configured so that the user can carry the LRF HHTI-LR with the Shoulder Strap around the user's neck.	Mandatory Requirement	No	State compliance.		
4.9.1.6.0-3	The Shoulder Strap must be configured so that the user can carry the LRF HHTI-LR with the Shoulder Strap hung on the user's shoulder and the LRF HHTI-LR resting against the same side of the body.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.9.1.6.0-4	The Shoulder Strap must be configured so that the user can carry the LRF HHTI-LR with the Shoulder Strap on one shoulder and the LRF HHTI-LR resting on the other side of the body.	Mandatory Requirement	No	State compliance.		
4.9.1.6.0-5	The Shoulder Strap must be at least 1.5 centimetres in width.	Mandatory Requirement	No	State compliance.		
4.9.1.6.0-6	The Shoulder Strap must be padded in the section of the Shoulder Strap that is resting on the part of the user's body that is bearing the weight of the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
4.9.1.6.0-7	The Shoulder Strap must be comfortable to the user when carrying the LRF HHTI-LR using the Shoulder Strap over a distance of five kilometres.	Mandatory Requirement	No	State compliance.		
4.9.1.6.0-8	The Shoulder Strap must be replaceable as a first level maintenance task.	Mandatory Requirement	No	State compliance.		
4.9.1.7	Hand Straps	Heading				
4.9.1.7.0-1	The LRF HHTI-LR must have one or more Hand Straps.	Mandatory Requirement	Yes	State compliance.		
4.9.1.7.0-2	The Hand Straps must assist the user to hold the LRF HHTI-LR when in operational use.	Mandatory Requirement	Yes	State compliance.		
4.9.1.7.0-3	The Hand Straps must be strong enough so that the LRF HHTI-LR can be carried using one Hand Strap.	Mandatory Requirement	Yes	State compliance.		
4.10	Human Factors Engineering Requirements	Heading				
4.10.1	Compatibility with Diversity of Users	Heading				
4.10.1.1	Interpupillary Distance	Heading				
4.10.1.1.0-1	The LRF HHTI-LR must be compatible with the 5th to 95th percentile of interpupillary distances of male sailors and combat arms soldiers serving in the Canadian Armed Forces.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied. Use of recent anthropometry data for North American or European adult male population is acceptable.		
4.10.1.1.0-2	The LRF HHTI-LR must be compatible with the 5th to 95th percentile of interpupillary distances of female sailors and combat arms soldiers serving in the Canadian Armed Forces.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied. Use of recent anthropometry data for North American or European adult female population is acceptable.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.10.1.2	Visual Acuity	Heading				
4.10.1.2.0-1	The focus of the thermal channel of the LRF HHTI-LR must be adjustable to present a sharp image to users with a Canadian Armed Forces V3 or better vision category, as defined in Appendix 1 to Annex A to CFP 154 Canadian Armed Forces Medical Standards.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied. Provide analysis of compatibility under the following conditions that require varying levels of eye relief: No eyewear and no eye protection Ballistic Eyewear		
4.10.1.2.0-2	The focus of the secondary channel of the LRF HHTI-LR must be adjustable to present a sharp image to users with a Canadian Armed Forces V3 or better vision category, as defined in Appendix 1 to Annex A to CFP 154 Canadian Armed Forces Medical Standards.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied. Provide analysis of compatibility under the following conditions that require varying levels of eye relief: No eyewear and no eye protection Ballistic Eyewear		
4.10.1.3	Hand Size	Heading				
4.10.1.3-1	The LRF HHTI-LR must be compatible with differences in hand size found in the 5th to 95th percentile of male sailors and combat arms soldiers serving in the Canadian Armed Forces.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied. Use of anthropometry data for male soldiers from North American or European adult male population is acceptable.		
4.10.1.3-2	The LRF HHTI-LR must be compatible with differences in hand size found in the 5th to 95th percentile of female sailors and combat arms soldiers serving in the Canadian Armed Forces.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied. Use of anthropometry data for North American or European adult female population is acceptable.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.10.2	Compatibility with Clothing and Equipment	Heading				
4.10.2.1	Gloves	Heading				
4.10.2.1.0-1	The LRF HHTI-LR must be compatible with a user wearing Cold Wet Weather Gloves, NSN 8415-21-920-9019.	Mandatory Requirement	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.2.1.0-2	Assembly of the LRF HHTI-LR into a configuration where the LRF HHTI-LR is mounted on the Tripod and interfaced to an external power source must be compatible with a user wearing Cold Wet Weather Gloves and without the use of special tools.	Mandatory Requirement	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.2.1.0-3	The LRF HHTI-LR must be acceptable to users wearing Cold Wet Weather Gloves in operational conditions.	Mandatory Requirement	Yes	Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.2.2	CM735 Ballistic Helmet	Heading				
4.10.2.2.0-1	The LRF HHTI-LR must be compatible with a user wearing a CM735 Ballistic Helmet, NSN 8470-21-912-7719.	Mandatory Requirement	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.2.2.0-2	The LRF HHTI-LR must be acceptable to users wearing a CM735 Ballistic Helmet in operational conditions.	Mandatory Requirement	Yes	Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.10.2.3	Ballistic Eyewear	Heading				
4.10.2.3.0-1	The LRF HHTI-LR must be compatible with a user wearing Ballistic Eyewear, NSN 8465-20-001-4355.	Mandatory Requirement	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.2.3.0-2	The LRF HHTI-LR must be acceptable to users wearing Ballistic Eyewear in operational conditions.	Mandatory Requirement	Yes	Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.2.4	C5 AirBoss Low Burden Mask	Heading				
4.10.2.4.0-1	The LRF HHTI-LR must be compatible with a user wearing a C5 AirBoss Low Burden Mask (CBRN mask), NSNs 4240-20-011-8190, -8191, -8192, -8193 and 4240-20-012-6039, -6040, -6041, -6042.	Mandatory Requirement	No	State compliance.		
4.10.2.4.0-2	The LRF HHTI-LR must be acceptable to soldiers wearing a C5 AirBoss Low Burden Mask in operational conditions.	Mandatory Requirement	No	State compliance.		
4.10.2.5	Operational Clothing and Equipment	Heading				
4.10.2.5.0-1	The LRF HHTI-LR must be acceptable to soldiers wearing operational clothing and equipped with the Modular Load Carrying System and the Integrated Soldier System in operational conditions.	Mandatory Requirement	Yes	State compliance.  Through direct user involvement in operational scenarios, gain acceptance from users of the system that the requirement has been satisfied.		
4.10.3	Compatibility with Use under Conditions of Darkness	Heading				
4.10.3.0-1	The LRF HHTI-LR must have external controls whose arrangement, size and shape can be identified and manipulated by the user using only the sense of touch.	Mandatory Requirement	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.10.3.0-2	The LRF HHTI-LR must have external controls whose arrangement, size and shape can be identified and manipulated by the user using only the sense of touch while wearing Cold Wet Weather Gloves.	Mandatory Requirement	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.3.0-3	During conditions of total darkness, assembly of the LRF HHTI-LR into a configuration where the LRF HHTI-LR is mounted on the Tripod and interfaced to an external power source must be compatible with a user wearing Cold Wet Weather Gloves and without the use of special tools.	Mandatory Requirement	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.4	Functionality and Ease of Use	Heading				
4.10.4.1	Primary Functions	Heading				
4.10.4.1.0-1	The functionality and ease of use of the LRF HHTI-LR related to the maintenance of a high level of situational awareness, scanning of an area of interest, and speed of detection, recognition and identification of targets must be acceptable to users under operational conditions. < rated >	Mandatory Requirement (rated)	Yes	Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.4.1.0-2	The functionality and ease of use of the LRF HHTI-LR related to the detection, recognition and identification of targets using the Secondary Channel must be acceptable to users under operational conditions. < rated >	Mandatory Requirement (rated)	Yes	Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.4.1.0-3	The functionality and ease of use of the LRF HHTI-LR related to the geolocation of targets using the Laser Range Finder must be acceptable to users under operational conditions. < rated >	Mandatory Requirement (rated)	Yes	Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.4.1.0-4	The functionality and ease of use of the LRF HHTI-LR to use the observation of bullet swirls with the thermal channel to adjust fire must be acceptable to users under operational conditions in the following scenario: • The LRF HHTI-LR thermal channel is offset no more than one metre from the axis of the rifle barrel; and • A 7.62 x 51mm NATO non-tracer round is fired at a target at 800 metres	Mandatory Requirement	Yes	Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.10.4.1.0-5	The functionality and ease of use of the LRF HHTI-LR to use the observation of bullet swirls with the thermal channel to adjust fire should be acceptable to users under operational conditions in the following scenario: • The LRF HHTI-LR thermal channel is offset up to ten metres from the axis of the rifle barrel; and • A 7.62 x 51mm NATO non-tracer round is fired at a target at 800 metres < rated >	Desirable Requirement (rated)	Not Applicable	Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.4.1.0-6	The functionality and ease of use of the LRF HHTI-LR related to the display of data on the display must be acceptable to users under operational conditions. < rated >	Mandatory Requirement (rated)	Yes	Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.4.1.0-7	The functionality and ease of use of the LRF HHTI-LR related to the saving and storage of images and videos must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.4.1.0-8	The functionality and ease of use of the LRF HHTI-LR related to the adaptation of the system to fit user and mission attributes at the start of a mission must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.4.2	External Interfaces	Heading				
4.10.4.2.0-1	The functionality and ease of use of the LRF HHTI-LR related to establishing an interface with a DAGR must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.4.2.0-2	The functionality and ease of use of the LRF HHTI-LR related to establishing an interface with the ISS must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.4.2.0-3	The functionality and ease of use of the LRF HHTI-LR related to using the LIBI AP installed on the ISS EUD and Commander's Tablet must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.4.2.0-4	The functionality and ease of use of the LRF HHTI-LR related to establishing and exercising the interface with a Ruggedized Tactical Laptop and must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.4.2.0-5	The functionality and ease of use of the LRF HHTI-LR related to establishing and exercising an interface with a Ruggedized Flash Drive must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.4.2.0-6	The functionality and ease of use of the LRF HHTI-LR related to establishing and exercising a Wireless interface with an external device must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.4.2.0-7	The functionality and ease of use of the LRF HHTI-LR related to establishing and exercising a Bluetooth interface with an external device must be acceptable to users under operational conditions.	Mandatory Requirement	No			

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.10.4.3	External Power Sources	Heading				
4.10.4.3.0-1	The functionality and ease of use of the LRF HHTI-LR related to sourcing power from a military vehicle 24 V electrical system must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.4.3.0-2	The functionality and ease of use of the LRF HHTI-LR related to sourcing power from a civilian vehicle 12 V electrical system must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.4.3.0-3	The functionality and ease of use of the LRF HHTI-LR related to sourcing power from an AC Power Source must be acceptable to users under operational conditions.	Mandatory Requirement	Yes			
4.10.4.4	Menu Structures and Commands	Heading				
4.10.4.4.0-1	The functionality and ease of use of the LRF HHTI-LR related to navigation through English language menu structures and commands must be acceptable to users under operational conditions.	Mandatory Requirement	Yes			
4.10.4.4.0-2	The functionality and ease of use of the LRF HHTI-LR related to navigation through French language menu structures and commands must be acceptable to users under operational conditions.	Mandatory Requirement	No			
4.10.5	Human Machine Interface	Heading				
4.10.5.0-1	When used in the Operational mode, the LRF HHTI-LR physical controls (including buttons, knobs, toggle switches, joy sticks or other controls) used in the human machine interface must be accessible by the user without the necessity of moving a hand in a way that affects the stability of the device.	Mandatory Requirement	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.5.0-2	The LRF HHTI-LR must have physical controls that are positioned such that their manipulation does not interfere with continuous surveillance by the user when the LRF HHTI-LR is being held in two hands.	Mandatory Requirement	Yes	State compliance.  Provide the LRF HHTI-LR to Canada for testing according to the User Acceptance Performance Evaluation (Gate 3) - Test Plan and Procedures.		
4.10.5.0-3	The LRF HHTI-LR must have an external, easily accessible, non-menu-driven physical control for switching between the Thermal Channel and the Secondary Channel.	Mandatory Requirement	Yes	State compliance.		
4.10.5.0-4	The LRF HHTI-LR must have an external, easily accessible, non-menu-driven physical control for adjusting magnification.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
4.10.5.0-5	The LRF HHTI-LR must have an external, easily accessible, non-menu-driven physical control for reversing image polarity of the thermal channel display.	Mandatory Requirement	Yes	State compliance.		
4.10.5.0-6	The LRF HHTI-LR should have an external, easily accessible, non-menu-driven physical control for firing the laser when using the Laser Range Finder.	Desirable Requirement	Not Applicable	State compliance.		
4.10.5.0-7	The LRF HHTI-LR must prevent accidental firing of the Laser Range Finder.	Mandatory Requirement	No	State compliance.		
4.10.5.0-8	The LRF HHTI-LR should have an external, easily accessible, non-menu-driven physical control for firing the Laser Pointer.	Mandatory Requirement	No	State compliance.		
4.10.5.0-9	The LRF HHTI-LR must prevent accidental firing of the Laser Pointer.	Mandatory Requirement	No	State compliance.		
4.11	Product Serialization	Heading				
4.11.0-1	The LRF HHTI-LR must be a serialized item.	Mandatory Requirement	No	State compliance.		
4.11.0-2	The LRF HHTI-LR serialization must satisfy the requirements specified in Section 6.5.2 Serialized Items.	Mandatory Requirement	No	State compliance.		
5	System - Other Component Requirements	Heading				
5.1	Field Kit Storage and Transport Case	Heading				
5.1.0-1	The Field Kit Storage and Transport Case is used to store and transport the components of the LRF HHTI-LR System that are carried within the Field Pouch. The Field Kit Storage and Transport Case will also be used for transportation of the LRF HHTI-LR (within the Field Pouch) between maintenance and supply organization, and for return of the LRF HHTI-LR to the OEM for repair and overhaul purposes. Batteries may be stored in the Field Kit Storage and Transport Case, but not within the LRF HHTI-LR or within the Field Pouch themselves.	Information				
5.1.0-2	The LRF HHTI-LR System must include a Field Storage and Transport Case.	Mandatory Requirement	No	State compliance.		
5.1.0-3	The Field Kit Storage and Transport Case must be configured to store a Field Pouch that is loaded with the components of the LRF HHTI-LR System that are normally carried within the Field Pouch.	Mandatory Requirement	No	State compliance.		
5.1.0-4	Components of the LRF HHTI-LR System that are normally carried within the Field Pouch are identified in Section 5.4 Field Pouch.	Information				
5.1.0-5	The Field Kit Storage and Transport Case must be configured to store Internal Batteries that support 24 hours of continuous use of the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.1.0-6	The configuration of the Field Kit Storage and Transport Case to store batteries must not create any hazards related to long term battery storage.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.2	Support Kit Storage and Transport Case	Heading				
5.2.0-1	The Support Kit Storage and Transport Case is used to store and transport the components of the LRF HHTI-LR System that are carried within the Tripod Pouch and Accessories Pouch. Batteries may be stored in the Support Kit Storage and Transport Cases but not within pouches themselves.	Information				
5.2.0-2	The LRF HHTI-LR System must include a Support Kit Storage and Transport Case.	Mandatory Requirement	No	State compliance.		
5.2.0-3	The Support Kit Storage and Transport Case must be configured to store a Tripod Pouch that is loaded with the components of the LRF HHTI-LR System that are normally carried within the Tripod Pouch.	Mandatory Requirement	No	State compliance.		
5.2.0-4	Components of the LRF HHTI-LR System that are normally carried within the Tripod Pouch are identified in Section 5.5 Tripod Pouch.	Information				
5.2.0-5	The Support Kit Storage and Transport Case must be configured to store an Accessories Pouch that is loaded with the components of the LRF HHTI-LR System that are normally carried within the Accessories Pouch.	Mandatory Requirement	No	State compliance.		
5.2.0-6	Components of the LRF HHTI-LR System that are normally carried within the Accessories Pouch are identified in Section 5.6 Accessories Pouch.	Information				
5.2.0-7	The Support Kit Storage and Transport Case must be configured to store an External Battery Pack Pouch that contains the External Battery Pack.	Mandatory Requirement	No	State compliance.		
5.2.0-8	The Support Kit Storage and Transport Case must be configured to store Rechargeable Batteries that support 24 hours of continuous use of the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.2.0-9	The configuration of the Support Kit Storage and Transport Case to store batteries must not create any hazards related to long term battery storage.	Mandatory Requirement	No	State compliance.		
5.3	Storage and Transport Cases - Common Requirements	Heading				
5.3.0-1	The requirements specified in this section are applicable to both the Field Storage and Transport Case and the Support Kit Storage and Transport Case.	Information				
5.3.0-2	The Storage and Transport Cases must have a rigid exoskeleton.	Mandatory Requirement	No	State compliance.		
5.3.0-3	The Storage and Transport Case must be stable and secure against sliding and collapse when stacked with other Storage and Transport Cases.	Mandatory Requirement	No	State compliance.		
5.3.0-4	The Storage and Transport Cases must have a gasket that provides a sealed environment when the lid is closed.	Mandatory Requirement	No	State compliance.		
5.3.0-5	The Storage and Transport Cases must include a depressurization valve.	Mandatory Requirement	No	State compliance.		
5.3.0-6	The Storage and Transport Cases must include a means for the user to secure the contents of the case with a padlock.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.3.0-7	The Storage and Transport Cases must have two handholds that facilitate one-person, two-handed lifting, carrying and stacking actions when fully loaded with LRF HHTI-LR System components.	Mandatory Requirement	No	State compliance.		
5.3.0-8	The Storage and Transport Cases must have one handhold that facilitates one-person, one-handed carrying (suitcase style) when fully loaded with LRF HHTI-LR System components.	Mandatory Requirement	No	State compliance.		
5.3.0-9	The Storage and Transport Cases should minimize volume and mass to facilitate handling by one person.	Desirable Requirement	Not Applicable	State compliance.		
5.3.0-10	The Storage and Transport Cases must have an exterior colour of black or coyote brown.	Mandatory Requirement	No	State compliance.		
5.3.0-11	The Storage and Transport Cases must have a finish that is dull or flat without shine.	Mandatory Requirement	No	State compliance.		
5.3.0-12	The Storage and Transport Cases must be serialized items.	Mandatory Requirement	No	State compliance.		
5.3.0-13	The Storage and Transport Cases must comply with the requirements for serialized items specified in Section 6.5.2 Serialized Items.	Mandatory Requirement	No	State compliance.		
5.3.0-14	The Storage and Transport Cases must have a highly visible marking as applicable: • LRF HHTI-LR Field Kit - nnn • LRF HHTI-LR Support Kit - nnn where nnn corresponds to the unique numbering component of the serialization.	Mandatory Requirement	No	State compliance.		
5.3.0-15	The purpose of this additional marking is to allow rapid identification of of each system during acceptance on delivery, and when retrieving systems from a storage facility.	Information				
5.4	Field Pouch	Heading				
5.4.1	Field Pouch General Requirements	Heading				
5.4.1.0-1	The LRF HHTI-LR System must include a Field Pouch.	Mandatory Requirement	No	State compliance.		
5.4.1.0-2	The Field Pouch must comply with the Common Pouch Requirements specified in Section 5.8.	Mandatory Requirement	No	State compliance.		
5.4.1.0-3	The Field Pouch must be of semi-rigid construction.	Mandatory Requirement	No	State compliance.		
5.4.1.0-4	The Field Pouch must protect the LRF HHTI-LR from shock and vibration associated with dismounted soldier operations.	Mandatory Requirement	No	State compliance.		
5.4.1.0-5	The Field Pouch must be configured to allow the user to turn the LRF HHTI-LR on or off without opening the Field Pouch or removing the LRF HHTI-LR from the Field Pouch. < TBC >	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.4.1.0-6	The Field Pouch must permit BlueTooth communication between the LRF HHTI-LR and the ISS EUD when the LRF HHTI-LR is stored in the Field Pouch. < TBC >	Mandatory Requirement	No	State compliance.		
5.4.1.0-7	The Field Pouch must permit Wireless communication between the LRF HHTI-LR and the ISS EUD when the LRF HHTI-LR is stored in the Field Pouch. < TBC >	Mandatory Requirement	No	State compliance.		
5.4.2	Field Pouch Compartmentalization Requirements	Heading				
5.4.2.0-1	The Field Pouch must have compartments to carry all of the following LRF HHTI-LR System Components: <ul style="list-style-type: none"><li>• LRF HHTI-LR</li><li>• Lens Cleaning Kit</li><li>• Ruggedized Flash Drive</li><li>• RFD Interface Cable (if applicable to design)</li><li>• Quick Reference Guide</li><li>• Operator Manual</li><li>• Rechargeable Batteries for twenty-four hours of continuous operation of the LRF HHTI-LR</li><li>• Any adapters that may be required to mount the LRF HHTI-LR on a SAFRAN Vectronix SST3-1 Tripod</li></ul>	Mandatory Requirement	No	State compliance.		
5.4.2.0-2	The Field Pouch must be compartmentalized to facilitate rapid access to components that may be required by the user.	Mandatory Requirement	No	State compliance.		
5.4.2.0-3	The Field Pouch Lens Cleaning Kit compartment must be located on the outside of the Field Pouch.	Mandatory Requirement	No	State compliance.		
5.4.2.0-4	The Field Pouch's RFD compartment must be easily accessible to the LRF HHTI-LR Operator.	Mandatory Requirement	No	State compliance.		
5.4.2.0-5	The Field Pouch RFD compartment must protect the RFD from damage or degradation of performance from water, blowing dirt and/or dust.	Mandatory Requirement	No	State compliance.		
5.4.2.0-6	The Field Pouch Battery compartment(s) must be located on the outside of the Field Pouch.	Mandatory Requirement	No	State compliance.		
5.4.2.0-7	The Field Pouch Battery compartment(s) must protect batteries from damage or degradation of performance from water, blowing dirt and/or dust.	Mandatory Requirement	No	State compliance.		
5.4.2.0-8	When worn in backpack mode, the compartments of the Field Pouch must be accessible to a fellow operator to remove and replace all carried components.	Mandatory Requirement	No	State compliance.		
5.4.3	Field Pouch Carriage Requirements	Heading				
5.4.3.1	Backpack Mode	Heading				
5.4.3.1.0-1	The Field Pouch must include two backpack shoulder straps that allow the Field Pouch to be carried on the operator's back.	Mandatory Requirement	No	State compliance.		
5.4.3.1.0-2	The backpack shoulder straps must be constructed with side release buckles.	Mandatory Requirement	No	State compliance.		
















					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.4.3.1.0-3	The backpack shoulder straps must be adjustable.	Mandatory Requirement	No	State compliance.		
5.4.3.1.0-4	The Field Pouch must have a sleeve located on the back so that the shoulder straps can be tucked away behind the sleeve to prevent catching on other objects.	Mandatory Requirement	No	State compliance.		
5.4.3.2	Sling Mode	Heading				
5.4.3.2-1	The Field Pouch must include an adjustable Sling Shoulder Strap.	Mandatory Requirement	No	State compliance.		
5.4.3.2-2	The Field Pouch Shoulder Strap must be configurable so that the user can carry the LRF HHTI-LR with the Shoulder Strap around the user's neck.	Mandatory Requirement	No	State compliance.		
5.4.3.2-3	The Field Pouch Shoulder Strap must be configurable so that the user can carry the LRF HHTI-LR with the Shoulder Strap hung on the user's shoulder and the LRF HHTI-LR resting against the same side of the body.	Mandatory Requirement	No	State compliance.		
5.4.3.2-4	The Field Pouch Shoulder Strap must be configurable so that the user can carry the LRF HHTI-LR with the Shoulder Strap on one shoulder and the LRF HHTI-LR carried resting on the other side of the body.	Mandatory Requirement	No	State compliance.		
5.4.3.2-5	The Shoulder Strap must be at least 1.5 centimetres in width.	Mandatory Requirement	No	State compliance.		
5.4.3.2-6	The Shoulder Strap must be padded in the section of the Shoulder Strap that is resting on the part of the user's body that is bearing the weight of the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.4.3.2-7	The Shoulder Strap must be comfortable to the user when carrying the LRF HHTI-LR using the Shoulder Strap over a distance of five kilometres.	Mandatory Requirement	No	State compliance.		
5.4.4	Field Pouch Attachment Requirements	Heading				
5.4.4.0-1	The Field Pouch must include an attachment method that allows the Field Pouch to be attached to a modular load carrying system that utilizes the Pouch Attachment Ladder System (PALS).	Mandatory Requirement	No	State compliance.		
5.4.4.0-2	The Field Pouch must include PALS webbing to allow the attachment of the Tripod Pouch such that the Tripod Pouch is held below the LRF HHTI-LR Field Pouch when carried.	Mandatory Requirement	No	State compliance.		
5.4.4.0-3	The Field Pouch must include PALS webbing to allow the attachment of small pouches or small items of equipment carried by soldiers, and to allow it to be attached to other load carrying equipment.	Mandatory Requirement	No	State compliance.		
5.5	Tripod Pouch	Heading				
5.5.1	Tripod Pouch General Requirements	Heading				
5.5.1.0-1	The LRF HHTI-LR System must include a Tripod Pouch.	Mandatory Requirement	No	State compliance.		
5.5.1.0-2	The Tripod Pouch must comply with the Common Pouch Requirements specified in Section 5.8.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.5.1.0-3	The Tripod Pouch must be large enough to carry the Tripod in a collapsed state.	Mandatory Requirement	No	State compliance.		
5.5.2	<b>Tripod Pouch Compartmentalization Requirements</b>	Heading				
5.5.2.0-1	The Tripod Pouch must have separate compartments for the Tripod and for any adapters or other items that are necessary to mount the LRF HHTI-LR and SAFRAN Vector Binoculars on the Tripod.	Mandatory Requirement	No	State compliance.		
5.5.3	<b>Tripod Pouch Attachment Requirements</b>	Heading				
5.5.3.0-1	The Tripod Pouch must include an attachment method that allows the Tripod Pouch to be attached to a modular load carrying system that utilizes the Pouch Attachment Ladder System (PALS).	Mandatory Requirement	No	State compliance.		
5.5.3.0-2	The Tripod Pouch must include PALS webbing to allow the attachment of small pouches or small items of equipment carried by soldiers, and to allow it to be attached to other load carrying equipment.	Mandatory Requirement	No	State compliance.		
5.5.3.0-3	The Tripod Pouch must have a means of attachment to the Field Pouch such that the Tripod Pouch is held below the Field Pouch when carried.	Mandatory Requirement	No	State compliance.		
5.6	<b>Accessories Pouch</b>	Heading				
5.6.1	<b>Accessories Pouch General Requirements</b>	Heading				
5.6.1.0-1	The LRF HHTI-LR System must include an Accessories Pouch.	Mandatory Requirement	No	State compliance.		
5.6.1.0-2	The Accessories Pouch must comply with the Common Pouch Requirements specified in Section 5.8.	Mandatory Requirement	No	State compliance.		
5.6.1.0-3	The Accessories Pouch must carry all of the following LRF HHTI-LR System components: <ul style="list-style-type: none"><li>• Battery Charger and Battery Charger Cables</li><li>• DAGR Interface Cable</li><li>• DC Power Cable Assembly</li><li>• AC Power Cable Assembly</li><li>• ISS Interface Cable</li><li>• RTL Interface Cable</li><li>• Rechargeable Batteries for twenty-four hours of continuous operation of the LRF HHTI-LR</li></ul>	Mandatory Requirement	No	State compliance.		
5.6.2	<b>Accessories Pouch Compartmentalization Requirements</b>	Heading				
5.6.2.0-1	The Accessories Pouch must be compartmentalized to facilitate rapid access to components that may be required by the user.	Mandatory Requirement	No	State compliance.		
5.6.2.0-2	The Accessories Pouch Battery compartment(s) must protect batteries from damage or degradation of performance from water, blowing dirt and/or dust.	Mandatory Requirement	No	State compliance.		
5.6.3	<b>Accessories Pouch Carriage Requirements</b>	Heading				
5.6.3.0-1	The accessories pouch must have an adjustable shoulder strap or sling which allows for carrying over one shoulder.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.6.4	Accessories Pouch Attachment Requirements	Heading				
5.6.4-1	The Accessories Pouch must include an attachment method that allows the Tripod Pouch to be attached to a modular load carrying system that utilizes the Pouch Attachment Ladder System (PALS).	Mandatory Requirement	No	State compliance.		
5.6.4-2	The Accessories Pouch must include PALS webbing to allow the attachment of small pouches or small items of equipment carried by soldiers, and to allow it to be attached to other load carrying equipment.	Mandatory Requirement	No	State compliance.		
5.7	External Battery Pack Pouch	Heading				
5.7.0-1	The LRF HHTI-LR System must include an EBP Pouch.	Mandatory Requirement	No	State compliance.		
5.7.0-2	The EBB Pouch must comply with the Common Pouch Requirements specified in Section 5.8.	Mandatory Requirement	No	State compliance.		
5.7.0-3	The EPB Pouch must carry the EPB.	Mandatory Requirement	No	State compliance.		
5.7.0-4	The EPB Pouch must allow the use of the EPB as an external power source for the the LRF HHTI-LR while the EPB is in the EPB pouch.	Mandatory Requirement	No	State compliance.		
5.7.0-5	The EPB Pouch must carry Low Temperature Batteries for twenty-four hours of continuous operation of the LRF HHTI-LR at -32 degrees Celsius.	Mandatory Requirement	No	State compliance.		
5.7.0-6	The EBP Pouch must include a means of attaching the Pouch to the underside of the Tripod while the EBP within the pouch is powering the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.7.0-7	The EBP Pouch must include an attachment method that allows the Tripod Pouch to be attached to a modular load carrying system that utilizes the Pouch Attachment Ladder System (PALS).	Mandatory Requirement	No	State compliance.		
5.8	Pouches - Common Requirements	Heading				
5.8.1	Physical Requirements	Heading				
5.8.1.0-1	Pouches must protect the contents of the pouches from dirt, dust and sand.	Mandatory Requirement	No	State compliance.		
5.8.1.0-2	Pouches must be resistant to wear and tear associated with dismounted soldier operations.	Mandatory Requirement	No	State compliance.		
5.8.1.0-3	Pouches must incorporate drain holes with grommets.	Mandatory Requirement	No	State compliance.		
5.8.1.0-4	External pouch compartments must incorporate drain holes with grommets.	Mandatory Requirement	No	State compliance.		
5.8.2	Materials and Components	Heading				
5.8.2.1	Textiles	Heading				
5.8.2.1.0-1	The Pouch shell fabric must be textured, 500 Denier (500D) Class 3, high tenacity nylon in accordance with MIL-DTL-32439.	Mandatory Requirement	No	State compliance.		
5.8.2.1.0-2	The Pouch shell fabric must meet all spectral reflectance requirements specified in MIL-DTL 32439, para. 3.7 for Coyote 498.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.8.2.1.0-3	The Pouch shell fabric color must be Coyote 498, (FED-STD-595C #20150), or equivalent approved by the TA prior to production.	Mandatory Requirement	No	State compliance.		
5.8.2.2	Webbing	Heading				
5.8.2.2.0-1	In order to achieve commonality of components across various soldier system equipment, pouch webbing must be either 15 mm or 25mm in width.	Mandatory Requirement	No	State compliance.		
5.8.2.2.0-2	The webbing must be nylon, textile woven, conforming to MIL-W-17337F Class 2 or A-A-55301 (Mil-W-43668) Type III nylon webbing.	Mandatory Requirement	No	State compliance.		
5.8.2.2.0-3	The webbing color must be Coyote 498, (FED-STD-595C #20150) or a color that is a good visual match the overall color of the Pouch.	Mandatory Requirement	No	State compliance.		
5.8.2.3	Thread	Heading				
5.8.2.3.0-1	The thread must be 100% bonded nylon, lubricated, 3-ply, 720 Denier or 70 tex conforming to MIL-SPEC A-A-59826, Class A, Type II or equivalent.	Mandatory Requirement	No	State compliance.		
5.8.2.3.0-2	The thread color must be Coyote 498, (FED-STD-595C #20150) or a color that is a good visual match to the overall color of the Pouch.	Mandatory Requirement	No	State compliance.		
5.8.2.4	Buckles	Heading				
5.8.2.4.1	General	Heading				
5.8.2.4.1-1	The buckles must be easily operated, engaged and disengaged with one hand operation when wearing gloves equivalent in texture and thickness to the soldier's Cold Wet Weather Gloves with 0.9 mm thick leather.	Mandatory Requirement	No	State compliance.		
5.8.2.4.1-2	Pouch buckles must be equivalent in terms of form, fit and function (with the exception of colour) of buckles used in the construction of NSN 8465-20-000-2774 Small Pack, Load Carrying System, CADPAT (TW).	Mandatory Requirement	No	State compliance.		
5.8.2.4.1-3	Buckle colour must be Coyote 498, (FED-STD-595C #20150) or a color that is a good visual match the overall color of the Pouch.	Mandatory Requirement	No	State compliance.		
5.8.2.4.1-4	Buckles must be manufactured using DuPont™ Delrin® 500AL NC010 Acetal Resin or equivalent.	Mandatory Requirement	No	State compliance.		
5.8.2.4.2	Field Replaceable Buckles	Heading				
5.8.2.4.2.0-1	Where sewn-on female buckles are used, the Pouch must include a loose field-replaceable female buckle as a spare part.	Mandatory Requirement	No	State compliance.		
5.8.2.4.2.0-2	The field-replaceable female buckle must be compatible with the male buckle.	Mandatory Requirement	No	State compliance.		
5.8.2.4.2.0-3	The field-replaceable buckle must be readily installable by hand by the user when wearing gloves equivalent in texture and thickness to the soldier's Temperate Combat Gloves (0.9 mm leather), without modification to the buckle or to the item it is being installed on, and without the use of tools or other materials.	Mandatory Requirement	No	State compliance.		
5.8.2.5	Slide Fasteners	Heading				
5.8.2.5.0-1	The design of the slide fastener closures must provide for ease of access and resistance to water and environmental contaminants.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.8.2.5.0-2	The colour of the slide fasteners must be dull, non-reflective and match the overall colour of the Pouch.	Mandatory Requirement	No	State compliance.		
5.8.2.5.0-3	Zipper pulls, complete with cording, must be added to the sliders of the slide fasteners.	Mandatory Requirement	No	State compliance.		
5.8.2.5.0-4	The finished length of the zipper pull assembly, with cording and pull assembled and attached to slider, must be a minimum of 7 cm.	Mandatory Requirement	No	State compliance.		
5.8.2.6	Alternative Materials and Components	Heading				
5.8.2.6.0-1	Alternate materials and components may be used if approval is obtained from the Technical Authority.	Information				
5.8.3	Marking and Labelling	Heading				
5.8.3.1	Labels, Textile	Heading				
5.8.3.1.0-1	Labels must be in accordance with Specification D-80-001-055/SF-001 Specification for Label, Clothing and Equipment.	Mandatory Requirement	No	State compliance.		
5.8.3.1.0-2	Labels must be Type I and be made of polyester or nylon.	Mandatory Requirement	No	State compliance.		
5.8.3.1.0-3	All label instructions must be in both official languages of Canada.	Mandatory Requirement	No	State compliance.		
5.8.3.1.0-4	The marking and care information on the label must be legible and in indelible black ink.	Mandatory Requirement	No	State compliance.		
5.8.3.1.0-5	Labels must bear care instructions and labelling symbology in accordance with CAN/CGSB-86.1 Care Labelling of Textiles.	Mandatory Requirement	No	State compliance.		
5.8.3.1.0-6	Label alphanumeric formats must be in characters no less than 3.2 mm and not more than 6.4 mm.	Mandatory Requirement	No	State compliance.		
5.8.3.1.0-7	The font and layout must be such that the labels are clearly legible, comprehensible and logically organized.	Mandatory Requirement	No	State compliance.		
5.8.3.1.0-8	The colour of all fabric labels must be a good visual match to Coyote Brown.	Mandatory Requirement	No	State compliance.		
5.8.3.2	Identification Information	Heading				
5.8.3.2.0-1	Labels must include the following nomenclature in both official languages of Canada:	Mandatory Requirement	No	State compliance.		
5.8.3.2.0-1.0-1	a. Contract No. / Numéro du contrat;	Mandatory Requirement	No	State compliance.		
5.8.3.2.0-1.0-2	b. I/D (user identification) Line / Ligne pour l'identité du soldat;	Mandatory Requirement	No	State compliance.		
5.8.3.2.0-1.0-3	c. Nomenclature / Nomenclature;	Mandatory Requirement	No	State compliance.		
5.8.3.2.0-1.0-4	d. NSN / NNO;	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER																			
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7																		
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments																		
5.8.3.2.0-1.0-5	e. Month and Year of Manufacture / Date de fabrication, année, et mois; and	Mandatory Requirement	No	State compliance.																				
5.8.3.2.0-1.0-6	f. Care Instructions / Instructions d'entretien.	Mandatory Requirement	No	State compliance.																				
5.8.3.3	Care Instructions	Heading																						
5.8.3.3.0-1	Care instructions must be in both official languages of Canada as follows:	Mandatory Requirement	No	State compliance.																				
	<table><tr><td>English</td><td>French</td><td>Care Symbol</td></tr><tr><td>Wash gently by hand in water not exceeding 40 °C</td><td>Lavage à la main, à l'eau d'une température maximale de 40 °C</td><td></td></tr><tr><td>Do not bleach</td><td>Ne pas utiliser d'agents de blanchiment</td><td></td></tr><tr><td>Hang up the soaking wet article to "drip" dry</td><td>Suspendre l'article complètement mouillé pour séchage par égouttage</td><td></td></tr><tr><td>Do not iron or press</td><td>Ne pas repasser ni presser</td><td></td></tr><tr><td>Do not dry-clean</td><td>Ne pas nettoyer à sec</td><td></td></tr></table>						English	French	Care Symbol	Wash gently by hand in water not exceeding 40 °C	Lavage à la main, à l'eau d'une température maximale de 40 °C		Do not bleach	Ne pas utiliser d'agents de blanchiment		Hang up the soaking wet article to "drip" dry	Suspendre l'article complètement mouillé pour séchage par égouttage		Do not iron or press	Ne pas repasser ni presser		Do not dry-clean	Ne pas nettoyer à sec	
	English						French	Care Symbol																
	Wash gently by hand in water not exceeding 40 °C						Lavage à la main, à l'eau d'une température maximale de 40 °C																	
	Do not bleach						Ne pas utiliser d'agents de blanchiment																	
	Hang up the soaking wet article to "drip" dry						Suspendre l'article complètement mouillé pour séchage par égouttage																	
	Do not iron or press						Ne pas repasser ni presser																	
Do not dry-clean	Ne pas nettoyer à sec																							
5.8.3.4	Label Location and Application	Heading																						
5.8.3.4.0-1	Labels must be applied to the interior of the pouch.	Mandatory Requirement	No	State compliance.																				
5.8.3.4.0-2	The location of the label must be easily accessible to the user for viewing.	Mandatory Requirement	No	State compliance.																				
5.8.3.4.0-3	The label must be sewn around all edges.	Mandatory Requirement	No	State compliance.																				
5.8.3.5	Manufacturer Branding/labelling	Heading																						
5.8.3.5.0-1	Manufacturer/Supplier branding or product names must not be used on or attached to the Pouches.	Mandatory Requirement	No	State compliance.																				
5.8.4	Workmanship	Heading																						
5.8.4.0-1	Pouches must be free of manufacturing defects.	Mandatory Requirement	No	State compliance.																				
5.8.4.0-2	A defect will be interpreted as any irregularity that would diminish product performance or user acceptance beyond the levels established at any point during the bid evaluation or the Contract. Visible irregularities can be considered defects when clearly visible from a distance of one metre or more.	Information																						
5.9	Rechargeable Batteries	Heading																						

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.9.0-1	The LRF HHTI-LR System must include Rechargeable Batteries.	Mandatory Requirement	Yes	State compliance.		
5.9.0-2	The Rechargeable Batteries must be lithium-ion batteries.	Mandatory Requirement	Yes	State compliance.  Provide evidence that the requirement has been satisfied.		
5.9.0-3	The Rechargeable Batteries must be used internally within the LRF HHTI-LR.	Mandatory Requirement	Yes	State compliance.		
5.9.0-4	The Rechargeable Batteries must be compatible with the LRF HHTI-LR.	Mandatory Requirement	Yes	State compliance.		
5.9.0-5	The Rechargeable Batteries must be compatible with the LRF HHTI-LR System Battery Recharger.	Mandatory Requirement	No	State compliance.		
5.9.0-6	Requirements related to powering of the LRF HHTI-LR by Rechargeable Batteries are specified in Section 4.3.14.1.1 Rechargeable Battery Power Source.	Information				
5.10	Low Temperature Batteries	Heading				
5.10.0-1	The LRF HHTI-LR System should include Low Temperature Batteries.	Desirable Requirement	Not Applicable	State compliance.  IF compliant, provide evidence that the requirement has been satisfied.		
5.10.0-2	The requirements n this section belowcan be considered mandatory if if the LRF HHTI-LR System includes Low Temperature Batteries.	Information				
5.10.0-3	The Low Temperature Batteries must be used internally within the LRF HHTI-LP.	Desirable Requirement	Not Applicable	State compliance.		
5.10.0-4	The Low Temperature Batteries must be compatible with the LRF HHTI-LR.	Desirable Requirement	Not Applicable	State compliance.		
5.10.0-5	IF the Low Temperature Batteries are non-rechargeable, they must be lithium batteries.	Desirable Requirement	Not Applicable	State compliance.		
5.10.0-6	If the Low Temperature Batteries are non-rechargeable, they must have a shelf life of at least ten years.	Desirable Requirement	Not Applicable	State compliance.		
5.10.0-7	If the Low Temperature Batteries are rechargeable, then the Low Temperature Batteries must be lithium-ion batteries.	Desirable Requirement	Not Applicable	State compliance.		
5.10.0-8	If the Low Temperature Batteries are Rechargeable, they must be compatible with the LRF HHTI-LR System Battery Recharger.	Desirable Requirement	Not Applicable	State compliance.		
5.10.0-9	Requirements related to powering of the LRF HHTI-LR by Low Temperature Batteries are specified in Section 4.3.14.1.2 Low Temperature Battery Power Source.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.11	Battery Charger	Heading				
5.11.0-1	The Battery Chargers will be used within a sheltered area, not open to rain or snow.	Information				
5.11.0-2	If the Rechargeable Batteries are of a type that is already in-service in the Canadian Army, and a suitable Battery Charger is also already in-service, then the Battery Charger may be reclassified as GFE.	Information				
5.11.1	Battery Charger Requirements	Heading				
5.11.1.0-1	The LRF HHTI-LR System must include a Battery Charger.	Mandatory Requirement	No	State compliance.		
5.11.1.0-2	The Battery Charger must recharge one or more sets of Rechargeable Batteries simultaneously.	Mandatory Requirement	No	State compliance.		
5.11.1.0-3	The Battery Charger must be certified by an organization accredited by the Standards Council of Canada and bear either the CSA mark or a ULC mark.	Mandatory Requirement	No	State compliance.		
5.11.1.0-4	The Battery Charger must comply with the European Low Voltage Directive 2014/35/EU and bear the CE mark or equivalent.	Mandatory Requirement	No	State compliance.		
5.11.2	Battery Charger 110/120 VAC Power Source	Heading				
5.11.2.0-1	The Battery Charger must be powered by 110/120 VAC (60 hertz).	Mandatory Requirement	No	State compliance.		
5.11.2.0-2	The Battery Charger must include a power cable that connects the Battery Charger to a standard North American NEMA 5-15R receptacle.	Mandatory Requirement	No	State compliance.		
5.11.2.0-3	The Battery Charger must recharge one or more sets of Rechargeable Batteries in four hours or less when powered by 110/120 VAC (60 hertz).	Mandatory Requirement	No	State compliance.		
5.11.2.0-4	The 110 VAC power cable and any integral power converters must be certified by an organization accredited by the Standards Council of Canada and bear either the CSA mark or an ULC mark.	Mandatory Requirement	No	State compliance.		
5.11.3	Battery Charger 220/240 VAC Power Source	Heading				
5.11.3.0-1	The Battery Charger must be powered by 220/240 VAC (50 hertz).	Mandatory Requirement	No	State compliance.		
5.11.3.0-2	The Battery Charger must include a power cable that connects the Battery Charger to a European 220/240 VAC receptacle using a Europlug.	Mandatory Requirement	No	State compliance.		
5.11.3.0-3	The Battery Charger must recharge two or more sets of Rechargeable Batteries in four hours or less when powered by 220/240 VAC (50 hertz).	Mandatory Requirement	No	State compliance.		
5.11.3.0-4	The 220/240 VAC power cable and any integral power converters must comply with the European Low Voltage Directive 2014/35/EU and bear the CE mark or equivalent.	Mandatory Requirement	No	State compliance.		
5.11.4	Battery Charger DC Power Source	Heading				
5.11.4.0-1	The Battery Charger must be powered by a military vehicle 24 V DC power source.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.11.4.0-2	The Battery Charger must use the DC Power Cable Assembly to connect to a military vehicle 24 V DC power source.	Mandatory Requirement	No	State compliance.		
5.11.4.0-3	The Battery Charger must recharge two or more sets of Rechargeable Batteries in four hours or less when powered by a military vehicle 24 V DC power source.	Mandatory Requirement	No	State compliance.		
5.11.4.0-4	The Battery Charger must be powered by a commercial vehicle 12 V DC power source.	Mandatory Requirement	No	State compliance.		
5.11.4.0-5	The Battery Charger must use the DC Power Cable Assembly to connect to a commercial vehicle 12 V DC power source.	Mandatory Requirement	No	State compliance.		
5.11.4.0-6	The Battery Charger must recharge two or more sets of Rechargeable Batteries in four hours or less when powered by a commercial vehicle 12 V DC power source.	Mandatory Requirement	No	State compliance.		
5.11.4.0-7	Requirements related to the DC Power Cable Assembly are specified in Section 5.18 DC Power Cable Assembly.	Information				
5.11.5	Product Serialization	Heading				
5.11.5.0-1	The Battery Charger must be a serialized item.	Mandatory Requirement	No	State compliance.		
5.11.5.0-2	The Battery Charger serialization must satisfy the requirements specified in Section 6.5.2 Serialized Items.	Mandatory Requirement	No	State compliance.		
5.12	Tripod	Heading				
5.12.0-1	The primary purpose of the Tripod is to provide a stable platform for using the LRF HHTI-LR where the weight of the LRF HHTI-LR is not borne by the user. In order to minimize the equipment carried in the field, the Tripod may also be used to provide a stable platform for other equipment such as the SAFRAN Vector Binocular and other equipment that may be operated by users in a forward observer, reconnaissance or sniper role.	Information				
5.12.1	Tripod Physical Characteristics	Heading				
5.12.1.0-1	The LRF HHTI-LR System must include a Tripod.	Mandatory Requirement	Yes	State compliance.		
5.12.1.0-2	The Tripod must be adjustable in height such that the LRF HHTI-LR can be operated by a standing user with the tripod set-up on the same surface as the user.	Mandatory Requirement	Yes	State compliance.		
5.12.1.0-3	The Tripod must be adjustable in height such that the LRF HHTI-LR can be operated by a kneeling user with the tripod set-up on the same surface as the user.	Mandatory Requirement	Yes	State compliance.		
5.12.1.0-4	The Tripod must be adjustable in height such that the LRF HHTI-LR can be operated by a prone user with the tripod set-up on the same surface as the user.	Mandatory Requirement	Yes	State compliance.		
5.12.1.0-5	The Tripod must include a means of holding the EBP Pouch below the plate where the LRF HHTI-LR attaches to the Tripod.	Mandatory Requirement	Yes	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.12.1.0-6	The Tripod must be collapsible for the purposes of carrying the Tripod in the Tripod Pouch.	Mandatory Requirement	Yes	State compliance.		
5.12.1.0-7	The Tripod must support a mounted mass of at least 4.0 kilograms without damage to the Tripod.	Mandatory Requirement	Yes	State compliance.		
5.12.1.0-8	The Tripod must have a mass of no more than 2.5 kilograms.	Mandatory Requirement	Yes	State compliance.		
5.12.1.0-9	The Tripod must be non-magnetic.	Mandatory Requirement	Yes	State compliance.		
5.12.2	LRF HHTI-LR / Tripod Interface	Heading				
5.12.2.0-1	The Tripod must include a physical interface for mounting the LRF HHTI-LR on the Tripod.	Mandatory Requirement	Yes	State compliance.		
5.12.2.0-2	The Tripod must be compatible with the LRF HHTI-LR.	Mandatory Requirement	Yes	State compliance.		
5.12.2.0-3	The physical interface between the Tripod and the LRF HHTI-LR must have a quick connect and quick disconnect mechanism that does not require the use of tools to mount or remove the LRF HHTI-LR.	Mandatory Requirement	Yes	State compliance.		
5.12.3	Tripod / SAFRAN Vector Binoculars Interface	Heading				
5.12.3.0-1	The Tripod must include a physical interface for mounting a SAFRAN Vector Binoculars < specification TBD > on the Tripod.	Mandatory Requirement	No	State compliance.		
5.12.3.0-2	The Tripod must be compatible with the SAFRAN Vector Binoculars < specification TBD >.	Mandatory Requirement	No	State compliance.		
5.12.3.0-3	The physical interface between the Tripod and the SAFRAN Vector Binoculars must have a quick connect and quick disconnect mechanism that does not require the use of tools to mount or remove the Vector Binoculars.	Mandatory Requirement	No	State compliance.		
5.12.4	Tripod Capability Requirements when LRF HHTI-LR is Mounted	Heading				
5.12.4.0-1	The Tripod must be adjustable in azimuth such that the mounted LRF HHTI-LR can be traversed to any angle of azimuth without restriction.	Mandatory Requirement	Yes	State compliance.		
5.12.4.0-2	The Tripod must be adjustable in angle of sight such that the mounted LRF HHTI-LR can be elevated or depressed from the horizontal to any setting in a range of minus 400 mils or greater in depression to 400 mils or greater in elevation.	Mandatory Requirement	Yes	State compliance.		
5.12.5	Product Serialization	Heading				
5.12.5.0-1	The Tripod must be a serialized item.	Mandatory Requirement	No	State compliance.		
5.12.5.0-2	The Tripod serialization must satisfy the requirements specified in Section 6.5.2 Serialized Items.	Mandatory Requirement	No	State compliance.		
5.13	DAGR Interface Cable	Heading				
5.13.0-1	The LRF HHTI-LR System must include a DAGR Interface Cable to connect the LRF HHTI-LR to the DAGR.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.13.0-2	The DAGR Interface Cable must be compatible with the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.13.0-3	The DAGR Interface Cable must be compatible with the DAGR.	Mandatory Requirement	No	State compliance.		
5.13.0-4	The DAGR Interface Cable must support the interface functionality described in Section 4.4.2.2 LRF HHTI-LR / DAGR Interface Functional Requirements.	Mandatory Requirement	No	State compliance.		
5.13.0-5	The DAGR Interface Cable must be compatible with the ISS Hub.	Mandatory Requirement	No	State compliance..		
5.13.0-6	The DAGR Interface Cable must include an adaptor to connect the DAGR to a PAN port on the ISS Hub.	Mandatory Requirement	No	State compliance.		
5.13.0-7	The DAGR Interface Cable must meet the cabling requirements specified in Section 6.2 Common Cable Requirements.	Mandatory Requirement	No	State compliance.		
5.14	ISS Interface Cable	Heading				
5.14.0-1	The LRF HHTI-LR System must include an ISS Interface Cable to connect the LRF HHTI-LR to a Personal Area Network (PAN) port on the ISS Hub.	Mandatory Requirement	No	State compliance.		
5.14.0-2	The ISS Interface Cable must be compatible with the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.14.0-3	The ISS Interface Cable must be compatible with the ISS.	Mandatory Requirement	No	State compliance.		
5.14.0-4	The ISS Interface Cable must connect to a PAN port on the ISS Hub using a connector compliant with NWPAN-WP-01112013.	Mandatory Requirement	No	State compliance.		
5.14.0-5	The ISS Interface Cable must support the interface functionality described in Section 4.4.3.4 LRF HHTI-LR / ISS Interface Functional Requirements.	Mandatory Requirement	No	State compliance.		
5.14.0-6	The ISS Interface Cable must meet the cabling requirements specified in Section 6.2 Common Cable Requirements.	Mandatory Requirement	No	State compliance.		
5.15	LRF HHTI-LR / ISS BMS Interface ATAK Plugins (LIBI AP)	Heading				
5.15.1	General	Heading				
5.15.1.0-1	The LRF HHTI-LR System must include software that comprises a collection of LRF HHTI-LR / ISS BMS Interface ATAK Plugins (LIBI AP) that is installed on the ISS EUD and on the ISS Commanders Tablet.	Mandatory Requirement	No	State compliance.		
5.15.1.0-2	The LIBI AP must be compatible with ATAK Version 4.8.1.	Mandatory Requirement	No	State compliance.		
5.15.1.0-3	The LIBI AP must comply with the LRF HHTI-LR / ISS BMS ICD (to be developed).	Mandatory Requirement	No	State compliance.		
5.15.1.0-4	The LIBI AP is a developmental item that will be integrated into an ATAK environment. The AUF and Commander's Tablet hardware on which the LIBI AP will be installed will not be modified to support the achievement of LRF HHTI-LR / ISS interface requirements.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.15.2	Management Functions	Heading				
5.15.2.0-1	The LIBI AP must sense when an LRF HHTI-LR is connected to the ISS Hub.	Mandatory Requirement	No	State compliance.		
5.15.2.0-2	The LIBI AP must display the status of connection to an LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.15.3	User Geolocation Data	Heading				
5.15.3.0-1	The ISS BMS maintains user geolocation data sourced from either a connected DAGR or connected radio.	Information				
5.15.3.0-2	The LIBI AP must provide current user geolocation data to the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.15.3.0-3	The LIBI AP must provide user geolocation data sourced from a connected DAGR to the LRF HHTI-LR in preference to geolocation data sourced from a connected radio.	Mandatory Requirement	No	State compliance.		
5.15.4	LRF HHTI-LR Geo-orientation Data	Heading				
5.15.4.0-1	On receipt of Geo-orientation data from the LRF HHTI-LR, the LIBI AP must create or update a Sensor icon representing the LRF HHTI-LR based on the geo-orientation data.	Mandatory Requirement	No	State compliance.		
5.15.4.0-2	The LIBI AP must update following attributes of the Sensor icon representing the LRF HHTI-LR from data received from the LRF HHTI-LR: <ul style="list-style-type: none"><li>• Name</li><li>• Sensor Location</li><li>• Sensor Range Length</li><li>• Direction</li><li>• Field of View</li></ul>	Mandatory Requirement	No	State compliance.		
5.15.4.0-3	When the connection to the LRF HHTI-LR is lost, the LIBI AP must remove the Sensor icon representing the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.15.5	Lased Target Files	Heading				
5.15.5.0-1	On receipt of a lased target file from the LRF HHTI-LR, the LIBI AP must create or update a Lased Target icon based on the geo-location data in the lased target file.	Mandatory Requirement	No	State compliance.		
5.15.5.0-2	On receipt of an image file from the LRF HHTI-LR that is related to the lased target, the LIBI AP must attach the image file to the Lased Target icon.	Mandatory Requirement	No	State compliance.		
5.15.6	Image Files	Heading				
5.15.6.0-1	On receipt of an image file from the LRF HHTI-LR, the LIBI AP must save the image file on the ISS BMS.	Mandatory Requirement	No	State compliance.		
5.15.6.0-2	On receipt of an image file from the LRF HHTI-LR that is not related to a lased target, the LIBI AP must attach the image file to the Sensor icon associated with the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.15.6.0-3	The image files received from the LRF HHTI-LR and saved to the ISS BMS must be viewable using standard ATAK image viewing functionality.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.15.6.0-4	The image files received from the LRF HHTI-LR and saved to the ISS BMS must be editable using standard ATAK image editing functionality.	Mandatory Requirement	No	State compliance.		
5.15.6.0-5	The image files received from the LRF HHTI-LR and saved to the ISS BMS must be manageable using standard ATAK file management functionality.	Mandatory Requirement	No	State compliance.		
5.15.7	Video Files	Heading				
5.15.7.0-1	On receipt of a video file from the LRF HHTI-LR, the LIBI AP must save the video file on the ISS BMS.	Mandatory Requirement	No	State compliance.		
5.15.7.0-2	On receipt of a video file from the LRF HHTI-LR, the LIBI AP must attach the video file to the Sensor icon associated with the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.15.7.0-3	The video files received from the LRF HHTI-LR and saved to the ISS BMS must be viewable using standard ATAK video viewing functionality.	Mandatory Requirement	No	State compliance.		
5.15.7.0-4	The video files received from the LRF HHTI-LR and saved to the ISS BMS must be editable using standard ATAK video editing functionality.	Mandatory Requirement	No	State compliance.		
5.15.7.0-5	The video files received from the LRF HHTI-LR and saved to the ISS BMS must be manageable using standard ATAK file management functionality.	Mandatory Requirement	No	State compliance.		
5.15.8	Streaming Video	Heading				
5.15.8.0-1	The LIBI AP must initiate a new video stream from the LRF HHTI-LR in response to user input on the ISS BMS / LIBI AP.	Mandatory Requirement	No	State compliance.		
5.15.8.0-2	On initiation of streaming video from the LRF HHTI-LR, the LIBI AP must attach the streaming video to the Sensor icon associated with the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.15.8.0-3	Video streams coming from the LRF HHTI-LR into the ISS BMS must be viewable using standard ATAK streaming video functionality.	Mandatory Requirement	No	State compliance.		
5.15.8.0-4	Files related to video streams coming from the LRF HHTI-LR into the ISS BMS must be manageable using standard ATAK file management functionality.	Mandatory Requirement	No	State compliance.		
5.15.9	Remote Control	Heading				
5.15.9.0-1	The LIBI AP must replicate all human-machine interface functions of the LRF HHTI-LR such that the LRF HHTI-LR can be remotely controlled using the LIBI AP.	Mandatory Requirement	No	State compliance.		
5.15.9.0-2	The LIBI AP must provide remote control functionality while the video stream from the LRF HHTI-LR is being displayed on the ISS BMS / LBI AP.	Mandatory Requirement	No	State compliance.		
5.16	RTL Interface Cable	Heading				
5.16.0-1	The LRF HHTI-LR System must include an RTL Interface Cable to connect the LRF HHTI-LR to the RTL.	Mandatory Requirement	No	State compliance.		
5.16.0-2	The RTL Interface Cable must be compatible with the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.16.0-3	The RTL Interface Cable must be compatible with the RTL.	Mandatory Requirement	No	State compliance.		
5.16.0-4	The RTL Interface Cable must be at least two metres in length.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.16.0-5	The RTL Interface Cable must support the interface functionality described in Section 4.4.4.2 LRF HHTI-LR / RTL Interface Functional Requirements.	Mandatory Requirement	No	State compliance.		
5.16.0-6	The RTL Interface Cable must meet the cabling requirements specified Section 6.2 Common Cable Requirements.	Mandatory Requirement	No	State compliance.		
5.17	Ruggedized Flash Drive (RFD)	Heading				
5.17.1	RFD Description	Heading				
5.17.1.0-1	The RFD is an unencrypted ruggedized flash drive (also referred to as a "ruggedized USB Stick") used in the field by dismounted soldiers to transfer image, video and other data files between various devices in the operational unclassified domain. At this time, there is no standardized RFD in-service with the Canadian Army. In the context of operations using LRF HHTI-LR, it is intended that image and video files would be downloaded onto the RFD, and then delivered to a Command Post (CP). In the CP, the files would be downloaded to an RTL or other compatible device for further analysis.	Information				
5.17.1.0-2	Should the CA adopt a standard RFD, these requirements may evolve such that the RFD is no longer integral to the LRF HHTI-LR, but is simply an external system to which the LRF HHTI-LR must interface.	Information				
5.17.2	RFD Requirements	Heading				
5.17.2.0-1	The LRF HHTI-LR must include an RFD.	Mandatory Requirement	No	State compliance.		
5.17.2.0-2	The RFD must be compatible with the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.17.2.0-3	The RFD must be compatible with the Ruggedized Tactical Laptop (RTL).	Mandatory Requirement	No	State compliance..		
5.17.2.0-4	The RFD must be external to the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.17.2.0-5	The RFD must be a USB Version 3.0 or higher device.	Mandatory Requirement	No	State compliance.		
5.17.2.0-6	The RFD must have a USB Type C male connector.	Mandatory Requirement	No	State compliance.		
5.17.2.0-7	The RFD must have a storage capacity of 128 GB or more.	Mandatory Requirement	No	State compliance.		
5.17.2.0-8	The RFD must have a read speed of 150 MB/sec or faster.	Mandatory Requirement	No	State compliance.		
5.18	DC Power Cable Assembly	Heading				
5.18.0-1	It is intended that the DC Power Cable Assembly be used to power the LRF HHTI-LR and to power the Battery Charger, but not both at the same time.	Information				
5.18.0-2	The LRF HHTI-LR System must include a DC Power cable assembly.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.18.0-3	The DC Power Cable Assembly must include power converters and adapters necessary to power the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.18.0-4	The DC Power Cable Assembly must include power converters and adapters necessary to power the Battery Charger.	Mandatory Requirement	No	State compliance.		
5.18.0-5	The DC Power Cable Assembly must be compatible with the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.18.0-6	The DC Power Cable Assembly must be compatible with the Battery Charger.	Mandatory Requirement	No	State compliance.		
5.18.0-7	The DC Power Cable Assembly must be compatible with a military vehicle 24 V DC electrical system that is compliant with MIL-STD-1275E.	Mandatory Requirement	No	State compliance.		
5.18.0-8	The DC Power Cable Assembly must be compatible with a standard NATO slave receptacle on a vehicle that complies with MIL-PRF-62122E.	Mandatory Requirement	No	State compliance.		
5.18.0-9	The DC Power Cable Assembly must be compatible with a Size B power outlet in a commercial vehicle that complies with ANSI/SAE J563 Standard for 12 Volt Cigarette Lighters, Power Outlets, and Accessory Plugs.	Mandatory Requirement	No	State compliance.		
5.18.0-10	The DC Power Cable Assembly must be compatible with a CWB that implements connectors compliant with NWPAN-WP-01112013.	Mandatory Requirement	No	State compliance.		
5.18.0-11	The DC Power Cable Assembly must be at least four metres in length.	Mandatory Requirement	No	State compliance.		
5.18.0-12	If the DC Power Cable Assembly includes a power converter, then the length of the two associated cables (from LRF HHTI-LR to converter and from converter to plug for external power source) must be at least two metres in length each.	Mandatory Requirement	No	State compliance.		
5.18.0-13	The DC Power Cable Assembly must include a two-meter extension to enable the user to extend the total length of the DC Power Cable Assembly to over six metres.	Mandatory Requirement	No	State compliance.		
5.18.0-14	The DC Power Cable Assembly must satisfy the common cable requirements specified in Section 6.2 Common Cable Requirements.	Mandatory Requirement	No	State compliance.		
5.19	AC Power Cable Assembly	Heading				
5.19.0-1	It is intended that the AC Power Cable Assembly be used to power the LRF HHTI-LR and to power the Battery Charger, but not both at the same time.	Information				
5.19.0-2	The LRF HHTI-LR System must include an AC Power Cable Assembly.	Mandatory Requirement	No	State compliance.		
5.19.0-3	The AC Power Cable Assembly must include power converters and adapters necessary to power the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		
5.19.0-4	The AC Power Cable Assembly must include power converters and adapters necessary to power the Battery Charger.	Mandatory Requirement	No	State compliance.		
5.19.0-5	The AC Power Cable Assembly must be compatible with the LRF HHTI-LR.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.19.0-6	The AC Power Cable Assembly must be compatible with the Battery Charger.	Mandatory Requirement	No	State compliance.		
5.19.0-7	The AC Power Cable Assembly must be compatible with a European 220/240 VAC 50 hertz power source.	Mandatory Requirement	No	State compliance.		
5.19.0-8	The AC Power Cable Assembly must be compatible with a North American 110/120 VAC 60 hertz power source.	Mandatory Requirement	No	State compliance.		
5.19.0-9	The AC Power Cable Assembly must connect the LRF HHTI-LR to a standard North American 110/120 VAC NEMA 5-15R receptacle.	Mandatory Requirement	No	State compliance.		
5.19.0-10	The AC Power Cable Assembly must connect the LRF HHTI-LR to a standard European 220/240 VAC power receptacle using a Europlug.	Mandatory Requirement	No	State compliance.		
5.19.0-11	The AC Power Cable Assembly must be at least four metres in length.	Mandatory Requirement	No	State compliance.		
5.19.0-12	If the AC Power Cable Assembly includes a power converter, then the length of the two associated cables (from LRF HHTI-LR to converter and from converter to AC power receptacle) must be at least two metres in length each.	Mandatory Requirement	No	State compliance.		
5.19.0-13	The AC Power Cable Assembly must satisfy the common cable requirements specified in Section 6.2 Common Cable Requirements.	Mandatory Requirement	No	State compliance.		
5.19.0-14	Requirements related to powering of the LRF HHTI-LR by an AC power source are specified in Section 4.3.14.2.3 AC Power Source.	Information				
5.20	External Battery Pack	Heading				
5.20.0-1	The LRF HHTI-LR System must include an External Battery Pack (EBP)	Mandatory Requirement	No	State compliance.		
5.20.0-2	The EBP will be carried in the EPB Pouch. See Section 5.7 for related requirements.	Information	No			
5.20.0-3	The EBP must accept commercial AA batteries.	Mandatory Requirement	No	State compliance.		
5.20.0-4	Using the EBP with Energizer Recharge® rechargeable AA batteries, the LRF HHTI-LR must continuously operate for a minimum of six hours in the Operational Mode at 20 degrees Celsius using power only from the EBP, with no battery change, and with no recharging of the batteries, while being operated in accordance with the LRF HHTI-LR Mission Profile - Battery Life.	Mandatory Requirement	No	State compliance.		
5.20.0-5	Using the EBP with Energizer® Ultimate Lithium non-rechargeable AA batteries, the LRF HHTI-LR must continuously operate for a minimum of four hours in the Operational Mode at minus 32 degrees Celsius using power only from the EBP, with no battery change, while being operated in accordance with the LRF HHTI-LR Mission Profile - Battery Life.	Mandatory Requirement	No	State compliance.		
5.20.0-6	The EBP must permit the user to change batteries under field conditions without the use of special tools.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
5.20.0-7	The EBP must indicate the state of charge of the batteries contained within in response to user action.	Mandatory Requirement	No	State compliance.		
5.20.0-8	The EBP must connect to the LRF HHTI-LR using the DC Power Cable Assembly (see Section 5.18).	Mandatory Requirement	No	State compliance.		
5.20.0-9	The connection between the EBP and DC Power Cable Assembly must be physically secure such when carried in a pouch or pocket, the EBP will not inadvertantly disconnect from the DC Power Cable Assembly.	Mandatory Requirement	No	State compliance.		
5.20.0-10	The EBP should be black with a dull finish.	Desirable Requirement	Not Applicable	State compliance.		
5.20.0-11	The EPB must be certified by an organization accredited by the Standards Council of Canada and bear either the CSA mark or a ULC mark.	Mandatory Requirement	No	State compliance.		
5.20.0-12	The EPB must comply with the European Low Voltage Directive 2014/35/EU and bear the CE mark or equivalent.	Mandatory Requirement	No	State compliance.		
5.21	Lens Cleaning Kit	Heading				
5.21.0-1	The CAF has a standardized lens cleaning kit in-service, NSN 1240-20-004-3852. The LRF HHTI-LR System Lens Cleaning Kit may be specific to the LRF HHTI-LR, or it may be determined that this component is GFE.	Information				
5.21.0-2	The LRF HHTI-LR System must include a Lens Cleaning Kit.	Mandatory Requirement	Yes	State compliance.		
5.21.0-3	The Lens Cleaning Kit must include cleaning tools and consumables that are required to clean, de-fog and de-ice the exterior optical surfaces of the LRF HHTI-LR.	Mandatory Requirement	Yes	State compliance.		
5.22	Operator Manual	Heading				
5.22.0-1	The LRF HHTI-LR System must have an Operator Manual.	Mandatory Requirement	Yes	State compliance.		
5.22.0-2	Requirement for the Operator Manual are specified in the LRF HHTI-LR Data Item Descriptions document DID LS-11 Operator Manual.	Information				
5.23	Quick Reference Guide	Heading				
5.23.0-1	The LRF HHTI-LR System must have a Quick Reference Guide.	Mandatory Requirement	Yes	State compliance.		
5.23.0-2	Requirements for the Quick Reference Guide are specified are specified in the LRF HHTI-LR Data Item Descriptions document DID LS-12 Quick Reference Guide.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6	LRF HHTI-LR System - Common System Requirements	Heading				
6.1	Required States and Modes	Heading				
6.1.1	Transport and Storage Mode	Heading				
6.1.1.0-1	In the Transport and Storage Mode, all components of the LRF HHTI-LR System are stored within the Field Kit Storage and Transport Case and the Support Kit Storage and Transport Case. In the Transport and Storage mode, batteries are removed from the LRF HHTI-LR. Depending on the operational situation, batteries may be stored within the two storage and transport cases, or may be stored elsewhere. The storage configuration of LRF HHTI-LR System components within the storage and transport cases is described in: <ul style="list-style-type: none"><li>• Section 5.1 Field Kit Storage and Transport Case</li><li>• Section 5.2 Support Kit Storage and Transport Case</li></ul>	Information				
6.1.1.0-2	The LRF HHTI-LR System must have a Transport and Storage Mode.	Mandatory Requirement	Yes	State compliance.		
6.1.2	Field Carriage Mode	Heading				
6.1.2.0-1	In the Field Carriage Mode, all components of the LRF HHTI-LR System (with the exception of the two storage and transport cases) are distributed between the Field Pouch, Tripod Pouch, and Accessories Pouch. In the Field Carriage Mode, Internal Batteries are loaded in the LRF HHTI-LR, and the LRF HHTI-LR is not turned on. The configuration and distribution of LRF HHTI-LR System components between the four pouches is described in: <ul style="list-style-type: none"><li>• Section 5.4 Field Pouch</li><li>• Section 5.5 Tripod Pouch</li><li>• Section 5.6 Accessories Pouch</li><li>• Section 5.7 External Battery Pack Pouch</li></ul>	Information				
6.1.2.0-2	The LRF HHTI-LR System must have a Field Carriage Mode.	Mandatory Requirement	No	State compliance.		
6.1.2.0-3	The LRF HHTI-LR System, when carried in the Field Carriage Mode, must be acceptable to soldiers in operational clothing equipped with the Modular Load Carrying System.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.2	Common Cable Requirements	Heading				
6.2.1	Functional Requirements	Heading				
6.2.1.0-1	LRF HHTI-LR System cables must comply with recognized military standards applicable to the use of the cable and the environment in which it is used.	Mandatory Requirement	No	State compliance.  Identify the Military Standards chosen for each cable. Provide evidence for the each standard's applicability based on use and environmental conditions.		
6.2.2	Cable Marking	Heading				
6.2.2.1	Functional Cable Marker Tags	Heading				
6.2.2.1.0-1	LRF HHTI-LR System cables must have Functional Cable Marker Tags.	Mandatory Requirement	No	State compliance.		
6.2.2.1.0-2	Functional Cable Marker Tags must be located at each end of the cable.	Mandatory Requirement	No	State compliance.		
6.2.2.1.0-3	Functional Cable Marker Tags must identify the cable based on function, for example "LRF HHTI-LR / ISS Interface Cable".	Mandatory Requirement	No	State compliance.		
6.2.2.2	Catalogue Cable Marker Tags	Heading				
6.2.2.2.0-1	LRF HHTI-LR System cables must have Catalogue Cable Marker Tags.	Mandatory Requirement	No	State compliance.		
6.2.2.2.0-2	Catalogue Cable Marker Tags must be located at each end of the cable.	Mandatory Requirement	No	State compliance.		
6.2.2.2.0-3	If the cable is over five metres in length, Catalogue Cable Marker Tags must be located at three metre intervals along the cable.	Mandatory Requirement	No	State compliance.		
6.2.2.2.0-4	Catalogue Cable Marker Tags must include the following information as indicated on the Cable Assembly Drawing associated with the cable: a. NATO Stock Number. b. Cable number followed by length in millimetres. c. Part Number. d. Manufacturer's NSCM Code or CAGE Code	Mandatory Requirement	No	State compliance.		
6.2.2.3	Cable Marker Tags - Common Requirements	Heading				
6.2.2.3-1	Cable marker tags must have a white solid background plastic identification marker tube or sleeve printed in dark contrasting ink using a character height not smaller than 2 millimetres.	Mandatory Requirement	No	State compliance.		
6.2.2.3-2	Cable marker tags must be covered and protected by clear heat shrink tubing.	Mandatory Requirement	No	State compliance.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3	System Environment Requirements	Heading				
6.3.1	General	Heading				
6.3.1.0-1	The LRF HHTI-LR System must meet all performance requirements in this SRS without incurring physical damage and without degradation of performance of the LRF HHTI-LR System and its sub-systems (including any supplied interface cables/connections to Government Supplied Material (GSM) and Government Furnished Equipment (GFE)) during and after exposure to any combination of the meteorological and induced climatic conditions that can be found within the geographic climatic regions identified in this SRS and described in NATO STANAG 4370, AECTP 200, AECTP 230, Leaflet 2311/1 and Leaflet 2311/2.	Mandatory Requirement	No	State compliance at the LRF HHTI-LR system level.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.2	Climatic / Natural Environments	Heading				
6.3.2.1	Operation - High Temperature	Heading				
6.3.2.1.0-1	The LRF HHTI-LR System must operate without physical damage and without degradation of performance in all high temperature environments associated with the A3, A2 and A1 (+49°C max) climatic regions as described in NATO STANAG 4370, AECTP 200, AECTP 230, Leaflet 2311/1 and Leaflet 2311/2./1	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	<p>State compliance at the LRF HHTI-LR system level.</p> <p>Provide evidence that the requirement has been satisfied for the LRF HHTI-LR.</p> <p>Provide a test report demonstrating that the proposed LRF HHTI-LR was tested in accordance with MIL-STD-810H, Method 501.7 “High Temperature”, Procedure II “Operation”, using a “constant temperature exposure” at +49oC (+/- 2oC), or a “cycling temperature exposure” following the A1 “Hot Dry” ambient profile, or an Equivalent Test Method.</p> <p>The test report must describe the “operational checkout” of the LRF HHTI-LR that was completed during the test and must demonstrate that the proposed LRF HHTI-LR completed all testing without physical damage or degradation of performance.</p>		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.2.2	Storage - High Temperature	Heading				
6.3.2.2.0-1	The LRF HHTI-LR System must be transported and stored without physical damage and without degradation of performance in all high temperature environments associated with the A3, A2, and A1 (+71°C max) climatic regions as described in NATO STANAG 4370, AECTP 200, AECTP 230, Leaflet 2311/1 and Leaflet 2311/2.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  Provide evidence that the requirement has been satisfied for the LRF HHTI-LR.  Provide documentation that specifies the high temperature storage (non-operating) rating of the proposed LRF HHTI-LR. The documentation may include specification sheets, test reports, manuals, etc...  AECTP 300, Method 302, Procedure II, conducted at A1 “Extreme Hot-Dry” category Meteorological Air Conditions, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		
6.3.2.3	Operation - Low Temperature	Heading				
6.3.2.3.0-1	The LRF HHTI-LR System must operate without physical damage and without degradation of performance in all low temperature environments associated with the C0 and C1 (-32°C min) climatic regions as described in NATO STANAG 4370, AECTP 200, AECTP 230, Leaflet 2311/1 and Leaflet 2311/2.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level. Provide the LRF HHTI-LR to Canada for testing according to the Capability Performance Evaluation – Lab Testing (Gate 2A) - Test Plan and Procedures.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.2.3.0-2	The LRF HHTI-LR System should operate without physical damage and without degradation of performance in all low temperature environments associated with the C0, C1, C2 and C3 (-51°C min) climatic regions as described in NATO STANAG 4370, AECTP 200, AECTP 230, Leaflet 2311/1 and Leaflet 2311/2.	Desirable Requirement	Not Applicable	State compliance at the LRF HHTI-LR system level.  It is desirable, but not mandatory, that the bidder provides the following information:  Identify the lowest temperature at which this requirement can be met for the LRF HHTI-LR only.  Identify the lowest temperature at which this requirement can be met for the LRF HHTI-LR at the system level, excluding the Battery Charger.  Provide evidence that supports the lowest temperature claims.  AECTP 300, Method 303, Procedure II & III, or an Equivalent Test Method is a sufficient means to support lowest temperature claims.		
6.3.2.4	Storage - Low Temperature	Heading				
6.3.2.4.0-1	The LRF HHTI-LR System must be transported and stored without physical damage and without degradation of performance in all low temperature environments associated with the C0 and C1 (-32°C min) climatic regions as described in NATO STANAG 4370, AECTP 200, AECTP 230, Leaflet 2311/1 and Leaflet 2311/2.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  Provide documentation that specifies the low temperature storage (non-operating) rating of the proposed LRF HHTI-LR. The documentation may include specification sheets, test reports, manuals, etc...		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.2.4.0-2	The LRF HHTI-LR System should be transported and stored without physical damage and without degradation of performance in all low temperature environments associated with the C0, C1, C2 and C3 (-51°C min) climatic regions as described in NATO STANAG 4370, AECTP 200, AECTP 230, Leaflet 2311/1 and Leaflet 2311/2.	Desirable Requirement	Not Applicable	State compliance at the LRF HHTI-LR system level.  Identify the lowest temperature at which this requirement can be met for the LRF HHTI-LR at the system level.  Provide documentation that specifies the low temperature storage (non-operating) rating of the proposed LRF HHTI-LR. The documentation may include specification sheets, test reports, manuals, etc...		
6.3.2.5	Temperature Shock	Heading				
6.3.2.5.0-1	The LRF HHTI-LR System must operate without physical damage and without degradation of performance under conditions of rapid changes in ambient air temperature as encountered during movements between in-door controlled temperature environments to out-door environments that are at either high temperature (+49°C) and low temperature (-32°C) extremes.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  MIL-STD-810H, Method 503.7, Procedure I-C or I-D, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		
6.3.2.5.0-2	The LRF HHTI-LR System must not require any physical modifications or preparations in advance of encountering a temperature shock and must be fully operable during and following the temperature shock.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  MIL-STD-810H, Method 503.7, Procedure I-C or I-D, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.2.6	Solar Radiation (Sunshine)	Heading				
6.3.2.6.0-1	The LRF HHTI-LR System must be stored, transported and operate without physical damage and without degradation of performance in all solar radiation conditions associated with the A3, A2, and A1 climatic regions as described in NATO STANAG 4370, AECTP 200, AECTP 230, Leaflet 2311/1 and Leaflet 2311/2.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  AECTP 300, Method 305, Procedure I, conducted at A1 "Extreme Hot-Dry" category meteorological air and solar radiation conditions, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		
6.3.2.7	Rain	Heading				
6.3.2.7.0-1	The LRF HHTI-LR System must be stored, transported and operate without physical damage and without degradation of performance in conditions of blowing Steady-State (1.7 mm/min) rain up Extreme (14 mm/min) rain conditions as described in NATO STANAG 4370, AECTP 300, Method 310.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  AECTP 300, Method 310, Procedure I or II, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		
6.3.2.8	Icing / Freezing Rain	Heading				
6.3.2.8.0-1	The LRF HHTI-LR System must be stored, transported and operate without physical damage and without degradation of performance following removal of ice accretion on the product's surfaces from freezing rain and other cold water spray conditions, up to a Light (6 mm) loading as described in NATO STANAG 4370, AECTP 300, Method 311.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  AECTP 300, Method 311, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		
6.3.2.8.0-2	The LRF HHTI-LR System must allow the removal of ice from the LRF HHTI-LR System surfaces using hands or hand-held mechanical tools, such as ice-scrappers, without causing physical damage to the system.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  AECTP 300, Method 311, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.2.9	Frost and Condensation	Heading				
6.3.2.9.0-1	The LRF HHTI-LR System must not be physically damaged and must not be degraded in performance following conditions of frost and condensation formation on the product's surfaces in any stored, transported or operating configuration.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  AECTP 300, Method 315, Procedure II, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		
6.3.2.10	Humidity	Heading				
6.3.2.10.0-1	The LRF HHTI-LR System must operate without physical damage and without degradation of performance in all high humidity environments associated with the B1, B2 and B3 climatic regions as described in STANAG 4370, AECTP 200, AECTP 230, Leaflet 2311/1 and Leaflet 2311/2.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  MIL-STD-810H, Method 507.6, Procedure II, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.2.11	Blowing Sand and Dust	Heading				
6.3.2.11.0-1	The LRF HHTI-LR System must be stored, transported and operate without physical damage and without degradation of performance in environments with airborne fine dust particulates, as described in STANAG 4370, AECTP 300, Ed. 3, Method 313, Procedure I.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  Provide evidence that the requirement has been satisfied for the LRF HHTI-LR.  Provide a test report demonstrating that the proposed LRF HHTI-LR, in an operational configuration, was tested in accordance with MIL-STD-810H, Method 510.7 "Sand and Dust", Procedure I "Blowing Dust", or in accordance with IEC60529 IP6X test conditions, or an Equivalent Test Method. The test report must describe the configuration of the LRF HHTI-LR during the test and must demonstrate that the proposed HHTI-LR completed all testing without physical damage or degradation of performance.		
6.3.2.11.0-2	The LRF HHTI-LR System must be stored, transported and operate following exposure to blowing sand (with lens protection in place) without physical damage and without degradation of performance in environments with blowing, large particle sand, as described in STANAG 4370, AECTP 300, Ed. 3, Method 313, Procedure II.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  AECTP 300, Method 313, Procedure II, Blowing Sand, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.2.12	Salt Fog	Heading				
6.3.2.12.0-1	The LRF HHTI-LR System must operate without physical damage and without degradation of performance in salt laden atmospheric environments as described in MIL-STD-810H, Method 509.7.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  MIL-STD-810H, Method 509.7, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		
6.3.2.13	Fungus	Heading				
6.3.2.13.0-1	The LRF HHTI-LR System must not contain materials that are susceptible to fungus growth.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  MIL-STD-810H, Method 509.7, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		
6.3.3	Induced Environments	Heading				
6.3.3.1	Shock	Heading				
6.3.3.1.0-1	The LRF HHTI-LR System must operate without physical damage and without degradation of performance following shocks associated with dismounted soldier operations that occur while the system is in the Field Carriage mode.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.3.1.0-2	The LRF HHTI-LR System must operate without physical damage and without degradation of performance following a transit drop while the system is in the Field Carriage mode.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	<p>State compliance at the LRF HHTI-LR system level.</p> <p>Provide evidence that the requirement has been satisfied for the LRF HHTI-LR.</p> <p>Provide a test report demonstrating that the proposed LRF HHTI-LR was tested in accordance with MIL STD 810H Method 516.8 Procedure IV – Transit Drop or Equivalent Test Method to demonstrate compliance to this requirement. Test in the field carriage mode, with a drop of at least 1.2 metres. The test report must describe the configuration of the LRF HHTI-LR during the test and must demonstrate that the proposed LRF HHTI-LR completed all testing without physical damage or degradation of performance.</p>		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.3.2	Transport Vibration	Heading				
6.3.3.2.0-1	The LRF HHTI-LR System must operate without physical damage and without degradation of performance following exposure to the vibrations associated with transport in Ground Vehicles when configured in the field carriage mode.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	<p>State compliance at the LRF HHTI-LR system level.</p> <p>Provide evidence that the requirement has been satisfied for the LRF HHTI-LR.</p> <p>Provide a test report demonstrating that the proposed LRF HHTI-LR was tested in accordance with MIL STD 810H Method 514.8 Category 5 – Loose Cargo or Equivalent Test Method to demonstrate compliance to this requirement. Test in stowed configuration in the field carriage mode simulating 240 km of ground travel. The test report must describe the configuration of the LRF HHTI-LR during the test and must demonstrate that the proposed LRF HHTI-LR completed all testing without physical damage or degradation of performance.</p>		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.3.2.0-2	The LRF HHTI-LR System must operate without physical damage and without degradation of performance following exposure to the vibrations associated with transport in Ground Vehicles when configured in the storage and transport mode.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	<p>State compliance at the LRF HHTI-LR system level.</p> <p>Provide evidence that the requirement has been satisfied for the LRF HHTI-LR.</p> <p>Provide a test report demonstrating that the proposed LRF HHTI-LR was tested in accordance with MIL STD 810H Method 514.8 Category 5 – Loose Cargo or Equivalent Test Method to demonstrate compliance to this requirement. Test in stowed configuration in the Transport and Storage Mode simulating 240 km of ground travel. The Bidder supplied test report must describe the configuration of the LRF HHTI-LR during the test and must demonstrate that the proposed HHTI-LR completed all testing without physical damage or degradation of performance.</p>		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.3.3	Immersion	Heading				
6.3.3.3.0-1	The LRF HHTI-LR System must operate without physical damage and without degradation of performance following immersion under water in any stored, transported or operating configuration to a depth of not less than 1 meter below the water surface for a duration of not less than 30 minutes.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level, excluding the battery charger.  Provide evidence that the requirement has been satisfied for the LRF HHTI-LR.  Provide a test report demonstrating that the proposed LRF HHTI-LR was tested, in an operational configuration, in accordance with MIL-STD-810H, Method 512.6 "Immersion", Procedure I "Immersion", or in accordance with IEC60529 IPX7 test conditions, or an Equivalent Test Method. The test report must describe the configuration of the LRF HHTI-LR during the test and must demonstrate that the proposed LRF HHTI-LR completed all testing without physical damage or degradation of performance.		
6.3.3.3.0-2	The LRF HHTI-LR System must not require any physical preparations or modifications in advance of being immersed and must be fully operable immediately following the immersion without any preparations or drying.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  AECTP 300, Method 307, Procedure I, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement. An IPX7 or IPX8 rating is also a sufficient means to demonstrate compliance to this requirement.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.3.4	Low Pressure (Altitude)	Heading				
6.3.3.4.0-1	The LRF HHTI-LR System must be stored, transported and operated without physical damage and without degradation of performance in all low ambient air pressure environments from sea level to 4,572 m (15,000 ft) pressure-altitude above sea-level.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  AECTP 300, Method 301, Procedure II, Operation/Air Carriage, or an Equivalent Test Method, is a sufficient means to demonstrate compliance to this requirement.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.3.5	Contamination by Fluids	Heading				
6.3.3.5.0-1	The LRF HHTI-LR System must operate without damage and without degradation of performance following occasional exposure to small amounts of the following contaminating fluids: • Weapon cleaning solvents; • Body fluids; • Sea water; • Road salt mixtures; • Reactive Skin Decontaminant Lotion (RSDL); and • Petroleum, Oil and Lubricant (POL) products.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  MIL-STD-810H, Method 504.3, or an Equivalent Test Method, are a sufficient means to demonstrate compliance to this requirement. Test with the following contaminating fluids listed and defined in Table 504.3-I General Test Fluids of Method 504.3: 1. Cleaning compound, solvent (Rifle bore cleaner) 2. Degreasing solvent 3. Engine oil 4. Lubricant, semi-fluid, automatic weapons 5. Lubricating oil, general purpose 7. Gasoline, commercial or combat 8. Aviation Turbine fuels, kerosene type 9. Diesel fuel 10. Insect repellent, personal application 11. Dextron III 12. Antifreeze, multi-engine type 14. Simulated sea water or 5% NaCl 16. Lubricating oil, weapons, low temperature 19. Hydraulic fluid, petroleum based Test with the following contaminating liquids: • Camouflage cream • Reactive Skin Decontaminant Lotion (RSDL)		
6.3.4	Electromagnetic Environmental Effects (E3)	Heading				
6.3.4.1	Electric Field, Radiated Emissions	Heading				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.4.1.0-1	The LRF HHTI-LR System must control radiated fields necessary to operate with the other collocated systems when operated in ground applications in an Army environment.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  Provide evidence that the requirement has been satisfied for the LRF HHTI-LR.  Provide a test report demonstrating that the proposed LRF HHTI-LR was tested, in an operational configuration, in accordance with MIL-STD-461G, Test RE102, using parameters from Figure RE102-4, or an Equivalent Test Method. The test report must detail test setup, execution and results for protocol RE102 of MIL-STD-461G against limit lines for Ground, Army environments.		
6.3.4.1.0-2	The LRF HHTI-LR System must control radiated fields necessary to operate with the other collocated systems when operated above deck on a surface ship.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  Provide evidence that the requirement has been satisfied for the LRF HHTI-LR. Provide a test report demonstrating that the proposed LRF HHTI-LR was tested, in an operational configuration, in accordance with MIL-STD-461G, Test RE102, using parameters from Figure RE102-4, or an Equivalent Test Method. The test report must detail test setup, execution and results for protocol RE102 of MIL-STD-461G against limit lines for Surface Ship, Above Deck environments.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.3.4.2	<b>Electric Field, Radiated Susceptibility</b>	Heading				
6.3.4.2.0-1	The LRF HHTI-LR System must operate without physical damage and without degradation of performance when subjected to radiated electric fields, when operated in ground applications in an Army environment.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  Provide evidence that the requirement has been satisfied for the LRF HHTI-LR.  Provide a test report demonstrating that the proposed LRF HHTI-LR was tested, in an operational configuration, in accordance with MIL-STD-461G, Test RS103, using parameters associated with a Ground Platform from Table XI - RS103 Limits, or an Equivalent Test Method. The test report must detail test setup, execution and results for protocol RS103 of MIL-STD-461G against limits for Ground Platforms.		
6.3.4.3	<b>Electrostatic Discharge</b>	Heading				
6.3.4.3.0-1	The LRF HHTI-LR System must operate without physical damage and without degradation of performance when subjected to personnel-borne electrostatic discharge.	Mandatory Requirement	Yes - LRF HHTI-LR only, excluding other system components	State compliance at the LRF HHTI-LR system level.  Provide evidence that the requirement has been satisfied for the LRF HHTI-LR.  Provide a test report demonstrating that the proposed LRF HHTI-LR was tested, in an operational configuration, in accordance with MIL-STD-461G, Test CS118. The test report must detail test setup, execution and results for protocol CS118 of MIL-STD-461G.		

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
6.4	Design and Construction Constraints	Heading				
6.4.1	Assembly for Operation	Heading				
6.4.1.0-1	Starting from the Field Carriage Mode, the LRF HHTI-LR System must be assembled ready for operational use on the Tripod by a trained user in darkness in less than five minutes.	Mandatory Requirement	Yes	State compliance.		
6.5	Product Marking, Serialization and Nameplates	Heading				
6.5.1	Product Marking and Nameplates	Heading				
6.5.1.0-1	All LRF HHTI-LR System components must have nameplates or product markings in accordance with D-02-002-001/SG-001 Identification Marking of Canadian Military Property.	Mandatory Requirement	No	State compliance.		
6.5.2	Serialized Items	Heading				
6.5.2.1	Product Marking, Serialization and Nameplates	Heading				
6.5.2.1.0-1	LRF HHTI-LRS serialized items must be assigned a Unique Item Identifier (UII) in accordance with NATO Standard AAITP-08.	Mandatory Requirement	No	State compliance.		
6.5.2.1.0-2	LRF HHTI-LRS serialized items nameplate or product marking must include the UII in human-readable form.	Mandatory Requirement	No	State compliance.		
6.5.2.1.0-3	LRF HHTI-LRS serialized items nameplate or product marking must include the UII Mark in machine readable data carrier form in accordance with NATO Standard AAITP-08.	Mandatory Requirement	No	State compliance.		
7	SRS Views	Heading				
7.1	General	Heading				
7.1.0-1	This SRS is maintained using the IBM Rational DOORS application. The LRF HHTI-LR SRS module can be found in the DND DOORS Production instance at 002 - ADM MAT / DGLEPM / DSSPM / NVSM / PM / Projects / HHTI-LR.	Information				
7.1.0-2	In support of the LRF HHTI-LR Acquisition and In-Service Support contracts, the contents of the SRS module are exported in two views: <ul style="list-style-type: none"><li>• Requirements Verification Matrix View</li><li>• Requirements Text View</li></ul>	Information				
7.2	Requirements Verification Matrix View	Heading				
7.2.1	Purpose	Heading				
7.2.1.0-1	The RVM view is the contractual view of the SRS. It specifies the requirements for the LRF HHTI-LR System. For each requirement, it specified how satisfaction of the requirement will be verified.	Information				
7.2.1.0-2	The RVM view defines the Functional Baseline for the LRF HHTI-LR System in the context of configuration management.	Information				
7.2.1.0-3	The RVM view is presented in a tabular format, and is published as a Microsoft Excel spreadsheet.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
7.2.2	Attributes	Heading				
7.2.2.1	Object Text	Heading				
7.2.2.1.0-1	The Object Text contains the primary content for the object. All other attributes are determined in context of the Object Text.	Information				
7.2.2.2	Object Number	Heading				
7.2.2.2.0-1	The Object Number attribute is the legal-style hierarchical identifier of the object in the context of the object hierarchy. The object number identifying an object may change as the object hierarchy changes.	Information				
7.2.2.3	Unique ID	Heading				
7.2.2.3.0-1	The Unique ID attribute is a unique integer identifier assigned to an object at the time of its creation. The Unique ID for an object will not change as the object hierarchy changes.	Information				
7.2.2.4	Object Type	Heading				
7.2.2.4.0-1	The Object Type attribute determines the class of the object. It can be assigned one of the classes as follows:	Information				
7.2.2.4.0-1.0-1	<u>Title</u> . The object is a heading in the document hierarchy.	Information				
7.2.2.4.0-1.0-2	<u>Information</u> . The object contains contextual information to enable the reader to better understand the context of the requirement. Requirements objects should be read in conjunction with associated information objects.	Information				
7.2.2.4.0-1.0-3	<u>Mandatory Requirement</u> . The object is a mandatory requirement.	Information				
7.2.2.4.0-1.0-4	<u>Mandatory Requirement (rated)</u> . The object is a mandatory requirement that has a mandatory performance level. Performance above the mandatory level will result in a higher technical score during bid evaluation.	Information				
7.2.2.4.0-1.0-5	<u>Desirable Requirement</u> . The object is a desirable requirement. It provides visibility of DND's vision for future enhancements or optional capabilities that could be included in the functional baseline of the system if the functionality exists.	Information				
7.2.2.4.0-1.0-6	<u>Desirable Requirement (rated)</u> . The object is a desirable requirement that does not have a mandatory performance level. However, the performance related to the requirement will be determined during bid evaluation and included in the technical score.	Information				
7.2.2.5	Compliance Required at Bid Submission	Heading				
7.2.2.5.0-1	The Compliance Required at Bid Submission attribute is applicable to Mandatory Requirement and Mandatory Requirement (rated) object types where the requirement is associated with a MOTS / COTS component of the system that is not expected to change in configuration between the time of bid evaluation and the First Article Acceptance Test. The settings for this attribute are defined as follows:	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
7.2.2.5.0-1.0-1	<u>Yes</u> . The requirement must be satisfied by the bidder's proposed system at the time of bid submission. The requirement may be subject to verification during the bid evaluation process.	Information				
7.2.2.5.0-1.0-2	<u>No</u> . The requirement does not need to be satisfied by the bidder's proposed system at the time of bid submission. The requirement will not be subject to verification during the bid evaluation process.	Information				
7.2.2.5.0-1.0-3	<u>Yes</u> - LRF HHTI-LR only, excluding other system requirements. This setting applies to system-level requirements where compliance at the time of bid submission is only applicable to the LRF HHTI-LR device itself, and not to the rest of the system. Examples include system-level environmental requirements.	Information				
7.2.2.5.0-1.0-4	<u>N/A - Info Only</u> . Compliance at the time of bid submission is not applicable to the object, as the object is not a requirement.	Information				
7.2.2.6	Post Award Verification Event	Heading				
7.2.2.6.1	Verification Events	Heading				
7.2.2.6.1.0-1	Verification of each requirement after contract award may occur at one or more verification events: <ul style="list-style-type: none"><li>• Prototype Verification (Prototype);</li><li>• System Acceptance Test (SAT); and</li><li>• First Article Acceptance Test (FAAT).</li></ul>	Information				
7.2.2.6.1.0-2	Details of these verification events can be found in the LRF HHTI-LR Acquisition Statement of Work.	Information				
7.2.2.6.2	Means of Verification	Heading				
7.2.2.6.2.0-1	Refer to the LRF HHTI-LR RAGL for definitions of the following means of verification associated with a verification event: <ul style="list-style-type: none"><li>• Inspection;</li><li>• Demonstration;</li><li>• Analysis - Test Report;</li><li>• Analysis - Evidence; and</li><li>• User Acceptance Performance Evaluation (UAPE).</li></ul>	Information				
7.2.2.6.2.0-2	Test - QETE is a means of verification in which testing is conducted by DND's Quality Engineering Test Establishment (QETE).	Information				
7.2.2.6.3	Other Attribute Values	Heading				
7.2.2.6.3.0-1	Settings for this attribute not defined above are defined as follows:	Information				
7.2.2.6.3.0-2	<u>Not verified post contract award</u> . The context of the requirement is such that once verified during bid evaluation, there is no perceived benefit to re-verifying that the requirement has been satisfied post contract award.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
7.2.2.6.3.0-3	N/A if config is unchanged from IBS, otherwise... If the configuration of the component of the system to which the requirement applies is unchanged from its configuration at the time of bid submission, re-verification of the requirement will generally not be required. If the configuration changes, the required verification events are listed.	Information				
7.2.2.7	Post Award Verification Criteria	Heading				
7.2.2.7.0-1	The Post Award Verification Criteria attribute provides supporting criteria to the contractor as to how the requirement must be verified. The criteria may include direction on specific tests that must be applied, or tailoring to be applied to standard tests.	Information				
7.2.2.7.0-2	Definitions of "Standard" verification criteria are as follows:	Information				
7.2.2.7.0-3	Standard for Inspection. The Contractor provides the item subject to verification to the Technical Authority (TA) for inspection. Verification requires acceptance by the TA that the requirement has been met.	Information				
7.2.2.7.0-4	Standard for Demonstration. The item subject to verification is provided to the Technical Authority (TA) for demonstration. The Contractor leads the TA through the steps necessary to demonstrate that the requirement has been met. Verification requires acceptance by the TA that the requirement has been met.	Information				
7.2.2.7.0-5	Standard for Analysis - Evidence. The contractor provides written analysis to present evidence that the requirement has been met. Verification requires acceptance by the TA that the requirement has been met. Where specific requirements for the evidence to be provided is included in the verification criteria, the evidence provided must be in accordance with the specific requirements.	Information				
7.2.2.7.0-6	Standard for Analysis - Test. The contractor provides written analysis to present evidence that the requirement has been met. The evidence must include a Test Report prepared by an independent test organization. Verification requires acceptance by the TA that the requirement has been met. Where specific requirements for the testing to be conducted is included in the verification criteria, the testing must be conducted in accordance with the specific requirements.	Information				
7.3	Requirements Text View	Heading				
7.3.1	Purpose	Heading				
7.3.1.0-1	The requirements text view provides a summary view of requirements that excludes the detailed content on how each requirement will be verified. It is provided as an overview of requirements for situational awareness purposes only.	Information				
7.3.1.0-2	The requirements text view is presented without the use of tables. It is published as a Microsoft Word document.	Information				

					TO BE COMPLETED BY BIDDER	
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7
Object Number	Object Text	Object Type	Compliance Req'd at Bid Submission	Instructions to Bidder	Bidder's Statement of Compliance	Location of Evidence In Technical Bid / Comments
7.3.2	Attributes	Heading				
7.3.2.0-1	The requirements text view contains the Object Text attribute only. For headings, the Object Text includes the hierarchical Object Number. For text under a heading, the Object Number is not included.	Information				
7.3.2.0-2	Object Numbers for text and Unique IDs of objects are available in the RVM view.	Information				

## APPENDIX 3 TO ANNEX H

### CAPABILITY PERFORMANCE EVALUATION – LAB TESTING (GATE 2A)

### TEST PLAN AND PROCEDURES

### FOR THE BID EVALUATION OF THE

### LASER RANGE FINDER - HAND-HELD THERMAL IMAGER - LONG RANGE (LRF HHTI-LR)



#### NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document must continue to apply.

#### AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

## TABLE OF CONTENTS

1	Test Plan .....	5
1.1	Scope .....	5
1.1.1	Identification .....	5
1.1.2	System Overview .....	5
1.1.3	Document Overview.....	5
1.1.4	Relationship to Other Plans and Documents.....	5
1.2	Test Environment.....	5
1.2.1	Test Sites.....	5
1.2.2	Items Under Test.....	6
1.2.3	Participating Organizations.....	6
1.2.4	Personnel.....	7
1.2.5	Witnesses .....	8
1.3	Identification of Tests .....	9
1.4	Common Test Processes.....	10
1.4.1	Test Readiness Review (TRR).....	10
1.4.2	Test Completion Review (TCR) .....	10
1.5	Test Schedule .....	10
1.6	Requirements Traceability .....	11
2	Test QETE 01: Thermal Channel Static Range Performance - Vehicle Sized Targets.....	12
2.1	References .....	12
2.2	Applicable Requirements .....	12
2.3	Aim .....	12
2.4	Acceptance Criteria.....	12
2.5	Test Article Configuration .....	12
2.6	Functional Performance Check(s).....	12
2.7	Test Instrumentation and Equipment .....	12
2.8	Test Preparation .....	12
2.9	Test Methodology .....	13
2.10	Test Results .....	13
3	Test QETE 02: Thermal Channel Static Range Performance - Person Sized Targets .....	14
3.1	References .....	14
3.2	Applicable Requirements .....	14

---

3.3	Aim .....	14
3.4	Acceptance Criteria.....	14
3.5	Test Article Configuration.....	14
3.6	Functional Performance Check(s).....	14
3.7	Test Instrumentation and Equipment .....	14
3.8	Test Preparation .....	14
3.9	Test Methodology .....	15
3.10	Test Results .....	15
4	Test QETE 03: Secondary Channel Static Range Performance - Vehicle Sized Targets...	16
4.1	References .....	16
4.2	Applicable Requirements .....	16
4.3	Aim .....	16
4.4	Acceptance Criteria.....	16
4.5	Test Article Configuration.....	16
4.6	Functional Performance Check(s).....	16
4.7	Test Instrumentation and Equipment .....	16
4.8	Test Preparation .....	17
4.9	Test Methodology .....	17
4.10	Test Results .....	17
5	Test QETE 04: Secondary Channel Static Range Performance - Person Sized Targets ...	18
5.1	References .....	18
5.2	Applicable Requirements .....	18
5.3	Aim .....	18
5.4	Acceptance Criteria.....	18
5.5	Test Article Configuration.....	18
5.6	Functional Performance Check(s).....	18
5.7	Test Instrumentation and Equipment .....	18
5.8	Test Preparation .....	19
5.9	Test Methodology .....	19
5.10	Test Results .....	19
6	Test QETE 05: Rechargeable Battery Performance .....	20
6.1	Reference(s).....	20
6.2	Applicable Requirement(s).....	20
6.3	Aim .....	20
6.4	Acceptance Criteria.....	20
6.5	Test Article Configuration.....	20

---

6.6	Functional Performance Check(s).....	20
6.7	Test Instrumentation and Equipment .....	20
6.8	Test Preparation .....	20
6.9	Test Methodology .....	21
6.10	Test Results .....	21
7	Test QETE 07: Low Temperature Operation .....	22
7.1	Reference(s).....	22
7.2	Applicable Requirement(s).....	22
7.3	Aim .....	22
7.4	Acceptance Criteria.....	22
7.5	Test Article Configuration.....	22
7.6	Functional Performance Check(s).....	22
7.7	Test Instrumentation and Equipment .....	23
7.8	Test Preparation .....	25
7.9	Test Methodology .....	25
7.10	Test Results .....	26

## LIST OF FIGURES

Figure 7-1 Schematic drawing of the test set-up showing the positions of the visible and thermal targets with respect to the portable environmental (climatic) chamber.....	23
Figure 7-2: Representative diagram of the type of thermal target to be used in the test along representing the four (4) heated strips positioned 76 mm apart. ....	24
Figure 7-3: Representative photo of the type of visible target to be used in the test. ....	25

## LIST OF TABLES

Table 1-1 Tests to be Performed .....	9
---------------------------------------	---

## **1 Test Plan**

### **1.1 Scope**

#### **1.1.1 Identification**

This Test Plan describes the testing to be conducted for Gate 2A – Capability Performance Testing Evaluations – Lab Testing (QETE Testing) of the LRF HHTI-LR technical bid evaluation.

#### **1.1.2 System Overview**

The main component of the LRF HHTI-LR System is the LRF HHTI-LR. The LRF HHTI-LR is a hand-held binocular device with a Laser Range Finder, cooled Thermal Channel and Secondary Channel for day and low light conditions. It is used by soldiers and sailors to enable the timely detection, recognition and identification of objects of interest under varying conditions of light and visibility. The LRF HHTI-LR System provides a capability for the accurate geolocation of targets, and the onwards transmission of target data to other systems. Imagery produced by the LRF HHTI-LR System can be saved and transferred for analysis. The LRF HHTI-LR System will be used by the Canadian Army in the combat arms leader, sniper, reconnaissance and other similar roles. It will be used by the Royal Canadian Navy to enhance general situational awareness, by boarding parties, and for security surveillance when in port.

The LRF HHTI-LR is supported by a number of other components that are required to provide the full functionality of the system. Other equipment components include batteries, a tripod, various accessories to interface The LRF HHTI-LR to other systems and external power sources, pouches for carriage in the field, and containers for storage and logistic transport.

#### **1.1.3 Document Overview**

This document provides coordinating information for the DND LRF HHTI-LR project team, QETE staff and bidders to ensure testing is carried out in an ordered and efficient manner that is clear and transparent to all stakeholders.

This document provides information to the bidders on the details of the performance and environmental, test procedures to which their systems will be subjected at QETE.

Section 1 of this Test Plan provides the coordinating information for all stakeholders.

Sections 2 to 10 of this Test Plan provide the detailed test procedures for the tests to be conducted.

#### **1.1.4 Relationship to Other Plans and Documents**

Specific instructions to Bidders related to the testing described in this Test Plan can be found in Annex B to Volume 1 to the LRF HHTI-LR Request for Proposal (RFP) Technical Bid Evaluation - Instructions To Bidders And Evaluation Procedures.

Results of testing will be recorded in the Technical Evaluation Scoresheet at Appendix 1 to Annex B to Volume 1.

A summary of test results will also be recorded in the LRF HHTI-LR Test Results Module in DOORS. IBM Rational Doors is a requirements management software tool used by DND to effectively manage the requirements of this project throughout.

For rated requirements, the weighting of rating results is identified in the Technical Evaluation Scoresheet.

## **1.2 Test Environment**

### **1.2.1 Test Sites**

Testing in support of Gate 2 of the LRF HHTI-LR Bid Evaluation will occur at two sites.

With the exception of testing related to Low Temperature Operation and Rechargeable Battery Life, testing will occur at:

Quality Engineering Test Establishment (QETE)  
45 Sacré - Coeur Blvd.  
Gatineau, QC J8X 1C6

Testing related to Low Temperature Operation and Rechargeable Battery Life will be conducted by QETE staff at Munitions Experimental Test Center (METC) Valcartier facilities at:

Valcartier Research Centre  
2459 de la Bravoure Road  
Québec, QC G3J 1X5

## **1.2.2 Items Under Test**

The primary items under test will be the LRF HHTI-LR binocular devices powered by internal batteries that have been proposed by bidders in response to the LRF HHTI-LR RFP.

Items under test will be evaluated against selected specifications from the LRF HHTI-LR Systems Requirements Specification (SRS) and will not be directly tested against the devices supplied by other bidders.

While the requirements against which the items are tested may be written as “system” level requirements, the testing conducted within the scope of this Test Plan will focus on the ability of the LRF HHTI-LR powered by internal batteries to satisfy the requirements. The performance of other system components will not be evaluated during testing but are required to support the testing.

An LRF HHTI-LR System used during testing will include:

- LRF HHTI-LR binocular device
- Field Kit Storage and Transport Case
- Field Pouch
- Rechargeable Internal Batteries
- Internal Batteries for Low Temperature Operation
- AC Power Cable Assembly with 110 V, 60 Hz capability
- Lens Cleaning Kit
- User Manual
- Quick Reference Guide
- Operator tool kit, if applicable

## **1.2.3 Participating Organizations**

### **1.2.3.1 Project Management Office – Night Vision Systems Modernization (PMO NVSM)**

This paragraph shall identify the organizations that will participate in the testing at the test sites(s) and the roles and responsibilities of each.

PMO NVSM is responsible for:

- a. Appointing a single point of contact related to the coordination of testing at QETE
- b. The development of this Test Plan
- c. Coordination of the high level schedule of testing in terms of start date and target end date
- d. Conducting a Test Readiness Review (TRR) four weeks before the scheduled start date of testing

- e. Advising bidders of the dates when their Items Under Test will be undergoing testing to facilitate the provision of technical support
- f. Resolving issues that occur during testing
- g. Verifying the accuracy and completeness of the Test Report prepared for each bidder
- h. Conducting a Test Completion Review (TCR)
- i. Entering test results recorded in the Test Report for each bidder into the DOORS requirements management tool.

The PMO point of contact for bid evaluation testing at QETE is:

Matthew Paul, Test and Evaluation Manager (TEM), PMO NVSM

Email: [Matthew.Paul2@forces.gc.ca](mailto:Matthew.Paul2@forces.gc.ca)

#### **1.2.3.2 QETE**

QETE is responsible for:

- a. Appointing a single point of contact related to the coordination of testing at QETE
- b. Review of this Test Plan
- c. Advising PMO NVSM of issues related to the availability of testing personnel based on updates to scheduled testing start date
- d. Detailed coordination of all testing activities at QETE
- e. Attending the TRR
- f. Conducting testing in accordance with this Test Plan
- g. Alerting PMO NVSM of issues arising during testing
- h. Transportation of bidders' Items Under Test from QETE to METC Valcartier for low temperature testing, and back to QETE
- i. Recording test results in accordance with QETE standard test procedures
- j. Completing interim Test Reports for each Item Under Test as testing proceeds
- k. Attending the TCR

#### **1.2.3.3 Bidders**

Each bidder is responsible for:

- a. Ensuring that instructions to bidders related to QETE Testing found in in Annex B to Volume 1 to the LRF HHTI-LR Request for Proposal (RFP) Technical Bid Evaluation - Instructions To Bidders And Evaluation Procedures are followed
- b. Appointing a single point of contact related to QETE testing
- c. Delivering systems subject to testing in accordance with instructions in Annex B to Volume 1
- d. Providing remote technical support to provide clarifications on the use of the bidder's Item Under Test to be available between the hours of 07:00 to 17:00 during the period of testing
- e. Providing clarifications on user instructions

#### **1.2.4 Personnel**

Personnel conducting testing will be assigned by the QETE Sub-Section head responsible for each test.

### **1.2.5 Witnesses**

The only witnesses to the testing will be personnel from PSPC or from a PSPC appointed Fairness Monitor (FM). There is a possibility that either a PSPC or FM representative will witness some or all of the testing to verify the testing processes/results.

### 1.3 Identification of Tests

Tests to be performed are identified below.

Table 1-1 Tests to be Performed

<b><i>Test ID and Description</i></b>	<b><i>QETE Sub-Section / Test Lead</i></b>	<b><i>Sequence</i></b>	<b><i>Estimated Test Duration</i></b>	<b><i>Notes</i></b>
Test QETE 01: Thermal Channel Static Range Performance - Vehicle Sized Targets	QETE 4-2	1	Half day	
Test QETE 02: Thermal Channel Static Range Performance - Person Sized Targets	QETE 4-2	2	Half day	
Test QETE 03: Secondary Channel Static Range Performance - Vehicle Sized Targets	QETE 4-2	3	Half day	
Test QETE 04: Secondary Channel Static Range Performance - Person Sized Targets	QETE 4-2	4	Half day	
Test QETE 05: Rechargeable Battery Performance	QETE 2-4	5	1 day	
Test QETE 07: Low Temperature Operation	QETE 2-4	6	1 day	To be conducted at METC Valcartier, Travel time is required.

Estimated test durations are per item under test, and include time to:

- Familiarize with equipment operation
- Set up tests
- Conduct tests
- Record results
- Pack up equipment
- Prepare an interim Test Report

## **1.4 Common Test Processes**

### **1.4.1 Test Readiness Review (TRR)**

A Test Readiness Review session will be conducted at QETE facilities by PMO NVSM four weeks before the scheduled start of testing. The TRR participants will include:

- PMO NVSM Test Coordinator / Test & Evaluation Manager (TEM)
- QETE Test Coordinator
- PMO NVSM System Engineering Manager
- Testers/participants assigned by QETE section heads

The latest version of this Test Plan will be circulated to TRR participants two weeks prior to the TRR.

The aim of the TRR is to:

- Provide a final orientation of the activities described in this Test Plan to participants
- Review the administrative procedures related to testing and recording of test results
- Confirm test schedule and availability of test and participant personnel
- Identify issues that may delay the completion of test activities in a timely manner

### **1.4.2 Test Completion Review (TCR)**

A TCR will be conducted at QETE facilities by PMO NVSM within three days of completion of testing. The TCR participants will include:

- PMO NVSM Test Coordinator / Test & Evaluation Manager (TEM)
- QETE Test Coordinator
- PMO NVSM System Engineering Manager
- Testers participating in the tests

The draft Test Report with all test results entered will be circulated to the TCR participants one day prior to the TCR.

The aim of the TCR is to:

- Provide a final summary of the activities/results described in this Test Plan to the stakeholders
- Review the administrative procedures that occurred during testing and recording of test results
- Confirm test results and answer any questions that may be present from stakeholders

## **1.5 Test Schedule**

The testing schedule will be dependent upon the arrival and in-inspection dates of all Bidders and required equipment. Canada will attempt to begin testing as soon as possible upon full receipt of all equipment being passed through the testing Gate 2A. The NVSM PMO will provide testing schedules to the respective Bidders shortly after Bid Closure such that they can be prepared to provide the required on-call support during the necessary timeframes.

## **1.6 Requirements Traceability**

The requirements tested by each Test Procedure are identified within the Test Procedure. Traceability from Test Procedure to requirements in the SRS are established within the DOORS requirements management tool.

## **2 Test QETE 01: Thermal Channel Static Range Performance - Vehicle Sized Targets**

### **2.1 References**

- A. NATO STANAG 4349E Land (Edition 1) - Measurement of the Minimum Resolvable Temperature Difference (MRTD) of Thermal Cameras, 21 September 1990.
- B. NATO STANAG 4347 Land (Edition 1) - Definition of Nominal Static Range Performance for Thermal Imaging Systems, 25 August 1989

### **2.2 Applicable Requirements**

SRS 4.3.2.2.1.0-1 The Thermal Channel of the LRF HHTI-LR must have a static detection range for vehicle sized targets of at least 10.0 kilometres, as derived from the Minimum Resolvable Temperature Difference (MRTD) measured in accordance with STANAG 4349E at QETE. < rated >

SRS 4.3.2.2.1.0-2 The Thermal Channel of the LRF HHTI-LR must have a static recognition range for vehicle sized targets of at least 3.5 kilometres, as derived from the MRTD measured in accordance with STANAG 4349E at QETE. < rated >

SRS 4.3.2.2.1.0 3 The Thermal Channel of the LRF HHTI-LR must have a static identification range for vehicle sized targets of at least 1.8 kilometres, as derived from MRTD measured in accordance with STANAG 4349E at QETE. < rated >

### **2.3 Aim**

This test will be used to determine the static range performance of the Thermal Channel of the Bidder Supplied Test Article for vehicle sized targets in terms of detection, recognition and identification. The static range performances will be used to verify that the Thermal Channel of the Bidder Supplied Test Article is compliant with the mandatory minimum ranges specified in the applicable requirements, as well as providing metrics for the rated component of these requirements.

### **2.4 Acceptance Criteria**

In order to be assessed as compliant, the Bidder Supplied Test Article must meet 90% of the minimum detection, recognition and identification range requirements. A 10% allowance is provided to account for variances in measured MRTD between test establishments.

### **2.5 Test Article Configuration**

The Bidder Supplied Test Article will be tested in the following configuration:

- a. In its Operational Configuration outside of its carrying case
- b. The Contractor supplied internal batteries are installed, and
- c. The ocular and objective covers are removed before testing.

### **2.6 Functional Performance Check(s)**

N/A

### **2.7 Test Instrumentation and Equipment**

SBIR Thermal Reflective Target Projector, Model 13323, serial number 7105.

### **2.8 Test Preparation**

N/A

## 2.9 Test Methodology

The minimum resolvable temperature difference (MRTD) test will be conducted in accordance with NATO STANAG 4349E with the following conditions:

- a. The MRTD test is done with the bars in the vertical orientation only.
- b. The background temperature,  $T_b$ , is  $20.0^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$ .
- c. Prior to the first observation at each spatial frequency, the observer calibrates, or performs a non-uniformity correction of, the Thermal Channel.
- d. The criterion for resolution is that the observer must be able to resolve the four bars of the target. It is not necessary that the four bars be resolvable at the same time.
- e. If an observer is unable to resolve the four bars of the target, the result CNR (cannot resolve) is entered into the test record sheet.
- f. The observer is allowed to make adjustments to the azimuth angle of the line of sight of the Bidder Supplied Test Article.
- g. The observer is allowed to adjust the brightness and contrast of the Bidder Supplied Test Article.
- h. The MRC test is conducted with a minimum of three observers.

The range performance calculation is conducted in accordance with NATO STANAG 4347 with the following conditions.

- a. The MRTD curve is determined using test results from the bars in the vertical orientation only.
- b. The MRTD values of the MRTD curve are the geometric mean of the MRTD of the observers at each spatial frequency.
- c. The characteristic dimension of the vehicle size target is 2.3 m.
- d. The range performance is calculated for visibility of 19.6 km and attenuation coefficient of 0.20 / km.
- e. CNR results are ignored in the range performance calculation.

## 2.10 Test Results

Maintain QETE test record sheets on file for audit purposes.

Record the following results and provide to the LRF HHTI-LR Technical Evaluation Team in an interim Test Report:

- a. Thermal channel static range performance for vehicle sized targets – Detection (in Km)
- b. Thermal channel static range performance for vehicle sized targets – Recognition (in Km)
- c. Thermal channel static range performance for vehicle sized targets – Identification (in Km)

### **3 Test QETE 02: Thermal Channel Static Range Performance - Person Sized Targets**

#### **3.1 References**

- A. NATO STANAG 4349E Land (Edition 1) - Measurement of the Minimum Resolvable Temperature Difference (MRTD) of Thermal Cameras, 21 September 1990.
- B. NATO STANAG 4347 Land (Edition 1) - Definition of Nominal Static Range Performance for Thermal Imaging Systems, 25 August 1989

#### **3.2 Applicable Requirements**

SRS 4.3.2.2.0-1 The Thermal Channel of the LRF HHTI-LR must have a static detection range for person sized targets of at least 5.5 kilometres, as derived from MRTD measured in accordance with STANAG 4349E at QETE. < rated >

SRS 4.3.2.2.0-2 The Thermal Channel of the LRF HHTI-LR must have a static recognition range for person sized targets of at least 2.0 kilometres, as derived from MRTD measured in accordance with STANAG 4349E at QETE. < rated >

SRS 4.3.2.2.0 3 The Thermal Channel of the LRF HHTI-LR must have a static identification range for person sized targets of at least 1.0 kilometres, as derived from MRTD measured in accordance with STANAG 4349E at QETE. < rated >

#### **3.3 Aim**

This test will be used to determine the static range performance of the Thermal Channel of the Bidder Supplied Test Article for person sized targets in terms of detection, recognition and identification. The static range performances will be used to verify that the Thermal Channel of the Bidder Supplied Test Article is compliant with the mandatory minimum ranges specified in the applicable requirements, as well as providing metrics for the rated component of these requirements.

#### **3.4 Acceptance Criteria**

In order to be assessed as compliant, the Bidder Supplied Test Article must meet 90% of the minimum detection, recognition and identification range requirements. A 10% allowance is provided to account for variances in measured MRTD between test establishments.

#### **3.5 Test Article Configuration**

The Bidder Supplied Test Article will be tested in the following configuration:

- a. In its Operational Configuration outside of its carrying case
- b. The Contractor supplied internal batteries are installed, and
- c. The ocular and objective covers are removed prior to testing.

#### **3.6 Functional Performance Check(s)**

N/A

#### **3.7 Test Instrumentation and Equipment**

SBIR Thermal Reflective Target Projector, Model 13323, serial number 7105.

#### **3.8 Test Preparation**

N/A

### 3.9 Test Methodology

The minimum resolvable temperature difference (MRTD) test will be conducted in accordance with NATO STANAG 4349E with the following conditions:

- a. The MRTD test is done with the bars in the vertical orientation only.
- b. The background temperature,  $T_b$ , is  $20.0^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$ .
- c. Prior to the first observation at each spatial frequency, the observer calibrates, or performs a non-uniformity correction of the Thermal Channel.
- d. The criterion for resolution is that the observer must be able to resolve the four bars of the target. It is not necessary that the four bars be resolvable at the same time.
- e. If an observer is unable to resolve the four bars of the target, the result CNR (cannot resolve) is entered into the test record sheet.
- f. The observer is allowed to make adjustments to the azimuth angle of the line of sight of the Bidder Supplied Test Article.
- g. The observer is allowed to adjust the brightness and contrast of the Bidder Supplied Test Article.
- h. The MRTD test is conducted with a minimum of three observers.

The range performance calculation is conducted in accordance with NATO STANAG 4347 with the following conditions.

- a. The MRTD curve is determined using test results from the bars in the vertical orientation only.
- b. The MRTD values of the MRTD curve are the geometric mean of the MRTD of the observers at each spatial frequency.
- c. The characteristic dimension of the person size target is 0.84 m.
- d. The range performance is calculated for visibility of 19.6 km and attenuation coefficient of 0.20 / km.
- e. CNR results are ignored in the range performance calculation.

### 3.10 Test Results

Maintain QETE test record sheets on file for audit purposes.

Record the following results and provide to the LRF HHTI-LR Technical Evaluation Team in an interim Test Report:

- a. Thermal channel static range performance for person-sized targets – Detection (in Km)
- b. Thermal channel static range performance for person-sized targets – Recognition (in Km)
- c. Thermal channel static range performance for person-sized targets – Identification (in Km)

## **4 Test QETE 03: Secondary Channel Static Range Performance - Vehicle Sized Targets**

### **4.1 References**

- A. NATO STANAG 4347 Land (Edition 1) - Definition of Nominal Static Range Performance for Thermal Imaging Systems, 25 August 1989
- B. MIL-STD-150A, Change Notice 2, Photographic Lenses, 28 January 1963

### **4.2 Applicable Requirements**

SRS 4.3.3.2.0-1 The Secondary Channel of the LRF HHTI-LR must have a static detection range for vehicle sized targets of at least 7.0 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >

SRS 4.3.3.2.0-2 The Secondary Channel of the LRF HHTI-LR must have a static recognition range for vehicle sized targets of at least 3.5 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >

SRS 4.3.3.2.0 3 The Secondary Channel of the LRF HHTI-LR must have a static identification range for vehicle sized targets of at least 1.8 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >

### **4.3 Aim**

This test will be used to determine the static range performance of the Secondary Channel of the Bidder Supplied Test Article for vehicle sized targets in terms of detection, recognition and identification. The static range performances will be used to verify that the Secondary Channel of the Bidder Supplied Test Article is compliant with the mandatory minimum ranges specified in the applicable requirements, as well as providing metrics for the rated component of these requirements.

### **4.4 Acceptance Criteria**

To be assessed as compliant, the Bidder Supplied Test Article must meet 90% of the detection, recognition and identification range requirements for the vehicle size targets. A 10% allowance is provided to account for variances in measured DRI between test establishments.

Where a Bidder Supplied Test Article has more than one secondary channel, at least one of the secondary channels must meet the acceptance criteria to be assessed as compliant.

### **4.5 Test Article Configuration**

The Bidder Supplied Test Article will be tested in the following configuration:

- a. In its Operational Configuration outside of its carrying case
- b. The Contractor supplied internal batteries are installed, and
- c. The ocular and objective covers are removed before testing.

### **4.6 Functional Performance Check(s)**

N/A

### **4.7 Test Instrumentation and Equipment**

Labsphere HELIOS USRL-L20F-NBRL Vis-NIR target projector, Model 13323, serial number 0831183835 and 0831183834.

## 4.8 Test Preparation

N/A

## 4.9 Test Methodology

Where the Bidder Supplied Test Article has more than one secondary channel, each secondary channel will be tested in accordance with the test methodology.

The minimum resolvable contrast (MRC) test will be conducted in accordance with the following conditions:

- a. Using a USAF 1951 resolution target as per MIL-STD-150A.
- b. Optical source colour temperature:  $2856K \pm 50K$ .
- c. Target contrast,  $C$ , is defined as,  $C = (L_T - L_B) / L_B$ , where  $L_T$  is the target luminance, and  $L_B$  is the background luminance.
- d. Background illuminance: 1000 lux.
- e. Background reflectance: 0.17.
- f. The criterion for resolution when measuring MRC is to determine the smallest Group and Element set of three vertical bars and three horizontal bars of the USAF 1951 resolution target that can be resolved. It is not necessary that the six bars be resolvable at the same time.
- g. If an observer is unable to resolve the six bars of any Group - Element, the result CNR (cannot resolve) is entered into the test record sheet.
- h. The observer is allowed to make adjustments to the azimuth and elevation angles of the line of sight of the Bidder Supplied Test Article.
- i. The observer is allowed to adjust the brightness and contrast of the Bidder Supplied Test Article.
- j. The MRC test is conducted with a minimum of three observers.

The range performance calculation is conducted in accordance with NATO STANAG 4347 with the following conditions.

- a. Visibility 19.6 km.
- b. Atmospheric attenuation 0.20 / km.
- c. Intrinsic target contrast 0.20.
- d. The spatial frequency values of the MRC curve are the geometric mean of the spatial frequency of the observers at each contrast.
- e. The target characteristic dimension is 2.3 m for the vehicle size target.
- f. CNR results are ignored in the range performance calculation.

## 4.10 Test Results

Maintain QETE test record sheets on file for audit purposes.

For each secondary channel, record the following results and provide to the LRF HHTI-LR Technical Evaluation Team in an interim Test Report:

- a. Secondary channel static range performance for vehicle sized targets – Detection (in Km)
- b. Secondary channel static range performance for vehicle sized targets – Recognition (in Km)
- c. Secondary channel static range performance for vehicle sized targets – Identification (in Km)

For bidder supplied test articles with more than one secondary channel, the channel with the highest static range performance will be used for bid evaluation purposes.

## **5 Test QETE 04: Secondary Channel Static Range Performance - Person Sized Targets**

### **5.1 References**

- A. NATO STANAG 4347 Land (Edition 1) - Definition of Nominal Static Range Performance for Thermal Imaging Systems, 25 August 1989
- B. MIL-STD-150A, Change Notice 2, Photographic Lenses, 28 January 1963

### **5.2 Applicable Requirements**

SRS 4.3.3.2.3.0-1 The Secondary Channel of the LRF HHTI-LR must have a static detection range for person sized targets of at least 3.8 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >

SRS 4.3.3.2.3.0-2 The Secondary Channel of the LRF HHTI-LR must have a static recognition range for person sized targets of at least 2.0 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >

SRS 4.3.3.2.3.0 3 The Secondary Channel of the LRF HHTI-LR must have a static identification range for person sized targets of at least 1.0 kilometres, determined in accordance with QETE DRI performance test methodologies. < rated >

### **5.3 Aim**

This test will be used to determine the static range performance of the Secondary Channel of the Bidder Supplied Test Article for person sized targets in terms of detection, recognition and identification. The static range performances will be used to verify that the Secondary Channel of the Bidder Supplied Test Article is compliant with the mandatory minimum ranges specified in the applicable requirements, as well as providing metrics for the rated component of these requirements.

### **5.4 Acceptance Criteria**

To be assessed as compliant, the Bidder Supplied Test Article must meet 90% of the detection, recognition and identification range requirements for the person size targets. A 10% allowance is provided to account for variances in measured DRI between test establishments.

Where a Bidder Supplied Test Article has more than one secondary channel, at least one of the secondary channels must meet the acceptance criteria to be assessed as compliant.

### **5.5 Test Article Configuration**

The Bidder Supplied Test Article will be tested in the following configuration:

- a. In its Operational Configuration outside of its carrying case
- b. The Contractor supplied internal batteries are installed, and
- c. The ocular and objective covers are removed before testing.

### **5.6 Functional Performance Check(s)**

N/A

### **5.7 Test Instrumentation and Equipment**

Labsphere HELIOS USRL-L20F-NBRL Vis-NIR target projector, Model 13323, serial number 0831183835 and 0831183834.

## 5.8 Test Preparation

N/A

## 5.9 Test Methodology

Where the Bidder Supplied Test Article has more than one secondary channel, each secondary channel will be tested in accordance with the test methodology.

The minimum resolvable contrast (MRC) test will be conducted in accordance with the following conditions:

- a. Using a USAF 1951 resolution target as per MIL-STD-150A.
- b. Optical source colour temperature:  $2856K \pm 50K$ .
- c. Target contrast,  $C$ , is defined as,  $C = (L_T - L_B) / L_B$ , where  $L_T$  is the target luminance, and  $L_B$  is the background luminance.
- d. Background illuminance: 1000 lux.
- e. Background reflectance: 0.17.
- f. The criterion for resolution when measuring MRC is to determine the smallest Group and Element set of three vertical bars and three horizontal bars of the USAF 1951 resolution target that can be resolved. It is not necessary that the six bars be resolvable at the same time.
- g. If an observer is unable to resolve the six bars of any Group - Element, the result CNR (cannot resolve) is entered into the test record sheet.
- h. The observer is allowed to make adjustments to the azimuth and elevation angles of the line of sight of the Bidder Supplied Test Article.
- i. The observer is allowed to adjust the brightness and contrast of the Bidder Supplied Test Article.
- j. The MRC test is conducted with a minimum of three observers.

The range performance calculation is conducted in accordance with NATO STANAG 4347 with the following conditions.

- a. Visibility 19.6 km.
- b. Atmospheric attenuation 0.20 / km.
- c. Intrinsic target contrast 0.20.
- d. The spatial frequency values of the MRC curve are the geometric mean of the spatial frequency of the observers at each contrast.
- e. The target characteristic dimension is 0.84 m for the person size target.
- f. CNR results are ignored in the range performance calculation.

## 5.10 Test Results

Maintain QETE test record sheets on file for audit purposes.

For each secondary channel, record the following results and provide to the LRF HHTI-LR Technical Evaluation Team in an interim Test Report:

- a. Secondary channel static range performance for person sized targets – Detection (in Km)
- b. Secondary channel static range performance for person sized targets – Recognition (in Km)
- c. Secondary channel static range performance for person sized targets – Identification (in Km)

For bidder supplied test articles with more than one secondary channel, the channel with the highest static range performance will be used for bid evaluation purposes.

## **6 Test QETE 05: Rechargeable Battery Performance**

### **6.1 Reference(s)**

LRF HHTI-LR Mission Profile – Battery Life (Appendix 4 to Annex B to Volume 2 of LRF HHTI-LR RFP)

### **6.2 Applicable Requirement(s)**

SRS 4.3.14.1.1.0-2 The LRF HHTI-LR must continuously operate for a minimum of two hours and thirty mins in the Operational Mode at 20 degrees Celsius using power only from the installed Rechargeable Batteries, with no battery change, and with no recharging of the batteries, while being operated in accordance with the LRF HHTI-LR Mission Profile - Battery Life. < rated >.

### **6.3 Aim**

This test will be used to verify that the Bidder's supplied test article is compliant with SRS 4.3.14.1.1.0-2. As a rated requirement, the performance of the rechargeable batteries, in terms of elapsed time to system failure while operating the Bidder's supplied test article in accordance with the LRF HHTI-LR Mission Profile – Battery Life, will be determined.

### **6.4 Acceptance Criteria**

In order to be assessed as compliant, the Bidder's supplied test article must remain serviceable throughout the test for a minimum of two hours and thirty mins without degradation of performance. This will be assessed through operation of the Bidder's supplied test article in accordance with the Mission Profile – Battery Life document. The definition of serviceable is described within the Mission Profile – Battery Life Document.

To determine the Rechargeable Battery Performance, the Bidders supplied test article will be operated in accordance with the Mission Profile – Battery Life until system failure, as defined in the Mission Profile – Battery Life, occurs.

### **6.5 Test Article Configuration**

The Bidder's supplied test article will be tested in the following configuration:

- a. The Bidder's supplied test article will be in its Operational Configuration outside of its carrying case;
- b. The Bidder's supplied objective lens cover(s) will be installed before testing until necessary to remove as stated in the Mission Profile – Battery Life; and
- c. The Bidder's supplied and fully charged internal rechargeable battery(ies) will be installed for the duration of the Operating Cycle as described in the Mission Profile – Battery Life;

### **6.6 Functional Performance Check(s)**

N/A

### **6.7 Test Instrumentation and Equipment**

Refer to Section 7.7 Test Instrumentation and Equipment of Test QETE 07: Low Temperature Operation.

### **6.8 Test Preparation**

Prior to the start of the test, the Bidder's supplied test article will be inspected for any visual damage.

The Bidder's supplied internal rechargeable battery(ies) will be fully charged using the Bidder's supplied battery charger.

The Bidder's supplied fully charged internal rechargeable battery(ies) remain uninstalled until the test starts.

The Bidder's supplied internal rechargeable battery(ies) will be installed, and the charge level noted by visual means via the test article's Battery Status Indicator in accordance with the Bidder's supplied user instructions.

## 6.9 Test Methodology

The test will be performed as follows:

- a. The Bidder's supplied test article will be placed into the environmental test chamber along with, but not inserted in the device, the fully recharged Bidder's supplied internal rechargeable battery(ies);
- b. The environmental test chamber temperature will be set to  $20^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The test unit will be conditioned at  $20^{\circ}\text{C}$  for a minimum of 6 hours, not to exceed 18 hours;
- c. Operate the Bidders' supplied test item in accordance with the Mission Profile – Battery Performance procedure until a system failure is encountered; and
- d. Record the time when system failure is encountered.

## 6.10 Test Results

Maintain QETE test record sheets on file for audit purposes.

Record the following results and provide to the LRF HHTI-LR Technical Evaluation Team in an interim Test Report:

- Rechargeable Battery Performance in terms of elapsed time to System Failure

## **7 Test QETE 07: Low Temperature Operation**

### **7.1 Reference(s)**

- A. Allied Environmental Conditions and Test Publications (AECTP) 230, "Climatic Conditions", Ed. 1, Leaflet 2311/1 and Leaflet 2311/2, dated 7 May 2009.
- B. MIL-STD-810H, "Environmental Engineering Consideration and Laboratory Tests", United States Department of Defence, dated 31 January 2019.
- C. MIL-STD-150A, "Photographic Lenses", United States Department of Defence, dated 12 May 1959.

### **7.2 Applicable Requirement(s)**

SRS 6.3.2.3.0-1 The LRF HHTI-LR System must operate without physical damage and without degradation of performance in all low temperature environments associated with the C0 and C1 (-32°C min) climatic regions as described in NATO STANAG 4370, AECTP 200, AECTP 230, Leaflet 2311/1 and Leaflet 2311/2.

While the applicable requirement applies to the entire LRF HHTI-LR System, the scope of this test is limited to verifying that the LRF HHTI-LR binocular device satisfies the requirement.

### **7.3 Aim**

This test will be used to verify that the Bidder's supplied test article is compliant with SRS 6.3.2.3.0-1.

### **7.4 Acceptance Criteria**

In order to be assessed as compliant, the Bidder's supplied test article must remain serviceable throughout the test without degradation of performance and must not exhibit any physical damage. This will be assessed by visual inspection and/or other non-destructive test methods and through the conduct of Functional Performance Check(s). The Bidder's supplied test article must successfully complete all steps of the Functional Performance Check procedure using either the Bidder's supplied internal battery(ies) or the Bidder's supplied AC Power Cable Assembly connected to a 110/120VAC 60Hz power source.

### **7.5 Test Article Configuration**

The Bidder's supplied test article will be tested in the following configuration:

- a. The Bidder's supplied test article will be in its Operational Configuration outside of its carrying case;
- b. The Bidder's supplied internal battery(ies) will be installed;
- c. The Bidder's supplied objective lens cover(s) will be installed before testing; and
- d. The Bidder's supplied AC Power Cable Assembly will be along-side, but not connected.

### **7.6 Functional Performance Check(s)**

Refer to the Test Instrumentation and Equipment section for a description of the test set-up. The following functional performance check procedure will be conducted where specified by the Test Methodology:

- a. Power ON the Bidder's supplied test article;
- b. Remove the Bidder's supplied objective lens cover(s);
- c. Place the test article in the primary (thermal) channel mode;
- d. Locate the thermal target at test position "A" within the test article's field-of-view;

- e. Exercise full range of the focus controls;
- f. Exercise the full range of field-of-view and magnification controls;
- g. Toggle through the image polarity controls;
- h. Manipulate the test article's controls to optimize the image of thermal target at test position "A" in the test article's field-of-view;
- i. Verify the visibility of four (4) distinct heated strips in the test article's field-of-view;
- j. Measure and record the range to the thermal target at test position "A" using the test article's Laser Range Finder;
- k. Switch to the test article's secondary channel;
- l. Locate visible target at test position "A" within the test article's field-of-view;
- m. Observe the visible target at test position "A;"
- n. Exercise the full range of field-of-view and magnification controls;
- o. Power OFF the Bidder's supplied test article; and
- p. Repeat steps a. through o. for the thermal and visible targets at test position "B."
- q. Power OFF the Bidder's supplied test article and maintain test chamber at -32°C for 1 hr;
- r. Repeat steps a through q above for an additional two cycles

The Functional Performance Check procedure will be initially attempted with the Bidder's supplied internal battery(ies). If there is a failure to complete any step of the Functional Performance Check procedure due to the performance of the Bidder's supplied internal battery(ies), a repeated attempt to complete the Functional Performance Check procedure will be made using the Bidder's supplied AC Power Cable Assembly to power the Bidder's supplied test article.

## 7.7 Test Instrumentation and Equipment

A portable environmental test chamber will be used to condition the Bidder's supplied test article at the required low temperature test condition. The chamber will have a physical opening to allow an unobstructed line-of-sight to thermal and visible targets pre-positioned down-range of the environmental test chamber (Figure 7-1).

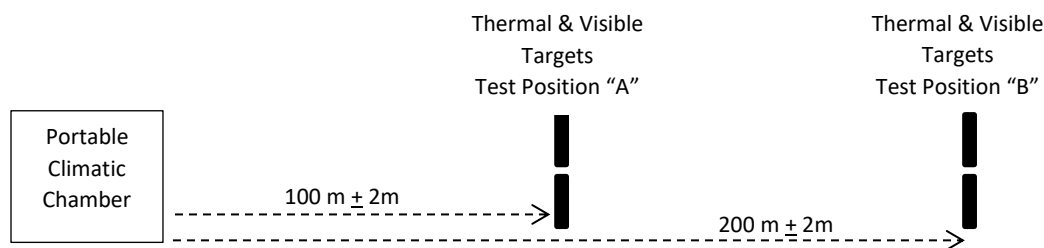


Figure 7-1 Schematic drawing of the test set-up showing the positions of the visible and thermal targets with respect to the portable environmental (climatic) chamber.

One (1) thermal target and one (1) visible target will be installed at  $100\text{ m} \pm 2\text{ m}$  from the opening of the environmental chamber. This will be defined as Test Position "A."

One (1) thermal target and one (1) visible target will be installed at  $200\text{ m} \pm 2\text{ m}$  from the opening of the environmental chamber. This will be defined as Test Position "B."

The thermal target consists of vertical rows of strip-heaters 25 mm (1 in) wide by 254 mm (10 in) long. Four (4) strips will be turned on (heated) to provide a spacing of 76 mm (3 in) between heated strips. The temperature of the heated strips will be a minimum of +5°C above the background temperature. Figure 7-2 is a representative schematic of the type of thermal target that will be employed.

The visible target is a USAF 1951 resolution target in accordance with MIL-STD-150A (Ref C). Figure 7-3 is a representative photo of the type of visible target that will be employed.

The air temperature of the portable environmental chamber will be recorded. Instrumentation will not be affixed to the Bidder's supplied test article(s).

The prevailing ambient climatic conditions at the test-site will be noted at the time of the testing; however, there will be no restrictions or limitations placed on the time-of-day or the ambient climatic conditions (temperature, sky condition, wind, or precipitation) permissible for the testing. It is anticipated that testing will occur during day-light hours under prevailing meteorological conditions on the test day.

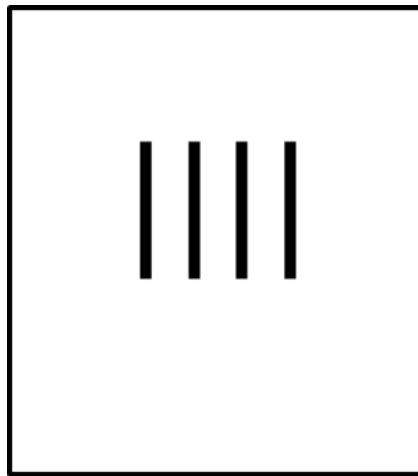


Figure 7-2: Representative diagram of the type of thermal target to be used in the test along representing the four (4) heated strips positioned 76 mm apart.



Figure 7-3: Representative photo of the type of visible target to be used in the test.

## 7.8 Test Preparation

Prior to the start of the test, the Bidder's supplied test article will be inspected for any visual damage. The Bidder's supplied internal battery(ies) will be installed, and the charge level noted by visual means via the test article's Battery Status Indicator in accordance with the Bidder's supplied user instructions.

## 7.9 Test Methodology

A tailored MIL-STD-810H (Ref B), Method 502.7 "Low Temperature", Procedure II "Operation" (constant temperature exposure) and Procedure III "Manipulation" test will be performed as follows:

- The Bidder's supplied test article will be placed into the environmental test chamber along with the Bidder's supplied AC Power Cable Assembly (not connected to the test article);
- The Functional Performance Check procedure will be conducted at standard ambient temperature;
- The environmental test chamber temperature will be set to  $-32^{\circ}\text{C} \pm 2^{\circ}\text{C}$ . The test unit will be conditioned at  $-32^{\circ}\text{C}$  for a minimum of 12 hours, not to exceed 24 hours;
- With the Bidder's supplied test article in the test chamber at  $-32^{\circ}\text{C}$ , a visual examination will be conducted to identify any physical damage;
- The Functional Performance Check procedure will be conducted using the Bidder's supplied test article in the environmental test chamber at  $-32^{\circ}\text{C}$ ;
- The environmental test chamber will be warmed to standard ambient temperature;
- A visual examination of the Bidder's supplied test article will be conducted to identify any physical damage; and
- The Functional Performance Check procedure will be conducted at standard ambient temperature.

## 7.10 Test Results

Maintain QETE test record sheets on file for audit purposes.

Record the following results and provide to the LRF HHTI-LR Technical Evaluation Team in an interim Test Report:

- Results of Functional Performance Checks

## APPENDIX 4 TO ANNEX H

### CAPABILITY PERFORMANCE EVALUATION – FIELD TESTING (GATE 2B)

#### TEST PLAN AND PROCEDURES

#### FOR THE BID EVALUATION OF THE

#### LASER RANGE FINDER - HAND-HELD THERMAL IMAGER - LONG RANGE (LRF HHTI-LR)



##### NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document must continue to apply.

##### AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

## TABLE OF CONTENTS

1	Test Plan.....	4
1.1	Scope .....	4
1.1.1	Identification .....	4
1.1.2	System Overview .....	4
1.1.3	Document Overview .....	4
1.1.4	Relationship to Other Plans and Documents .....	4
1.2	Test Environment.....	5
1.2.1	Test Sites .....	5
1.2.2	Items Under Test.....	5
1.3	Participating Organizations .....	5
1.3.1	Project Management Office – Night Vision Systems Modernization (PMO NVSM) .....	5
1.3.2	Canadian Forces Testing and Evaluation Unit (CATEU) .....	6
1.3.3	Bidders .....	7
1.3.4	Supporting Military Unit Personnel.....	7
1.3.5	Other Organizations .....	7
1.4	Common Test Processes.....	7
1.4.1	Test/Trial Readiness Review (TRR).....	7
1.4.2	Witnessing of Tests .....	8
1.4.3	Recording of Test Results .....	8
1.4.4	Test Completion Review (TCR) .....	8
1.5	Test Schedule.....	8
1.6	Requirements Traceability .....	9
2	Test Procedure - Gate 2B - Test 01: Static Range Performance – Recognition and Identification of Person Sized Targets.....	10
2.1	Applicable Requirements .....	10
2.1.1	Nighttime Environment .....	10
2.1.2	Dusk / Dawn Environment.....	10
2.1.3	Daytime Environment .....	10
2.2	Aim .....	10
2.3	Determination of Static Range Performance .....	10
2.4	Test Article Configuration.....	11
2.5	Functional Performance Check(s).....	11
2.6	Trial Instrumentation And Equipment .....	11
2.7	Test Stimuli .....	11
2.8	Test Participants/Groupings .....	12
2.9	Target Designation Threshold .....	12
2.10	Test Preparation .....	12
2.11	Test Location and Layout.....	12
2.11.1	General.....	12
2.11.2	Observation Line .....	12
2.11.3	Observation Range .....	13

---

2.11.4	Administrative Area .....	13
2.12	Test Methodology .....	13
2.12.1	Test Sequence .....	13
2.12.2	Initial and Supplemental Training .....	13
2.12.3	Setup for Observation Task .....	14
2.12.4	Observation Task .....	14
2.12.5	Observation Task Data Consolidation.....	14
2.12.6	Setup for Subsequent Active Targets .....	15
2.13	Issues and Anomalies .....	15
2.14	Test Results.....	15

# 1 Test Plan

## 1.1 Scope

### 1.1.1 Identification

This Test Plan describes the testing to be carried out for Gate 2B – Capability Performance Evaluation – Field Testing of the LRF HHTI-LR technical bid evaluation.

Field testing for Gate 2B is focused on determining LRF HHTI-LR recognition and identification ranges for static targets under field conditions during day, dusk / dawn and night.

### 1.1.2 System Overview

The main component of the LRF HHTI-LR System is the LRF HHTI-LR. The LRF HHTI-LR is a hand-held binocular device with a Laser Range Finder, cooled Thermal Channel and Secondary Channel for day and / or low light conditions. It is used by soldiers and sailors to enable the timely detection, recognition and identification of objects of interest under varying conditions of light and visibility. The LRF HHTI-LR System provides a capability for the accurate geolocation of targets, and the onwards transmission of target data to other systems. Imagery produced by the LRF HHTI-LR System can be saved and transferred for analysis. The LRF HHTI-LR System will be used by the Canadian Army in the combat arms leader, sniper, reconnaissance, and other similar roles. It will be used by the Royal Canadian Navy to enhance general situational awareness, by boarding parties, and for security surveillance when in port.

The LRF HHTI-LR is supported by a number of other components that are required to provide the full functionality of the system. Other equipment components include batteries, a tripod, various accessories to interface The LRF HHTI-LR to other systems and external power sources, pouches for carriage in the field, and containers for storage and logistic transport.

### 1.1.3 Document Overview

This document provides coordinating information for the DND LRF HHTI-LR project team (PMO NVSM), CATEU staff, supporting Canadian Army units and Bidders to ensure testing is planned and conducted in an ordered and efficient manner that is clear to all stakeholders.

This document provides information to the Bidders on the details of the test procedures to which their systems will be subjected in the Gate 2B field tests.

Section 1 of this Test Plan provides the coordinating information for all stakeholders.

Sections 2 of this Test Plan provides the detailed test procedures for the tests to be conducted.

### 1.1.4 Relationship to Other Plans and Documents

Specific instructions to Bidders related to the testing described in this Test Plan can be found in Annex H to the LRF HHTI-LR Request for Proposal (RFP) *Technical Bid Evaluation – Instructions to Bidders and Evaluation Procedures*.

Coordinating instructions for the conduct of the testing described in this Test Plan can be found in Appendix 4-1 to Annex H *Coordinating Instructions*. Appendix 4-1 is not available to bidders.

Results of testing will be recorded in Appendix 1 to Annex H *Technical Evaluation Scoresheet*. The *Technical Evaluation Scoresheet* also describes how the results of testing in terms of recognition and identification ranges are converted into scores for the purpose of bid evaluation.

A summary of test results will also be recorded in the LRF HHTI-LR Test Results Module in DOORS.

## **1.2 Test Environment**

### **1.2.1 Test Sites**

Testing in support of Gate 2B of the LRF HHTI-LR Bid Evaluation will occur at 5 Canadian Division Support Base Gagetown, Oromocto, New Brunswick.

### **1.2.2 Items Under Test**

The primary item under test will be the LRF HHTI-LR binocular devices proposed by Bidders in response to the LRF HHTI-LR RFP.

Items under test will be evaluated against selected specifications from the LRF HHTI-LR Systems Requirements Specification (SRS) and will not be directly tested against the devices supplied by other Bidders.

While the requirements against which the items are tested may be written as “system” level requirements, the testing conducted within the scope of this Test Plan will focus on the ability of the LRF HHTI-LR powered by either internal batteries or 110V AC power to satisfy the requirements. The performance of other system components will not be evaluated during testing but are required to support the testing.

An LRF HHTI-LR System used during testing will include:

- LRF HHTI-LR binocular device
- Field Kit Storage and Transport Case(s)
- Field Pouch
- Tripod
- Battery Charger
- Rechargeable Internal Batteries
- AC Power Cable Assembly with 110 V, 60 Hz capability
- Lens Cleaning Kit
- User Manual
- Quick Reference Guide
- Operator tool kit, if applicable

## **1.3 Participating Organizations**

The organizations involved in the planning, conduct and evaluation of the field testing at the test sites(s) and the roles and responsibilities of each are described below.

### **1.3.1 Project Management Office – Night Vision Systems Modernization (PMO NVSM)**

PMO NVSM Test and Evaluation Manager (TEM) is responsible for:

- a. Overall responsibility for planning, conduct and evaluation of Capability Performance – Field Testing
- b. The overall design of the test and development of this Test Plan
- c. Appointing a Test Director responsible for the detailed planning and execution of the Test Procedures described in this Test Plan.
- d. Coordination of the high-level schedule of testing in terms of start date and target end date
- e. Conducting a Test/Trial Readiness Review (TRR) four weeks before the scheduled start date of testing

- f. All communications with Bidders (through PSPC) prior to the start of the Field Testing
- g. Finalization and communicating test dates with all participants
- h. Provision of personnel from DSSPM and NVSM to assist in Field Testing, as requested by the Test Director
- i. Coordinating the resolution of issues that occur during testing that cannot be resolved by the Test Director
- j. Evaluation of test results to determine scores for the Technical Bid Evaluation.

The PMO point of contact for bid evaluation testing in Gate 2B is:

Matthew Paul, P.Eng - Test and Evaluation Manager (TEM), PMO NVSM  
Email: Matthew.Paul2@forces.gc.ca

The Test Director is responsible for:

- a. detailed planning and execution of the Test Procedures described in this Test Plan
- b. Recording test results in accordance with data collection/standard test procedures
- c. Completing the Test Report for each Item Under Test as testing proceeds
- d. Conducting a Test Completion Review (TCR) on site at the completion of testing
- e. Providing the Test Report(s) to the NVSM Technical Evaluation Team for determination of resultant scores associated with the Technical Bid Evaluation

PMO NVSM and DSSPM personnel available to support Field Testing in roles such as Test Director, data collection and administrative support include:

- a. NVSM Systems Engineering Manager (SEM)
- b. NVSM Systems Electro-Optics Technician (EO Tech)
- c. DSSPM Human Factors Cell Representatives (HF Cell)
- d. Other DSSPM personnel as required.

The NVSM Project Director (PD) is the main representative of the Canadian Army's LRF HHTI-LR user community. The PD role is integrated within the PMO NVSM and is responsible for:

- a. Defining operational requirements for the LRF HHTI-LR, and verifying that the LRF HHTI-LR System delivered by the project meets defined operational requirements
- b. Tasking of CATEU and Supporting Units to support Field Testing
- c. All communications between PMO NVSM and Supporting Units of the Canadian Army involved in Field Testing

### **1.3.2 Canadian Forces Testing and Evaluation Unit (CATEU)**

CATEU is responsible for:

- a. Appointing a Test Support Officer as a single point of contact related to the planning and conduct of testing at the test site(s)
- b. Review of this Test Plan
- c. Provision of advice to the TEM and Test Director related to all aspects of this Test Plan during planning and conduct of this Test
- d. Attending the TRR

- e. Assisting the TEM with the resolution of logistic and operational issues that cannot otherwise be solved by the supporting units
- f. Provision of material specific to field testing that would not normally be held by a Supporting Unit, such as heated targets and observation response boards
- g. Provision of two Command Post SEVs for the duration of the Test
- h. Alerting PMO NVSM of issues observed during testing
- i. Attending the Test Completion Review (TCR) on site at the completion of testing

### 1.3.3 Bidders

Each Bidder is responsible for:

- a. Ensuring that instructions to Bidders related to Gate 2B - Field Testing found in Annex B *Technical Bid Evaluation – Instructions to Bidders and Evaluation Procedures* are followed
- b. Appointing a single point of contact related to Gate 2B – Field Testing
- c. Appointing a Field Service Representative (FSR) team of up to three people to be on site during the Field Testing to provide training, system configuration, adjustment, repair, and support.

### 1.3.4 Supporting Military Unit Personnel

The primary supporting military unit is the Second Battalion, The Royal Canadian Regiment (2 RCR). 2 RCR is responsible for:

- a. Providing all vehicles, materiel, tentage, communications and rations required for the conduct of the Field Testing, with the exception of material specific to Testing provided by CATEU.
- b. Providing test participants to test the equipment.
- c. Providing personnel for general duty tasks such as setup, transportation, target placement and moves as well as cleanup/tear down.

Additional supporting military personnel, primarily test participants, may be drawn from other units across Canada as required.

### 1.3.5 Other Organizations

External witnesses, such as a representative of PSPC's Contracting Authority, Fairness Monitor, and other Government of Canada representatives may be present to observe the process/testing/trials. No other witnesses beyond the technical representative teams from Bidder organizations will be permitted to attend.

## 1.4 Common Test Processes

### 1.4.1 Test/Trial Readiness Review (TRR)

A Test/Trial Readiness Review session will be conducted virtually by PMO NVSM four weeks before the scheduled start of testing. The TRR will be participants will include:

- PMO NVSM Test & Evaluation Manager (TEM)
- Test Director
- NVSM Project Director
- CATEU Test Officer
- PMO NVSM System Engineering Manager (SEM)
- Supporting Unit representative
- Testers and witnesses assigned by PMO NVSM and CATEU

The latest version of this Test Plan will be circulated to TRR participants two weeks prior to the TRR.

The aim of the TRR is to:

- Provide a final orientation of the activities described in this Test Plan to participants
- Review the administrative procedures related to testing and recording of test results
- Confirm test schedule and availability of test and witness personnel
- Confirm readiness of all participating organizations to proceed
- Identify issues that may delay the completion of test activities in a timely manner

#### **1.4.2 Witnessing of Tests**

The Bidder's FSR team will witness all testing involving the Bidder's SST. Additional high-level witnessing of tests may involve the PSPC Contracting Authority, and the Fairness Monitor.

#### **1.4.3 Recording of Test Results**

Test results will be recorded on paper by the data collector assigned to each Bidder's SST, with the recording witnessed by a member of the Bidder's FSR team. Test results for each serial of testing will be scanned and physically secured by the lead data collector.

#### **1.4.4 Test Completion Review (TCR)**

A TCR will be conducted on-site by the CATEU Test Officer the day after the completion of testing. The TCR participants will include:

- PMO NVSM TEM
- Test Director / PMO NVSM SEM
- CATEU Test Officer
- Supporting Unit representative
- Key data collectors and witnesses
- External witnesses

The draft Test Report with full test results will be circulated to the TCR participants prior to the TCR.

The aim of the TCR is to:

- Confirm that the activities described in this Test Plan to participants were adequately followed
- Review the administrative procedures related to testing and recording of test results and assess their completion
- Confirm the accuracy of the Test Report
- Identify any issues or concerns that may have arisen after the completion of test activities in a timely manner

### **1.5 Test Schedule**

It is anticipated that field testing related to Gate 2B will occur the week of May 6-10, 2024. Canada will confirm the dates and location of the field testing related to Gate 2B no later than two weeks prior to the start of testing. Canada will provide a field testing schedule at that time.

Schedule dates relative to the date of Bid Closing may be affected by:

- Availability of CATEU, supporting units and suitable ranges
- Whether or not Gate 2B Capability Performance Evaluation – Field Testing and Gate 3 User Acceptance Performance Evaluation are conducted in serial at the same location
- Number of SST available for bid evaluation purposes from each Bidder

A full rehearsal of the Test Procedures described in Section 2 will occur using in-service HHTI systems during the week prior to the Field Testing. The rehearsal will not involve the Bidders' SST or Bidder personnel.

Field testing will occur over a minimum number of days equal to the number of Bidders that have submitted responses to the LRF HHTI-LR Request for Proposal, with an additional preliminary test day of dry-runs where performance will not be scored. For example, with three bidders, Field Testing will occur over four days, with all Bidders' SST being tested simultaneously over the test period. Field testing may be extended by additional days due to environmental conditions unsuitable for testing.

Following the completion of Field Testing, an additional day will be required for the TCR, which will not involve Bidder personnel.

A detailed sequence of activities during a standard testing day is provided in Section 2.12.1 Test Sequence.

## **1.6 Requirements Traceability**

The requirements tested by each Test Procedure are identified within the Test Procedure. Traceability from Test Procedure to requirements in the SRS are established within the DOORS requirements management tool.

## **2 Test Procedure - Gate 2B - Test 01: Static Range Performance – Recognition and Identification of Person Sized Targets**

### **2.1 Applicable Requirements**

#### **2.1.1 Nighttime Environment**

SRS 4.3.2.1.0-2 Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of recognition under operational conditions at night. < rated >

SRS 4.3.2.1.0-3 Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of identification under operational conditions at night. < rated >

#### **2.1.2 Dusk / Dawn Environment**

SRS 4.3.2.2.0-2 Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of recognition under operational conditions during periods of dusk and dawn. < rated >

SRS 4.3.2.2.0-3 Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of identification under operational conditions during periods of dusk and dawn. < rated >

#### **2.1.3 Daytime Environment**

SRS 4.3.2.3.0-2 Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of recognition under operational conditions between sunrise and sunset. < rated >

SRS 4.3.2.3.0-3 Through optimization of holistic system performance, the LRF HHTI-LR should, for a trained user, optimize the probability of identification under operational conditions between sunrise and sunset. < rated >

### **2.2 Aim**

This test will be used to determine the static range performance of the Bidder's SST for person sized targets in terms of recognition and identification in a field environment.

Static range performance is deemed to be an attribute that can be objectively measured that equates to probability of recognition or identification.

### **2.3 Determination of Static Range Performance**

Static range performance will be determined for six conditions that relate to the applicable requirements identified in Section 2.1 Applicable Requirements:

- Recognition of person-sized targets during daytime
- Identification of person-sized targets during daytime
- Recognition of person-sized targets during dusk
- Identification of person-sized targets during dusk
- Recognition of person-sized targets during nighttime
- Identification of person-sized targets during nighttime

Multiple series of observation tasks will be conducted throughout the entire test period. Each series of observation tasks will be configured for either recognition or identification.

For each day or night series of observation tasks, the first observation task will occur at the longest range for the series, with each observation task occurring closer to the observers than the previous observation task.

For each dusk series of observation tasks, the first observation task will occur when at a distance where data collected during the day indicates that all test participants correctly recognized or identified the target. Each subsequent observation task will occur at an incrementally greater distance.

For each observation task, test participants will determine whether they can, with high confidence, either recognize or identify the target as applicable.

A static range performance is determined separately for each test participant for each Bidders SST at the furthest range in which the test participant has confidently and correctly recognized or identified the target for each test condition (day / dusk / night).

The final static range performance of each Bidder's SST for each of the six conditions will be determined by averaging all the static range performances for each condition that were recorded over the entire test period.

## **2.4 Test Article Configuration**

Each Bidder's SST will be tested in the following configuration:

- a. In its Operational Configuration outside of its carrying case
- b. Installed on the Bidder-supplied tripod
- c. The Bidder-supplied internal batteries are installed, and charging/operating via AC power
- d. The ocular and objective covers are removed before testing.

If the Bidder's SST includes a removable afocal magnifier, then the total mass of the LRF HHTI-LR with the afocal magnifier installed must be less than 2.75 kg. Refer to SRS Compliance Matrix for 4.9.1.1 Mass.

## **2.5 Functional Performance Check(s)**

- a. Bidders will be responsible for ensuring that their SST are fully serviceable and ready for testing before testing commences.
- b. During testing, the Bidder will be responsible for performing functional performance checks between data collection points to ensure the device is serviceable and configured appropriately for each observation task.

## **2.6 Trial Instrumentation And Equipment**

- a. Heated Thermal Deer Targets.
- b. Generators
- c. Outdoor Electrical Cords
- d. Modular Tents
- e. Data Collection Laptops

## **2.7 Test Stimuli**

For the recognition task, deer decoys with internal heating elements embedded and static live human soldiers dressed in CADPAT with load carriage (no plates) and holding a C7A2 will be employed as stimuli.

For the identification task, soldiers dressed in military clothing (CADPAT) and holding either a weapon (C7A2, C9A1, or shotgun) or a tool (shovel, pickaxe, or sledgehammer) will be used.

For each recognition or identification task, there will be one active target that will be observed by all Bidders at the same time.

## **2.8 Test Participants/Groupings**

Test participants will be experienced users of the LRF-HHTI-LR capability currently fielded for use by the Canadian Army. Test participants will generally be specialists in the sniper and reconnaissance roles.

Test participants will be assembled into small groups of 2-3 personnel per Bidder device depending upon the number of bidders and personnel availability.

Each test participant group will be assigned to a particular bidder for that day's daytime, dusk and nighttime observation serials.

Test participant groups will then rotate to a different Bidder's SST at the start of each subsequent day of testing. Each participant group will test with each Bidder's SST. The number of days of testing therefore will equal the number of Bidders participating in Field Testing.

## **2.9 Target Designation Threshold**

Participants will be instructed to apply a high threshold for response for the recognition and identification tasks. In all cases the participant should have high confidence in their judgment in order to make a response. The participants will make target designations based on their judgments as sufficient for making real-time decisions, including weapons engagements and as equivalent to positive ID.

## **2.10 Test Preparation**

The Test Site will be setup and prepared one week in advance of the test commencement. A rehearsal of a day of testing will occur using in-service HHTIs without the involvement of Bidder personnel and equipment.

## **2.11 Test Location and Layout**

### **2.11.1 General**

The Field Testing will be conducted on or near the 216 feature on Headline Ridge at 5 Canadian Division Support Base Gagetown, Oromocto, New Brunswick. The test site will consist of an observation range, an observation line, and administrative area.

### **2.11.2 Observation Line**

An observation line will be set up inside a large tent with an open side facing the observation range to protect participants from rain and wind, but that will allow viewing of the observation range. The observation line divided into observation spaces for each Bidder's SST, separated by visual screens.

Each Bidder observation space will have space for the Bidder's SST, i.e., LRF HHTI-LR set up on a tripod, folding tables and chairs for the Bidder, Data Collector, and response boards for test participants to indicate non-verbal target designation responses. Power outlets will be provided for powering the SST.

Each Bidder observation space will have an associated test participant staging area, with visual screening from the observation space, where test participants are staged when not actively observing a target. The staging area will be equipped with folding tables and chairs and have areas for temporary storage of personal equipment of participants.

### **2.11.3 Observation Range**

The test site accommodates an observation range with clear lines of sight to distances greater than the highest claimed static recognition range of the Bidders devices. The observation range presents clear lines of sight to target locations, in an area with limited of heat and light pollution.

All target locations in the observation range are pre-determined and are marked with stakes that are clearly visible during both day and night to personnel who are placing target stimuli for observation tasks.

### **2.11.4 Administrative Area**

There will be a separate enclosed administrative area for the processing of test results, rest area for all participants, and service of meals and snacks.

## **2.12 Test Methodology**

### **2.12.1 Test Sequence**

Each day of testing will generally follow the same sequence. Breaks for health and meals will be determined based on local conditions, timing of sunset, and progress of testing each day.

The standard sequence of events each day will be:

- a. Range safety and test briefing
- b. Assignment of test participant groups to each Bidder for the day.
- c. Initial training by the Bidder' FSR to their test participant group for the day – system overview and functionality related to optimizing daytime recognition and identification (up to one hour)
- d. Daytime recognition testing, comprising a series of recognition tasks at various distances
- e. Daytime identification testing, comprising a series of identification tasks at various distances
- f. Repeat of daytime recognition and identification testing if time allows
- g. Supplemental training – functionality related to optimizing dusk / dawn recognition and identification
- h. Dusk recognition and / or identification testing as time permits
- i. Supplemental training – functionality related to optimizing nighttime recognition and identification
- j. Nighttime recognition testing
- k. Nighttime identification testing
- l. Repeat of nighttime recognition and identification testing if time allows
- m. Test wrap-up session

The first day of testing will comprise a structured walk-through of events for the benefit of all participants. Static range performance results will not be recorded.

### **2.12.2 Initial and Supplemental Training**

Following assignment of the test participant group to the Bidder for the day, each Bidder FSR team will have up to one hour to provide training to the participants on basic adjustment and channel settings to ensure each participant is able to properly adjust the device in order to best observe the target for designation.

Prior to the start of dusk, and nighttime observation tasks, each Bidder FSR team will have additional time to review specific adjustments of the system that may be applicable to the time period of the observation tasks.

### **2.12.3 Setup for Observation Task**

For the first observation task of a day or night series, the target will be positioned at a distance marginally exceeding the maximum expected static performance range for the applicable test condition (day / night, recognition / identification).

For the first observation task of a dusk series, the target will be positioned at the furthest distance where all test participants on all Bidder SST confidently and correctly recognized / identified the target during the day series earlier in the day.

The Bidder's FSR will operate their SST connected to AC power for the duration of the testing.

All Bidders SST will be observing the same target for a given observation task.

The Bidder's FSR will be provided target coordinates (azimuth, elevation and range within lane) in order to locate the target with the SST. Larger military vehicles being used to transport targets may be used to assist in the designation of target locations when required.

The Bidder's FSR will locate the target and configure the SST to optimize the probability of recognition / identification for the environmental conditions at that time.

During setup for the observation task, the test participant group will be staged in an area assigned to the Bidder but partitioned to prevent viewing of the Bidder's SST and active observer.

Once each Bidder FSR has confirmed they are target ready, data collection will begin.

### **2.12.4 Observation Task**

Each test participant group will conduct their observation tasks in parallel, observing the same target.

Test participants of each group will be staged in the staging area associated with the STT to which they are assigned.

One by one, each member of the test participant group will carry out the observation task as follows:

1. The test participant will approach the viewing line and view the sight picture through the SST.
2. The test participant will indicate to data collector if SST setup (height on tripod, eyecup/interpupillary spacing, focus) is acceptable. If unacceptable, the participant will have the opportunity to adjust the SST, with the assistance of the FSR if required.
3. The test participant will provide their target designation nonverbally on the response board to the data collector. For an observation tasks, the possible responses will be either "Human", "Deer" or "Unable to Recognize". For identification tasks, the possible responses will be "Weapon", "Tool" or "Unable to Identify" There will be one data collector per group.
4. The data collector will record the target designation.
5. The test participant will back away from the viewing line and return to the staging area.
6. The data collector will reset the response board to "Unable to Recognize / Identify" as appropriate.

### **2.12.5 Observation Task Data Consolidation**

Once all participants in a test participant group have completed their observation task, the data collector will provide the results of target designations for the test participant group to the Test Data Consolidator.

The Test Data Consolidator will enter the data from each Bidder's test participant group into the master data collection sheet.

The Test Data Consolidator will determine if the results of each Bidder's test participant group meet the criteria for determining static range performance for the conditions associated with the observation series. See Section 2.3 Determination of Static Range Performance for further details.

Once target designations have been consolidated for all Groups into the master data collection sheet, the Test Data Consolidator will determine if static range performance has been determined for the SST of all Bidders for the task sequence. If so, the task series will be deemed complete, and the range will be reset for the next task series.

If the determination of static range performance for the SST of all Bidders SST is not yet complete, the Test Data Consolidator will determine if the next target is ready for observation, and if so, issue target geolocation data for the subsequent target to the Bidder FSRs.

### **2.12.6 Setup for Subsequent Active Targets**

While an observation task is underway, setup for two subsequent active targets will be occurring. Target locations are selected so that setup of a subsequent target location will not normally occur within the field of view of the active observation.

For each day and night observation series, the subsequent active target will be closer to the observation line than the active target.

For each dusk observation series, the subsequent active target will be further from the observation line than the active target.

### **2.13 Issues and Anomalies**

If a Bidders SST becomes unserviceable, the Bidder's FSR will be given an opportunity to resolve the issue or swap the SST with a backup. Test activities will be put on hold for a maximum of fifteen minutes while the bidder restores the SST to operational service.

### **2.14 Test Results**

All test data record sheets will be saved for results validation and audit purposes.

All detailed test results will be appended to the Test Report to be completed by CATEU.

For each Bidder's SST, the following summary test results will be provided to the Technical Evaluation Team for the purposes of determining a score for the Technical Bid Evaluation:

- a. Static Range Performance – Recognition – Person-sized targets – Daytime
- b. Static Range Performance – Identification – Person-sized targets – Daytime
- c. Static Range Performance – Recognition – Person-sized targets – Dusk
- d. Static Range Performance – Identification – Person-sized targets – Dusk
- e. Static Range Performance – Recognition – Person-sized targets – Nighttime
- f. Static Range Performance – Identification – Person-sized targets – Nighttime

## APPENDIX 5 TO ANNEX H

### USER ACCEPTANCE PERFORMANCE EVALUATION (UAPE) – FIELD TESTING (GATE 3)

### TEST PLAN AND TEST PROCEDURES

### FOR THE BID EVALUATION OF THE

### LASER RANGE FINDER - HAND-HELD THERMAL IMAGER - LONG RANGE (LRF HHTI-LR)



#### NOTICE

This documentation has been reviewed by the technical authority and does not contain controlled goods. Disclosure notices and handling instructions originally received with the document must continue to apply.

#### AVIS

Cette documentation a été révisée par l'autorité technique et ne contient pas de marchandises contrôlées. Les avis de divulgation et les instructions de manutention reçues originalement doivent continuer de s'appliquer.

## TABLE OF CONTENTS

1	Test Plan .....	5
1.1	Scope .....	5
1.1.1	Identification .....	5
1.1.2	System Overview .....	5
1.1.3	Document Overview .....	5
1.1.4	Relationship to Other Plans and Documents .....	5
1.2	Test Environment.....	6
1.2.1	Test Sites .....	6
1.2.2	Items Under Test.....	6
1.3	Participating Organizations .....	6
1.3.1	Project Management Office – (PMO NVSM) .....	6
1.3.2	Canadian Forces Testing and Evaluation Unit (CATEU).....	8
1.3.3	Bidders .....	8
1.3.4	Supporting Military Unit Personnel.....	8
1.3.5	Other Organizations .....	8
1.4	Identification of Tests .....	9
1.5	Common Test Processes.....	10
1.5.1	Test Readiness Review (TRR).....	10
1.5.2	Witnessing of Tests.....	10
1.5.3	Recording of Test Results .....	10
1.5.4	Test Completion Review (TCR) .....	10
1.6	Test Schedule .....	11
1.7	Requirements Traceability .....	11
2	Gate 3 - Test 01: Functionality And Ease Of Use - Primary Functions – User Acceptance Performance Evaluation (UAPE) .....	12
2.1	Applicable Requirements .....	12
2.1.1	Functionality and Ease of Use – Primary Functions .....	12
2.1.2	Functionality and Ease of Use – Human Machine Interface (HMI).....	12
2.1.3	Compatibility with Use under Conditions of Darkness .....	12
2.2	Aim .....	12
2.3	Performance Determination .....	13
2.4	Test Article Configuration.....	13
2.5	Functional Performance Check(s).....	13
2.6	Test Instrumentation And Equipment .....	13
2.7	Test Stimuli .....	14

2.8	Test Participants .....	14
2.9	Target Designation Threshold .....	14
2.10	Test Preparation .....	14
2.11	Test Setup .....	15
2.12	User Training .....	15
2.13	Test Methodology .....	15
2.13.1	Target Detection Procedure: .....	16
2.14	Test Results .....	17
2.15	Issues And Anomalies .....	17
2.16	User Acceptance Questionnaires .....	18
2.16.1	User Acceptance Scoring Definitions .....	18
2.16.2	Questionnaire – UAPE – Functionality & Ease Of Use – Primary Functions .....	19
2.16.3	Questionnaire - UAPE – Human Machine Interface (HMI) .....	20
3	Gate 3 - Test 02: Bullet Swirl .....	21
3.1	References .....	21
3.2	Applicable Requirements .....	21
3.3	Aim .....	21
3.4	Acceptance Criteria .....	21
3.5	Test Article Configuration .....	22
3.6	Functional Performance Check(S) .....	22
3.7	Test Instrumentation And Equipment .....	22
3.8	Test Stimuli .....	22
3.9	Test Participants .....	22
3.10	Test Setup .....	22
3.11	User Training .....	22
3.12	Test Methodology .....	23
3.13	Test Results .....	24
3.14	Issues And Anomalies .....	24
3.15	User Acceptance Questionnaire .....	25
3.15.1	User Acceptance Scoring Definitions .....	25
3.15.2	Questionnaire – UAPE – Bullet Swirl .....	25
4	Gate 3 - Test 03: Human Factors Engineering (HFE) Requirements .....	27
4.1	References .....	27
4.2	Applicable Requirements .....	27
4.3	Aim .....	27
4.4	Acceptance Criteria .....	27

---

4.5	Test Article Configuration .....	27
4.6	Test Setup .....	28
4.7	Test Methodology .....	28
4.8	User Acceptance Scoring Definitions .....	29
4.9	Questionnaire - Test Condition – Compatibility With Helmet, Eye Wear & Gloves.....	30
4.10	Test Results .....	31

## LIST OF TABLES

Table 1: Tests to be Performed .....	9
Table 2: User Response Scoring Definitions .....	18
Table 3: Firing Sequence Details: .....	23
Table 4: User Response Scoring Definitions .....	25
Table 5: User Response Scoring Definition .....	29

# 1 Test Plan

## 1.1 Scope

### 1.1.1 Identification

This Test Plan describes the testing to be carried out for Gate 3 – User Acceptance Performance Evaluation (UAPE) – Field Testing of the LRF HHTI-LR technical bid evaluation.

Field testing for Gate 3 is focused on determining LRF HHTI-LR user acceptability for functionality and ease of use in mission simulated environments under field conditions during day and night.

### 1.1.2 System Overview

The main component of the LRF HHTI-LR System is the LRF HHTI-LR. The LRF HHTI-LR is a hand-held binocular device with a Laser Range Finder, cooled Thermal Channel and Secondary Channel for day and/or low light conditions. It is used by soldiers and sailors to enable the timely detection, recognition and identification of objects of interest under varying conditions of light and visibility. The LRF HHTI-LR System provides a capability for the accurate geolocation of targets, and the onwards transmission of target data to other systems. The LRF HHTI-LR System will be used by the Canadian Army in the combat arms leader, sniper, reconnaissance, and other similar roles. It will be used by the Royal Canadian Navy to enhance general situational awareness, by boarding parties, and for security surveillance when in port.

The LRF HHTI-LR is supported by a number of other components that are required to provide the full functionality of the system. Other equipment components include batteries, a tripod, various accessories to interface The LRF HHTI-LR to other systems and external power sources, pouches for carriage in the field, and containers for storage and logistic transport.

### 1.1.3 Document Overview

This document provides coordinating information for the DND LRF HHTI-LR project team – Project Management Office – Night Vision System Modernization (PMO NVSM), CATEU staff and Bidders to ensure testing is planned and conducted in an ordered and efficient manner that is clear to all stakeholders.

This document provides information to the Bidders on the details of the test procedures to which their systems will be subjected in the Gate 3 UAPE Field tests.

Section 1 of this Test Plan provides the coordinating information for all stakeholders.

Sections 2 to 4 of this Test Plan provide the detailed test procedures for the tests to be conducted.

### 1.1.4 Relationship to Other Plans and Documents

Specific instructions to Bidders related to the testing described in this Test Plan can be found in Annex H to the LRF HHTI-LR Request for Proposal (RFP) *Technical Bid Evaluation – Instructions to Bidders and Evaluation Procedures*.

Coordinating instructions for the conduct of the testing described in this Test Plan can be found in Appendix 5-1 to Annex H *Coordinating Instructions*. Appendix 5-1 is not available to bidders.

Results of testing will be recorded in Appendix 1 to Annex H *Technical Evaluation Scoresheet*. The *Technical Evaluation Scoresheet* also describes how the results of testing for the field tests described below in this document are converted into scores for the purpose of bid evaluation.

A summary of test results will also be recorded in the LRF HHTI-LR Test Results Module in DOORS.

## **1.2 Test Environment**

### **1.2.1 Test Sites**

Testing in support of Gate 3 of the LRF HHTI-LR Bid Evaluation will occur at the following site, with exact location on base to be formally confirmed ahead of final scheduling:

5 Canadian Division Support Base Gagetown  
Oromocto, New Brunswick

### **1.2.2 Items Under Test**

The primary item under test will be the LRF HHTI-LR binocular devices proposed by Bidders in response to the LRF HHTI-LR RFP.

Items under test will be evaluated against selected specifications from the LRF HHTI-LR Systems Requirements Specification (SRS) and will not be directly tested against the devices supplied by other Bidders.

While the requirements against which the items are tested may be written as “system” level requirements, the testing conducted within the scope of this Test Plan will focus on the ability of the LRF HHTI-LR powered by either internal batteries or 110V AC power to satisfy the requirements. The performance of other system components will not be evaluated during testing but are required to support the testing.

An LRF HHTI-LR System used during testing will include:

- LRF HHTI-LR binocular device
- Field Kit Storage and Transport Case(s)
- Field Pouch
- Tripod
- Battery Charger
- Rechargeable Internal Batteries
- AC Power Cable Assembly with 110 V, 60 Hz capability
- Lens Cleaning Kit
- User Manual
- Quick Reference Guide
- Operator tool kit, if applicable

## **1.3 Participating Organizations**

The organizations involved in the planning, conduct and evaluation of the field testing at the test sites(s) and the roles and responsibilities of each are described below.

### **1.3.1 Project Management Office – (PMO NVSM)**

PMO NVSM Test and Evaluation Manager (TEM) is responsible for:

- a. Overall responsibility for planning, conduct and evaluation of the UAPE Field Testing
- b. The overall design of the test and development of this Test Plan
- c. Appointing a Test Director responsible for the detailed planning and execution of the Test Procedures described in this Test Plan.
- d. Coordination of the high-level schedule of testing in terms of start date and target end date
- e. Conducting a Test/Trial Readiness Review (TRR) approximately four weeks before the scheduled start date of testing

- f. Coordinating with Bidders for the arrival of FSR teams and their Systems Subject to Test (SST) for Field Testing
- g. All communications with Bidders (through PSPC) prior to the start of the Field Testing
- h. Finalization and communicating test dates with all participants
- i. Provision of personnel from DSSPM and NVSM to assist in Field Testing (Data collection, Administration, Support)
- j. Coordination with Supporting Military Unit of all testing activities on base/range.
- k. Coordinating the resolution of issues that occur during testing
- l. Coordination of test results recording by support staff in accordance with the data collection/standard test procedures
- m. Evaluation of test results to determine scores for the Technical Bid Evaluation.

The PMO point of contact for bid evaluation testing in Gate 3 is:

Matthew Paul, P.Eng - Test and Evaluation Manager (TEM), PMO NVSM

Email: [Matthew.Paul2@forces.gc.ca](mailto:Matthew.Paul2@forces.gc.ca)

The Test Director is responsible for:

- a. detailed planning and execution of the Test Procedures described in this Test Plan
- b. Recording test results in accordance with data collection/standard test procedures
- c. Completing the Test Report for each Item Under Test as testing proceeds
- d. Conducting a Test Completion Review (TCR) on site at the completion of testing
- e. Providing the Test Report(s) to the NVSM Technical Evaluation Team for determination of resultant scores associated with the Technical Bid Evaluation

PMO NVSM and DSSPM personnel available to support Field Testing in roles such as data collection and administrative support include:

- a. NVSM Systems Engineering Manager (SEM)
- b. NVSM Systems Electro-Optics Technician (EO Tech)
- c. DSSPM Human Factors Cell Representatives (HF Cell)
- d. Other DSSPM personnel as required

The NVSM Project Director (PD) / Military Advisor (MA) are the main representatives of the Canadian Army's LRF HHTI-LR user community. The PD/MA role is integrated within the PMO NVSM and is responsible for:

- a. Defining operational requirements for the LRF HHTI-LR, and verifying that the LRF HHTI-LR System delivered by the project meets defined operational requirements
- b. Tasking of CATEU and Supporting Units to support Field Testing
- c. All communications between PMO NVSM and Supporting Units of the Canadian Army involved in Field Testing
- d. Advising PMO NVSM of issues related to the availability of testing personnel based on updates to scheduled testing start date

### 1.3.2 Canadian Forces Testing and Evaluation Unit (CATEU)

CATEU is responsible for:

- a. Appointing a Testing Support Officer as a single point of contact related to the planning and conduct of testing at the test site(s)
- b. Review of this Test Plan
- c. Provision of advice to the TEM and Test Director related to all aspects of this Test Plan during planning and conduct of this Test
- d. Attending the TRR
- e. Assisting the TEM with the resolution of logistic and operational issues that cannot otherwise be solved by the supporting units
- f. Provision of material specific to field testing that would not normally be held by a Supporting Unit, such as heated targets, and observation response boards
- g. Provision of two Command Post SEVs for the duration of the Test
- h. Alerting PMO NVSM of issues observed during testing
- i. Conducting a Test Completion Review (TCR) on site at the completion of testing

### 1.3.3 Bidders

Each bidder is responsible for:

- a. Ensuring that instructions to Bidders related to Gate 3 – UAPE Field Testing found in Annex H *Technical Bid Evaluation – Instructions to Bidders and Evaluation Procedures* are followed
- b. Appointing a single point of contact related to Gate 3 – UAPE Field testing
- c. Appointing a Field Service Representative (FSR) team of up to three people to be on site during the Field Testing to provide training, system configuration, adjustment, repair, and support.

### 1.3.4 Supporting Military Unit Personnel

The primary supporting military unit is the Second Battalion, The Royal Canadian Regiment (2 RCR). 2 RCR is responsible for:

- a. Appointing a main Point of Contact responsible for all coordination of personnel within the Supporting Unit.
- b. Providing all vehicles, materiel, communications and rations required for the conduct of the Field Testing, with the exception of material specific to Testing provided by CATEU.
- c. Providing personnel/participants to test the equipment.
- d. Providing personnel for general duty tasks such as setup, transportation, target placement and moves as well as cleanup/tear down.

Additional supporting military personnel, primarily test participants, may be drawn from other units across Canada as required.

### 1.3.5 Other Organizations

External witnesses, such as a representative of PSPC's Contracting Authority, Fairness Monitor, and other Government of Canada representatives may be present to observe the process/testing/trials. No other witnesses beyond the technical representative teams from Bidder organizations will be permitted to attend.

## 1.4 Identification of Tests

Tests to be performed are identified in the table below.

Table 1: Tests to be Performed

<b><i>Test ID and Description</i></b>	<b><i>Test Lead</i></b>	<b><i>Sequence</i></b>	<b><i>Estimated Test Duration</i></b>	<b><i>Notes</i></b>
<b>Gate 3 - Test 01:</b> Functionality And Ease Of Use - Primary Functions – User Acceptance Performance Evaluation (UAPE)	NVSM TEM	1	3-4 days/nights	Does not include setup or tear down
<b>Gate 3 - Test 02:</b> Bullet Swirl	NVSM TEM	2	1-2 days	Includes setup and tear down
<b>Gate 3 - Test 03:</b> Human Factors Engineering (HFE) Requirements	NVSM TEM	3	1 day	

Estimated test durations are per item under test, and include time to:

- Familiarize with equipment operation
- Set up tests
- Conduct tests
- Record results
- Pack up equipment
- Populate the Test Reports

## **1.5 Common Test Processes**

### **1.5.1 Test Readiness Review (TRR)**

A Test/Trial Readiness Review session will be conducted by PMO NVSM approximately four weeks before the scheduled start of testing. The TRR will be participants will include:

- PMO NVSM Test & Evaluation Manager (TEM)
- Test Director
- NVSM Project Director
- CATEU Test Officer and other key CATEU participants
- PMO NVSM System Engineering Manager (SEM)
- Supporting Unit representative
- Testers and witnesses assigned by PMO NVSM and CATEU

The latest version of this Test Plan will be circulated to TRR participants two weeks prior to the TRR.

The aim of the TRR is to:

- Provide a final orientation of the activities described in this Test Plan to participants
- Review the administrative procedures related to testing and recording of test results
- Confirm test schedule and availability of test and witness personnel
- Confirm readiness of all participating organizations to proceed
- Identify issues that may delay the completion of test activities in a timely manner

### **1.5.2 Witnessing of Tests**

The Bidder's FSR team will witness all testing involving the Bidder's SST. Additional high-level witnessing of tests may involve the PSPC Contracting Authority, and the Fairness Monitor.

### **1.5.3 Recording of Test Results**

The pre-prepared paper copy questionnaires will be provided to the participants directly following specific test phase sequences in order to evaluate specific requirements during the UAPE. Participants will be provided with sufficient time to evaluate and complete the questionnaires based on their perceived ability to accomplish pre-set tasks/objectives. The paper copies will be collected once participants are finished and will be scanned/physically secured by the main data consolidation personnel. The scores from these completed questionnaires will also be recorded into a main data collection repository to ensure the data is securely consolidated.

### **1.5.4 Test Completion Review (TCR)**

A TCR will be conducted on-site by the PMO NVSM Technical Evaluation team within 1-2 days after the completion of testing. The TCR participants will include:

- PMO NVSM TEM
- Test Director
- CATEU Test Officer
- PMO NVSM SEM
- Supporting Unit representative
- Key data collectors and witnesses
- External witnesses

The draft Test Report/Test Data with full test results will be circulated to the TCR participants prior to the TCR.

The aim of the TCR is to:

- Confirm that the activities described in this Test Plan to participants were adequately followed
- Review the administrative procedures related to testing and recording of test results and assess their completion
- Confirm the accuracy of the Test Report/Test Data
- Identify any issues or concerns that may have arisen after the completion of test activities in a timely manner

## 1.6 Test Schedule

The formalized test schedule with all detailed events will be provided to Bidders and FSR teams following bid closure and with sufficient time ahead of testing. Schedule is based upon number of Bidders involved with testing and cannot be confirmed prior to Bid Closure.

It is anticipated that field testing related to Gate 3 will occur the week of May 13-17, 2023. Canada will confirm the dates and location of the field testing related to Gate 3 no later than two weeks prior to the start of testing. Canada will provide a detailed field testing schedule at that time.

Schedule dates relative to the date of Bid Closing may be affected by:

- Availability of CATEU, supporting units and suitable ranges
- Whether or not Gate 2B Capability Performance Evaluation – Field Testing and Gate 3 User Acceptance Performance Evaluation are conducted in serial at the same location
- Number of SST available for bid evaluation purposes from each Bidder

A full rehearsal of the Test Procedures described in the following sections will occur using in-service HHTI systems during the weeks prior to the Field Testing. The rehearsal will not involve the Bidders' SST or Bidder personnel.

The main UAPE Field testing (Test 01) will occur over a minimum number of days equal to the number of Bidders that have submitted responses to the LRF HHTI-LR Request for Proposal. For example, with three bidders, Field Testing will occur over three days for Test 01, with all Bidders' SST being tested simultaneously over the test period. Field testing may be extended by additional days due to environmental conditions unsuitable for testing. Bullet Swirl Testing (Test 02) will occur over one day to be separate and following Test 01. Human Factors Elements (HFE) Testing (Test 03) will occur over less than one day and will either be scheduled between UAPE testing should timing permit or will be assessed on a following free day. Ultimately, Gate 3 testing is not expected to exceed 1 full week of testing.

Following the completion of Field Testing, an additional day will be required for the TCR, which will not involve Bidder personnel.

## 1.7 Requirements Traceability

The requirements tested by each Test Procedure are identified within the Test Procedure. Traceability from Test Procedure to requirements in the SRS are established within the DOORS requirements management tool.

## **2 Gate 3 - Test 01: Functionality And Ease Of Use - Primary Functions – User Acceptance Performance Evaluation (UAPE)**

### **2.1 Applicable Requirements**

#### **2.1.1 Functionality and Ease of Use – Primary Functions**

SRS 4.10.4.1.0-1 The functionality and ease of use of the LRF HHTI-LR related to the maintenance of a high level of situational awareness, scanning of an area of interest, and speed of detection, recognition and identification of targets must be acceptable to users under operational conditions. < rated >

SRS 4.10.4.1.0-2 The functionality and ease of use of the LRF HHTI-LR related to the detection, recognition and identification of targets using the Thermal Channel must be acceptable to users under operational conditions. < rated >

SRS 4.10.4.1.0-3 The functionality and ease of use of the LRF HHTI-LR related to the detection, recognition and identification of targets using the Secondary Channel must be acceptable to users under operational conditions. < rated >

SRS 4.10.4.1.0-4 The functionality and ease of use of the LRF HHTI-LR related to the geolocation of targets using the Laser Range Finder must be acceptable to users under operational conditions.< rated >

SRS 4.10.4.1.0-7 The functionality and ease of use of the LRF HHTI-LR related to the display of data on the display must be acceptable to users under operational conditions. < rated >

#### **2.1.2 Functionality and Ease of Use – Human Machine Interface (HMI)**

SRS 4.10.5.0-1 When used in the Operational mode, the LRF HHTI-LR physical controls (including buttons, knobs, toggle switches, joy sticks or other controls) used in the human machine interface must be accessible by the user without the necessity of moving a hand in a way that affects the stability of the device.

SRS 4.10.5.0-2 The LRF HHTI-LR must have physical controls that are positioned such that their manipulation does not interfere with continuous surveillance by the user when the LRF HHTI-LR is being held in two hands.

#### **2.1.3 Compatibility with Use under Conditions of Darkness**

SRS 4.10.3.0-1 The LRF HHTI-LR must have external controls whose arrangement, size and shape can be identified and manipulated by the user using only the sense of touch.

SRS 4.10.3.0-2 The LRF HHTI-LR must have external controls whose arrangement, size and shape can be identified and manipulated by the user using only the sense of touch while wearing Cold Wet Weather Gloves.

SRS 4.10.3.0-3 During conditions of total darkness, assembly of the LRF HHTI-LR into a configuration where the LRF HHTI-LR is mounted on the Tripod and interfaced to an external power source must be compatible with a user wearing Cold Wet Weather Gloves and without the use of special tools.

### **2.2 Aim**

This test will be used to determine the capability of each Bidder's SST to maintain a high level of situational awareness while scanning an area of interest as well as completing other secondary mission tasks. The metrics being evaluated are the speed of detection, recognition and identification of targets, geolocation of targets using the Laser Range Finder, the display of data, and saving and storing of images.

## 2.3 Performance Determination

Performance will be assessed through user acceptance in the form of user survey/questionnaires. The questionnaires can be reviewed in section 2.16 below. Questionnaires will be divided up and grouped into segments which reflect the Applicable requirements sections from the SRS (Primary Functions, HMI, etc.). Every questionnaire section will consist of questions that align with the specific SRS requirements and ask the participant to evaluate the SST on a 7 point scale. The definition of user responses within this scale can be found within section 2.16.1 below. This 7 point scale will assess the ability of the participant to be able to complete their task with the SST. Any score of 3 or below indicates that the participant was not able to successfully complete their assigned task. In order for a SST to be deemed to have met any requirement as stated, it is required that the average of all participants responses to a specific requirement be evaluated as a score of 4 or above.

Questionnaire sections referring to Functionality and Ease of Use – Primary Functions (SRS Section 4.10.4.1.0) will be evaluated on a minimum mandatory scale in which every questionnaire line item must have an average of all participants scoring of 4 or above to be deemed as having met the requirement. Additional performance above the minimum mandatory score will be used to further evaluate the Bidders. The average total score of all participants for this section will be used in the Technical Evaluation Scoresheet section for Gate 3. All other sections (Human Machine Interface and Compatibility with Use under Conditions of Darkness) will simply be evaluated on the minimum mandatory scale requiring an average participant scoring of 4 or above for all questionnaire line items. There are no further performance ratings for those sections.

## 2.4 Test Article Configuration

Each Bidder's SST will be tested in the following configuration:

- a. In its Operational Configuration outside of its carrying case
- b. Installed on the Bidder-supplied tripod
- c. The Bidder-supplied internal batteries are installed, and charging/operating via AC power
- d. The ocular and objective covers are removed before testing.

## 2.5 Functional Performance Check(s)

- a. Bidders will be responsible for ensuring that their SST are fully serviceable and ready for testing before testing commences.
- b. During testing, the Bidder will be responsible for performing functional performance checks between data collection points to ensure the device is serviceable and configured appropriately for each observation task.

## 2.6 Test Instrumentation And Equipment

- a. Heated Thermal Deer Targets.
- b. Military and Civilian Vehicle Targets
- c. Generators
- d. Outdoor Electrical Cords
- e. Modular Tents
- f. Data Collection Laptops

## 2.7 Test Stimuli

- a. Exact quantity of targets will be determined following the training area trial piloting. Targets will consist of thermal heated deer decoys, threat and non-threat live human personnel, and threat and non-threat vehicle targets.
- b. Within designated recognition ranges deer decoys with internal heating elements embedded will be setup. Additionally, both threat and non-threat vehicles will be setup within their respective recognition ranges.
- c. Within designated identification ranges, general duty soldiers dressed in military clothing (CADPAT) and holding either a weapon (C7A2, C9A1, or shotgun) or a tool (shovel, pickaxe, or sledgehammer) will be positioned.
- d. Approximately 8-10 targets will be demonstrated to each participant at one time and will be randomized per sequence and dictated by the specific range location and environmental conditions present.

## 2.8 Test Participants

- a. Test participants will be experienced users of the LRF-HHTI-LR capability currently fielded for use by the Canadian Army. Test participants will generally be specialists in the sniper and reconnaissance roles.
- b. Test participants will be assembled into small groups of 2-4 personnel per Bidder device depending upon the number of bidders and personnel availability.
- c. Test participants will complete one full sequence of Daytime & Nighttime Data Collection with the same grouping of participants on the same SST device for the entirety of the sequence. This will allow for sufficient training from OEM/FSR in order for participants to be comfortable with adjustments and tuning of the device through the entirety of the test sequence. This setup will also limit participant training/confusion between multiple devices.
- d. Groupings will then be rotated on the following day. Test participants will be rotated throughout all devices to be tested on subsequent Days/Nights to ensure all participants have evaluated all systems being assessed within this gate.
- e. Participants may wear their issued helmet, ballistic eyewear, cold wet weather gloves in addition to any required environmental clothing.

## 2.9 Target Designation Threshold

The nature of the UAPE test design is to allow Participants to simulate a mission situation with the SST. Although accurate target designation is not required for performance determination, it is required to determine the functionality of the device as well as the procedures for completing the UAPE tasks. As such, Participants will use the following target designation threshold as a means for moving through the UAPE procedure. Participants will be instructed to apply a high threshold for response for the recognition and identification portions of the task. In all cases the participant should have high confidence in their judgment in order to make a response. The participants will make target designations based on their judgments as sufficient for making real-time decisions, including weapons engagements and as equivalent to positive ID.

## 2.10 Test Preparation

Testing/Trial Range will be setup and prepared in advance of the trial commencement. Observation line area, targets, administration tents, and training area/FSR tents will all be set in place in advance of testing commencement. The Daytime and subsequent Nighttime Tests will maintain the same methodology and setup. Each SST will be tested by all participants during both daytime and night-time test sequences.

## 2.11 Test Setup

An observation line will be set up in a range training area that accommodates visibility of a minimum of 4000 m by 90 degrees. The observation line will be setup with sufficient spacing for five Bidder Test Spaces/Tables. These Test Spaces will be prepared such that each Bidder FSR Team will have their own observation point with sufficient space to setup the bidder supplied SST on the tripod for viewing of targets down the observation lanes provided. The intended space will allow for the participants to observe the observation lines in the prone position with the bidder supplied device mounted on the tripod.

Targets will be placed within the viewing arcs at varying distances that correspond to the target type/size of which the target must be recognized (deer) or identified (human). Placement of targets will be dependant on the range area but will be setup in a manner to assure the participants properly scan their arcs similar to an operational setting. Target placement will be confirmed by test director staff with current in-service Corel C devices and/or M22 Binoculars to ensure visibility during the setup phase.

Each FSR team will also be provided with a separate area/tent space for user training. This area will be setup with sufficient table/chairs to instruct the grouping of 2-4 personnel on the upcoming task. The training tents/spaces will also be adjacent to a separate field space containing at least one target at short range to be used for training purposes.

## 2.12 User Training

FSR teams will have time to provide situational specific training prior to each data collection sequence to the participants operating their device before the start of the trial. This training should include time for each participant to practice all functions required to complete the stated test methodology with the SST. Participants will be able to ask questions of the OEM only during this training time. This training will be conducted in the field under provided tent space to ensure the soldiers are able to get realistic hands-on experience before conducting data collection.

Participants will be supplied with a user manual and quick reference guide in their preferred language (French or English) which participants will be able to review prior to their data collection sequence and reference while conducting the trial.

## 2.13 Test Methodology

1. Each Bidder FSR will layout their device in the proper field containers and confirm that all components are there.
2. Field Staff will prepare Targets IAW the present scenario.
3. All test participants will be prepared for data collection outside of the viewing line with appropriate participant numbering. This location will be situated to ensure the participants cannot see the test scenario.
4. The first participant from each group will be directed to enter their specified observation line space and setup the device on its tripod, turn it on, and to set the line of sight along the left of arc.
5. Participants will make any necessary adjustments to the device prior to starting data collection (diopter adjustment, tripod height adjustment, etc.) without changing the line of sight of the device.
6. Once all participants state they are ready to start, the Trial Officer will reiterate the number of targets/target types in the scenario and will reiterate the maximum time allowed for the sequence. The Trial Officer will then order the participants to start scanning their arcs.
7. Each participant will then need to scan their viewing arcs and perform the following procedure for each target based on the targets detected: (Should a participant report an entity not part of testing or the same target for the second time they will be informed that they have already completed their actions on for that target. This will enable participants to remain on task.).

### 2.13.1 Target Detection Procedure:

- a. Once the participant detects an entity, they must report to the data collector "Target located" so that the data collector can ensure they have located a viable test target.
- b. The participant will then lose the target and provide a range measurement and azimuth to the data collector. The data collector will mark the range provided in the data collection sheet.
- c. The participant will then report a target recognition of either Military Vehicle, Civilian Vehicle Human or Deer using the non-verbal response board provided.
- d. Any targets not identified as a human will have no further actions required and participants shall continue to scan their arcs for further targets.
- e. If the target has been identified as a human, the participant will then attempt to identify if it is a threat (carrying a weapon) or non-threat (carrying a tool).
- f. If the target is identified as a threat (carrying a weapon) then the participant will identify the target to the data collector using the non-verbal response board, the participants will then continue to scan their arcs for further targets.
- g. If the target is identified as a non-threat (carrying a tool) then the participant will identify the target to the data collector using the non-verbal response board. No further actions are then required for this target and the participant will then continue to scan their arcs for further targets.

### Test Methodology (Continued.)

8. Once the participant has completed their actions for each target, they will report scenario complete to the data collector. The data collector will mark the time. The participant and data collector will remain in place until the Trial Officer orders scenario stop.
9. Once the allotted time has passed (Estimated to be 20-30min) the Trial Officer will order scenario stop. All participants will immediately stop scanning their arcs and step away from the device. The data collectors will verify that they have all the correct data with the participant and report to the Trial Officer when complete.
10. The participant will dis-assemble the device and tripod and return the components to the storage containers.
11. Once all data collectors have verified their data the participants will be directed to move to the completed area (separate from the other participants awaiting the trial). The data collectors and FSRs will then reset the devices to the start state.
12. Participants will then complete the user acceptance performance evaluation (UAPE) questionnaire which will assess the ability of the participant to complete all tasks. The UAPE questionnaire will be directly related to the requirements stated in Section 2.2. These requirements will be mandatory requirements as per the requirement acceptance criteria in Section 2.4.
13. Once the reset of each device is complete the Trial Officer will bring in the second participants and steps 1-12 will be repeated until all participants have gone through their specified device.
14. Once all the participants have gone through on their specified device the Trial Officer will order the following scenario to be setup should timing allow. The Trial Officer will also give the participants another brief stating how many targets in this scenario and reiterating any key points as required.

## 2.14 Test Results

The data collection report will detail the method used during this test and will include pictures of the trial site as well as environmental data present during the date of each data collection sequence. The report will provide detailed results for each participant. Hard copy records will be stored/saved for audit purposes.

Data of the following results will be collected:

- a. Total time to complete serial;
- b. Participant reported grid for each target;
- c. Participant reported target type (Threat/Friendly);
- d. All completed participant questionnaires

## 2.15 Issues And Anomalies

If a participant forgets how to complete a task;

- a. They will have their quick reference guide and user manual for reference/support during testing but will not be able to ask for help once the data collection begins.

If a device stops working during data collection;

- a. The participant will inform the data collector that they believe the device has an issue.
- b. The FSR team will attempt to rectify the issue while the data collector records how much time this takes.
- c. If FSR team can rectify the issue quickly the participant will continue with the trial. It is at the discretion of the FSR team to determine if the device can be repaired/adjusted or if it needs to be swapped for the spare device.

## 2.16 User Acceptance Questionnaires

### 2.16.1 User Acceptance Scoring Definitions




The following scoring definition table will be provided to participants for to use in responses to the User Questionnaire.

Table 2: User Response Scoring Definitions

Scale	Participant Perception	Definition	Score
1	Completely Unacceptable	The participant was unable to complete any part of the task	1
2	Reasonably Unacceptable	The participant was only able to complete a minor part of the task after excessive amount of time and several attempts	2
3	Barely Unacceptable	The participant was only able to complete part of the task successfully	3
4	Borderline	The participant was able to complete the task but experienced considerable difficulty or needed several attempts	4
5	Barely Acceptable	The participant was able to complete the task but experienced minor difficulty or needed more than one attempt	5
6	Reasonably Acceptable	The participant was able to successfully complete the task without difficulty.	6
7	Completely Acceptable	The participant was able to successfully complete the task quickly and easily.	7




## 2.16.2 Questionnaire – UAPE – Functionality & Ease Of Use – Primary Functions

The following questionnaire will be provided to Participants following their use of the above-mentioned Bidder's SST during the main UAPE mission tests.

<b><u>LRF-HHTI-LR</u> _____ (Manufacturer)</b>	
<b>Test Condition – Document test conditions of UAPE</b>	
<p>Rate the ease of completing the following tasks with the LRF-HHTI-LR. Consider issues such as:</p> <ul style="list-style-type: none"> <li>• ease of reaching and locating the controls without looking</li> <li>• if fingers are naturally on the controls when holding the LRF-HHTI-LR</li> <li>• ease of identifying the correct control for an operation</li> <li>• ease of accidentally activating a control</li> <li>• number of menu steps involved in each operation</li> <li>• needing to change how you held the LRF-HHTI-LR to use a control</li> <li>• if changing your hold interrupted your ability to observe</li> </ul> <p>Please add specific comments in the box on the next page if needed to clarify a problem or strength.</p>	<p>User Assessment</p> <p>    </p> <p>1   2   3   4   5   6   7</p>
Rate the ease of assembling the LRF-HHTI-LR including mounting it on a tripod and connecting to external power	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the time required to assemble the LRF-HHTI-LR	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of powering up the LRF-HHTI-LR	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of determining when the HHTI-LR has cooled to its operating temperature	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of acquiring a target and operating the zoom to improve the image	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of using the controls needed to identify a target	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of changing the field of view	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of changing the image polarity (white hot / black hot)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of determining the range to a target	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of determining the bearing to a target	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of determining the grid reference of a target	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of powering down the LRF-HHTI-LR	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the amount of hand movement needed to operate a control	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the stability of the image if hand movement shifted the LRF-HHTI-LR	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Rate the ability to maintain uninterrupted observation while operating the LRF-HHTI-LR controls	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of disassembling and stowing the LRF-HHTI-LR including removing it from the tripod and disconnecting external power	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the time required disassemble and stow the LRF-HHTI-LR	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Score</b>	<b>_____ out of 119</b>

### 2.16.3 Questionnaire - UAPE – Human Machine Interface (HMI)

Human Machine Interface (HMI)							
							
	1	2	3	4	5	6	7
Rate the ease of reaching the controls without moving hands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of locating the controls without looking using bare hands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of locating the controls without looking wearing gloves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of using the buttons/joystick using bare hands	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of using the buttons/joystick wearing gloves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of using the controls to power up the HHTI-LR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of using the controls needed to identify a target	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of changing the field of view	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of changing the image polarity (white hot / black hot)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of determining the range to a target	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of determining the bearing to a target	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of determining the grid reference of a target	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the ease of powering down the HHTI-LR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rate the overall ease of use of the controls	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Please provide comments on what you found easy to use or where you had difficulties with the controls on this LRF-HHTI-LR							
<b>Score</b>	<b>_____ out of 98</b>						

### **3 Gate 3 - Test 02: Bullet Swirl**

#### **3.1 References**

- a. N/A

#### **3.2 Applicable Requirements**

SRS 4.10.4.1.0-4 The functionality and ease of use of the LRF HHTI-LR to use the observation of bullet swirls with the thermal channel to adjust fire must be acceptable to users under operational conditions in the following scenario:

- The LRF HHTI-LR thermal channel is offset no more than one metre from the axis of the rifle barrel; and
- A 7.62 x 51mm NATO non-tracer round is fired at a target at 800 metres  
< Mandatory - rated >

SRS 4.10.4.1.0-5 The functionality and ease of use of the LRF HHTI-LR to use the observation of bullet swirls with the thermal channel to adjust fire should be acceptable to users under operational conditions in the following scenario:

- The LRF HHTI-LR thermal channel is offset up to ten metres from the axis of the rifle barrel; and
- A 7.62 x 51mm NATO non-tracer round is fired at a target at 800 metres  
< Desirable - rated >

#### **3.3 Aim**

This test will determine if the LRF HHTI LRs can effectively observe the bullet swirls/trajectory from a 7.62 x 51mm NATO non-tracer round fired from a sniper as it traverses to a target at 800 metres. This requirement is critical to the role of a sniper and their ability to adjust fire upon observations of previously fired rounds using the LRF HHTI LR device.

#### **3.4 Acceptance Criteria**

Performance will be assessed through user acceptance in the form of a user survey/questionnaire. The questionnaires can be reviewed in section 3.16 below. Questionnaires will reflect the Applicable requirements section from the SRS (Bullet Swirl under Functionality and Ease of Use). The questionnaire section will consist of questions that align with the specific SRS requirements and ask the participant to evaluate the SST on a 7 point scale. The definition of user response within this scale can be found within section 3.15.1. This 7 point scale will assess the ability of the participant to be able to complete their task with the SST. Any score of 3 or below indicates that the participant was not able to successfully complete their assigned task. In order for a SST to be deemed to have met any requirement as stated, it is required that the average of all participants responses to a specific requirement be evaluated as a score of 4 or above.

For any rated requirements, additional performance will be provided with a higher score in the overall technical bid evaluation scoresheet, which can be found in Appendix 1 to Annex H. The average score across all participants will be used as the score metric for this test. The bidder with the highest average score will be provided maximum points as shown in the scoresheet. All other bidders will receive a percentage scoring in accordance with the calculations shown in the scoresheet. Note that the requirement to observe the bullet swirl with an offset of one metre or less is deemed to be a mandatory requirement. The requirement to observe the bullet swirl from an offset position will be tested in both the 5m and 10m offset positions. This offset requirement is a desirable requirement with no mandatory component. The Bidder that demonstrates the best performance amongst the two offset positions will receive the maximum number of points provided for each offset. All other bidders will receive a percentage scoring in accordance with the calculations shown in the scoresheet.

### **3.5 Test Article Configuration**

The Bidder Supplied Test Article will be tested in the following configuration:

- a. In its Operational Configuration outside of its carrying case;
- b. The Contractor supplied internal batteries are installed;
- c. The device is connected to an external power source;
- d. The device is mounted on its Contractor supplied tripod; and
- e. The ocular and objective covers are removed before testing.

### **3.6 Functional Performance Check(S)**

- a. Bidders will be responsible for ensuring that their SST are fully serviceable and ready for testing before testing commences.
- b. During testing, the Bidder will be responsible for performing functional performance checks between data collection points to ensure the device is serviceable and configured appropriately for each observation task.

### **3.7 Test Instrumentation And Equipment**

- a. Data Collection Laptops

### **3.8 Test Stimuli**

- a. One standard target will be used per sniper placed at 800m on a conventional style range. Additionally targets located between 300-800m may be required should environmental and range layout conditions dictate that an 800m not be usable.

### **3.9 Test Participants**

Test participants will be experienced users of the LRF-HHTI-LR capability currently fielded for use by the Canadian Army. Test participants will generally be specialists in the sniper and reconnaissance roles.

Test participants will be assembled into small groups of 2-4 personnel per Bidder device depending upon the number of bidders and personnel availability.

Each test participant group will be assigned to a particular bidder for the entirety of that the testing sequence.

Test participant groups will then be rotated to a different Bidder's SST following each sequence of testing. Each participant group will test with each Bidder's SST. The duration of testing therefore will depend entirely upon the number of Bidders participating in Field Testing.

### **3.10 Test Setup**

A conventional style firing range that accommodates firing out to 800m will be used. This test will be completed during daytime.

### **3.11 User Training**

FSR team representatives will be responsible for setting up the SST on tripods in the space provided next to the sniper. They will have the opportunity to adjust all device settings to their desired best performance settings for viewing bullet swirl in the environmental conditions present. No further training will be provided to the participants. The FSR team will be available for questions if required. The FSR will assist the participant in adjusting the user specific settings to maximize the device's ability to see the bullet swirl. Data collectors will confirm each participant is ready for the data collection sequence prior to the start of the firing sequence.

### 3.12 Test Methodology

1. There will be one sniper used for each data collection sequence per device. Each bidder supplied device will be observing the round from this sniper.
2. Each bidder supplied device will be paired with a spotter, and data collector / Assistant Range Safety Officer (ARSO).
3. The RSO will perform all safety requirements for the range training area prior to the commencement of the trial.
4. The RSO will give the ARSOs authorization to commence fire.
5. The Participant (Spotter) and Sniper pair will then proceed through the following firing sequence listed in table 4 below:

Table 3: Firing Sequence Details:

Ser	Description	Target	Range	Rounds	Instruction
1	Confirmation of Zero Prone with Bipod / Hawkins	Fig 11/59 with an aiming mark	100m	20	<ol style="list-style-type: none"> <li>1. Direct the shooters to confirm their ZERO during this Serial.</li> <li>2. Order: <b>ADOPT THE PRONE POSN. LOAD. READY.</b></li> <li>3. Indicate a zeroing mark and order: <b>THREE RD GROUPINGS – GO ON;</b> and</li> <li>4. Repeat as necessary until the shooter is zeroed.</li> </ol>
2	Adjust/Prove at Ranges	Steel Sniper Gongs	800m	5	<ol style="list-style-type: none"> <li>1. Direct the shooters to confirm their data at range that the targets will be placed at for the final test.</li> <li>2. Order: <b>ADOPT THE PRONE POSN. LOAD. READY.</b></li> <li>3. Indicate the multiple targets: <b>CONFIRMATION OF TARGET DATA – GO ON;</b> and</li> <li>4. Repeat as necessary until shooter has proven at 800m.</li> </ol>
3	Test Visualization all devices	Fig 11/59 with an aiming mark	800m	3	<ol style="list-style-type: none"> <li>1. Spotters will have the opportunity to view 3 rounds through each SST device being assessed. This will provide a baseline for evaluation upon start of data collection.</li> </ol>
4	Grouping Prone with Bipod / Hawkins “No Offset” Spotter location	Fig 11/59 with an aiming mark	800m	5	<ol style="list-style-type: none"> <li>1. Order: <b>ADOPT THE PRONE POSN. LOAD. READY.</b></li> <li>2. Order: <b>ONE RD AS PER TRIAL PRACTICE – GO ON.</b></li> <li>3. The shooter will fire one rd. at their desired Point of Impact (POI)</li> <li>4. The participant/spotter will observe bullet swirl.</li> <li>5. Repeat four more times.</li> </ol>
Participants to complete “No offset” Questionnaire					
5	Grouping Prone with Bipod / Hawkins “5m Offset” Spotter location	Fig 11/59 with an aiming mark	800m	5	<ol style="list-style-type: none"> <li>1. Order: <b>ADOPT THE PRONE POSN. LOAD. READY.</b></li> <li>2. Order: <b>ONE RD AS PER TRIAL PRACTICE – GO ON.</b></li> <li>3. The shooter will fire one rd. at their desired Point of Impact (POI)</li> <li>4. The participant/spotter will observe bullet swirl.</li> <li>5. Repeat four more times.</li> </ol>
Participants to complete “5m offset” Questionnaire					
6	Grouping Prone with Bipod / Hawkins “10m Offset” Spotter location	Fig 11/59 with an aiming mark	800m	5	<ol style="list-style-type: none"> <li>1. Order: <b>ADOPT THE PRONE POSN. LOAD. READY.</b></li> <li>2. Order: <b>ONE RD AS PER TRIAL PRACTICE – GO ON.</b></li> <li>3. The shooter will fire one rd. at their desired Point of Impact (POI)</li> <li>4. The participant/spotter will observe bullet swirl.</li> <li>5. Repeat four more times.</li> </ol>
Participants to complete “10m offset” Questionnaire					
If range layout and environmental conditions are unfavourable additional ranges for an 800m target, shorter ranges may be used.					

#### Notes

Sniper teams may use the kestrel for Data collection prior to and during range practice to collect environmental data.

6. After the above-mentioned rounds are complete for all participants, the RSO will order the participants to move off the firing line to the survey area:
7. Participants will complete the user acceptance surveys as noted in the appropriate sequences to confirm if bullet swirl was observed.
8. Steps 1-6 will be repeated with participants switching OEM devices and sniper pairs until all participants have completed the task on all devices being assessed.

### 3.13 Test Results

The test report provided to the technical evaluation team following testing will detail the method used during the test and will include pictures of the trial site. The report will provide detailed results for each participant. Records will be stored IAW NVSM Technical Team SOPs as well as established NVSM requirements for audit purposes.

### 3.14 Issues And Anomalies

- a. The participant is unable to observe the bullet swirl:
  - a. The participant will report to the data collector that they failed to observe the bullet swirl.
  - b. The OEM will confirm that the device is working properly and that the settings are such to maximize the device's ability to observe the bullet swirl.
  - c. The participant will then attempt to observe the bullet swirl with the remaining allocated rounds.

### 3.15 User Acceptance Questionnaire

#### 3.15.1 User Acceptance Scoring Definitions

The following scoring definition table will be provided to participants for to use in responses to the User Questionnaire.

Table 4: User Response Scoring Definitions

Scale	Participant Perception	Definition	Score
1	Completely Unacceptable	The participant was unable to complete any part of the task	1
2	Reasonably Unacceptable	The participant was only able to complete a minor part of the task after excessive amount of time and several attempts	2
3	Barely Unacceptable	The participant was only able to complete part of the task successfully	3
4	Borderline	The participant was able to complete the task but experienced considerable difficulty or needed several attempts	4
5	Barely Acceptable	The participant was able to complete the task but experienced minor difficulty or needed more than one attempt	5
6	Reasonably Acceptable	The participant was able to successfully complete the task without difficulty.	6
7	Completely Acceptable	The participant was able to successfully complete the task quickly and easily.	7

#### 3.15.2 Questionnaire – UAPE – Bullet Swirl

<b>HHTI-LR</b> _____ (Manufacturer)							
<p>Rate the ease of observing bullet swirl at different ranges using this HHTI-LR.</p> <p>Consider issues such as the clarity of the swirl path, and the ease of identifying the probable point of impact.</p>						<p>User Assessment</p>	
						☹	☺
1	2	3	4	5	6	7	☺

<b>HHTI-LR DIRECTLY BEHIND THE SHOOTER</b>	
Rate the ease of spotting the start of the swirl when the HHTI is sited directly behind the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of following the swirl to the target when the HHTI is sited directly behind the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of identifying the apex of the swirl trajectory when the HHTI is sited directly behind the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of identifying the point of impact using the swirl when the HHTI is sited directly behind the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>HHTI-LR OFFSET 5M FROM THE SHOOTER</b>	
Rate the ease of spotting the start of the swirl when the HHTI is offset to the side of the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of following the swirl to the target when the HHTI-LR is offset to the side of the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of identifying the apex of the swirl trajectory when the HHTI-LR is offset to the side of the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of identifying the point of impact using the swirl when the HHTI-LR is offset to the side of the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate your impression of the acceptability of the HHTI-LR's ability to display the bullet swirl when HHTI-LR is offset to the side of the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>HHTI-LR OFFSET 10M FROM THE SHOOTER</b>	
Rate the ease of spotting the start of the swirl when the HHTI is offset to the side of the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of following the swirl to the target when the HHTI-LR is offset to the side of the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of identifying the apex of the swirl trajectory when the HHTI-LR is offset to the side of the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of identifying the point of impact using the swirl when the HHTI-LR is offset to the side of the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate your impression of the acceptability of the HHTI-LR's ability to display the bullet swirl when HHTI-LR is offset to the side of the shooter.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>OVERALL ACCEPTABILITY</b>	
Rate the overall acceptability of the HHTI-LR when used to adjust sniper fire by observing the bullet swirl.	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Score</b>	<b>_____ out of 105</b>

## **4 Gate 3 - Test 03: Human Factors Engineering (HFE) Requirements**

### **4.1 References**

N/A

### **4.2 Applicable Requirements**

#### **Cold Wet Weather Gloves**

SRS 4.10.2.1.0-1 The LRF HHTI-LR must be compatible with a user wearing Cold Wet Weather Gloves, NSN: 8415-21-920-9019.

SRS 4.10.2.1.0-2 Assembly of the LRF HHTI-LR into a configuration where the LRF HHTI-LR is mounted on the Tripod and interfaced to an external power source must be compatible with a user wearing Cold Wet Weather Gloves and without the use of special tools.

SRS 4.10.2.1.0-3 The LRF HHTI-LR must be acceptable to users wearing Cold Wet Weather Gloves in operational conditions.

#### **CM735 Ballistic Helmet**

SRS 4.10.2.2.0-1 The LRF HHTI-LR must be compatible with a user wearing a CM735 Ballistic Helmet, NSN: 8470-21-912-7719.

SRS 4.10.2.2.0-2 The LRF HHTI-LR must be acceptable to users wearing a CM735 Ballistic Helmet in operational conditions.

#### **Ballistic Eyewear**

SRS 4.10.2.3.0-1 The LRF HHTI-LR must be compatible with a user wearing Ballistic Eyewear, NSN: 8465-20-001-4355.

SRS 4.10.2.3.0-2 The LRF HHTI-LR must be acceptable to users wearing Ballistic Eyewear in operational conditions.

### **4.3 Aim**

This test will be used to determine the capability/acceptability of each Bidder Supplied Test Article to be used with the various Personal Protective Equipment (PPE) expected to be used by End Users of the equipment being tested during normal operations within the military.

### **4.4 Acceptance Criteria**

Performance will be assessed through user acceptance in the form of a user survey/questionnaire. The questionnaires can be reviewed in section 4.8 below. Questionnaires will be divided up and grouped into segments which reflect the Applicable requirements sections from the SRS (Gloves, Helmet, Eyewear etc.) with scoring separated for each section. Every questionnaire section will consist of questions that align with the specific SRS requirements and ask the participant to evaluate the SST on a 7 point scale. The definition of user response within this scale can be found within section 4.8 below. This 7 point scale will assess the ability of the participant to be able to complete their task with the SST. Any score of 3 or below indicates that the participant was not able to successfully complete their assigned task. In order for an SST to be deemed to have met any requirement as stated, it is required that the average of all participants responses to a specific requirement be evaluated as a score of 4 or above.

### **4.5 Test Article Configuration**

The intent is to have participants fitted with the above mentioned PPE.

## 4.6 Test Setup

HFE elements will be tested in the following conditions:

- a. Test will be conducted under field conditions with the Soldiers wearing: Environmental clothing, Cold Wet Weather Gloves, Ballistic Helmet CM735, and Ballistic Eyewear,

The Trial officer will inspect each participant to ensure the correct fit and serviceable condition of their equipment, and record the HHTI-LR being tested and following participants' information:

- a. Participant name.
- b. Helmet size.
- c. Glove size.

## 4.7 Test Methodology

1. The Trial officer will inspect each participant to ensure the correct fit and serviceable condition of their equipment, and record the SST being tested and following participants' information:
2. Prior to starting this test stand the participants will be provided with instruction based on the quick reference guide for each bidder SST.
3. Each participant will then be required to perform the following in a prone or other designated operational position:
  - a. Assemble the SST including mounting it on a Mini-tripod and connecting it to external power,
  - b. Power up the SST,
  - c. Identify a vehicle target at 500m,
  - d. Change the SST from Wide FOV to Narrow FOV,
  - e. Reverse the polarity on the SST from White Hot to Black Hot and back again,
  - f. Determine the range, bearing and grid reference for the previously identified vehicle target,
  - g. Use the SST secondary channel to identify a person target at 200m
  - h. Determine the range, bearing and grid reference for the previously identified person target,
  - i. Power down the SST, and
  - j. Disassemble the SST and store it in its Field Pouch.
4. The trial officer will have the participants sit up and remove the eyewear, helmet and gloves then complete individual surveys on the compatibility use of the SST with the eyewear, helmet, and gloves.

#### 4.8 User Acceptance Scoring Definitions




The following scoring definition table will be provided to participants for to use in responses to the User Questionnaire.

Table 5: User Response Scoring Definition

Scale	Participant Perception	Definition	Score
1	Completely Unacceptable	The participant was unable to complete any part of the task	1
2	Reasonably Unacceptable	The participant was only able to complete a minor part of the task after excessive amount of time and several attempts	2
3	Barely Unacceptable	The participant was only able to complete part of the task successfully	3
4	Borderline	The participant was able to complete the task but experienced considerable difficulty or needed several attempts	4
5	Barely Acceptable	The participant was able to complete the task but experienced minor difficulty or needed more than one attempt	5
6	Reasonably Acceptable	The participant was able to successfully complete the task without difficulty.	6
7	Completely Acceptable	The participant was able to successfully complete the task quickly and easily.	7

#### 4.9 Questionnaire - Test Condition – Compatibility With Helmet, Eye Wear & Gloves

The following questionnaire will be provided to Participants following their use of the above-mentioned PPE.

<b>HHTI-LR</b> _____ (Manufacturer)	
Rate the ease of completing the following tasks with the LRF-HHTI-LR with the Wet Weather Gloves, Ballistic Eyewear and the CM735 Helmet. Consider issues such as ease of reaching and locating the buttons or joystick, ease of pushing the buttons or moving the joystick, ease of holding the LRF-HHTI-LR, the effect of the size of connectors and knobs, interference between the eyepieces and ballistic eyewear or interference between the helmet brim and the LRF-HHTI-LR body. Please add specific comments in the box on the next page if needed to clarify a problem or strength.	<p style="text-align: center;">User Assessment</p> <p style="text-align: center;">    </p> <p style="text-align: center;">1   2   3   4   5   6   7</p>
Rate the ease of assembling the LRF-HHTI-LR including mounting it on a tripod and connecting external power	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the time required assemble the LRF-HHTI-LR	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of disassembling and stowing the LRF-HHTI-LR including removing it from the tripod and disconnecting external power	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the time required disassemble and stow the LRF-HHTI-LR	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of powering up the LRF-HHTI-LR	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of using the controls needed to identify a target	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of changing the field of view	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of changing the image polarity (white hot / black hot)	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of determining the range to a target	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of determining the bearing to a target	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of determining the grid reference of a target	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the ease of powering down the LRF-HHTI-LR	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Rate the overall compatibility of the LRF-HHTI-LR with Wet Weather Gloves, the helmet and ballistic eyewear	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
<b>Score</b>	<b>_____ out of 91</b>

Comment Section of Table continued below:

Comments:

Please provide comments on aspects of using the HHTI-LR while wearing gloves, helmet and eye wear. Be specific on the problem(s) encountered and the reasons you found them easy or difficult to complete. Point form is acceptable, full sentences are not required.

Examples: the brim of the helmet stopped me from getting a good sight picture through the HHTI. Or buttons were easy to feel through the gloves etc.

#### 4.10 Test Results

The final test report will detail the method used during this test and will include pictures of the trial site. The report will provide detailed results for each participant as well as the completed user questionnaires. Records will be stored IAW NVSM PMO Technical Team SOPs as well as established NVSM requirements for audit purposes.