National Defence
National Defence Headquarters
Ottawa, Ontario
K1A 0K2

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

REQUEST FOR PROPOSAL / DEMANDE DE PROPOSITION

RETURN BIDS TO / RETOURNER LES SOUMISSIONS À:

Bid Receiving – PWGSC / Réception des soumissions - TPSGC
11 Laurier St. / 11 rue Laurier
Place du Portage, Phase III
Core 0B2 / Noyau 0B2
Gatineau
Québec
K1A 0S5

Epost: Please forward an e-mail to TPSGC.DGAreceptiondessoumissions-ABBidReceiving.PWGSC@tpsgc-pwgsc.gc.ca in order to inform the Bid Receiving Unit of your interest in bidding via Epost.
Connexion postel: Veuillez envoyer un courriel à l'adresse courriel suivante : TPSGC.DGAreceptiondessoumissions-ABBidReceiving.PWGSC@tpsgc-pwgsc.gc.ca pour informer l'Unité de réception des soumissions de votre intérêt à soumissionner via Connexion postel

Or By/Ou par Fax To/A: (819) 997-9776

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

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

Solicitation Closes / L'invitation prend fin:

At / à : 1400
(EDT / heure avancée de l'Est)

On / le : September 07, 2023

Title / Titre:	**Solicitation No / No de l'invitation:**
Aircrew Helmet Communication Upgrade / Modernisation des communications du casque de personnel navigant	W8485-237096/B

Date of Solicitation / Date de l'invitation:
July 24, 2023

Address Enquiries to – Adresser toutes questions à:

National Defence Headquarters
101 Colonel By Drive
Ottawa, ON
K1A 0K2

Attn: Dany Lebel, DAP # 2-2-7

dany.lebel2@forces.gc.ca

Telephone No. / N° de téléphone:	**FAX No / No de fax:**
NA	N/A

Destination:
Specified herein / Précisé dans les présentes
TBD

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

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

Delivery required / Livraison exigée:	**Delivery offered / Livraison proposée:**

Vendor Name and Address / Raison sociale et adresse du fournisseur:

Name and title of person authorized to sign on behalf of vendor (type or print) / Nom et titre de la personne autorisée à signer au nom du fournisseur (caractère d'imprimerie):

Name / Nom: _____ **Title / Titre:** _____

Signature: _____ **Date:** _____

Canada

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Appendix 4: Acronyms and Abbreviations

Appendix 5: Contract Data Requirements List (CDRL)

Appendix 6 : Wiring Interconnect Diagrams

PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There is no security requirement associated with this bid solicitation.

1.2 Statement of Work

The Work to be performed is detailed under **Annex A** of the resulting contract clauses. (SOW)

1.3 Debriefings

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

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

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

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The 2003 (2020-05-28) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation, with the following modifications:

a) Section 02, Procurement Business Number is deleted in its entirety.

b) Section 05, Submission of Bids – Subsection 4 is amended as follows:

Delete: 60 days
Insert: 150 days

c) Section 20, Further information – Subsection 2 is deleted in its entirety.

2.1.1 *SACC Manual* Clauses

B1000T (2014-06-26) Condition of Material-Bid
B3000T (2006-06-16) Equivalent Products/ Substitutes (Form, Fit and Function)

2.2 Submission of Bids

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

2.3 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than seven (7) calendar days before the bid closing date. Enquiries received after that time may not be answered.

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

2.4 Applicable Laws

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

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

2.5 Bid Challenge and Recourse Mechanisms

(a) Several mechanisms are available to potential suppliers to challenge aspects of the procurement process up to and including contract award.

(b) Canada encourages suppliers to first bring their concerns to the attention of the Contracting Authority. Canada's Buy and Sell website, under the heading "Bid Challenge and Recourse Mechanisms" contains information on potential complaint bodies such as:

- Office of the Procurement Ombudsman (OPO)
- Canadian International Trade Tribunal (CITT)

(c) Suppliers should note that there are **strict deadlines** for filing complaints, and the time periods vary depending on the complaint body in question. Suppliers should therefore act quickly when they want to challenge any aspect of the procurement process.

2.6 Military aviation replacement parts: Condition and certification of deliverables end items

The following categories do not apply to standard and commercial parts. Standard parts consist of common hardware parts and raw materials, not necessarily designed for aviation use, produced to recognized industry or government specifications, which are available without proprietary limitations (such as Society of Automotive Engineers (SAE), National Aerospace Standard (NAS), Army-Navy Aeronautical Standard (AN), and Military Standard (MS) hardware items). Commercial parts consist of common non-aeronautical parts produced to recognized industry specifications and available on the commercial market. Deliverable standard and commercial parts must be in a new condition.

1. Category #1 - New Materiel
   Deliverable end items to be manufactured or which have been manufactured but not used, which are supplied by:
   a. the owner of the design or manufacturing rights to the items; or,
   b. the authorized manufacturer or agent/distributor of the owner of the design or manufacturing rights to the items; or
   c. distributors approved by Transport Canada (TC) or accredited by the Aviation Suppliers Association, for parts that have an application to a civilian type certified aircraft; or
   d. maintenance organizations approved/accredited by TC, the Department of National Defence (DND)/Canadian Forces Technical Airworthiness Authority or repair stations certified by the Federal Aviation Administration (FAA).
2. Category #2 - New Surplus Materiel
   Deliverable end items, unused and supplied by an entity other than Category #1 sources. Full traceability documentation back to the owner of the design or manufacturing rights to the items or their authorized manufacturer or agent/distributor is required.
3. Category #3 - Other Condition
   Any deliverable end item condition other than Category # 1 or Category #2. Should the Bidder be offering deliverable end items in Category #3, a complete description of the item's condition and all available traceability documentation is required with the bid. Bids containing parts identified in this category are subject to evaluation by Canada.

Deliverable End Item Grid

Bidders must indicate the NATO Supply Code for Manufacturers or Commercial and Government Entity (NSCM/CAGE) code of the manufacturing entity under the appropriate category of the grid. For example, if a Bidder is offering a Category #1 item(s), it must indicate the NSCM number under that category as per the example below. Bidders may use additional pages to provide the complete description called up under Category #3 if necessary.

Item	Category 1 New Materiel	Category 2 New Surplus Materiel	Category 3 Other Condition
For example	NSCM: ABC12 Name: PWGSC	_____	_____
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____

Requirements for Airworthiness Certification

The requirements for airworthiness certification do not apply to the provision of standard and commercial parts. Standard and commercial parts must be accompanied by a packing slip that identifies the name and address of the supplier, the NATO stock number, identification of the manufacturing standard (e.g. SAE, NAS, AN, MS) and manufacturer's part number and model number as applicable; quantity, identification of the lot or batch number if applicable; and the cure date/shelf life if applicable.

Bidders are advised that the Contractor must provide the following airworthiness documentation, for each unit of issue, within the interior packaging or attached to the good(s) supplied under the resulting contract. Note that this requirement is in addition to documentation required in support of invoice payment or other documentation requirements identified within the Contract:

1. Category #1 and #2 military unique aviation replacement parts must have an Original Equipment Manufacturer (OEM) or an OEM's approved manufacturer's Certificate of Conformance, which includes all the following information:

    a. positive identification of the item by type, class, style, grade, model, part number, description, nomenclature and/or serial number, as applicable;
    b. either the following certification, or a similarly worded statement, signed by an authorized inspector, that satisfies the intent of the following:
    I certify that the aeronautical product described here conforms to the applicable design data and is in a condition for safe operations.
    c. identification of both the authorized signatory and the organization.

2. Category #1 and #2 items, which have an application to a civilian type certified aircraft, must be supplied with a Certificate of Conformance, namely:
    a. form TCCA Form One, Authorized Release Certificate, signed by a TC authorized inspector, within the two (2) years before contract award;
    b. FAA Form 8130-3, Airworthiness Approval Tag, or a FAA Form 8130-4, Export Certificate of Airworthiness, signed by a FAA authorized inspector, within the two (2) years before contract award;
    c. European Aviation Safety Agency (EASA) Form One, Authorized Release Certificate, signed by an EASA authorized inspector, within the two (2) years before contract award; or
    d. OEM's or OEM's approved manufacturer's Certificate of Conformance; which includes:
        i. positive identification of the item by type, class style, grade, model, part number, description, nomenclature, and/or serial number, as applicable;
        ii. either the following certification, or a similarly worded statement, signed by an authorized inspector, that satisfies the intent of the following:

I certify that the aeronautical product described here conforms to the applicable design data and is in a condition for safe operations.

iii. identification of both the authorized signatory and organization.

3. Bidders must specify which one of the documents identified above will be provided for each item required to be supplied in response to the bid solicitation.

2.6.1 Military aviation replacement parts – Substitutes and Traceability

The Part Number and NATO Supply Code for Manufacturers (NSCM(s), or the Commercial And Government Entity (CAGE) code indicated in the bid solicitation are the only ones known to the Department of National Defence that meet the form, fit and function requirements of the Original Equipment Manufacturer (OEM) approved type design of the aircraft in which they will be installed. If the Bidder proposes to supply any part with an alternative Part Number or NSCM/CAGE code, the Bidder must provide, with its bid, all the technical information (e.g. drawings, specifications, engineering reports, and/or test reports) necessary to clearly demonstrate that the part proposed has the form, fit and function characteristics equivalent to the Part Number(s) and NSCM/CAGE code(s) specified in the bid solicitation.

Failure to provide the required technical information will result in the bid being declared non-responsive with respect to any part for which such information was requested.

If a part is not manufactured by the OEM of the aircraft, then it must be manufactured by an authorized supplier to the OEM or by the original manufacturer of the part chosen for use by the OEM of the aircraft (or the successor of or licensed by that original manufacturer). Canada reserves the right to verify with the OEM of the aircraft that the manufacturer of a part proposed is in fact authorized by the OEM to produce that part or supplies that part to the OEM.

If the Bidder proposes to supply any part with an alternative Part Number or NSCM/CAGE code, the Bidder must provide the following substitution notice fully completed.

Substitution Notice

1. Item Number: _____

2. Original Technical Data (as referenced below):

   a. Part Number: _____
   b. NSCM/CAGE code: _____
   c. Other: _____
   _____
   _____

3. Proposed Change(s)

   a. Part Number: _____
   b. NSCM/CAGE code: _____
   c. Other: _____
   _____
   _____

4. Reason for Change/Supporting Data:
   _____
   _____

The Bidder is advised that availability and retention of records of the manufacturer sufficient to constitute proof of origin will be a condition of the resulting Contract.

2.7 Substitute Products – Samples (Department of National Defence)

If the Bidder offers a substitute product, Canada reserves the right to request a sample from the Bidder in order to determine its equivalency in form, fit, function, quality and performance to the item specified in the bid solicitation.

The Bidder must, upon request from the Contracting Authority, provide a sample to the Technical Authority, transportation charges prepaid, and without charge to Canada, within **"7 Calendar Days"** from the date of request. The sample submitted by the Bidder will remain the property of Canada and will not be considered as part of the deliverables in any resulting contract. If the sample does not meet the requirements of the bid solicitation or the Bidder fails to comply with the request of the Contracting Authority, the bid will be declared non-responsive

Samples can be sent to

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

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

Section I: Technical Bid (1 electronic reproducible copies on USB or CD and in PDF format)
Section II: Financial Bid (1 electronic copy)
Section III: Certifications (1 electronic copy)

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

Canada requests that bidders follow the format instructions described below in the preparation of hard copy of their bid:

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

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process Policy on Green Procurement (https://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=32573). To assist Canada in reaching its objectives, bidders should:

1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and

2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Section II: Financial Bid

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

Bidders should include the following information in their financial bid:

1. Their legal name;
2. The name of the contact person (including this person's mailing address, phone and facsimile numbers and email address) authorized by the Bidder to enter into communications with Canada with regards to:
   - their bid; and any contract that may result from their bid.

PLEASE NOTE: IF APPLICABLE, IT IS MANDATORY FOR THE BIDDER TO BID ON IDENTICAL LINE ITEMS (I.E. IDENTICAL NATO STOCK NUMBER), AS ONLY THE DELIVERY LOCATION DIFFERS

Section III: Certifications

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

3.1.1 Electronic Payment of Invoices – Bid

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

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

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

3.1.2 Exchange Rate Fluctuation

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

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

(a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.

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

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

Pre-Award Samples and Supporting Documentation

As part of the technical evaluation, to confirm a Bidder's capability of meeting the technical requirements, the following items 1 to 4 must be included with the bid.

1) The bidder must provide two (2) hard copies and two (2) electronic reproducible copies on USB or CD and in PDF format of the following technical data:

2) The bidder must provide the following samples for test and evaluation as part of the bid. Samples to be received by Bid Receiving Unit on or before solicitation close. Samples will be returned to the bidder if found non-compliant at any phase.

Component	Quantity	Note
Microphone	QTY 7	
ANR Headphones	QTY 2 of each size	
CEP/ear plugs	QTY 3 of each size	With helmet interface if applicable

Note: Additional samples may be requested by Canada if required. Failure to provide samples for testing will result in the bid being deemed non-compliant. Components found non-compliant will not be considered further.

3) The bidder must submit a Recommended Spare Parts List (in electronic format, MS Word or MS Excel) applicable to the parts breakdown as indicated in the OEM maintenance manual. The document must also provide for each component the Part Number and associated NSN if available, the price for each item for each of for three years, and the manufacturer and shelf life if any.

4) A copy of any certifications the equipment holds or the test data that shows the equipment meets the requirements as stated in Annex D. Certifications must be from a regulating body or independent testing agencies that are recognized by a regulating body or testing carried out internally by the bidder.

The Bidder must ensure that the required pre-award samples are manufactured in accordance with the technical requirement and are fully representative of the bid submitted. Rejection of the pre-award samples will result in the bid being declared non-responsive.

The Bidder must deliver the required items at no charge to Canada and must ensure that they are received with the bid at time and place of bid closing. Failure to submit the required pre-award samples within the specified time frame will result in the bid being declared non-responsive. The samples submitted by the Bidder will remain the property of Canada

If any supporting documentation is missing, the Contracting Authority will inform the Bidder in writing and provide the Bidder with two (2) working days from the request to submit the missing documentation. Failure to submit the required items in the specified time frame will result in the bid being declared non-responsive.

The pre-award samples will be evaluated for quality of workmanship and conformance to specified materials and measurements.

The requirement for the items will not relieve the successful bidder from strictly adhering to the technical requirement of this Request for Proposal and any resultant contract.

4.1.1.2 Evaluation Methodology:

The evaluation will take place in two (4) phases as follows:

Phase 1 - Mandatory Requirements Worksheets

Phase 2 – Mandatory Engineering Testing

Phase 3 – User and Operational Testing

Phase 4 – Rated Results into Candidate Systems

Note: please refer to Annex B Technical Evaluation Plan for additional details

4.1.2 Financial Evaluation

4.1.2.1 Mandatory Financial Criteria

a. The Bidder must submit firm unit prices in Canadian dollars, applicable taxes are excluded, FCA (Contractor's facility) Incoterms 2000, transportation costs excluded, all applicable Customs Duties and Excise taxes excluded.

b. The Bidder must submit firm unit pricing for all items including options and “as and when requested” quantities for spare parts. The Bidder is requested to quote firm unit pricing at no more than two decimal points.

c. Prices for three (3) years of spare parts must be included with the bid (Refer to Annex A) but will not be part of the financial evaluation.

4.1.2.2 SACC MANUAL CLAUSE

A0222T (2014-06-26), Evaluation of Price-Canadian/Foreign Bidders.

4.2 Basis of Selection

A0027T (2012-07-16), Highest Combined Rating of Technical Merit and Price

1) To be declared responsive, a bid must:

a) comply with all the requirements of the bid solicitation; and

b) meet all mandatory criteria; and

c) obtain the required minimum of 15 points overall for the technical evaluation criteria which are subject to point rating.
The rating is performed on a scale of 105 points.

2) Bids not meeting (a), (b) or (c) will be declared non-responsive.

3) The selection will be based on the highest responsive combined rating of technical merit and price. The ratio will be 70 % for the technical merit and 30 % for the price.

4) To establish the technical merit score, the overall technical score for each responsive bid will be determined as follows: total number of points obtained / maximum number of points available multiplied by the ratio of 70 %.

5) To establish the pricing score, each responsive bid will be prorated against the lowest evaluated price and the ratio of 30 %.

6) For each responsive bid, the technical merit score and the pricing score will be added to determine its combined rating.

7) Neither the responsive bid obtaining the highest technical score nor the one with the lowest evaluated price will necessarily be accepted. The responsive bid with the highest combined rating of technical merit and price will be recommended for award of a contract.

The table below illustrates an example where two bids are responsive and the selection of the bidder is determined by 70/30 ratio of technical merit and price, respectively. The total available points equal 135 and the lowest evaluated price is $45,000 (45). This example is a hypothetical scenario and does not constitute actual requirements.

Basis of Selection - Highest Combined Rating Technical Merit (70%) and Price (30%)				
		Bidder 1	**Bidder 2**	**Bidder 3**
Overall Technical Score		115/135	89/135	92/135
Bid Evaluated Price		$55,000.00	$50,000.00	$45,000.00
Calculations	**Technical Merit Score**	115/135 x 70 = 59.62	89/135 x 70 = 46.14	92/135 x 70 = 47.7
	Pricing Score	45/55 x 30 = 24.54	45/50 x 30 = 27	45/45 x 30 = 30
Combined Rating		83.16	73.14	77.7
Overall Rating		1st	3rd	2nd

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

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

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

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

5.1 Certifications Required with the Bid

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

5.1.1 Integrity Provisions - Declaration of Convicted Offences

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

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

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

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

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

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

Canada will also have the right to terminate the Contract for default if a Contractor, or any member of the Contractor if the Contractor is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list during the period of the Contract.

The Bidder must provide the Contracting Authority with a completed annex titled Federal Contractors Program for Employment Equity - Certification, before contract award. If the Bidder is a Joint Venture, the Bidder must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification, for each member of the Joint Venture.

5.2.3 Additional Certifications Precedent to Contract Award

5.2.3.1 Samples and Production Certification

The Bidder certifies that:

( ) the manufacturer that produced the pre-award sample(s) will remain unchanged for the pre-production sample(s) and full production of the contract quantity.

5.2.3.2 Price Certification for Recommended Spare parts List

By submitting a bid, the Bidder certifies that the price proposed is not in excess of the lowest price charged anyone else, including the Bidder's most favoured customer, for like quality and quantity of the goods, services or both.

PART 6 - RESULTING CONTRACT CLAUSES

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

6.1 Security Requirements

6.1.1 There is no security requirement applicable to the Contract.

6.2 Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex “A”. (SOW)

6.2.1 Condition of Material – Contract

Option 1

The Contractor must provide material that is new production of current manufacture supplied by the principal manufacturer or its accredited agent. The material must conform to the latest issue of the applicable drawing, specification and part number, as applicable, that was in effect on the bid closing date.

OR

Option 2

If the material is not new production of current manufacture, or is from a source other than the principal manufacturer or its accredited agent, it must be unused and in new condition, provided by an approved contractor with the latest approved modifications incorporated as applicable, and include the release notes.

Name of manufacturer: _____
Date of manufacture: _____
Cure date if the item contains elastomeric material: _____

*(**NOTE TO BIDDER:** To be inserted at contract award).*

6.3 Standard Clauses and Conditions

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

6.3.1 General Conditions

2010A (2020-05-28), General Conditions - Goods (Medium Complexity), apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Contract Period

The contract period is from award to _____. (***NOTE TO BIDDER:*** *To be inserted at contract award*).

6.4.2 Delivery Date

All the deliverables must be received on or before _____. (***NOTE TO BIDDER:*** *To be inserted at contract award*).

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Name: Dan Lebel
Title: Senior Materiel Acquisition and Support Officer
DGAEPM/DAP/DAP 2-2-7
Department of National Defence
Directorate: Directorate Aerospace Procurement
Address: 101 Colonel By Drive
Ottawa, ON
K1A 0K2
DAP 2-2-7
E-mail address: dany.lebel2@forces.gc.ca

6.5.2 Technical Authority

The Technical Authority for the Contract is *to be determined.* (***NOTE TO BIDDER:*** *To be provided at contract award*).

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

6.5.3 Contractor's Representative

6.5.3 Contractor's Representative ***(NOTE TO BIDDER:*** *must be filled out and submitted by the Vendor with their bids)*

The person responsible for:

General enquiries:

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

Delivery follow-up:

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

6.6 Payment

6.6.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a **firm unit price**, as specified in **Annex A,** for a cost of **$_____ for Line Item no.__**. Customs duties are excluded and Applicable Taxes are extra. (***NOTE TO BIDDER:*** *To be inserted at contract award*).

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

6.6.2 Electronic Payment of Invoices – Contract

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

a. Direct Deposit (Domestic and International);
b. Electronic Data Interchange (EDI);
c. Wire Transfer (International Only);

6.6.3 Multiple Payments

H1001C (2008-05-12) Multiple Payments

6.7 Invoicing Instructions

1. The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

2. Invoices must be distributed as follows:

   a. The original and one (1) copy must be forwarded to the following address for certification and payment.

      W1941
      Department of National Defence
      25 CFSD Montreal
      P.O. Box 4000 Stn K
      Montreal, QC H1N 3R9
      Attention: Accounts Payable Section

      AND/OR

      W2481
      Department of National Defence
      7 Canadian Forces Supply Depot
      PO Box 10500 Station Forces
      Edmonton, AB T5J 4J5
      ATT: Invoice Section

   b. One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

c. One (1) copy must be forwarded to the consignee.

6.8 Certifications and Additional Information

6.8.1 Compliance

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

6.8.2 Federal Contractors Program for Employment Equity - Default by the Contractor

The Contractor understands and agrees that, when an Agreement to Implement Employment Equity (AIEE) exists between the Contractor and Employment and Social Development Canada (ESDC)-Labour, the AIEE must remain valid during the entire period of the Contract. If the AIEE becomes invalid, the name of the Contractor will be added to the "FCP Limited Eligibility to Bid" list. The imposition of such a sanction by ESDC will constitute the Contractor in default as per the terms of the Contract.

6.9 Applicable Laws

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

6.10 Priority of Documents

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

(a) the Articles of Agreement;
(b) The 2003 (2020-05-28) Standard Instructions – Goods and Services – Competitive Requirements
(c) The general conditions 2010A (2020-05-28), General Conditions - Goods (Medium Complexity);
(d) Annex A, Statement of Work;
(e) Annex B, Basis of Payment; and
(f) the Contractor's bid dated _____ (*insert date of bid*).

6.11 Defence Contract

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

6.12 *SACC Manual* Clauses

A0301C (2007-05-25) Military Aviation Replacement Parts- Maintenance of Records
B1202C (2007-05-25) Age Control of Elastomeric Materials
B7500C (2006-06-16) Excess Goods
C2800C (2013-01-28) Priority Rating
C2801C (2017-08-17) Priority Rating: Canadian-based contractors
D0050C (2007-05-25) End User Certificate
D6010C (2007-11-30) Palletization
D9002C (2007-11-30) Incomplete Assemblies
G1005C (2016-01-28) Insurance – No Specific Requirement

6.13 Dispute Resolution

(a) The parties agree to maintain open and honest communication about the Work throughout and after the performance of the contract.

(b) The parties agree to consult and co-operate with each other in the furtherance of the contract and promptly notify the other party or parties and attempt to resolve problems or differences that may arise.

(c) If the parties cannot resolve a dispute through consultation and cooperation, the parties agree to consult a neutral third party offering alternative dispute resolution services to attempt to address the dispute.

(d) Options of alternative dispute resolution services can be found on Canada's Buy and Sell website under the heading "Dispute Resolution".

6.14 Packaging Requirement

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

The Contractor must package item numbers in quantities of one (1) per package, and **must package** all item numbers, as located under description on **Annex A**.

D2000C (2007-11-30), Markings
D2001C (2007-11-30), Labelling
D2025C (2017-08-17), Wood Packing Materials

6.15 Quality Assurance

D5510C (2017-08-17) Quality Assurance Authority (Department of National Defence) - Canadian based Contractor

OR

D5515C (2010-01-11) Quality Assurance Authority (Department of National Defence) - Foreign-based and United States Contractor

D5540C (2019-05-30), ISO 9001:2015 – Quality Management Systems - Requirements **(Quality Assurance Code Q)**

6.16 Additional Package Markings - Identical

1. The Contractor must ensure that in addition to the required interior and exterior package markings, the following information is provided:

    a. Serial number; and/or
    b. Expiration date of shelf life.

2. These markings must be applied and positioned in accordance with Canadian Forces Packaging Specification D-LM-008-002/SF-001.

6.17 Shelf Life

The Contractor must ensure that item(s) _____ (insert the applicable item number) will contain 75 percent of the authorized shelf life as listed in CFTO D-05-001-001/SF-000 at date of delivery to the Department of National Defence.

6.18 Military Aviation Replacement Parts- Airworthiness Documentation

The Contractor must provide Airworthiness Documentation, for each item, within the interior packaging or attached to the good(s) supplied:

a. Certificate of compliance.

6.19 Shipping Instructions – Department of National Defence

6.19.1 Shipping Instructions (Department of National Defence) - Canadian-based Contractor

1. Delivery will be FCA Free Carrier at the _____ ***(Please provide the name of the location, i.e. contractor's location)***, Incoterms 2000. The Contractor must load the goods onto the carrier designated by the Department of National Defence (DND). Onward shipment from the delivery point to the consignee will be Canada's responsibility.

2. Before shipping the goods, the Contractor must contact the following DND Inbound Logistics Coordination Center by facsimile or e-mail, to arrange for shipment, and provide the information detailed at paragraph 3.
   Inbound Logistics Co-ordination Center (ILCC)
   Telephone: 1-877-877-7423 (toll free)
   Facsimile: 1-877-877-7409 (toll free)
   E-mail: ILHQOttawa@forces.gc.ca

3. The Contractor must provide the following information to the DND Inbound Logistics Coordination Center when arranging for shipment:

   a. the Contract number;
   b. consignee address (for multiple addresses, items must be packaged and labelled separately with each consignee address);
   c. description of each item;
   d. the number of pieces and type of packaging (i.e., carton, crate, drum, skid);
   e. actual weight and dimensions of each piece type, including gross weight;
   f. full details of dangerous goods/hazardous products, as required for the applicable mode of transportation, signed certificates for dangerous goods/hazardous products as required for shipment by the International Maritime Dangerous Goods Code, the International Air Transport Association regulations or the applicable Canadian *Transportation of Dangerous Goods Regulations*, and a copy of the safety data sheet in English and French.

4. Following receipt of this information by Canada, Canada will provide the appropriate shipping instructions, which may include the requirement for specific consignee address labelling, and the marking of each piece with a Transportation Control Number.

5. The Contractor must not ship the goods before receiving shipping instructions from the DND Inbound Logistics contact.

6. If the Contractor delivers the goods at a place and time which are not in accordance with the given delivery instructions or fail to fulfill reasonable delivery instructions given by Canada, the Contractor must reimburse Canada any additional expenses and costs incurred.

7. If Canada is responsible for delays in delivering the goods, ownership and risk will be transferred to Canada upon expiry of either 30 days following the date on which a duly completed shipping application is received by Canada or by its appointed forwarding agent, or 30 days following the delivery date specified in the Contract, whichever is later.

OR

6.19.1 Shipping Instructions (Department of National Defence) - Foreign-based Contractors

1. Delivery will be FCA Free Carrier at the _____ ***(Please provide the name of the location, i.e. contractor's location)***, Incoterms 2000. The Contractor must load the goods onto the carrier designated by the Department of National Defence (DND). Onward shipment from the delivery point to the consignee will be Canada's responsibility

2. Before shipping the goods, the Contractor must contact the following DND Inbound Logistics Coordination Center by facsimile or e-mail, to arrange for shipment, and provide the information detailed at paragraph 3.

   Instruction to contracting officers*: Before contract award, choose either shipping option (a), (b), (c), and delete the unused options and this instruction.*

   a. *Insert the following when the Contractor is located in the United States (U.S.):*

      Inbound Logistics Coordination Center (ILCC):
      Telephone: 1-877-447-7701 (toll free)
      Facsimile: 1-877-877-7409 (toll free)
      E-mail: ILHQOttawa@forces.gc.ca

      OR

   b. *Insert the following when the Contractor is located in United Kingdom (UK) and Ireland*:

      Inbound Logistics United Kingdom (ILUK):
      Telephone: 011-44-1895-613023, or 011-44-1895-613024, or
      Facsimile: 011-44-1895-613047
      E-mail: CFSUEDetUKMovements@forces.gc.ca

      In addition, the Contractor must send to ILUK the completed form "Shipping Advice and Export Certificate" by e-mail to: CFSUEDetUKMovements@forces.gc.ca.
      The shipment of any items above the value of 600 GBP (pound sterling) being exported from the United Kingdom and Ireland will be cleared by DND using Her Majesty's Customs & Excise (HMCE) New Export Systems (NES). The Contractor must comply with HMCE requirements by registering with HMCE or by having a freight forwarder complete the entry. A printed copy of the NES entry Export Declaration clearly displaying the Declaration Unique Consignment Reference Number must be provided by the Contractor and attached to the consignment. The Contractor must ensure that this procedure is carried out for all stores whether they be initial purchase or repair and overhaul export items. HMCE will authorize Canadian Forces Support Unit (Europe) to ship the goods only if the procedure has been adhered to completely and properly by the Contractor.

      OR

   c. *Insert the following when the Contractor is located in a country other than Canada, the U.S., the UK and Ireland*:

      Inbound Logistics Europe Area (ILEA):

Telephone: +49-(0)-2451-717199 or 717200
Facsimile: +49-(0)-2451-717189
Email: ILEA@forces.gc.ca

OR

d. Insert the following for U.S. Foreign Military Sales (FMS):
Inbound Logistics Coordination Center (ILCC):
Telephone: 1-877-447-7701 (toll free)
Facsimile: 1-877-877-7409 (toll free)
Email: ILHQOttawa@forces.gc.ca
Canada is responsible for the carrier selection for shipments of the goods supplied under this FMS contract. Instructions on how to obtain carrier selection from Canada are contained in U.S. Department of Defense 4000.25-8-M, Military Assistance Program Address Directory, and Canadian Special Instructions Indicator (SII). The Contractor must not ship the goods until the SII has been complied with.

3. The Contractor must provide the following information to the DND Inbound Logistics contact when arranging for shipment:

   a. the Contract number;
   b. consignee address (if multiple addresses, items must be packaged and labeled separately with each consignee address);
   c. description of each item;
   d. the number of pieces and type of packaging (e.g. carton, crate, drum, skid);
   e. actual weight and dimensions of each piece type, including gross weight;
   f. copy of the commercial invoice (in accordance with clause C2608C, section 4, of the *Standard Acquisition Clauses and Conditions Manual*) or a copy of the Canada Border Services Agency form CI1 Canada Customs Invoice (PDF 429KB) - (Help on File Formats);
   g. Schedule B codes (for exports) and the Harmonized Tariff Schedule codes (for imports);
   h. North American Free Trade Agreement Certificate of Origin (in accordance with clause C2608C, section 2) for the U.S. and Mexico only;
   i. full details of dangerous material, as required for the applicable mode of transportation, signed certificates for dangerous material as required for shipment by the International Maritime Dangerous Goods Code, or International Air Transport Association regulations or the applicable Canadian *Dangerous Goods Shipping Regulations* and a copy of the material safety data sheet.

4. Following receipt of this information by Canada, Canada will provide the appropriate shipping instructions, which may include the requirement for specific consignee address labelling, the marking of each piece with a Transportation Control Number and customs documentation.

5. The Contractor must not ship goods before receiving shipping instructions from the DND Inbound Logistics contact.

6. If the Contractor delivers the goods at a place and time that are not in accordance with the given delivery instructions or fail to fulfill reasonable delivery instructions given by Canada, the Contractor must reimburse Canada any additional expenses and costs incurred.

7. If Canada is responsible for delays in delivering the goods, ownership and risk will be transferred to Canada upon expiry of either thirty (30) days following the date on which a duly completed shipping application is received by Canada or by its appointed forwarding agent, or thirty (30) days following the delivery date specified in the Contract, whichever is later.

6.20 Customs

6.20.1 C2000C (2007-11-30) Foreign-based Contractor

Unless specified otherwise in the Contract, the price includes no amount for any federal excise tax, state or local sales or use tax, or any other tax of a similar nature, or any Canadian tax whatsoever. The price, however, includes all other taxes. If the Work is normally subject to federal excise tax, Canada will, upon request, provide the Contractor a certificate of exemption from such federal excise tax in the form prescribed by the federal regulations.

Canada will provide the Contractor evidence of export that may be requested by the tax authorities. If, as a result of Canada's failure to do so, the Contractor has to pay federal excise tax, Canada will reimburse the Contractor if the Contractor takes such steps as Canada may require to recover any payment made by the Contractor. The Contractor must refund to Canada any amount so recovered.

6.20.2 C2605C (2008-05-12) Canadian Customs Duties and Sales Tax - Foreign-based Contractor

Canadian customs duties and sales tax, if applicable, are extra to the Contract Price and payable by Canada.

6.20.3 C2608C (2020-07-01) Canadian Customs Documentation - Foreign-based Contractor

General

1. The Contractor must provide two (2) copies of the Canada Customs Invoice (CCI) or two (2) copies of the commercial invoice marked "For Customs Purposes Only".

2. Shipments from the United States and Mexico that are of American, Mexican or Canadian origin, as defined by the *Canada-United States-Mexico Agreement* (CUSMA):

    a. For goods valued at more than USD$1,000, the Contractor must provide a certification of origin of the goods that demonstrate that the good is originating. This may be provided on the commercial invoice or any other document and does not need to follow a prescribed format, but must:

        i. Describe the originating good in sufficient detail to enable its identification;
        ii. Meet the requirements as set out in the Uniform Regulations for Rules of Origin; and

        iii. Contain a set of minimum data elements as described in Annex 5-A (Chapter 5 of CUSMA) that indicate that the good is both originating and meets the requirements of Chapter 5.

    b. For goods valued at USD$1,000 or less, the proof must be a statement on the invoice certifying that the good qualifies as an originating good.

    In either case, an original signature and a reference to the contract number must be included in the document. For contracts valued at C$250,000 or more, the certification of origin will not be required. If applicable, the exchange rate to be used to determine the value of goods in USD is the exchange rate on the Direct Shipment Date, which is the date the shipment starts its direct journey to the Buyer.

3. For shipments from Israel that are Israeli in origin, as defined by the Canada-Israel Free Trade Agreement (CIFTA), the Contractor must provide the certification of origin of the goods. This proof must be in the form of a CIFTA Certificate of Origin for goods valued at more than C$1,600, or for goods valued at C$1,600 or less, a statement on the invoice certifying that the good

qualifies as an originating good. In either case, an original signature and a reference to the contract number must be included in the document. For contracts valued at C$250,000 or more, the proof of origin will not be required.

4. The Contractor must not employ commercial customs brokers to custom clear the goods provided under the Contract, unless authorized by the Canadian Material Support Group / Customs, at National Defence Headquarters, telephone: 1-855-210-5149, facsimile: 1-800-306-1811 or 613-971-7333.

Completion of Documents

The CCI or commercial invoice must include the following information:

a. complete description of the goods being shipped, including the applicable United States *"Schedule B"* codes or United States Harmonized Tariff Schedule codes;

b. value and terms of sale for each item (e.g. sale, loan, warranty, Incoterms 2000), including value of repairs, warranty repairs or replacement costs;

c. the Contract number and financial codes (use Field 3 on the CCI form);

d. country of origin of goods; and

e. one of the following:

   i. when a CUSMA Certification of Origin/CIFTA Certificate of Origin has been prepared, a statement in the "Description" field of the CCI or commercial invoice confirming that the CUSMA Certification of Origin/CIFTA Certificate of Origin has been completed and is attached to the CCI or commercial invoice; or

   ii. when a CUSMA Certification of Origin/CIFTA Certificate of Origin was not required, a statement in the "Description" field of the CCI or commercial invoice certifying that the good qualifies as an originating good.

Distribution of Documents

1. The Contractor must attach one (1) copy of the CCI or one (1) copy of the commercial invoice, as applicable, to shipping container No. 1 of all shipments using a waterproof envelope marked "Canada Customs Documentation".

2. The second copy of each of the above-mentioned forms must be attached to the shipping documents.

3. A copy of the CIFTA Certificate of Origin must be faxed to 1-800-306-1811 or emailed to DNDCustoms-MDNDouanes@forces.gc.ca.

6.20.4 C2610C (2007-11-30) Customs Duties - DND– Importer

1. As the goods to be supplied under the Contract are defence supplies, customs duties on importation to Canada may be remitted under the Tariff Item Number 9982.00.00 of the Schedule to the Customs Tariff.

2. Remission of customs duties payable may be granted under the Tariff Item Number 9982.00.00 when the total contract value of the defence supplies is C$250,000 or more. This reflects the

import value of the goods plus the duty that would be applicable in the absence of the Customs Tariff.

3. The Department of National Defence (DND) will be responsible for prearranging remission on importation or for paying customs duties on importation and applying to Canada Border Services Agency for a refund. DND is also responsible for applying to Public Works and Government Services Canada in good time for the certification required by the Customs Tariff.

6.21 Release Documents, Quality Assurance Code Q

D5604C (2008-12-12) Release Documents (Department of National Defence) - Foreign-based Contractor

OR

D5605C (2010-01-11) Release Documents (Department of National Defence) - United States-based Contractor

OR

D5606C (2017-11-28) Release Documents (Department of National Defence) - Canadian-based Contractor
D5620C (2012-07-16) Release Documents - Distribution – (For QAC: Q)
The Contractor must prepare the release documents in a current electronic format and distribute them as follows:

a. One (1) copy mailed to consignee marked: "Attention: Receipts Officer";

b. Two (2) copies with shipment (in a waterproof envelope) to the consignee;

c. One (1) copy to the Contracting Authority:

National Defence Headquarters
Mgen George R. Pearkes Building
101 Colonel By Drive
Ottawa, ON K1A OK2
Attention: Dany Lebel, DAP 2-2-7

a. One (1) copy to the Quality Assurance Representative;

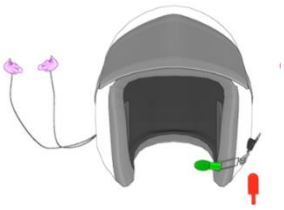
b. One (1) copy to the Contractor; and

c. For all non-Canadian contractors, one (1) copy to:

DQA/Contract Administration
National Defence Headquarters
Mgen George R. Pearkes Building
101 Colonel By Drive
Ottawa, ON K1A OK2
E-mail: ContractAdmin.DQA@forces.gc.ca.

ANNEX "A"

STATEMENT OF WORK



STATEMENT OF WORK FOR THE

AIRCREW HELMET COMMUNICATIONS UPGRADE (AHCU)

SCOPE

1.1. **Purpose**

1.1.1. The purpose of this Statement of Work (SOW) is to describe items and services required from the Contractor by the Department of National Defence (DND) for the acquisition and support of the Aircrew Helmet Communications Upgrade (AHCU).

1.2. **Background: AHCU**

1.2.1. DND has a requirement for a modification to the existing RCAF aircrew helmets for improved hearing protection and communications intelligibility. A modification kit must be designed for the GENTEX Model HGU-56/P (HGU-56/P) and GENTEX Model 190A (190A) helmets. This includes the replacement of the Boom Microphone and Speaker/Ear piece for all existing helmets of those types.

1.2.2. This modification kit is aircraft life support equipment (ALSE) and must comply with applicable airworthiness standards as laid out in the C-05-005-001/AG-001 Technical Airworthiness Manual.

1.2.3. The AHCU modification kit must not substantially change the form or function of the current aircrew helmets. The AHCU modification kit will be used on multiple aircraft fleets in the RCAF listed in Appendix 1, Table 1.1.

1.2.4. The modification will replace the Microphone element, as well as to provide the (wired or wireless) in-ear speaker element referred to as Communications Ear Piece (CEP) and Active Noise Reduction (ANR) headphones. A breakdown of the groups of components is illustrated in Figure 1.

1.2.5. Aircrew hearing health is an important part of this modification. The CEP must provide suitable “few-size-fits-all” ear plugs with the unit, but also be capable of attaching a custom-moulded plug that is specially formed to

individual user's ear canal. The process of obtaining ear impressions and procuring the custom plugs is not a part of this procurement.

1.2.6. A limited number of ANR headphones will be purchased as an alternative headset for a small minority of aircrew unable to wear CEPs. Further details on numbers required for provisioning is found in Appendix 2 Table 2.4

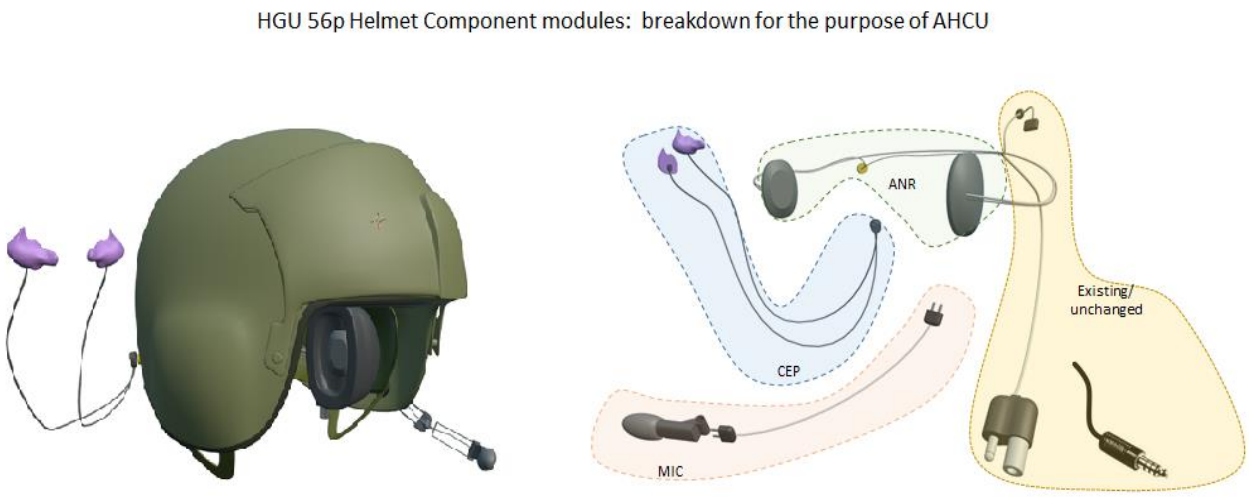


Figure 1: Conceptual AHCU breakdown illustration

2. General Requirements

2.1. Scope of Work

2.1.1. This project involves the delivery of parts for the purpose of creating an aircraft modification. The contractor is expected to provide the parts and/or services described in accordance with a pre-defined schedule as well as project management and technical support to Canada for the authoring of a modification to RCAF Helmets' microphone headset system. The modification is referred to as the AHCU.

2.1.2. The Contractor must supply the AHCU Modification Kits and associated documentation that meet all the mandatory requirements at Annex B Associated documentation are documents that are requested by Canada and

promised by the Contractor as part of the technical evaluation – specified in Annex B, and are subject to the standards specified by DID ILS-003.

2.1.3. The AHCU components are separated into three areas of responsibility as follows:.

a. Microphone : {MIC}

b. Headphone/CEP: {CEP}

c. Active Noise Reduction: {ANR}

2.1.4. It is possible that one contractor may not supply all the components required for the system. For example one Contractor may supply the microphone element of the AHCU, while other contractors are responsible for the ANR, or CEP components. The requirements in this document must be followed by all contractors as applicable

to the part they are responsible for as well as observing the need for interconnectedness with the other AHCU components.

2.1.5. The Contractor must meet or exceed the mandatory requirements.

2.1.6. The Contractor should meet the rated requirements identified at Annex B.

2.1.7. The Contractor must obtain an overall satisfactory rating on the operational testing requirements identified at Annex B, which is feedback provided by the users.

2.1.8. The AHCU system must fit helmet types and sizes listed in Table 2.1 of Appendix 2: Configurations and Provisioning.

2.1.9. The Contractor must supply the initial provisioning levels with continued purchases of equipment required for future life cycle management and replenishment. Estimated number of initial spares are identified at Table 2.2 of Appendix 2.

2.1.10. The Contractor must provide initial training, training material and documentation to enable the AHCU mod kits to be installed by ALSE Maintenance Technicians as specified in the Detailed Technical Requirements, paragraph 7 below.

2.1.11. High Level Mandatory Requirements provide guiding principles for the overall desired performance and the operation of the system. The HLMRs for this project, in order of precedence are:

a. HLMR #1 - The ability to protect the hearing of CAF aircrew during all phases of flight operations while ensuring clear audio communications.

b. HLMR #2 - The ability to provide an adequate level of clear audio communications between aircrew using existing aircrew ICS.

c. HLMR #3 - Compatibility with existing aircrew helmets, aviation life support equipment, aircrew chemical biological radiological and nuclear personal protective equipment, and aircraft systems.

d. HLMR #4 - The ability to use the system for extended periods of time.

2.2. Maintenance Concept

2.2.1. The AHCU will be maintainable with commonly available tools by CAF operators and technicians in a field environment as prescribed for each item of equipment.

2.3. **Support provided by Canada**

2.3.1. Canada will not supply any personnel to the contractor such as Audiologists, Hearing Aid technicians or military personnel to carry out ear impressions.

2.3.2. Canada will carry out verification testing of qualified bidders' proposed design as per Annex B This involves laboratory testing as well as aircrew survey on the effectiveness of the solution. The qualified bidder

may receive feedback from Canada based on the results of the testing. The level of feedback provided is at Canada's discretion.

3. Contractor's Work Plan

3.1. Project Management Plan

3.1.1. Contractor must describe a plan to deliver the product offering.

4. Systems Engineering

4.1. Systems Engineering Management

4.1.1. The Contractor must designate a Liaison for this project who will be responsible for responding to queries from DND. This person will be the single point of contact for Technical and contractual matters.

4.1.2. The Contractor must able to respond to queries related to the equipment with regards to Reliability, Maintainability and Availability (RMA), human factors, interface requirements and controls, data communications,

safety, security engineering, Electromagnetic Environmental Effects (E3), EMSEC, TEMPEST inquiries and clarifications about their product.

4.2. System Interconnect

4.2.1. The Contractor must provide diagrams and technical support to describe how their product should be integrated with the systems via the wiring diagrams shown in Appendix 8: AHCU proposed system interconnect diagrams.

4.3. Canada Conducted Compliance Verification

4.3.1. In addition to the testing listed in Annex B, Canada reserves the right to conduct compliance verification at any time on any of the AHCU to determine compliance with the Contractor's design, manufacturing, quality standards to which are required by this SOW and the TEP: Annex B.

4.4. Packaging, Labels, and Codes

4.4.1. The Contractor must supply all parts and equipment, packaged and labelled in accordance with DID AHCU-ILS-002

4.5. Technical Publications Package

4.5.1. The Contractor must support the preparation and deliver a Technical Publication Package. This means providing third party transfer rights to Canada for the use of manufacturer documentation and diagrams to develop Canadian Forces Technical Order (CFTO) publications.

4.5.2. The Contractor must deliver all Technical Publications in English and Canadian French or else release rights to allow for the translation of the document by government of Canada employees.

4.6. Provisioning Documentation

4.6.1. The Contractor must prepare and deliver Provisioning Documentation for the AHCU comprising of:

a. Illustration. The Contractor must provide an Illustration or release the use of graphical representations of their equipment for use in Canada’s technical publications and Illustrated Parts Manuals DID AHCU-ILS-003 .

b. Provisioning Parts Breakdown. The Contractor must provide part numbers to assist creation of the Provisioning Parts Breakdown IAW DID AHCU-ILS-001.

5. Airworthiness

5.1. Airworthiness Requirements

5.1.1. All aspects of the AHCU are subject to the provisions of the Technical Airworthiness Manual (TAM), CFTO C-05-005-001/AG-001 for the scope and depth of engineering and/or maintenance related activities required to complete the work specified in this SOW**.**

6. Detailed Technical Requirements

6.1. Mandatory Requirements: System

6.1.1. The AHCU must consistently provide the equivalent sound attenuation of the current ALSE combinations of: HGU-56/P helmet with wired foam tipped CEPs.

6.1.2. The equipment must consistently provide the equivalent sound attenuation of the current ALSE combinations of: 190A helmet with wired foam tipped CEPs.

6.1.3. The equipment must provide the equivalent audio signal to noise ratio at the ear as compared to the current ALSE combinations of:(1) HGU-56/P helmet with wired foam tipped CEPs; (2) 190A helmet with wired foam tipped CEPs; and

6.1.4. The system must provide superior communications intelligibility as compared to current helmet configurations when evaluated using a Modified Rhyme Test/Maximum Likelihood procedure.

6.1.5. The system must not introduce more noise into the aircraft ICS than current helmet systems.

6.1.6. AHCU components must remain functional during exposure to the high vibrations associated with rotor-winged flight.

6.1.7. Noise Cancelling Boom Microphone must exceed the noise cancellation performance standards of the M-162/AIC microphone as delineated in MIL-M-49199A by at least 3dB.

6.1.8. ANR headphones when de-energized (all power sources removed/exhausted) must provide hearing protection no worse than 3dB lower than the protection provided by an unmodified helmet.

6.1.9. AHCU components must continue to operate without degradation in performance in a temperature range of minus 45°C to plus 55°C.

6.1.10. AHCU components must remain functional during exposure to the high vibrations associated with Rotor Wing flight.

6.1.11. AHCU components must be able to function when exposed to moisture from:

a. Fog,

b. mist,

c. rain,

d. sleet,

e. snow; and

f. sea spray.

6.1.12. AHCU components must be able to function when exposed to the following icing conditions:

a. Freezing rain;

b. Condensation from user's breath

c. Freezing spray;

d. Hoar frost

e. Freezing condensation from user's breath.

6.1.13. AHCU components must resist degradation from immersion in fresh or salt water to a depth of 1 metres and must be functional after being rinsed in fresh water and completely dried.

6.1.14. AHCU components must function during rapid pressure changes experienced in flight, including explosive decompression.

6.1.15. AHCU components must be resistant to damage and contamination from environmental conditions of fungus, mould, direct sunlight, sand, and dirt.

6.1.16. AHCU components must be able to fully function while exposed to heavy smoke from petroleum, electrical or wood fires. AHCU components must be able to function in a CBRN environment.

6.1.17. AHCU components must resist degradation from exposure to ;

a. Jet fuel (e.g. JP-5, JP-8, Jet A-1);

b. Aircraft hydraulic fluid;

c. Turbine oil;

d. Weapon cleaning solutions (e.g. "Break Free");

e. Prescribed cleaning chemicals (bleach, detergent, soap, Chloroxylenol (Dettol), alcohol);

f. Reactive Skin Decontaminant Lotion (RSDL); and

g. Insect repellents (e.g. DEET).

6.1.18. Must not electromagnetically interfere with any aircraft system.

6.1.19. AHCU components must continue to function after exposure to small quantities of biological fluids (perspiration, saliva, vomit, blood).

6.1.20. Tempest - Must meet NATO Security and Evaluation Agency Doctrine TEMPEST/Emission Security (EMSEC).

6.1.21. AHCU modified helmets must be compatible with Electrical and physical characteristics of the ICS of the aircraft they are used on.

6.1.22. All technical manuals, technical orders and publications are accurate and complete for all tasks that may have flight safety effects.

6.1.23. AHCU components must withstand field and transit conditions.

6.1.24. The overall AHCU replacement kit Must not increase head borne mass by more than 65g from the existing (~2% of the weight of an unmodified helmet); AHCU components must not produce or abet pressure points on the body and must not impede aircrew head movements

6.1.25. AHCU components must be durable and resistant to damage during routine wear, donning and doffing.

6.1.26. AHCU modified helmets must allow for quick (< 1 min) donning/doffing, Communication Ear Plugs can be easily inserted into the ear canal by an unassisted user and can be removed with one hand.

6.1.27. Communication Ear Plugs, after proper insertion and donning of the helmet do not become dislodged or fall out of the ear during the performance of all aircrew tasks.

6.1.28. AHCU modified helmets must be compatible with current helmet mounted systems;

a. Visors;

b. HUD;

c. NVGs;

d. Portable Helicopter Oxygen Delivery System (PHOD) mask;

e. Maxillofacial shields; and,

f. Lip lights;

6.1.29. AHCU modified helmets must be compatible with aircrew CBRN equipment (M-45CF respirator, hood and ancillary equipment).

6.1.30. AHCU modified helmets must be compatible with all ALSE and operational clothing used on the associated fleets.

6.1.31. Must continue to meet other AHCU performance requirements when worn with corrective, laser or ballistic protective eye glasses.

6.1.32. Any buttons or switches introduced by AHCU modifications must be operable in all environments by users with bare hands and while wearing CAF flying gloves.

6.1.33. Microphone position can be fully adjusted by the user while wearing flying gloves and once positioned by a user AHCU components must maintain the user’s selected position.

6.1.34. The microphone is able to be fitted on either the left or right side of the helmet.

6.1.35. AHCU components must not produce or abet pressure points on the body and must not impede aircrew head movements.

6.1.36. AHCU components must be durable and resistant to damage during routine wear, donning and doffing.

6.1.37. AHCU modified helmets must allow for quick (< 1 min) donning/doffing, Communication Ear Plugs can be easily inserted into the ear canal by an unassisted user and can be removed with one hand.

6.1.38. <duplicate of 6.1.28>

6.1.39. AHCU modified helmets must be compatible with aircrew CBRN equipment (M-45CF respirator, hood and ancillary equipment).

6.1.40. AHCU modified helmets must be compatible with all ALSE and operational clothing used on the associated fleets.

6.1.41. Workmanship on the manufacturing and installation of AHCU components shall be in accordance with industry-recognized standards of practice for Aircraft equipment and Technical Airworthiness Manual CFTO C-05-005-001/AG-001.

6.1.42. Any battery replacement must be executable by the end user without needing special tools.

6.2. **Rated Requirements: System**

6.2.1. Excluding the ear plug assemblies, visible AHCU components should be made in a subdued colour matching the colour of the overall helmet assemblies.

6.2.2. Should be highly rated versus other candidate systems when tested by aircrew under operational conditions.

6.2.3. AHCU components should be capable of prolonged wear throughout flights lasting over 12 hours without causing user discomfort or pain.

6.2.4. Should obtain a superior score when tested with Modified Rhyme Test/Maximum Likelihood procedure.

6.2.5. AHCU components capable of being cleaned and decontaminated.

6.2.6. The probability of failure of all AHCU components must not be greater than 10-5 between scheduled maintenance and inspections.

6.2.7. A long shelf life.

6.2.8. AHCU components should be hypoallergenic, and non-toxic for all remaining components (excluding in-Ear plugs, where this is a mandatory requirement. This will not be affect the rating of bids for independent CEPS).

6.2.9. Communication Ear Plugs should be “wire-free”.

6.2.10. Ear plug must be a high visibility colour and/or translucent material.

6.2.11. Custom fitted portion of the ear plugs should be made of a facilitate inspections and cleaning of the aural tube.

6.2.12. Microphone should reduce cabin noise in the far field versus the talker in the near field (1m vs 3cm) when subjected to a frequency of 3 kHz. As indicated near field/far field frequency response (noise immunity) Testing IAW RTCA DO-214A or equivalent.

6.2.13. Should provide better sound attenuation (>3dB) below 1 KHz than the current ALSE combinations of: (1) HGU-56/P helmet with wired foam tipped CEPs.

6.2.14. Should provide better sound attenuation (>3dB) below 1 KHz than the current ALSE combinations of: (2) 190A helmet with wired foam tipped CEPs.

6.2.15. Should provide a better audio signal to noise ratio at the simulated ear (>3dB) as compared to the current ALSE combinations of: (1) HGU-56/P helmet with wired foam tipped CEPs.

6.2.16. Should provide a better audio signal to noise ratio at the simulated ear (>3dB) as compared to the current ALSE combinations of: (2) 190A helmet with wired foam tipped CEPs.

6.2.17. Should introduce less noise into the ICS than current helmet systems HGU-56/P.

6.2.18. Should introduce less noise into the ICS than current helmet systems 190A helmet.

6.2.19. Should be able to be completely immersed in a water column up to 3 metres in fresh and salt water, removed from water and continue to function.

6.2.20. Should be able to withstand being repeatedly encrusted in ice and re-thawed without causing loss of function.

6.2.21. All work to complete AHCU modification can be carried out in under 1 hour by a trained technician.

6.2.22. All work to complete AHCU mod can be done by a trained technician without soldering or crimping wires.

6.2.23. The complete system(s) should be installable in the HGU56P and 190A (HGU-55) helmet with minimal further integration/engineering effort.

6.2.24. The system should include a device to verify that it is fully functional electrically.

6.2.25. The AHCU should have a talk-through functionality.

6.2.26. There should be no wires external to the helmet shell.

6.3. **Mandatory Requirements: Microphone {MIC}**

6.3.1. Noise Cancelling Boom Microphone must be available in 150 ohm and 5 ohm configurations.

6.3.2. The Microphone must have a U173/U179 form factor connection.

6.3.3. *AHCU modified helmets must be compatible with Electrical and physical characteristics of the ICS of the aircraft they are used on.* The contractor must provide interfacing instructions for U174 as well as TP-106 and TP-108 connectors.

6.3.4. Noise Cancelling Boom Microphone must exceed the noise cancellation performance standards of the M-162/AIC microphone as delineated in MIL-M-49199A by at least 3dB.

6.3.5. *Daily inspection tasks must be executable by the end user.*

6.3.6. The probability of failure of AHCU microphone and transducer components must not be greater than 1/100,000 between scheduled maintenance and inspections.

6.3.7. All components life under recommended storage methods meets or exceeds 5 years.

6.3.8. Exposed AHCU components fixtures, fasteners and seals shall be fire resistant and self-extinguishing (as stated in NATO Allied Combat Clothing Publication ACCP 2 (AEP-2333).

6.3.9. Exposed components must not combust, melt or drip after exposure to flames or flash fire equivalent to 2 cal/cm2* for a minimum of four (4) seconds.

6.3.10. Must provide users and maintenance technicians the ability to validate audio signal functionality and the electrical continuity.

6.3.11. Must provide superior communications intelligibility as compared to current helmet configurations when evaluated using a Modified Rhyme Test/Maximum Likelihood procedure.

6.3.12. Sufficient quantities of the AHCU modification kits must be procured to update all affected aircrew helmets.

6.3.13. Technical manuals, technical orders and publications must be accurate and complete for all tasks.

6.3.14. Microphone must be compatible with the existing wire boom of MIL-49199/3.

6.3.15. Must provide the equivalent or better audio signal to noise ratio existing Helmet systems

6.4. **Mandatory Requirements: Communication Ear Plugs {CEP}**

6.4.1. Modified ACHU helmets must have crashworthiness equivalent to or better than an unmodified helmet. IF CEP interfaces are required, holes drilled must be no larger than 3/8” (9.525mm).

6.4.2. All components of the AHCU must have a shelf life of 5 years.

6.4.3. AHCU components must be built free of any ingredients likely to cause irritation of the skin or offensive odours.

6.4.4. AHCU components must be hypoallergenic, and non-toxic for all components that touch the skin.

6.4.5. Exposed AHCU components fixtures, fasteners and seals shall be fire resistant and self-extinguishing (as stated in NATO Allied Combat Clothing Publication ACCP 2 (AEP-2333).

6.4.6. Exposed components must not combust, melt or drip after exposure to flames or flash fire equivalent to 2 cal/cm2* for a minimum of four (4) seconds.

6.4.7. AHCU components must withstand field conditions over a period of 180 days of cumulative wear.

6.4.8. Daily inspection tasks must be executable by the end user.

6.4.9. AHCU custom fit ear plug tips should be able to be replaced within 5 working days from the time aircrew identify a deficiency or loss to maintenance personnel.

6.4.10. Units must be provided sufficient spare holdings to be capable of providing aircrew or mission specialists with a temporary replacement AHCU component items when their equipment is in for periodic maintenance, or in for repair, or for additional temporary aircrew.

6.4.11. Communication Ear Plugs transducer assembly accepts either foam earplug tips or custom fitted earplug tips.

6.4.12. Users or maintenance technicians must have the ability to validate audio signal functionality and the electrical continuity.

6.4.13. Must not electromagnetically interfere with any aircraft system.

6.4.14. Verify that technical manuals, technical orders and publications are accurate and complete for all tasks that may have flight safety effects.

6.4.15. Custom fitted ear plug tips must be labelled with a unique identifier corresponding to the individual for whom they were made and the mould they were made from.

6.4.16. There must be no wires compromising the helmet ear cup seal.

6.4.17. Any custom earplug moulds must be carried out in accordance with their local provincial College of Audiologists standards of practice.

6.4.18. The CEP connectors must not have sharp metal edges that pose a risk of cutting rubber seals of dry suits.

6.4.19. Communication Ear Plugs, after proper insertion and donning of the helmet do not become dislodged or fall out of the ear during the performance of all aircrew tasks.

6.4.20. Communication Ear Plugs transducer assembly and earplug tips must be in a sufficient range of sizes to accommodate 95% of the aircrew population.

6.5. **Mandatory Requirements: Active Noise Reduction Module {ANR}**

6.5.1. Modified ACHU helmets must have crashworthiness equivalent to or better than an unmodified helmet. IF CEP interfaces are required, holes drilled must be no smaller than 3/8” (9.525mm).

6.5.2. All components of the AHCU must have a shelf life of 5 years.

6.5.3. AHCU components must be built free of any ingredients likely to cause irritation of the skin or offensive odours.

6.5.4. AHCU components must be hypoallergenic, and non-toxic for all components that touch the skin.

6.5.5. Exposed AHCU components fixtures, fasteners and seals shall be fire resistant and self-extinguishing (as stated in NATO Allied Combat Clothing Publication ACCP 2 (AEP-2333).

6.5.6. Exposed components must not combust, melt or drip after exposure to flames or flash fire equivalent to 2 cal/cm2* for a minimum of four (4) seconds.

6.5.7. Daily inspection tasks must be executable by the end user.

6.5.8. AHCU custom fit ear plug tips should be able to be replaced within 5 working days from the time aircrew identify a deficiency or loss to maintenance personnel.

6.5.9. Units must be provided sufficient spare holdings to be capable of providing aircrew or mission specialists with a temporary replacement AHCU component items when their equipment is in for periodic maintenance, or in for repair, or for additional temporary aircrew.

6.5.10. Communication Ear Plugs transducer assembly accepts either foam earplug tips or custom fitted earplug tips.

6.5.11. Users or maintenance technicians must have the ability to validate audio signal functionality and the electrical continuity.

6.5.12. Verify that technical manuals, technical orders and publications are accurate and complete for all tasks that may have flight safety effects.

6.5.13. Custom fitted ear plug tips must be labelled with a unique identifier and have the ability to track to the individual for whom they were made and the mould from which they originated.

6.5.14. Active Noise Reduction (ANR) Headphones must be capable of 12 hours of continuous use without changing a battery.

6.5.15. ANR Headphones must be capable of 20 minutes of use once disconnected from an ICS system after 12 hours of continuous use without changing a battery.

6.5.16. Test sets must provide users and maintenance technicians the ability to validate audio signal functionality and the electrical continuity.

6.5.17. Sufficient quantities of the AHCU modification kits must be procured to update all affected aircrew helmets.

7. Integrated Service Support

7.1. **Firmware Configuration Management {ANR}**

7.1.1. If the AHCU design has the ability to update firmware, The Contractor must have a record of historical firmware builds and have backups of previous builds (binary or source code files).

7.1.2. For purposes of incident investigations, the Contractor must have the ability to answer engineering questions on the operation and content of the source code, and conditions under which the firmware build was carried out or otherwise have the ability to reach back to the applicable developer to obtain the relevant engineering data.

7.2. **Engineering Support Requests**

7.2.1. The Contractor must supply Canada with engineering information related to the electrical compatibility, material composition and interfacing of the applicable AHCU components.

7.2.2. If required for incident investigations, the Contractor must support requests by Canada for detailed engineering information.

8. Parts ACCEPTANCE PROCESS

8.1.1. The Contractor must provide a product to the Canadian Forces Supply System that complies with the technical requirements for the AHCU component for which they are responsible. This is accomplished by having responded to each line of the Mic, ANR or CEP worksheets in Annex B.

8.1.2. Canada reserves the right to refuse to accept the AHCU (component(s)) provided as test articles by providing the Contractor with a notice of refusal that will specify the grounds for refusal.

8.1.3. If Canada gives the Contractor a notice of refusal, the Contractor must take corrective action as soon as possible, at no cost to Canada, to remove the grounds for the refusal. Canada will conduct such re-inspection as is necessary to ensure that the grounds for refusal have been removed.

8.1.4. The Contractor must prepare and ship the final approved number of units as co-ordinated with Canada and the Canadian Forces Supply System.

8.1.5. If the parts and attached documentation meet the quality and accuracy standards of Canadian Forces QAR, then the parts are added to the Canadian Forces Supply System.

Fleet	Helmet	Earphone	CEP	Microphone Impedance	Connector	Special Considerations
CP140 Aurora	190A	300 Ω	CEP Inc. Mono	150 Ω	U174/U	
CH139 Jet Ranger	HGU-56/P	19Ω	CEP Inc. Mono	5 Ω	U174/U	
Bell 412-CF	HGU-56/P	19Ω	CEP Inc. Mono	5 Ω	U174/U	
CH146 Griffon	HGU-56/P	19Ω	CEP Inc. Mono	150 Ω,	TP106	TEMPEST Also M116/G 150 Ω mic in M-45CF respirator
CH147F Chinook	HGU-56/P	19Ω	CEP Inc. Mono	5 Ω	U174/U, Converting to TP106, 150 Ohm Mic 10V bias	Converting to TEMPEST Will use M116/G 150 Ω mic in M-45CF respirator
CH148 Cyclone	HGU-56/P	19Ω	CEP Inc. Mono/ Binaural	150 Ω,	TP106, TP108 for Binaural	TEMPEST Will use M116/G 150 Ω mic in M-45CF respirator
CH149 Cormorant	HGU-56/P	19Ω	CEP Inc. Mono	5 Ω	U174/U	Also use M169A/AIC 5 Ω Mic with PHODs mask
CC138 Twin-Otter	HGU-56/P	19Ω	nil	5 Ω	U174/U	Worn with Maxillofacial Shield
CC130H Hercules	190A	19Ω	nil	5 Ω	U174/U	
CC130J Hercules	190A	19Ω	nil	5 Ω	U174/U	
CC177 Globemaster III	190A	1200Ω	nil	150 Ω	U174/U	
CT114 Tutor	190A	19Ω	nil	5 Ω	U174/U	

Fleet	Helmet	Earphone	CEP	Microphone Impedance	Connector	Special Considerations
CP140 Aurora	190A	300 Ω	CEP Inc. Mono	150 Ω	U174/U	

Table 1.1 – Helmet Comm.System Configurations

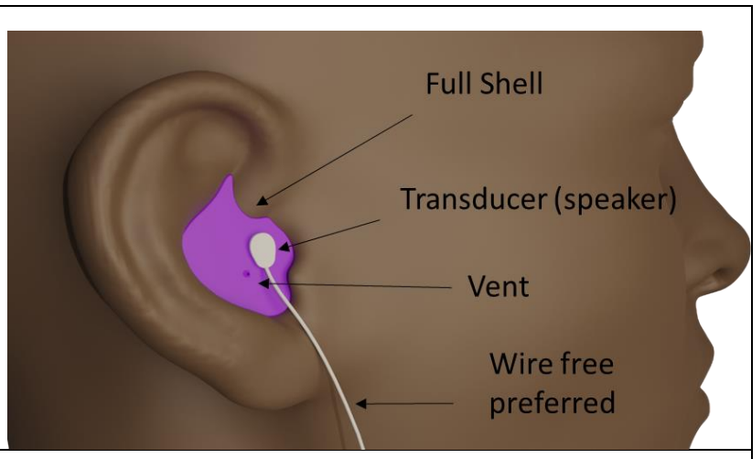
Table 2.1 Applicable Helmet Assemblies		
Helmet Assembly - Nomenclature	**Part Number**	**NSN**
190A* (Medium)	**85F7023-4**	**8475-01-375-6161**
190A* (Large)	**85F7023-5**	**8475-01-375-6160**
190A* (X-Large)	**85F7023-6**	**8475-01-375-6159**
HGU-56/P (XX-small)	**01560145**	**8475-01-539-1179**
HGU-56/P (X-small)	**01560146**	**8475-01-539-0696**
HGU-56/P (Small)	**01560147**	**8475-01-539-1180**
HGU-56/P (Medium)	**01560148**	**8475-01-539-1184**
HGU-56/P (Large)	**01560149**	**8475-01-539-1199**
HGU-56/P (X-large)	**01560150**	**8475-01-539-1204**
Test Equipment		
LIFE SUPPORT INTEGRATED TEST SET	**LSIT−1/A**	**6695-01-449-4690**
AIRCREW SYSTEMS TESTER	**AST**	**4920-01-656-4283**
XABH-9000 or 9001 Test set	**XABH-9000**	**4920-01-626-9060**
***190A is based on the Gentex HGU-55 helmet**		

Table 2.2 HGU-56/P Noise Attenuation									
Frequency	125	250	500	1000	2000	3150	4000	6300	8000
Attenuation	17	14	20	21	26	38	37	44	42

Table 2.3 HGU-55/P Noise Attenuation (190A)									
Frequency	125	250	500	1000	2000	3150	4000	6300	8000
Attenuation	6	7	21	30	36	43	48	48	47

Figure 2.5 : AHCU Conceptual Helmet Configurations

		Amount	Connector	Existing Mic Element
Configs 1,2	Non-TEMPEST (190A)	200	U174/U	M-87 5Ω and M-7A 150 Ω,
Config 3	Non-TEMPEST (HGU-56P)	600	U174/U	M-87 5Ω
Config 4	TEMPEST (HGU-56P)	1000	TP106	M162/AIC 150 Ω,
Config 5	TEMPEST binaural (HGU-56P)	200	TP108	M162/AIC 150 Ω,
	Training Aids	20	Training aids and test units to be a proportionally distributed variety of Configs 1/2/3/4	
	Test Units Total	30		
Grand Total Helmet Mod Kits		**2000**	**Mic and CEP**	
Active Noise Reduction Modules		**100**	**ANR**	



Communication Ear Piece Transducer should come with standard earplugs but must be capable of securely fastening custom molded plugs.

Figure 2.6 Custom Ear Plug Diagram

Abbreviation	**Description**
AHCU	Aircrew Helmet Communication Upgrade
ALSE	Aviation Life Support Equipment
ANR	Active Noise Reduction
CAF	Canadian Armed Forces
CEP	Communication Ear Plug
ICS	Internal Communication System, Intercom System
NVG	Night Vision Goggles
EMI	Electromagnetic Interference
CA	Contracting Authority
CI	Configuration Item
CAGE	Commercial and Government Entity
CDR	Critical Design Review
CDRL	Contract Data Requirements List
CFTO	Canadian Forces Technical Order
COTS	Commercial-off-the-Shelf
RMM	Requirements Management Matrix
DID	Data Item Description
DMC	Demilitarization Code
DND	Department of National Defence
DSCO	Director Supply Chain Operations
ECP	Engineering Change Proposal
EHSIR	Environmental Health and Safety Impact Report
EME	Electromagnetic Environment

Abbreviation	**Description**
GSM	Government Supplied Materiel
IAW	In Accordance With
ICD	Interface Control Document
IDR	Intermediate Design Review
ILS	Integrated Logistics Support
IP	Intellectual Property
IPC	Initial Provisioning Conference
NATO	North Atlantic Treaty Organization
NDQAR	National Defence Quality Assurance Representative
NSN	NATO Stock Number
PA	Procurement Authority
PM	Project Manager
PDR	Preliminary Design Review
QA	Quality Assurance
QAR	Quality Assurance Representative
SOW	Statement of Work
STTE	Special Tools and Test Equipment
TA	Technical Authority
TDWG	Training Development Working Group

Reference	promulgation	Reference Title
C-05-005-001/AG-001	CH 8 - 2019-04-01	TECHNICAL AIRWORTHINESS MANUAL
C-05-005-001/AG-002	CH 0 -2020-01-01	AIRWORTHINESS DESIGN STANDARDS MANUAL (ADSM)
A-LM-007-100/AG-001	2016-11-30	SUPPLY ADMINISTRATION MANUAL
A-LM-184-001/JS-001	2016	SPECIAL INSTRUCTIONS FOR REPAIR AND OVERHAUL CONTRACTORS
C-01-100-100/AG-005	1996-02-29	SPECIFICATION - ACCEPTANCE OF COMMERCIAL AND FOREIGN GOVERNMENT PUBLICATIONS AS ADOPTED PUBLICATIONS
C-01-100-100/AG-006	1996-03-01	SPECIFICATION – WRITING, FORMAT AND PRODUCTION OF TECHNICAL PUBLICATIONS
D-01-100-204/SF-000	2000-10-31	SPECIFICATION - PREPARATION OF PREVENTIVE MAINTENANCE INSTRUCTIONS
D-01-100-205/SF-000	2000-10-31	SPECIFICATION - PREPARATION OF CORRECTIVE MAINTENANCE INSTRUCTION
D-01-100-220/SF-000		PREPARATION OF MODIFICATION INSTRUCTIONS
D-01-100-211/SF-000	1991-06-01	SPECIFICATION – PRESERVATION, STORAGE AND HANDLING INSTRUCTION
D-01-100-214/SF-000	2002-05-01	SPECIFICATION FOR PREPARATION OF PROVISIONING DOCUMENTATION FOR CANADIAN FORCES EQUIPMENT
D-01-100-215/SF-000	2002-05-01	SPECIFICATION FOR PREPARATION OF MATERIEL CHANGE NOTICES (MCN) FOR CANADIAN FORCES EQUIPMENT
D-02-002-001/SG-001	2021-06-30	STANDARD – IDENTIFICATION MARKING OF CANADIAN MILITARY PROPERTY
D-80-001-055/SF-001	2005	SPECIFICATION FOR LABEL, CLOTHING AND EQUIPMENT
D-LM-008-002/SF-001	1991-08-01	SPECIFICATION FOR MARKING FOR STORAGE AND SHIPMENT
D-LM-008-036/SF-000	2013-12-01	DND MINIMUM REQUIREMENT FOR MANUFACTURER'S STANDARD PACK

DAOD 3003-1	2011-08-23	MANAGEMENT, SECURITY AND ACCESS REQUIREMENTS RELATING TO CONTROLLED GOODS
D-01-400-002/SF-000	2011	SPECIFICATION FOR LEVELS OF ENGINEERING DRAWINGS AND ASSOCIATED LISTS
MIL-DTL-22442/62A		DETAIL SPECIFICATION SHEET CABLE ASSEMBLY, AIRCRAFT AUDIO
MIL-HDBK-516C		DEPARTMENT OF DEFENCE HANDBOOK – AIRWORTHINESS CERTIFICATION CRITERIA
MIL-M-49199		DETAIL SPECIFICATION – HEADSET MICROPHONE KIT MK-1564()/AIC
RTCA-DO-214A		AUDIO SYSTEMS CHARACTERISTICS AND MINIMUM OPERATIONAL PERFORMACE STANDARDS FOR AIRCRAFT AUDIO SYSTEMS AND EQUIPMENT
MIL-STD-461G		REQUIREMENTS FOR THE CONTROL OF ELECTROMAGNETIC INTERFERENCE CHARACTERISTICS OF SUBSYSTEMS AND EQUIPMEN
MIL-STD-810G		DEPARTMENT OF DEFENSE TEST METHOD STANDARD ENVIRONMENTAL ENGINEERING CONSIDERATIONS AND LABORATORY TESTS

Contract Data Requirements List(CDRL)

and

DATA ITEM DESCRIPTIONS (DID)

For

Aircrew Helmet Communications Upgrade (AHCU) Project

1. TITLE: The DID title identifies the data item. It is a meaningful short name for the data item that identifies its nature.

2. IDENTIFICATION NUMBER: An alphanumeric allocation is representing a functional area of responsibility.

PM-000	Project Management
SE-000	System Engineering
ILS-000	Integrated Logistics Support

3. DESCRIPTION/PURPOSE: The description/purpose entry presents a concise description (abstract) of the data content requirements and presents the purpose for which the data is required.

4. APPROVAL DATE: The originator's approval date.

5. OFFICE OF PRIMARY INTEREST: The office designation of the directorate or individual responsible for specifying the data requirement**.**

6. APPICATION/INTERRELATIONSHIP: A block, which contains information to assist in the proper selection and application of the data item.

7. ORIGINATOR: Title of author.

8. APPLICABLE FORMS: Forms associated with the DID are identified in Block 9.

9. PREPARATION INSTRUCTIONS: A block which contains the description of the information required in the DID. The following subparagraphs provide the generic format and content instructions for the preparation of all deliverables:

10.1. Data Item Formats and Delivery Mediums. Unless otherwise defined within this contract, the Contractor must submit the contract deliverables in paper and electronic formats. Best commercial practices are to be used for charts, tables, matrices, page numbering and document control numbering.

10.1.1. Paper Format. Deliverables in paper format must be provided in typewritten form on plain, 8 ½ by 11 inch or 8 ½ by 14 inch, bond paper. Note that the preceding size restriction does not apply to Engineering Drawings.

10.1.2. Electronic Format. Electronic documents must be delivered in a format fully compatible with the products listed in the following table.

TABLE 1 - FORMAT COMPATIBILITY FOR ELECTRONIC DOCUMENTS

Application Type	Product/Format
Word Processing	Microsoft Word 2013 for Windows
Spreadsheet	Microsoft Excel 2013 for Windows
Presentation	Microsoft PowerPoint 2013 for Windows
Database	Microsoft Access 2013 for Windows
Project Management/Schedules	Microsoft Project 2013 for Windows
Drawing	AutoCAD 2013 (Autodesk)
Associated Lists	Adobe Acrobat (Pdf)
Photos	JPEG,PNG, TIFF
Portable Representative 3d Models	.obj, gltf 2.0(mesh), .png, jpg (textures)

Electronic versions of documents must be delivered on USB. USB must be labeled/tagged with the following information, as a minimum:

a. project name;

b. contract Number;

c. subject matter; and

d. date of delivery.

Alternatively, for working or draft documents, the contractor may deliver electronic data via e-mail (must comply with the Department of National Defence (DND) internet/firewall maximum file size limitation of 10 Mb).

10.2. Contents. The Data Item Descriptions must consist, as a minimum, of the following sections:

a. Title Page;

b. Table of Contents;

c. Document Control Log;

d. Revision Record;

e. Purpose;

f. Introduction;

g. References;

h. Specific Content (subject matter);

i. Notes; and

j. Appendices.

10.2.1. Title Page. The Title Page must contain the following information:

a. data item title, as written in box 1 of DID;

b. contract number;

c. CDRL sequence number;

d. prepared for: Canadian Department of National Defence, Aircrew Helmet Communications Upgrade (AHCU) Technical Authority

e. Prepared By: Contractor's name and address.

10.2.2. Table of Contents. The Table of Contents should list the title and page number of each titled paragraph and subparagraph, figure, table and appendix.

10.2.3. Document Control Log. The Document Control Log should contain three columns: Revision, Date and reason for the change.

10.2.4. Revision Record. The Revision Record should contain a listing of pages and their revision status.

10.2.5. Purpose. This section must describe the purpose of the data item.

10.2.6. Introduction. This section must detail the Contractor's approach and general plan for this data item.

10.2.7. References. This section must list all applicable/referenced documents and is to include number designations, titles, dates and revisions.

10.2.8. Subject Matter. Plain text that addresses the material that is to be included in the document.

10.2.9. Notes. This section must contain any general information that aids in the understanding of the document (eg. background information, glossary). This section should include an alphabetical listing of all acronyms, abbreviations and their meanings as used in the plan. This listing must be included with the final plan.

10.2.10. Appendices. Appendices may be used to provide information published separately for convenience in document maintenance (eg. charts, classified data). As applicable, each appendix must be referenced in the main body of the plan where the data would normally have been provided. Appendices may be bound as separate documents for ease of handling.

Contract:	Contractor:	Amendment #: Dated:

Item	Title	References		Tech Authority	How Often	Submissions		Approval	Remarks
		DID	SOW			First	Last		
006	Equipment TEMPEST Qualification Test Report	SE-014		TA	Once	3 MACA	24 MACA		
009	Provisioning Parts Breakdown	ILS-001		TA	Once	5 MACA	24 MACA		
027	Packaging Data	ILS-002		TA	Once	5 MACA	24 MACA		
011	Operation and Technical Manuals	ILS-003		TA	Once	5 MACA	24 MACA		

	National Defence **Défense Nationale**		**Back to the DID List**

DATA ITEM DESCRIPTION - DESCRIPTION DE DONNÉES

1. TITLE – TITRE	**2. IDENTIFICATION NUMBER - NUMÉRO D'IDENTIFICATION**
Equipment TEMPEST Qualification Test Report	**SE-014**

3. DESCRIPTION / PURPOSE – DESCRIPTION / OBJET

The DID must document the TEMPEST characteristics of the equipment, installation or system under test (SUT) and to specifically document the TEMPEST deficiencies, their causes and remedial modifications (engineering sketches and/or descriptions) required to eliminate the deficiencies, to provide a complete record which will be available for future program applications.

4. APPROVAL DATE **DATE D'APPROBATION**	**5. OFFICE OF PRIMARY INTEREST (OPI)** **BUREAU DE PREMIERE RESPONSABILITÉ (BPR)**	**6. GIDEP APPLICABLE** **D'ÉCHANGE DE DONNÉES PERTINENT**
	AHCU Project Management	**N/A**

7. APPLICATION / INTERRELATIONSHIP – APPLICATION / INTERDÉPENDANCE

This DID relates to the following:

a. SOW paragraph

8. ORIGINATOR - AUTEUR	**9. APPLICABLE FORMS - FORMULES PERTINENTES**
PM Systems Engineer	

10. PREPARATION INSTRUCTIONS – INSTRUCTIONS SUR LA PRÉSENTATION DES DONNÉES

Generic Content and Format. The generic format and content instructions for this deliverable must be in accordance with Data Item Descriptions (DIDs) – General Information, paragraph 10, except where stated otherwise below. The TEMPEST Certification report may be in Contractor format.

Reference Documents. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices and revisions must be as specified in the contract.

Specific Content. The TEMPEST Qualification Article Test Report must be prepared in accordance with

A TEMPEST Test Setup Ambient Certification Report must be included as part of this document.

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DATA ITEM DESCRIPTION - DESCRIPTION DE DONNÉES

1. TITLE – TITRE	**2. IDENTIFICATION NUMBER - NUMÉRO D'IDENTIFICATION**
Provisioning Parts Breakdown (PPB)	**ILS-001**

3. DESCRIPTION / PURPOSE – DESCRIPTION / OBJET

To provide the data needed by DND to identify, catalogue, calculate and procure spares

4. APPROVAL DATE DATE D'APPROBATION	**5. OFFICE OF PRIMARY INTEREST (OPI) BUREAU DE PREMIERE RESPONSABILITÉ (BPR)**	**6. GIDEP APPLICABLE D'ÉCHANGE DE DONNÉES PERTINENT**
	AHCU Project Management	

7. APPLICATION / INTERRELATIONSHIP – APPLICATION / INTERDÉPENDANCE

This DID relates to the following:

a. ILS-001 Provisioning Parts Breakdown (PPB);

b. D-01-100-214/SF-000 Preparation of Provisioning Documentation.

8. ORIGINATOR - AUTEUR	**9. APPLICABLE FORMS - FORMULES PERTINENTES**
PM	

10. PREPARATION INSTRUCTIONS – INSTRUCTIONS SUR LA PRÉSENTATION DES DONNÉES

Generic Format and Content. The generic format and content instructions for this deliverable must be in accordance with Data Item Description (DID) - General Information, paragraph 10, except where stated otherwise below.

Specific Format and Content. The PPB must be developed and maintained as outlined herein.

The PPB must be completed in accordance with D-01-100-214/SF-000, paragraph 3.9.

The information must capture all details required for cataloguing the items into the Canadian Forces Supply System (CFSS).

If the NATO Stock Number of an item is not known, the Supplementary Provisioning Technical Documentation (SPTD) must be provided for the item submitted in the PPB in accordance with D-01-100-214/SF-000.

For each item, the Provisioning Documentation must be prepared in accordance with D-01-100-214/SF-000 Preparation of Provisioning Documentation and must include the following data elements:

DATA FIELDS REQUIRED	PPB
Item Number (unique sequence number for each list)	M
Indenture Code (DED 162)	M
Item Name (DED 182)	M
Reference (manufacturer's part) No. (DED 337)	M
NSCM/CAGE Code (DED 046)	M
OEM's Part Number (DED 337)	R
NATO Stock Number (DED 253)	R
Quantity Per Assembly (DED 316)	M
Standard Unit Price	M
Unit Of Issue (UOI) (DED 488)	M
Reparability Indicator (REP)	R
Government Supplied Material (GSM)	R
Procurement Lead Time (PLT)	M

	Reference Designation (DED 335)	**R**	
	Shelf Life	**R**	
	Usage Rate	**R**	
	Recommended Buy Quantity (DED 328)	**NR**	
	SMR Code (DED 389)	**R**	
	Logistics Control Number (LCN) (DED 199)	**R**	
	Demilitarization Code (DMC)	**R**	
	Unit of Measure (DED 491)	**NR**	

M = Mandatory R = Required if known O = Optional NR = Not Required

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DATA ITEM DESCRIPTION - DESCRIPTION DE DONNÉES

1. TITLE – TITRE	**2. IDENTIFICATION NUMBER - NUMÉRO D'IDENTIFICATION**
Instruction Manual(s)	**ILS-003**

3. DESCRIPTION / PURPOSE – DESCRIPTION / OBJET

The AHCU Operating Instructions Manual(s) must provide(s) information and detailed procedures for initiating, operating, monitoring and shutting down specific AHCU equipment and for identifying/isolating a malfunctioning component in the sub-system.

4. APPROVAL DATE DATE D'APPROBATION	**5. OFFICE OF PRIMARY INTEREST (OPI) BUREAU DE PREMIERE RESPONSABILITÉ (BPR)**	**6. GIDEP APPLICABLE D'ÉCHANGE DE DONNÉES PERTINENT**
	AHCU Project Management	

7. APPLICATION / INTERRELATIONSHIP – APPLICATION / INTERDÉPENDANCE

This DID relates to the following:

a. ILD-003 Instruction Manual(s)

8. ORIGINATOR - AUTEUR	**9. APPLICABLE FORMS - FORMULES PERTINENTES**
PM	

10. PREPARATION INSTRUCTIONS – INSTRUCTIONS SUR LA PRÉSENTATION DES DONNÉES

Generic Format and Content. The generic format and content instructions for this deliverable must be in accordance with Data Item Description (DID) - General Information, paragraph 10, except where stated otherwise below.

System Operating Manuals **must be in accordance with C-01-100-100/AG series.**

Specific Format and Content: New and Existing Publications shall be provided in accordance with the following requirements and in the final form specified herein.

Bilingual Publications. A recommended list of publications shall be provided to the Crown for approval.

Delivery lead times shall be provided for all such publications based on options 1 and 2 below.

Option 1 – Newly Written Manuals. All bilingual publications shall be produced in accordance with C-01-100-100/AG-006 (Specification – Writing, Format and Production of Technical Publications).

Option 2 – Existing Manuals. All publications provided as existing commercial or foreign government off the-shelf manuals shall comply with C-01-100-100/AG-005 (Acceptance of Commercial and Foreign Government Publications as Adopted Publications). The existing commercial or foreign government off the-shelf manuals shall be translated from French to English, or English to French, and in the same format as the existing commercial or foreign government off the-shelf manuals.

Format. Any requirements for format change shall be brought forward at a Project Review Meeting.

Deviations from the specifications are permitted provided they can be shown to improve usability of the publication or the efficiency of the publishing process. Requests for deviations require written approval of the Crown prior to implementation. Any deviations that will increase cost shall be addressed through formal contract amendment process prior to proceeding.

Draft changes/revisions prepared by the Crown shall be incorporated without change, other than editorial, unless specifically authorized in writing by the Crown.

Textual material, artwork, all reproducible, and replicated/printed copy shall be in accordance with the quality standards and format specified herein:

Government Review Period. A production and delivery schedule for the publications is required by the Crown (Contracting Authority), which shall constitute deliverable end items that will ensure availability of the publications concurrently with the delivery of the goods to which the publications relate. The Contractor's schedule shall account for the time required by the Crown to conduct reviews and provide acknowledgement or comments.

Quantity. Final soft and hard copies shall be provided to the Crown in accordance with CDRL Appendix 1.

Soft Copy Publications. All soft copy publications shall be delivered to the Project Manager. The following soft copies shall be provided.

Master document files. The master document files are the electronic master of the completed publication. Master document files shall be delivered in their native file format (e.g. Word perfect ms word, xml, etc.). The crown shall be able to edit the master document files. All blank pages, figures, illustrations and foldouts shall be imbedded within the file(s). These files are considered the "master document" files for present and future revision, changes and/or re-use. The master document files may be broken down into a number of folders and sub-files in order to ensure the file sizes can be managed on the normal office word processor. Files should be broken at logical page locations to ensure future ease of use. This would normally occur at the end of a part/chapter or section.

Master image files. All raster-based illustrations (figures) shall be delivered in a lossless file format such as PNG or TIFF files easily recognized by MS Windows. All Vector-based illustrations to be delivered in SVG or PDF format. Images shall be untiled and in full resolution.

Master read only files. Using the completed master document file(s), the contractor shall generate and provide a portable document format (pdf) file that shall contain the complete publication (with changes incorporated as applicable). This file(s) is considered the "master read only" file for printing/reproduction/ viewing purposes. All pages contained in the pdf file shall be oriented such that they do not require rotation when viewing. This file shall contain "thumbnails" of each of the pages. The master read only file is not a replacement for the master document files or the master image files. The contractor shall ensure that a quality check is done on the read only (pdf) file to verify that the content reflects the same content/formatting as the master document file and the reproducible copy. The requirements for hyperlinks within the read only file shall be specified on the individual task or tasks. In the case of changes, a second pdf file that contains only the changed sheets is also required; and

Read only copies. Read only copies of individual publications or sets of publications shall be provided to the crown on usb drive. Read only copies shall be duplicated using the master read only files. Copy quantities, label requirements and requirements for cd indexes and hyperlinks within the usb drive shall be specified on the individual task or tasks.

Media of Delivery. The Contractor shall provide the electronic files on USB Disk Drive written in accordance with ISO 9660. Files shall not be compressed or zipped other than as specified herein. The Disk Drive shall be clearly labelled with the NDID number, publication title, corresponding file number(s) and type, contract number and task or requisition number.

Where applicable, the Contractor shall deliver electronic files/hard copy technical publications simultaneously.

Advance Shipping Notice. The Contractor shall advise the Consignee and the Requisition Authority regarding the quantity and estimated delivery date of each publication and the identifying number (example: C-12-140-AA0/MF-000 - EDD 31 July 2023). Contract number, contract serial number, and contract item numbers are to be stated on this notice.

Storage and Shipping of Reproducible Copy, Artwork and Related Material.

All material that is the property of the Crown, including any items supplied by the Department, shall be held and properly stored in accordance with C-01-100-100/AG-006.

Upon completion of the Contract, or as requested by the Crown, and after confirmation in writing by the Crown, all components shall be returned as directed by the Crown.

The components shall be suitably packaged and protected in accordance with D-LM-008-022/SG-000 by the Contractor so as to ensure their safe transit without physical damage. Reproducible copy and master copy shall each be separately packaged and clearly marked as such together with contract number, contract serial number, and contract item number (if applicable).

The Contractor shall protect electronic media during shipping, from damage due to environmental conditions including field force discharge, by using protective packaging in accordance with D-LM-008-001/SF-001. The Contractor shall clearly mark on all electronic media, and on all packaging, the internal content/structure of the electronic media, in accordance with D-LM-008-002/SF-001.

Operator Manual: Specific Content. Operator Manual(s) must include, as a minimum, the following parts:

General Description;

System Specifications

Description of Controls

The Operating Instructions Manual may include/incorporate existing COTS information/documentation existing as a current CFTO (eg: existing Helmet CFTOs) The manual(s) must not make reference to external COTS manuals unless they have been officially assigned a NDID number or included in the publications package.

Technical Manuals: Specific Content. The technical manuals must include, but not be limited to, description, maintenance and troubleshooting instructions, illustrated parts breakdowns, preventive maintenance instructions, schematic diagrams, storage/handling procedures and safety precautions. The technical manuals may include/incorporate existing COTS documentation. However, the manuals must not reference unprovided COTS manuals unless they have been adopted as an official CFTO. The technical manuals must be capable of being used as “stand alone” documents without any obligatory reference to other publications. If the Contractor wishes to reference complete documents for DND’s benefit, the Contractor must ask for DND PM approval in accordance with this DID

Document Structure. This manual(s) must be written in a clear, concise language consistent with the format And production Of Technical Publications and include the following:

System Technical Manual Overview;

Referenced Documents List;

System, Sub-system and Assembly Overview;

General Description;

System detailed Specifications;

Installation Instructions;

Preventive Maintenance Instructions;

Mechanical Maintenance Instructions;

Corrective Maintenance Instructions;

Illustrated Parts Lists;

Software/Firmware description;

System Technical Manual Overview. Technical Manual Overviews define the purpose and content of each manual

Referenced Documents List. The Referenced Documents List must include the document numbers and titles of all documents referenced in the particular manual. The source for all documents not available through normal Government stocking activities must be indicated.

System, Sub-System and Assembly Overview. System Overviews must include the AHCU System, Sub-systems and Assemblies theory of operation to facilitate the maintenance. Details of the AHCU System, Sub-systems and Major Assemblies must appear in the main manual. Making reference to an external Original Equipment Manufacturer (OEM) documentation is prohibited unless it has been provided or approved the DND PM or it has been officially adopted as a CFTO.

General Description. General Descriptions must describe the purpose and limitations of the parts of the AHCU system and how each accomplishes its function and any other general information deemed essential to the understanding of its purpose. The following basic details must include, as a minimum:

The weight and dimensions of the AHCU system

Photographs or outline drawings of the part and its components with the name of each component given. Component part numbers must be given only when the nomenclature is insufficient for identification;

A description of the major parts of the sub-system and of their respective associate equipment;

Installation Instructions. Installation Instructions for the AHCU must be prepared in accordance with TAM

Preventive Maintenance Instructions. The Contractor must prepare Preventive Maintenance Instructions. These instructions must contain all the necessary information to perform function checks, uncover malfunctions, perform in-service inspections, adjustments and the routine lubrication and cleaning of mechanical components as required**.**

Performance Monitoring Checks. Performance Monitoring Checks must be arranged as follows:

General Information. This section must outline the average time required to complete the work involved, the purpose of the checks and information of a general nature;

Test Equipment Required. This section must list all test equipment including failure code lookup tables required in the procedures including any calibration checks prior to use;

Material Required. This section must list all material such as special tools, cables, cleaners, lubricants, etc. The specification for the cleaners and lubricants must be given; and

Procedures. This section must detail the work to be accomplished in step-by-step form.

Illustrated Parts Lists. Illustrated Parts Lists must include, but not be limited to, the information required to positively identify all of the parts in the sub-system, which may require maintenance or replacement action.

Software/Firmware. These instructions must include all information required for field maintenance of the software or firmware.

Notes. Notes must contain any general information that aids in understanding the document (e.g., background information).

	National Defence Défense Nationale		**Back to the DID List**

DATA ITEM DESCRIPTION - DESCRIPTION DE DONNÉES

1. TITLE – TITRE	**2. IDENTIFICATION NUMBER - NUMÉRO D'IDENTIFICATION**
Packaging Data	**ILS-002**

3. DESCRIPTION / PURPOSE – DESCRIPTION / OBJET

To identify packaging requirements for items to be shipped to or stored at a DND facility (such as spare parts, bulk items, special tools, support equipment, test equipment and training equipment).

These data may be submitted/accessed in electronic media.

4. APPROVAL DATE DATE D'APPROBATION	**5. OFFICE OF PRIMARY INTEREST (OPI) BUREAU DE PREMIERE RESPONSABILITÉ (BPR)**	**6. GIDEP APPLICABLE D'ÉCHANGE DE DONNÉES PERTINENT**
	AHCU Project Management	**Government Industry Data Exchange Program**

7. APPLICATION / INTERRELATIONSHIP – APPLICATION / INTERDÉPENDANCE

This DID relates to the following:

a. CDRL 027, Packaging Data;
b. SOW paragraphs 4.4
c. CFTO D-LM-008-001/SF-001; D-LM-008-002/SF-001, D-LM-008-011/SF-001, D-LM-008-022/SG-000 and D-LM-008-36/SF-000;
d. MIL-STD-2073-1;
e. MIL-STD-2073-2.

8. ORIGINATOR - AUTEUR	**9. APPLICABLE FORMS - FORMULES PERTINENTES**
PM	

10. PREPARATION INSTRUCTIONS – INSTRUCTIONS SUR LA PRÉSENTATION DES DONNÉES

Generic Format and Content. The generic format and content instructions for this deliverable must be in accordance with Data Item Description (DID) - General Information, paragraph 10, except where stated otherwise below.

Guidance. Guidance for the preparation of this deliverable is available within the following:
D-LM-008-001/SF-001 (Methods of Packaging);
D-LM-008-002/SF-001 (Specification for Marking for Storage and Shipment);
D-LM-008-011/SF-001(Preparation and Use of Packaging Requirements Codes);
D-LM-008-022/SG-000 (The Standard for Packaging of Documentation);
D-LM-008-036/SF-000 (Minimum Requirements for Manufacturer's Standard Pack); and
MIL-STD-2073-1 and MIL-STD-2073-2 "Standard Practice for Military Packaging".

Specific Format and Content. The deliverable must be developed and maintained as outlined herein.
Provide the following data:
Item Identification
Item Name (DED 182);
Reference (Manufacturer's Part) Number (DED 337);
NSCM/CAGE code (DED 046); and
NATO Stock Number (if assigned) (DED 253).

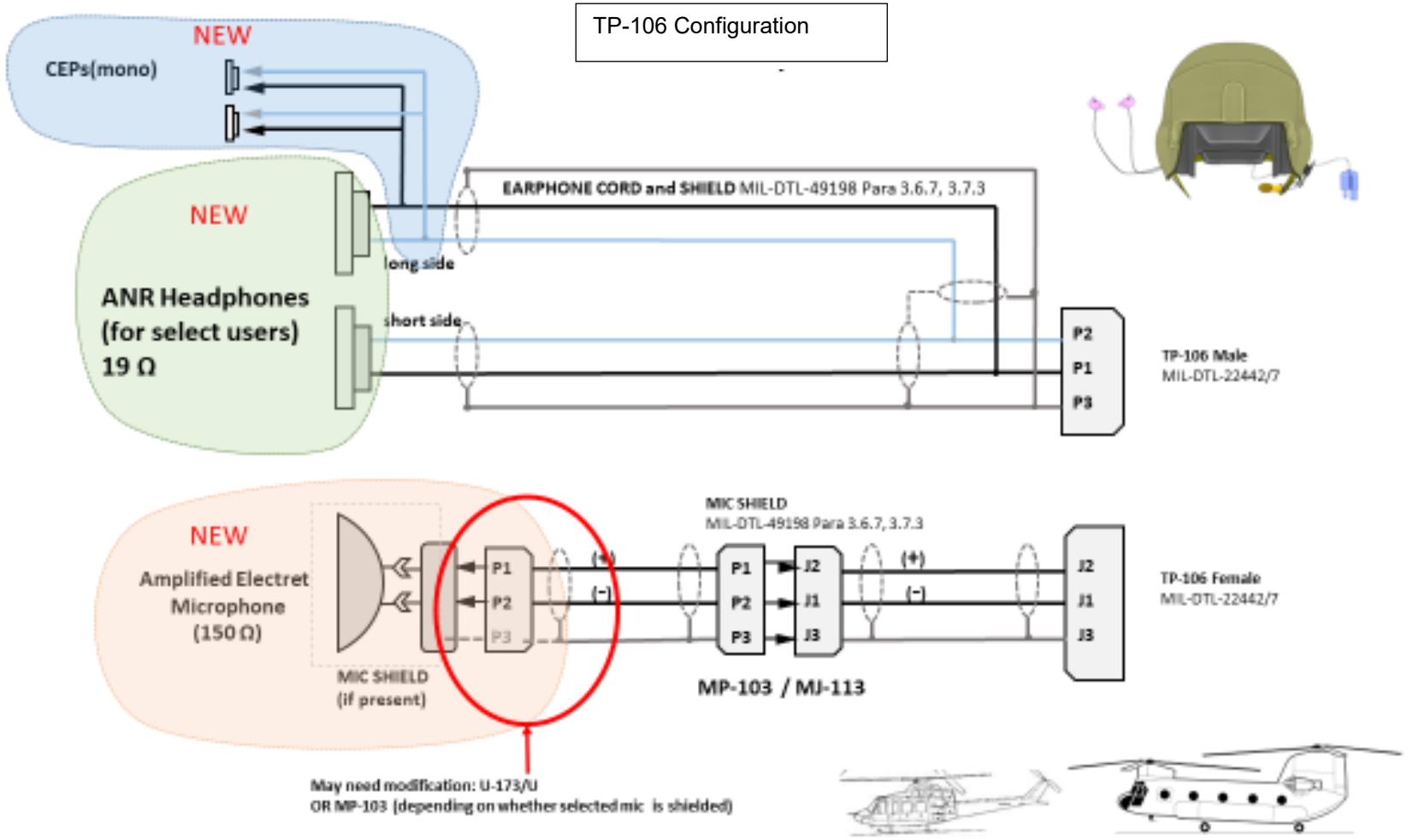
Packaging Data
Unit Pack Size (length, width, depth) (DED 496);
Unit Pack Weight (DED 497);
Packing Code (A, B, C) (DED 283);
Hazardous Code (Regulated/Non-regulated) (DED 154); and
Special packaging instruction (for items on Special PHST Consideration Items List) (DED 396).
Material Content Code (DED 395);
Unit Pack Cube (DED 493);
Degree of Protection Code (DED 074); and
Quantity Per Unit Pack (DED 321).

Notes:

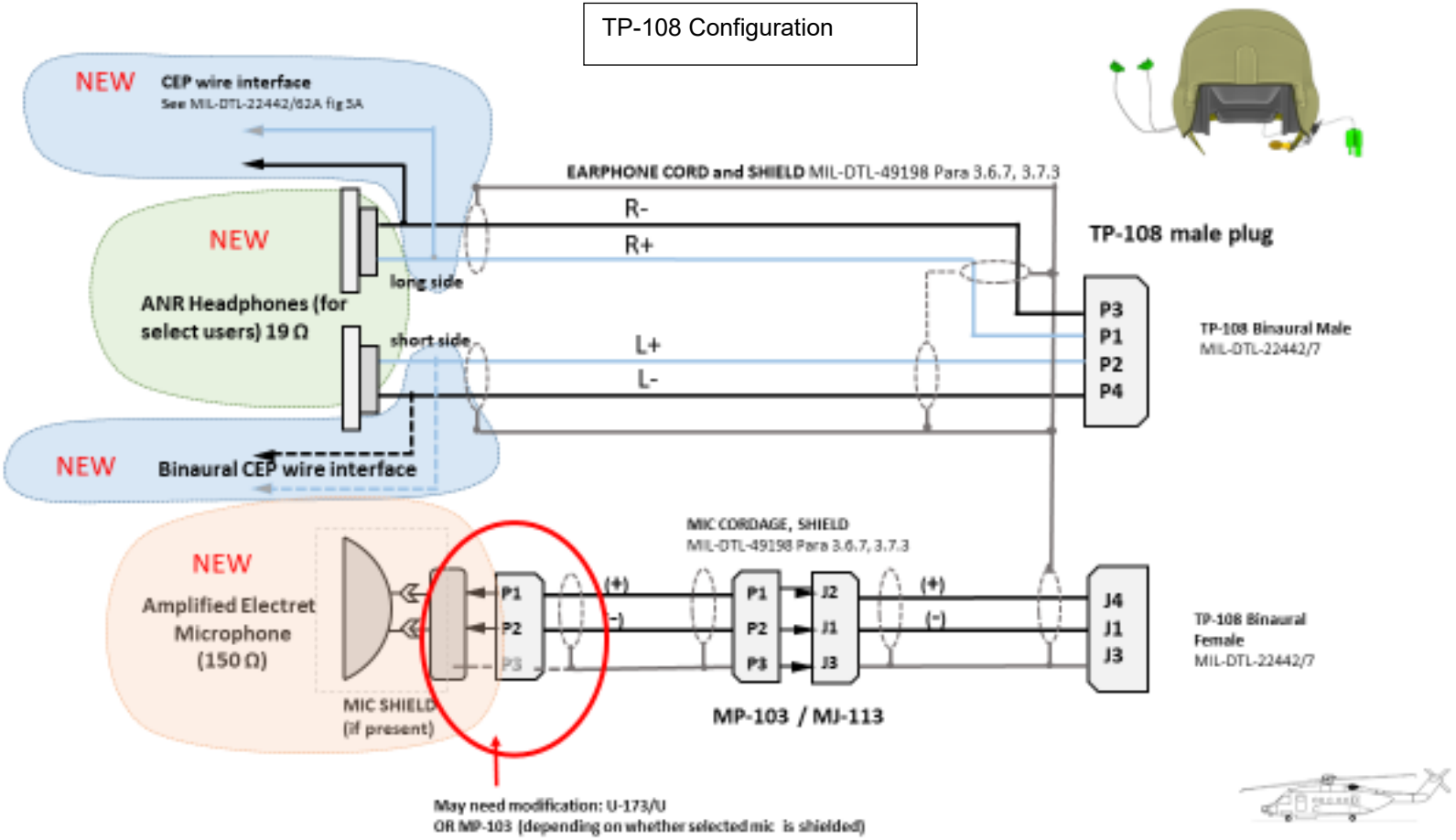
To reduce the need for redundant data, similar items may be grouped with the same packaging data applying to the group.

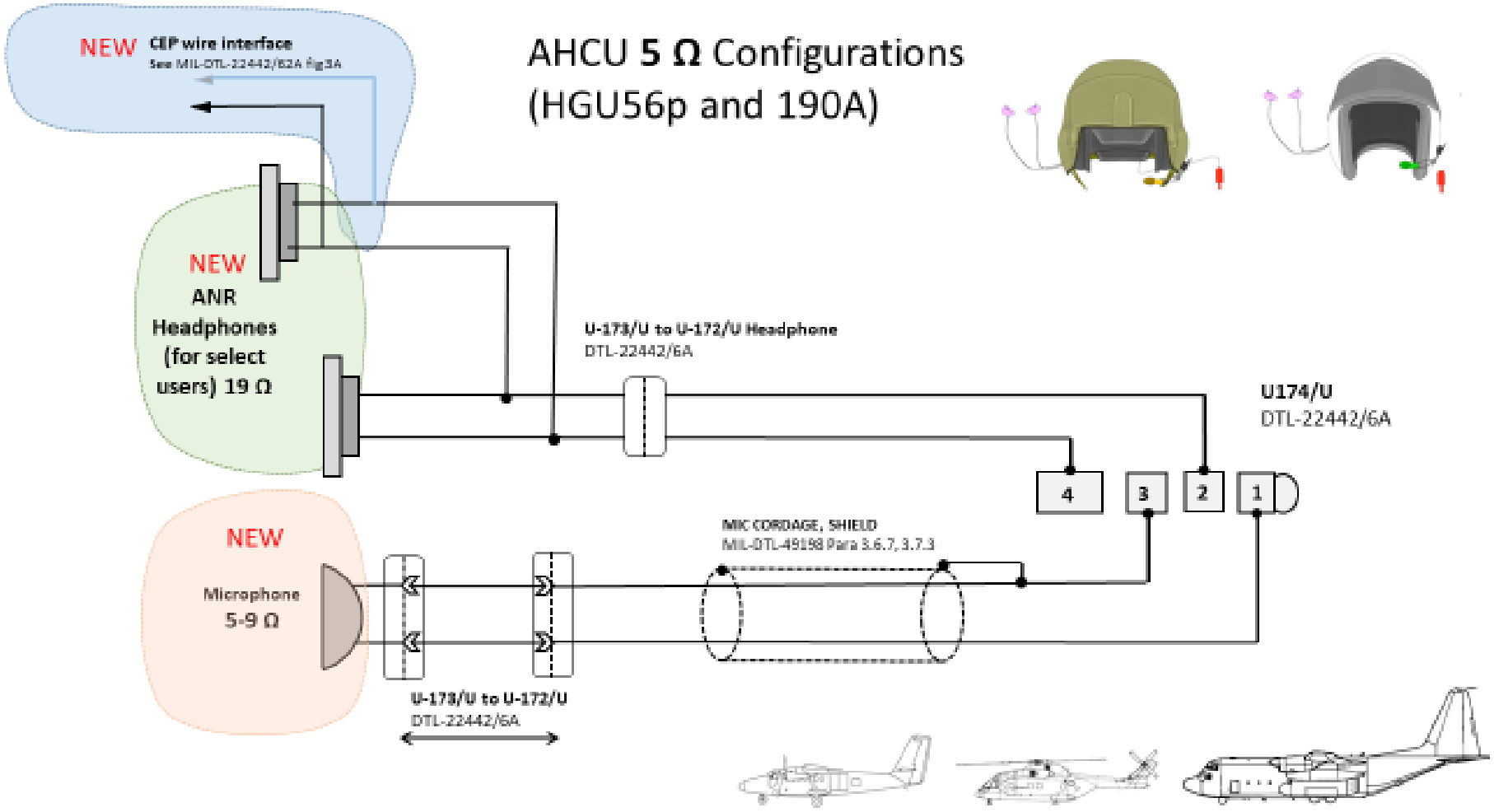
The Canadian Forces Supply System requires size in meters and weight in kilograms.

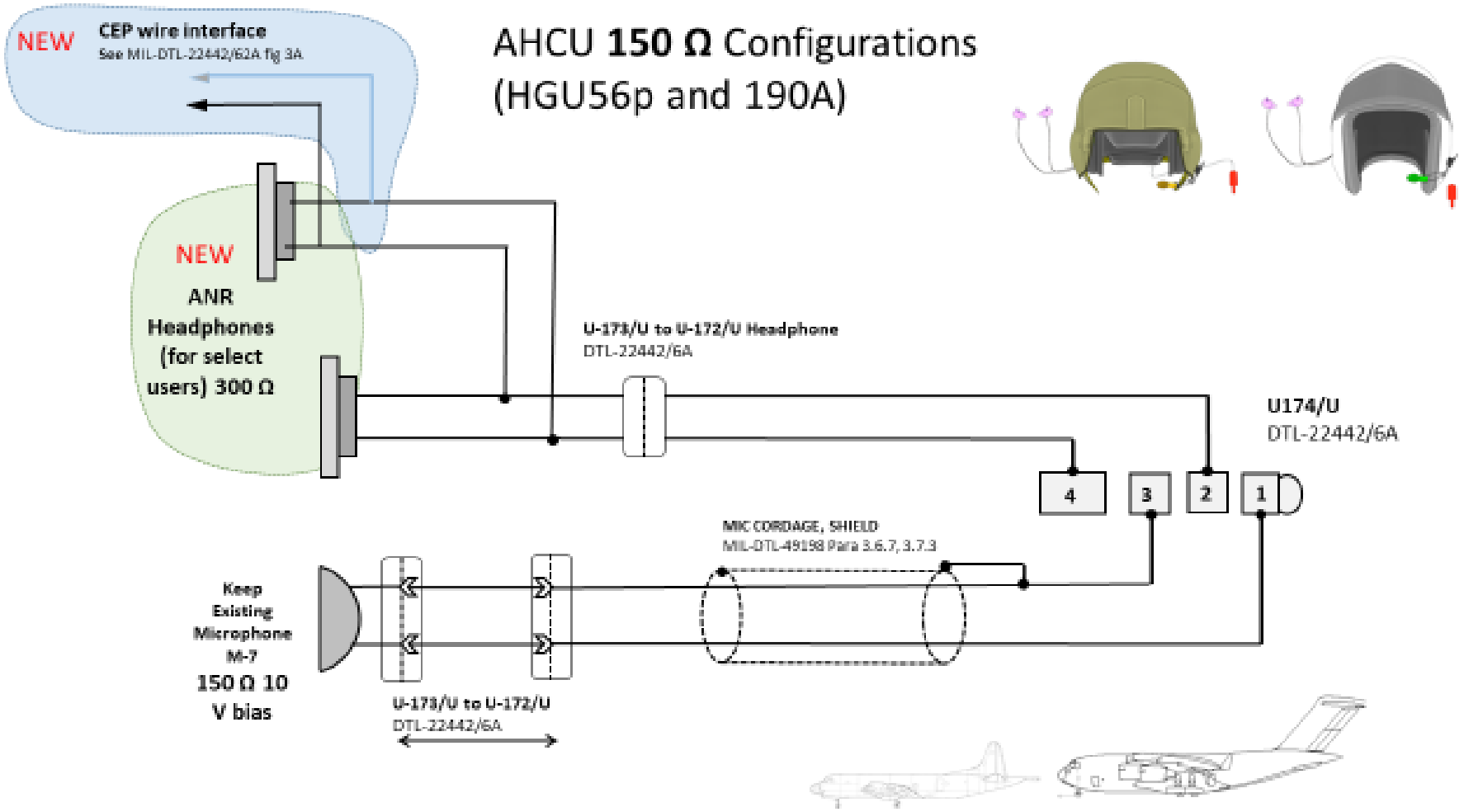
TP-106 Configuration



TP-108 Configuration




AHCU 5 Ω Configurations
(HGU56p and 190A)
NEW
CEP wire interface
See MIL-DTL-22442/62A Fig3A
NEW
ANR
Headphones
(for select
users) 19 Ω
U-178/U to U-172/U Headphone
DTL-22442/6A
U174/U
DTL-22442/6A
4
3
2
1
NEW
Microphone
5-9 Ω
MIC CORDAGE, SHIELD
MIL-DTL-49198 Para 3.6.7, 3.7.3
U-178/U to U-172/U
DTL-22442/6A



What do you mean likeness?

ANNEX “B”
BASIS OF PAYMENT

Item	Item Description	Qty	Firm Unit Price	Applicable Taxes	Delivery Date	Extended Price
1			$	$	N/A at bid	$
2			$	$	N/A at bid	$
3			$	$	N/A at bid	$
4			$	$	N/A at bid	$
5			$	$	N/A at bid	$
SUB TOTAL						$
APPLICABLE TAXES	**INSERT AMOUNT AS**				**GST**	**$**
					HST	**$**
					PST	**$**
TOTAL						**$**

ANNEX “C” to PART 2 OF THE - BID SOLICITATION

ELECTRONIC PAYMENT INSTRUMENTS

The Bidder accepts any of the following Electronic Payment Instrument(s):

( ) Direct Deposit (Domestic and International);

( ) Electronic Data Interchange (EDI);

( ) Wire Transfer (International Only);

ANNEX D to PART 4 OF THE BID SOLICITATION

TECHNICAL EVALUATION PLAN

Aircrew Helmet Communications Upgrade

Annex D

TECHNICAL EVALUATION PLAN

Appendix 1: Technical Evaluation Methodology

Appendix 2: AHCU Mandatory Requirements
Worksheet 1: Communication Ear Plugs
Worksheet 2: Microphone
Worksheet 3: ANR Earphones

Appendix 3: Testing Requirements
Worksheet 1: Engineering Testing Requirements
Worksheet 2: Operational Testing Requirements

Appendix 4: AHCU Rated Requirements

Appendix 1:
Technical Evaluation Methodology

Introduction
General
This Technical Evaluation Plan (TEP) identifies the methodology that will be followed by Canada for the evaluation of the Bidder's proposal.
Purpose
The purpose of this TEP is to provide the methods and procedures that will be used to evaluate bidders' proposals in response to the AHCU Request for Proposal (RFP). Execution of this TEP will result in the overall ranking of the proposals and a selection of Contractor(s) for the AHCU project.
Evaluation Criteria
Proposals will be evaluated on the basis of mandatory and point-rated requirements.
Mandatory Requirements
A mandatory requirement is defined as a RFP requirement that must be met in order for a Bidder's proposal to be considered compliant. Mandatory requirements are evaluated on a simple compliant/non-compliant (pass/fail) basis. Failure to meet a requirement identified as mandatory will result in the Bidder's proposal being assessed as non-compliant in its entirety. A mandatory requirement contains the verb "shall ", "will "or "must ".
Mandatory Testing
Mandatory Testing is testing that Canada will carry out to verify the performance of equipment. Equipment performance must pass to acceptable levels as described in The Worksheets of Appendix 3.
Rated (Weighted) Requirements
A rated requirement is defined as a requirement that is beneficial and will be evaluated and rated as specified in the RFP. A rated requirement contains the verb "should "or "may".
Basis of Selection
Canada reserves the right to award contracts to multiple bidders to meet specific requirements of multiple fleets. The method for evaluating these systems is specified in section 2.1 – Evaluation by components. To be considered compliant, a bidder's proposal must meet all of the mandatory requirements specified in the RFP. Proposals will be evaluated on the basis of 67% for Technical Merit and 33% for Price. The compliant proposal with the highest combined Technical Merit and Price rating will be deemed to provide the best value and hence recommended for contract award(s).
Each proposal's total points will be established by adding the technical score and the price proposal score.
Total points = (Technical points) x 67 + (Lowest Bid Price) x 33
50 Bid Price under evaluation
Maximum Technical points obtainable = 50.
Price points calculation = Full marks to the lowest priced proposal. Other proposals are giving a prorated score based on the lowest priced proposal.
See Table 1 below for an example.

TABLE 1: Example Score Calculation			
With Technical weight of 67% and Price weight of 33%			
	Combo Bidder 1	Combo Bidder 2	Bidder 3
Technical Points	46**	48**	47**
Total Bid Price	$1700	$1800	$1600 *

Calculation – to 2 decimal places.

	Technical Points	Price Points	Total Points

Bidder 1	(46 X 67) / 50 = 62.90	($1.6k X 33) / $1.7k = 31.1	(54.07+ 31.1) = 92.7
Bidder 2	(48 X 67) / 50 = 65.63	($1.6k X 33) / $1.8k = 29.3	(56.42 + 29.3) = 93.6
Bidder 3 Winning Bid***	(47 X 67) / 50 = 64.26	($1.6k X 30) / $1.6k = 33	(55.24 + 33) = 96.0

* Represents the lowest priced compliant proposal (in this case $1.6K).

** Assuming three compliant bids have been received. For the purpose of an example, the maximum technical score that can be obtained is 50 points. Actual scoring may be different upon finalization of the evaluation plan.

*** The Winner is the bidder scoring the highest total points established by adding the technical score and the price proposal score. Based on the calculations above, a contract would be awarded to Bidder 1, which offers the highest total score.

PROPOSAL EVALUATION PROCESS

EVALUATION BY COMPONENTS

The AHCU comprises 3 main components. Bidders are allowed to submit a proposal for individual or multiple components of the ACHU, the evaluation will take place in phases:

Evaluation Phase 1: Mandatory Requirements Worksheets

The individual components are broken down into:

Communication Ear Plug (CEP)

Microphone (Mic)

Active Noise Reduction (ANR)

Bidders may propose one, or a combination or all of these components as one bid. The individual performance of each of these components will be scored separately. This is meant to ensure a fair comparison and increase competition with bidders who offer only part of the desired system.

Example:

Bidder A offers a Microphone only therefore must fill all lines of Appendix 2, Worksheet 1: Microphone, and submits with their bid proposal.

Bidder B offers a Microphone and Communication Ear Plug , therefore, fills both Appendix 2, Worksheet 1: Microphone, and Worksheet 2: CEP with their bid proposal

Bidder C offers CEP and ANR components, and fills Appendix 2, worksheets 2 and 3, and submits with their bid proposal.

Bidders must also provide responses for all applicable lines of Appendix 4: Rated Requirements and submit with their bid proposal.

All applicable lines in the worksheets submitted should have a response. The submission will be assessed as “Compliant” or “Non-compliant” based on the Mandatory Requirement criteria (Refer to the Mandatory Technical Criteria found in the Appendix 2 Worksheets). Canada reserves the right to stop at assessing a bid further if a single line is found to be non-complaint.

Only proposals that sufficiently prove and justify ALL mandatory requirements are met will be given further consideration in Phase 2.

Evaluation Phase 2: Mandatory Engineering Testing

Canada will carry out Engineering Testing as detailed in Appendix 3 Worksheet 1. Bid samples will be combined with applicable existing Helmet components to test performance. Bidder's responses to the worksheets in Appendix 3 – Engineering Testing will also be required to assess compliance.
Bidders are required to submit the following samples for test and evaluation as part of the bid. Samples will be returned to the bidder if found non-compliant at any phase.

Component	Quantity	Note
Microphone	QTY 7	
ANR Headphones	QTY 2 of each size	
CEP/ear plugs	QTY 3 of each size	With helmet interface if applicable
Custom Molded CEP	QTY 4	With co-ordinating instructions for ear impression

Additional samples may be requested by Canada if required. Failure to provide samples for testing will result in the bid being deemed non-compliant. Components found non-compliant will not be considered further.

Evaluation Phase 3: User and Operational testing
Samples deemed to be compliant in phase 2 will be tested under the conditions described in Appendix 3: Worksheet 2: User and Operational Testing. Compliant samples may be combined into candidate systems for testing.
Samples will be combined with existing Helmet components to test performance and suitable configurations. User feedback will be collected.

Evaluation Phase 4: Rated Results into Candidate Systems

Results of all testing stages for each component (MIC, CEP, and ANR) will aggregated into the worksheet of Appendix 4: AHCU Rated Requirements. Scoring will be conducted against each individual Rated Requirement.

The top scoring candidates will be combined into candidate systems and the bid(s) resulting in the highest combined score will be selected as the winner(s).
Example:

Combination [Mic, CEP, ANR]
*[A, B, C]
[A, C, C]
[B, B, C]
[B, C, C]
*Highest combined score

Select regression testing may be carried out to ensure the continued compliance of the candidate system as a whole.
It is the bidder's responsibility to have provided sufficient data to prove compliance and demonstrate capability for all Rated Requirements. Evaluation will be based solely on the data provided by the Bidder in his RFP response. DND reserves the right to the test any of the mandatory or rated criteria to validate compliance at any time during the technical evaluation.

Final Selection

At the conclusion of the evaluation process. Canada will select the winning bidder(s) based on the best value of compliant bidders in accordance with section 1.4 Basis of Selection. It is possible to have multiple contracts awarded for each component to meet specific requirements for multiple fleets.

Aircrew Helmet Communications Upgrade
Appendix 2: Mandatory Requirments
Worksheet 1: Microphone

Technical Review: Microphone		Bidder to respond to each line without omission.
SOW Para Mandatory Requirement:	Evaluation Criteria:	Compliance: Y/N (with Substantiation)
6.3.1. Noise Cancelling Boom Microphone must be available in 150 ohm and 5 ohm configurations.	Does the bidder provide Microphones that are compatible with 150 ohm and 5 ohm ICS impedance requirements?	
6.3.2. The Microphone must have a U173/U179 form factor connection.	Does the bidder's Microphone component have U173/U179 form factor connection?	
6.3.3. {MIC} AHCU modified helmets must be compatible with Electrical and physical characteristics of the ICS of the aircraft they are used on	Does the bidder provide interfacing instructions and electrical interconnect diagrams for the Microphone with U174 AND TP-106 AND TP-108 connectors.	
6.3.4. Noise Cancelling Boom Microphone must Exceed the noise cancellation performance standards of the M-162/AIC microphone as delineated in MIL-M-49199A by at least 3dB	Does the bidder provide proof of testing and polar directivity diagram that shows the Noise Cancelling Boom Microphone meets or exceeds the noise cancellation performance standards of the M-162/AIC microphone as delineated in MIL-M-49199A for Near/Far field noise rejection? Para 3.7.3.4 and 4.7.4.4 can be used for reference.	
6.3.5. {MIC} Daily inspection tasks must be executable by the end user.	Does the Bidder describe daily inspection tasks that are executable by end user (i.e. aircrew)?	
6.3.6. {MIC} The probability of failure of AHCU microphone and transducer components must not be greater than 1/100,000 between scheduled maintenance and inspections	The bidder must provide reliability data for their product including a Failure Rate or Mean Time between Failure values	

6.3.7. {MIC} All components shelf life under recommended storage methods meets or exceeds 5 years.	Does bidder demonstrate storage conditions and life that meets or exceeds 5 years?	
6.3.10. {MIC} Must provide users and maintenance technicians the ability to validate audio signal functionality and the electrical continuity.	Does the bidder describe a method for users or maintenance technicians to validate audio signal functionality and the electrical continuity (such as the i.e. use of LSIT, AST, XABH-9000/9001 Test sets)	
6.3.11 {MIC} Must provide superior communications intelligibility as compared to current helmet configurations when evaluated using a Modified Rhyme Test/Maximum Likelihood procedure	Does the bidder provide test data that shows intelligibility testing has been carried using HGU-56p or 190A Helmets? MIL-PRF-87819B will be used as a reference.	
6.3.12 {MIC} Sufficient quantities of the AHCU modification kits must be procured to update all affected aircrew helmets.	Does bidder justify that they can and will deliver the quantities described in Annex A (SOW) Appendix 4: Table 4.4 Provisioning Estimates within 9 months of contract award.	
6.3.13 {MIC} Technical manuals, technical orders and publications must be accurate and complete for all tasks	Does the bidder provide accurate and complete user/ technical manuals as listed in Appendix A (SOW) -DID ILS-003?	
6.3.14 {MIC} Microphone must be compatible with the existing wire boom of MIL-49199/3	Does the bidder demonstrate that the microphone is compatible with the existing wire boom of (standard detailed in MIL-49199/3)	
6.1.9 {MIC} AHCU components must continue to operate without degradation in performance in a temperature range of minus 45°C to plus 55°C	Does the bidder provide test data or certification that meets or exceeds an operating range of minus 45°C to plus 55°C? MIL-STD-810 Method 501.5 and Method 502.5 para 4.5.3 especially Procedure II - Operation. Table 502.5-I C2 Cold environment testing will be used for reference.	

6.1.10 {MIC} AHCU components must remain functional during exposure to the high vibrations associated with Rotor Wing flight	Does the bidder provide proof of microphone component's ability to withstand Rotor Wing vibrations? MIL-STD-810 METHOD 514.6 will be used for reference.	
6.1.11 {MIC} AHCU components must be able to function when exposed to moisture from: a. Fog, mist, rain, sleet, snow and sea spray	Does the bidder provide proof that meets or exceeds MIL-STD-810 METHOD 506.5 Procedure III AND METHOD 521.3	
6.1.12 {MIC} AHCU components must be able to function when exposed to the following icing conditions: Freezing rain; a. Condensation from user's breath b. Freezing spray; c. Hoar frost d. Freezing condensation from user's breath	Does the bidder provide test data or certification that meets or exceeds MIL-STD-810 , METHOD 507.5, METHOD 521.3	
6.1.13 {MIC} AHCU components must resist degradation from immersion in fresh or salt water to a depth of 1 metres and must be functional after being rinsed in fresh water and completely dried;	Does the bidder provide test data or certification that meets or exceeds MIL-STD-810 METHOD 512.5 METHOD 509.5	
6.1.14 {MIC} AHCU components must function during rapid pressure changes experienced in flight, including explosive decompression.	Does the bidder provide test data or certification that meets or exceeds MIL-STD-810 METHOD 500.5-2 METHOD IV	
6.1.15 {MIC} AHCU components must be resistant to damage and contamination from environmental conditions of fungus, mold, direct sunlight, sand, and dirt.	Does the bidder provide proof that the component is resistant to damage? (not made of material listed in Table 508.6B-I Group II Fungus nutrient Material) MIL-STD-810 METHOD 505.5 will be used for reference.	

6.1.16 {MIC} AHCU components must be able to fully function while exposed to heavy smoke from petroleum, electrical or wood fires. AHCU components must be able to function in a CBRN environment	Does the bidder provide justification that AHCU components will function after being exposed to heavy smoke and vapor? MIL-STD-810 METHOD 509.5 (Dust under 150um) will be used for reference.	
6.1.17 {MIC} AHCU components must resist degradation from exposure to a. Jet fuel (e.g. JP-5, JP-8, Jet A-1); b. Aircraft hydraulic fluid; c. Turbine oil; d. Weapon cleaning solutions (e.g. “Break Free”); e. Prescribed cleaning chemicals (bleach, detergent, soap, Chloroxylenol (Dettol), alcohol); f. Reactive Skin Decontaminant Lotion (RSDL); and g. Insect repellents (e.g. DEET);	Does the bidder provide proof that the component resists damage from exposure to various chemical solutions? MIL-STD-810 METHOD 504.1 will be used as a reference.	
6.1.18 {MIC} Must not electromagnetically interfere with any aircraft system;	Does the bidder provide a test report from a certified EMC Lab IAW the test method specified by MIL-STD-461 F or G (including the data that was taken during the RE102 and RS103 tests as well as the photographs of the setups/ configurations). RE102 test applies to Microphone with cable/ wire;	
6.1.21 AHCU modified helmets must be compatible with Electrical and physical characteristics of the ICS of the aircraft they are used on.	Is microphone sensitivity equal to or more sensitive than that specified by MIL-M-49199 3.7.3.1.1: 18mV at ground pressure level?	
6.1.23 {MIC} AHCU components must withstand field and transit conditions.	Does the bidder provide certification data that drop tests meet or exceed STD-810G Method 516.6 : Procedure I (Functional Shock), Procedure IV(Transit Drop)	

6.3.15 Must provide the equivalent or better audio signal to noise ratio existing Helmet systems	Bidder must provide SNR test results. The test procedures in RTCA DO-214 2.4.11.2 - Subparagraph 2.8.2.11.2 will be used for reference.	

End Mic list

Aircrew Helmet Communications Upgrade
Appendix 2: Mandatory Requirements
Worksheet 2: COmmunications Ear Plug (CEP)

Technical Review: CEP		
SOW para: Mandatory Requirement	Evaluation Criteria:	Compliance: Y/N (with Substantiation)
6.4.1 {CEP} Modified ACHU helmets must have crashworthiness equivalent to or better than an unmodified helmet. IF CEP interfaces are required, holes drilled must be no greater than 3/8”(9.525mm)	Does the Bidder demonstrate that the modification does not negatively impact the crashworthiness of the platform helmet? Any holes drilled for CEP interfaces are no smaller than 3/8” (9.525mm).	
6.1.1 {CEP} Must consistently provide the equivalent sound attenuation of the current ALSE combinations of: HGU-56/P and/or 190A helmet with wired foam tipped CEPs	For the included foam ear plugs, and recommended custom molded plugs, does the bidder provide proof of testing and performance that plugs comply IAW z94.2-14 para 5.1 (see also z94.2-14 Annex C – Example of manufacturers test report)	
6.4.2 {CEP} components must have a shelf life of 5 years	Bidder must specify shelf life	
6.4.3 {CEP} AHCU components must be built free of any ingredients likely to cause irritation of the skin or offensive odours ; and 6.4.4 {CEP} AHCU components must be hypoallergenic, and non-toxic for all components that touch the skin; and	Does the bidder provide proof of compliance with z94.2-14 para 4.2: “that materials making contact with the body are of a type known to be generally non-irritating to the skin, an resistant to skin oil, hair oil and earwax” ISO 10993-5 may be used for reference	
6.4.16 {CEP} Custom earplug molds must be carried out in accordance with their local provincial College of Audiologists’ standards of practice.	Does bidder describe ear impressions to be carried out by a hearing professional approved in the relevant province? As an example- in Ontario, Calspo.com lists standards of practice for the provision of hearing aid services by audiologists and hearing aid techs.	
6.1.9 {CEP} AHCU components must continue to operate without degradation in performance in a temperature range of minus 45°C to plus 55°C	Does the bidder provide test data or certification that meets or exceeds an operating range of minus 45°C to plus 55°C? MIL-STD-810 Method 501.5 and Method 502.5 para 4.5.3 especially Procedure II - Operation. Table 502.5-I C2 Cold environment testing will be used for reference.	

6.1.10 {CEP} AHCU components must remain functional during exposure to the high vibrations associated with Rotor Wing flight	Does the bidder provide proof of the component's ability to withstand Rotor Wing vibrations? MIL-STD-810 METHOD 514.6 will be used for reference.	
6.1.11 {CEP} AHCU components must be able to function when exposed to moisture from: a. Fog, mist, rain, sleet, snow and sea spray	Does the bidder provide proof that meets or exceeds MIL-STD-810 METHOD 506.5 Procedure III AND METHOD 521.3	
6.1.12 {CEP} AHCU components must be able to function when exposed to the following icing conditions: a. Freezing rain; a. Condensation from user's breath b. Freezing spray; c. Hoar frost d. Freezing condensation from user's breath	Does the bidder provide test data or certification that meets or exceeds MIL-STD-810 , METHOD 507.5, METHOD 521.3	
6.1.13 {CEP} AHCU components must resist degradation from immersion in fresh or salt water to a depth of 1 metres and must be functional after being rinsed in fresh water and completely dried;	Does the bidder provide test data or certification that meets or exceeds MIL-STD-810 METHOD 512.5 METHOD 509.5	
6.1.14 {CEP} AHCU components must function during rapid pressure changes experienced in flight, including explosive decompression.	Are CEPs vented and Does the bidder provide test data or certification that meets or exceeds MIL-STD-810 METHOD 500.5-2 METHOD IV	
6.1.15 {CEP} AHCU components must be resistant to damage and contamination from environmental conditions of fungus, mold, direct sunlight, sand, and dirt.	Does the bidder provide proof that the component is resistant to damage? (not made of material listed in Table 508.6B-I Group II Fungus nutrient Material) MIL-STD-810 METHOD 505.5 will be used for reference.	

6.1.17 {CEP} AHCU components must resist degradation from exposure to a. Jet fuel (e.g. JP-5, JP-8, Jet A-1); b. Aircraft hydraulic fluid; c. Turbine oil; d. Weapon cleaning solutions (e.g. “Break Free”); e. Prescribed cleaning chemicals (bleach, detergent, soap, Chloroxylenol (Dettol), alcohol); f. Reactive Skin Decontaminant Lotion (RSDL); and g. Insect repellents (e.g. DEET);	Does the bidder provide proof that the component resists damage from exposure to various chemical solutions? MIL-STD-810 METHOD 504.1 will be used as a reference.	
6.1.18 {CEP} Must not electromagnetically interfere with any aircraft system;	Does the bidder provide a test report from a certified EMC Lab IAW the test method specified by MIL-STD-461 F or G (including the data that was taken during the RE102 and RS103 tests as well as the photographs of the setups/ configurations). RS103 test applies to CEP;	
6.4.8 {CEP} Daily inspection tasks must be executable by the end user	Does the Bidder describe daily inspection tasks that are executable by end user (i.e. aircrew)?	
6.4.10 {CEP} Units must be provided sufficient spare holdings to be capable of providing aircrew or mission specialists with a temporary replacement AHCU component items when their equipment is in for periodic maintenance, or in for repair, or for additional temporary aircrew	Does bidder commit to delivering quantities described in Annex A (SOW) Appendix 4, Table 4.4 Provisioning Estimates within 9 months of contract award?	
6.4.11 {CEP} Communication Ear Plugs transducer assembly accepts either foam earplug tips or custom fitted earplug tips.	Does the bidder demonstrate that the CEP transducer assembly is compatible with/can be attached to/ commonly available foam earplug tips AND custom fitted earplug tips?	

6.4.12 {CEP} Users or maintenance technicians must have the ability to validate audio signal functionality and the electrical continuity	Does the bidder describe a method for users or maintenance technicians to validate audio signal functionality and the electrical continuity (such as the i.e. use of LSIT, AST, XABH-9000/9001 Test sets)	
6.1.21 {CEP} AHCU modified helmets must be compatible with Electrical and physical characteristics of the ICS of the aircraft they are used on	Does the bidder provide interfacing instructions between CEP transducers and U174, TP-106 and TP108 Connectors? With Headphone impedances listed impedances listed in Annex A (SOW) Appendix 3, Table 3.1.	
6.4.14 {CEP} Technical manuals, technical orders and publications are accurate and complete for all tasks that may have flight safety effects.	Does the bidder provide accurate and complete user/technical manuals IAW DID-ILS-003?	

End CEP list

Aircrew Helmet Communications Upgrade
Appendix 2: Requirements Worksheets
WORKSHEET 3: Active Noise Reduction Headset/Module

Technical Review: ANR		
SOW para: Mandatory Requirement	Evaluation Criteria:	Compliance: Y/N (with Substantiation)
6.1.21 {ANR} AHCU modified helmets must be compatible with Electrical and physical characteristics of the ICS of the aircraft they are used on	Does the bidder provide interfacing instructions between CEP transducers and U174 as well as TP-106 and TP108 Connectors for Binaural OR Mono configurations for the headphone impedances listed in Annex A (SOW), Appendix 3, Table 3.1	
6.1.6 {ANR} AHCU components must remain functional during exposure to the high vibrations associated with Rotor Wing flight	Does the bidder provide proof of ANR component's ability to withstand Rotor Wing vibrations? MIL-STD-810 METHOD 514.6 will be used for reference.	
6.1.21 {ANR} AHCU components must withstand field and transit conditions	Does the bidder provide certification data that drop tests meet or exceed STD-810G Method 516.6 : Procedure I (Functional Shock), Procedure IV(Transit Drop)	
6.5.1 {ANR} ACHU helmets must have crashworthiness equivalent to, or better than an unmodified helmet	Does the Bidder demonstrate that the modification does not negatively impact the crashworthiness of the platform helmet? Any holes drilled for CEP interfaces are no smaller than 3/8” (9.525mm).	
6.5.7 {ANR} Daily inspection tasks must be executable by the end user	Does the Bidder describe daily inspection tasks that are executable by end user (i.e. aircrew)?	
6.1.42 {ANR} Any battery replacement must be executable by the end user without needing special tools.	Does the Bidder attest that no specialized or proprietary tools are required to carry out battery replacement (if applicable)?	
6.5.2 {ANR} All components of the AHCU must have a shelf life of 5 years	Does bidder demonstrate storage conditions and life that meets or exceeds 5 years?	
6.5.14 {ANR} Active Noise Reduction (ANR) Headphones must be capable of 12 hours of continuous use on a single charge and without changing a battery.	Bidder demonstrate that in all modes of operation of the ANR system as capable of 12 hours of continuous use on a single charge and without changing a battery.	

6.5.15 {ANR} Headphones must be capable of 20 minutes of use once disconnected from an ICS system	Does the bidder demonstrate that the ANR Headphones once installed in HGU-56p Helmet continue to provide adequate hearing In accordance with Canada Labor Code, Part II? For Overall Sound pressure level of 90dB-A for at least 20 minutes after being disconnected power (including battery power).	
6.5.16 {ANR} Test sets must provide users and maintenance technicians the ability to validate audio signal functionality and the electrical continuity [if applicable]	Does the bidder describe a method for users or maintenance technicians to validate audio signal functionality and the electrical continuity (such as use with LSIT, AST, XABH-9000/9001 test sets)	
6.1.9 {ANR} AHCU components must continue to operate without degradation in performance in a temperature range of minus 45°C to plus 55°C	Does the bidder provide test data or certification that meets or exceeds an operating range of minus 45°C to plus 55°C? MIL-STD-810 Method 501.5 and Method 502.5 para 4.5.3 especially Procedure II - Operation. Table 502.5-I C2 Cold environment testing will be used for reference.	
6.1.11 {ANR} AHCU components must be able to function when exposed to moisture from: a. Fog, mist, rain, sleet, snow and sea spray	Does the bidder provide proof that meets or exceeds MIL-STD-810 METHOD 506.5 AND METHOD 521.3 Procedure III	
6.1.12 {ANR} AHCU components must be able to function when exposed to the following icing conditions: a. Freezing rain; a. Condensation from user's breath b. Freezing spray; c. Hoar frost d. Freezing condensation from user's breath	Does the bidder provide test data or certification that meets or exceeds MIL-STD-810 , METHOD 507.5, METHOD 521.3	
6.1.13 {ANR} AHCU components must resist degradation from immersion in fresh or salt water to a depth of 1 metres and must be functional after being rinsed in fresh water and completely dried;	Does the bidder provide test data or certification that meets or exceeds MIL-STD-810 METHOD 512.5 METHOD 509.5	
6.1.14 {ANR} AHCU components must function during rapid pressure changes experienced in flight, including explosive decompression.	Does the bidder provide test data or certification that meets or exceeds MIL-STD-810 METHOD 500.5-2 METHOD IV	

6.1.15 {ANR} AHCU components must be resistant to damage and contamination from environmental conditions of fungus, mold, direct sunlight, sand, and dirt.	Does the bidder provide proof that the component is resistant to damage? (not made of material listed in Table 508.6B-I Group II Fungus nutrient Material) MIL-STD-810 METHOD 505.5 will be used for reference.	
6.1.17 {ANR} AHCU components must resist degradation from exposure to Petroleum, Oil and Lubricants (POL) and chemical substances (being splashed with small quantities, e.g. 1-2 ml) such as: a. Jet fuel (e.g. JP-5, JP-8, Jet A-1); b. Aircraft hydraulic fluid; c. Turbine oil; d. Weapon cleaning solutions (e.g. “Break Free”); e. Prescribed cleaning chemicals (bleach, detergent, soap, Chloroxylenol (Dettol), alcohol); f. Reactive Skin Decontaminant Lotion (RSDL); g. Insect repellents (e.g. DEET); h. small quantities of biological fluids (perspiration, saliva, vomit, blood)	Does the bidder provide proof that the component resists damage from exposure to various chemical solutions? MIL-STD-810 METHOD 504.1 will be used as a reference.	
6.1.18 {ANR} AHCU Components Must not electromagnetically interfere with any aircraft system;	Does the bidder provide a test report from a certified EMC Lab IAW the test method specified by MIL-STD-461 F or G including frequency response graphs? RE102 & RS103 resultant graphs must be provided	
6.5.17 {ANR} Sufficient quantities of the ANR components must be procured to update all affected aircrew helmets.	Does bidder justify that they can and will deliver the quantities described in Annex A (SOW) Appendix 4, Table 4.4 Provisioning Estimates within 9 months of contract award.	
6.5.12 {ANR} Verify that technical manuals, technical orders and publications are accurate and complete for all tasks that may have flight safety effects.	Does the bidder provide accurate and complete user/technical manuals IAW DID-ILS-003?	
6.1.4 {ANR} Must provide superior communications intelligibility as compared to current helmet configurations when evaluated using a Modified Rhyme Test/Maximum Likelihood procedure	Does the bidder provide test data that shows intelligibility testing has been carried out? MIL-PRF-87819B will be used as a reference.	

6.1.24 {ANR} The overall AHCU replacement kit Must not increase head borne mass by more than 65g from the existing (~5% of the weight of an unmodified helmet);	Does the bidder provide dimensions and weight of the proposed system/components	

End ANR list

Aircrew Helmet Communications Upgrade
Appendix 3: Testing Requirements
Worksheet 1: ENGINEERING Testing Requirements

Requirement	Evaluation Criteria :	Results: Pass/Fail with substantiation
Equipment will undergo laboratory verification testing. The equipment under test may undergo some or all of the testing at Canada's Discretion:	evaluated as follows:	
6.1.1 Must consistently provide the equivalent sound attenuation of the current ALSE combinations of: HGU-56/P helmet with wired foam tipped CEPs 6.1.2 Must consistently provide the equivalent sound attenuation of the current ALSE combinations of: 190A helmet with wired foam tipped CEPs	Insertion loss of the AHCU system to be tested for HGU-56p and 190A(HGU-55) Helmet with CEPs: ANSI/ASA S12.42-2010, "Methods for the Measurement of Insertion Loss of Hearing Protection Devices in Continuous or Impulsive Noise Using Microphone-in-Real-Ear or Acoustic Test Fixture Procedures".	
6.1.3 Must provide the equivalent audio signal to noise ratio at the ear as compared to the current ALSE combinations of:(1) HGU-56/P helmet with wired foam tipped CEPs; (2) 190A helmet with wired foam tipped CEPs; and	When tested in accordance with RTCA DO-214 2.4.11.2 - the test procedures in Subparagraph 2.8.2.11.2 output signal plus noise-to-noise where the input noise is a representative of noise experienced by CH-147 aircrew in-flight.	
6.1.4 Must provide superior communications intelligibility as compared to current helmet configurations when evaluated using a Modified Rhyme Test/Maximum Likelihood procedure	Laboratory comparison of the intelligibility of the existing system versus candidate replacement, in a simulated environment of noise representative to that experienced by CH-147 aircrew Intelligibility testing to be carried out. MIL-PRF-87819B will be used as a reference.	
6.1.5 Must not introduce more noise into the aircraft ICS than current helmet systems;	Laboratory tests for sensitivity and electrical signal to noise ratio of the proposed system versus the existing system. RTCA 2.7.2.1.a.	

6.1.6 AHCU components must remain functional during exposure to the high vibrations associated with RW flight	Passes a functional test after being subjected to simulated noise pressure environment, using CH-147 or similar Rotor Wing characteristic Power spectral density. Data will be compared to the methods from RTCA DO-214A and DO-160x: DO-214A 2.5.5a	
6.1.7 Noise Cancelling Boom Microphone must Exceed the noise cancellation performance standards of the M-162/AIC microphone as delineated in MIL-M-49199A	As indicated through testing near field/far field frequency response (directionality and noise immunity and isolation) RTCA DO-214A 2.6 Test Procedures- Aircraft Microphones, and RTCA DO-214A Appendix C, Noise Cancellation in Microphones, can be used as reference as well as para 4.7.4.4 pf of MIL-M-49199A	
6.1.8 ANR headphones when de-energized (all power sources removed/exhausted) must provide hearing protection no worse than 3dB lower than the protection provided by an unmodified helmet	Lab test of insertion loss of helmet fitted with ANR headphones	
6.1.20 Tempest - Must meet NATO Security and Evaluation Agency Doctrine TEMPEST/Emission Security (EMSEC)	If the equipment has undergone TEMPEST Testing, bidder must provide the most recent compliance documentation; TEMPEST Testing to be carried out by experts employed by Canada. AHCU-Helmet integrated systems will be tested for TEMPEST compliance with the CH147, CH148, and CH146 Platforms for Electronic noise isolation and immunity.	
6.2.19 Should be able to be completely immersed in in fresh and salt water for 30 minutes, removed from water and continue to function.	Lab test carried out by Canada that includes repeatedly immersing the microphone in water and measuring the results of functional test of the equipment once removed.	
6.2.20 Should be able to withstand being repeatedly encrusted in ice and re-thawed without causing loss of function	Lab test carried out by Canada that that includes repeatedly frosting over the microphone with ice and measuring the results of functional test of the equipment once thawed.	

6.1.41 Workmanship on the manufacturing and install of AHCU components shall be in accordance with industry-recognized standards of practice for Aircraft equipment and Technical Airworthiness Manual CFTO C-05-005-001/AG-001.	Quality inspection of the workmanship and durability of the electrical installation of the AHCU system IAW Canadian Forces Technical Order C-17-010-002/ME-001 The equipment will be visually inspected for manufacturing quality and workmanship. And quality of electrical connections and shielding continuity Mil-HDBK-454C may be used for reference guidelines.	

Aircrew Helmet Communications Upgrade
Appendix 3: Testing Requirements
Worksheet 2: User and Operational Testing Requirements

Requirement	Evaluation Criteria :	Rating	Weight	Score Rating x Weight
Equipment will undergo User testing. The equipment under test may undergo some or all of the testing at Canada's Discretion IAW In-Aircraft compatibility testing as per ASCC ADV STD 61/116/18	Equipment will undergo testing in a rotor wing operating environment preforming routine operational tasks. The equipment under test will be evaluated using guidance from ADV PUB ASM 4084: Methodology for integration Testing of Aircrew Clothing and Equipment as a reference Standard.	1-7	1-3	
6.2.26 No wires external to the helmet shell;	Wires are minimal and do not snag or interfere with operations.		3	
6.4.16 No wires compromising the helmet ear cup seal	Wires are minimal and do not interfere with the ear cup seal.		3	
6.2.28 Must continue to meet other AHCU performance requirements when worn with corrective, laser or ballistic protective eye glasses	AHCU performance is not hindered by wearing eye glasses.		1	
6.2.29 Any buttons or switches introduced by AHCU modifications must be operable in all environments by users with bare hands and while wearing CAF flying gloves;	Any buttons or switches introduced are not hindered by wearing CAF flying gloves		2	
6.2.29 Once positioned by a user AHCU components must maintain the user's selected position (ANR)	AHCU Components stay in place when placed into position (ANR)		1	

6.2.30 Once positioned by a user AHCU components must maintain the user's selected position (microphone)	AHCU Components stay in place when in position (microphone)		1	
6.2.31 The microphone must be able to be fitted on either the left or right side of the helmet	Does the bidder's description demonstrate the microphone as being able to fit right or left side of helmet		1	
6.2.31 Once positioned by a user AHCU components must maintain the user's selected position (CEP)	AHCU Components stay in place when properly inserted in position (CEP)		1	
6.2.2 Operator Feedback, Results of Operational Testing	Aircrew will report overall comfort and operational suitability of combinations of the proposed system		2	
6.2.3 AHCU components should be capable of prolonged wear throughout flights lasting over 12 hours without causing user discomfort or pain	Aircrew report the length of time they could wear the CEPs/Helmet without discomfort or pain.		2	
6.2.31 AHCU components must not produce or abet pressure points on the body (ANR)	ANR does not cause discomfort during normal operations		3	
6.2.31 AHCU components must not produce or abet pressure points on the body(Microphone)	Mic does not cause discomfort during normal operations		3	
6.2.32 AHCU components must not produce or abet pressure points on the body (CEP)	CEP does not cause discomfort during normal operations – Aircrew to give feedback on comfort level, preference.		3	

6.2.32 Must not impede aircrew head movements (ANR)	ANR does not impede head movement during normal operations		3	
6.2.32 Must not impede aircrew head movements (CEP)	CEP does not impede head movement during normal operations		3	
6.2.32 Must not impede aircrew head movements (Mic)	Mic does not impede head movement during normal operations		3	
6.2.33 AHCU components must be durable and resistant to damage during routine wear, donning and doffing	No excessive wear is observed		1	
6.2.34 Communication Ear Plugs transducer assembly and earplug tips must be in a sufficient range of sizes to accommodate 95% of the aircrew population;	Aircrew members sampled assess CEP range of fit		3	
6.2.35 Communication Ear Plugs can be easily inserted into the ear canal by an unassisted user	Aircrew members sampled asses the ease of CEP insertion		1	
6.2.35 Communication Ear Plugs, after proper insertion, are not dislodged from the ear during donning and doffing of the helmet	No CEP becomes dislodged from properly fit Aircrew member's ear while donning or doffing helmet		2	
6.2.36 Communication Ear Plugs, after proper insertion and donning of the helmet do not become dislodged or fall out of the ear during the performance of all aircrew tasks	No CEP becomes dislodged from properly fit Aircrew member's ear while performing aircrew tasks.		3	
6.2.35 Communication Ear Plugs can be removed with one hand	Aircrew members assess ease of removal with one hand		1	

6.2.29 Microphone position can be fully adjusted by the user while wearing flying gloves;	Aircrew members assess ease of Microphone adjustment		1	
6.2.37 AHCU modified helmets must be compatible with current helmet mounted systems;	Aircrew members assess fit with the listed helmet systems.		/	
a Visors:			3	
b HUD;			3	
c NVGs;			3	
d Portable Helicopter Oxygen Delivery System (PHOD) mask;			3	
e Maxillofacial shields; and,			3	
f Lip lights;			3	
6.2.38 AHCU modified helmets must be compatible with aircrew CBRN equipment (M-45CF respirator, hood and ancillary equipment);	Aircrew members assess compatibility with CBRN equipment listed.		0	
6.2.39 The CEP connectors must not have sharp metal edges that pose a risk of cutting rubber seals of dry suits.	CEP wiring does not cause dangerous puncture or snagging hazard during dry suit donning procedure		1	
6.2.40 AHCU modified helmets must be compatible with all ALSE and operational clothing used on the associated fleets including, but not limited to:	Aircrew members assess compatibility with ALSE and associated clothing.		/	

6.2.40 Dispatcher Bailout Parachute (CC130/CC177/Fixed Wing SAR);			1	
6.2.40 Slim line Backpack (SLBP) one person life raft;			1	
6.2.40 Crewman Restraint Tether (CRT);			1	
6.2.40 Crewman Restraint harness;			1	
6.2.40 All approved CAF flying clothing;			1	
6.2.40 CAF cooling garments/vests;			1	
6.2.35 AHCU modified helmets must allow for quick (< 1 min) donning/doffing by an unassisted individual	Aircrew assess the speed and ease which the AHCU system can be donned/doffed		1	
6.3.11 Must provide superior communications intelligibility as compared to current helmet configurations when evaluated using a Modified Rhyme Test/Maximum Likelihood procedure	Aircrew provides subjective assessment of communications intelligibility utilising Modified Rhyme test word lists. See MIL-STD-1472 Human Engineering: 5.3.1.8.1 for guidance in conducting Modified Rhyme Testing.		3	
6.1.5 Must not introduce more noise into the aircraft ICS than current helmet systems;	Aircrew surveyed		3	
6.1.21 Must not increase head borne mass by more than 65g (~5% of the weight of an unmodified helmet);	Helmet is weighed, weighs no more than 65g more than unmodified helmet.		3	

6.1.6 AHCU components must remain functional during exposure to the high vibrations associated with Rotor Wing flight	AHCU components continue operating throughout a mission.		3	
			Max Score: 7*85 = 595	

Aircrew Helmet Communications Upgrade
Appendix 4: Rated Requirements
Worksheet 1: System Rated Requirements

Requirement	Evaluation Criteria :	Scoring	Max Possible Score
	Bidder will describe in their bid proposal:		
6.2.1 Excluding the ear plug assemblies, visible AHCU components should be made in a subdued colour matching the colour of the overall helmet assemblies	Bidder submits sample AHCU components that satisfy the requirement.	No: 0pts Yes: 1pt	1
6.2.2 Operator Feedback, Results of Operational Testing, see: Appendix 3-Worksheet 2	Aircrew will report overall comfort and operational suitability of combinations of the proposed system	Aircrew ranking of their preferred candidates. #3 – 0pts #2 – 3pts #1 - 5pts	5
6.2.4 Should obtain a superior score when tested with Modified Rhyme Test/Maximum Likelihood procedure	Canada will conduct Engineering Testing on intelligibility, and compare with results from operational testing and bidder's reported results. See appendix 3 worksheet 1: Engineering Testing (requirement 6.1.4)	Average MRT Score: Below 75% : 0pts 75% to 80% : 1pt 80% to 85% : 2pts 85% to 100% : 3pts	3
6.2.5 AHCU components capable of being cleaned and decontaminated?	Is there a recommended cleaning/decontamination procedure?	No: 0pts Yes: 1pt	1
6.2.7 A long shelf life	5 years minimum	Less than 5 years: 0pts Greater than 5 years: 1 pt	1
6.3.6. {MIC} The probability of failure of AHCU components must not be greater than 1/100,000 between scheduled maintenance and inspections	Minimum base rate of 10/Million Hours (MH)	10 Failures / MH = 0 points < 7 Failures / MH = 1 point < 4 Failures / MH = 2 points < 1 Failure / MH = 3 points	3
6.3.6. {CEP} The probability of failure of AHCU components must not be greater than 1/100,000 between scheduled maintenance and inspections	Minimum base rate of 10/Million Hours (MH)	10 Failures / MH = 0 points < 7 Failures / MH = 1 point < 4 Failures / MH = 2 points < 1 Failure / MH = 3 points	3

6.3.6. {ANR} The probability of failure of AHCU components must not be greater than 1/100,000 between scheduled maintenance and inspections	Minimum base rate of 10 Failures/Million Hours (MH)	10 Failures / MH = 0 points < 7 Failures / MH = 1 point < 4 Failures / MH = 2 points < 1 Failure / MH = 3 points	3
6.2.9 Communication Ear Plugs should be “wire-free”:	Do the CEPs require wires to operate?	Yes: 0 pts No: 3 pts	3
6.2.10 Ear plug must be a high visibility colour and/or translucent material.	Are the ear plugs available in a variety colours including translucent variations?	Available in bright and/or translucent colours? No: 0pts Yes: 1pt	1
6.2.12 Microphone should reduce cabin noise in the far field versus the talker in the near field (1m vs 3cm) when subjected to a frequency of 3kHz. As indicated near field/far field frequency response (noise immunity) Testing IAW RTCA DO-214A or equivalent.	Bidder submits certification or testing data including near field/far field frequency response graphs.	From the Near/Far field frequency response graph: zero crossing point falls between: 2.5kHzs to 2.7kHz: 1pt 2.7kHz to 3kHz: 2pts 3.0kHz and above OR never crosses: 3pts	3
6.2.13 Should provide better sound attenuation (>3dB) below 1 KHz than the current ALSE combinations of: (1) HGU-56/P helmet with wired foam tipped CEPs; and customized for user needs	has the ability to select greater/less attenuation according to user needs or sound environment (HGU-55) Helmet	No ability to customize attenuation: 0 pts Ability to customize attenuation based on individual user needs or noise environment: 1pts	1
6.2.14 Should provide better sound attenuation (>3dB) below 1 KHz than the current ALSE combinations of: (2) 190A helmet with wired foam tipped CEPs; customized for user needs.	When ordering, has the ability to tune greater/less attenuation according to user needs or sound environment (HGU-55) Helmet	No ability to customize attenuation: 0 pts Ability to customize attenuation based on individual user needs or noise environment: 1pts	1
6.2.15 The AHCU system Should provide a better audio signal to noise ratio at the simulated ear (>3dB) as compared to the current ALSE combinations of: (1) HGU-56/P helmet with wired foam tipped CEPs; and	Lab measurement of Noise without signal and Noise plus signal	3 dB improvement: 0pts >3dB & <=4 dB improvement: 1pts >5dB & <=6 dB improvement: 2pts >6 dB improvement: 3pts	3
6.2.16 The AHCU system should provide a better audio signal to noise ratio at the simulated ear (>3dB) as compared to the current ALSE combinations of: (2) 190A helmet with wired foam tipped CEPs;	Lab measurement of Noise without signal and Noise plus signal	3 dB improvement: 0pts >3dB & <=4 dB improvement: 1pts >5dB & <=6 dB improvement: 2pts >6 dB improvement: 3pts	3

6.2.19 {Mic} Should be able to be completely immersed in water column up to 3 metres in fresh and salt water, removed from water and continue to function	Bidder indicates level of success in meeting or exceeding ingress protection levels (submersible up to 1m) or (greater than 3m)	1 m/30min 0pts < 1 m/30min : 1pt < 3 m/30 min : 2pts	2
6.2.19 {CEP}The Headphone/CEP Should be able to be completely immersed in a water column up to 3 meters in fresh and salt water, removed from water and continue to function	Bidder indicates level of success in meeting or exceeding ingress protection levels submersible up to 1m or greater than 3m for 30 minutes. This will be compared to Lab testing results to determine scoring.	>1 m/30min 0pts <1 m/30min : 1pt <3 m/30 min : 2pts	2
6.2.20 The microphone Should be able to withstand being repeatedly encrusted in ice and re-thawed without causing loss of function	Canada's Testing results prove that the component is strongly resistant to icing conditions.	No: 0pts Yes: 5pt	5
6.2.21 All work to complete AHCU modification can be carried out in under 1 hour by a trained technician.	Bidder describes installation of components in detail and the work involved in physically applying the modification can be carried out in under 1 hour	No: 0pts Yes: 1pt	1
6.2.22 All work to complete AHCU mod can be done by a trained technician without soldering or crimping wires	Bidder describes installation of components in detail	No: 0pts Yes:1pt	1
6.2.23 The complete system(s) should be installable in the HGU56P and 190A (HGU-55) helmet with minimal further integration/engineering effort.	Does bidder provide wiring and recommended interconnect drawing the component.	No: 0pts Yes: 2pt	2
6.2.24 Does the system include a device to verify that it is fully functional electrically?	Bidder describes electrical test for their components in detail	No: 0pts Yes: 1pt	1
6.3.9. Exposed components must not combust, melt or drip after exposure to flames or flash fire equivalent to 87kW/m2* for a minimum of 3 seconds	Does the bidder provide test data or certification that the AHCU Components meet or exceed the standard described in CAN/CGSB-155.20-2017	No: 0pts Yes:1pt	1

		Total	50

ANNEX "E" to PART 5 OF THE BID SOLICITATION

FEDERAL CONTRACTORS PROGRAM FOR EMPLOYMENT EQUITY - CERTIFICATION

I, the Bidder, by submitting the present information to the Contracting Authority, certify that the information provided is true as of the date indicated below. The certifications provided to Canada are subject to verification at all times. I understand that Canada will declare a bid non-responsive, or will declare a contractor in default, if a certification is found to be untrue, whether during the bid evaluation period or during the contract period. Canada will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply with any request or requirement imposed by Canada may render the bid non-responsive or constitute a default under the Contract.

For further information on the Federal Contractors Program for Employment Equity visit Employment and Social Development Canada (ESDC)-Labour's website.

Date:_____(YYYY/MM/DD) (If left blank, the date will be deemed to be the bid solicitation closing date.)

Complete both A and B.

A. Check only one of the following:

( ) A1. The Bidder certifies having no work force in Canada.

( ) A2. The Bidder certifies being a public sector employer.

( ) A3. The Bidder certifies being a federally regulated employer being subject to the Employment Equity Act.

( ) A4. The Bidder certifies having a combined work force in Canada of less than 100 permanent full-time and/or permanent part-time employees.

A5. The Bidder has a combined workforce in Canada of 100 or more employees; and

( ) A5.1. The Bidder certifies already having a valid and current Agreement to Implement Employment Equity (AIEE) in place with ESDC-Labour.

OR

( ) A5.2. The Bidder certifies having submitted the Agreement to Implement Employment Equity (LAB1168) to ESDC-Labour. As this is a condition to contract award, proceed to completing the form Agreement to Implement Employment Equity (LAB1168), duly signing it, and transmit it to ESDC-Labour.

B. Check only one of the following:

( ) B1. The Bidder is not a Joint Venture.

OR

( ) B2. The Bidder is a Joint Venture and each member of the Joint Venture must provide the Contracting Authority with a completed annex Federal Contractors Program for Employment Equity - Certification. (Refer to the Joint Venture section of the Standard Instructions)